FINAL
ENVIRONMENTAL IMPACT REPORT

VOLUME IIA: ADDITIONAL APPENDICES (NOT INCLUDED IN FEIR VOL. II)

HEADLANDS DEVELOPMENT AND CONSERVATION PLAN

DANA POINT, CALIFORNIA

SCH#2001071015

Submitted to:

City Of Dana Point
Community Development Department
33282 Golden Lantern
Dana Point, California 92629

Prepared by:
LSA Associates, Inc.
One Park Plaza, Suite 500
Irvine, California 92614
(949) 553-0666

LSA Project No. HLR130

LSA

February, 2002

FINAL ENVIRONMENTAL IMPACT REPORT

HEADLANDS DEVELOPMENT AND CONSERVATION PLAN

The Final Environmental Impact Report for the Headlands Development and Conservation Plan is made up of the following four volumes:

Volume I: Environmental Impact Report

Notice of Availability
Notice of Completion
Chapter 1.0 Executive Summary
Chapter 2.0 Introduction
Chapter 3.0 Project Description
Chapter 4.0 Environmental Analysis
Chapter 5.0 Alternatives to The Proposed Project
Chapter 6.0 Long-Term Implications of The Project
Chapter 7.0 Mitigation Monitoring Program
Chapter 8.0 Organizations and Persons Contacted
Chapter 9.0 References
Chapter 10.0 List of Preparers

Volume II: Appendices

Appendix A – Initial Study and Notice of Preparation
Appendix B – Air Quality Model Data*
Appendix C – Terrestrial Biological Resources Assessment And Related Documents
Appendix D – Geotechnical Assessment And Related Documents
Appendix E – Phase I Environmental Site Assessment
Appendix F – Drainage Study*
Appendix G – Noise Model Data*
Appendix H – Traffic Study*
Appendix I – Public Service And Utility Correspondence
Appendix J – Coastal Processes Assessment And Related Documents
Appendix K – Water Quality Assessments And Related Documents
Appendix L – Marine Biological Resources Report
Appendix M – Resumes And Qualifications of Preparers

* Some or all of Appendices B, F, G, and H are contained in Volume IIA (as noted in Volume II) to reduce printing costs.

FINAL
ENVIRONMENTAL IMPACT REPORT

VOLUME IIA: ADDITIONAL APPENDICES (NOT INCLUDED IN FEIR VOL. II)

HEADLANDS DEVELOPMENT AND CONSERVATION PLAN

DANA POINT, CALIFORNIA

SCH#2001071015

Submitted to:

City Of Dana Point
Community Development Department
33282 Golden Lantern
Dana Point, California 92629

Prepared by:
LSA Associates, Inc.
One Park Plaza, Suite 500
Irvine, California 92614
(949) 553-0666

LSA Project No. HLR130

LSA

February, 2002

TABLE OF CONTENTS

ADDITIONAL APPENDICES
(NOT INCLUDED IN FEIR VOL. II)

APPENDIX B – AIR QUALITY MODEL DATA
APPENDIX F – DRAINAGE STUDY:
Appendix A – Rational Method Calculations – 100 Year Storm
Appendix B – Rational Method Calculations – 10 Year Storm
APPENDIX G – NOISE MODEL DATA
APPENDIX H – TRAFFIC STUDY
Appendices A-L

APPENDIX B

AIR QUALITY MODEL DATA

DANA POINT HEADLANDS PROJECT

AIR QUALITY REGIONAL EMISSIONS

URBEMIS7G MODEL PRINTOUTS

URBEMIS 7G: Version 3.2

File Name: HEADLAND.URB
Project Name: Dana Point Headlands Project
Project Location: South Coast Air Basin (Los Angeles area)

SUMMARY REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	179.72	56.40	421.39	26.31
TOTALS (ppd, mitigated)	179.06	47.30	421.29	26.29

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	78.96	94.06	686.95	22.48
TOTALS (ppd, mitigated)	78.96	94.06	686.95	22.48

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 1998 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
PA 2 Residential (TAZ	11.57 trips / dwelling unit	75.00	867.97
PA 6 Residential (TAZ	11.58 trips / dwelling unit	50.00	579.00
Park/Recreation (TAZ 2	3.67 trips / acre	28.60	105.00
Recreation/Open Space	10.00 trips / acre	5.20	52.00
Park/Recreation (TAZ 2	3.64 trips / acre	9.90	36.00
Seaside Inn	6.00 trips / Occupied room	65.00	390.00
Community Facility (TA	14.50 trips / 1000 sq. ft.	6.00	87.00
Visitor/Rec Commcial (	51.78 trips / 1000 sq. ft.	40.00	2,071.00
Park/Recreation (TAZ 2	3.66 trips / acre	12.30	45.00
Community Facility (TA	14.50 trips / 1000 sq. ft.	2.00	29.00
Visitor/Rec Commercial	25.92 trips / 1000 sq. ft.	13.00	337.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
PA 2 Residential (TAZ 250	19.90	26.96	179.20	6.89
PA 6 Residential (TAZ 257	13.27	17.99	119.54	4.60
Park/Recreation (TAZ 258)	2.25	2.29	14.54	0.56
Recreation/Open Space (TA	0.96	1.43	7.93	0.36
Park/Recreation (TAZ 250)	0.81	0.96	5.40	0.24
Seaside Inn	7.54	9.10	56.47	2.22
Community Facility (TAZ 2	1.35	1.63	11.38	0.38
Visitor/Rec Commcial (TAZ	26.06	24.14	234.17	4.90
Park/Recreation (TAZ 257)	0.84	0.47	4.95	0.09
Community Facility (TAZ 2	0.51	0.77	4.35	0.19
Visitor/Rec Commercial (T	5.46	8.31	49.02	2.06
	ROG	NOX	CO	PM10
TOTAL EMISSIONS (lbs/day)	78.96	94.06	686.95	22.48

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
PA 2 Residential (TAZ 250	19.90	26.96	179.20	6.89
PA 6 Residential (TAZ 257	13.27	17.99	119.54	4.60
Park/Recreation (TAZ 258)	2.25	2.29	14.54	0.56
Recreation/Open Space (TA	0.96	1.43	7.93	0.36
Park/Recreation (TAZ 250)	0.81	0.96	5.40	0.24
Seaside Inn	7.54	9.10	56.47	2.22
Community Facility (TAZ 2	1.35	1.63	11.38	0.38
Visitor/Rec Commcial (TAZ	26.06	24.14	234.17	4.90
Park/Recreation (TAZ 257)	0.84	0.47	4.95	0.09
Community Facility (TAZ 2	0.51	0.77	4.35	0.19
Visitor/Rec Commercial (T	5.46	8.31	49.02	2.06
	ROG	NOX	CO	PM10
TOTAL EMISSIONS (lbs/day)	78.96	94.06	686.95	22.48

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
15	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	Park and Ride Lots
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Changes made to the default values

The user has turned off the construction emissions default switch.

URBEMIS 7G: Version 3.2

File Name: HEADLAND.URB
Project Name: Dana Point Headlands Project
Project Location: South Coast Air Basin (Los Angeles area)

SUMMARY REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	8.50	12.14	15.20	0.06
TOTALS (ppd, mitigated)	7.84	3.04	15.11	0.04

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	52.26	85.03	353.88	22.48
TOTALS (ppd, mitigated)	52.26	85.03	353.88	22.48

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 1998 Temperature (F): 90 Season: Summer

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
PA 2 Residential (TAZ	11.57 trips / dwelling unit	75.00	867.97
PA 6 Residential (TAZ	11.58 trips / dwelling unit	50.00	579.00
Park/Recreation (TAZ 2	3.67 trips / acre	28.60	105.00
Recreation/Open Space	10.00 trips / acre	5.20	52.00
Park/Recreation (TAZ 2	3.64 trips / acre	9.90	36.00
Seaside Inn	6.00 trips / Occupied room	65.00	390.00
Community Facility (TA	14.50 trips / 1000 sq. ft.	6.00	87.00
Visitor/Rec Commcial (	51.78 trips / 1000 sq. ft.	40.00	2,071.00
Park/Recreation (TAZ 2	3.66 trips / acre	12.30	45.00
Community Facility (TA	14.50 trips / 1000 sq. ft.	2.00	29.00
Visitor/Rec Commercial	25.92 trips / 1000 sq. ft.	13.00	337.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
PA 2 Residential (TAZ 250	13.74	24.58	99.36	6.89
PA 6 Residential (TAZ 257	9.16	16.40	66.28	4.60
Park/Recreation (TAZ 258)	1.73	2.08	7.93	0.56
Recreation/Open Space (TA	0.70	1.30	4.67	0.36
Park/Recreation (TAZ 250)	0.64	0.87	3.15	0.24
Seaside Inn	5.55	8.24	31.20	2.22
Community Facility (TAZ 2	0.91	1.47	5.89	0.38
Visitor/Rec Commcial (TAZ	15.11	21.43	102.93	4.90
Park/Recreation (TAZ 257)	0.61	0.41	2.10	0.09
Community Facility (TAZ 2	0.36	0.70	2.53	0.19
Visitor/Rec Commercial (T	3.75	7.54	27.84	2.06
	ROG	NOx	CO	PM10
TOTAL EMISSIONS (lbs/day)	52.26	85.03	353.88	22.48

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
PA 2 Residential (TAZ 250	13.74	24.58	99.36	6.89
PA 6 Residential (TAZ 257	9.16	16.40	66.28	4.60
Park/Recreation (TAZ 258)	1.73	2.08	7.93	0.56
Recreation/Open Space (TA	0.70	1.30	4.67	0.36
Park/Recreation (TAZ 250)	0.64	0.87	3.15	0.24
Seaside Inn	5.55	8.24	31.20	2.22
Community Facility (TAZ 2	0.91	1.47	5.89	0.38
Visitor/Rec Commcial (TAZ	15.11	21.43	102.93	4.90
Park/Recreation (TAZ 257)	0.61	0.41	2.10	0.09
Community Facility (TAZ 2	0.36	0.70	2.53	0.19
Visitor/Rec Commercial (T	3.75	7.54	27.84	2.06
	ROG	NOx	CO	PM10
TOTAL EMISSIONS (lbs/day)	52.26	85.03	353.88	22.48

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
15	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
2	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	Park and Ride Lots
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Changes made to the default values

The user has turned off the construction emissions default switch.

DANA POINT HEADLANDS PROJECT

AIR QUALITY CO HOT SPOT ANALYSIS

CALINE4 MODEL PRINTOUTS

FUTURE BUILDOUT NO PROJECT

NP1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	9	-150	9	0	*	AG	1497	4.0	.0	13.5
B. PCH NBD	*	9	0	9	150	*	AG	1992	4.0	.0	10.0
C. PCH NBL	*	5	-150	0	0	*	AG	46	4.0	.0	10.0
D. PCH SBA	*	-12	150	-12	0	*	AG	1262	4.0	.0	13.5
E. PCH SBD	*	-12	0	-12	-150	*	AG	1737	4.0	.0	10.0
F. PCH SBL	*	-9	150	0	0	*	AG	800	4.0	.0	10.0
G. Crown EBA	*	-150	-2	0	-2	*	AG	86	4.0	.0	10.0
H. Crown EBD	*	0	-2	150	-2	*	AG	1366	4.0	.0	10.0
I. Crown EBL	*	-150	-2	0	0	*	AG	44	4.0	.0	10.0
J. Crown WBA	*	150	11	0	11	*	AG	1096	4.0	.0	10.0
K. Crown WBD	*	0	11	-150	11	*	AG	221	4.0	.0	10.0
L. Crown WBL	*	150	9	0	0	*	AG	485	4.0	.0	10.0
M. PCH NBAX	*	9	-750	9	-150	*	AG	1543	4.0	.0	13.5
N. PCH NBDX	*	9	150	9	750	*	AG	1992	4.0	.0	10.0
O. PCH SBAX	*	-12	750	-12	150	*	AG	2062	4.0	.0	13.5
P. PCH SBDX	*	-12	-150	-12	-750	*	AG	1737	4.0	.0	10.0
Q. Crown EBAX	*	-750	-2	-150	-2	*	AG	130	4.0	.0	10.0
R. Crown EBDX	*	150	-2	750	-2	*	AG	1366	4.0	.0	10.0
S. Crown WBAX	*	750	11	150	11	*	AG	1581	4.0	.0	10.0
T. Crown WBDX	*	-150	11	-750	11	*	AG	221	4.0	.0	10.0

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	2.0	.0	.8	.0	.1	.0	.1	.0	.3
2. NW	97.	1.7	.0	.2	.0	.3	.0	.1	.0	.2
3. SW	83.	1.8	.2	.0	.0	.0	.4	.0	.0	.5
4. NE	188.	1.9	.6	.3	.0	.0	.1	.0	.0	.2
5. ES mdblk	282.	1.3	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	93.	.8	.0	.0	.0	.0	.0	.0	.0	.1
7. WS mdblk	87.	.8	.0	.0	.0	.0	.0	.0	.0	.1
8. EN mdblk	258.	1.3	.0	.0	.0	.0	.0	.0	.0	.3
9. SE mdblk	354.	1.4	.7	.1	.0	.1	.0	.0	.0	.0
10. NW mdblk	170.	1.4	.1	.1	.0	.6	.0	.2	.0	.0
11. SW mdblk	8.	1.6	.1	.2	.0	.0	.9	.0	.0	.0
12. NE mdblk	188.	1.7	.0	1.0	.0	.0	.1	.1	.0	.0
13. ES blk	277.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	93.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	172.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.6	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	9	-150	9	0	*	AG	1224	4.0	.0	13.5
B. PCH NBD	*	9	0	9	150	*	AG	1483	4.0	.0	10.0
C. PCH NBL	*	5	-150	0	0	*	AG	170	4.0	.0	10.0
D. PCH SBA	*	-12	150	-12	0	*	AG	1419	4.0	.0	13.5
E. PCH SBD	*	-12	0	-12	-150	*	AG	1778	4.0	.0	10.0
F. PCH SBL	*	-9	150	0	0	*	AG	376	4.0	.0	10.0
G. Niguel EBA	*	-150	-9	0	-9	*	AG	371	4.0	.0	13.5
H. Niguel EBD	*	0	-9	150	-9	*	AG	941	4.0	.0	10.0
I. Niguel EBL	*	-150	-5	0	0	*	AG	276	4.0	.0	10.0
J. Niguel WBA	*	150	9	0	9	*	AG	671	4.0	.0	13.5
K. Niguel WBD	*	0	9	-150	9	*	AG	695	4.0	.0	10.0
L. Niguel WBL	*	150	5	0	0	*	AG	390	4.0	.0	10.0
M. PCH NBAX	*	9	-750	9	-150	*	AG	1394	4.0	.0	13.5
N. PCH NBDX	*	9	150	9	750	*	AG	1483	4.0	.0	10.0
O. PCH SBAX	*	-12	750	-12	150	*	AG	1795	4.0	.0	13.5
P. PCH SBDX	*	-12	-150	-12	-750	*	AG	1778	4.0	.0	10.0
Q. Niguel EBAX	*	-750	-9	-150	-9	*	AG	647	4.0	.0	13.5
R. Niguel EBDX	*	150	-9	750	-9	*	AG	941	4.0	.0	10.0
S. Niguel WBAX	*	750	9	150	9	*	AG	1061	4.0	.0	13.5
T. Niguel WBDX	*	-150	9	-750	9	*	AG	695	4.0	.0	10.0

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.6	.1	.6	.0	.1	.0	.0	.0	.2
2. NW	171.	1.5	.1	.0	.0	.2	.6	.0	.0	.0
3. SW	8.	1.6	.0	.1	.0	.6	.2	.0	.0	.0
4. NE	188.	1.6	.5	.2	.0	.0	.1	.0	.0	.1
5. ES mdblk	278.	1.0	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	96.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.8	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	262.	.9	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	1.3	.6	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.4	.1	.0	.0	.7	.0	.0	.0	.0
11. SW mdblk	8.	1.5	.0	.1	.0	.0	.9	.0	.0	.0
12. NE mdblk	188.	1.4	.0	.8	.0	.1	.1	.0	.0	.0
13. ES blk	277.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	172.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	11	-150	11	0	*	AG	1223	4.0	.0	17.0
B. PCH NBD	*	11	0	11	150	*	AG	1362	4.0	.0	13.5
C. PCH NBL	*	5	-150	0	0	*	AG	72	4.0	.0	10.0
D. PCH SBA	*	-9	150	-9	0	*	AG	1453	4.0	.0	13.5
E. PCH SBD	*	-9	0	-9	-150	*	AG	1501	4.0	.0	10.0
F. PCH SBL	*	-5	150	0	0	*	AG	221	4.0	.0	10.0
G. Selva EBA	*	-150	-5	0	-5	*	AG	76	4.0	.0	11.8
H. Selva EBD	*	0	-5	150	-5	*	AG	333	4.0	.0	10.0
I. Selva EBL	*	-150	-2	0	0	*	AG	56	4.0	.0	10.0
J. Selva WBA	*	150	5	0	5	*	AG	201	4.0	.0	11.8
K. Selva WBD	*	0	5	-150	5	*	AG	162	4.0	.0	10.0
L. Selva WBL	*	150	2	0	0	*	AG	56	4.0	.0	10.0
M. PCH NBAX	*	11	-750	11	-150	*	AG	1295	4.0	.0	17.0
N. PCH NBDX	*	11	150	11	750	*	AG	1362	4.0	.0	13.5
O. PCH SBAX	*	-9	750	-9	150	*	AG	1674	4.0	.0	13.5
P. PCH SBDX	*	-9	-150	-9	-750	*	AG	1501	4.0	.0	10.0
Q. Selva EBAX	*	-750	-5	-150	-5	*	AG	132	4.0	.0	11.8
R. Selva EBDX	*	150	-5	750	-5	*	AG	333	4.0	.0	10.0
S. Selva WBAX	*	750	5	150	5	*	AG	257	4.0	.0	11.8
T. Selva WBDX	*	-150	5	-750	5	*	AG	162	4.0	.0	10.0

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.2	.0	.5	.0	.1	.0	.0	.0	.0
2. NW	172.	1.2	.1	.0	.0	.0	.6	.0	.0	.0
3. SW	7.	1.4	.0	.1	.0	.7	.1	.0	.0	.0
4. NE	352.	1.2	.0	.6	.0	.0	.0	.0	.0	.0
5. ES mdblk	278.	.5	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	95.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	85.	.4	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	263.	.4	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	1.1	.5	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.3	.1	.0	.0	.7	.0	.0	.0	.0
11. SW mdblk	7.	1.3	.0	.1	.0	.0	.8	.0	.0	.0
12. NE mdblk	188.	1.2	.0	.7	.0	.1	.1	.0	.0	.0
13. ES blk	276.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Green L NBA	*	0	-150	0	0	* AG	0	4.0	.0	10.0
B. Green L NBD	*	0	0	0	150	* AG	0	4.0	.0	10.0
C. Green L NBL	*	2	-150	0	0	* AG	0	4.0	.0	10.0
D. Green L SBA	*	0	150	0	0	* AG	0	4.0	.0	10.0
E. Green L SBD	*	0	0	0	-150	* AG	83	4.0	.0	10.0
F. Green L SBL	*	-2	150	0	0	* AG	0	4.0	.0	10.0
G. PCH EBA	*	-150	-4	0	-4	* AG	1531	4.0	.0	10.0
H. PCH EBD	*	0	-4	150	-4	* AG	1448	4.0	.0	10.0
I. PCH EBL	*	-150	-2	0	0	* AG	0	4.0	.0	10.0
J. PCH WBA	*	150	4	0	4	* AG	1290	4.0	.0	10.0
K. PCH WBD	*	0	4	-150	4	* AG	1290	4.0	.0	10.0
L. PCH WBL	*	150	2	0	0	* AG	0	4.0	.0	10.0
M. Green L NBAX	*	0	-750	0	-150	* AG	0	4.0	.0	10.0
N. Green L NBDX	*	0	150	0	750	* AG	0	4.0	.0	10.0
O. Green L SBAX	*	0	750	0	150	* AG	0	4.0	.0	10.0
P. Green L SBDX	*	0	-150	0	-750	* AG	83	4.0	.0	10.0
Q. PCH EBAX	*	-750	-4	-150	-4	* AG	1531	4.0	.0	10.0
R. PCH EBDX	*	150	-4	750	-4	* AG	1488	4.0	.0	10.0
S. PCH WBAX	*	750	4	150	4	* AG	1290	4.0	.0	10.0
T. PCH WBDX	*	-150	4	-750	4	* AG	1290	4.0	.0	10.0

□□

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	1.4	.0	.0	.0	.0	.0	.0	.7	.0
2. NW	263.	1.3	.0	.0	.0	.0	.0	.0	.3	.0
3. SW	277.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
4. NE	263.	1.3	.0	.0	.0	.0	.0	.0	.3	.0
5. ES mdblk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	97.	1.3	.0	.0	.0	.0	.0	.0	.3	.1
7. WS mdblk	83.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	263.	1.3	.0	.0	.0	.0	.0	.0	.1	.3
9. SE mdblk	293.	.2	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	113.	.2	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	67.	.2	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	247.	.2	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	277.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	219.	.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	5.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	219.	.1	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Blue L NBA	*	7	-150	7	0	*	AG	121	4.0	.0	10.0
B. Blue L NBD	*	7	0	7	150	*	AG	112	4.0	.0	10.0
C. Blue L NBL	*	5	-150	0	0	*	AG	98	4.0	.0	10.0
D. Blue L SBA	*	-7	150	-7	0	*	AG	39	4.0	.0	10.0
E. Blue L SBD	*	-7	0	-7	-150	*	AG	169	4.0	.0	10.0
F. Blue L SBL	*	-5	150	0	0	*	AG	31	4.0	.0	10.0
G. PCH EBA	*	-150	-7	0	-7	*	AG	1458	4.0	.0	10.0
H. PCH EBD	*	0	-7	150	-7	*	AG	1553	4.0	.0	10.0
I. PCH EBL	*	-150	-5	0	0	*	AG	26	4.0	.0	10.0
J. PCH WBA	*	150	9	0	9	*	AG	1255	4.0	.0	13.5
K. PCH WBD	*	0	9	-150	9	*	AG	1309	4.0	.0	10.0
L. PCH WBL	*	150	5	0	0	*	AG	115	4.0	.0	10.0
M. Blue L NBAX	*	7	-750	7	-150	*	AG	219	4.0	.0	10.0
N. Blue L NBDX	*	7	150	7	750	*	AG	112	4.0	.0	10.0
O. Blue L SBAX	*	-7	750	-7	150	*	AG	70	4.0	.0	10.0
P. Blue L SBDX	*	-7	-150	-7	-750	*	AG	169	4.0	.0	10.0
Q. PCH EBAX	*	-750	-7	-150	-7	*	AG	1484	4.0	.0	10.0
R. PCH EBDX	*	150	-7	750	-7	*	AG	1553	4.0	.0	10.0
S. PCH WBAX	*	750	9	150	9	*	AG	1370	4.0	.0	13.5
T. PCH WBDX	*	-150	9	-750	9	*	AG	1309	4.0	.0	10.0

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.3	.0	.0	.0	.0	.0	.0	.6	.2
2. NW	97.	1.2	.0	.0	.0	.0	.0	.0	.0	.2
3. SW	82.	1.4	.0	.0	.0	.0	.0	.0	.1	.7
4. NE	262.	1.1	.0	.0	.0	.0	.0	.0	.2	.0
5. ES mdblk	278.	1.3	.0	.0	.0	.0	.0	.0	.0	.8
6. WN mdblk	97.	1.2	.0	.0	.0	.0	.0	.0	.1	.1
7. WS mdblk	83.	1.3	.0	.0	.0	.0	.0	.0	.7	.0
8. EN mdblk	262.	1.2	.0	.0	.0	.0	.0	.0	.1	.1
9. SE mdblk	352.	.4	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	175.	.3	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	8.	.4	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	185.	.3	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	175.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.2	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	7	-150	7	0	* AG	670	4.0	.0	10.0
B. Gold L NBD	*	7	0	7	150	* AG	1164	4.0	.0	10.0
C. Gold L NBL	*	5	-150	0	0	* AG	261	4.0	.0	10.0
D. Gold L SBA	*	-5	150	-5	0	* AG	1778	4.0	.0	13.5
E. Gold L SBD	*	-5	0	-5	-150	* AG	1912	4.0	.0	13.5
F. Gold L SBL	*	-2	150	0	0	* AG	0	4.0	.0	10.0
G. PCH W EBA	*	-150	0	0	0	* AG	0	4.0	.0	10.0
H. PCH W EBD	*	0	0	150	0	* AG	0	4.0	.0	10.0
I. PCH W EBL	*	-150	-2	0	0	* AG	0	4.0	.0	10.0
J. PCH W WBA	*	150	11	0	11	* AG	1513	4.0	.0	17.0
K. PCH W WBD	*	0	11	-150	11	* AG	1484	4.0	.0	13.5
L. PCH W WBL	*	150	5	0	0	* AG	338	4.0	.0	10.0
M. Gold L NBAX	*	7	-750	7	-150	* AG	931	4.0	.0	10.0
N. Gold L NBDX	*	7	150	7	750	* AG	1164	4.0	.0	10.0
O. Gold L SBAX	*	-5	750	-5	150	* AG	1778	4.0	.0	13.5
P. Gold L SBDX	*	-5	-150	-5	-750	* AG	1912	4.0	.0	13.5
Q. PCH W EBAX	*	-750	0	-150	0	* AG	0	4.0	.0	10.0
R. PCH W EBDX	*	150	0	750	0	* AG	0	4.0	.0	10.0
S. PCH W WBAX	*	750	11	150	11	* AG	1851	4.0	.0	17.0
T. PCH W WBDX	*	-150	11	-750	11	* AG	1484	4.0	.0	13.5

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	1.5	.0	.6	.0	.3	.0	.0	.0	.0
2. NW	172.	1.7	.1	.0	.0	.2	.7	.0	.0	.0
3. SW	7.	1.5	.0	.1	.0	.8	.0	.0	.0	.0
4. NE	188.	1.5	.3	.2	.0	.0	.3	.0	.0	.0
5. ES mdblk	278.	.8	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	96.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.7	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	262.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	1.2	.4	.0	.1	.2	.3	.0	.0	.0
10. NW mdblk	173.	1.4	.0	.1	.0	.8	.1	.0	.0	.0
11. SW mdblk	7.	1.5	.0	.1	.0	.1	.9	.0	.0	.0
12. NE mdblk	187.	1.3	.0	.6	.0	.2	.2	.0	.0	.0
13. ES blk	277.	.7	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.6	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.3	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

NP7

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	5	-150	5	0	*	AG	865	4.0	.0	13.5
B. Gold L NBD	*	5	0	5	150	*	AG	1016	4.0	.0	10.0
C. Gold L NBL	*	2	-150	0	0	*	AG	0	4.0	.0	10.0
D. Gold L SBA	*	-11	150	-11	0	*	AG	1011	4.0	.0	10.0
E. Gold L SBD	*	-11	0	-11	-150	*	AG	1297	4.0	.0	10.0
F. Gold L SBL	*	-9	150	0	0	*	AG	821	4.0	.0	10.0
G. PCH W EBA	*	-150	-11	0	-11	*	AG	1406	4.0	.0	17.0
H. PCH W EBD	*	0	-11	150	-11	*	AG	2007	4.0	.0	13.5
I. PCH W EBL	*	-150	-2	0	0	*	AG	217	4.0	.0	10.0
J. PCH W WBA	*	150	0	0	0	*	AG	0	4.0	.0	10.0
K. PCH W WBD	*	0	0	-150	0	*	AG	0	4.0	.0	10.0
L. PCH W WBL	*	150	2	0	0	*	AG	0	4.0	.0	10.0
M. Gold L NBAX	*	5	-750	5	-150	*	AG	865	4.0	.0	13.5
N. Gold L NBDX	*	5	150	5	750	*	AG	1016	4.0	.0	10.0
O. Gold L SBAX	*	-11	750	-11	150	*	AG	1832	4.0	.0	10.0
P. Gold L SBDX	*	-11	-150	-11	-750	*	AG	1297	4.0	.0	10.0
Q. PCH W EBAX	*	-750	-11	-150	-11	*	AG	1623	4.0	.0	17.0
R. PCH W EBDX	*	150	-11	750	-11	*	AG	2007	4.0	.0	13.5
S. PCH W WBAX	*	750	0	150	0	*	AG	0	4.0	.0	10.0
T. PCH W WBDX	*	-150	0	-750	0	*	AG	0	4.0	.0	10.0

□□

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.6	.1	.4	.0	.1	.0	.2	.0	.5
2. NW	173.	1.3	.1	.0	.0	.0	.6	.0	.2	.0
3. SW	8.	1.5	.0	.1	.0	.4	.2	.2	.3	.0
4. NE	187.	1.2	.5	.0	.0	.0	.1	.0	.0	.3
5. ES mdblk	278.	1.2	.0	.0	.0	.0	.0	.0	.0	.9
6. WN mdblk	97.	.8	.0	.0	.0	.0	.0	.0	.3	.2
7. WS mdblk	84.	1.0	.0	.0	.0	.0	.0	.0	.6	.1
8. EN mdblk	262.	.7	.0	.0	.0	.0	.0	.0	.1	.4
9. SE mdblk	353.	1.0	.4	.0	.0	.0	.1	.0	.0	.0
10. NW mdblk	171.	1.3	.0	.1	.0	.6	.0	.3	.0	.0
11. SW mdblk	7.	1.3	.0	.0	.0	.0	.7	.0	.0	.0
12. NE mdblk	188.	1.2	.0	.6	.0	.1	.1	.2	.0	.0
13. ES blk	276.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.6	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.7	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Dana Pt NBA	*	7	-150	7	0	*	AG	1074	4.0	.0	10.0
B. Dana Pt NBD	*	7	0	7	150	*	AG	1143	4.0	.0	10.0
C. Dana Pt NBL	*	5	-150	0	0	*	AG	33	4.0	.0	10.0
D. Dana Pt SBA	*	-11	150	-11	0	*	AG	399	4.0	.0	10.0
E. Dana Pt SBD	*	-11	0	-11	-150	*	AG	838	4.0	.0	10.0
F. Dana Pt SBL	*	-9	150	0	0	*	AG	271	4.0	.0	10.0
G. PCH EBA	*	-150	-9	0	-9	*	AG	1827	4.0	.0	13.5
H. PCH EBD	*	0	-9	150	-9	*	AG	2927	4.0	.0	10.0
I. PCH EBL	*	-150	-5	0	0	*	AG	297	4.0	.0	10.0
J. PCH WBA	*	150	11	0	11	*	AG	2477	4.0	.0	10.0
K. PCH WBD	*	0	11	-150	11	*	AG	2100	4.0	.0	10.0
L. PCH WBL	*	150	9	0	0	*	AG	630	4.0	.0	10.0
M. Dana Pt NBAX	*	7	-750	7	-150	*	AG	1107	4.0	.0	10.0
N. Dana Pt NBDX	*	7	150	7	750	*	AG	1143	4.0	.0	10.0
O. Dana Pt SBAX	*	-11	750	-11	150	*	AG	670	4.0	.0	10.0
P. Dana Pt SBDX	*	-11	-150	-11	-750	*	AG	838	4.0	.0	10.0
Q. PCH EBAX	*	-750	-9	-150	-9	*	AG	2124	4.0	.0	13.5
R. PCH EBDX	*	150	-9	750	-9	*	AG	2927	4.0	.0	10.0
S. PCH WBAX	*	750	11	150	11	*	AG	3107	4.0	.0	10.0
T. PCH WBDX	*	-150	11	-750	11	*	AG	2100	4.0	.0	10.0

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	81.	2.1	.0	.0	.0	.0	.0	.0	.0	1.4
2. NW	98.	2.3	.0	.1	.0	.1	.0	.0	.0	.2
3. SW	81.	2.2	.1	.0	.0	.0	.2	.0	.2	.9
4. NE	262.	2.1	.0	.3	.0	.0	.0	.0	.2	.0
5. ES mdblk	279.	2.2	.0	.0	.0	.0	.0	.0	.0	1.4
6. WN mdblk	98.	1.9	.0	.0	.0	.0	.0	.0	.1	.2
7. WS mdblk	82.	1.8	.0	.0	.0	.0	.0	.0	.9	.1
8. EN mdblk	261.	2.2	.0	.0	.0	.0	.0	.0	.2	.2
9. SE mdblk	353.	1.2	.6	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	1.0	.1	.1	.0	.2	.0	.1	.0	.0
11. SW mdblk	8.	1.1	.1	.1	.0	.0	.5	.0	.0	.0
12. NE mdblk	187.	1.2	.0	.6	.0	.0	.0	.0	.0	.0
13. ES blk	278.	2.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	98.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.7	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	262.	2.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.9	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.1	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	11	-150	11	0	*	AG	946	4.0	.0	17.0
B. Gold L NBD	*	11	0	11	150	*	AG	961	4.0	.0	13.5
C. Gold L NBL	*	5	-150	0	0	*	AG	52	4.0	.0	10.0
D. Gold L SBA	*	-11	150	-11	0	*	AG	1408	4.0	.0	17.0
E. Gold L SBD	*	-11	0	-11	-150	*	AG	1468	4.0	.0	13.5
F. Gold L SBL	*	-5	150	0	0	*	AG	94	4.0	.0	10.0
G. Selva EBA	*	-150	-7	0	-7	*	AG	179	4.0	.0	10.0
H. Selva EBD	*	0	-7	150	-7	*	AG	390	4.0	.0	10.0
I. Selva EBL	*	-150	-5	0	0	*	AG	87	4.0	.0	10.0
J. Selva WBA	*	150	7	0	7	*	AG	176	4.0	.0	10.0
K. Selva WBD	*	0	7	-150	7	*	AG	196	4.0	.0	10.0
L. Selva WBL	*	150	5	0	0	*	AG	73	4.0	.0	10.0
M. Gold L NBAX	*	11	-750	11	-150	*	AG	998	4.0	.0	17.0
N. Gold L NBDX	*	11	150	11	750	*	AG	961	4.0	.0	13.5
O. Gold L SBAX	*	-11	750	-11	150	*	AG	1502	4.0	.0	17.0
P. Gold L SBDX	*	-11	-150	-11	-750	*	AG	1468	4.0	.0	13.5
Q. Selva EBAX	*	-750	-7	-150	-7	*	AG	266	4.0	.0	10.0
R. Selva EBDX	*	150	-7	750	-7	*	AG	390	4.0	.0	10.0
S. Selva WBAX	*	750	7	150	7	*	AG	249	4.0	.0	10.0
T. Selva WBDX	*	-150	7	-750	7	*	AG	196	4.0	.0	10.0

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.0	.0	.4	.0	.1	.0	.0	.0	.1
2. NW	172.	1.1	.0	.0	.0	.0	.5	.0	.0	.0
3. SW	7.	1.2	.0	.0	.0	.6	.0	.0	.0	.0
4. NE	188.	1.0	.4	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	277.	.5	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	96.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.4	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	263.	.4	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	.9	.4	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.1	.0	.0	.0	.6	.0	.0	.0	.0
11. SW mdblk	8.	1.2	.0	.0	.0	.0	.7	.0	.0	.0
12. NE mdblk	188.	1.0	.0	.5	.0	.0	.1	.0	.0	.0
13. ES blk	276.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.9	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.0	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	7	-150	7	0	*	AG	387	4.0	.0	10.0
B. Gold L NBD	*	7	0	7	150	*	AG	693	4.0	.0	10.0
C. Gold L NBL	*	5	-150	0	0	*	AG	15	4.0	.0	10.0
D. Gold L SBA	*	-7	150	-7	0	*	AG	431	4.0	.0	10.0
E. Gold L SBD	*	-7	0	-7	-150	*	AG	234	4.0	.0	10.0
F. Gold L SBL	*	-5	150	0	0	*	AG	641	4.0	.0	10.0
G. Dana Pt EBA	*	-150	-9	0	-9	*	AG	478	4.0	.0	13.5
H. Dana Pt EBD	*	0	-9	150	-9	*	AG	1208	4.0	.0	10.0
I. Dana Pt EBL	*	-150	-5	0	0	*	AG	176	4.0	.0	10.0
J. Dana Pt WBA	*	150	9	0	9	*	AG	710	4.0	.0	13.5
K. Dana Pt WBD	*	0	9	-150	9	*	AG	827	4.0	.0	10.0
L. Dana Pt WBL	*	150	5	0	0	*	AG	124	4.0	.0	10.0
M. Gold L NBAX	*	7	-750	7	-150	*	AG	402	4.0	.0	10.0
N. Gold L NBDX	*	7	150	7	750	*	AG	693	4.0	.0	10.0
O. Gold L SBAX	*	-7	750	-7	150	*	AG	1072	4.0	.0	10.0
P. Gold L SBDX	*	-7	-150	-7	-750	*	AG	234	4.0	.0	10.0
Q. Dana Pt EBAX	*	-750	-9	-150	-9	*	AG	654	4.0	.0	13.5
R. Dana Pt EBDX	*	150	-9	750	-9	*	AG	1208	4.0	.0	10.0
S. Dana Pt WBAX	*	750	9	150	9	*	AG	834	4.0	.0	13.5
T. Dana Pt WBDX	*	-150	9	-750	9	*	AG	827	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-15	1.8
2. NW	*	-14	15	1.8
3. SW	*	-14	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	1.2	.0	.3	.0	.0	.0	.1	.0	.3
2. NW	97.	1.2	.0	.0	.0	.1	.0	.1	.0	.1
3. SW	82.	1.0	.0	.0	.0	.0	.0	.0	.0	.5
4. NE	262.	1.0	.0	.2	.0	.0	.0	.1	.0	.0
5. ES mdblk	278.	1.1	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	96.	.9	.0	.0	.0	.0	.0	.0	.0	.1
7. WS mdblk	83.	.7	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	262.	.8	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	355.	.7	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	169.	.9	.0	.1	.0	.3	.0	.3	.0	.0
11. SW mdblk	5.	.6	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	189.	.8	.0	.4	.0	.0	.0	.1	.0	.0
13. ES blk	277.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.7	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.5	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.8	.0	.0	.0	.0	.0	.0	.0	.0

□□

JOB: Headlands Build out No Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	*	.0	.0	.3	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	*	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.7	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.4	.3	.0	.0	.0	.0	.0

□□

DANA POINT HEADLANDS PROJECT

AIR QUALITY CO HOT SPOT ANALYSIS

CALINE4 MODEL PRINTOUTS

FUTURE BUILDOUT WITH PROJECT

WP1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	9	-150	9	0	*	AG	1529	4.0	.0	13.5
B. PCH NBD	*	9	0	9	150	*	AG	2006	4.0	.0	10.0
C. PCH NBL	*	5	-150	0	0	*	AG	46	4.0	.0	10.0
D. PCH SBA	*	-12	150	-12	0	*	AG	1280	4.0	.0	13.5
E. PCH SBD	*	-12	0	-12	-150	*	AG	1777	4.0	.0	10.0
F. PCH SBL	*	-9	150	0	0	*	AG	800	4.0	.0	10.0
G. Crown EBA	*	-150	-2	0	-2	*	AG	86	4.0	.0	10.0
H. Crown EBD	*	0	-2	150	-2	*	AG	1384	4.0	.0	10.0
I. Crown EBL	*	-150	-2	0	0	*	AG	44	4.0	.0	10.0
J. Crown WBA	*	150	11	0	11	*	AG	1096	4.0	.0	10.0
K. Crown WBD	*	0	11	-150	11	*	AG	221	4.0	.0	10.0
L. Crown WBL	*	150	9	0	0	*	AG	507	4.0	.0	10.0
M. PCH NBAX	*	9	-750	9	-150	*	AG	1575	4.0	.0	13.5
N. PCH NBDX	*	9	150	9	750	*	AG	2006	4.0	.0	10.0
O. PCH SBAX	*	-12	750	-12	150	*	AG	2080	4.0	.0	13.5
P. PCH SBDX	*	-12	-150	-12	-750	*	AG	1777	4.0	.0	10.0
Q. Crown EBAX	*	-750	-2	-150	-2	*	AG	130	4.0	.0	10.0
R. Crown EBDX	*	150	-2	750	-2	*	AG	1384	4.0	.0	10.0
S. Crown WBAX	*	750	11	150	11	*	AG	1603	4.0	.0	10.0
T. Crown WBDX	*	-150	11	-750	11	*	AG	221	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-8	1.8
2. NW	-21	17	1.8
3. SW	-19	-8	1.8
4. NE	15	17	1.8
5. ES mdblk	150	-8	1.8
6. WN mdblk	-150	17	1.8
7. WS mdblk	-150	-8	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-21	150	1.8
11. SW mdblk	-19	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-8	1.8
14. WN blk	-600	17	1.8
15. WS blk	-600	-8	1.8
16. EN blk	600	17	1.8
17. SE blk	17	-600	1.8
18. NW blk	-21	600	1.8
19. SW blk	-19	-600	1.8
20. NE blk	15	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	2.0	.0	.8	.0	.1	.0	.1	.0	.4
2. NW	97.	1.7	.0	.2	.0	.3	.0	.1	.0	.2
3. SW	83.	1.9	.2	.0	.0	.0	.4	.0	.0	.5
4. NE	188.	1.9	.6	.3	.0	.0	.1	.0	.0	.2
5. ES mdblk	282.	1.3	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	93.	.8	.0	.0	.0	.0	.0	.0	.0	.1
7. WS mdblk	87.	.8	.0	.0	.0	.0	.0	.0	.0	.1
8. EN mdblk	258.	1.3	.0	.0	.0	.0	.0	.0	.0	.3
9. SE mdblk	353.	1.4	.7	.1	.0	.1	.0	.0	.0	.0
10. NW mdblk	170.	1.4	.1	.1	.0	.6	.0	.2	.0	.0
11. SW mdblk	8.	1.6	.1	.2	.0	.0	.9	.0	.0	.0
12. NE mdblk	188.	1.7	.0	1.0	.0	.0	.1	.1	.0	.0
13. ES blk	277.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	93.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	172.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.6	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.2	.0	.1	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.4	.0	.1	.0	.0	.0	.0	.0	.2	.1	.0
3. SW	*	.0	.2	.0	.2	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	*	.0	.3	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.1	.1	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
8. EN mdblk	*	.0	.6	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.9	.0
17. SE blk	*	.0	.0	.0	.0	.9	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.1	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	1.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	1.1	.4	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	9	-150	9	0	*	AG	1287	4.0	.0	13.5
B. PCH NBD	*	9	0	9	150	*	AG	1517	4.0	.0	10.0
C. PCH NBL	*	5	-150	0	0	*	AG	174	4.0	.0	10.0
D. PCH SBA	*	-12	150	-12	0	*	AG	1459	4.0	.0	13.5
E. PCH SBD	*	-12	0	-12	-150	*	AG	1859	4.0	.0	10.0
F. PCH SBL	*	-9	150	0	0	*	AG	376	4.0	.0	10.0
G. Niguel EBA	*	-150	-9	0	-9	*	AG	375	4.0	.0	13.5
H. Niguel EBD	*	0	-9	150	-9	*	AG	972	4.0	.0	10.0
I. Niguel EBL	*	-150	-5	0	0	*	AG	278	4.0	.0	10.0
J. Niguel WBA	*	150	9	0	9	*	AG	671	4.0	.0	13.5
K. Niguel WBD	*	0	9	-150	9	*	AG	699	4.0	.0	10.0
L. Niguel WBL	*	150	5	0	0	*	AG	427	4.0	.0	10.0
M. PCH NBAX	*	9	-750	9	-150	*	AG	1461	4.0	.0	13.5
N. PCH NBDX	*	9	150	9	750	*	AG	1517	4.0	.0	10.0
O. PCH SBAX	*	-12	750	-12	150	*	AG	1835	4.0	.0	13.5
P. PCH SBDX	*	-12	-150	-12	-750	*	AG	1859	4.0	.0	10.0
Q. Niguel EBAX	*	-750	-9	-150	-9	*	AG	653	4.0	.0	13.5
R. Niguel EBDX	*	150	-9	750	-9	*	AG	972	4.0	.0	10.0
S. Niguel WBAX	*	750	9	150	9	*	AG	1098	4.0	.0	13.5
T. Niguel WBDX	*	-150	9	-750	9	*	AG	699	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-15	1.8
2. NW	*	-21	15	1.8
3. SW	*	-19	-17	1.8
4. NE	*	15	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-21	150	1.8
11. SW mdblk	*	-19	-150	1.8
12. NE mdblk	*	15	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-21	600	1.8
19. SW blk	*	-19	-600	1.8
20. NE blk	*	15	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.7	.1	.6	.0	.1	.0	.0	.0	.2
2. NW	171.	1.6	.1	.0	.0	.2	.7	.0	.0	.0
3. SW	8.	1.6	.0	.1	.0	.6	.3	.0	.0	.0
4. NE	188.	1.6	.5	.2	.0	.0	.1	.0	.0	.1
5. ES mdblk	278.	1.1	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	96.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.8	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	262.	.9	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	1.3	.6	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.4	.1	.0	.0	.7	.0	.0	.0	.0
11. SW mdblk	8.	1.6	.0	.1	.0	.0	.9	.0	.0	.0
12. NE mdblk	188.	1.4	.0	.8	.0	.1	.1	.0	.0	.0
13. ES blk	277.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	352.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	172.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.4	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.4
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	.1
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.6	.0
17. SE blk	*	.0	.0	.0	.0	.8	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	1.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.9	.3	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	11	-150	11	0	*	AG	1281	4.0	.0	17.0
B. PCH NBD	*	11	0	11	150	*	AG	1430	4.0	.0	13.5
C. PCH NBL	*	5	-150	0	0	*	AG	95	4.0	.0	10.0
D. PCH SBA	*	-9	150	-9	0	*	AG	1538	4.0	.0	13.5
E. PCH SBD	*	-9	0	-9	-150	*	AG	1580	4.0	.0	10.0
F. PCH SBL	*	-5	150	0	0	*	AG	221	4.0	.0	10.0
G. Selva EBA	*	-150	-5	0	-5	*	AG	93	4.0	.0	11.8
H. Selva EBD	*	0	-5	150	-5	*	AG	343	4.0	.0	10.0
I. Selva EBL	*	-150	-2	0	0	*	AG	73	4.0	.0	10.0
J. Selva WBA	*	150	5	0	5	*	AG	205	4.0	.0	11.8
K. Selva WBD	*	0	5	-150	5	*	AG	219	4.0	.0	10.0
L. Selva WBL	*	150	2	0	0	*	AG	66	4.0	.0	10.0
M. PCH NBAX	*	11	-750	11	-150	*	AG	1376	4.0	.0	17.0
N. PCH NBDX	*	11	150	11	750	*	AG	1430	4.0	.0	13.5
O. PCH SBAX	*	-9	750	-9	150	*	AG	1759	4.0	.0	13.5
P. PCH SBDX	*	-9	-150	-9	-750	*	AG	1580	4.0	.0	10.0
Q. Selva EBAX	*	-750	-5	-150	-5	*	AG	166	4.0	.0	11.8
R. Selva EBDX	*	150	-5	750	-5	*	AG	343	4.0	.0	10.0
S. Selva WBAX	*	750	5	150	5	*	AG	271	4.0	.0	11.8
T. Selva WBDX	*	-150	5	-750	5	*	AG	162	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	21	-12	1.8
2. NW	*	-17	12	1.8
3. SW	*	-15	-13	1.8
4. NE	*	19	13	1.8
5. ES mdblk	*	150	-12	1.8
6. WN mdblk	*	-150	12	1.8
7. WS mdblk	*	-150	-13	1.8
8. EN mdblk	*	150	13	1.8
9. SE mdblk	*	21	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-15	-150	1.8
12. NE mdblk	*	19	150	1.8
13. ES blk	*	600	-12	1.8
14. WN blk	*	-600	12	1.8
15. WS blk	*	-600	-13	1.8
16. EN blk	*	600	13	1.8
17. SE blk	*	21	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-15	-600	1.8
20. NE blk	*	19	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.2	.0	.5	.0	.1	.0	.0	.0	.0
2. NW	171.	1.3	.1	.0	.0	.1	.6	.0	.0	.0
3. SW	7.	1.4	.0	.1	.0	.7	.1	.0	.0	.0
4. NE	187.	1.2	.5	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	277.	.5	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	95.	.5	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	263.	.5	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	1.1	.6	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.3	.1	.1	.0	.8	.0	.0	.0	.0
11. SW mdblk	7.	1.4	.1	.1	.0	.0	.8	.0	.0	.0
12. NE mdblk	188.	1.2	.0	.7	.0	.1	.1	.0	.0	.0
13. ES blk	276.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.3	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
17. SE blk	*	.0	.0	.0	.0	.7	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.9	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.8	.3	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Green L NBA	*	0	-150	0	0	* AG	0	4.0	.0	10.0
B. Green L NBD	*	0	0	0	150	* AG	0	4.0	.0	10.0
C. Green L NBL	*	2	-150	0	0	* AG	0	4.0	.0	10.0
D. Green L SBA	*	0	150	0	0	* AG	0	4.0	.0	10.0
E. Green L SBD	*	0	0	0	-150	* AG	94	4.0	.0	10.0
F. Green L SBL	*	-2	150	0	0	* AG	0	4.0	.0	10.0
G. PCH EBA	*	-150	-4	0	-4	* AG	1619	4.0	.0	10.0
H. PCH EBD	*	0	-4	150	-4	* AG	1525	4.0	.0	10.0
I. PCH EBL	*	-150	-2	0	0	* AG	0	4.0	.0	10.0
J. PCH WBA	*	150	4	0	4	* AG	1403	4.0	.0	10.0
K. PCH WBD	*	0	4	-150	4	* AG	1403	4.0	.0	10.0
L. PCH WBL	*	150	2	0	0	* AG	0	4.0	.0	10.0
M. Green L NBAX	*	0	-750	0	-150	* AG	0	4.0	.0	10.0
N. Green L NBDX	*	0	150	0	750	* AG	0	4.0	.0	10.0
O. Green L SBAX	*	0	750	0	150	* AG	0	4.0	.0	10.0
P. Green L SBDX	*	0	-150	0	-750	* AG	94	4.0	.0	10.0
Q. PCH EBAX	*	-750	-4	-150	-4	* AG	1619	4.0	.0	10.0
R. PCH EBDX	*	150	-4	750	-4	* AG	1525	4.0	.0	10.0
S. PCH WBAX	*	750	4	150	4	* AG	1403	4.0	.0	10.0
T. PCH WBDX	*	-150	4	-750	4	* AG	1290	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	7	-10	1.8
2. NW	*	-7	10	1.8
3. SW	*	-7	-10	1.8
4. NE	*	7	10	1.8
5. ES mdblk	*	150	-10	1.8
6. WN mdblk	*	-150	10	1.8
7. WS mdblk	*	-150	-10	1.8
8. EN mdblk	*	150	10	1.8
9. SE mdblk	*	7	-150	1.8
10. NW mdblk	*	-7	150	1.8
11. SW mdblk	*	-7	-150	1.8
12. NE mdblk	*	7	150	1.8
13. ES blk	*	600	-10	1.8
14. WN blk	*	-600	10	1.8
15. WS blk	*	-600	-10	1.8
16. EN blk	*	600	10	1.8
17. SE blk	*	7	-600	1.8
18. NW blk	*	-7	600	1.8
19. SW blk	*	-7	-600	1.8
20. NE blk	*	7	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
2. NW	263.	1.4	.0	.0	.0	.0	.0	.0	.3	.0
3. SW	277.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
4. NE	263.	1.3	.0	.0	.0	.0	.0	.0	.3	.0
5. ES mdblk	277.	1.4	.0	.0	.0	.0	.0	.0	.0	.8
6. WN mdblk	97.	1.4	.0	.0	.0	.0	.0	.0	.3	.1
7. WS mdblk	83.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	263.	1.4	.0	.0	.0	.0	.0	.0	.1	.3
9. SE mdblk	293.	.2	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	113.	.2	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	67.	.2	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	247.	.2	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	277.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	141.	.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	5.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	141.	.1	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.3	.0	.0	.0	.0	.0	.1	.0	.0	.2
2. NW	*	.0	.0	.7	.0	.0	.0	.0	.0	.2	.0	.0	.1
3. SW	*	.0	.0	.3	.0	.0	.0	.0	.0	.1	.0	.0	.2
4. NE	*	.0	.0	.7	.0	.0	.0	.0	.0	.2	.0	.0	.1
5. ES mdblk	*	.0	.3	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.9	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.8	.0
17. SE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Blue L NBA	*	7	-150	7	0	*	AG	140	4.0	.0	10.0
B. Blue L NBD	*	7	0	7	150	*	AG	126	4.0	.0	10.0
C. Blue L NBL	*	5	-150	0	0	*	AG	111	4.0	.0	10.0
D. Blue L SBA	*	-7	150	-7	0	*	AG	58	4.0	.0	10.0
E. Blue L SBD	*	-7	0	-7	-150	*	AG	184	4.0	.0	10.0
F. Blue L SBL	*	-5	150	0	0	*	AG	31	4.0	.0	10.0
G. PCH EBA	*	-150	-7	0	-7	*	AG	1525	4.0	.0	10.0
H. PCH EBD	*	0	-7	150	-7	*	AG	1635	4.0	.0	10.0
I. PCH EBL	*	-150	-5	0	0	*	AG	36	4.0	.0	10.0
J. PCH WBA	*	150	9	0	9	*	AG	1339	4.0	.0	13.5
K. PCH WBD	*	0	9	-150	9	*	AG	1422	4.0	.0	10.0
L. PCH WBL	*	150	5	0	0	*	AG	127	4.0	.0	10.0
M. Blue L NBAX	*	7	-750	7	-150	*	AG	251	4.0	.0	10.0
N. Blue L NBDX	*	7	150	7	750	*	AG	126	4.0	.0	10.0
O. Blue L SBAX	*	-7	750	-7	150	*	AG	89	4.0	.0	10.0
P. Blue L SBDX	*	-7	-150	-7	-750	*	AG	184	4.0	.0	10.0
Q. PCH EBAX	*	-750	-7	-150	-7	*	AG	1561	4.0	.0	10.0
R. PCH EBDX	*	150	-7	750	-7	*	AG	1635	4.0	.0	10.0
S. PCH WBAX	*	750	9	150	9	*	AG	1466	4.0	.0	13.5
T. PCH WBDX	*	-150	9	-750	9	*	AG	1309	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	15	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.4	.0	.0	.0	.0	.0	.0	.6	.2
2. NW	97.	1.3	.0	.0	.0	.0	.0	.0	.0	.2
3. SW	82.	1.4	.0	.0	.0	.0	.0	.0	.2	.7
4. NE	262.	1.2	.0	.0	.0	.0	.0	.0	.2	.0
5. ES mdblk	278.	1.4	.0	.0	.0	.0	.0	.0	.0	.8
6. WN mdblk	97.	1.3	.0	.0	.0	.0	.0	.0	.1	.1
7. WS mdblk	83.	1.3	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	262.	1.2	.0	.0	.0	.0	.0	.0	.1	.1
9. SE mdblk	352.	.4	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	175.	.3	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	8.	.4	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	185.	.4	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	277.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.3	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.2	.0	.0	.0	.0	.0	.1	.0	.0	.2
2. NW	*	.0	.6	.1	.0	.0	.0	.0	.0	.0	.2	.1	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	*	.0	.1	.6	.0	.0	.0	.0	.0	.2	.0	.0	.1
5. ES mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.7	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9	.3	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.9	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.8	.0
17. SE blk	*	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	7	-150	7	0	*	AG	680	4.0	.0	10.0
B. Gold L NBD	*	7	0	7	150	*	AG	1174	4.0	.0	10.0
C. Gold L NBL	*	5	-150	0	0	*	AG	259	4.0	.0	10.0
D. Gold L SBA	*	-5	150	-5	0	*	AG	1728	4.0	.0	13.5
E. Gold L SBD	*	-5	0	-5	-150	*	AG	1852	4.0	.0	13.5
F. Gold L SBL	*	-2	150	0	0	*	AG	0	4.0	.0	10.0
G. PCH W EBA	*	-150	0	0	0	*	AG	0	4.0	.0	10.0
H. PCH W EBD	*	0	0	150	0	*	AG	0	4.0	.0	10.0
I. PCH W EBL	*	-150	-2	0	0	*	AG	0	4.0	.0	10.0
J. PCH W WBA	*	150	11	0	11	*	AG	1578	4.0	.0	17.0
K. PCH W WBD	*	0	11	-150	11	*	AG	1557	4.0	.0	13.5
L. PCH W WBL	*	150	5	0	0	*	AG	338	4.0	.0	10.0
M. Gold L NBAX	*	7	-750	7	-150	*	AG	939	4.0	.0	10.0
N. Gold L NBDX	*	7	150	7	750	*	AG	1174	4.0	.0	10.0
O. Gold L SBAX	*	-5	750	-5	150	*	AG	1728	4.0	.0	13.5
P. Gold L SBDX	*	-5	-150	-5	-750	*	AG	1852	4.0	.0	13.5
Q. PCH W EBAX	*	-750	0	-150	0	*	AG	0	4.0	.0	10.0
R. PCH W EBDX	*	150	0	750	0	*	AG	0	4.0	.0	10.0
S. PCH W WBAX	*	750	11	150	11	*	AG	1916	4.0	.0	17.0
T. PCH W WBDX	*	-150	11	-750	11	*	AG	1484	4.0	.0	13.5

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

	RECEPTOR	*	COORDINATES (M) X	Y	Z
1.	SE	*	14	-7	1.8
2.	NW	*	-14	19	1.8
3.	SW	*	-14	-7	1.8
4.	NE	*	14	21	1.8
5.	ES mdblk	*	150	-7	1.8
6.	WN mdblk	*	-150	19	1.8
7.	WS mdblk	*	-150	-7	1.8
8.	EN mdblk	*	150	21	1.8
9.	SE mdblk	*	14	-150	1.8
10.	NW mdblk	*	-14	150	1.8
11.	SW mdblk	*	-14	-150	1.8
12.	NE mdblk	*	14	150	1.8
13.	ES blk	*	600	-7	1.8
14.	WN blk	*	-600	19	1.8
15.	WS blk	*	-600	-7	1.8
16.	EN blk	*	600	21	1.8
17.	SE blk	*	14	-600	1.8
18.	NW blk	*	-14	600	1.8
19.	SW blk	*	-14	-600	1.8
20.	NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	1.5	.0	.6	.0	.2	.0	.0	.0	.0
2. NW	172.	1.7	.1	.0	.0	.2	.7	.0	.0	.0
3. SW	7.	1.5	.0	.1	.0	.8	.0	.0	.0	.0
4. NE	188.	1.6	.3	.2	.0	.0	.3	.0	.0	.0
5. ES mdblk	278.	.8	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	96.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.7	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	262.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	1.2	.4	.0	.1	.1	.3	.0	.0	.0
10. NW mdblk	173.	1.4	.0	.1	.0	.8	.1	.0	.0	.0
11. SW mdblk	7.	1.5	.0	.1	.0	.1	.9	.0	.0	.0
12. NE mdblk	187.	1.3	.0	.6	.0	.2	.2	.0	.0	.0
13. ES blk	277.	.7	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.6	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.3	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.3	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.4	.0	.1	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.3	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	*	.0	.4	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.3	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.1	.7	.0	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	*	.0	.1	.3	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0
17. SE blk	*	.0	.0	.0	.0	.6	.0	.0	.5	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	.9	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	1.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.7	.4	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	5	-150	5	0	*	AG	873	4.0	.0	13.5
B. Gold L NBD	*	5	0	5	150	*	AG	1034	4.0	.0	10.0
C. Gold L NBL	*	2	-150	0	0	*	AG	0	4.0	.0	10.0
D. Gold L SBA	*	-11	150	-11	0	*	AG	1011	4.0	.0	10.0
E. Gold L SBD	*	-11	0	-11	-150	*	AG	1305	4.0	.0	10.0
F. Gold L SBL	*	-9	150	0	0	*	AG	821	4.0	.0	10.0
G. PCH W EBA	*	-150	-11	0	-11	*	AG	1469	4.0	.0	17.0
H. PCH W EBD	*	0	-11	150	-11	*	AG	2062	4.0	.0	13.5
I. PCH W EBL	*	-150	-2	0	0	*	AG	227	4.0	.0	10.0
J. PCH W WBA	*	150	0	0	0	*	AG	0	4.0	.0	10.0
K. PCH W WBD	*	0	0	-150	0	*	AG	0	4.0	.0	10.0
L. PCH W WBL	*	150	2	0	0	*	AG	0	4.0	.0	10.0
M. Gold L NBAX	*	5	-750	5	-150	*	AG	873	4.0	.0	13.5
N. Gold L NBDX	*	5	150	5	750	*	AG	1034	4.0	.0	10.0
O. Gold L SBAX	*	-11	750	-11	150	*	AG	1832	4.0	.0	10.0
P. Gold L SBDX	*	-11	-150	-11	-750	*	AG	1305	4.0	.0	10.0
Q. PCH W EBAX	*	-750	-11	-150	-11	*	AG	1696	4.0	.0	17.0
R. PCH W EBDX	*	150	-11	750	-11	*	AG	2062	4.0	.0	13.5
S. PCH W WBAX	*	750	0	150	0	*	AG	0	4.0	.0	10.0
T. PCH W WBDX	*	-150	0	-750	0	*	AG	0	4.0	.0	10.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-19	1.8
2. NW	*	-17	7	1.8
3. SW	*	-17	-21	1.8
4. NE	*	12	7	1.8
5. ES mdblk	*	150	-19	1.8
6. WN mdblk	*	-150	7	1.8
7. WS mdblk	*	-150	-21	1.8
8. EN mdblk	*	150	7	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-17	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-19	1.8
14. WN blk	*	-600	7	1.8
15. WS blk	*	-600	-21	1.8
16. EN blk	*	600	7	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-17	-600	1.8
20. NE blk	*	12	600	1.8



CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.6	.1	.4	.0	.1	.0	.2	.0	.5
2. NW	173.	1.3	.1	.0	.0	.0	.6	.0	.2	.0
3. SW	8.	1.6	.0	.1	.0	.4	.2	.2	.3	.0
4. NE	263.	1.2	.0	.3	.0	.1	.0	.2	.3	.0
5. ES mdblk	278.	1.3	.0	.0	.0	.0	.0	.0	.0	1.0
6. WN mdblk	97.	.8	.0	.0	.0	.0	.0	.0	.3	.2
7. WS mdblk	84.	1.0	.0	.0	.0	.0	.0	.0	.6	.1
8. EN mdblk	262.	.7	.0	.0	.0	.0	.0	.0	.1	.4
9. SE mdblk	353.	1.0	.4	.0	.0	.0	.1	.0	.0	.0
10. NW mdblk	171.	1.3	.0	.1	.0	.6	.0	.3	.0	.0
11. SW mdblk	7.	1.3	.0	.0	.0	.0	.7	.0	.0	.0
12. NE mdblk	188.	1.2	.0	.6	.0	.1	.1	.2	.0	.0
13. ES blk	276.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.7	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.7	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
4. NE	*	.1	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
8. EN mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.1	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.9	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0
17. SE blk	*	.0	.0	.0	.0	.5	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	1.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.8	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.6	.4	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Dana Pt NBA	*	7	-150	7	0	* AG	1078	4.0	.0	10.0
B. Dana Pt NBD	*	7	0	7	150	* AG	1147	4.0	.0	10.0
C. Dana Pt NBL	*	5	-150	0	0	* AG	33	4.0	.0	10.0
D. Dana Pt SBA	*	-11	150	-11	0	* AG	403	4.0	.0	10.0
E. Dana Pt SBD	*	-11	0	-11	-150	* AG	842	4.0	.0	10.0
F. Dana Pt SBL	*	-9	150	0	0	* AG	271	4.0	.0	10.0
G. PCH EBA	*	-150	-9	0	-9	* AG	1870	4.0	.0	13.5
H. PCH EBD	*	0	-9	150	-9	* AG	2972	4.0	.0	10.0
I. PCH EBL	*	-150	-5	0	0	* AG	299	4.0	.0	10.0
J. PCH WBA	*	150	11	0	11	* AG	2530	4.0	.0	10.0
K. PCH WBD	*	0	11	-150	11	* AG	2155	4.0	.0	10.0
L. PCH WBL	*	150	9	0	0	* AG	632	4.0	.0	10.0
M. Dana Pt NBAX	*	7	-750	7	-150	* AG	1111	4.0	.0	10.0
N. Dana Pt NBDX	*	7	150	7	750	* AG	1147	4.0	.0	10.0
O. Dana Pt SBAX	*	-11	750	-11	150	* AG	674	4.0	.0	10.0
P. Dana Pt SBDX	*	-11	-150	-11	-750	* AG	842	4.0	.0	10.0
Q. PCH EBAX	*	-750	-9	-150	-9	* AG	2169	4.0	.0	13.5
R. PCH EBDX	*	150	-9	750	-9	* AG	2972	4.0	.0	10.0
S. PCH WBAX	*	750	11	150	11	* AG	3162	4.0	.0	10.0
T. PCH WBDX	*	-150	11	-750	11	* AG	2100	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-15	1.8
2. NW	*	-17	17	1.8
3. SW	*	-17	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	17	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-17	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	17	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-17	-600	1.8
20. NE blk	*	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	81.	2.2	.0	.0	.0	.0	.0	.0	.0	1.4
2. NW	98.	2.3	.0	.1	.0	.1	.0	.0	.0	.2
3. SW	81.	2.3	.1	.0	.0	.0	.2	.0	.2	.9
4. NE	261.	2.1	.0	.3	.0	.0	.0	.0	.2	.0
5. ES mdblk	279.	2.2	.0	.0	.0	.0	.0	.0	.0	1.4
6. WN mdblk	98.	1.9	.0	.0	.0	.0	.0	.0	.2	.2
7. WS mdblk	82.	1.8	.0	.0	.0	.0	.0	.0	.9	.1
8. EN mdblk	261.	2.2	.0	.0	.0	.0	.0	.0	.2	.2
9. SE mdblk	353.	1.2	.6	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	1.0	.1	.1	.0	.2	.0	.1	.0	.0
11. SW mdblk	8.	1.1	.1	.1	.0	.0	.5	.0	.0	.0
12. NE mdblk	187.	1.2	.0	.6	.0	.0	.0	.0	.0	.0
13. ES blk	278.	2.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	98.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.7	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	262.	2.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.9	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.1	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.1	.4	.0
2. NW	*	.0	.9	.3	.2	.0	.0	.0	.0	.0	.3	.2	.0
3. SW	*	.0	.2	.0	.1	.0	.0	.0	.0	.0	.1	.3	.0
4. NE	*	.0	.3	.8	.0	.0	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	*	.0	.2	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	1.1	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	*	.0	1.2	.0	.3	.0	.0	.0	.0	.1	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.5	.5	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	1.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	1.1	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	1.6	.0
17. SE blk	*	.0	.0	.0	.0	.7	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.4	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.5	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.7	.2	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	11	-150	11	0	*	AG	952	4.0	.0	17.0
B. Gold L NBD	*	11	0	11	150	*	AG	963	4.0	.0	13.5
C. Gold L NBL	*	5	-150	0	0	*	AG	52	4.0	.0	10.0
D. Gold L SBA	*	-11	150	-11	0	*	AG	1410	4.0	.0	17.0
E. Gold L SBD	*	-11	0	-11	-150	*	AG	1474	4.0	.0	13.5
F. Gold L SBL	*	-5	150	0	0	*	AG	94	4.0	.0	10.0
G. Selva EBA	*	-150	-7	0	-7	*	AG	179	4.0	.0	10.0
H. Selva EBD	*	0	-7	150	-7	*	AG	394	4.0	.0	10.0
I. Selva EBL	*	-150	-5	0	0	*	AG	87	4.0	.0	10.0
J. Selva WBA	*	150	7	0	7	*	AG	176	4.0	.0	10.0
K. Selva WBD	*	0	7	-150	7	*	AG	196	4.0	.0	10.0
L. Selva WBL	*	150	5	0	0	*	AG	77	4.0	.0	10.0
M. Gold L NBAX	*	11	-750	11	-150	*	AG	1004	4.0	.0	17.0
N. Gold L NBDX	*	11	150	11	750	*	AG	963	4.0	.0	13.5
O. Gold L SBAX	*	-11	750	-11	150	*	AG	1504	4.0	.0	17.0
P. Gold L SBDX	*	-11	-150	-11	-750	*	AG	1474	4.0	.0	13.5
Q. Selva EBAX	*	-750	-7	-150	-7	*	AG	266	4.0	.0	10.0
R. Selva EBDX	*	150	-7	750	-7	*	AG	394	4.0	.0	10.0
S. Selva WBAX	*	750	7	150	7	*	AG	253	4.0	.0	10.0
T. Selva WBDX	*	-150	7	-750	7	*	AG	196	4.0	.0	10.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	21	-14	1.8
2. NW	*	-21	14	1.8
3. SW	*	-19	-14	1.8
4. NE	*	19	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	21	-150	1.8
10. NW mdblk	*	-21	150	1.8
11. SW mdblk	*	-19	-150	1.8
12. NE mdblk	*	19	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	21	-600	1.8
18. NW blk	*	-21	600	1.8
19. SW blk	*	-19	-600	1.8
20. NE blk	*	19	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.0	.0	.4	.0	.1	.0	.0	.0	.1
2. NW	172.	1.1	.0	.0	.0	.0	.5	.0	.0	.0
3. SW	7.	1.2	.0	.0	.0	.6	.1	.0	.0	.0
4. NE	188.	1.0	.4	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	277.	.5	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	96.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.5	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	263.	.4	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	.9	.4	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.1	.0	.0	.0	.6	.0	.0	.0	.0
11. SW mdblk	8.	1.2	.0	.0	.0	.0	.7	.0	.0	.0
12. NE mdblk	188.	1.0	.0	.5	.0	.0	.1	.0	.0	.0
13. ES blk	276.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.9	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.0	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
17. SE blk	*	.0	.0	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.8	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.8	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.6	.3	.0	.0	.0	.0	.0

□□

WP10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	7	-150	7	0	* AG	391	4.0	.0	10.0
B. Gold L NBD	*	7	0	7	150	* AG	697	4.0	.0	10.0
C. Gold L NBL	*	5	-150	0	0	* AG	17	4.0	.0	10.0
D. Gold L SBA	*	-7	150	-7	0	* AG	435	4.0	.0	10.0
E. Gold L SBD	*	-7	0	-7	-150	* AG	240	4.0	.0	10.0
F. Gold L SBL	*	-5	150	0	0	* AG	641	4.0	.0	10.0
G. Dana Pt EBA	*	-150	-9	0	-9	* AG	484	4.0	.0	13.5
H. Dana Pt EBD	*	0	-9	150	-9	* AG	1212	4.0	.0	10.0
I. Dana Pt EBL	*	-150	-5	0	0	* AG	176	4.0	.0	10.0
J. Dana Pt WBA	*	150	9	0	9	* AG	714	4.0	.0	13.5
K. Dana Pt WBD	*	0	9	-150	9	* AG	833	4.0	.0	10.0
L. Dana Pt WBL	*	150	5	0	0	* AG	124	4.0	.0	10.0
M. Gold L NBAX	*	7	-750	7	-150	* AG	408	4.0	.0	10.0
N. Gold L NBDX	*	7	150	7	750	* AG	697	4.0	.0	10.0
O. Gold L SBAX	*	-7	750	-7	150	* AG	1076	4.0	.0	10.0
P. Gold L SBDX	*	-7	-150	-7	-750	* AG	240	4.0	.0	10.0
Q. Dana Pt EBAX	*	-750	-9	-150	-9	* AG	660	4.0	.0	13.5
R. Dana Pt EBDX	*	150	-9	750	-9	* AG	1212	4.0	.0	10.0
S. Dana Pt WBAX	*	750	9	150	9	* AG	838	4.0	.0	13.5
T. Dana Pt WBDX	*	-150	9	-750	9	* AG	827	4.0	.0	10.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-15	1.8
2. NW	*	-14	15	1.8
3. SW	*	-14	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	1.2	.0	.3	.0	.0	.0	.1	.0	.3
2. NW	97.	1.2	.0	.0	.0	.1	.0	.1	.0	.1
3. SW	82.	1.0	.0	.0	.0	.0	.0	.0	.0	.5
4. NE	262.	1.0	.0	.2	.0	.0	.0	.1	.0	.0
5. ES mdblk	278.	1.1	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	96.	.9	.0	.0	.0	.0	.0	.0	.0	.1
7. WS mdblk	83.	.7	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	262.	.8	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	355.	.7	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	169.	.9	.0	.1	.0	.3	.0	.3	.0	.0
11. SW mdblk	5.	.6	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	189.	.8	.0	.4	.0	.0	.0	.1	.0	.0
13. ES blk	277.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.7	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.5	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.8	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.1	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	*	.0	.0	.3	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	*	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.7	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.4	.3	.0	.0	.0	.0	.0

□□

DANA POINT HEADLANDS PROJECT

AIR QUALITY CO HOT SPOT ANALYSIS

CALINE4 MODEL PRINTOUTS

FUTURE BUILDOUT NO PROJECT - SUMMER

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	9	-150	9	0	*	AG	1649	4.0	.0	13.5
B. PCH NBD	*	9	0	9	150	*	AG	2191	4.0	.0	10.0
C. PCH NBL	*	5	-150	0	0	*	AG	50	4.0	.0	10.0
D. PCH SBA	*	-12	150	-12	0	*	AG	1389	4.0	.0	13.5
E. PCH SBD	*	-12	0	-12	-150	*	AG	1913	4.0	.0	10.0
F. PCH SBL	*	-9	150	0	0	*	AG	880	4.0	.0	10.0
G. Crown EBA	*	-150	-2	0	-2	*	AG	93	4.0	.0	10.0
H. Crown EBD	*	0	-2	150	-2	*	AG	1503	4.0	.0	10.0
I. Crown EBL	*	-150	-2	0	0	*	AG	48	4.0	.0	10.0
J. Crown WBA	*	150	11	0	11	*	AG	1204	4.0	.0	10.0
K. Crown WBD	*	0	11	-150	11	*	AG	241	4.0	.0	10.0
L. Crown WBL	*	150	9	0	0	*	AG	535	4.0	.0	10.0
M. PCH NBAX	*	9	-750	9	-150	*	AG	1699	4.0	.0	13.5
N. PCH NBDX	*	9	150	9	750	*	AG	2191	4.0	.0	10.0
O. PCH SBAX	*	-12	750	-12	150	*	AG	2269	4.0	.0	13.5
P. PCH SBDX	*	-12	-150	-12	-750	*	AG	1913	4.0	.0	10.0
Q. Crown EBAX	*	-750	-2	-150	-2	*	AG	141	4.0	.0	10.0
R. Crown EBDX	*	150	-2	750	-2	*	AG	1503	4.0	.0	10.0
S. Crown WBAX	*	750	11	150	11	*	AG	1739	4.0	.0	10.0
T. Crown WBDX	*	-150	11	-750	11	*	AG	241	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-8	1.8
2. NW	*	-21	17	1.8
3. SW	*	-19	-8	1.8
4. NE	*	15	17	1.8
5. ES mdblk	*	150	-8	1.8
6. WN mdblk	*	-150	17	1.8
7. WS mdblk	*	-150	-8	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-21	150	1.8
11. SW mdblk	*	-19	-150	1.8
12. NE mdblk	*	15	150	1.8
13. ES blk	*	600	-8	1.8
14. WN blk	*	-600	17	1.8
15. WS blk	*	-600	-8	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-21	600	1.8
19. SW blk	*	-19	-600	1.8
20. NE blk	*	15	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	2.2	.0	.8	.0	.1	.0	.2	.0	.4
2. NW	97.	1.8	.0	.2	.0	.3	.0	.1	.0	.2
3. SW	83.	2.0	.2	.0	.0	.0	.5	.0	.0	.6
4. NE	188.	2.1	.6	.3	.0	.0	.1	.0	.0	.2
5. ES mdblk	282.	1.4	.0	.0	.0	.0	.0	.0	.0	.8
6. WN mdblk	93.	.9	.0	.0	.0	.0	.0	.0	.0	.1
7. WS mdblk	87.	.8	.0	.0	.0	.0	.0	.0	.0	.1
8. EN mdblk	258.	1.4	.0	.0	.0	.0	.0	.0	.0	.3
9. SE mdblk	353.	1.5	.8	.1	.0	.1	.0	.0	.0	.0
10. NW mdblk	170.	1.5	.1	.1	.0	.7	.0	.2	.0	.0
11. SW mdblk	8.	1.7	.1	.2	.0	.0	1.0	.0	.0	.0
12. NE mdblk	188.	1.8	.0	1.1	.0	.1	.2	.1	.0	.0
13. ES blk	277.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	93.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	172.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.7	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.2	.0	.1	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.5	.0	.1	.0	.0	.0	.0	.0	.2	.1	.0
3. SW	*	.0	.2	.0	.2	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	*	.0	.3	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.1	.1	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
8. EN mdblk	*	.0	.7	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	1.0	.0
17. SE blk	*	.0	.0	.0	.0	.9	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.2	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	1.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	1.2	.4	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	9	-150	9	0	*	AG	1351	4.0	.0	13.5
B. PCH NBD	*	9	0	9	150	*	AG	1635	4.0	.0	10.0
C. PCH NBL	*	5	-150	0	0	*	AG	187	4.0	.0	10.0
D. PCH SBA	*	-12	150	-12	0	*	AG	1564	4.0	.0	13.5
E. PCH SBD	*	-12	0	-12	-150	*	AG	1962	4.0	.0	10.0
F. PCH SBL	*	-9	150	0	0	*	AG	413	4.0	.0	10.0
G. Niguel EBA	*	-150	-9	0	-9	*	AG	407	4.0	.0	13.5
H. Niguel EBD	*	0	-9	150	-9	*	AG	1036	4.0	.0	10.0
I. Niguel EBL	*	-150	-5	0	0	*	AG	305	4.0	.0	10.0
J. Niguel WBA	*	150	9	0	9	*	AG	738	4.0	.0	13.5
K. Niguel WBD	*	0	9	-150	9	*	AG	764	4.0	.0	10.0
L. Niguel WBL	*	150	5	0	0	*	AG	432	4.0	.0	10.0
M. PCH NBAX	*	9	-750	9	-150	*	AG	1538	4.0	.0	13.5
N. PCH NBDX	*	9	150	9	750	*	AG	1635	4.0	.0	10.0
O. PCH SBAX	*	-12	750	-12	150	*	AG	1977	4.0	.0	13.5
P. PCH SBDX	*	-12	-150	-12	-750	*	AG	1962	4.0	.0	10.0
Q. Niguel EBAX	*	-750	-9	-150	-9	*	AG	712	4.0	.0	13.5
R. Niguel EBDX	*	150	-9	750	-9	*	AG	1036	4.0	.0	10.0
S. Niguel WBAX	*	750	9	150	9	*	AG	1170	4.0	.0	13.5
T. Niguel WBDX	*	-150	9	-750	9	*	AG	764	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-15	1.8
2. NW	*	-21	15	1.8
3. SW	*	-19	-17	1.8
4. NE	*	15	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-21	150	1.8
11. SW mdblk	*	-19	-150	1.8
12. NE mdblk	*	15	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-21	600	1.8
19. SW blk	*	-19	-600	1.8
20. NE blk	*	15	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.7	.2	.6	.0	.1	.0	.0	.0	.3
2. NW	171.	1.6	.1	.0	.0	.2	.7	.0	.0	.0
3. SW	8.	1.7	.0	.1	.0	.6	.3	.0	.0	.0
4. NE	188.	1.7	.5	.2	.0	.0	.1	.0	.0	.1
5. ES mdblk	278.	1.1	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	96.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.9	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	262.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	1.4	.7	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.5	.1	.0	.0	.8	.0	.1	.0	.0
11. SW mdblk	8.	1.6	.0	.1	.0	.0	1.0	.0	.0	.0
12. NE mdblk	188.	1.5	.0	.8	.0	.1	.2	.0	.0	.0
13. ES blk	277.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.9	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	352.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	172.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.5	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.1	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.4	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.3	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.7	.0
17. SE blk	*	.0	.0	.0	.0	.9	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.1	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	1.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.9	.4	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	11	-150	11	0	*	AG	1350	4.0	.0	17.0
B. PCH NBD	*	11	0	11	150	*	AG	1503	4.0	.0	13.5
C. PCH NBL	*	5	-150	0	0	*	AG	81	4.0	.0	10.0
D. PCH SBA	*	-9	150	-9	0	*	AG	1605	4.0	.0	13.5
E. PCH SBD	*	-9	0	-9	-150	*	AG	1657	4.0	.0	10.0
F. PCH SBL	*	-5	150	0	0	*	AG	243	4.0	.0	10.0
G. Selva EBA	*	-150	-5	0	-5	*	AG	84	4.0	.0	11.8
H. Selva EBD	*	0	-5	150	-5	*	AG	366	4.0	.0	10.0
I. Selva EBL	*	-150	-2	0	0	*	AG	62	4.0	.0	10.0
J. Selva WBA	*	150	5	0	5	*	AG	221	4.0	.0	11.8
K. Selva WBD	*	0	5	-150	5	*	AG	182	4.0	.0	10.0
L. Selva WBL	*	150	2	0	0	*	AG	62	4.0	.0	10.0
M. PCH NBAX	*	11	-750	11	-150	*	AG	1431	4.0	.0	17.0
N. PCH NBDX	*	11	150	11	750	*	AG	1503	4.0	.0	13.5
O. PCH SBAX	*	-9	750	-9	150	*	AG	1848	4.0	.0	13.5
P. PCH SBDX	*	-9	-150	-9	-750	*	AG	1657	4.0	.0	10.0
Q. Selva EBAX	*	-750	-5	-150	-5	*	AG	146	4.0	.0	11.8
R. Selva EBDX	*	150	-5	750	-5	*	AG	366	4.0	.0	10.0
S. Selva WBAX	*	750	5	150	5	*	AG	283	4.0	.0	11.8
T. Selva WBDX	*	-150	5	-750	5	*	AG	162	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	21	-12	1.8
2. NW	*	-17	12	1.8
3. SW	*	-15	-13	1.8
4. NE	*	19	13	1.8
5. ES mdblk	*	150	-12	1.8
6. WN mdblk	*	-150	12	1.8
7. WS mdblk	*	-150	-13	1.8
8. EN mdblk	*	150	13	1.8
9. SE mdblk	*	21	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-15	-150	1.8
12. NE mdblk	*	19	150	1.8
13. ES blk	*	600	-12	1.8
14. WN blk	*	-600	12	1.8
15. WS blk	*	-600	-13	1.8
16. EN blk	*	600	13	1.8
17. SE blk	*	21	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-15	-600	1.8
20. NE blk	*	19	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.3	.0	.6	.0	.1	.0	.0	.0	.0
2. NW	171.	1.3	.1	.0	.0	.1	.6	.0	.0	.0
3. SW	7.	1.5	.0	.1	.0	.7	.1	.0	.0	.0
4. NE	352.	1.3	.0	.7	.0	.0	.0	.0	.0	.0
5. ES mdblk	278.	.5	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	95.	.5	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	85.	.4	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	263.	.5	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	1.2	.6	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.4	.1	.1	.0	.8	.0	.0	.0	.0
11. SW mdblk	8.	1.4	.1	.1	.0	.0	.8	.0	.0	.0
12. NE mdblk	188.	1.3	.0	.7	.0	.1	.1	.0	.0	.0
13. ES blk	276.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.3	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.1	.3	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.1	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
17. SE blk	*	.0	.0	.0	.0	.7	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.9	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.8	.3	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Green L NBA	*	0	-150	0	0	* AG	0	4.0	.0	10.0
B. Green L NBD	*	0	0	0	150	* AG	0	4.0	.0	10.0
C. Green L NBL	*	2	-150	0	0	* AG	0	4.0	.0	10.0
D. Green L SBA	*	0	150	0	0	* AG	0	4.0	.0	10.0
E. Green L SBD	*	0	0	0	-150	* AG	92	4.0	.0	10.0
F. Green L SBL	*	-2	150	0	0	* AG	0	4.0	.0	10.0
G. PCH EBA	*	-150	-4	0	-4	* AG	1692	4.0	.0	10.0
H. PCH EBD	*	0	-4	150	-4	* AG	1600	4.0	.0	10.0
I. PCH EBL	*	-150	-2	0	0	* AG	0	4.0	.0	10.0
J. PCH WBA	*	150	4	0	4	* AG	1430	4.0	.0	10.0
K. PCH WBD	*	0	4	-150	4	* AG	1430	4.0	.0	10.0
L. PCH WBL	*	150	2	0	0	* AG	0	4.0	.0	10.0
M. Green L NBAX	*	0	-750	0	-150	* AG	0	4.0	.0	10.0
N. Green L NBDX	*	0	150	0	750	* AG	0	4.0	.0	10.0
O. Green L SBAX	*	0	750	0	150	* AG	0	4.0	.0	10.0
P. Green L SBDX	*	0	-150	0	-750	* AG	92	4.0	.0	10.0
Q. PCH EBAX	*	-750	-4	-150	-4	* AG	1692	4.0	.0	10.0
R. PCH EBDX	*	150	-4	750	-4	* AG	1600	4.0	.0	10.0
S. PCH WBAX	*	750	4	150	4	* AG	1430	4.0	.0	10.0
T. PCH WBDX	*	-150	4	-750	4	* AG	1290	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	7	-10	1.8
2. NW	*	-7	10	1.8
3. SW	*	-7	-10	1.8
4. NE	*	7	10	1.8
5. ES mdblk	*	150	-10	1.8
6. WN mdblk	*	-150	10	1.8
7. WS mdblk	*	-150	-10	1.8
8. EN mdblk	*	150	10	1.8
9. SE mdblk	*	7	-150	1.8
10. NW mdblk	*	-7	150	1.8
11. SW mdblk	*	-7	-150	1.8
12. NE mdblk	*	7	150	1.8
13. ES blk	*	600	-10	1.8
14. WN blk	*	-600	10	1.8
15. WS blk	*	-600	-10	1.8
16. EN blk	*	600	10	1.8
17. SE blk	*	7	-600	1.8
18. NW blk	*	-7	600	1.8
19. SW blk	*	-7	-600	1.8
20. NE blk	*	7	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	1.5	.0	.0	.0	.0	.0	.0	.8	.0
2. NW	263.	1.4	.0	.0	.0	.0	.0	.0	.3	.0
3. SW	277.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
4. NE	263.	1.4	.0	.0	.0	.0	.0	.0	.4	.0
5. ES mdblk	277.	1.4	.0	.0	.0	.0	.0	.0	.0	.8
6. WN mdblk	97.	1.4	.0	.0	.0	.0	.0	.0	.3	.1
7. WS mdblk	83.	1.5	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	263.	1.4	.0	.0	.0	.0	.0	.0	.1	.3
9. SE mdblk	293.	.2	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	113.	.2	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	67.	.3	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	247.	.2	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	277.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	141.	.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	5.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	141.	.1	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.3	.0	.0	.0	.0	.0	.1	.0	.0	.2
2. NW	*	.0	.0	.7	.0	.0	.0	.0	.0	.2	.0	.0	.1
3. SW	*	.0	.0	.3	.0	.0	.0	.0	.0	.2	.0	.0	.2
4. NE	*	.0	.0	.7	.0	.0	.0	.0	.0	.2	.0	.0	.1
5. ES mdblk	*	.0	.3	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.8	.0
17. SE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Blue L NBA	*	7	-150	7	0	*	AG	130	4.0	.0	10.0
B. Blue L NBD	*	7	0	7	150	*	AG	123	4.0	.0	10.0
C. Blue L NBL	*	5	-150	0	0	*	AG	109	4.0	.0	10.0
D. Blue L SBA	*	-7	150	-7	0	*	AG	44	4.0	.0	10.0
E. Blue L SBD	*	-7	0	-7	-150	*	AG	182	4.0	.0	10.0
F. Blue L SBL	*	-5	150	0	0	*	AG	34	4.0	.0	10.0
G. PCH EBA	*	-150	-7	0	-7	*	AG	1610	4.0	.0	10.0
H. PCH EBD	*	0	-7	150	-7	*	AG	1712	4.0	.0	10.0
I. PCH EBL	*	-150	-5	0	0	*	AG	29	4.0	.0	10.0
J. PCH WBA	*	150	9	0	9	*	AG	1386	4.0	.0	13.5
K. PCH WBD	*	0	9	-150	9	*	AG	1448	4.0	.0	10.0
L. PCH WBL	*	150	5	0	0	*	AG	123	4.0	.0	10.0
M. Blue L NBAX	*	7	-750	7	-150	*	AG	239	4.0	.0	10.0
N. Blue L NBDX	*	7	150	7	750	*	AG	123	4.0	.0	10.0
O. Blue L SBAX	*	-7	750	-7	150	*	AG	78	4.0	.0	10.0
P. Blue L SBDX	*	-7	-150	-7	-750	*	AG	182	4.0	.0	10.0
Q. PCH EBAX	*	-750	-7	-150	-7	*	AG	1639	4.0	.0	10.0
R. PCH EBDX	*	150	-7	750	-7	*	AG	1712	4.0	.0	10.0
S. PCH WBAX	*	750	9	150	9	*	AG	1509	4.0	.0	13.5
T. PCH WBDX	*	-150	9	-750	9	*	AG	1309	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	15	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.4	.0	.0	.0	.0	.0	.0	.7	.2
2. NW	97.	1.3	.0	.0	.0	.0	.0	.0	.0	.2
3. SW	82.	1.5	.0	.0	.0	.0	.0	.0	.2	.7
4. NE	262.	1.2	.0	.0	.0	.0	.0	.0	.2	.0
5. ES mdblk	278.	1.4	.0	.0	.0	.0	.0	.0	.0	.9
6. WN mdblk	97.	1.3	.0	.0	.0	.0	.0	.0	.1	.1
7. WS mdblk	83.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	262.	1.3	.0	.0	.0	.0	.0	.0	.1	.1
9. SE mdblk	352.	.4	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	175.	.3	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	8.	.4	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	185.	.4	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	277.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.3	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.2	.0	.0	.0	.0	.0	.1	.0	.0	.2
2. NW	*	.0	.6	.1	.0	.0	.0	.0	.0	.0	.2	.1	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	*	.0	.1	.6	.0	.0	.0	.0	.0	.2	.0	.0	.1
5. ES mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.7	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.3	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.9	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.8	.0
17. SE blk	*	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

□□

NPS6

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	7	-150	7	0	* AG	738	4.0	.0	10.0
B. Gold L NBD	*	7	0	7	150	* AG	1281	4.0	.0	10.0
C. Gold L NBL	*	5	-150	0	0	* AG	276	4.0	.0	10.0
D. Gold L SBA	*	-5	150	-5	0	* AG	1890	4.0	.0	13.5
E. Gold L SBD	*	-5	0	-5	-150	* AG	2036	4.0	.0	13.5
F. Gold L SBL	*	-2	150	0	0	* AG	0	4.0	.0	10.0
G. PCH W EBA	*	-150	0	0	0	* AG	0	4.0	.0	10.0
H. PCH W EBD	*	0	0	150	0	* AG	0	4.0	.0	10.0
I. PCH W EBL	*	-150	-2	0	0	* AG	0	4.0	.0	10.0
J. PCH W WBA	*	150	11	0	11	* AG	1670	4.0	.0	17.0
K. PCH W WBD	*	0	11	-150	11	* AG	1628	4.0	.0	13.5
L. PCH W WBL	*	150	5	0	0	* AG	371	4.0	.0	10.0
M. Gold L NBAX	*	7	-750	7	-150	* AG	1014	4.0	.0	10.0
N. Gold L NBDX	*	7	150	7	750	* AG	1281	4.0	.0	10.0
O. Gold L SBAX	*	-5	750	-5	150	* AG	1890	4.0	.0	13.5
P. Gold L SBDX	*	-5	-150	-5	-750	* AG	2036	4.0	.0	13.5
Q. PCH W EBAX	*	-750	0	-150	0	* AG	0	4.0	.0	10.0
R. PCH W EBDX	*	150	0	750	0	* AG	0	4.0	.0	10.0
S. PCH W WBAX	*	750	11	150	11	* AG	2041	4.0	.0	17.0
T. PCH W WBDX	*	-150	11	-750	11	* AG	1484	4.0	.0	13.5

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-7	1.8
2. NW	*	-14	19	1.8
3. SW	*	-14	-7	1.8
4. NE	*	14	21	1.8
5. ES mdblk	*	150	-7	1.8
6. WN mdblk	*	-150	19	1.8
7. WS mdblk	*	-150	-7	1.8
8. EN mdblk	*	150	21	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-7	1.8
14. WN blk	*	-600	19	1.8
15. WS blk	*	-600	-7	1.8
16. EN blk	*	600	21	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	1.7	.0	.6	.0	.3	.0	.0	.0	.0
2. NW	172.	1.8	.1	.0	.0	.2	.7	.0	.0	.0
3. SW	7.	1.6	.0	.2	.0	.8	.0	.0	.0	.0
4. NE	188.	1.7	.3	.2	.0	.0	.3	.0	.0	.0
5. ES mdblk	278.	.8	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	96.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.7	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	262.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	1.3	.4	.0	.1	.2	.3	.0	.0	.0
10. NW mdblk	172.	1.5	.0	.2	.0	.9	.0	.0	.0	.0
11. SW mdblk	7.	1.6	.0	.1	.0	.1	.9	.0	.0	.0
12. NE mdblk	187.	1.4	.0	.7	.0	.3	.2	.0	.0	.0
13. ES blk	277.	.8	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.6	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.3	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.4	.0	.1	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.3	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	*	.0	.4	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.3	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.1	.7	.0	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	*	.0	.1	.3	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0
17. SE blk	*	.0	.0	.0	.0	.6	.0	.0	.5	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	1.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.8	.5	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	5	-150	5	0	*	AG	751	4.0	.0	13.5
B. Gold L NBD	*	5	0	5	150	*	AG	918	4.0	.0	10.0
C. Gold L NBL	*	2	-150	0	0	*	AG	0	4.0	.0	10.0
D. Gold L SBA	*	-11	150	-11	0	*	AG	1112	4.0	.0	10.0
E. Gold L SBD	*	-11	0	-11	-150	*	AG	1427	4.0	.0	10.0
F. Gold L SBL	*	-9	150	0	0	*	AG	903	4.0	.0	10.0
G. PCH W EBA	*	-150	-11	0	-11	*	AG	1552	4.0	.0	17.0
H. PCH W EBD	*	0	-11	150	-11	*	AG	2212	4.0	.0	13.5
I. PCH W EBL	*	-150	-2	0	0	*	AG	239	4.0	.0	10.0
J. PCH W WBA	*	150	0	0	0	*	AG	0	4.0	.0	10.0
K. PCH W WBD	*	0	0	-150	0	*	AG	0	4.0	.0	10.0
L. PCH W WBL	*	150	2	0	0	*	AG	0	4.0	.0	10.0
M. Gold L NBAX	*	5	-750	5	-150	*	AG	751	4.0	.0	13.5
N. Gold L NBDX	*	5	150	5	750	*	AG	918	4.0	.0	10.0
O. Gold L SBAX	*	-11	750	-11	150	*	AG	2015	4.0	.0	10.0
P. Gold L SBDX	*	-11	-150	-11	-750	*	AG	1427	4.0	.0	10.0
Q. PCH W EBAX	*	-750	-11	-150	-11	*	AG	1791	4.0	.0	17.0
R. PCH W EBDX	*	150	-11	750	-11	*	AG	2212	4.0	.0	13.5
S. PCH W WBAX	*	750	0	150	0	*	AG	0	4.0	.0	10.0
T. PCH W WBDX	*	-150	0	-750	0	*	AG	0	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-19	1.8
2. NW	*	-17	7	1.8
3. SW	*	-17	-21	1.8
4. NE	*	12	7	1.8
5. ES mdblk	*	150	-19	1.8
6. WN mdblk	*	-150	7	1.8
7. WS mdblk	*	-150	-21	1.8
8. EN mdblk	*	150	7	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-17	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-19	1.8
14. WN blk	*	-600	7	1.8
15. WS blk	*	-600	-21	1.8
16. EN blk	*	600	7	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-17	-600	1.8
20. NE blk	*	12	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.6	.1	.4	.0	.1	.0	.2	.0	.5
2. NW	173.	1.4	.0	.0	.0	.0	.7	.0	.3	.0
3. SW	8.	1.6	.0	.1	.0	.4	.2	.2	.4	.0
4. NE	263.	1.2	.0	.2	.0	.1	.0	.2	.3	.0
5. ES mdblk	278.	1.3	.0	.0	.0	.0	.0	.0	.0	1.0
6. WN mdblk	97.	.8	.0	.0	.0	.0	.0	.0	.3	.2
7. WS mdblk	84.	1.1	.0	.0	.0	.0	.0	.0	.6	.2
8. EN mdblk	262.	.7	.0	.0	.0	.0	.0	.0	.1	.4
9. SE mdblk	353.	1.0	.4	.0	.0	.1	.1	.0	.0	.0
10. NW mdblk	171.	1.4	.0	.1	.0	.6	.0	.3	.0	.0
11. SW mdblk	7.	1.3	.0	.0	.0	.0	.7	.0	.0	.0
12. NE mdblk	188.	1.2	.0	.5	.0	.1	.1	.2	.0	.0
13. ES blk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.7	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.7	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.9	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.1	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
4. NE	*	.1	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
8. EN mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.1	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.9	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0
17. SE blk	*	.0	.0	.0	.0	.5	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	1.1	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.8	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.6	.4	.0	.0	.0	.0	.0

□□

NPS8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Dana Pt NBA	*	7	-150	7	0	*	AG	1181	4.0	.0	10.0
B. Dana Pt NBD	*	7	0	7	150	*	AG	1256	4.0	.0	10.0
C. Dana Pt NBL	*	5	-150	0	0	*	AG	36	4.0	.0	10.0
D. Dana Pt SBA	*	-11	150	-11	0	*	AG	439	4.0	.0	10.0
E. Dana Pt SBD	*	-11	0	-11	-150	*	AG	923	4.0	.0	10.0
F. Dana Pt SBL	*	-9	150	0	0	*	AG	298	4.0	.0	10.0
G. PCH EBA	*	-150	-9	0	-9	*	AG	2015	4.0	.0	13.5
H. PCH EBD	*	0	-9	150	-9	*	AG	3224	4.0	.0	10.0
I. PCH EBL	*	-150	-5	0	0	*	AG	326	4.0	.0	10.0
J. PCH WBA	*	150	11	0	11	*	AG	2729	4.0	.0	10.0
K. PCH WBD	*	0	11	-150	11	*	AG	2314	4.0	.0	10.0
L. PCH WBL	*	150	9	0	0	*	AG	693	4.0	.0	10.0
M. Dana Pt NBAX	*	7	-750	7	-150	*	AG	1217	4.0	.0	10.0
N. Dana Pt NBDX	*	7	150	7	750	*	AG	1256	4.0	.0	10.0
O. Dana Pt SBAX	*	-11	750	-11	150	*	AG	737	4.0	.0	10.0
P. Dana Pt SBDX	*	-11	-150	-11	-750	*	AG	923	4.0	.0	10.0
Q. PCH EBAX	*	-750	-9	-150	-9	*	AG	2341	4.0	.0	13.5
R. PCH EBDX	*	150	-9	750	-9	*	AG	3224	4.0	.0	10.0
S. PCH WBAX	*	750	11	150	11	*	AG	3422	4.0	.0	10.0
T. PCH WBDX	*	-150	11	-750	11	*	AG	2100	4.0	.0	10.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-15	1.8
2. NW	*	-17	17	1.8
3. SW	*	-17	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	17	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-17	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	17	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-17	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	81.	2.3	.0	.0	.0	.0	.0	.0	.0	1.5
2. NW	98.	2.5	.0	.2	.0	.1	.0	.0	.0	.2
3. SW	81.	2.5	.1	.0	.0	.0	.2	.0	.3	1.0
4. NE	261.	2.3	.0	.3	.0	.0	.0	.0	.2	.0
5. ES mdblk	279.	2.4	.0	.0	.0	.0	.0	.0	.0	1.5
6. WN mdblk	98.	2.1	.0	.0	.0	.0	.0	.0	.2	.2
7. WS mdblk	82.	1.9	.0	.0	.0	.0	.0	.0	.9	.1
8. EN mdblk	260.	2.4	.0	.0	.0	.0	.0	.0	.2	.3
9. SE mdblk	353.	1.2	.6	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	1.0	.1	.1	.0	.3	.0	.1	.0	.0
11. SW mdblk	8.	1.2	.1	.1	.0	.0	.5	.0	.0	.0
12. NE mdblk	187.	1.3	.0	.7	.0	.0	.0	.0	.0	.0
13. ES blk	278.	2.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	98.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	262.	2.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.2	.0	.1	.0	.0	.0	.0	.0	.2	.4	.0
2. NW	*	.0	.9	.3	.2	.0	.0	.0	.0	.0	.3	.2	.0
3. SW	*	.0	.2	.0	.1	.0	.0	.0	.0	.0	.1	.3	.0
4. NE	*	.0	.3	.9	.0	.0	.0	.0	.0	.3	.0	.0	.0
5. ES mdblk	*	.0	.2	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	1.1	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	*	.0	1.3	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.7	.5	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	1.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	1.8	.0
17. SE blk	*	.0	.0	.0	.0	.7	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	.5	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.6	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.8	.2	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	11	-150	11	0	*	AG	1040	4.0	.0	17.0
B. Gold L NBD	*	11	0	11	150	*	AG	1055	4.0	.0	13.5
C. Gold L NBL	*	5	-150	0	0	*	AG	57	4.0	.0	10.0
D. Gold L SBA	*	-11	150	-11	0	*	AG	1548	4.0	.0	17.0
E. Gold L SBD	*	-11	0	-11	-150	*	AG	1614	4.0	.0	13.5
F. Gold L SBL	*	-5	150	0	0	*	AG	103	4.0	.0	10.0
G. Selva EBA	*	-150	-7	0	-7	*	AG	194	4.0	.0	10.0
H. Selva EBD	*	0	-7	150	-7	*	AG	426	4.0	.0	10.0
I. Selva EBL	*	-150	-5	0	0	*	AG	95	4.0	.0	10.0
J. Selva WBA	*	150	7	0	7	*	AG	192	4.0	.0	10.0
K. Selva WBD	*	0	7	-150	7	*	AG	214	4.0	.0	10.0
L. Selva WBL	*	150	5	0	0	*	AG	80	4.0	.0	10.0
M. Gold L NBAX	*	11	-750	11	-150	*	AG	1097	4.0	.0	17.0
N. Gold L NBDX	*	11	150	11	750	*	AG	1055	4.0	.0	13.5
O. Gold L SBAX	*	-11	750	-11	150	*	AG	1651	4.0	.0	17.0
P. Gold L SBDX	*	-11	-150	-11	-750	*	AG	1614	4.0	.0	13.5
Q. Selva EBAX	*	-750	-7	-150	-7	*	AG	289	4.0	.0	10.0
R. Selva EBDX	*	150	-7	750	-7	*	AG	426	4.0	.0	10.0
S. Selva WBAX	*	750	7	150	7	*	AG	272	4.0	.0	10.0
T. Selva WBDX	*	-150	7	-750	7	*	AG	196	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	21	-14	1.8
2. NW	*	-21	14	1.8
3. SW	*	-19	-14	1.8
4. NE	*	19	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	21	-150	1.8
10. NW mdblk	*	-21	150	1.8
11. SW mdblk	*	-19	-150	1.8
12. NE mdblk	*	19	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	21	-600	1.8
18. NW blk	*	-21	600	1.8
19. SW blk	*	-19	-600	1.8
20. NE blk	*	19	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.1	.0	.4	.0	.1	.0	.0	.0	.1
2. NW	172.	1.2	.0	.0	.0	.0	.6	.0	.0	.0
3. SW	7.	1.3	.0	.0	.0	.6	.1	.0	.0	.0
4. NE	188.	1.1	.4	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	277.	.6	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	96.	.5	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.5	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	262.	.5	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	1.0	.5	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.2	.1	.0	.0	.7	.0	.0	.0	.0
11. SW mdblk	8.	1.2	.0	.1	.0	.0	.8	.0	.0	.0
12. NE mdblk	188.	1.1	.0	.5	.0	.0	.1	.0	.0	.0
13. ES blk	276.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.1	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
17. SE blk	*	.0	.0	.0	.0	.6	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.8	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.9	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.6	.3	.0	.0	.0	.0	.0

□□

NPSID

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	7	-150	7	0	*	AG	426	4.0	.0	10.0
B. Gold L NBD	*	7	0	7	150	*	AG	762	4.0	.0	10.0
C. Gold L NBL	*	5	-150	0	0	*	AG	16	4.0	.0	10.0
D. Gold L SBA	*	-7	150	-7	0	*	AG	474	4.0	.0	10.0
E. Gold L SBD	*	-7	0	-7	-150	*	AG	257	4.0	.0	10.0
F. Gold L SBL	*	-5	150	0	0	*	AG	705	4.0	.0	10.0
G. Dana Pt EBA	*	-150	-9	0	-9	*	AG	526	4.0	.0	13.5
H. Dana Pt EBD	*	0	-9	150	-9	*	AG	1329	4.0	.0	10.0
I. Dana Pt EBL	*	-150	-5	0	0	*	AG	193	4.0	.0	10.0
J. Dana Pt WBA	*	150	9	0	9	*	AG	781	4.0	.0	13.5
K. Dana Pt WBD	*	0	9	-150	9	*	AG	909	4.0	.0	10.0
L. Dana Pt WBL	*	150	5	0	0	*	AG	136	4.0	.0	10.0
M. Gold L NBAX	*	7	-750	7	-150	*	AG	442	4.0	.0	10.0
N. Gold L NBDX	*	7	150	7	750	*	AG	762	4.0	.0	10.0
O. Gold L SBAX	*	-7	750	-7	150	*	AG	1179	4.0	.0	10.0
P. Gold L SBDX	*	-7	-150	-7	-750	*	AG	257	4.0	.0	10.0
Q. Dana Pt EBAX	*	-750	-9	-150	-9	*	AG	719	4.0	.0	13.5
R. Dana Pt EBDX	*	150	-9	750	-9	*	AG	1329	4.0	.0	10.0
S. Dana Pt WBAX	*	750	9	150	9	*	AG	917	4.0	.0	13.5
T. Dana Pt WBDX	*	-150	9	-750	9	*	AG	827	4.0	.0	10.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-15	1.8
2. NW	*	-14	15	1.8
3. SW	*	-14	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	1.3	.0	.3	.0	.0	.0	.2	.0	.3
2. NW	97.	1.3	.0	.1	.0	.1	.0	.1	.0	.1
3. SW	82.	1.1	.0	.0	.0	.0	.0	.0	.0	.5
4. NE	262.	1.1	.0	.2	.0	.0	.0	.1	.0	.0
5. ES mdblk	278.	1.2	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	96.	1.0	.0	.0	.0	.0	.0	.0	.0	.1
7. WS mdblk	83.	.8	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	262.	.9	.0	.0	.0	.0	.0	.0	.0	.1
9. SE mdblk	355.	.7	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	169.	.9	.0	.1	.0	.3	.0	.3	.0	.0
11. SW mdblk	5.	.6	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	189.	.9	.0	.4	.0	.0	.0	.1	.0	.0
13. ES blk	277.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.5	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.9	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out No Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
4. NE	*	.0	.0	.4	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.5	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.5	.0
17. SE blk	*	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.7	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.5	.3	.0	.0	.0	.0	.0

□□

DANA POINT HEADLANDS PROJECT

AIR QUALITY CO HOT SPOT ANALYSIS

CALINE4 MODEL PRINTOUTS

FUTURE BUILDOUT WITH PROJECT - SUMMER

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	9	-150	9	0	*	AG	1681	4.0	.0	13.5
B. PCH NBD	*	9	0	9	150	*	AG	2203	4.0	.0	10.0
C. PCH NBL	*	5	-150	0	0	*	AG	50	4.0	.0	10.0
D. PCH SBA	*	-12	150	-12	0	*	AG	1407	4.0	.0	13.5
E. PCH SBD	*	-12	0	-12	-150	*	AG	1953	4.0	.0	10.0
F. PCH SBL	*	-9	150	0	0	*	AG	880	4.0	.0	10.0
G. Crown EBA	*	-150	-2	0	-2	*	AG	93	4.0	.0	10.0
H. Crown EBD	*	0	-2	150	-2	*	AG	1521	4.0	.0	10.0
I. Crown EBL	*	-150	-2	0	0	*	AG	46	4.0	.0	10.0
J. Crown WBA	*	150	11	0	11	*	AG	1204	4.0	.0	10.0
K. Crown WBD	*	0	11	-150	11	*	AG	241	4.0	.0	10.0
L. Crown WBL	*	150	9	0	0	*	AG	557	4.0	.0	10.0
M. PCH NBAX	*	9	-750	9	-150	*	AG	1731	4.0	.0	13.5
N. PCH NBDX	*	9	150	9	750	*	AG	2203	4.0	.0	10.0
O. PCH SBAX	*	-12	750	-12	150	*	AG	2287	4.0	.0	13.5
P. PCH SBDX	*	-12	-150	-12	-750	*	AG	1953	4.0	.0	10.0
Q. Crown EBAX	*	-750	-2	-150	-2	*	AG	139	4.0	.0	10.0
R. Crown EBDX	*	150	-2	750	-2	*	AG	1521	4.0	.0	10.0
S. Crown WBAX	*	750	11	150	11	*	AG	1761	4.0	.0	10.0
T. Crown WBDX	*	-150	11	-750	11	*	AG	221	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-8	1.8
2. NW	*	-21	17	1.8
3. SW	*	-19	-8	1.8
4. NE	*	15	17	1.8
5. ES mdblk	*	150	-8	1.8
6. WN mdblk	*	-150	17	1.8
7. WS mdblk	*	-150	-8	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-21	150	1.8
11. SW mdblk	*	-19	-150	1.8
12. NE mdblk	*	15	150	1.8
13. ES blk	*	600	-8	1.8
14. WN blk	*	-600	17	1.8
15. WS blk	*	-600	-8	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-21	600	1.8
19. SW blk	*	-19	-600	1.8
20. NE blk	*	15	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	2.2	.0	.8	.0	.1	.0	.2	.0	.4
2. NW	97.	1.9	.0	.2	.0	.3	.0	.1	.0	.2
3. SW	83.	2.0	.2	.0	.0	.0	.5	.0	.0	.6
4. NE	188.	2.1	.7	.3	.0	.0	.1	.0	.0	.2
5. ES mdblk	282.	1.5	.0	.0	.0	.0	.0	.0	.0	.8
6. WN mdblk	93.	.9	.0	.0	.0	.0	.0	.0	.0	.1
7. WS mdblk	87.	.8	.0	.0	.0	.0	.0	.0	.0	.1
8. EN mdblk	257.	1.4	.0	.0	.0	.0	.0	.0	.0	.3
9. SE mdblk	353.	1.5	.8	.1	.0	.1	.0	.0	.0	.0
10. NW mdblk	170.	1.6	.1	.1	.0	.7	.0	.2	.0	.0
11. SW mdblk	8.	1.7	.1	.2	.0	.0	1.0	.0	.0	.0
12. NE mdblk	188.	1.8	.0	1.1	.0	.1	.2	.1	.0	.0
13. ES blk	277.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	93.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	172.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.7	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.2	.0	.1	.0	.0	.3	.0	.0	.0	.0	.0
2. NW	*	.0	.5	.0	.1	.0	.0	.0	.0	.0	.2	.1	.0
3. SW	*	.0	.2	.0	.2	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	*	.0	.3	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.1	.1	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
8. EN mdblk	*	.0	.6	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	1.0	.0
17. SE blk	*	.0	.0	.0	.0	.9	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.2	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	1.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	1.2	.4	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	9	-150	9	0	* AG	1414	4.0	.0	13.5
B. PCH NBD	*	9	0	9	150	* AG	1667	4.0	.0	10.0
C. PCH NBL	*	5	-150	0	0	* AG	191	4.0	.0	10.0
D. PCH SBA	*	-12	150	-12	0	* AG	1604	4.0	.0	13.5
E. PCH SBD	*	-12	0	-12	-150	* AG	2043	4.0	.0	10.0
F. PCH SBL	*	-9	150	0	0	* AG	413	4.0	.0	10.0
G. Niguel EBA	*	-150	-9	0	-9	* AG	411	4.0	.0	13.5
H. Niguel EBD	*	0	-9	150	-9	* AG	1067	4.0	.0	10.0
I. Niguel EBL	*	-150	-5	0	0	* AG	305	4.0	.0	10.0
J. Niguel WBA	*	150	9	0	9	* AG	738	4.0	.0	13.5
K. Niguel WBD	*	0	9	-150	9	* AG	768	4.0	.0	10.0
L. Niguel WBL	*	150	5	0	0	* AG	469	4.0	.0	10.0
M. PCH NBAX	*	9	-750	9	-150	* AG	1605	4.0	.0	13.5
N. PCH NBDX	*	9	150	9	750	* AG	1667	4.0	.0	10.0
O. PCH SBAX	*	-12	750	-12	150	* AG	2017	4.0	.0	13.5
P. PCH SBDX	*	-12	-150	-12	-750	* AG	2043	4.0	.0	10.0
Q. Niguel EBAX	*	-750	-9	-150	-9	* AG	716	4.0	.0	13.5
R. Niguel EBDX	*	150	-9	750	-9	* AG	1067	4.0	.0	10.0
S. Niguel WBAX	*	750	9	150	9	* AG	1207	4.0	.0	13.5
T. Niguel WBDX	*	-150	9	-750	9	* AG	695	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-15	1.8
2. NW	*	-21	15	1.8
3. SW	*	-19	-17	1.8
4. NE	*	15	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-21	150	1.8
11. SW mdblk	*	-19	-150	1.8
12. NE mdblk	*	15	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-21	600	1.8
19. SW blk	*	-19	-600	1.8
20. NE blk	*	15	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.8	.2	.6	.0	.1	.0	.0	.0	.3
2. NW	171.	1.7	.1	.0	.0	.2	.7	.0	.0	.0
3. SW	8.	1.7	.0	.1	.0	.6	.3	.0	.1	.0
4. NE	188.	1.7	.6	.2	.0	.0	.1	.0	.0	.1
5. ES mdblk	278.	1.2	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	96.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.9	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	261.	1.0	.0	.0	.0	.0	.0	.0	.0	.1
9. SE mdblk	352.	1.4	.7	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.5	.1	.0	.0	.8	.0	.1	.0	.0
11. SW mdblk	8.	1.7	.1	.1	.0	.0	1.0	.0	.0	.0
12. NE mdblk	188.	1.6	.0	.9	.0	.1	.2	.0	.0	.0
13. ES blk	277.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	352.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	172.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.5	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.1	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.2	.0	.2	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	*	.0	.4	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.3	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.4
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	.1
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.7	.0
17. SE blk	*	.0	.0	.0	.0	.9	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.1	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	1.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.9	.4	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. PCH NBA	*	11	-150	11	0	*	AG	1408	4.0	.0	17.0
B. PCH NBD	*	11	0	11	150	*	AG	1572	4.0	.0	13.5
C. PCH NBL	*	5	-150	0	0	*	AG	104	4.0	.0	10.0
D. PCH SBA	*	-9	150	-9	0	*	AG	1690	4.0	.0	13.5
E. PCH SBD	*	-9	0	-9	-150	*	AG	1736	4.0	.0	10.0
F. PCH SBL	*	-5	150	0	0	*	AG	243	4.0	.0	10.0
G. Selva EBA	*	-150	-5	0	-5	*	AG	101	4.0	.0	11.8
H. Selva EBD	*	0	-5	150	-5	*	AG	376	4.0	.0	10.0
I. Selva EBL	*	-150	-2	0	0	*	AG	80	4.0	.0	10.0
J. Selva WBA	*	150	5	0	5	*	AG	225	4.0	.0	11.8
K. Selva WBD	*	0	5	-150	5	*	AG	239	4.0	.0	10.0
L. Selva WBL	*	150	2	0	0	*	AG	72	4.0	.0	10.0
M. PCH NBAX	*	11	-750	11	-150	*	AG	1512	4.0	.0	17.0
N. PCH NBDX	*	11	150	11	750	*	AG	1572	4.0	.0	13.5
O. PCH SBAX	*	-9	750	-9	150	*	AG	1933	4.0	.0	13.5
P. PCH SBDX	*	-9	-150	-9	-750	*	AG	1736	4.0	.0	10.0
Q. Selva EBAX	*	-750	-5	-150	-5	*	AG	181	4.0	.0	11.8
R. Selva EBDX	*	150	-5	750	-5	*	AG	376	4.0	.0	10.0
S. Selva WBAX	*	750	5	150	5	*	AG	297	4.0	.0	11.8
T. Selva WBDX	*	-150	5	-750	5	*	AG	162	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	21	-12	1.8
2. NW	*	-17	12	1.8
3. SW	*	-15	-13	1.8
4. NE	*	19	13	1.8
5. ES mdblk	*	150	-12	1.8
6. WN mdblk	*	-150	12	1.8
7. WS mdblk	*	-150	-13	1.8
8. EN mdblk	*	150	13	1.8
9. SE mdblk	*	21	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-15	-150	1.8
12. NE mdblk	*	19	150	1.8
13. ES blk	*	600	-12	1.8
14. WN blk	*	-600	12	1.8
15. WS blk	*	-600	-13	1.8
16. EN blk	*	600	13	1.8
17. SE blk	*	21	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-15	-600	1.8
20. NE blk	*	19	600	1.8



CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.3	.0	.6	.0	.1	.0	.0	.0	.0
2. NW	171.	1.3	.1	.0	.0	.1	.7	.0	.0	.0
3. SW	7.	1.6	.0	.1	.0	.8	.1	.0	.0	.0
4. NE	187.	1.3	.6	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	278.	.6	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	95.	.5	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.5	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	263.	.5	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	1.2	.6	.0	.0	.2	.0	.0	.0	.0
10. NW mdblk	172.	1.4	.1	.1	.0	.8	.0	.0	.0	.0
11. SW mdblk	8.	1.5	.1	.1	.0	.0	.9	.0	.0	.0
12. NE mdblk	188.	1.3	.0	.8	.0	.1	.1	.0	.0	.0
13. ES blk	276.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	172.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.1	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
17. SE blk	*	.0	.0	.0	.0	.8	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	1.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.9	.4	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Green L NBA	*	0	-150	0	0	* AG	0	4.0	.0	10.0
B. Green L NBD	*	0	0	0	150	* AG	0	4.0	.0	10.0
C. Green L NBL	*	2	-150	0	0	* AG	0	4.0	.0	10.0
D. Green L SBA	*	0	150	0	0	* AG	0	4.0	.0	10.0
E. Green L SBD	*	0	0	0	-150	* AG	103	4.0	.0	10.0
F. Green L SBL	*	-2	150	0	0	* AG	0	4.0	.0	10.0
G. PCH EBA	*	-150	-4	0	-4	* AG	1780	4.0	.0	10.0
H. PCH EBD	*	0	-4	150	-4	* AG	1677	4.0	.0	10.0
I. PCH EBL	*	-150	-2	0	0	* AG	0	4.0	.0	10.0
J. PCH WBA	*	150	4	0	4	* AG	1543	4.0	.0	10.0
K. PCH WBD	*	0	4	-150	4	* AG	1543	4.0	.0	10.0
L. PCH WBL	*	150	2	0	0	* AG	0	4.0	.0	10.0
M. Green L NBAX	*	0	-750	0	-150	* AG	0	4.0	.0	10.0
N. Green L NBDX	*	0	150	0	750	* AG	0	4.0	.0	10.0
O. Green L SBAX	*	0	750	0	150	* AG	0	4.0	.0	10.0
P. Green L SBDX	*	0	-150	0	-750	* AG	103	4.0	.0	10.0
Q. PCH EBAX	*	-750	-4	-150	-4	* AG	1780	4.0	.0	10.0
R. PCH EBDX	*	150	-4	750	-4	* AG	1677	4.0	.0	10.0
S. PCH WBAX	*	750	4	150	4	* AG	1543	4.0	.0	10.0
T. PCH WBDX	*	-150	4	-750	4	* AG	1290	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	7	-10	1.8
2. NW	*	-7	10	1.8
3. SW	*	-7	-10	1.8
4. NE	*	7	10	1.8
5. ES mdblk	*	150	-10	1.8
6. WN mdblk	*	-150	10	1.8
7. WS mdblk	*	-150	-10	1.8
8. EN mdblk	*	150	10	1.8
9. SE mdblk	*	7	-150	1.8
10. NW mdblk	*	-7	150	1.8
11. SW mdblk	*	-7	-150	1.8
12. NE mdblk	*	7	150	1.8
13. ES blk	*	600	-10	1.8
14. WN blk	*	-600	10	1.8
15. WS blk	*	-600	-10	1.8
16. EN blk	*	600	10	1.8
17. SE blk	*	7	-600	1.8
18. NW blk	*	-7	600	1.8
19. SW blk	*	-7	-600	1.8
20. NE blk	*	7	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	1.5	.0	.0	.0	.0	.0	.0	.8	.0
2. NW	263.	1.5	.0	.0	.0	.0	.0	.0	.3	.0
3. SW	277.	1.5	.0	.0	.0	.0	.0	.0	.9	.0
4. NE	263.	1.4	.0	.0	.0	.0	.0	.0	.4	.0
5. ES mdblk	277.	1.5	.0	.0	.0	.0	.0	.0	.0	.8
6. WN mdblk	97.	1.5	.0	.0	.0	.0	.0	.0	.4	.1
7. WS mdblk	83.	1.5	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	263.	1.5	.0	.0	.0	.0	.0	.0	.1	.3
9. SE mdblk	293.	.3	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	113.	.2	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	67.	.3	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	247.	.2	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	277.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	141.	.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	5.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	141.	.1	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.3	.0	.0	.0	.0	.0	.1	.0	.0	.2
2. NW	*	.0	.0	.8	.0	.0	.0	.0	.0	.2	.0	.0	.1
3. SW	*	.0	.0	.3	.0	.0	.0	.0	.0	.2	.0	.0	.2
4. NE	*	.0	.0	.7	.0	.0	.0	.0	.0	.2	.0	.0	.1
5. ES mdblk	*	.0	.3	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9	.5	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.9	.0
17. SE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Blue L NBA	*	7	-150	7	0	*	AG	153	4.0	.0	10.0
B. Blue L NBD	*	7	0	7	150	*	AG	137	4.0	.0	10.0
C. Blue L NBL	*	5	-150	0	0	*	AG	122	4.0	.0	10.0
D. Blue L SBA	*	-7	150	-7	0	*	AG	63	4.0	.0	10.0
E. Blue L SBD	*	-7	0	-7	-150	*	AG	201	4.0	.0	10.0
F. Blue L SBL	*	-5	150	0	0	*	AG	34	4.0	.0	10.0
G. PCH EBA	*	-150	-7	0	-7	*	AG	1677	4.0	.0	10.0
H. PCH EBD	*	0	-7	150	-7	*	AG	1798	4.0	.0	10.0
I. PCH EBL	*	-150	-5	0	0	*	AG	39	4.0	.0	10.0
J. PCH WBA	*	150	9	0	9	*	AG	1472	4.0	.0	13.5
K. PCH WBD	*	0	9	-150	9	*	AG	1563	4.0	.0	10.0
L. PCH WBL	*	150	5	0	0	*	AG	139	4.0	.0	10.0
M. Blue L NBAX	*	7	-750	7	-150	*	AG	275	4.0	.0	10.0
N. Blue L NBDX	*	7	150	7	750	*	AG	137	4.0	.0	10.0
O. Blue L SBAX	*	-7	750	-7	150	*	AG	97	4.0	.0	10.0
P. Blue L SBDX	*	-7	-150	-7	-750	*	AG	201	4.0	.0	10.0
Q. PCH EBAX	*	-750	-7	-150	-7	*	AG	1716	4.0	.0	10.0
R. PCH EBDX	*	150	-7	750	-7	*	AG	1798	4.0	.0	10.0
S. PCH WBAX	*	750	9	150	9	*	AG	1611	4.0	.0	13.5
T. PCH WBDX	*	-150	9	-750	9	*	AG	1309	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	15	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.5	.0	.0	.0	.0	.0	.0	.7	.2
2. NW	97.	1.4	.0	.0	.0	.0	.0	.0	.0	.2
3. SW	82.	1.6	.0	.0	.0	.0	.0	.0	.2	.7
4. NE	261.	1.3	.0	.0	.0	.0	.0	.0	.2	.0
5. ES mdblk	278.	1.5	.0	.0	.0	.0	.0	.0	.0	.9
6. WN mdblk	97.	1.4	.0	.0	.0	.0	.0	.0	.1	.1
7. WS mdblk	83.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	262.	1.3	.0	.0	.0	.0	.0	.0	.1	.2
9. SE mdblk	352.	.4	.1	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	175.	.4	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	8.	.4	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	185.	.4	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	277.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.3	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.2	.0	.0	.0	.0	.0	.1	.0	.0	.2
2. NW	*	.0	.6	.1	.0	.0	.0	.0	.0	.0	.2	.1	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	*	.0	.1	.6	.0	.0	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.8	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.9	.0
17. SE blk	*	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	7	-150	7	0	*	AG	748	4.0	.0	10.0
B. Gold L NBD	*	7	0	7	150	*	AG	1291	4.0	.0	10.0
C. Gold L NBL	*	5	-150	0	0	*	AG	284	4.0	.0	10.0
D. Gold L SBA	*	-5	150	-5	0	*	AG	1900	4.0	.0	13.5
E. Gold L SBD	*	-5	0	-5	-150	*	AG	2036	4.0	.0	13.5
F. Gold L SBL	*	-2	150	0	0	*	AG	0	4.0	.0	10.0
G. PCH W EBA	*	-150	0	0	0	*	AG	0	4.0	.0	10.0
H. PCH W EBD	*	0	0	150	0	*	AG	0	4.0	.0	10.0
I. PCH W EBL	*	-150	-2	0	0	*	AG	0	4.0	.0	10.0
J. PCH W WBA	*	150	11	0	11	*	AG	1735	4.0	.0	17.0
K. PCH W WBD	*	0	11	-150	11	*	AG	1711	4.0	.0	13.5
L. PCH W WBL	*	150	5	0	0	*	AG	371	4.0	.0	10.0
M. Gold L NBAX	*	7	-750	7	-150	*	AG	1032	4.0	.0	10.0
N. Gold L NBDX	*	7	150	7	750	*	AG	1291	4.0	.0	10.0
O. Gold L SBAX	*	-5	750	-5	150	*	AG	1900	4.0	.0	13.5
P. Gold L SBDX	*	-5	-150	-5	-750	*	AG	2036	4.0	.0	13.5
Q. PCH W EBAX	*	-750	0	-150	0	*	AG	0	4.0	.0	10.0
R. PCH W EBDX	*	150	0	750	0	*	AG	0	4.0	.0	10.0
S. PCH W WBAX	*	750	11	150	11	*	AG	2106	4.0	.0	17.0
T. PCH W WBDX	*	-150	11	-750	11	*	AG	1484	4.0	.0	13.5

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-7	1.8
2. NW	*	-14	19	1.8
3. SW	*	-14	-7	1.8
4. NE	*	14	21	1.8
5. ES mdblk	*	150	-7	1.8
6. WN mdblk	*	-150	19	1.8
7. WS mdblk	*	-150	-7	1.8
8. EN mdblk	*	150	21	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-7	1.8
14. WN blk	*	-600	19	1.8
15. WS blk	*	-600	-7	1.8
16. EN blk	*	600	21	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	1.7	.0	.6	.0	.3	.0	.0	.0	.0
2. NW	172.	1.8	.1	.0	.0	.2	.7	.0	.0	.0
3. SW	7.	1.6	.0	.2	.0	.8	.0	.0	.0	.0
4. NE	188.	1.7	.3	.2	.0	.0	.3	.0	.0	.0
5. ES mdblk	278.	.8	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	96.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.7	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	262.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	1.3	.4	.0	.1	.2	.3	.0	.0	.0
10. NW mdblk	172.	1.5	.0	.2	.0	.9	.0	.0	.0	.0
11. SW mdblk	7.	1.6	.0	.1	.0	.1	.9	.0	.0	.0
12. NE mdblk	187.	1.4	.0	.7	.0	.3	.2	.0	.0	.0
13. ES blk	277.	.8	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.6	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.3	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.4	.0	.1	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.3	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	*	.0	.4	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.3	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.1	.8	.0	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	*	.0	.1	.3	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	*	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0
17. SE blk	*	.0	.0	.0	.0	.6	.0	.0	.5	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	1.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.8	.5	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	5	-150	5	0	*	AG	959	4.0	.0	13.5
B. Gold L NBD	*	5	0	5	150	*	AG	1136	4.0	.0	10.0
C. Gold L NBL	*	2	-150	0	0	*	AG	0	4.0	.0	10.0
D. Gold L SBA	*	-11	150	-11	0	*	AG	1112	4.0	.0	10.0
E. Gold L SBD	*	-11	0	-11	-150	*	AG	1435	4.0	.0	10.0
F. Gold L SBL	*	-9	150	0	0	*	AG	903	4.0	.0	10.0
G. PCH W EBA	*	-150	-11	0	-11	*	AG	1615	4.0	.0	17.0
H. PCH W EBD	*	0	-11	150	-11	*	AG	2267	4.0	.0	13.5
I. PCH W EBL	*	-150	-2	0	0	*	AG	249	4.0	.0	10.0
J. PCH W WBA	*	150	0	0	0	*	AG	0	4.0	.0	10.0
K. PCH W WBD	*	0	0	-150	0	*	AG	0	4.0	.0	10.0
L. PCH W WBL	*	150	2	0	0	*	AG	0	4.0	.0	10.0
M. Gold L NBAX	*	5	-750	5	-150	*	AG	959	4.0	.0	13.5
N. Gold L NBDX	*	5	150	5	750	*	AG	1136	4.0	.0	10.0
O. Gold L SBAX	*	-11	750	-11	150	*	AG	2015	4.0	.0	10.0
P. Gold L SBDX	*	-11	-150	-11	-750	*	AG	1435	4.0	.0	10.0
Q. PCH W EBAX	*	-750	-11	-150	-11	*	AG	1864	4.0	.0	17.0
R. PCH W EBDX	*	150	-11	750	-11	*	AG	2267	4.0	.0	13.5
S. PCH W WBAX	*	750	0	150	0	*	AG	0	4.0	.0	10.0
T. PCH W WBDX	*	-150	0	-750	0	*	AG	0	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-19	1.8
2. NW	*	-17	7	1.8
3. SW	*	-17	-21	1.8
4. NE	*	12	7	1.8
5. ES mdblk	*	150	-19	1.8
6. WN mdblk	*	-150	7	1.8
7. WS mdblk	*	-150	-21	1.8
8. EN mdblk	*	150	7	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-17	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-19	1.8
14. WN blk	*	-600	7	1.8
15. WS blk	*	-600	-21	1.8
16. EN blk	*	600	7	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-17	-600	1.8
20. NE blk	*	12	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.7	.1	.4	.0	.1	.0	.2	.0	.5
2. NW	173.	1.4	.1	.0	.0	.0	.7	.0	.3	.0
3. SW	8.	1.7	.0	.1	.0	.4	.2	.2	.4	.0
4. NE	263.	1.3	.0	.3	.0	.1	.0	.2	.3	.0
5. ES mdblk	278.	1.4	.0	.0	.0	.0	.0	.0	.0	1.0
6. WN mdblk	97.	.8	.0	.0	.0	.0	.0	.0	.3	.2
7. WS mdblk	83.	1.1	.0	.0	.0	.0	.0	.0	.7	.1
8. EN mdblk	262.	.8	.0	.0	.0	.0	.0	.0	.1	.4
9. SE mdblk	353.	1.1	.5	.0	.0	.1	.1	.0	.0	.0
10. NW mdblk	171.	1.4	.0	.1	.0	.6	.0	.3	.0	.0
11. SW mdblk	7.	1.4	.1	.1	.0	.0	.7	.0	.0	.0
12. NE mdblk	188.	1.3	.0	.6	.0	.1	.1	.2	.0	.0
13. ES blk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.7	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.7	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.3	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
4. NE	*	.1	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.9	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0
17. SE blk	*	.0	.0	.0	.0	.6	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.1	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.8	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.7	.4	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Dana Pt NBA	*	7	-150	7	0	*	AG	1185	4.0	.0	10.0
B. Dana Pt NBD	*	7	0	7	150	*	AG	1260	4.0	.0	10.0
C. Dana Pt NBL	*	5	-150	0	0	*	AG	36	4.0	.0	10.0
D. Dana Pt SBA	*	-11	150	-11	0	*	AG	443	4.0	.0	10.0
E. Dana Pt SBD	*	-11	0	-11	-150	*	AG	926	4.0	.0	10.0
F. Dana Pt SBL	*	-9	150	0	0	*	AG	298	4.0	.0	10.0
G. PCH EBA	*	-150	-9	0	-9	*	AG	2057	4.0	.0	13.5
H. PCH EBD	*	0	-9	150	-9	*	AG	3269	4.0	.0	10.0
I. PCH EBL	*	-150	-5	0	0	*	AG	328	4.0	.0	10.0
J. PCH WBA	*	150	11	0	11	*	AG	2782	4.0	.0	10.0
K. PCH WBD	*	0	11	-150	11	*	AG	2369	4.0	.0	10.0
L. PCH WBL	*	150	9	0	0	*	AG	695	4.0	.0	10.0
M. Dana Pt NBAX	*	7	-750	7	-150	*	AG	1221	4.0	.0	10.0
N. Dana Pt NBDX	*	7	150	7	750	*	AG	1260	4.0	.0	10.0
O. Dana Pt SBAX	*	-11	750	-11	150	*	AG	741	4.0	.0	10.0
P. Dana Pt SBDX	*	-11	-150	-11	-750	*	AG	926	4.0	.0	10.0
Q. PCH EBAX	*	-750	-9	-150	-9	*	AG	2385	4.0	.0	13.5
R. PCH EBDX	*	150	-9	750	-9	*	AG	3269	4.0	.0	10.0
S. PCH WBAX	*	750	11	150	11	*	AG	3477	4.0	.0	10.0
T. PCH WBDX	*	-150	11	-750	11	*	AG	2100	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-15	1.8
2. NW	*	-17	17	1.8
3. SW	*	-17	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	17	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-17	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	17	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-17	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	81.	2.4	.0	.0	.0	.0	.0	.0	.0	1.5
2. NW	98.	2.5	.0	.2	.0	.1	.0	.0	.0	.2
3. SW	81.	2.5	.2	.0	.0	.0	.2	.0	.3	1.0
4. NE	261.	2.3	.0	.3	.0	.0	.0	.0	.2	.0
5. ES mdblk	279.	2.4	.0	.0	.0	.0	.0	.0	.0	1.6
6. WN mdblk	98.	2.1	.0	.0	.0	.0	.0	.0	.2	.2
7. WS mdblk	82.	1.9	.0	.0	.0	.0	.0	.0	1.0	.1
8. EN mdblk	260.	2.4	.0	.0	.0	.0	.0	.0	.2	.3
9. SE mdblk	353.	1.3	.6	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	1.1	.1	.1	.0	.3	.0	.1	.0	.0
11. SW mdblk	8.	1.2	.1	.1	.0	.0	.5	.0	.0	.0
12. NE mdblk	187.	1.3	.0	.7	.0	.0	.0	.0	.0	.0
13. ES blk	278.	2.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	98.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	262.	2.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.2	.0	.1	.0	.0	.0	.0	.0	.2	.4	.0
2. NW	*	.0	.9	.3	.2	.0	.0	.0	.0	.0	.3	.2	.0
3. SW	*	.0	.2	.0	.1	.0	.0	.0	.0	.0	.1	.3	.0
4. NE	*	.0	.3	.9	.0	.0	.0	.0	.0	.3	.0	.0	.0
5. ES mdblk	*	.0	.2	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	1.1	.0	.0	.0	.0	.0	.0	.2	.0	.0
7. WS mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	*	.0	1.3	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.7	.5	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	1.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	1.8	.0
17. SE blk	*	.0	.0	.0	.0	.7	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	.5	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.6	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.8	.2	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	11	-150	11	0	*	AG	1046	4.0	.0	17.0
B. Gold L NBD	*	11	0	11	150	*	AG	1057	4.0	.0	13.5
C. Gold L NBL	*	5	-150	0	0	*	AG	57	4.0	.0	10.0
D. Gold L SBA	*	-11	150	-11	0	*	AG	1550	4.0	.0	17.0
E. Gold L SBD	*	-11	0	-11	-150	*	AG	1620	4.0	.0	13.5
F. Gold L SBL	*	-5	150	0	0	*	AG	103	4.0	.0	10.0
G. Selva EBA	*	-150	-7	0	-7	*	AG	196	4.0	.0	10.0
H. Selva EBD	*	0	-7	150	-7	*	AG	432	4.0	.0	10.0
I. Selva EBL	*	-150	-5	0	0	*	AG	95	4.0	.0	10.0
J. Selva WBA	*	150	7	0	7	*	AG	192	4.0	.0	10.0
K. Selva WBD	*	0	7	-150	7	*	AG	214	4.0	.0	10.0
L. Selva WBL	*	150	5	0	0	*	AG	84	4.0	.0	10.0
M. Gold L NBAX	*	11	-750	11	-150	*	AG	1103	4.0	.0	17.0
N. Gold L NBDX	*	11	150	11	750	*	AG	1057	4.0	.0	13.5
O. Gold L SBAX	*	-11	750	-11	150	*	AG	1653	4.0	.0	17.0
P. Gold L SBDX	*	-11	-150	-11	-750	*	AG	1620	4.0	.0	13.5
Q. Selva EBAX	*	-750	-7	-150	-7	*	AG	291	4.0	.0	10.0
R. Selva EBDX	*	150	-7	750	-7	*	AG	432	4.0	.0	10.0
S. Selva WBAX	*	750	7	150	7	*	AG	276	4.0	.0	10.0
T. Selva WBDX	*	-150	7	-750	7	*	AG	196	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	21	-14	1.8
2. NW	*	-21	14	1.8
3. SW	*	-19	-14	1.8
4. NE	*	19	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	21	-150	1.8
10. NW mdblk	*	-21	150	1.8
11. SW mdblk	*	-19	-150	1.8
12. NE mdblk	*	19	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	21	-600	1.8
18. NW blk	*	-21	600	1.8
19. SW blk	*	-19	-600	1.8
20. NE blk	*	19	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.1	.0	.4	.0	.1	.0	.0	.0	.1
2. NW	172.	1.2	.0	.0	.0	.0	.6	.0	.0	.0
3. SW	7.	1.3	.0	.0	.0	.6	.1	.0	.0	.0
4. NE	188.	1.1	.4	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	277.	.6	.0	.0	.0	.0	.0	.0	.0	.3
6. WN mdblk	96.	.5	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.5	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	262.	.5	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	1.0	.5	.0	.0	.1	.0	.0	.0	.0
10. NW mdblk	172.	1.2	.1	.0	.0	.7	.0	.0	.0	.0
11. SW mdblk	8.	1.3	.0	.1	.0	.0	.8	.0	.0	.0
12. NE mdblk	188.	1.1	.0	.5	.0	.0	.1	.0	.0	.0
13. ES blk	276.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	188.	1.1	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out With Project Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
17. SE blk	*	.0	.0	.0	.0	.6	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.8	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.9	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.6	.3	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Headlands Build out WithProject Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	49. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	9.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Gold L NBA	*	7	-150	7	0	* AG	430	4.0	.0	10.0
B. Gold L NBD	*	7	0	7	150	* AG	766	4.0	.0	10.0
C. Gold L NBL	*	5	-150	0	0	* AG	18	4.0	.0	10.0
D. Gold L SBA	*	-7	150	-7	0	* AG	478	4.0	.0	10.0
E. Gold L SBD	*	-7	0	-7	-150	* AG	263	4.0	.0	10.0
F. Gold L SBL	*	-5	150	0	0	* AG	705	4.0	.0	10.0
G. Dana Pt EBA	*	-150	-9	0	-9	* AG	532	4.0	.0	13.5
H. Dana Pt EBD	*	0	-9	150	-9	* AG	1333	4.0	.0	10.0
I. Dana Pt EBL	*	-150	-5	0	0	* AG	193	4.0	.0	10.0
J. Dana Pt WBA	*	150	9	0	9	* AG	785	4.0	.0	13.5
K. Dana Pt WBD	*	0	9	-150	9	* AG	915	4.0	.0	10.0
L. Dana Pt WBL	*	150	5	0	0	* AG	136	4.0	.0	10.0
M. Gold L NBAX	*	7	-750	7	-150	* AG	448	4.0	.0	10.0
N. Gold L NBDX	*	7	150	7	750	* AG	766	4.0	.0	10.0
O. Gold L SBAX	*	-7	750	-7	150	* AG	1183	4.0	.0	10.0
P. Gold L SBDX	*	-7	-150	-7	-750	* AG	263	4.0	.0	10.0
Q. Dana Pt EBAX	*	-750	-9	-150	-9	* AG	725	4.0	.0	13.5
R. Dana Pt EBDX	*	150	-9	750	-9	* AG	1333	4.0	.0	10.0
S. Dana Pt WBAX	*	750	9	150	9	* AG	921	4.0	.0	13.5
T. Dana Pt WBDX	*	-150	9	-750	9	* AG	827	4.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Headlands Build out WithProject Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-15	1.8
2. NW	*	-14	15	1.8
3. SW	*	-14	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-15	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-15	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Headlands Build out WithProject Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	1.3	.0	.3	.0	.0	.0	.2	.0	.3
2. NW	97.	1.3	.0	.1	.0	.1	.0	.1	.0	.1
3. SW	82.	1.1	.0	.0	.0	.0	.0	.0	.0	.5
4. NE	262.	1.1	.0	.2	.0	.0	.0	.1	.0	.0
5. ES mdblk	278.	1.2	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	96.	1.0	.0	.0	.0	.0	.0	.0	.0	.1
7. WS mdblk	83.	.8	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	262.	.9	.0	.0	.0	.0	.0	.0	.0	.1
9. SE mdblk	355.	.7	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	169.	.9	.0	.1	.0	.3	.0	.3	.0	.0
11. SW mdblk	5.	.6	.0	.0	.0	.0	.2	.0	.0	.0
12. NE mdblk	189.	.9	.0	.4	.0	.0	.0	.1	.0	.0
13. ES blk	277.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.5	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.9	.0	.0	.0	.0	.0	.0	.0	.0

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Headlands Build out WithProject Summer
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
4. NE	*	.0	.0	.4	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.5	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.5	.0
17. SE blk	*	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.7	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.5	.3	.0	.0	.0	.0	.0

□□

APPENDIX F

DRAINAGE STUDY

Appendix A, Rational Method Calculations – 100 Year Storm
Appendix B, Rational Method Calculations – 10 Year Storm

APPENDIX A

EXISTING CONDITIONS

100 YEAR STORM

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXA100.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
EXISTING CONDITIONS - AREA A
FILE: J:\13266000\DRAIN\EXA100

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 78.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 300.000(Ft.)
Top (of initial area) elevation = 254.300(Ft.)
Bottom (of initial area) elevation = 198.600(Ft.)
Difference in elevation = 55.700(Ft.)
Slope = 0.18567 s(%)= 18.57
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.199 min.
Rainfall intensity = 5.021(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.846
Subarea runoff = 7.223(CFS)
Total initial stream area = 1.700(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 102.000
**** SUBAREA FLOW ADDITION ****

```
Rainfall intensity =      5.021(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     7.20 min.
Rainfall intensity =      5.021(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      1.797(CFS) for    0.400(Ac.)
Total runoff =     9.020(CFS)      Total area =        2.10(Ac.)
Area averaged Fm value =    0.249(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   198.000(Ft.)
End of street segment elevation =   165.000(Ft.)
Length of street segment  =   470.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   2.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0170
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     15.463(CFS)
Depth of flow =   0.424(Ft.), Average velocity =   6.618(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  14.866(Ft.)
Flow velocity =   6.62(Ft/s)
Travel time =    1.18 min.     TC =    8.38  min.
 Adding area flow to street
Rainfall intensity =      4.602(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.602(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.877
```

```
Subarea runoff =     11.551(CFS) for    3.000(Ac.)
Total runoff =     20.571(CFS)      Total area =        5.10(Ac.)
Area averaged Fm value =    0.120(In/Hr)
Street flow at end of street =     20.571(CFS)
Half street flow at end of street =     20.571(CFS)
Depth of flow =   0.460(Ft.), Average velocity =   7.091(Ft/s)
Flow width (from curb towards crown)=  16.656(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   161.000(Ft.)
Downstream point/station elevation =   158.000(Ft.)
Pipe length =    85.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    20.571(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    20.571(CFS)
Normal flow depth in pipe =   12.84(In.)
Flow top width inside pipe =   20.47(In.)
Critical Depth =   19.34(In.)
Pipe flow velocity =     13.36(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =     8.49 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.569(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.49 min.
Rainfall intensity =      4.569(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.878
Subarea runoff =      1.809(CFS) for    0.480(Ac.)
Total runoff =     22.380(CFS)      Total area =        5.58(Ac.)
Area averaged Fm value =    0.112(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   158.000(Ft.)
Downstream point/station elevation =    13.000(Ft.)
Pipe length =   160.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    22.380(CFS)
```

```
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =    22.380(CFS)
Normal flow depth in pipe =    7.11(In.)
Flow top width inside pipe =   11.79(In.)
Critical depth could not be calculated.
Pipe flow velocity =     46.12(Ft/s)
Travel time through pipe =    0.06 min.
Time of concentration (TC) =     8.55 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.551(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.55 min.
Rainfall intensity =      4.551(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.879
Subarea runoff =      2.027(CFS) for    0.520(Ac.)
Total runoff =     24.407(CFS)      Total area =        6.10(Ac.)
Area averaged Fm value =    0.105(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      4.551(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      6.100(Ac.)
Runoff from this stream =     24.407(CFS)
Time of concentration =    8.55 min.
Rainfall intensity =     4.551(In/Hr)
Area averaged loss rate (Fm) =    0.1052(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3508


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =      0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   190.500(Ft.)
Bottom (of initial area) elevation =   170.000(Ft.)
Difference in elevation =    20.500(Ft.)
Slope =    0.06833  s(%)=       6.83
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.091 min.
Rainfall intensity =      6.124(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.896
Subarea runoff =      5.046(CFS)
Total initial stream area =        0.920(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   162.000(Ft.)
Downstream point/station elevation =   100.000(Ft.)
Pipe length  =    60.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.046(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     5.046(CFS)
Normal flow depth in pipe =    4.39(In.)
Flow top width inside pipe =    5.32(In.)
Critical depth could not be calculated.
Pipe flow velocity =     32.80(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     5.12 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      105.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   100.000(Ft.)
Downstream point elevation =    13.000(Ft.)
Channel length thru subarea  =   275.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =      8.610(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      8.610(CFS)
Depth of flow =   0.644(Ft.), Average velocity =  20.773(Ft/s)
Channel flow top width =    1.288(Ft.)
Flow Velocity =   20.77(Ft/s)
Travel time  =    0.22 min.
Time of concentration =    5.34 min.
Critical depth =      1.328(Ft.)
 Adding area flow to channel
Rainfall intensity =      5.957(In/Hr) for a   100.0 year storm
```

```
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      5.957(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.872
Subarea runoff =      6.481(CFS) for    1.300(Ac.)
Total runoff =     11.526(CFS)      Total area =        2.22(Ac.)
Area averaged Fm value =    0.188(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      5.957(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.220(Ac.)
Runoff from this stream =     11.526(CFS)
Time of concentration =    5.34 min.
Rainfall intensity =     5.957(In/Hr)
Area averaged loss rate (Fm) =    0.1881(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6270
Summary of stream data:

Stream    Flow rate      TC            Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1        24.407       8.55                4.551
2        11.526       5.34                5.957
Qmax(1) =
          1.000 *     1.000 *    24.407) +
          0.756 *     1.000 *    11.526) + =       33.124
Qmax(2) =
          1.316 *     0.625 *    24.407) +
          1.000 *     1.000 *    11.526) + =       31.608

Total of 2 streams to confluence:
Flow rates before confluence point:
      24.407      11.526
Maximum flow rates at confluence using above data:
       33.124       31.608
Area of streams before confluence:
        6.100        2.220
Effective area values after confluence:
        8.320        6.033
Results of confluence:
Total flow rate =      33.124(CFS)
Time of concentration =     8.546 min.
Effective stream area after confluence =      8.320(Ac.)
Study area average Pervious fraction(Ap) =  0.425
```

```
Study area average soil loss rate(Fm) =    0.127(In/Hr)
Study area total (this main stream) =       8.32(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     10.000(Ft.)
Downstream point/station elevation =      8.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    33.124(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    33.124(CFS)
Normal flow depth in pipe =   20.53(In.)
Flow top width inside pipe =   23.05(In.)
Critical Depth =   23.67(In.)
Pipe flow velocity =     10.21(Ft/s)
Travel time through pipe =    0.24 min.
Time of concentration (TC) =     8.79 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
Rainfall intensity =      4.478(In/Hr) for a   100.0 year storm
In Main Stream number: 1
Stream flow area =      8.320(Ac.)
Runoff from this stream =     33.124(CFS)
Time of concentration =    8.79 min.
Rainfall intensity =     4.478(In/Hr)
Area averaged loss rate (Fm) =    0.1274(In/Hr)
Area averaged Pervious ratio (Ap) = 0.4245
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      110.000 to Point/Station      111.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   380.000(Ft.)
Top (of initial area) elevation =   273.500(Ft.)
Bottom (of initial area) elevation =   192.200(Ft.)
Difference in elevation =    81.300(Ft.)
Slope =    0.21395  s(%)=      21.39
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
```

```
Initial area time of concentration =    7.692 min.
Rainfall intensity =      4.834(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.844
Subarea runoff =      9.263(CFS)
Total initial stream area =        2.270(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      112.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   192.200(Ft.)
End of street segment elevation =   191.000(Ft.)
Length of street segment  =    90.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  15.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     10.426(CFS)
Depth of flow =   0.355(Ft.), Average velocity =   2.740(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  13.481(Ft.)
Flow velocity =   2.74(Ft/s)
Travel time =    0.55 min.     TC =    8.24  min.
 Adding area flow to street
Rainfall intensity =      4.647(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.647(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =      1.987(CFS) for    0.570(Ac.)
Total runoff =     11.251(CFS)      Total area =        2.84(Ac.)
Area averaged Fm value =    0.246(In/Hr)
Street flow at end of street =     11.251(CFS)
Half street flow at end of street =      5.625(CFS)
Depth of flow =   0.363(Ft.), Average velocity =   2.790(Ft/s)
Flow width (from curb towards crown)=  13.896(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      112.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.647(In/Hr) for a   100.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =     8.24 min.
Rainfall intensity =      4.647(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      1.226(CFS) for    0.300(Ac.)
Total runoff =     12.477(CFS)      Total area =        3.14(Ac.)
Area averaged Fm value =    0.232(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      113.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   191.000(Ft.)
Downstream point/station elevation =   110.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.477(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =    12.477(CFS)
Normal flow depth in pipe =    6.30(In.)
Flow top width inside pipe =    8.24(In.)
Critical depth could not be calculated.
Pipe flow velocity =     37.74(Ft/s)
Travel time through pipe =    0.04 min.
Time of concentration (TC) =     8.28 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      114.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   110.000(Ft.)
Downstream point elevation =    50.000(Ft.)
Channel length thru subarea  =   125.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =     13.987(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     13.987(CFS)
Depth of flow =   0.714(Ft.), Average velocity =  27.420(Ft/s)
Channel flow top width =    1.428(Ft.)
Flow Velocity =   27.42(Ft/s)
```

```
Travel time  =    0.08 min.
Time of concentration =    8.36 min.
Critical depth =      1.656(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.609(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.609(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =      2.839(CFS) for    0.760(Ac.)
Total runoff =     15.316(CFS)      Total area =        3.90(Ac.)
Area averaged Fm value =    0.246(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Rainfall intensity =      4.609(In/Hr) for a   100.0 year storm
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      3.900(Ac.)
Runoff from this stream =     15.316(CFS)
Time of concentration =    8.36 min.
Rainfall intensity =     4.609(In/Hr)
Area averaged loss rate (Fm) =    0.2455(In/Hr)
Area averaged Pervious ratio (Ap) = 0.8185


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      115.000 to Point/Station      116.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   315.000(Ft.)
Top (of initial area) elevation =   288.100(Ft.)
Bottom (of initial area) elevation =   258.000(Ft.)
Difference in elevation =    30.100(Ft.)
Slope =    0.09556  s(%)=       9.56
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.384 min.
Rainfall intensity =      4.601(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.841
```

```
Subarea runoff =      2.865(CFS)
Total initial stream area =        0.740(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      117.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      6.736(CFS)
Depth of flow =   0.090(Ft.), Average velocity =   3.591(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              2.00
      2             20.00              0.00
      3             40.00              0.00
      4             60.00              2.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------
Sub-Channel flow  =      6.736(CFS)
  '     '    flow top width =     21.795(Ft.)
  '     '    velocity=    3.592(Ft/s)
  '     '    area =      1.876(Sq.Ft)
  '     '    Froude number =     2.158

Upstream point elevation =   258.000(Ft.)
Downstream point elevation =   177.000(Ft.)
Flow length =   585.000(Ft.)
Travel time  =    2.71 min.
Time of concentration =   11.10 min.
Depth of flow =   0.090(Ft.)
Average velocity =   3.591(Ft/s)
Total irregular channel flow =     6.736(CFS)
Irregular channel normal depth above invert elev. =   0.090(Ft.)
Average velocity of channel(s) =   3.591(Ft/s)

Sub-Channel No. 1 Critical depth =      0.148(Ft.)
  '     '       '     Critical flow top width =     22.969(Ft.)
  '     '       '     Critical flow velocity=    2.112(Ft/s)
  '     '       '     Critical flow area =      3.189(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.918(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.918(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.831
```

```
Subarea runoff =      6.058(CFS) for    2.000(Ac.)
Total runoff =      8.922(CFS)      Total area =        2.74(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      117.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      3.918(In/Hr) for a   100.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =    11.10 min.
Rainfall intensity =      3.918(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.842
Subarea runoff =      2.917(CFS) for    0.850(Ac.)
Total runoff =     11.839(CFS)      Total area =        3.59(Ac.)
Area averaged Fm value =    0.254(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      117.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      3.918(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    11.10 min.
Rainfall intensity =      3.918(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =      2.065(CFS) for    0.590(Ac.)
Total runoff =     13.904(CFS)      Total area =        4.18(Ac.)
Area averaged Fm value =    0.222(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      118.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of street segment elevation =   177.000(Ft.)
End of street segment elevation =   130.000(Ft.)
Length of street segment  =   270.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
```

```
Width of half street (curb to crown)  =  10.000(Ft.)
Distance from crown to crossfall grade break  =   9.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   0.500(Ft.)
Gutter hike from flowline =  0.500(In.)
 Manning's N in gutter =  0.0170
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     14.236(CFS)
Depth of flow =   0.224(Ft.), Average velocity =   7.593(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   9.642(Ft.)
Flow velocity =   7.59(Ft/s)
Travel time =    0.59 min.     TC =   11.69  min.
 Adding area flow to street
Rainfall intensity =      3.803(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.803(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =      0.246(CFS) for    0.200(Ac.)
Total runoff =     14.150(CFS)      Total area =        4.38(Ac.)
Area averaged Fm value =    0.213(In/Hr)
Street flow at end of street =     14.150(CFS)
Half street flow at end of street =      7.075(CFS)
Depth of flow =   0.224(Ft.), Average velocity =   7.581(Ft/s)
Flow width (from curb towards crown)=   9.619(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      118.000 to Point/Station      114.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =   130.000(Ft.)
Downstream point elevation =    50.000(Ft.)
Channel length thru subarea  =   500.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =     17.591(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     17.591(CFS)
Depth of flow =   0.956(Ft.), Average velocity =  19.233(Ft/s)
Channel flow top width =    1.913(Ft.)
Flow Velocity =   19.23(Ft/s)
```

```
Travel time  =    0.43 min.
Time of concentration =   12.12 min.
Critical depth =      1.813(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.725(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.725(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.842
Subarea runoff =      6.255(CFS) for    2.130(Ac.)
Total runoff =     20.406(CFS)      Total area =        6.51(Ac.)
Area averaged Fm value =    0.242(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.725(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    12.12 min.
Rainfall intensity =      3.725(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =      2.062(CFS) for    0.620(Ac.)
Total runoff =     22.467(CFS)      Total area =        7.13(Ac.)
Area averaged Fm value =    0.223(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.725(In/Hr) for a   100.0 year storm
RESIDENTIAL(8 - 10 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.4000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.120(In/Hr)
Time of concentration =    12.12 min.
```

```
Rainfall intensity =      3.725(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.847
Subarea runoff =      0.746(CFS) for    0.230(Ac.)
Total runoff =     23.213(CFS)      Total area =        7.36(Ac.)
Area averaged Fm value =    0.220(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.725(In/Hr) for a   100.0 year storm
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      7.360(Ac.)
Runoff from this stream =     23.213(CFS)
Time of concentration =   12.12 min.
Rainfall intensity =     3.725(In/Hr)
Area averaged loss rate (Fm) =    0.2201(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7338
Summary of stream data:

Stream    Flow rate       TC            Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1        15.316       8.36                4.609
2        23.213      12.12                3.725
Qmax(1) =
          1.000 *     1.000 *    15.316) +
          1.252 *     0.689 *    23.213) + =       35.360
Qmax(2) =
          0.797 *     1.000 *    15.316) +
          1.000 *     1.000 *    23.213) + =       35.425

Total of 2 streams to confluence:
Flow rates before confluence point:
      15.316      23.213
Maximum flow rates at confluence using above data:
       35.360       35.425
Area of streams before confluence:
        3.900        7.360
Effective area values after confluence:
        8.974       11.260
Results of confluence:
Total flow rate =     35.425(CFS)
Time of concentration =    12.124 min.
Effective stream area after confluence =     11.260(Ac.)
Study area average Pervious fraction(Ap) =  0.763
Study area average soil loss rate(Fm) =    0.229(In/Hr)
Study area total (this main stream) =      11.26(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      119.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
```

```
Upstream point/station elevation =    50.000(Ft.)
Downstream point/station elevation =    12.000(Ft.)
Pipe length  =    67.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    35.425(CFS)
Nearest computed pipe diameter  =    15.00(In.)
Calculated individual pipe flow  =    35.425(CFS)
Normal flow depth in pipe =    9.49(In.)
Flow top width inside pipe =   14.46(In.)
Critical depth could not be calculated.
Pipe flow velocity =    43.24(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =    12.15 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      119.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.720(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    12.15 min.
Rainfall intensity =      3.720(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.844
Subarea runoff =      0.908(CFS) for    0.310(Ac.)
Total runoff =     36.333(CFS)      Total area =       11.57(Ac.)
Area averaged Fm value =    0.231(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    12.000(Ft.)
Downstream point/station elevation =     8.000(Ft.)
Pipe length  =   130.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    36.333(CFS)
Nearest computed pipe diameter  =    24.00(In.)
Calculated individual pipe flow  =    36.333(CFS)
Normal flow depth in pipe =   18.07(In.)
Flow top width inside pipe =   20.70(In.)
Critical depth could not be calculated.
Pipe flow velocity =    14.32(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =    12.30 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
```

```
The following data inside Main Stream is listed:
Rainfall intensity =      3.694(In/Hr) for a   100.0 year storm
In Main Stream number: 2
Stream flow area =     11.570(Ac.)
Runoff from this stream =     36.333(CFS)
Time of concentration =   12.30 min.
Rainfall intensity =     3.694(In/Hr)
Area averaged loss rate (Fm) =    0.2308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7694
Program is now starting with Main Stream No. 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.000 to Point/Station      120.500
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   218.000(Ft.)
Top (of initial area) elevation =   250.700(Ft.)
Bottom (of initial area) elevation =   230.000(Ft.)
Difference in elevation =    20.700(Ft.)
Slope =    0.09495  s(%)=       9.50
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.245 min.
Rainfall intensity =      5.003(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.846
Subarea runoff =      2.709(CFS)
Total initial stream area =        0.640(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.500 to Point/Station      121.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     12.909(CFS)
Depth of flow =   0.322(Ft.), Average velocity =   7.094(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             10.00               0.00
      3             15.00               0.00
      4             25.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
```

```
Sub-Channel flow  =     12.909(CFS)
  '      '    flow top width =      6.290(Ft.)
  '      '    velocity =     7.094(Ft/s)
  '      '    area =       1.820(Sq.Ft)
  '      '    Froude number =     2.324

Upstream point elevation =   230.000(Ft.)
Downstream point elevation =   178.000(Ft.)
Flow length =   470.000(Ft.)
Travel time  =    1.10 min.
Time of concentration =    8.35 min.
Depth of flow =   0.322(Ft.)
Average velocity =   7.094(Ft/s)
Total irregular channel flow =    12.909(CFS)
Irregular channel normal depth above invert elev. =   0.322(Ft.)
Average velocity of channel(s) =   7.094(Ft/s)

Sub-Channel No. 1 Critical depth =      0.547(Ft.)
  '      '       '     Critical flow top width =      7.188(Ft.)
  '      '       '     Critical flow velocity=    3.874(Ft/s)
  '      '       '     Critical flow area =      3.333(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      4.612(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.612(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.841
Subarea runoff =     18.481(CFS) for    4.820(Ac.)
Total runoff =     21.190(CFS)      Total area =        5.46(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      121.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      4.612(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.35 min.
Rainfall intensity =      4.612(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.847
```

```
Subarea runoff =      2.392(CFS) for    0.580(Ac.)
Total runoff =     23.582(CFS)      Total area =        6.04(Ac.)
Area averaged Fm value =    0.274(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      122.000
**** IMPROVED CHANNEL TRAVEL TIME ****
----------------------------------------------------------------------
Upstream point elevation =   178.000(Ft.)
Downstream point elevation =   115.000(Ft.)
Channel length thru subarea  =   410.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =     24.890(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     24.890(CFS)
Depth of flow =   1.098(Ft.), Average velocity =  20.660(Ft/s)
Channel flow top width =    2.195(Ft.)
Flow Velocity =   20.66(Ft/s)
Travel time  =    0.33 min.
Time of concentration =    8.68 min.
Critical depth =      2.063(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.511(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.511(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.845
Subarea runoff =      1.987(CFS) for    0.670(Ac.)
Total runoff =     25.569(CFS)      Total area =        6.71(Ac.)
Area averaged Fm value =    0.277(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      123.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   115.000(Ft.)
Downstream point/station elevation =    16.000(Ft.)
Pipe length  =   230.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    25.569(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    25.569(CFS)
Normal flow depth in pipe =    8.40(In.)
Flow top width inside pipe =   14.89(In.)
Critical depth could not be calculated.
Pipe flow velocity =     36.14(Ft/s)
```

```
Travel time through pipe =     0.11 min.
Time of concentration (TC) =      8.79 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       123.000 to Point/Station       124.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =     16.000(Ft.)
Downstream point elevation =     14.000(Ft.)
Channel length thru subarea  =    130.000(Ft.)
Channel base width       =     4.000(Ft.)
Slope or 'Z' of left channel bank =    1.000
Slope or 'Z' of right channel bank =    1.000
Estimated mean flow rate at midpoint of channel =      26.121(CFS)
Manning's 'N'     = 0.015
Maximum depth of channel  =     1.000(Ft.)
Flow(q) thru subarea =      26.121(CFS)
Depth of flow =    0.684(Ft.), Average velocity =    8.149(Ft/s)
Channel flow top width =     5.369(Ft.)
Flow Velocity =     8.15(Ft/s)
Travel time  =     0.27 min.
Time of concentration =     9.05 min.
Critical depth =       1.000(Ft.)
 Adding area flow to channel
Rainfall intensity =       4.403(In/Hr) for a    100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.300(In/Hr)
Rainfall intensity =       4.403(In/Hr) for a    100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.843
Subarea runoff =       0.424(CFS) for     0.290(Ac.)
Total runoff =     25.993(CFS)       Total area =         7.00(Ac.)
Area averaged Fm value =     0.278(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       124.000 to Point/Station       109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     11.000(Ft.)
Downstream point/station elevation =      8.000(Ft.)
Pipe length  =    150.00(Ft.)    Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     25.993(CFS)
Nearest computed pipe diameter  =      24.00(In.)
Calculated individual pipe flow  =     25.993(CFS)
Normal flow depth in pipe =    16.43(In.)
Flow top width inside pipe =    22.30(In.)
Critical Depth =    21.43(In.)
Pipe flow velocity =      11.35(Ft/s)
Travel time through pipe =     0.22 min.
```

```
Time of concentration (TC) =      9.27 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
Rainfall intensity =      4.343(In/Hr) for a   100.0 year storm
In Main Stream number: 3
Stream flow area =       7.000(Ac.)
Runoff from this stream =      25.993(CFS)
Time of concentration =     9.27 min.
Rainfall intensity =      4.343(In/Hr)
Area averaged loss rate (Fm) =     0.2776(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9254
Summary of stream data:

Stream    Flow rate       TC            Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1        33.124        8.79                4.478
2        36.333       12.30                3.694
3        25.993        9.27                4.343
Qmax(1) =
          1.000 *     1.000 *     33.124) +
          1.226 *     0.715 *     36.333) +
          1.033 *     0.948 *     25.993) + =       90.428
Qmax(2) =
          0.820 *     1.000 *     33.124) +
          1.000 *     1.000 *     36.333) +
          0.840 *     1.000 *     25.993) + =       85.327
Qmax(3) =
          0.969 *     1.000 *     33.124) +
          1.188 *     0.754 *     36.333) +
          1.000 *     1.000 *     25.993) + =       90.614

Total of 3 main streams to confluence:
Flow rates before confluence point:
      34.124       37.333       26.993
Maximum flow rates at confluence using above data:
       90.428       85.327       90.614
Area of streams before confluence:
        8.320       11.570        7.000
Effective area values after confluence:
       23.225       26.890       24.041


Results of confluence:
Total flow rate =      90.614(CFS)
Time of concentration =      9.272 min.
Effective stream area after confluence  =      24.041(Ac.)
Study area average Pervious fraction(Ap) =  0.703
Study area average soil loss rate(Fm) =     0.211(In/Hr)
Study area total =       26.89(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.343(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     9.27 min.
Rainfall intensity =      4.343(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =      2.637(CFS) for    0.990(Ac.)
Total runoff =     93.251(CFS)      Total area =       25.03(Ac.)
Area averaged Fm value =    0.204(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      125.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     8.000(Ft.)
Downstream point/station elevation =     7.000(Ft.)
Pipe length  =    90.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    93.251(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =    93.251(CFS)
Normal flow depth in pipe =   30.56(In.)
Flow top width inside pipe =   37.39(In.)
Critical Depth =   35.86(In.)
Pipe flow velocity =     12.44(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     9.39 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      4.311(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     25.031(Ac.)
Runoff from this stream =     93.251(CFS)
Time of concentration =    9.39 min.
Rainfall intensity =     4.311(In/Hr)
Area averaged loss rate (Fm) =    0.2038(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6795


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      126.000 to Point/Station      127.000
```

```
**** INITIAL AREA EVALUATION ****
-------------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =   145.000(Ft.)
Bottom (of initial area) elevation =    14.200(Ft.)
Difference in elevation =   130.800(Ft.)
Slope =    1.30800  s(%)=     130.80
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    4.222 min.
Rainfall intensity =      6.817(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.860
Subarea runoff =      3.167(CFS)
Total initial stream area =        0.540(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      127.000 to Point/Station      125.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
-------------------------------------------------------------------------------
Top of street segment elevation =    14.200(Ft.)
End of street segment elevation =    12.000(Ft.)
Length of street segment  =   350.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      4.340(CFS)
Depth of flow =   0.305(Ft.), Average velocity =   1.673(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  11.010(Ft.)
Flow velocity =   1.67(Ft/s)
Travel time =    3.49 min.     TC =    7.71  min.
 Adding area flow to street
Rainfall intensity =      4.828(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
```

```
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.828(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.865
Subarea runoff =      0.761(CFS) for    0.400(Ac.)
Total runoff =      3.928(CFS)      Total area =        0.94(Ac.)
Area averaged Fm value =    0.185(In/Hr)
Street flow at end of street =      3.928(CFS)
Half street flow at end of street =      1.964(CFS)
Depth of flow =   0.296(Ft.), Average velocity =   1.635(Ft/s)
Flow width (from curb towards crown)=  10.565(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      4.828(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.940(Ac.)
Runoff from this stream =      3.928(CFS)
Time of concentration =    7.71 min.
Rainfall intensity =     4.828(In/Hr)
Area averaged loss rate (Fm) =    0.1851(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6170
Summary of stream data:

Stream    Flow rate       TC             Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1        93.251       9.39                4.311
2         3.928       7.71                4.828
Qmax(1) =
          1.000 *     1.000 *    93.251) +
          0.889 *     1.000 *     3.928) + =       96.742
Qmax(2) =
          1.126 *     0.821 *    93.251) +
          1.000 *     1.000 *     3.928) + =       90.087

Total of 2 streams to confluence:
Flow rates before confluence point:
      93.251       3.928
Maximum flow rates at confluence using above data:
       96.742       90.087
Area of streams before confluence:
       25.031        0.940
Effective area values after confluence:
       25.971       21.481
Results of confluence:
Total flow rate =      96.742(CFS)
Time of concentration =      9.393 min.
Effective stream area after confluence =      25.971(Ac.)
```

```
Study area average Pervious fraction(Ap) =  0.677
Study area average soil loss rate(Fm) =    0.203(In/Hr)
Study area total (this main stream) =      25.97(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      128.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     7.000(Ft.)
Downstream point/station elevation =     6.000(Ft.)
Pipe length  =    80.00(Ft.)   Manning's N = 0.015
No. of pipes = 1  Required pipe flow  =    96.742(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =    96.742(CFS)
Normal flow depth in pipe =   34.13(In.)
Flow top width inside pipe =   32.79(In.)
Critical Depth =   36.39(In.)
Pipe flow velocity =     11.55(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     9.51 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      128.000 to Point/Station      128.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.281(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     9.51 min.
Rainfall intensity =      4.281(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =      5.347(CFS) for    1.770(Ac.)
Total runoff =    102.089(CFS)      Total area =       27.74(Ac.)
Area averaged Fm value =    0.192(In/Hr)
End of computations, total study area =           30.59 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.646
Area averaged SCS curve number (AMC 2) =  67.5
SCS curve number this storm year  100.0 (AMC 2) =  67.5
```

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXB200.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
EXISTING CONDITIONS - AREA B
FILE: J:\13266000\DRAIN\EXB200

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 200.000 to Point/Station 201.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 78.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 540.000(Ft.)
Top (of initial area) elevation = 288.100(Ft.)
Bottom (of initial area) elevation = 202.500(Ft.)
Difference in elevation = 85.600(Ft.)
Slope = 0.15852 s(%)= 15.85
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.399 min.
Rainfall intensity = 4.309(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.837
Subarea runoff = 6.315(CFS)
Total initial stream area = 1.750(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 201.000 to Point/Station 202.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =     16.852(CFS)
Depth of flow =   0.145(Ft.), Average velocity =   2.764(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               4.00
      2             40.00               0.00
      3             80.00               0.00
      4            160.00               4.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =     16.852(CFS)
   '      '    flow top width =     44.337(Ft.)
   '      '    velocity=    2.764(Ft/s)
   '      '    area =      6.097(Sq.Ft)
   '      '    Froude number =     1.314

Upstream point elevation =   202.500(Ft.)
Downstream point elevation =   163.000(Ft.)
Flow length =   900.000(Ft.)
Travel time  =    5.43 min.
Time of concentration =   14.83 min.
Depth of flow =   0.145(Ft.)
Average velocity =   2.764(Ft/s)
Total irregular channel flow =    16.852(CFS)
Irregular channel normal depth above invert elev. =   0.145(Ft.)
Average velocity of channel(s) =   2.764(Ft/s)

Sub-Channel No. 1 Critical depth =      0.172(Ft.)
   '      '       '     Critical flow top width =     45.156(Ft.)
   '      '       '     Critical flow velocity=    2.303(Ft/s)
   '      '       '     Critical flow area =      7.318(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.319(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.319(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.819
Subarea runoff =     14.308(CFS) for    5.840(Ac.)
Total runoff =     20.623(CFS)      Total area =        7.59(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      202.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity =      3.319(In/Hr) for a   100.0 year storm
```

```
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    14.83 min.
Rainfall intensity =      3.319(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.834
Subarea runoff =      6.068(CFS) for    2.050(Ac.)
Total runoff =     26.691(CFS)      Total area =        9.64(Ac.)
Area averaged Fm value =    0.243(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      202.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.319(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    14.83 min.
Rainfall intensity =      3.319(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.825
Subarea runoff =     37.741(CFS) for   13.890(Ac.)
Total runoff =     64.432(CFS)      Total area =       23.53(Ac.)
Area averaged Fm value =    0.276(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      202.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.319(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    14.83 min.
Rainfall intensity =      3.319(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.825
Subarea runoff =      3.750(CFS) for    1.380(Ac.)
```

```
Total runoff =     68.182(CFS)      Total area =       24.91(Ac.)
Area averaged Fm value =    0.278(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     74.641(CFS)
Depth of flow =   0.512(Ft.), Average velocity =   3.866(Ft/s)
      ******* Irregular Channel Data ***********
----------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               2.00
      2             30.00               0.00
      3             60.00               0.00
      4             90.00               2.00
Manning's 'N' friction factor =   0.030
----------------------------------------------------------------------
Sub-Channel flow  =     74.641(CFS)
  '      '    flow top width =     45.370(Ft.)
  '      '    velocity=    3.866(Ft/s)
  '      '    area =     19.308(Sq.Ft)
  '      '    Froude number =     1.044

Upstream point elevation =   163.000(Ft.)
Downstream point elevation =   157.000(Ft.)
Flow length =   315.000(Ft.)
Travel time  =    1.36 min.
Time of concentration =   16.18 min.
Depth of flow =   0.512(Ft.)
Average velocity =   3.866(Ft/s)
Total irregular channel flow =    74.641(CFS)
Irregular channel normal depth above invert elev. =   0.512(Ft.)
Average velocity of channel(s) =   3.866(Ft/s)

Sub-Channel No. 1 Critical depth =      0.523(Ft.)
  '      '       '     Critical flow top width =     45.703(Ft.)
  '      '       '     Critical flow velocity=    3.767(Ft/s)
  '      '       '     Critical flow area =     19.813(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.156(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.156(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.820
Subarea runoff =      8.490(CFS) for    4.720(Ac.)
Total runoff =     76.671(CFS)      Total area =       29.63(Ac.)
```

```
Area averaged Fm value =     0.281(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Rainfall intensity =      3.156(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     29.630(Ac.)
Runoff from this stream =     76.671(CFS)
Time of concentration =   16.18 min.
Rainfall intensity =     3.156(In/Hr)
Area averaged loss rate (Fm) =     0.2813(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9377


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      205.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   221.000(Ft.)
Bottom (of initial area) elevation =   202.000(Ft.)
Difference in elevation =    19.000(Ft.)
Slope =    0.06333  s(%)=       6.33
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.121 min.
Rainfall intensity =      5.510(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.883
Subarea runoff =      4.475(CFS)
Total initial stream area =        0.920(Ac.)
Pervious area fraction = 0.350
Initial area Fm value =    0.105(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      7.370(CFS)
Depth of flow =   0.230(Ft.), Average velocity =   4.232(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               2.00
      2             20.00               0.00
```

```
      3              25.00                0.00
      4              50.00                2.00
Manning's 'N' friction factor =   0.030
-----------------------------------------------------------------
Sub-Channel flow  =      7.370(CFS)
  '      '    flow top width =     10.167(Ft.)
  '      '    velocity=    4.232(Ft/s)
  '      '    area =      1.742(Sq.Ft)
  '      '    Froude number =     1.802

Upstream point elevation =   202.000(Ft.)
Downstream point elevation =   157.000(Ft.)
Flow length =   585.000(Ft.)
Travel time  =    2.30 min.
Time of concentration =    8.43 min.
Depth of flow =   0.230(Ft.)
Average velocity =   4.232(Ft/s)
Total irregular channel flow =     7.370(CFS)
Irregular channel normal depth above invert elev. =   0.230(Ft.)
Average velocity of channel(s) =   4.232(Ft/s)

Sub-Channel No. 1 Critical depth =      0.320(Ft.)
  '      '        '     Critical flow top width =     12.207(Ft.)
  '      '        '     Critical flow velocity=    2.674(Ft/s)
  '      '        '     Critical flow area =      2.756(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      4.588(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.588(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =      3.830(CFS) for    1.190(Ac.)
Total runoff =      8.305(CFS)      Total area =        2.11(Ac.)
Area averaged Fm value =    0.215(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
-------------------------------------------------------------------------
Rainfall intensity =      4.588(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.110(Ac.)
Runoff from this stream =      8.305(CFS)
Time of concentration =    8.43 min.
Rainfall intensity =     4.588(In/Hr)
Area averaged loss rate (Fm) =    0.2150(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7166
Summary of stream data:
```

```
 Stream    Flow rate       TC              Rainfall Intensity
  No.        (CFS)        (min)                  (In/Hr)


 1        76.671      16.18                3.156
 2         8.305       8.43                4.588
 Qmax(1) =
           1.000 *     1.000 *     76.671) +
           0.673 *     1.000 *      8.305) + =       82.257
 Qmax(2) =
           1.498 *     0.521 *     76.671) +
           1.000 *     1.000 *      8.305) + =       68.096

 Total of 2 streams to confluence:
 Flow rates before confluence point:
       76.671       8.305
 Maximum flow rates at confluence using above data:
       82.257       68.096
 Area of streams before confluence:
       29.630        2.110
 Effective area values after confluence:
       31.740       17.535
 Results of confluence:
 Total flow rate =      82.257(CFS)
 Time of concentration =     16.184 min.
 Effective stream area after confluence =      31.740(Ac.)
 Study area average Pervious fraction(Ap) =  0.923
 Study area average soil loss rate(Fm) =     0.277(In/Hr)
 Study area total (this main stream) =       31.74(Ac.)


 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station      203.000 to Point/Station      206.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
 ------------------------------------------------------------------------------
 Estimated mean flow rate at midpoint of channel =      88.892(CFS)
 Depth of flow =   0.366(Ft.), Average velocity =  11.721(Ft/s)
      ******* Irregular Channel Data ***********
 ------------------------------------------------------------------
 Information entered for subchannel number 1 :
 Point number      'X' coordinate     'Y' coordinate
      1               0.00              10.00
      2              20.00               0.00
      3              40.00               0.00
      4              60.00              10.00
 Manning's 'N' friction factor =   0.030
 ------------------------------------------------------------------
 Sub-Channel flow  =     88.892(CFS)
   '      '    flow top width =     21.463(Ft.)
   '      '    velocity=   11.721(Ft/s)
   '      '    area =      7.584(Sq.Ft)
   '      '    Froude number =     3.475

 Upstream point elevation =   157.000(Ft.)
 Downstream point elevation =    12.000(Ft.)
 Flow length =   640.000(Ft.)
```

```
Travel time  =     0.91 min.
Time of concentration =   17.09 min.
Depth of flow =    0.366(Ft.)
Average velocity =  11.721(Ft/s)
Total irregular channel flow =     88.892(CFS)
Irregular channel normal depth above invert elev. =    0.366(Ft.)
Average velocity of channel(s) =  11.721(Ft/s)

Sub-Channel No. 1 Critical depth =      0.828(Ft.)
  '      '        '     Critical flow top width =      23.313(Ft.)
  '      '        '     Critical flow velocity=    4.957(Ft/s)
  '      '        '     Critical flow area =      17.934(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.059(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.300(In/Hr)
Rainfall intensity =      3.059(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.818
Subarea runoff =      9.931(CFS) for    5.120(Ac.)
Total runoff =     92.188(CFS)      Total area =       36.86(Ac.)
Area averaged Fm value =    0.280(In/Hr)
End of computations, total study area =           36.86 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.934
Area averaged SCS curve number (AMC 2) =  73.2
SCS curve number this storm year  100.0 (AMC 2) =  73.2
```

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-1999 Version 6.2
Rational Hydrology Study, Date: 05/10/01 File Name: exc300.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
EXISTING CONDITIONS - AREA C
FILE: J:\13266000\DRAIN\EXC300

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 300.000 to Point/Station 301.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3) = 92.80
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 750.000(Ft.)
Top (of initial area) elevation = 250.700(Ft.)
Bottom (of initial area) elevation = 222.700(Ft.)
Difference in elevation = 28.000(Ft.)
Slope = 0.03733 s(%)= 3.73
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 14.314 min.
Rainfall intensity = 3.387(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.820
Subarea runoff = 2.861(CFS)
Total initial stream area = 1.030(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 301.000 to Point/Station 302.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

```
Top of street segment elevation =   222.700(Ft.)
End of street segment elevation =   210.000(Ft.)
Length of street segment  =   130.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  12.000(Ft.)
Distance from crown to crossfall grade break  =  10.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      3.458(CFS)
Depth of flow =   0.191(Ft.), Average velocity =   4.705(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   5.315(Ft.)
Flow velocity =   4.71(Ft/s)
Travel time =    0.46 min.     TC =   14.77  min.
 Adding area flow to street
Rainfall intensity =      3.326(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 75.80
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.326(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.840
Subarea runoff =      1.219(CFS) for    0.430(Ac.)
Total runoff =      4.080(CFS)      Total area =        1.46(Ac.)
Area averaged Fm value =    0.220(In/Hr)
Street flow at end of street =      4.080(CFS)
Half street flow at end of street =      2.040(CFS)
Depth of flow =   0.201(Ft.), Average velocity =   4.848(Ft/s)
Flow width (from curb towards crown)=   5.795(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      302.000
**** SUBAREA FLOW ADDITION ****
-------------------------------------------------------------------------
Rainfall intensity =      3.326(In/Hr) for a   100.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 75.80
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
```

```
Time of concentration =    14.77 min.
Rainfall intensity =      3.326(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.850
Subarea runoff =      1.855(CFS) for    0.640(Ac.)
Total runoff =      5.935(CFS)      Total area =        2.10(Ac.)
Area averaged Fm value =    0.185(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      302.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
Rainfall intensity =      3.326(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 92.80
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    14.77 min.
Rainfall intensity =    3.326(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.840
Subarea runoff =      2.505(CFS) for    0.920(Ac.)
Total runoff =      8.441(CFS)      Total area =        3.02(Ac.)
Area averaged Fm value =    0.220(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      303.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     10.523(CFS)
Depth of flow =   0.192(Ft.), Average velocity =   5.287(Ft/s)
      ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              5.00
      2             10.00              0.00
      3             20.00              0.00
      4             30.00              5.00
Manning's 'N' friction factor =   0.030
----------------------------------------------------------------
Sub-Channel flow  =     10.523(CFS)
  '     '    flow top width =     10.767(Ft.)
  '     '    velocity=    5.287(Ft/s)
  '     '    area =      1.990(Sq.Ft)
  '     '    Froude number =     2.167

Upstream point elevation =   210.000(Ft.)
Downstream point elevation =   140.000(Ft.)
Flow length =   640.000(Ft.)
Travel time  =    2.02 min.
```

```
Time of concentration =   16.79 min.
Depth of flow =   0.192(Ft.)
Average velocity =   5.287(Ft/s)
Total irregular channel flow =    10.523(CFS)
Irregular channel normal depth above invert elev. =   0.192(Ft.)
Average velocity of channel(s) =   5.287(Ft/s)

Sub-Channel No. 1 Critical depth =      0.316(Ft.)
  '     '       '     Critical flow top width =     11.266(Ft.)
  '     '       '     Critical flow velocity=    3.128(Ft/s)
  '     '       '     Critical flow area =      3.364(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.090(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 86.20
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.090(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.828
Subarea runoff =      3.103(CFS) for    1.490(Ac.)
Total runoff =     11.543(CFS)      Total area =       4.51(Ac.)
Area averaged Fm value =    0.247(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      303.000 to Point/Station      304.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     19.350(CFS)
Depth of flow =   0.068(Ft.), Average velocity =   9.401(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             10.00               0.00
      3             40.00               0.00
      4             50.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     19.350(CFS)
  '     '    flow top width =     30.273(Ft.)
  '     '    velocity=    9.401(Ft/s)
  '     '    area =      2.058(Sq.Ft)
  '     '    Froude number =     6.354

Upstream point elevation =   140.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   100.000(Ft.)
Travel time  =    0.18 min.
Time of concentration =   16.97 min.
```

```
Depth of flow =   0.068(Ft.)
Average velocity =   9.401(Ft/s)
Total irregular channel flow =    19.350(CFS)
Irregular channel normal depth above invert elev. =   0.068(Ft.)
Average velocity of channel(s) =   9.401(Ft/s)

Sub-Channel No. 1 Critical depth =      0.234(Ft.)
  '     '       '     Critical flow top width =     30.938(Ft.)
  '     '       '     Critical flow velocity=    2.710(Ft/s)
  '     '       '     Critical flow area =      7.141(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.072(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 86.20
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.072(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.819
Subarea runoff =     15.143(CFS) for    6.100(Ac.)
Total runoff =     26.686(CFS)      Total area =       10.61(Ac.)
Area averaged Fm value =    0.277(In/Hr)
End of computations, total study area =           10.61 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.924
Area averaged SCS curve number (AMC 2) =  69.3
SCS curve number this storm year  100.0 (AMC 3) =  86.5
```

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-1999 Version 6.2
Rational Hydrology Study, Date: 05/10/01 File Name: exd400.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
EXISTING CONDITIONS - AREA D
FILE: J:\13266000\DRAIN\EXD400

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 400.000 to Point/Station 401.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3) = 92.80
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 200.000(Ft.)
Top (of initial area) elevation = 253.600(Ft.)
Bottom (of initial area) elevation = 230.000(Ft.)
Difference in elevation = 23.600(Ft.)
Slope = 0.11800 s(%)= 11.80
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.702 min.
Rainfall intensity = 5.231(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.848
Subarea runoff = 4.749(CFS)
Total initial stream area = 1.070(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 401.000 to Point/Station 402.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

```
Top of street segment elevation =   230.000(Ft.)
End of street segment elevation =   210.000(Ft.)
Length of street segment  =   220.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  14.000(Ft.)
Distance from crown to crossfall grade break  =  12.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      5.792(CFS)
Depth of flow =   0.225(Ft.), Average velocity =   5.047(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   6.991(Ft.)
Flow velocity =   5.05(Ft/s)
Travel time =    0.73 min.     TC =    7.43  min.
 Adding area flow to street
Rainfall intensity =      4.932(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 75.80
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.932(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =      1.785(CFS) for    0.470(Ac.)
Total runoff =      6.534(CFS)      Total area =        1.54(Ac.)
Area averaged Fm value =    0.218(In/Hr)
Street flow at end of street =      6.534(CFS)
Half street flow at end of street =      3.267(CFS)
Depth of flow =   0.233(Ft.), Average velocity =   5.175(Ft/s)
Flow width (from curb towards crown)=   7.391(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      402.000 to Point/Station      403.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      9.822(CFS)
Depth of flow =   0.113(Ft.), Average velocity =   3.400(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              5.00
      2             25.00              0.00
      3             50.00              0.00
```

```
      4              75.00                5.00
Manning's 'N' friction factor =   0.030
-----------------------------------------------------------------
Sub-Channel flow  =      9.822(CFS)
   '      '    flow top width =     26.130(Ft.)
   '      '    velocity=    3.400(Ft/s)
   '      '    area =      2.889(Sq.Ft)
   '      '    Froude number =     1.802

Upstream point elevation =   210.000(Ft.)
Downstream point elevation =   190.000(Ft.)
Flow length =   225.000(Ft.)
Travel time  =    1.10 min.
Time of concentration =    8.53 min.
Depth of flow =   0.113(Ft.)
Average velocity =   3.400(Ft/s)
Total irregular channel flow =     9.822(CFS)
Irregular channel normal depth above invert elev. =   0.113(Ft.)
Average velocity of channel(s) =   3.400(Ft/s)

Sub-Channel No. 1 Critical depth =      0.166(Ft.)
   '      '       '     Critical flow top width =     26.660(Ft.)
   '      '       '     Critical flow velocity=    2.290(Ft/s)
   '      '       '     Critical flow area =      4.288(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      4.555(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 86.20
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.555(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =      5.415(CFS) for    1.550(Ac.)
Total runoff =    11.949(CFS)      Total area =        3.09(Ac.)
Area averaged Fm value =    0.259(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      403.000 to Point/Station      404.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
-----------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     17.788(CFS)
Depth of flow =   0.180(Ft.), Average velocity =   3.816(Ft/s)
      ******* Irregular Channel Data ***********
-----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
```

```
Manning's 'N' friction factor =   0.030
-----------------------------------------------------------------
Sub-Channel flow  =     17.788(CFS)
   '      '     flow top width =     26.800(Ft.)
   '      '     velocity=    3.816(Ft/s)
   '      '     area =      4.662(Sq.Ft)
   '      '     Froude number =     1.612

Upstream point elevation =   190.000(Ft.)
Downstream point elevation =   160.000(Ft.)
Flow length =   490.000(Ft.)
Travel time  =    2.14 min.
Time of concentration =   10.67 min.
Depth of flow =   0.180(Ft.)
Average velocity =   3.816(Ft/s)
Total irregular channel flow =    17.788(CFS)
Irregular channel normal depth above invert elev. =   0.180(Ft.)
Average velocity of channel(s) =   3.816(Ft/s)

Sub-Channel No. 1 Critical depth =      0.246(Ft.)
   '      '      '     Critical flow top width =     27.461(Ft.)
   '      '      '     Critical flow velocity=    2.756(Ft/s)
   '      '      '     Critical flow area =      6.455(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      4.007(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 86.20
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.007(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.837
Subarea runoff =      8.551(CFS) for    3.020(Ac.)
Total runoff =     20.500(CFS)      Total area =        6.11(Ac.)
Area averaged Fm value =    0.279(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      404.000 to Point/Station      405.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
-----------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     41.553(CFS)
Depth of flow =   0.181(Ft.), Average velocity =   8.847(Ft/s)
      ******* Irregular Channel Data ***********
-----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              5.00
      2             25.00              0.00
      3             50.00              0.00
      4             75.00              5.00
Manning's 'N' friction factor =   0.030
```

```
------------------------------------------------------------------
Sub-Channel flow  =     41.553(CFS)
  '      '     flow top width =     26.813(Ft.)
  '      '     velocity=    8.847(Ft/s)
  '      '     area =      4.697(Sq.Ft)
  '      '     Froude number =     3.725

Upstream point elevation =   160.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   460.000(Ft.)
Travel time  =    0.87 min.
Time of concentration =   11.54 min.
Depth of flow =   0.181(Ft.)
Average velocity =   8.847(Ft/s)
Total irregular channel flow =    41.553(CFS)
Irregular channel normal depth above invert elev. =   0.181(Ft.)
Average velocity of channel(s) =   8.847(Ft/s)

Sub-Channel No. 1 Critical depth =      0.430(Ft.)
  '      '       '     Critical flow top width =     29.297(Ft.)
  '      '       '     Critical flow velocity=    3.562(Ft/s)
  '      '       '     Critical flow area =     11.665(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.832(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 86.20
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.832(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.831
Subarea runoff =     38.928(CFS) for   12.550(Ac.)
Total runoff =     59.427(CFS)      Total area =       18.66(Ac.)
Area averaged Fm value =    0.293(In/Hr)
End of computations, total study area =           18.66 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.977
Area averaged SCS curve number (AMC 2) =  69.2
SCS curve number this storm year  100.0 (AMC 3) =  86.4
```

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/06/01 File Name: exe500.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
EXISTING CONDITIONS - AREA E
FILE: J:\13266000\DRAIN\EXE500

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 500.000 to Point/Station 501.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 660.000(Ft.)
Top (of initial area) elevation = 230.000(Ft.)
Bottom (of initial area) elevation = 165.000(Ft.)
Difference in elevation = 65.000(Ft.)
Slope = 0.09848 s(%)= 9.85
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 15.064 min.
Rainfall intensity = 3.289(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.818
Subarea runoff = 2.663(CFS)
Total initial stream area = 0.990(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 501.000 to Point/Station 502.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =     14.822(CFS)
Depth of flow =   0.071(Ft.), Average velocity =   8.261(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =     14.822(CFS)
  '      '    flow top width =     25.708(Ft.)
  '      '    velocity=    8.261(Ft/s)
  '      '    area =      1.794(Sq.Ft)
  '      '    Froude number =     5.511

Upstream point elevation =   165.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   160.000(Ft.)
Travel time  =    0.32 min.
Time of concentration =   15.39 min.
Depth of flow =   0.071(Ft.)
Average velocity =   8.261(Ft/s)
Total irregular channel flow =    14.822(CFS)
Irregular channel normal depth above invert elev. =   0.071(Ft.)
Average velocity of channel(s) =   8.261(Ft/s)

Sub-Channel No. 1 Critical depth =      0.219(Ft.)
  '      '       '     Critical flow top width =     27.188(Ft.)
  '      '       '     Critical flow velocity=    2.597(Ft/s)
  '      '       '     Critical flow area =      5.708(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.249(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.249(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.817
Subarea runoff =     23.959(CFS) for    9.040(Ac.)
Total runoff =     26.622(CFS)      Total area =       10.03(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      502.000 to Point/Station      502.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.249(In/Hr) for a   100.0 year storm
```

RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.7000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.210(In/Hr)
Time of concentration = 15.39 min.
Rainfall intensity = 3.249(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.819
Subarea runoff = 3.118(CFS) for 1.140(Ac.)
Total runoff = 29.740(CFS) Total area = 11.17(Ac.)
Area averaged Fm value = 0.291(In/Hr)
End of computations, total study area = 11.17 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.969
Area averaged SCS curve number (AMC 2) = 67.7
SCS curve number this storm year 100.0 (AMC 2) = 67.7

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXF600.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
EXISTING CONDITIONS - AREA F
FILE: J:\13266000\DRAIN\EXF600

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 600.000 to Point/Station 601.000
**** INITIAL AREA EVALUATION ****

APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.060(In/Hr)
Initial subarea data:
Initial area flow distance = 300.000(Ft.)
Top (of initial area) elevation = 195.000(Ft.)
Bottom (of initial area) elevation = 185.000(Ft.)
Difference in elevation = 10.000(Ft.)
Slope = 0.03333 s(%)= 3.33
TC = k(0.324)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.264 min.
Rainfall intensity = 5.438(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.890
Subarea runoff = 5.179(CFS)
Total initial stream area = 1.070(Ac.)
Pervious area fraction = 0.200
Initial area Fm value = 0.060(In/Hr)

++
Process from Point/Station 601.000 to Point/Station 602.000
**** IMPROVED CHANNEL TRAVEL TIME ****

```
Upstream point elevation =   185.000(Ft.)
Downstream point elevation =   173.000(Ft.)
Channel length thru subarea  =   410.000(Ft.)
Channel base width       =    5.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     12.270(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     12.270(CFS)
Depth of flow =   0.293(Ft.), Average velocity =   6.488(Ft/s)
Channel flow top width =    7.926(Ft.)
Flow Velocity =    6.49(Ft/s)
Travel time  =    1.05 min.
Time of concentration =    7.32 min.
Critical depth =      0.484(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.975(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =     0.060(In/Hr)
Rainfall intensity =      4.975(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.889
Subarea runoff =     12.514(CFS) for    2.930(Ac.)
Total runoff =     17.692(CFS)      Total area =        4.00(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      602.000 to Point/Station      602.500
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =   165.500(Ft.)
Downstream point elevation =   160.500(Ft.)
Channel length thru subarea  =   350.000(Ft.)
Channel base width       =    5.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     26.030(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     26.030(CFS)
Depth of flow =   0.535(Ft.), Average velocity =   6.347(Ft/s)
Channel flow top width =   10.345(Ft.)
Flow Velocity =    6.35(Ft/s)
Travel time  =    0.92 min.
Time of concentration =    8.24 min.
Critical depth =      0.734(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.648(In/Hr) for a   100.0 year storm
APARTMENT subarea type
```

```
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.060(In/Hr)
Rainfall intensity =      4.648(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.888
Subarea runoff =     14.395(CFS) for    3.770(Ac.)
Total runoff =     32.087(CFS)      Total area =        7.77(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      602.500 to Point/Station      603.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   165.500(Ft.)
End of street segment elevation =   160.500(Ft.)
Length of street segment  =   350.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  35.000(Ft.)
Distance from crown to crossfall grade break  =  33.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     33.285(CFS)
Depth of flow =   0.550(Ft.), Average velocity =   3.572(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    2.48(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  21.144(Ft.)
Flow velocity =   3.57(Ft/s)
Travel time =    1.63 min.     TC =    9.87  min.
 Adding area flow to street
Rainfall intensity =      4.191(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     31.059(CFS)
therefore the upstream flow rate of Q =     32.087(CFS) is being used
Rainfall intensity =      4.191(In/Hr) for a   100.0 year storm
```

```
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.888
Subarea runoff =      0.000(CFS) for    0.580(Ac.)
Total runoff =     32.087(CFS)      Total area =        8.35(Ac.)
Area averaged Fm value =    0.058(In/Hr)
Street flow at end of street =     32.087(CFS)
Half street flow at end of street =     16.044(CFS)
Depth of flow =   0.543(Ft.), Average velocity =   3.556(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    2.16(Ft.)
Flow width (from curb towards crown)=  20.829(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      604.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     34.066(CFS)
Depth of flow =   1.121(Ft.), Average velocity =  13.554(Ft/s)
      ******* Irregular Channel Data **********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              10.00
      2             20.00               0.00
      3             40.00              10.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     34.066(CFS)
  '      '    flow top width =      4.484(Ft.)
  '      '    velocity=   13.554(Ft/s)
  '      '    area =      2.513(Sq.Ft)
  '      '    Froude number =     3.190

Upstream point elevation =   160.500(Ft.)
Downstream point elevation =    90.000(Ft.)
Flow length =   375.000(Ft.)
Travel time  =    0.46 min.
Time of concentration =   10.33 min.
Depth of flow =   1.121(Ft.)
Average velocity =  13.554(Ft/s)
Total irregular channel flow =    34.066(CFS)
Irregular channel normal depth above invert elev. =   1.121(Ft.)
Average velocity of channel(s) =  13.554(Ft/s)

Sub-Channel No. 1 Critical depth =      1.781(Ft.)
  '      '        '     Critical flow top width =      7.125(Ft.)
  '      '        '     Critical flow velocity=    5.368(Ft/s)
  '      '        '     Critical flow area =      6.346(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      4.083(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
```

```
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.083(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.881
Subarea runoff =      1.665(CFS) for    1.030(Ac.)
Total runoff =     33.752(CFS)      Total area =        9.38(Ac.)
Area averaged Fm value =    0.084(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      4.083(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    10.33 min.
Rainfall intensity =      4.083(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.880
Subarea runoff =      0.987(CFS) for    0.290(Ac.)
Total runoff =     34.739(CFS)      Total area =        9.67(Ac.)
Area averaged Fm value =    0.091(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Rainfall intensity =      4.083(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      9.670(Ac.)
Runoff from this stream =     34.739(CFS)
Time of concentration =   10.33 min.
Rainfall intensity =     4.083(In/Hr)
Area averaged loss rate (Fm) =    0.0910(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3032


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      606.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
```

```
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   161.500(Ft.)
Bottom (of initial area) elevation =   160.000(Ft.)
Difference in elevation =     1.500(Ft.)
Slope =    0.00500  s(%)=       0.50
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.589 min.
Rainfall intensity =      4.538(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.894
Subarea runoff =      7.181(CFS)
Total initial stream area =        1.770(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      606.000 to Point/Station      607.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   160.000(Ft.)
End of street segment elevation =   159.000(Ft.)
Length of street segment  =   141.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  40.000(Ft.)
Distance from crown to crossfall grade break  =  38.000(Ft.)
Slope from gutter to grade break (v/hz) =    0.010
Slope from grade break to crown (v/hz)  =    0.010
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =    0.010
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     10.245(CFS)
Depth of flow =   0.451(Ft.), Average velocity =   2.141(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  30.458(Ft.)
Flow velocity =   2.14(Ft/s)
Travel time =    1.10 min.     TC =    9.69  min.
 Adding area flow to street
Rainfall intensity =      4.236(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.236(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.894
```

```
Subarea runoff =      5.234(CFS) for    1.510(Ac.)
Total runoff =     12.416(CFS)      Total area =        3.28(Ac.)
Area averaged Fm value =    0.030(In/Hr)
Street flow at end of street =     12.416(CFS)
Half street flow at end of street =     12.416(CFS)
Depth of flow =   0.475(Ft.), Average velocity =   2.243(Ft/s)
Flow width (from curb towards crown)=  32.826(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      607.000 to Point/Station      608.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     15.993(CFS)
Depth of flow =   0.332(Ft.), Average velocity =   4.519(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             10.00               0.00
      3             20.00               0.00
      4             30.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     15.993(CFS)
   '      '    flow top width =     11.327(Ft.)
   '      '    velocity=    4.519(Ft/s)
   '      '    area =      3.539(Sq.Ft)
   '      '    Froude number =     1.425

Upstream point elevation =   159.000(Ft.)
Downstream point elevation =   155.000(Ft.)
Flow length =   100.000(Ft.)
Travel time  =    0.37 min.
Time of concentration =   10.06 min.
Depth of flow =   0.332(Ft.)
Average velocity =   4.519(Ft/s)
Total irregular channel flow =    15.993(CFS)
Irregular channel normal depth above invert elev. =   0.332(Ft.)
Average velocity of channel(s) =   4.519(Ft/s)

Sub-Channel No. 1 Critical depth =      0.418(Ft.)
   '      '       '     Critical flow top width =     11.672(Ft.)
   '      '       '     Critical flow velocity=    3.531(Ft/s)
   '      '       '     Critical flow area =      4.529(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      4.146(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
```

```
Rainfall intensity =      4.146(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.872
Subarea runoff =      6.277(CFS) for    1.890(Ac.)
Total runoff =     18.693(CFS)      Total area =        5.17(Ac.)
Area averaged Fm value =    0.129(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      608.000 to Point/Station      608.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      4.146(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    10.06 min.
Rainfall intensity =      4.146(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.875
Subarea runoff =      3.297(CFS) for    0.890(Ac.)
Total runoff =     21.990(CFS)      Total area =        6.06(Ac.)
Area averaged Fm value =    0.114(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      608.000 to Point/Station      604.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     22.879(CFS)
Depth of flow =   1.831(Ft.), Average velocity =  13.654(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              20.00
      2             10.00               0.00
      3             20.00              20.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =     22.879(CFS)
  '      '    flow top width =      1.831(Ft.)
  '      '    velocity=   13.654(Ft/s)
  '      '    area =      1.676(Sq.Ft)
  '      '    Froude number =     2.515

Upstream point elevation =   155.000(Ft.)
Downstream point elevation =    90.000(Ft.)
Flow length =   260.000(Ft.)
Travel time  =    0.32 min.
Time of concentration =   10.37 min.
Depth of flow =   1.831(Ft.)
```

```
Average velocity =  13.654(Ft/s)
Total irregular channel flow =    22.879(CFS)
Irregular channel normal depth above invert elev. =   1.831(Ft.)
Average velocity of channel(s) =  13.654(Ft/s)

Sub-Channel No. 1 Critical depth =      2.656(Ft.)
  '      '       '     Critical flow top width =      2.656(Ft.)
  '      '       '     Critical flow velocity=    6.485(Ft/s)
  '      '       '     Critical flow area =      3.528(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      4.073(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.073(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.872
Subarea runoff =      1.265(CFS) for    0.490(Ac.)
Total runoff =     23.255(CFS)      Total area =        6.55(Ac.)
Area averaged Fm value =    0.128(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Rainfall intensity =      4.073(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      6.550(Ac.)
Runoff from this stream =     23.255(CFS)
Time of concentration =   10.37 min.
Rainfall intensity =     4.073(In/Hr)
Area averaged loss rate (Fm) =    0.1281(In/Hr)
Area averaged Pervious ratio (Ap) = 0.4270
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       34.739     10.33               4.083
2       23.255     10.37               4.073
Qmax(1) =
         1.000 *    1.000 *    34.739) +
         1.002 *    0.996 *    23.255) + =      57.955
Qmax(2) =
         0.998 *    1.000 *    34.739) +
         1.000 *    1.000 *    23.255) + =      57.910

Total of 2 streams to confluence:
Flow rates before confluence point:
```

```
      34.739      23.255
 Maximum flow rates at confluence using above data:
       57.955      57.910
 Area of streams before confluence:
        9.670       6.550
 Effective area values after confluence:
       16.193      16.220
 Results of confluence:
 Total flow rate =     57.955(CFS)
 Time of concentration =    10.330 min.
 Effective stream area after confluence =     16.193(Ac.)
 Study area average Pervious fraction(Ap) =  0.353
 Study area average soil loss rate(Fm) =    0.106(In/Hr)
 Study area total (this main stream) =      16.22(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      609.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     61.355(CFS)
Depth of flow =   2.162(Ft.), Average velocity =  17.497(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              20.00
      2             15.00               0.00
      3             30.00              20.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     61.355(CFS)
  '     '    flow top width =      3.243(Ft.)
  '     '    velocity=   17.497(Ft/s)
  '     '    area =      3.506(Sq.Ft)
  '     '    Froude number =     2.966

Upstream point elevation =    90.000(Ft.)
Downstream point elevation =    30.000(Ft.)
Flow length =   270.000(Ft.)
Travel time  =    0.26 min.
Time of concentration =   10.59 min.
Depth of flow =   2.162(Ft.)
Average velocity =  17.497(Ft/s)
Total irregular channel flow =    61.355(CFS)
Irregular channel normal depth above invert elev. =   2.162(Ft.)
Average velocity of channel(s) =  17.497(Ft/s)

Sub-Channel No. 1 Critical depth =      3.344(Ft.)
  '     '       '     Critical flow top width =      5.016(Ft.)
  '     '       '     Critical flow velocity=    7.317(Ft/s)
  '     '       '     Critical flow area =      8.385(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      4.025(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
```

```
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.025(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.872
Subarea runoff =      5.537(CFS) for    1.900(Ac.)
Total runoff =     63.492(CFS)      Total area =       18.09(Ac.)
Area averaged Fm value =    0.126(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      609.000 to Point/Station      610.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     64.527(CFS)
Depth of flow =   0.418(Ft.), Average velocity =  12.761(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               2.00
      2             10.00               0.00
      3             20.00               0.00
      4             30.00               2.00
Manning's 'N' friction factor =   0.018
------------------------------------------------------------------------
Sub-Channel flow  =     64.528(CFS)
  '      '    flow top width =     14.182(Ft.)
  '      '    velocity=   12.761(Ft/s)
  '      '    area =      5.057(Sq.Ft)
  '      '    Froude number =     3.766

Upstream point elevation =    30.000(Ft.)
Downstream point elevation =    20.000(Ft.)
Flow length =   105.000(Ft.)
Travel time  =    0.14 min.
Time of concentration =   10.72 min.
Depth of flow =   0.418(Ft.)
Average velocity =  12.761(Ft/s)
Total irregular channel flow =    64.527(CFS)
Irregular channel normal depth above invert elev. =   0.418(Ft.)
Average velocity of channel(s) =  12.761(Ft/s)

Sub-Channel No. 1 Critical depth =      0.922(Ft.)
  '      '       '     Critical flow top width =     19.219(Ft.)
  '      '       '     Critical flow velocity=    4.791(Ft/s)
  '      '       '     Critical flow area =     13.468(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.996(In/Hr) for a   100.0 year storm
MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
```

```
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.075(In/Hr)
Rainfall intensity =     3.996(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.872
Subarea runoff =      1.600(CFS) for    0.590(Ac.)
Total runoff =     65.093(CFS)      Total area =       18.68(Ac.)
Area averaged Fm value =    0.125(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      610.000 to Point/Station      611.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     65.737(CFS)
Depth of flow =   0.293(Ft.), Average velocity =  10.443(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               1.00
      2              5.00               0.00
      3             25.00               0.00
      4             30.00               1.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     65.737(CFS)
  '      '    flow top width =     22.932(Ft.)
  '      '    velocity=   10.443(Ft/s)
  '      '    area =      6.295(Sq.Ft)
  '      '    Froude number =     3.513

Upstream point elevation =    20.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =    40.000(Ft.)
Travel time  =    0.06 min.
Time of concentration =   10.79 min.
Depth of flow =   0.293(Ft.)
Average velocity =  10.443(Ft/s)
Total irregular channel flow =    65.737(CFS)
Irregular channel normal depth above invert elev. =   0.293(Ft.)
Average velocity of channel(s) =  10.443(Ft/s)

Sub-Channel No. 1 Critical depth =      0.656(Ft.)
  '      '       '     Critical flow top width =     26.563(Ft.)
  '      '       '     Critical flow velocity=    4.303(Ft/s)
  '      '       '     Critical flow area =     15.278(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =     3.982(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
```

Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 78.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Rainfall intensity = 3.982(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.871
Subarea runoff = 0.998(CFS) for 0.370(Ac.)
Total runoff = 66.091(CFS) Total area = 19.05(Ac.)
Area averaged Fm value = 0.128(In/Hr)
End of computations, total study area = 19.08 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.427
Area averaged SCS curve number (AMC 2) = 60.2
SCS curve number this storm year 100.0 (AMC 2) = 60.2

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXG700.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
EXISTING CONDITIONS - AREA G
FILE: J:\13266000\DRAIN\EXG700

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 700.000 to Point/Station 701.000
**** INITIAL AREA EVALUATION ****

MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.2500 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.075(In/Hr)
Initial subarea data:
Initial area flow distance = 310.000(Ft.)
Top (of initial area) elevation = 91.000(Ft.)
Bottom (of initial area) elevation = 79.000(Ft.)
Difference in elevation = 12.000(Ft.)
Slope = 0.03871 s(%)= 3.87
TC = k(0.336)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.387 min.
Rainfall intensity = 5.377(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.887
Subarea runoff = 6.299(CFS)
Total initial stream area = 1.320(Ac.)
Pervious area fraction = 0.250
Initial area Fm value = 0.075(In/Hr)

++
Process from Point/Station 701.000 to Point/Station 702.000
**** IMPROVED CHANNEL TRAVEL TIME ****

```
Upstream point elevation =     79.000(Ft.)
Downstream point elevation =     52.000(Ft.)
Channel length thru subarea  =   530.000(Ft.)
Channel base width       =     0.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     19.756(CFS)
Manning's 'N'    = 0.018
Maximum depth of channel  =     1.000(Ft.)
Flow(q) thru subarea =      19.756(CFS)
Depth of flow =   0.668(Ft.), Average velocity =   8.854(Ft/s)
Channel flow top width =     6.680(Ft.)
Flow Velocity =     8.85(Ft/s)
Travel time  =     1.00 min.
Time of concentration =     7.39 min.
Critical depth =       0.992(Ft.)
 Adding area flow to channel
Rainfall intensity =       4.948(In/Hr) for a   100.0 year storm
MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2500  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.075(In/Hr)
Rainfall intensity =       4.948(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.886
Subarea runoff =      24.226(CFS) for     5.640(Ac.)
Total runoff =      30.525(CFS)       Total area =         6.96(Ac.)
Area averaged Fm value =     0.075(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       702.000 to Point/Station       703.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =     52.000(Ft.)
Downstream point/station elevation =     10.000(Ft.)
Pipe length  =     50.00(Ft.)   Manning's N = 0.015
No. of pipes = 1  Required pipe flow  =     30.525(CFS)
Nearest computed pipe diameter  =      15.00(In.)
Calculated individual pipe flow  =     30.525(CFS)
Normal flow depth in pipe =     8.33(In.)
Flow top width inside pipe =    14.91(In.)
Critical depth could not be calculated.
Pipe flow velocity =      43.62(Ft/s)
Travel time through pipe =     0.02 min.
Time of concentration (TC) =      7.40 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       703.000 to Point/Station       703.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =       4.941(In/Hr) for a   100.0 year storm
```

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 78.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Time of concentration = 7.40 min.
Rainfall intensity = 4.941(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.881
Subarea runoff = 4.632(CFS) for 1.120(Ac.)
Total runoff = 35.158(CFS) Total area = 8.08(Ac.)
Area averaged Fm value = 0.106(In/Hr)
End of computations, total study area = 8.08 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.354
Area averaged SCS curve number (AMC 2) = 59.0
SCS curve number this storm year 100.0 (AMC 2) = 59.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXH800.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
EXISTING CONDITIONS _ AREA H
FILE: J:\13266.00\DRAIN\EXH800

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 800.000 to Point/Station 801.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.030(In/Hr)
Initial subarea data:
Initial area flow distance = 130.000(Ft.)
Top (of initial area) elevation = 41.000(Ft.)
Bottom (of initial area) elevation = 40.000(Ft.)
Difference in elevation = 1.000(Ft.)
Slope = 0.00769 s(%)= 0.77
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.639 min.
Rainfall intensity = 5.775(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.895
Subarea runoff = 5.015(CFS)
Total initial stream area = 0.970(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.030(In/Hr)

++
Process from Point/Station 801.000 to Point/Station 802.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =      8.299(CFS)
Depth of flow =   0.054(Ft.), Average velocity =   7.354(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               1.00
      2             20.00               0.00
      3             40.00               0.00
      4             60.00               1.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =      8.299(CFS)
  '      '    flow top width =     22.142(Ft.)
  '      '    velocity=    7.354(Ft/s)
  '      '    area =      1.128(Sq.Ft)
  '      '    Froude number =     5.741

Upstream point elevation =    45.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =    30.000(Ft.)
Travel time  =    0.07 min.
Time of concentration =    5.71 min.
Depth of flow =   0.054(Ft.)
Average velocity =   7.354(Ft/s)
Total irregular channel flow =     8.299(CFS)
Irregular channel normal depth above invert elev. =   0.054(Ft.)
Average velocity of channel(s) =   7.354(Ft/s)

Sub-Channel No. 1 Critical depth =      0.164(Ft.)
  '      '       '     Critical flow top width =     26.563(Ft.)
  '      '       '     Critical flow velocity=    2.173(Ft/s)
  '      '       '     Critical flow area =      3.820(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      5.735(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      5.735(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.871
Subarea runoff =      6.178(CFS) for    1.270(Ac.)
Total runoff =     11.194(CFS)      Total area =        2.24(Ac.)
Area averaged Fm value =    0.183(In/Hr)
End of computations, total study area =            2.24 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.610
```

Area averaged SCS curve number (AMC 2) = 68.5
SCS curve number this storm year 100.0 (AMC 2) = 68.5

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXI900.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
EXISTING CONDITIONS - AREA I
FILE: J:\13266.000\DRAIN\EXI900

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 900.000 to Point/Station 901.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 84.03
Pervious ratio(Ap) = 0.9000 Max loss rate(Fp)= 0.000(In/Hr)
Max Catchment Loss (Fm) = 0.270(In/Hr)
Initial subarea data:
Initial area flow distance = 300.000(Ft.)
Top (of initial area) elevation = 150.000(Ft.)
Bottom (of initial area) elevation = 118.000(Ft.)
Difference in elevation = 32.000(Ft.)
Slope = 0.10667 s(%)= 10.67
TC = k(0.496)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.605 min.
Rainfall intensity = 4.866(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.900
Subarea runoff = 5.584(CFS)
Total initial stream area = 1.350(Ac.)
Pervious area fraction = 0.900
Initial area Fm value = 0.270(In/Hr)

++
Process from Point/Station 901.000 to Point/Station 902.000
**** IMPROVED CHANNEL TRAVEL TIME ****

Upstream point elevation = 118.000(Ft.)
Downstream point elevation = 83.000(Ft.)
Channel length thru subarea = 290.000(Ft.)

```
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =      8.210(CFS)
Manning's 'N'    = 0.018
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      8.210(CFS)
Depth of flow =   0.409(Ft.), Average velocity =   9.823(Ft/s)
Channel flow top width =    4.088(Ft.)
Flow Velocity =    9.82(Ft/s)
Travel time  =    0.49 min.
Time of concentration =    8.10 min.
Critical depth =      0.699(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.694(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.9000  Max loss rate(Fp)=     0.400(In/Hr)
Max Catchment Loss (Fm) =     0.360(In/Hr)
Rainfall intensity =      4.694(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.840
Subarea runoff =      4.745(CFS) for    1.270(Ac.)
Total runoff =     10.329(CFS)      Total area =        2.62(Ac.)
Area averaged Fm value =    0.314(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      902.000 to Point/Station      902.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      4.694(In/Hr) for a   100.0 year storm
MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.075(In/Hr)
Time of concentration =     8.10 min.
Rainfall intensity =      4.694(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =      1.580(CFS) for    0.380(Ac.)
Total runoff =     11.908(CFS)      Total area =        3.00(Ac.)
Area averaged Fm value =    0.283(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      902.000 to Point/Station      903.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =    83.000(Ft.)
Downstream point elevation =    38.000(Ft.)
Channel length thru subarea  =   490.000(Ft.)
```

```
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     12.583(CFS)
Manning's 'N'    = 0.018
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     12.583(CFS)
Depth of flow =   0.505(Ft.), Average velocity =   9.866(Ft/s)
Channel flow top width =    5.051(Ft.)
Flow Velocity =    9.87(Ft/s)
Travel time  =    0.83 min.
Time of concentration =    8.93 min.
Critical depth =      0.828(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.439(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.439(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.848
Subarea runoff =      0.662(CFS) for    0.340(Ac.)
Total runoff =     12.570(CFS)      Total area =        3.34(Ac.)
Area averaged Fm value =    0.258(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      903.000 to Point/Station      903.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      4.439(In/Hr) for a   100.0 year storm
MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.075(In/Hr)
Time of concentration =     8.93 min.
Rainfall intensity =      4.439(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      3.378(CFS) for    0.860(Ac.)
Total runoff =     15.948(CFS)      Total area =        4.20(Ac.)
Area averaged Fm value =    0.220(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      903.000 to Point/Station      903.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
```

```
Rainfall intensity =      4.439(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     8.93 min.
Rainfall intensity =      4.439(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.854
Subarea runoff =      1.416(CFS) for    0.380(Ac.)
Total runoff =     17.364(CFS)      Total area =        4.58(Ac.)
Area averaged Fm value =    0.227(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      903.000 to Point/Station      903.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      4.439(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     8.93 min.
Rainfall intensity =      4.439(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =      3.278(CFS) for    0.880(Ac.)
Total runoff =     20.642(CFS)      Total area =        5.46(Ac.)
Area averaged Fm value =    0.239(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      903.000 to Point/Station      904.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =    38.000(Ft.)
Downstream point elevation =    20.000(Ft.)
Channel length thru subarea  =   205.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     22.816(CFS)
Manning's 'N'    = 0.018
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     22.816(CFS)
Depth of flow =   0.637(Ft.), Average velocity =  11.257(Ft/s)
Channel flow top width =    6.367(Ft.)
Flow Velocity =   11.26(Ft/s)
```

```
Travel time  =    0.30 min.
Time of concentration =    9.23 min.
Critical depth =      1.047(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.355(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.355(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =      4.062(CFS) for    1.150(Ac.)
Total runoff =     24.704(CFS)      Total area =        6.61(Ac.)
Area averaged Fm value =    0.202(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      904.000 to Point/Station      904.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      4.355(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     9.23 min.
Rainfall intensity =      4.355(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.851
Subarea runoff =     12.262(CFS) for    3.360(Ac.)
Total runoff =     36.967(CFS)      Total area =        9.97(Ac.)
Area averaged Fm value =    0.235(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      904.000 to Point/Station      905.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     37.634(CFS)
Depth of flow =   0.203(Ft.), Average velocity =   8.840(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               1.00
      2              5.00               0.00
      3             25.00               0.00
      4             30.00               1.00
```

```
Manning's 'N' friction factor =   0.030
-----------------------------------------------------------------
Sub-Channel flow  =     37.635(CFS)
   '      '    flow top width =     22.026(Ft.)
   '      '    velocity=    8.840(Ft/s)
   '      '    area =      4.257(Sq.Ft)
   '      '    Froude number =     3.544

Upstream point elevation =    20.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =    35.000(Ft.)
Travel time  =    0.07 min.
Time of concentration =    9.29 min.
Depth of flow =   0.203(Ft.)
Average velocity =   8.840(Ft/s)
Total irregular channel flow =    37.634(CFS)
Irregular channel normal depth above invert elev. =   0.203(Ft.)
Average velocity of channel(s) =   8.840(Ft/s)

Sub-Channel No. 1 Critical depth =      0.461(Ft.)
   '      '        '     Critical flow top width =     24.609(Ft.)
   '      '        '     Critical flow velocity=    3.661(Ft/s)
   '      '        '     Critical flow area =     10.281(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      4.337(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.337(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.851
Subarea runoff =      1.149(CFS) for    0.360(Ac.)
Total runoff =     38.115(CFS)      Total area =       10.33(Ac.)
Area averaged Fm value =    0.238(In/Hr)
End of computations, total study area =           10.33 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.755
Area averaged SCS curve number (AMC 2) =  67.8
SCS curve number this storm year  100.0 (AMC 2) =  67.8
```

DEVELOPED CONDITIONS

100 YEAR STORM

```
                Orange County Rational Hydrology Program

             (Hydrology Manual Date(s) October 1986 & November 1996)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2001 Version 6.3
      Rational Hydrology Study, Date: 04/09/01  File Name: DEVA20.roc
--------------------------------------------------------------------------
DANA POINT HEADLANDS
100 YEAR STORM
DEVELOPED CONDITIONS - AREA A
FILE: J:\13266.00\DRAIN\DEVA20
--------------------------------------------------------------------------
The Keith Companies, Costa Mesa, California - S/N   708
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

--------------------------------------------------------------------------

Rational hydrology study storm event year is   100.0

Decimal fraction of study above 2000 ft., 600M  =     0.0000
English Units Used for input data


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** INITIAL AREA EVALUATION ****
__________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   260.000(Ft.)
Top (of initial area) elevation =   202.000(Ft.)
Bottom (of initial area) elevation =   198.000(Ft.)
Difference in elevation =     4.000(Ft.)
Slope =    0.01538  s(%)=       1.54
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.478 min.
Rainfall intensity =      5.334(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.895
Subarea runoff =      3.055(CFS)
Total initial stream area =        0.640(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      102.000
**** SUBAREA FLOW ADDITION ****
__________________________________________________________________________
```

```
Rainfall intensity =      5.334(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     6.48 min.
Rainfall intensity =      5.334(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.873
Subarea runoff =      2.582(CFS) for    0.570(Ac.)
Total runoff =      5.638(CFS)      Total area =        1.21(Ac.)
Area averaged Fm value =     0.157(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   198.000(Ft.)
End of street segment elevation =   165.000(Ft.)
Length of street segment  =   470.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =    0.020
Slope from grade break to crown (v/hz)  =    0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   2.000(Ft.)
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0170
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     12.626(CFS)
Depth of flow =   0.401(Ft.), Average velocity =   6.304(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  13.698(Ft.)
Flow velocity =   6.30(Ft/s)
Travel time =    1.24 min.     TC =    7.72  min.
 Adding area flow to street
Rainfall intensity =      4.824(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.824(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.888
```

```
Subarea runoff =     12.387(CFS) for    3.000(Ac.)
Total runoff =     18.025(CFS)      Total area =        4.21(Ac.)
Area averaged Fm value =    0.067(In/Hr)
Street flow at end of street =     18.025(CFS)
Half street flow at end of street =     18.025(CFS)
Depth of flow =   0.443(Ft.), Average velocity =   6.867(Ft/s)
Flow width (from curb towards crown)=  15.805(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   161.000(Ft.)
Downstream point/station elevation =   158.000(Ft.)
Pipe length =    85.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow =    18.025(CFS)
Nearest computed pipe diameter =     18.00(In.)
Calculated individual pipe flow =    18.025(CFS)
Normal flow depth in pipe =   13.52(In.)
Flow top width inside pipe =   15.56(In.)
Critical depth could not be calculated.
Pipe flow velocity =     12.66(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =     7.83 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.784(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     7.83 min.
Rainfall intensity =      4.784(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.888
Subarea runoff =      1.904(CFS) for    0.480(Ac.)
Total runoff =     19.929(CFS)      Total area =        4.69(Ac.)
Area averaged Fm value =    0.063(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   158.000(Ft.)
Downstream point/station elevation =    13.000(Ft.)
Pipe length =   160.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow =    19.929(CFS)
```

```
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =    19.929(CFS)
Normal flow depth in pipe =    6.61(In.)
Flow top width inside pipe =   11.94(In.)
Critical depth could not be calculated.
Pipe flow velocity =     44.91(Ft/s)
Travel time through pipe =    0.06 min.
Time of concentration (TC) =     7.89 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.763(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     7.89 min.
Rainfall intensity =      4.763(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.889
Subarea runoff =      2.128(CFS) for    0.520(Ac.)
Total runoff =     22.057(CFS)      Total area =        5.21(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      4.763(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.210(Ac.)
Runoff from this stream =     22.057(CFS)
Time of concentration =    7.89 min.
Rainfall intensity =     4.763(In/Hr)
Area averaged loss rate (Fm) =    0.0595(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1985


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =      0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   275.000(Ft.)
Top (of initial area) elevation =   190.500(Ft.)
Bottom (of initial area) elevation =   165.000(Ft.)
Difference in elevation =    25.500(Ft.)
Slope =    0.09273  s(%)=       9.27
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    4.626 min.
Rainfall intensity =      6.469(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.896
Subarea runoff =      5.332(CFS)
Total initial stream area =        0.920(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   162.000(Ft.)
Downstream point/station elevation =   100.000(Ft.)
Pipe length  =    60.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.332(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     5.332(CFS)
Normal flow depth in pipe =    4.60(In.)
Flow top width inside pipe =    5.08(In.)
Critical depth could not be calculated.
Pipe flow velocity =     33.01(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     4.66 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      105.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   100.000(Ft.)
Downstream point elevation =    13.000(Ft.)
Channel length thru subarea  =   275.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =      9.099(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      9.099(CFS)
Depth of flow =   0.657(Ft.), Average velocity =  21.062(Ft/s)
Channel flow top width =    1.315(Ft.)
Flow Velocity =   21.06(Ft/s)
Travel time  =    0.22 min.
Time of concentration =    4.87 min.
Critical depth =      1.359(Ft.)
 Adding area flow to channel
Rainfall intensity =      6.279(In/Hr) for a   100.0 year storm
```

```
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      6.279(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.873
Subarea runoff =      6.837(CFS) for    1.300(Ac.)
Total runoff =     12.169(CFS)      Total area =        2.22(Ac.)
Area averaged Fm value =    0.188(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      6.279(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.220(Ac.)
Runoff from this stream =     12.169(CFS)
Time of concentration =    4.87 min.
Rainfall intensity =     6.279(In/Hr)
Area averaged loss rate (Fm) =    0.1881(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6270
Summary of stream data:

Stream    Flow rate       TC            Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1        22.057       7.89                4.763
2        12.169       4.87                6.279
Qmax(1) =
          1.000 *     1.000 *     22.057) +
          0.751 *     1.000 *     12.169) + =       31.198
Qmax(2) =
          1.322 *     0.618 *     22.057) +
          1.000 *     1.000 *     12.169) + =       30.177

Total of 2 streams to confluence:
Flow rates before confluence point:
      22.057       12.169
Maximum flow rates at confluence using above data:
       31.198       30.177
Area of streams before confluence:
        5.210        2.220
Effective area values after confluence:
        7.430        5.437
Results of confluence:
Total flow rate =     31.198(CFS)
Time of concentration =     7.892 min.
Effective stream area after confluence =       7.430(Ac.)
Study area average Pervious fraction(Ap) =  0.327
```

```
Study area average soil loss rate(Fm) =    0.098(In/Hr)
Study area total (this main stream) =      7.43(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    10.000(Ft.)
Downstream point/station elevation =     8.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    31.198(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    31.198(CFS)
Normal flow depth in pipe =   19.52(In.)
Flow top width inside pipe =   24.16(In.)
Critical Depth =   23.14(In.)
Pipe flow velocity =     10.14(Ft/s)
Travel time through pipe =    0.25 min.
Time of concentration (TC) =     8.14 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
Rainfall intensity =      4.680(In/Hr) for a   100.0 year storm
In Main Stream number: 1
Stream flow area =      7.430(Ac.)
Runoff from this stream =     31.198(CFS)
Time of concentration =    8.14 min.
Rainfall intensity =     4.680(In/Hr)
Area averaged loss rate (Fm) =    0.0980(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3265
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      110.000 to Point/Station      111.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   380.000(Ft.)
Top (of initial area) elevation =   273.500(Ft.)
Bottom (of initial area) elevation =   192.200(Ft.)
Difference in elevation =    81.300(Ft.)
Slope =    0.21395  s(%)=      21.39
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
```

```
Initial area time of concentration =    7.692 min.
Rainfall intensity =      4.834(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.844
Subarea runoff =      9.263(CFS)
Total initial stream area =        2.270(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      112.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   192.200(Ft.)
End of street segment elevation =   191.000(Ft.)
Length of street segment  =    90.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  15.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     10.426(CFS)
Depth of flow =   0.355(Ft.), Average velocity =   2.740(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  13.481(Ft.)
Flow velocity =   2.74(Ft/s)
Travel time =    0.55 min.     TC =    8.24  min.
 Adding area flow to street
Rainfall intensity =      4.647(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.647(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =      1.987(CFS) for    0.570(Ac.)
Total runoff =     11.251(CFS)      Total area =        2.84(Ac.)
Area averaged Fm value =    0.246(In/Hr)
Street flow at end of street =     11.251(CFS)
Half street flow at end of street =      5.625(CFS)
Depth of flow =   0.363(Ft.), Average velocity =   2.790(Ft/s)
Flow width (from curb towards crown)=  13.896(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      112.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.647(In/Hr) for a   100.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =     8.24 min.
Rainfall intensity =      4.647(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      1.226(CFS) for    0.300(Ac.)
Total runoff =     12.477(CFS)      Total area =        3.14(Ac.)
Area averaged Fm value =    0.232(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      113.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   191.000(Ft.)
Downstream point/station elevation =   110.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.477(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =    12.477(CFS)
Normal flow depth in pipe =    6.30(In.)
Flow top width inside pipe =    8.24(In.)
Critical depth could not be calculated.
Pipe flow velocity =     37.74(Ft/s)
Travel time through pipe =    0.04 min.
Time of concentration (TC) =     8.28 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      114.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   110.000(Ft.)
Downstream point elevation =    50.000(Ft.)
Channel length thru subarea  =   125.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =     13.987(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     13.987(CFS)
Depth of flow =   0.714(Ft.), Average velocity =  27.420(Ft/s)
Channel flow top width =    1.428(Ft.)
Flow Velocity =   27.42(Ft/s)
```

```
Travel time  =    0.08 min.
Time of concentration =    8.36 min.
Critical depth =      1.656(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.609(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.609(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =      2.839(CFS) for    0.760(Ac.)
Total runoff =     15.316(CFS)      Total area =        3.90(Ac.)
Area averaged Fm value =    0.246(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      4.609(In/Hr) for a   100.0 year storm
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      3.900(Ac.)
Runoff from this stream =     15.316(CFS)
Time of concentration =    8.36 min.
Rainfall intensity =     4.609(In/Hr)
Area averaged loss rate (Fm) =    0.2455(In/Hr)
Area averaged Pervious ratio (Ap) = 0.8185


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      115.000 to Point/Station      116.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   325.000(Ft.)
Top (of initial area) elevation =   288.100(Ft.)
Bottom (of initial area) elevation =   258.000(Ft.)
Difference in elevation =    30.100(Ft.)
Slope =    0.09262  s(%)=       9.26
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.542 min.
Rainfall intensity =      4.552(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.841
```

```
Subarea runoff =      2.449(CFS)
Total initial stream area =        0.640(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      117.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      4.898(CFS)
Depth of flow =   0.076(Ft.), Average velocity =   3.091(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              2.00
      2             20.00              0.00
      3             40.00              0.00
      4             60.00              2.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------
Sub-Channel flow  =      4.899(CFS)
  '      '    flow top width =     21.526(Ft.)
  '      '    velocity=    3.091(Ft/s)
  '      '    area =      1.585(Sq.Ft)
  '      '    Froude number =     2.008

Upstream point elevation =   258.000(Ft.)
Downstream point elevation =   186.000(Ft.)
Flow length =   570.000(Ft.)
Travel time  =    3.07 min.
Time of concentration =   11.62 min.
Depth of flow =   0.076(Ft.)
Average velocity =   3.091(Ft/s)
Total irregular channel flow =     4.898(CFS)
Irregular channel normal depth above invert elev. =   0.076(Ft.)
Average velocity of channel(s) =   3.091(Ft/s)

Sub-Channel No. 1 Critical depth =      0.121(Ft.)
  '      '       '     Critical flow top width =     22.422(Ft.)
  '      '       '     Critical flow velocity=    1.907(Ft/s)
  '      '       '     Critical flow area =      2.569(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.817(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.817(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = .0.829
```

```
Subarea runoff =      3.628(CFS) for    1.280(Ac.)
Total runoff =      6.078(CFS)      Total area =        1.92(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      117.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      3.817(In/Hr) for a   100.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =    11.62 min.
Rainfall intensity =      3.817(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.843
Subarea runoff =      2.840(CFS) for    0.850(Ac.)
Total runoff =      8.918(CFS)      Total area =        2.77(Ac.)
Area averaged Fm value =    0.240(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      117.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      3.817(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    11.62 min.
Rainfall intensity =      3.817(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.851
Subarea runoff =      1.602(CFS) for    0.470(Ac.)
Total runoff =     10.520(CFS)      Total area =        3.24(Ac.)
Area averaged Fm value =    0.210(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      118.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of street segment elevation =   186.000(Ft.)
End of street segment elevation =   130.000(Ft.)
Length of street segment  =   400.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
```

```
Width of half street (curb to crown)  =  10.000(Ft.)
Distance from crown to crossfall grade break  =   9.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   0.500(Ft.)
Gutter hike from flowline =  0.500(In.)
 Manning's N in gutter =  0.0170
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     11.039(CFS)
Depth of flow =   0.214(Ft.), Average velocity =   6.567(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   9.125(Ft.)
Flow velocity =   6.57(Ft/s)
Travel time =    1.02 min.     TC =   12.63  min.
 Adding area flow to street
Rainfall intensity =      3.638(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.638(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =      0.517(CFS) for    0.320(Ac.)
Total runoff =     11.037(CFS)      Total area =        3.56(Ac.)
Area averaged Fm value =    0.194(In/Hr)
Street flow at end of street =     11.037(CFS)
Half street flow at end of street =      5.518(CFS)
Depth of flow =   0.214(Ft.), Average velocity =   6.567(Ft/s)
Flow width (from curb towards crown)=   9.124(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      118.000 to Point/Station      114.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =   130.000(Ft.)
Downstream point elevation =    50.000(Ft.)
Channel length thru subarea  =   500.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =     14.339(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     14.339(CFS)
Depth of flow =   0.886(Ft.), Average velocity =  18.274(Ft/s)
Channel flow top width =    1.772(Ft.)
Flow Velocity =   18.27(Ft/s)
```

```
Travel time  =    0.46 min.
Time of concentration =   13.09 min.
Critical depth =      1.664(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.565(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.565(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.841
Subarea runoff =      6.025(CFS) for    2.130(Ac.)
Total runoff =     17.062(CFS)      Total area =        5.69(Ac.)
Area averaged Fm value =    0.233(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.565(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    13.09 min.
Rainfall intensity =      3.565(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =      1.973(CFS) for    0.620(Ac.)
Total runoff =     19.034(CFS)      Total area =        6.31(Ac.)
Area averaged Fm value =    0.213(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.565(In/Hr) for a   100.0 year storm
RESIDENTIAL(8 - 10 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.4000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.120(In/Hr)
Time of concentration =    13.09 min.
```

```
Rainfall intensity =      3.565(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.847
Subarea runoff =      0.713(CFS) for    0.230(Ac.)
Total runoff =     19.747(CFS)      Total area =        6.54(Ac.)
Area averaged Fm value =    0.210(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.565(In/Hr) for a   100.0 year storm
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      6.540(Ac.)
Runoff from this stream =     19.747(CFS)
Time of concentration =   13.09 min.
Rainfall intensity =     3.565(In/Hr)
Area averaged loss rate (Fm) =    0.2101(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7004
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       15.316      8.36                4.609
2       19.747     13.09                3.565
Qmax(1) =
          1.000 *    1.000 *    15.316) +
          1.311 *    0.639 *    19.747) + =      31.855
Qmax(2) =
          0.761 *    1.000 *    15.316) +
          1.000 *    1.000 *    19.747) + =      31.399

Total of 2 streams to confluence:
Flow rates before confluence point:
      15.316      19.747
Maximum flow rates at confluence using above data:
       31.855       31.399
Area of streams before confluence:
        3.900        6.540
Effective area values after confluence:
        8.077       10.440
Results of confluence:
Total flow rate =     31.855(CFS)
Time of concentration =     8.359 min.
Effective stream area after confluence =      8.077(Ac.)
Study area average Pervious fraction(Ap) =  0.744
Study area average soil loss rate(Fm) =    0.223(In/Hr)
Study area total (this main stream) =      10.44(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      119.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
```

```
Upstream point/station elevation =     50.000(Ft.)
Downstream point/station elevation =    12.000(Ft.)
Pipe length  =    67.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    31.855(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    31.855(CFS)
Normal flow depth in pipe =    8.85(In.)
Flow top width inside pipe =   14.76(In.)
Critical depth could not be calculated.
Pipe flow velocity =     42.27(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     8.39 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      119.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.601(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     8.39 min.
Rainfall intensity =      4.601(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.856
Subarea runoff =      1.168(CFS) for    0.310(Ac.)
Total runoff =     33.022(CFS)      Total area =        8.39(Ac.)
Area averaged Fm value =    0.226(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    12.000(Ft.)
Downstream point/station elevation =     8.000(Ft.)
Pipe length  =   130.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    33.022(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    33.022(CFS)
Normal flow depth in pipe =   16.73(In.)
Flow top width inside pipe =   22.05(In.)
Critical depth could not be calculated.
Pipe flow velocity =     14.13(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =     8.54 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
```

```
The following data inside Main Stream is listed:
Rainfall intensity =      4.553(In/Hr) for a   100.0 year storm
In Main Stream number: 2
Stream flow area =      8.387(Ac.)
Runoff from this stream =     33.022(CFS)
Time of concentration =    8.54 min.
Rainfall intensity =     4.553(In/Hr)
Area averaged loss rate (Fm) =    0.2262(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7539
Program is now starting with Main Stream No. 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.000 to Point/Station      120.100
**** INITIAL AREA EVALUATION ****

PARK subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.8500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.255(In/Hr)
Initial subarea data:
Initial area flow distance =   275.000(Ft.)
Top (of initial area) elevation =   261.000(Ft.)
Bottom (of initial area) elevation =   222.000(Ft.)
Difference in elevation =    39.000(Ft.)
Slope =    0.14182  s(%)=      14.18
TC = k(0.483)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.750 min.
Rainfall intensity =      5.210(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.856
Subarea runoff =      6.243(CFS)
Total initial stream area =        1.400(Ac.)
Pervious area fraction = 0.850
Initial area Fm value =    0.255(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.100 to Point/Station      120.200
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation =   222.000(Ft.)
End of street segment elevation =   177.000(Ft.)
Length of street segment  =   520.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  14.000(Ft.)
Distance from crown to crossfall grade break  =  12.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
```

```
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      8.272(CFS)
Depth of flow =   0.251(Ft.), Average velocity =   5.341(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   8.303(Ft.)
Flow velocity =   5.34(Ft/s)
Travel time =    1.62 min.     TC =    8.37  min.
 Adding area flow to street
Rainfall intensity =      4.605(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.605(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.867
Subarea runoff =      2.984(CFS) for    0.910(Ac.)
Total runoff =      9.227(CFS)      Total area =        2.31(Ac.)
Area averaged Fm value =    0.166(In/Hr)
Street flow at end of street =      9.227(CFS)
Half street flow at end of street =      4.614(CFS)
Depth of flow =   0.259(Ft.), Average velocity =   5.471(Ft/s)
Flow width (from curb towards crown)=   8.708(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.200 to Point/Station      121.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   174.000(Ft.)
Downstream point/station elevation =   173.000(Ft.)
Pipe length  =   180.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.227(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =     9.227(CFS)
Normal flow depth in pipe =   13.97(In.)
Flow top width inside pipe =   19.82(In.)
Critical Depth =   13.57(In.)
Pipe flow velocity =      5.43(Ft/s)
Travel time through pipe =    0.55 min.
Time of concentration (TC) =     8.93 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      121.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      4.439(In/Hr) for a   100.0 year storm
Along Main Stream number: 3 in normal stream number 1
Stream flow area =      2.310(Ac.)
```

```
Runoff from this stream =      9.227(CFS)
Time of concentration =    8.93 min.
Rainfall intensity =     4.439(In/Hr)
Area averaged loss rate (Fm) =    0.1664(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5545


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.100 to Point/Station      121.100
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   222.000(Ft.)
Bottom (of initial area) elevation =   210.000(Ft.)
Difference in elevation =    12.000(Ft.)
Slope =    0.04000  s(%)=       4.00
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.666 min.
Rainfall intensity =      5.759(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.895
Subarea runoff =      6.445(CFS)
Total initial stream area =        1.250(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.100 to Point/Station      121.200
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   205.000(Ft.)
Downstream point/station elevation =   195.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.445(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     6.445(CFS)
Normal flow depth in pipe =    7.41(In.)
Flow top width inside pipe =   11.67(In.)
Critical depth could not be calculated.
Pipe flow velocity =     12.68(Ft/s)
Travel time through pipe =    0.20 min.
Time of concentration (TC) =     5.86 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.200 to Point/Station      121.200
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
```

```
Rainfall intensity =      5.647(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     5.86 min.
Rainfall intensity =      5.647(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.895
Subarea runoff =      8.317(CFS) for    1.670(Ac.)
Total runoff =     14.763(CFS)      Total area =        2.92(Ac.)
Area averaged Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.200 to Point/Station      121.300
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   195.000(Ft.)
Downstream point/station elevation =   194.000(Ft.)
Pipe length  =   120.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    14.763(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    14.763(CFS)
Normal flow depth in pipe =   17.63(In.)
Flow top width inside pipe =   15.43(In.)
Critical Depth =   17.10(In.)
Pipe flow velocity =      6.85(Ft/s)
Travel time through pipe =    0.29 min.
Time of concentration (TC) =     6.16 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.300 to Point/Station      121.300
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      5.492(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     6.16 min.
Rainfall intensity =      5.492(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.882
Subarea runoff =      5.340(CFS) for    1.230(Ac.)
Total runoff =     20.103(CFS)      Total area =        4.15(Ac.)
Area averaged Fm value =    0.110(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.300 to Point/Station      121.000
```

**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 194.000(Ft.)
Downstream point/station elevation = 173.000(Ft.)
Pipe length = 100.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 20.103(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 20.103(CFS)
Normal flow depth in pipe = 9.06(In.)
Flow top width inside pipe = 14.67(In.)
Critical depth could not be calculated.
Pipe flow velocity = 25.93(Ft/s)
Travel time through pipe = 0.06 min.
Time of concentration (TC) = 6.22 min.

++
Process from Point/Station 121.000 to Point/Station 121.000
**** CONFLUENCE OF MINOR STREAMS ****

Rainfall intensity = 5.460(In/Hr) for a 100.0 year storm
Along Main Stream number: 3 in normal stream number 2
Stream flow area = 4.150(Ac.)
Runoff from this stream = 20.103(CFS)
Time of concentration = 6.22 min.
Rainfall intensity = 5.460(In/Hr)
Area averaged loss rate (Fm) = 0.1100(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3667
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	9.227	8.93	4.439
2	20.103	6.22	5.460

Qmax(1) =
1.000 * 1.000 * 9.227) +
0.809 * 1.000 * 20.103) + = 25.495
Qmax(2) =
1.239 * 0.697 * 9.227) +
1.000 * 1.000 * 20.103) + = 28.069

Total of 2 streams to confluence:
Flow rates before confluence point:
9.227 20.103
Maximum flow rates at confluence using above data:
25.495 28.069
Area of streams before confluence:
2.310 4.150
Effective area values after confluence:
6.460 5.760
Results of confluence:
Total flow rate = 28.069(CFS)
Time of concentration = 6.220 min.
Effective stream area after confluence = 5.760(Ac.)
Study area average Pervious fraction(Ap) = 0.434

```
Study area average soil loss rate(Fm) =     0.130(In/Hr)
Study area total (this main stream) =       6.46(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      122.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   173.000(Ft.)
Downstream point/station elevation =   115.000(Ft.)
Pipe length  =   410.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    28.069(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    28.069(CFS)
Normal flow depth in pipe =   11.20(In.)
Flow top width inside pipe =   17.45(In.)
Critical depth could not be calculated.
Pipe flow velocity =     24.26(Ft/s)
Travel time through pipe =    0.28 min.
Time of concentration (TC) =     6.50 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      122.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      5.323(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     6.50 min.
Rainfall intensity =      5.323(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.875
Subarea runoff =      1.878(CFS) for    0.670(Ac.)
Total runoff =     29.947(CFS)      Total area =        6.43(Ac.)
Area averaged Fm value =    0.148(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      123.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   115.000(Ft.)
Downstream point/station elevation =    16.000(Ft.)
Pipe length  =   230.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    29.947(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    29.947(CFS)
Normal flow depth in pipe =    9.30(In.)
Flow top width inside pipe =   14.56(In.)
Critical depth could not be calculated.
```

```
Pipe flow velocity =     37.44(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =     6.60 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      123.000 to Point/Station      124.000
**** IMPROVED CHANNEL TRAVEL TIME ****
----------------------------------------------------------------------
Upstream point elevation =    16.000(Ft.)
Downstream point elevation =    14.000(Ft.)
Channel length thru subarea  =   130.000(Ft.)
Channel base width       =    4.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =     30.622(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     30.622(CFS)
Depth of flow =   0.752(Ft.), Average velocity =   8.575(Ft/s)
Channel flow top width =    5.503(Ft.)
Flow Velocity =    8.57(Ft/s)
Travel time  =    0.25 min.
Time of concentration =    6.86 min.
Critical depth =      1.094(Ft.)
 Adding area flow to channel
Rainfall intensity =      5.163(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      5.163(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.873
Subarea runoff =      0.345(CFS) for    0.290(Ac.)
Total runoff =     30.292(CFS)      Total area =        6.72(Ac.)
Area averaged Fm value =    0.154(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      124.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =    11.000(Ft.)
Downstream point/station elevation =     8.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    30.292(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    30.292(CFS)
Normal flow depth in pipe =   18.61(In.)
Flow top width inside pipe =   20.03(In.)
Critical Depth =   22.41(In.)
Pipe flow velocity =     11.59(Ft/s)
```

```
Travel time through pipe =     0.22 min.
Time of concentration (TC) =      7.07 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
Rainfall intensity =      5.072(In/Hr) for a   100.0 year storm
In Main Stream number: 3
Stream flow area =      6.720(Ac.)
Runoff from this stream =      30.292(CFS)
Time of concentration =     7.07 min.
Rainfall intensity =      5.072(In/Hr)
Area averaged loss rate (Fm) =     0.1544(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5148
Summary of stream data:

Stream    Flow rate       TC              Rainfall Intensity
 No.        (CFS)        (min)                   (In/Hr)


1         31.198        8.14                  4.680
2         33.022        8.54                  4.553
3         30.292        7.07                  5.072
Qmax(1) =
           1.000 *     1.000 *     31.198) +
           1.029 *     0.953 *     33.022) +
           0.920 *     1.000 *     30.292) + =       91.473
Qmax(2) =
           0.972 *     1.000 *     31.198) +
           1.000 *     1.000 *     33.022) +
           0.894 *     1.000 *     30.292) + =       90.451
Qmax(3) =
           1.086 *     0.869 *     31.198) +
           1.120 *     0.828 *     33.022) +
           1.000 *     1.000 *     30.292) + =       90.355

Total of 3 main streams to confluence:
Flow rates before confluence point:
      32.198       34.022       31.292
Maximum flow rates at confluence using above data:
       91.473       90.451       90.355
Area of streams before confluence:
        7.430        8.387        6.720
Effective area values after confluence:
       22.144       22.537       20.124


Results of confluence:
Total flow rate =      91.473(CFS)
Time of concentration =      8.139 min.
Effective stream area after confluence  =      22.144(Ac.)
Study area average Pervious fraction(Ap) =  0.542
Study area average soil loss rate(Fm) =     0.163(In/Hr)
Study area total =       22.54(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.680(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.14 min.
Rainfall intensity =      4.680(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.870
Subarea runoff =      2.706(CFS) for    0.990(Ac.)
Total runoff =     94.179(CFS)      Total area =       23.13(Ac.)
Area averaged Fm value =     0.157(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      125.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     8.000(Ft.)
Downstream point/station elevation =     7.000(Ft.)
Pipe length  =    90.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    94.179(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =    94.179(CFS)
Normal flow depth in pipe =   30.80(In.)
Flow top width inside pipe =   37.15(In.)
Critical Depth =   36.00(In.)
Pipe flow velocity =     12.45(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     8.26 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      4.641(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     23.134(Ac.)
Runoff from this stream =     94.179(CFS)
Time of concentration =    8.26 min.
Rainfall intensity =     4.641(In/Hr)
Area averaged loss rate (Fm) =    0.1568(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5228


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

```
Process from Point/Station      126.000 to Point/Station      127.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =   145.000(Ft.)
Bottom (of initial area) elevation =    14.200(Ft.)
Difference in elevation =   130.800(Ft.)
Slope =    1.30800  s(%)=     130.80
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    4.222 min.
Rainfall intensity =      6.817(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.860
Subarea runoff =      3.167(CFS)
Total initial stream area =       0.540(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      127.000 to Point/Station      125.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation =    14.200(Ft.)
End of street segment elevation =    12.000(Ft.)
Length of street segment  =   350.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =    0.020
Slope from grade break to crown (v/hz)  =    0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =    5.000(Ft.)
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      4.340(CFS)
Depth of flow =   0.305(Ft.), Average velocity =   1.673(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  11.010(Ft.)
Flow velocity =   1.67(Ft/s)
Travel time =    3.49 min.     TC =    7.71  min.
 Adding area flow to street
Rainfall intensity =      4.828(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A =.0.000
```

```
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.828(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.865
Subarea runoff =      0.761(CFS) for    0.400(Ac.)
Total runoff =      3.928(CFS)      Total area =        0.94(Ac.)
Area averaged Fm value =    0.185(In/Hr)
Street flow at end of street =      3.928(CFS)
Half street flow at end of street =      1.964(CFS)
Depth of flow =   0.296(Ft.), Average velocity =   1.635(Ft/s)
Flow width (from curb towards crown)=  10.565(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      4.828(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.940(Ac.)
Runoff from this stream =      3.928(CFS)
Time of concentration =    7.71 min.
Rainfall intensity =     4.828(In/Hr)
Area averaged loss rate (Fm) =    0.1851(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6170
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       94.179       8.26                4.641
2        3.928       7.71                4.828
Qmax(1) =
         1.000 *     1.000 *    94.179) +
         0.960 *     1.000 *     3.928) + =      97.949
Qmax(2) =
         1.042 *     0.933 *    94.179) +
         1.000 *     1.000 *     3.928) + =      95.496

Total of 2 streams to confluence:
Flow rates before confluence point:
      94.179       3.928
Maximum flow rates at confluence using above data:
       97.949       95.496
Area of streams before confluence:
       23.134        0.940
Effective area values after confluence:
       24.074       22.531
Results of confluence:
Total flow rate =     97.949(CFS)
Time of concentration =     8.259 min.
```

```
Effective stream area after confluence =      24.074(Ac.)
Study area average Pervious fraction(Ap) =  0.526
Study area average soil loss rate(Fm) =     0.158(In/Hr)
Study area total (this main stream) =       24.07(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      128.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =      7.000(Ft.)
Downstream point/station elevation =      6.000(Ft.)
Pipe length  =    80.00(Ft.)   Manning's N = 0.015
No. of pipes = 1  Required pipe flow  =    97.949(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =    97.949(CFS)
Normal flow depth in pipe =   34.59(In.)
Flow top width inside pipe =   32.01(In.)
Critical Depth =   36.52(In.)
Pipe flow velocity =     11.55(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     8.37 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      128.000 to Point/Station      128.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.604(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.37 min.
Rainfall intensity =      4.604(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.871
Subarea runoff =      5.673(CFS) for    1.770(Ac.)
Total runoff =    103.622(CFS)      Total area =       25.84(Ac.)
Area averaged Fm value =    0.149(In/Hr)
End of computations, total study area =           29.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.516
Area averaged SCS curve number (AMC 2) =  63.2
SCS curve number this storm year  100.0 (AMC 2) =  63.2
```

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/12/01 File Name: 214.roc

DANA POINT HEADLANDS
100 YEAR STORM
DEVELOPED CONDITIONS
FILE: J:\13266.00\DRAIN\214

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 200.000 to Point/Station 201.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.7000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.210(In/Hr)
Initial subarea data:
Initial area flow distance = 250.000(Ft.)
Top (of initial area) elevation = 261.000(Ft.)
Bottom (of initial area) elevation = 257.000(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01600 s(%)= 1.60
TC = k(0.438)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.116 min.
Rainfall intensity = 4.386(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.857
Subarea runoff = 3.570(CFS)
Total initial stream area = 0.950(Ac.)
Pervious area fraction = 0.700
Initial area Fm value = 0.210(In/Hr)

++
Process from Point/Station 201.000 to Point/Station 202.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

```
Top of street segment elevation =   257.000(Ft.)
End of street segment elevation =   250.500(Ft.)
Length of street segment  =   560.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  21.000(Ft.)
Distance from crown to crossfall grade break  =  19.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      9.358(CFS)
Depth of flow =   0.473(Ft.), Average velocity =   2.998(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  17.304(Ft.)
Flow velocity =   3.00(Ft/s)
Travel time =    3.11 min.     TC =   12.23  min.
 Adding area flow to street
Rainfall intensity =      3.706(In/Hr) for a   100.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Rainfall intensity =      3.706(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =      9.111(CFS) for    3.080(Ac.)
Total runoff =     12.681(CFS)      Total area =        4.03(Ac.)
Area averaged Fm value =    0.210(In/Hr)
Street flow at end of street =     12.681(CFS)
Half street flow at end of street =     12.681(CFS)
Depth of flow =   0.520(Ft.), Average velocity =   3.161(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    1.02(Ft.)
Flow width (from curb towards crown)=  19.682(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      203.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of street segment elevation =   250.500(Ft.)
End of street segment elevation =   222.000(Ft.)
Length of street segment  =   600.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  21.000(Ft.)
Distance from crown to crossfall grade break  =  19.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
```

```
Slope from grade break to crown (v/hz)  =    0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     13.043(CFS)
Depth of flow =   0.425(Ft.), Average velocity =   5.551(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  14.909(Ft.)
Flow velocity =   5.55(Ft/s)
Travel time =    1.80 min.     TC =   14.03  min.
 Adding area flow to street
Rainfall intensity =      3.426(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     12.366(CFS)
therefore the upstream flow rate of Q =     12.681(CFS) is being used
Rainfall intensity =      3.426(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.847
Subarea runoff =      0.000(CFS) for    0.230(Ac.)
Total runoff =     12.681(CFS)      Total area =        4.26(Ac.)
Area averaged Fm value =    0.200(In/Hr)
Street flow at end of street =     12.681(CFS)
Half street flow at end of street =     12.681(CFS)
Depth of flow =   0.421(Ft.), Average velocity =   5.514(Ft/s)
Flow width (from curb towards crown)=  14.741(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.426(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    14.03 min.
Rainfall intensity =      3.426(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.838
```

```
Subarea runoff =      6.127(CFS) for    2.290(Ac.)
Total runoff =     18.807(CFS)      Total area =        6.55(Ac.)
Area averaged Fm value =    0.235(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.426(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    14.03 min.
Rainfall intensity =      3.426(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =      3.178(CFS) for    1.040(Ac.)
Total runoff =     21.986(CFS)      Total area =        7.59(Ac.)
Area averaged Fm value =    0.207(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      204.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   216.000(Ft.)
Downstream point/station elevation =   215.000(Ft.)
Pipe length  =    50.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    21.986(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    21.986(CFS)
Normal flow depth in pipe =   16.88(In.)
Flow top width inside pipe =   16.69(In.)
Critical Depth =   19.66(In.)
Pipe flow velocity =     10.62(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =    14.11 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.415(In/Hr) for a   100.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =      0.210(In/Hr)
Time of concentration =     14.11 min.
Rainfall intensity =       3.415(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.845
Subarea runoff =       7.453(CFS) for     2.610(Ac.)
Total runoff =      29.439(CFS)       Total area =        10.20(Ac.)
Area averaged Fm value =     0.208(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      205.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =    216.000(Ft.)
Downstream point/station elevation =    195.000(Ft.)
Pipe length  =    320.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     29.439(CFS)
Nearest computed pipe diameter  =      21.00(In.)
Calculated individual pipe flow  =     29.439(CFS)
Normal flow depth in pipe =    13.27(In.)
Flow top width inside pipe =    20.26(In.)
Critical depth could not be calculated.
Pipe flow velocity =      18.40(Ft/s)
Travel time through pipe =     0.29 min.
Time of concentration (TC) =     14.40 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      205.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =       3.375(In/Hr) for a   100.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.210(In/Hr)
Time of concentration =     14.40 min.
Rainfall intensity =       3.375(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.844
Subarea runoff =      10.091(CFS) for     3.670(Ac.)
Total runoff =      39.530(CFS)       Total area =        13.87(Ac.)
Area averaged Fm value =     0.208(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =    195.000(Ft.)
Downstream point/station elevation =    180.000(Ft.)
Pipe length  =    220.00(Ft.)   Manning's N = 0.013
```

```
No. of pipes = 1  Required pipe flow  =    39.530(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    39.530(CFS)
Normal flow depth in pipe =   16.43(In.)
Flow top width inside pipe =   17.33(In.)
Critical depth could not be calculated.
Pipe flow velocity =     19.58(Ft/s)
Travel time through pipe =    0.19 min.
Time of concentration (TC) =    14.59 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      206.000 to Point/Station      206.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.350(In/Hr) for a   100.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Time of concentration =    14.59 min.
Rainfall intensity =      3.350(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.844
Subarea runoff =     10.005(CFS) for    3.650(Ac.)
Total runoff =     49.534(CFS)      Total area =       17.52(Ac.)
Area averaged Fm value =    0.209(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      206.000 to Point/Station      207.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   180.000(Ft.)
Downstream point/station elevation =   160.000(Ft.)
Pipe length  =   230.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    49.534(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    49.534(CFS)
Normal flow depth in pipe =   15.40(In.)
Flow top width inside pipe =   23.02(In.)
Critical depth could not be calculated.
Pipe flow velocity =     23.26(Ft/s)
Travel time through pipe =    0.16 min.
Time of concentration (TC) =    14.75 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      207.000 to Point/Station      207.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Rainfall intensity =      3.329(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
```

```
Stream flow area =     17.520(Ac.)
Runoff from this stream =     49.534(CFS)
Time of concentration =   14.75 min.
Rainfall intensity =     3.329(In/Hr)
Area averaged loss rate (Fm) =    0.2087(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6957


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      208.000 to Point/Station      209.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Initial subarea data:
Initial area flow distance =   270.000(Ft.)
Top (of initial area) elevation =   261.000(Ft.)
Bottom (of initial area) elevation =   256.500(Ft.)
Difference in elevation =     4.500(Ft.)
Slope =    0.01667  s(%)=       1.67
TC = k(0.438)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.325 min.
Rainfall intensity =      4.329(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.856
Subarea runoff =      3.336(CFS)
Total initial stream area =        0.900(Ac.)
Pervious area fraction = 0.700
Initial area Fm value =    0.210(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      209.000 to Point/Station      210.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of street segment elevation =   256.500(Ft.)
End of street segment elevation =   250.500(Ft.)
Length of street segment  =   550.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  21.000(Ft.)
Distance from crown to crossfall grade break  =  19.000(Ft.)
Slope from gutter to grade break (v/hz) =    0.020
Slope from grade break to crown (v/hz)  =    0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      7.155(CFS)
```

```
Depth of flow =   0.442(Ft.), Average velocity =   2.747(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  15.742(Ft.)
Flow velocity =   2.75(Ft/s)
Travel time =    3.34 min.     TC =   12.66  min.
 Adding area flow to street
Rainfall intensity =      3.633(In/Hr) for a   100.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Rainfall intensity =      3.633(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.848
Subarea runoff =      5.782(CFS) for    2.060(Ac.)
Total runoff =      9.119(CFS)      Total area =        2.96(Ac.)
Area averaged Fm value =    0.210(In/Hr)
Street flow at end of street =      9.119(CFS)
Half street flow at end of street =      9.119(CFS)
Depth of flow =   0.473(Ft.), Average velocity =   2.910(Ft/s)
Flow width (from curb towards crown)=  17.340(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      210.000 to Point/Station      211.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   250.500(Ft.)
End of street segment elevation =   218.000(Ft.)
Length of street segment  =   500.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  21.000(Ft.)
Distance from crown to crossfall grade break  =  19.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     10.059(CFS)
Depth of flow =   0.378(Ft.), Average velocity =   5.891(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  12.573(Ft.)
Flow velocity =   5.89(Ft/s)
Travel time =    1.41 min.     TC =   14.08  min.
 Adding area flow to street
Rainfall intensity =      3.419(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
```

```
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 0.5000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.150(In/Hr)
Rainfall intensity =     3.419(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.847
Subarea runoff =      1.225(CFS) for    0.610(Ac.)
Total runoff =     10.344(CFS)      Total area =        3.57(Ac.)
Area averaged Fm value =    0.200(In/Hr)
Street flow at end of street =     10.344(CFS)
Half street flow at end of street =     10.344(CFS)
Depth of flow =   0.381(Ft.), Average velocity =   5.930(Ft/s)
Flow width (from curb towards crown)=  12.719(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      211.000 to Point/Station      212.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   214.000(Ft.)
Downstream point/station elevation =   193.000(Ft.)
Pipe length  =   300.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    10.344(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    10.344(CFS)
Normal flow depth in pipe =    8.42(In.)
Flow top width inside pipe =   14.89(In.)
Critical depth could not be calculated.
Pipe flow velocity =     14.59(Ft/s)
Travel time through pipe =    0.34 min.
Time of concentration (TC) =    14.42 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      212.000 to Point/Station      212.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.372(In/Hr) for a   100.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Time of concentration =    14.42 min.
Rainfall intensity =      3.372(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.845
Subarea runoff =      8.957(CFS) for    3.200(Ac.)
Total runoff =     19.301(CFS)      Total area =        6.77(Ac.)
Area averaged Fm value =    0.205(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      212.000 to Point/Station      213.000
```

```
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   193.000(Ft.)
Downstream point/station elevation =   163.000(Ft.)
Pipe length  =   550.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    19.301(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    19.301(CFS)
Normal flow depth in pipe =   12.02(In.)
Flow top width inside pipe =   16.95(In.)
Critical depth could not be calculated.
Pipe flow velocity =     15.37(Ft/s)
Travel time through pipe =    0.60 min.
Time of concentration (TC) =    15.02 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      213.000 to Point/Station      213.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.295(In/Hr) for a   100.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Time of concentration =    15.02 min.
Rainfall intensity =      3.295(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.843
Subarea runoff =     14.410(CFS) for    5.360(Ac.)
Total runoff =     33.711(CFS)      Total area =       12.13(Ac.)
Area averaged Fm value =    0.207(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      213.000 to Point/Station      207.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   160.500(Ft.)
Downstream point/station elevation =   160.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    33.711(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    33.711(CFS)
Normal flow depth in pipe =   24.52(In.)
Flow top width inside pipe =   28.84(In.)
Critical Depth =   23.18(In.)
Pipe flow velocity =     7.13(Ft/s)
Travel time through pipe =    0.23 min.
Time of concentration (TC) =    15.25 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

```
Process from Point/Station      207.000 to Point/Station      207.000
**** CONFLUENCE OF MINOR STREAMS ****
--------------------------------------------------------------------------------
Rainfall intensity =      3.266(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =     12.130(Ac.)
Runoff from this stream =     33.711(CFS)
Time of concentration =   15.25 min.
Rainfall intensity =     3.266(In/Hr)
Area averaged loss rate (Fm) =    0.2070(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6899
Summary of stream data:

Stream    Flow rate       TC            Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1        49.534      14.75                3.329
2        33.711      15.25                3.266
Qmax(1) =
          1.000 *     1.000 *    49.534) +
          1.021 *     0.967 *    33.711) + =      82.813
Qmax(2) =
          0.980 *     1.000 *    49.534) +
          1.000 *     1.000 *    33.711) + =      82.249

Total of 2 streams to confluence:
Flow rates before confluence point:
      49.534       33.711
Maximum flow rates at confluence using above data:
       82.813       82.249
Area of streams before confluence:
       17.520       12.130
Effective area values after confluence:
       29.254       29.650
Results of confluence:
Total flow rate =     82.813(CFS)
Time of concentration =    14.751 min.
Effective stream area after confluence =     29.254(Ac.)
Study area average Pervious fraction(Ap) =  0.693
Study area average soil loss rate(Fm) =    0.208(In/Hr)
Study area total (this main stream) =      29.65(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      207.000 to Point/Station      214.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
--------------------------------------------------------------------------------
Upstream point/station elevation =   160.000(Ft.)
Downstream point/station elevation =   154.000(Ft.)
Pipe length  =    80.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    82.813(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    82.813(CFS)
Normal flow depth in pipe =   21.56(In.)
Flow top width inside pipe =   21.66(In.)
Critical depth could not be calculated.
```

```
Pipe flow velocity =     24.31(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =    14.81 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      214.000 to Point/Station      214.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.322(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     29.254(Ac.)
Runoff from this stream =     82.813(CFS)
Time of concentration =   14.81 min.
Rainfall intensity =     3.322(In/Hr)
Area averaged loss rate (Fm) =    0.2080(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6934


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      215.000 to Point/Station      216.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.060(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   195.000(Ft.)
Bottom (of initial area) elevation =   185.000(Ft.)
Difference in elevation =    10.000(Ft.)
Slope =    0.03333  s(%)=       3.33
TC = k(0.324)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.264 min.
Rainfall intensity =      5.438(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.890
Subarea runoff =      5.179(CFS)
Total initial stream area =        1.070(Ac.)
Pervious area fraction = 0.200
Initial area Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      216.000 to Point/Station      217.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   185.000(Ft.)
Downstream point elevation =   173.000(Ft.)
Channel length thru subarea  =   410.000(Ft.)
Channel base width       =    5.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
```

```
Estimated mean flow rate at midpoint of channel =     12.270(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     12.270(CFS)
Depth of flow =   0.293(Ft.), Average velocity =   6.488(Ft/s)
Channel flow top width =    7.926(Ft.)
Flow Velocity =    6.49(Ft/s)
Travel time  =    1.05 min.
Time of concentration =    7.32 min.
Critical depth =      0.484(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.975(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.060(In/Hr)
Rainfall intensity =      4.975(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.889
Subarea runoff =     12.514(CFS) for    2.930(Ac.)
Total runoff =     17.692(CFS)      Total area =        4.00(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      217.000 to Point/Station      218.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =   173.000(Ft.)
Downstream point elevation =   165.500(Ft.)
Channel length thru subarea  =   250.000(Ft.)
Channel base width      =    5.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     26.030(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     26.030(CFS)
Depth of flow =   0.439(Ft.), Average velocity =   8.246(Ft/s)
Channel flow top width =    9.388(Ft.)
Flow Velocity =    8.25(Ft/s)
Travel time  =    0.51 min.
Time of concentration =    7.82 min.
Critical depth =      0.734(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.788(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =      0.060(In/Hr)
Rainfall intensity =      4.788(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.8[illegible]
Subarea runoff =     15.369(CFS) for    3.770(Ac.)
Total runoff =     33.062(CFS)      Total area =        7.77(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      218.000 to Point/Station      214.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of street segment elevation =   165.500(Ft.)
End of street segment elevation =   159.000(Ft.)
Length of street segment  =   350.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  35.000(Ft.)
Distance from crown to crossfall grade break  =  33.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     34.296(CFS)
Depth of flow =   0.532(Ft.), Average velocity =   4.025(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    1.60(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.269(Ft.)
Flow velocity =   4.02(Ft/s)
Travel time =    1.45 min.      TC =    9.27  min.
 Adding area flow to street
Rainfall intensity =      4.343(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     32.206(CFS)
therefore the upstream flow rate of Q =     33.062(CFS) is being used
Rainfall intensity =      4.343(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.888
Subarea runoff =      0.000(CFS) for    0.580(Ac.)
Total runoff =     33.062(CFS)      Total area =        8.35(Ac.)
Area averaged Fm value =    0.058(In/Hr)
Street flow at end of street =     33.062(CFS)
```

```
Half street flow at end of street =    16.531(CFS)
Depth of flow =   0.526(Ft.), Average velocity =   4.010(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    1.28(Ft.)
Flow width (from curb towards crown)=  19.949(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      214.000 to Point/Station      214.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Rainfall intensity =      4.343(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      8.350(Ac.)
Runoff from this stream =     33.062(CFS)
Time of concentration =    9.27 min.
Rainfall intensity =     4.343(In/Hr)
Area averaged loss rate (Fm) =    0.0579(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1931


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      219.000 to Point/Station      220.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   221.000(Ft.)
Bottom (of initial area) elevation =   202.000(Ft.)
Difference in elevation =    19.000(Ft.)
Slope =    0.06333  s(%)=       6.33
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.121 min.
Rainfall intensity =      5.510(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.883
Subarea runoff =      5.838(CFS)
Total initial stream area =        1.200(Ac.)
Pervious area fraction = 0.350
Initial area Fm value =    0.105(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      220.000 to Point/Station      214.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of street segment elevation =   202.000(Ft.)
End of street segment elevation =   159.000(Ft.)
Length of street segment  =   700.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
```

```
Width of half street (curb to crown)  =  15.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      7.346(CFS)
Depth of flow =   0.290(Ft.), Average velocity =   4.615(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   8.180(Ft.)
Flow velocity =   4.62(Ft/s)
Travel time =    2.53 min.     TC =    8.65  min.
 Adding area flow to street
Rainfall intensity =      4.520(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.520(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.884
Subarea runoff =      1.436(CFS) for    0.620(Ac.)
Total runoff =      7.273(CFS)      Total area =        1.82(Ac.)
Area averaged Fm value =    0.079(In/Hr)
Street flow at end of street =      7.273(CFS)
Half street flow at end of street =      3.637(CFS)
Depth of flow =   0.290(Ft.), Average velocity =   4.606(Ft/s)
Flow width (from curb towards crown)=   8.142(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      214.000 to Point/Station      214.000
**** CONFLUENCE OF MINOR STREAMS ****
```

```
Rainfall intensity =      4.520(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 3
Stream flow area =      1.820(Ac.)
Runoff from this stream =      7.273(CFS)
Time of concentration =    8.65 min.
Rainfall intensity =     4.520(In/Hr)
Area averaged loss rate (Fm) =    0.0795(In/Hr)
Area averaged Pervious ratio (Ap) = 0.2648
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)
```

```
1        82.813      14.81                3.322
2        33.062       9.27                4.343
3         7.273       8.65                4.520
Qmax(1) =
          1.000 *     1.000 *     82.813) +
          0.762 *     1.000 *     33.062) +
          0.730 *     1.000 *      7.273) + =      113.302
Qmax(2) =
          1.328 *     0.626 *     82.813) +
          1.000 *     1.000 *     33.062) +
          0.960 *     1.000 *      7.273) + =      108.922
Qmax(3) =
          1.385 *     0.584 *     82.813) +
          1.041 *     0.933 *     33.062) +
          1.000 *     1.000 *      7.273) + =      106.378

Total of 3 streams to confluence:
Flow rates before confluence point:
      82.813      33.062       7.273
Maximum flow rates at confluence using above data:
      113.302      108.922      106.378
Area of streams before confluence:
       29.254        8.350        1.820
Effective area values after confluence:
       39.424       28.488       26.698
Results of confluence:
Total flow rate =    113.302(CFS)
Time of concentration =    14.806 min.
Effective stream area after confluence =     39.424(Ac.)
Study area average Pervious fraction(Ap) =  0.568
Study area average soil loss rate(Fm) =    0.170(In/Hr)
Study area total (this main stream) =      39.42(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      214.000 to Point/Station      214.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.322(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    14.81 min.
Rainfall intensity =      3.322(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =      5.418(CFS) for    2.540(Ac.)
Total runoff =    118.720(CFS)      Total area =       41.96(Ac.)
Area averaged Fm value =    0.178(In/Hr)
End of computations, total study area =           42.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.
```

Area averaged pervious area fraction(Ap) = 0.595
Area averaged SCS curve number (AMC 2) = 59.3
SCS curve number this storm year 100.0 (AMC 2) = 59.3

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/12/01 File Name: DEV254.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
DEVELOPED CONDITIONS - AREA B2
FILE: J:\13266.00\DRAIN\DEV254

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 214.000 to Point/Station 214.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 84.08
Pervious ratio(Ap) = 0.5950 Max loss rate(Fp)= 0.000(In/Hr)
Max Catchment Loss (Fm) = 0.178(In/Hr)
Rainfall intensity = 3.321(In/Hr) for a 100.0 year storm
User specified values are as follows:
TC = 14.81 min. Rain intensity = 3.32(In/Hr)
Total area = 21.18(Ac.) Total runoff = 59.36(CFS)

++
Process from Point/Station 214.000 to Point/Station 250.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 154.000(Ft.)
Downstream point/station elevation = 30.000(Ft.)
Pipe length = 820.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 59.360(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 59.360(CFS)
Normal flow depth in pipe = 16.55(In.)
Flow top width inside pipe = 17.17(In.)
Critical depth could not be calculated.
Pipe flow velocity = 29.18(Ft/s)
Travel time through pipe = 0.47 min.
Time of concentration (TC) = 15.28 min.

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      250.000 to Point/Station      250.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Rainfall intensity =      3.262(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     21.180(Ac.)
Runoff from this stream =     59.360(CFS)
Time of concentration =   15.28 min.
Rainfall intensity =     3.262(In/Hr)
Area averaged loss rate (Fm) =    0.1780(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5950


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      251.000 to Point/Station      252.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =    50.000(Ft.)
Bottom (of initial area) elevation =    43.200(Ft.)
Difference in elevation =     6.800(Ft.)
Slope =    0.02267  s(%)=       2.27
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.603 min.
Rainfall intensity =      4.534(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.864
Subarea runoff =      5.172(CFS)
Total initial stream area =        1.320(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.180(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      252.000 to Point/Station      253.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of street segment elevation =    43.200(Ft.)
End of street segment elevation =    40.000(Ft.)
Length of street segment  =   660.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  16.000(Ft.)
Distance from crown to crossfall grade break  =  14.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
```

```
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     11.814(CFS)
Depth of flow =   0.465(Ft.), Average velocity =   1.981(Ft/s)
Note:  depth of flow exceeds top of street crown.
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  16.000(Ft.)
Flow velocity =   1.98(Ft/s)
Travel time =    5.55 min.     TC =   14.16  min.
 Adding area flow to street
Rainfall intensity =      3.408(In/Hr) for a   100.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Rainfall intensity =      3.408(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =      8.512(CFS) for    3.390(Ac.)
Total runoff =     13.684(CFS)      Total area =        4.71(Ac.)
Area averaged Fm value =    0.180(In/Hr)
Street flow at end of street =     13.684(CFS)
Half street flow at end of street =      6.842(CFS)
Depth of flow =   0.482(Ft.), Average velocity =   2.100(Ft/s)
Note:  depth of flow exceeds top of street crown.
Flow width (from curb towards crown)=  16.000(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      253.000 to Point/Station      254.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =    35.000(Ft.)
Downstream point/station elevation =    30.000(Ft.)
Pipe length  =    65.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    13.684(CFS)
Nearest computed pipe diameter  =    15.00(In.)
Calculated individual pipe flow  =    13.684(CFS)
Normal flow depth in pipe =    9.82(In.)
Flow top width inside pipe =   14.26(In.)
Critical depth could not be calculated.
Pipe flow velocity =     16.08(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =    14.22 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      250.000 to Point/Station      250.000
**** CONFLUENCE OF MINOR STREAMS ****
```

```
Rainfall intensity =      3.399(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.710(Ac.)
Runoff from this stream =     13.684(CFS)
Time of concentration =   14.22 min.
Rainfall intensity =     3.399(In/Hr)
Area averaged loss rate (Fm) =    0.1800(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       59.360     15.28               3.262
2       13.684     14.22               3.399
Qmax(1) =
          1.000 *    1.000 *    59.360) +
          0.958 *    1.000 *    13.684) + =      72.464
Qmax(2) =
          1.044 *    0.931 *    59.360) +
          1.000 *    1.000 *    13.684) + =      71.392

Total of 2 streams to confluence:
Flow rates before confluence point:
      59.360      13.684
Maximum flow rates at confluence using above data:
       72.464       71.392
Area of streams before confluence:
       21.180        4.710
Effective area values after confluence:
       25.890       24.428
Results of confluence:
Total flow rate =     72.464(CFS)
Time of concentration =    15.278 min.
Effective stream area after confluence =     25.890(Ac.)
Study area average Pervious fraction(Ap) =  0.596
Study area average soil loss rate(Fm) =    0.178(In/Hr)
Study area total (this main stream) =      25.89(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      250.000 to Point/Station      254.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation =     30.000(Ft.)
Downstream point/station elevation =    10.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    72.464(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    72.464(CFS)
Normal flow depth in pipe =   17.44(In.)
Flow top width inside pipe =   21.39(In.)
Critical depth could not be calculated.
Pipe flow velocity =     29.66(Ft/s)
Travel time through pipe =    0.08 min.
```

```
Time of concentration (TC) =    15.36 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      254.000 to Point/Station      254.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.252(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    15.36 min.
Rainfall intensity =      3.252(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =      2.133(CFS) for    1.120(Ac.)
Total runoff =     74.597(CFS)      Total area =       27.01(Ac.)
Area averaged Fm value =    0.183(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      254.000 to Point/Station      254.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.252(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    15.36 min.
Rainfall intensity =      3.252(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =      7.625(CFS) for    2.870(Ac.)
Total runoff =     82.222(CFS)      Total area =       29.88(Ac.)
Area averaged Fm value =    0.195(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      254.000 to Point/Station      254.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.252(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    15.36 min.
Rainfall intensity =      3.252(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
```

rational method)(Q=KCIA) is C = 0.845
Subarea runoff = 3.932(CFS) for 1.480(Ac.)
Total runoff = 86.154(CFS) Total area = 31.36(Ac.)
Area averaged Fm value = 0.200(In/Hr)
End of computations, total study area = 31.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.666
Area averaged SCS curve number (AMC 2) = 79.1
SCS curve number this storm year 100.0 (AMC 2) = 79.1

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/12/01 File Name: DEV225.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
DEVELOPED CONDITIONS - AREA B3
FILE: J:\13266.00\DRAIN\DEV225

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++

Process from Point/Station 214.000 to Point/Station 214.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 84.08
Pervious ratio(Ap) = 0.5950 Max loss rate(Fp)= 0.000(In/Hr)
Max Catchment Loss (Fm) = 0.178(In/Hr)
Rainfall intensity = 3.321(In/Hr) for a 100.0 year storm
User specified values are as follows:
TC = 14.81 min. Rain intensity = 3.32(In/Hr)
Total area = 21.18(Ac.) Total runoff = 59.36(CFS)

++

Process from Point/Station 214.000 to Point/Station 221.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 154.000(Ft.)
Downstream point/station elevation = 108.000(Ft.)
Pipe length = 500.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 59.360(CFS)
Nearest computed pipe diameter = 24.00(In.)
Calculated individual pipe flow = 59.360(CFS)
Normal flow depth in pipe = 17.23(In.)
Flow top width inside pipe = 21.60(In.)
Critical depth could not be calculated.
Pipe flow velocity = 24.58(Ft/s)
Travel time through pipe = 0.34 min.
Time of concentration (TC) = 15.15 min.

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      221.000 to Point/Station      221.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.278(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     21.180(Ac.)
Runoff from this stream =     59.360(CFS)
Time of concentration =   15.15 min.
Rainfall intensity =     3.278(In/Hr)
Area averaged loss rate (Fm) =    0.1780(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5950


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      222.000 to Point/Station      223.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   161.500(Ft.)
Bottom (of initial area) elevation =   160.000(Ft.)
Difference in elevation =     1.500(Ft.)
Slope =    0.00500  s(%)=       0.50
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.589 min.
Rainfall intensity =      4.538(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.894
Subarea runoff =      8.196(CFS)
Total initial stream area =        2.020(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      223.000 to Point/Station      224.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   160.000(Ft.)
Downstream point elevation =   159.000(Ft.)
Channel length thru subarea  =   200.000(Ft.)
Channel base width       =    2.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     11.563(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     11.563(CFS)
```

```
Depth of flow =   0.699(Ft.), Average velocity =   4.035(Ft/s)
Channel flow top width =    6.196(Ft.)
Flow Velocity =    4.04(Ft/s)
Travel time  =    0.83 min.
Time of concentration =    9.41 min.
Critical depth =      0.719(Ft.)
 Adding area flow to channel
Rainfall intensity =      4.305(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      4.305(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.894
Subarea runoff =      5.965(CFS) for    1.660(Ac.)
Total runoff =     14.160(CFS)      Total area =        3.68(Ac.)
Area averaged Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      224.000 to Point/Station      221.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   155.000(Ft.)
Downstream point/station elevation =   108.000(Ft.)
Pipe length  =   120.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    14.160(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =    14.160(CFS)
Normal flow depth in pipe =    6.94(In.)
Flow top width inside pipe =   11.85(In.)
Critical depth could not be calculated.
Pipe flow velocity =     30.07(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =     9.48 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      221.000 to Point/Station      221.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Rainfall intensity =      4.288(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      3.680(Ac.)
Runoff from this stream =     14.160(CFS)
Time of concentration =    9.48 min.
Rainfall intensity =     4.288(In/Hr)
Area averaged loss rate (Fm) =    0.0300(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
```

```
 No.       (CFS)        (min)                    (In/Hr)


1        59.360      15.15                3.278
2        14.160       9.48                4.288
Qmax(1) =
          1.000 *     1.000 *     59.360) +
          0.763 *     1.000 *     14.160) + =       70.162
Qmax(2) =
          1.326 *     0.626 *     59.360) +
          1.000 *     1.000 *     14.160) + =       63.412

Total of 2 streams to confluence:
Flow rates before confluence point:
      59.360      14.160
Maximum flow rates at confluence using above data:
       70.162       63.412
Area of streams before confluence:
       21.180        3.680
Effective area values after confluence:
       24.860       16.936
Results of confluence:
Total flow rate =      70.162(CFS)
Time of concentration =     15.149 min.
Effective stream area after confluence =      24.860(Ac.)
Study area average Pervious fraction(Ap) =  0.522
Study area average soil loss rate(Fm) =     0.156(In/Hr)
Study area total (this main stream) =       24.86(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      221.000 to Point/Station      225.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    108.000(Ft.)
Downstream point/station elevation =     10.000(Ft.)
Pipe length  =    800.00(Ft.)    Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     70.162(CFS)
Nearest computed pipe diameter  =      24.00(In.)
Calculated individual pipe flow  =     70.162(CFS)
Normal flow depth in pipe =    17.58(In.)
Flow top width inside pipe =    21.25(In.)
Critical depth could not be calculated.
Pipe flow velocity =      28.47(Ft/s)
Travel time through pipe =     0.47 min.
Time of concentration (TC) =     15.62 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      225.000 to Point/Station      225.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.222(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=      0.300(In/Hr)
```

Max Catchment Loss (Fm) = 0.300(In/Hr)
Time of concentration = 15.62 min.
Rainfall intensity = 3.222(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.854
Subarea runoff = 2.790(CFS) for 1.660(Ac.)
Total runoff = 72.953(CFS) Total area = 26.52(Ac.)
Area averaged Fm value = 0.165(In/Hr)
End of computations, total study area = 26.52 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.552
Area averaged SCS curve number (AMC 2) = 80.2
SCS curve number this storm year 100.0 (AMC 2) = 80.2

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-1999 Version 6.2
Rational Hydrology Study, Date: 06/11/01 File Name: DEVC30.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
DEVELOPED CONDITIONS - AREA C
FILE: J:\13266000\DRAIN\DEVC30

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 300.000 to Point/Station 301.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3) = 86.20
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 279.000(Ft.)
Top (of initial area) elevation = 248.000(Ft.)
Bottom (of initial area) elevation = 225.000(Ft.)
Difference in elevation = 23.000(Ft.)
Slope = 0.08244 s(%)= 8.24
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.062 min.
Rainfall intensity = 3.926(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.831
Subarea runoff = 1.370(CFS)
Total initial stream area = 0.420(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 301.000 to Point/Station 301.100
**** IMPROVED CHANNEL TRAVEL TIME ****

```
Upstream point elevation =   225.000(Ft.)
Downstream point elevation =   218.000(Ft.)
Channel length thru subarea  =   404.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =      2.937(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      2.937(CFS)
Depth of flow =   0.962(Ft.), Average velocity =   3.176(Ft/s)
Channel flow top width =    1.923(Ft.)
Flow Velocity =    3.18(Ft/s)
Travel time  =    2.12 min.
Time of concentration =   13.18 min.
Critical depth =      0.883(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.550(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 86.20
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.550(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.824
Subarea runoff =      2.666(CFS) for    0.960(Ac.)
Total runoff =      4.037(CFS)      Total area =        1.38(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      301.100 to Point/Station      302.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =   218.000(Ft.)
Downstream point elevation =   210.000(Ft.)
Channel length thru subarea  =    86.000(Ft.)
Channel base width       =   20.000(Ft.)
Slope or 'Z' of left channel bank =   2.000
Slope or 'Z' of right channel bank =   2.000
Estimated mean flow rate at midpoint of channel =      4.403(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      4.403(CFS)
Depth of flow =   0.052(Ft.), Average velocity =   4.199(Ft/s)
Channel flow top width =   20.209(Ft.)
Flow Velocity =    4.20(Ft/s)
Travel time  =    0.34 min.
Time of concentration =   13.52 min.
Critical depth =      0.114(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.499(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
```

```
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 75.80
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.499(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.833
Subarea runoff =      0.716(CFS) for    0.250(Ac.)
Total runoff =      4.753(CFS)      Total area =        1.63(Ac.)
Area averaged Fm value =    0.259(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      302.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.499(In/Hr) for a   100.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 75.80
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =    13.52 min.
Rainfall intensity =      3.499(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.845
Subarea runoff =      1.955(CFS) for    0.640(Ac.)
Total runoff =      6.708(CFS)      Total area =        2.27(Ac.)
Area averaged Fm value =    0.215(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      303.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      8.909(CFS)
Depth of flow =   0.174(Ft.), Average velocity =   4.961(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              5.00
      2             10.00              0.00
      3             20.00              0.00
      4             30.00              5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =      8.910(CFS)
  '     '    flow top width =     10.694(Ft.)
  '     '    velocity=    4.961(Ft/s)
  '     '    area =      1.796(Sq.Ft)
```

```
  '      '     Froude number =      2.133

Upstream point elevation =    210.000(Ft.)
Downstream point elevation =    140.000(Ft.)
Flow length =    640.000(Ft.)
Travel time  =     2.15 min.
Time of concentration =    15.67 min.
Depth of flow =    0.174(Ft.)
Average velocity =    4.961(Ft/s)
Total irregular channel flow =      8.909(CFS)
Irregular channel normal depth above invert elev. =    0.174(Ft.)
Average velocity of channel(s) =    4.961(Ft/s)

Sub-Channel No. 1 Critical depth =       0.285(Ft.)
  '      '       '     Critical flow top width =      11.141(Ft.)
  '      '       '     Critical flow velocity=     2.956(Ft/s)
  '      '       '     Critical flow area =       3.014(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =       3.215(In/Hr) for a    100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 86.20
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.300(In/Hr)
Rainfall intensity =       3.215(In/Hr) for a    100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.830
Subarea runoff =       3.330(CFS) for     1.490(Ac.)
Total runoff =     10.038(CFS)       Total area =         3.76(Ac.)
Area averaged Fm value =     0.249(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       303.000 to Point/Station       304.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      18.180(CFS)
Depth of flow =    0.066(Ft.), Average velocity =    9.171(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate      'Y' coordinate
      1              0.00                5.00
      2             10.00                0.00
      3             40.00                0.00
      4             50.00                5.00
Manning's 'N' friction factor =    0.030
------------------------------------------------------------------------
Sub-Channel flow  =      18.180(CFS)
  '      '    flow top width =      30.263(Ft.)
  '      '    velocity=     9.171(Ft/s)
  '      '    area =       1.982(Sq.Ft)
  '      '    Froude number =     6.315
```

```
Upstream point elevation =   140.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   100.000(Ft.)
Travel time  =    0.18 min.
Time of concentration =   15.85 min.
Depth of flow =   0.066(Ft.)
Average velocity =   9.171(Ft/s)
Total irregular channel flow =    18.180(CFS)
Irregular channel normal depth above invert elev. =   0.066(Ft.)
Average velocity of channel(s) =   9.171(Ft/s)

Sub-Channel No. 1 Critical depth =      0.223(Ft.)
  '     '       '     Critical flow top width =     30.891(Ft.)
  '     '       '     Critical flow velocity=    2.682(Ft/s)
  '     '       '     Critical flow area =      6.779(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.194(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 86.20
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.194(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.821
Subarea runoff =     15.816(CFS) for    6.100(Ac.)
Total runoff =     25.853(CFS)      Total area =        9.86(Ac.)
Area averaged Fm value =    0.280(In/Hr)
End of computations, total study area =            9.86 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.935
Area averaged SCS curve number (AMC 2) =  67.8
SCS curve number this storm year  100.0 (AMC 3) =  85.3
```

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-1999 Version 6.2
Rational Hydrology Study, Date: 03/13/01 File Name: devd40.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
DEVELOPED CONDITIONS - AREA D
FILE: J:\13266000\DRAIN\DEVD40

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 400.000 to Point/Station 403.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3) = 86.20
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 330.000(Ft.)
Top (of initial area) elevation = 225.000(Ft.)
Bottom (of initial area) elevation = 190.000(Ft.)
Difference in elevation = 35.000(Ft.)
Slope = 0.10606 s(%)= 10.61
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.249 min.
Rainfall intensity = 3.888(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.831
Subarea runoff = 5.005(CFS)
Total initial stream area = 1.550(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 403.000 to Point/Station 403.000
**** SUBAREA FLOW ADDITION ****

```
Rainfall intensity =      3.888(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 75.80
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    11.25 min.
Rainfall intensity =      3.888(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.839
Subarea runoff =      0.833(CFS) for    0.240(Ac.)
Total runoff =      5.839(CFS)      Total area =        1.79(Ac.)
Area averaged Fm value =    0.264(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      403.000 to Point/Station      404.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     10.764(CFS)
Depth of flow =   0.133(Ft.), Average velocity =   3.144(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------
Sub-Channel flow  =     10.764(CFS)
   '      '    flow top width =     26.334(Ft.)
   '      '    velocity=    3.144(Ft/s)
   '      '    area =      3.424(Sq.Ft)
   '      '    Froude number =     1.536

Upstream point elevation =   190.000(Ft.)
Downstream point elevation =   160.000(Ft.)
Flow length =   490.000(Ft.)
Travel time  =    2.60 min.
Time of concentration =   13.85 min.
Depth of flow =   0.133(Ft.)
Average velocity =   3.144(Ft/s)
Total irregular channel flow =    10.764(CFS)
Irregular channel normal depth above invert elev. =   0.133(Ft.)
Average velocity of channel(s) =   3.144(Ft/s)

Sub-Channel No. 1 Critical depth =      0.178(Ft.)
   '      '       '     Critical flow top width =     26.777(Ft.)
   '      '       '     Critical flow velocity=    2.339(Ft/s)
   '      '       '     Critical flow area =      4.601(Sq.Ft)

 Adding area flow to channel
```

```
Rainfall intensity =      3.452(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3)  = 86.20
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.452(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.825
Subarea runoff =      7.863(CFS) for    3.020(Ac.)
Total runoff =     13.702(CFS)      Total area =        4.81(Ac.)
Area averaged Fm value =    0.287(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      404.000 to Point/Station      405.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     31.576(CFS)
Depth of flow =   0.154(Ft.), Average velocity =   7.960(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     31.577(CFS)
  '      '    flow top width =     26.539(Ft.)
  '      '    velocity=    7.960(Ft/s)
  '      '    area =      3.967(Sq.Ft)
  '      '    Froude number =     3.629

Upstream point elevation =   160.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   460.000(Ft.)
Travel time  =    0.96 min.
Time of concentration =   14.81 min.
Depth of flow =   0.154(Ft.)
Average velocity =   7.960(Ft/s)
Total irregular channel flow =    31.576(CFS)
Irregular channel normal depth above invert elev. =   0.154(Ft.)
Average velocity of channel(s) =   7.960(Ft/s)

Sub-Channel No. 1 Critical depth =      0.359(Ft.)
  '      '       '     Critical flow top width =     28.594(Ft.)
  '      '       '     Critical flow velocity=    3.279(Ft/s)
  '      '       '     Critical flow area =      9.630(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.321(In/Hr) for a   100.0 year storm
```

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 3) = 86.20
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Rainfall intensity = 3.321(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.820
Subarea runoff = 33.559(CFS) for 12.550(Ac.)
Total runoff = 47.261(CFS) Total area = 17.36(Ac.)
Area averaged Fm value = 0.296(In/Hr)
End of computations, total study area = 17.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.988
Area averaged SCS curve number (AMC 2) = 68.8
SCS curve number this storm year 100.0 (AMC 3) = 86.1

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/05/01 File Name: DEVE50.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
DEVELOPED CONDITIONS - AREA E
FILE: J:\13266000\DRAIN\DEVE50

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 500.000 to Point/Station 501.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 530.000(Ft.)
Top (of initial area) elevation = 220.000(Ft.)
Bottom (of initial area) elevation = 165.000(Ft.)
Difference in elevation = 55.000(Ft.)
Slope = 0.10377 s(%)= 10.38
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 13.655 min.
Rainfall intensity = 3.479(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.822
Subarea runoff = 1.602(CFS)
Total initial stream area = 0.560(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 501.000 to Point/Station 502.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =     13.734(CFS)
Depth of flow =   0.072(Ft.), Average velocity =   7.492(Ft/s)
      ******* Irregular Channel Data ***********
--------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
Manning's 'N' friction factor =   0.030
--------------------------------------------------------------
Sub-Channel flow  =     13.735(CFS)
  '      '    flow top width =     25.723(Ft.)
  '      '    velocity=    7.493(Ft/s)
  '      '    area =      1.833(Sq.Ft)
  '      '    Froude number =     4.946

Upstream point elevation =   165.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   200.000(Ft.)
Travel time  =    0.44 min.
Time of concentration =   14.10 min.
Depth of flow =   0.072(Ft.)
Average velocity =   7.492(Ft/s)
Total irregular channel flow =    13.734(CFS)
Irregular channel normal depth above invert elev. =   0.072(Ft.)
Average velocity of channel(s) =   7.492(Ft/s)

Sub-Channel No. 1 Critical depth =      0.207(Ft.)
  '      '       '     Critical flow top width =     27.070(Ft.)
  '      '       '     Critical flow velocity=    2.548(Ft/s)
  '      '       '     Critical flow area =      5.390(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.416(In/Hr) for a   100.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.416(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.821
Subarea runoff =     23.749(CFS) for    8.480(Ac.)
Total runoff =     25.351(CFS)      Total area =        9.04(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      502.000 to Point/Station      502.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity =      3.416(In/Hr) for a   100.0 year storm
```

RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.7000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.210(In/Hr)
Time of concentration = 14.10 min.
Rainfall intensity = 3.416(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.824
Subarea runoff = 3.289(CFS) for 1.140(Ac.)
Total runoff = 28.640(CFS) Total area = 10.18(Ac.)
Area averaged Fm value = 0.290(In/Hr)
End of computations, total study area = 10.18 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.966
Area averaged SCS curve number (AMC 2) = 67.5
SCS curve number this storm year 100.0 (AMC 2) = 67.5

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/12/01 File Name: DEV610.roc

---

DANA POINT HEADLANDS
100 YEAR STORM
DEVELOPED CONDITIONS - AREA F
FILE: J:\13266.00\DRAIN\DEV610

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 600.000 to Point/Station 601.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.6000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.180(In/Hr)
Initial subarea data:
Initial area flow distance = 270.000(Ft.)
Top (of initial area) elevation = 157.000(Ft.)
Bottom (of initial area) elevation = 140.000(Ft.)
Difference in elevation = 17.000(Ft.)
Slope = 0.06296 s(%)= 6.30
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.724 min.
Rainfall intensity = 5.221(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.869
Subarea runoff = 5.535(CFS)
Total initial stream area = 1.220(Ac.)
Pervious area fraction = 0.600
Initial area Fm value = 0.180(In/Hr)

++
Process from Point/Station 601.000 to Point/Station 602.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

```
Upstream point/station elevation =    135.000(Ft.)
Downstream point/station elevation =     76.000(Ft.)
Pipe length  =    750.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =      5.535(CFS)
Nearest computed pipe diameter  =      12.00(In.)
Calculated individual pipe flow  =      5.535(CFS)
Normal flow depth in pipe =     6.38(In.)
Flow top width inside pipe =    11.98(In.)
Critical Depth =    11.28(In.)
Pipe flow velocity =      13.05(Ft/s)
Travel time through pipe =     0.96 min.
Time of concentration (TC) =      7.68 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      602.000 to Point/Station      602.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.838(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.300(In/Hr)
Time of concentration =      7.68 min.
Rainfall intensity =      4.838(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.852
Subarea runoff =      8.645(CFS) for    2.220(Ac.)
Total runoff =     14.180(CFS)      Total area =         3.44(Ac.)
Area averaged Fm value =     0.257(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      602.000 to Point/Station      602.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      4.838(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.030(In/Hr)
Time of concentration =      7.68 min.
Rainfall intensity =      4.838(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =      3.635(CFS) for    0.840(Ac.)
Total runoff =     17.815(CFS)      Total area =         4.28(Ac.)
Area averaged Fm value =     0.213(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      602.000 to Point/Station      602.000
```

```
**** SUBAREA FLOW ADDITION ****
-------------------------------------------------------------------------------
Rainfall intensity =      4.838(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     7.68 min.
Rainfall intensity =      4.838(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      9.883(CFS) for    2.420(Ac.)
Total runoff =     27.697(CFS)      Total area =        6.70(Ac.)
Area averaged Fm value =     0.244(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      602.000 to Point/Station      603.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
-------------------------------------------------------------------------------
Upstream point/station elevation =     76.000(Ft.)
Downstream point/station elevation =     74.000(Ft.)
Pipe length  =     30.00(Ft.)   Manning's N = 0.015
No. of pipes = 1  Required pipe flow  =     27.697(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =     27.697(CFS)
Normal flow depth in pipe =    13.97(In.)
Flow top width inside pipe =    19.82(In.)
Critical depth could not be calculated.
Pipe flow velocity =     16.31(Ft/s)
Travel time through pipe =     0.03 min.
Time of concentration (TC) =     7.71 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      603.000
**** SUBAREA FLOW ADDITION ****
-------------------------------------------------------------------------------
Rainfall intensity =      4.827(In/Hr) for a   100.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Time of concentration =     7.71 min.
Rainfall intensity =      4.827(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.856
Subarea runoff =      3.990(CFS) for    0.970(Ac.)
Total runoff =     31.687(CFS)      Total area =        7.67(Ac.)
Area averaged Fm value =     0.236(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      603.000
**** SUBAREA FLOW ADDITION ****
-------------------------------------------------------------------------------
Rainfall intensity =      4.827(In/Hr) for a   100.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Time of concentration =     7.71 min.
Rainfall intensity =      4.827(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.859
Subarea runoff =     14.804(CFS) for    3.540(Ac.)
Total runoff =     46.491(CFS)      Total area =       11.21(Ac.)
Area averaged Fm value =    0.218(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      603.000
**** SUBAREA FLOW ADDITION ****
-------------------------------------------------------------------------------
Rainfall intensity =      4.827(In/Hr) for a   100.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Time of concentration =     7.71 min.
Rainfall intensity =      4.827(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =      5.227(CFS) for    1.250(Ac.)
Total runoff =     51.719(CFS)      Total area =       12.46(Ac.)
Area averaged Fm value =    0.215(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      604.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
-------------------------------------------------------------------------------
Upstream point/station elevation =    74.000(Ft.)
Downstream point/station elevation =    48.000(Ft.)
Pipe length  =   230.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    51.719(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    51.719(CFS)
Normal flow depth in pipe =   16.69(In.)
Flow top width inside pipe =   16.97(In.)
Critical depth could not be calculated.
```

```
Pipe flow velocity =     25.24(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =     7.86 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      4.773(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     7.86 min.
Rainfall intensity =      4.773(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.861
Subarea runoff =      2.045(CFS) for    0.620(Ac.)
Total runoff =     53.764(CFS)      Total area =       13.08(Ac.)
Area averaged Fm value =    0.206(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      605.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =    48.000(Ft.)
Downstream point/station elevation =    30.000(Ft.)
Pipe length =   970.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow =    53.764(CFS)
Nearest computed pipe diameter =     30.00(In.)
Calculated individual pipe flow =    53.764(CFS)
Normal flow depth in pipe =   23.63(In.)
Flow top width inside pipe =   24.54(In.)
Critical Depth =   28.10(In.)
Pipe flow velocity =     12.96(Ft/s)
Travel time through pipe =    1.25 min.
Time of concentration (TC) =     9.11 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      605.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      4.387(In/Hr) for a   100.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =      0.180(In/Hr)
Time of concentration =      9.11 min.
Rainfall intensity =      4.387(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.859
Subarea runoff =     11.737(CFS) for    4.300(Ac.)
Total runoff =     65.500(CFS)      Total area =       17.38(Ac.)
Area averaged Fm value =     0.199(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      605.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Rainfall intensity =      4.387(In/Hr) for a   100.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     17.380(Ac.)
Runoff from this stream =     65.500(CFS)
Time of concentration =     9.11 min.
Rainfall intensity =     4.387(In/Hr)
Area averaged loss rate (Fm) =     0.1994(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6648


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      606.000 to Point/Station      607.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Initial subarea data:
Initial area flow distance =   200.000(Ft.)
Top (of initial area) elevation =   153.000(Ft.)
Bottom (of initial area) elevation =   107.000(Ft.)
Difference in elevation =    46.000(Ft.)
Slope =    0.23000  s(%)=      23.00
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    4.602 min.
Rainfall intensity =      6.488(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.875
Subarea runoff =      3.747(CFS)
Total initial stream area =        0.660(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.180(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      607.000 to Point/Station      608.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of street segment elevation =   107.000(Ft.)
```

```
End of street segment elevation =    87.000(Ft.)
Length of street segment  =   380.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  16.000(Ft.)
Distance from crown to crossfall grade break  =  14.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      6.330(CFS)
Depth of flow =   0.343(Ft.), Average velocity =   4.886(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  10.811(Ft.)
Flow velocity =   4.89(Ft/s)
Travel time =    1.30 min.     TC =    5.90  min.
 Adding area flow to street
Rainfall intensity =      5.628(In/Hr) for a   100.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Rainfall intensity =      5.628(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.871
Subarea runoff =      3.951(CFS) for    0.910(Ac.)
Total runoff =      7.699(CFS)      Total area =        1.57(Ac.)
Area averaged Fm value =    0.180(In/Hr)
Street flow at end of street =      7.699(CFS)
Half street flow at end of street =      7.699(CFS)
Depth of flow =   0.362(Ft.), Average velocity =   5.108(Ft/s)
Flow width (from curb towards crown)=  11.750(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      608.000 to Point/Station      609.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =    87.000(Ft.)
End of street segment elevation =    55.000(Ft.)
Length of street segment  =   500.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  16.000(Ft.)
Distance from crown to crossfall grade break  =  14.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
```

```
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     14.049(CFS)
Depth of flow =   0.343(Ft.), Average velocity =   5.396(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  10.840(Ft.)
Flow velocity =   5.40(Ft/s)
Travel time =    1.54 min.     TC =    7.44  min.
 Adding area flow to street
Rainfall intensity =      4.926(In/Hr) for a   100.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Rainfall intensity =      4.926(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.867
Subarea runoff =     10.071(CFS) for    2.590(Ac.)
Total runoff =     17.770(CFS)      Total area =        4.16(Ac.)
Area averaged Fm value =    0.180(In/Hr)
Street flow at end of street =     17.770(CFS)
Half street flow at end of street =      8.885(CFS)
Depth of flow =   0.366(Ft.), Average velocity =   5.691(Ft/s)
Flow width (from curb towards crown)=  11.977(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      609.000 to Point/Station      605.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =    50.000(Ft.)
Downstream point/station elevation =    30.000(Ft.)
Pipe length  =   200.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    17.770(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    17.770(CFS)
Normal flow depth in pipe =   10.82(In.)
Flow top width inside pipe =   13.45(In.)
Critical depth could not be calculated.
Pipe flow velocity =     18.75(Ft/s)
Travel time through pipe =    0.18 min.
Time of concentration (TC) =     7.62 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      605.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Rainfall intensity =      4.860(In/Hr) for a   100.0 year storm
```

```
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.160(Ac.)
Runoff from this stream =     17.770(CFS)
Time of concentration =    7.62 min.
Rainfall intensity =     4.860(In/Hr)
Area averaged loss rate (Fm) =    0.1800(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

Stream    Flow rate       TC            Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1        65.500       9.11                4.387
2        17.770       7.62                4.860
Qmax(1) =
          1.000 *     1.000 *    65.500) +
          0.899 *     1.000 *    17.770) + =       81.474
Qmax(2) =
          1.113 *     0.836 *    65.500) +
          1.000 *     1.000 *    17.770) + =       78.738

Total of 2 streams to confluence:
Flow rates before confluence point:
      65.500       17.770
Maximum flow rates at confluence using above data:
       81.474       78.738
Area of streams before confluence:
       17.380        4.160
Effective area values after confluence:
       21.540       18.695
Results of confluence:
Total flow rate =     81.474(CFS)
Time of concentration =     9.112 min.
Effective stream area after confluence =     21.540(Ac.)
Study area average Pervious fraction(Ap) =  0.652
Study area average soil loss rate(Fm) =    0.196(In/Hr)
Study area total (this main stream) =      21.54(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      610.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    30.000(Ft.)
Downstream point/station elevation =    10.000(Ft.)
Pipe length  =   250.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    81.474(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    81.474(CFS)
Normal flow depth in pipe =   20.60(In.)
Flow top width inside pipe =   22.96(In.)
Critical depth could not be calculated.
Pipe flow velocity =     25.02(Ft/s)
Travel time through pipe =    0.17 min.
Time of concentration (TC) =     9.28 min.
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      610.000 to Point/Station      610.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      4.342(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     9.28 min.
Rainfall intensity =      4.342(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =      3.155(CFS) for    1.170(Ac.)
Total runoff =     84.629(CFS)      Total area =       22.71(Ac.)
Area averaged Fm value =    0.201(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      610.000 to Point/Station      610.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      4.342(In/Hr) for a   100.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     9.28 min.
Rainfall intensity =      4.342(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =      2.874(CFS) for    0.790(Ac.)
Total runoff =     87.502(CFS)      Total area =       23.50(Ac.)
Area averaged Fm value =    0.204(In/Hr)
End of computations, total study area =          23.50 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.681
Area averaged SCS curve number (AMC 2) =  63.9
SCS curve number this storm year  100.0 (AMC 2) =  63.9
```

APPENDIX B

EXISTING CONDITIONS

10 YEAR STORM

EXISTING CONDITIONS

AREA A

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXA100.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
EXISTING CONDITIONS - AREA A
FILE: J:\13266000\DRAIN\EXA100

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 78.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 300.000(Ft.)
Top (of initial area) elevation = 254.300(Ft.)
Bottom (of initial area) elevation = 198.600(Ft.)
Difference in elevation = 55.700(Ft.)
Slope = 0.18567 s(%)= 18.57
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.199 min.
Rainfall intensity = 3.294(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.818
Subarea runoff = 4.581(CFS)
Total initial stream area = 1.700(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 102.000
**** SUBAREA FLOW ADDITION ****

```
Rainfall intensity =      3.294(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     7.20 min.
Rainfall intensity =      3.294(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.832
Subarea runoff =      1.175(CFS) for    0.400(Ac.)
Total runoff =      5.757(CFS)      Total area =        2.10(Ac.)
Area averaged Fm value =    0.249(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   198.000(Ft.)
End of street segment elevation =   165.000(Ft.)
Length of street segment  =   470.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =    0.020
Slope from grade break to crown (v/hz)  =    0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =    2.000(Ft.)
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0170
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      9.868(CFS)
Depth of flow =   0.374(Ft.), Average velocity =   5.945(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  12.383(Ft.)
Flow velocity =   5.94(Ft/s)
Travel time =    1.32 min.     TC =    8.52  min.
 Adding area flow to street
Rainfall intensity =      2.992(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.992(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.864
```

```
Subarea runoff =      7.425(CFS) for    3.000(Ac.)
Total runoff =     13.182(CFS)      Total area =        5.10(Ac.)
Area averaged Fm value =    0.120(In/Hr)
Street flow at end of street =     13.182(CFS)
Half street flow at end of street =     13.182(CFS)
Depth of flow =   0.405(Ft.), Average velocity =   6.369(Ft/s)
Flow width (from curb towards crown)=  13.939(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   161.000(Ft.)
Downstream point/station elevation =   158.000(Ft.)
Pipe length  =    85.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    13.182(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    13.182(CFS)
Normal flow depth in pipe =   10.76(In.)
Flow top width inside pipe =   17.65(In.)
Critical Depth =   16.28(In.)
Pipe flow velocity =     11.96(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     8.63 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.968(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.63 min.
Rainfall intensity =      2.968(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.866
Subarea runoff =      1.161(CFS) for    0.480(Ac.)
Total runoff =     14.343(CFS)      Total area =        5.58(Ac.)
Area averaged Fm value =    0.112(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   158.000(Ft.)
Downstream point/station elevation =    13.000(Ft.)
Pipe length  =   160.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    14.343(CFS)
```

```
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =    14.343(CFS)
Normal flow depth in pipe =    6.74(In.)
Flow top width inside pipe =    7.81(In.)
Critical depth could not be calculated.
Pipe flow velocity =     40.40(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =     8.70 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.955(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.70 min.
Rainfall intensity =      2.955(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area, (total area with modified
rational method) (Q=KCIA) is C = 0.868
Subarea runoff =      1.304(CFS) for    0.520(Ac.)
Total runoff =     15.647(CFS)      Total area =        6.10(Ac.)
Area averaged Fm value =    0.105(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.955(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      6.100(Ac.)
Runoff from this stream =     15.647(CFS)
Time of concentration =    8.70 min.
Rainfall intensity =     2.955(In/Hr)
Area averaged loss rate (Fm) =    0.1052(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3508


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =      0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   190.500(Ft.)
Bottom (of initial area) elevation =   170.000(Ft.)
Difference in elevation =    20.500(Ft.)
Slope =    0.06833  s(%)=       6.83
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.091 min.
Rainfall intensity =      4.018(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.893
Subarea runoff =      3.302(CFS)
Total initial stream area =        0.920(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   162.000(Ft.)
Downstream point/station elevation =   100.000(Ft.)
Pipe length  =    60.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.302(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     3.302(CFS)
Normal flow depth in pipe =    3.28(In.)
Flow top width inside pipe =    5.97(In.)
Critical depth could not be calculated.
Pipe flow velocity =     30.10(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     5.12 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      105.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   100.000(Ft.)
Downstream point elevation =    13.000(Ft.)
Channel length thru subarea  =   275.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =      5.635(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      5.635(CFS)
Depth of flow =   0.549(Ft.), Average velocity =  18.684(Ft/s)
Channel flow top width =    1.098(Ft.)
Flow Velocity =   18.68(Ft/s)
Travel time  =    0.25 min.
Time of concentration =    5.37 min.
Critical depth =      1.125(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.897(In/Hr) for a    10.0 year storm
```

```
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.897(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.857
Subarea runoff =      4.109(CFS) for    1.300(Ac.)
Total runoff =      7.410(CFS)      Total area =        2.22(Ac.)
Area averaged Fm value =    0.188(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.897(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.220(Ac.)
Runoff from this stream =      7.410(CFS)
Time of concentration =    5.37 min.
Rainfall intensity =     3.897(In/Hr)
Area averaged loss rate (Fm) =    0.1881(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6270
Summary of stream data:

Stream    Flow rate       TC            Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1        15.647       8.70                2.955
2         7.410       5.37                3.897
Qmax(1) =
          1.000 *     1.000 *     15.647) +
          0.746 *     1.000 *      7.410) + =       21.176
Qmax(2) =
          1.330 *     0.617 *     15.647) +
          1.000 *     1.000 *      7.410) + =       20.257

Total of 2 streams to confluence:
Flow rates before confluence point:
      15.647       7.410
Maximum flow rates at confluence using above data:
       21.176       20.257
Area of streams before confluence:
        6.100        2.220
Effective area values after confluence:
        8.320        5.984
Results of confluence:
Total flow rate =     21.176(CFS)
Time of concentration =     8.701 min.
Effective stream area after confluence =       8.320(Ac.)
Study area average Pervious fraction(Ap) =  0.425
```

```
Study area average soil loss rate(Fm) =    0.127(In/Hr)
Study area total (this main stream) =       8.32(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    10.000(Ft.)
Downstream point/station elevation =     8.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    21.176(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    21.176(CFS)
Normal flow depth in pipe =   16.41(In.)
Flow top width inside pipe =   22.32(In.)
Critical Depth =   19.78(In.)
Pipe flow velocity =      9.26(Ft/s)
Travel time through pipe =    0.27 min.
Time of concentration (TC) =     8.97 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
Rainfall intensity =      2.904(In/Hr) for a    10.0 year storm
In Main Stream number: 1
Stream flow area =      8.320(Ac.)
Runoff from this stream =     21.176(CFS)
Time of concentration =    8.97 min.
Rainfall intensity =     2.904(In/Hr)
Area averaged loss rate (Fm) =    0.1274(In/Hr)
Area averaged Pervious ratio (Ap) = 0.4245
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      110.000 to Point/Station      111.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   380.000(Ft.)
Top (of initial area) elevation =   273.500(Ft.)
Bottom (of initial area) elevation =   192.200(Ft.)
Difference in elevation =    81.300(Ft.)
Slope =    0.21395  s(%)=      21.39
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
```

```
Initial area time of concentration =    7.692 min.
Rainfall intensity =      3.172(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.815
Subarea runoff =      5.867(CFS)
Total initial stream area =        2.270(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      112.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   192.200(Ft.)
End of street segment elevation =   191.000(Ft.)
Length of street segment  =    90.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  15.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      6.604(CFS)
Depth of flow =   0.309(Ft.), Average velocity =   2.462(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  11.209(Ft.)
Flow velocity =   2.46(Ft/s)
Travel time =    0.61 min.     TC =    8.30  min.
 Adding area flow to street
Rainfall intensity =      3.036(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.036(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.827
Subarea runoff =      1.265(CFS) for    0.570(Ac.)
Total runoff =      7.132(CFS)      Total area =        2.84(Ac.)
Area averaged Fm value =    0.246(In/Hr)
Street flow at end of street =      7.132(CFS)
Half street flow at end of street =      3.566(CFS)
Depth of flow =   0.316(Ft.), Average velocity =   2.506(Ft/s)
Flow width (from curb towards crown)=  11.567(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      112.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.036(In/Hr) for a    10.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =     8.30 min.
Rainfall intensity =      3.036(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.831
Subarea runoff =      0.791(CFS) for    0.300(Ac.)
Total runoff =      7.924(CFS)      Total area =        3.14(Ac.)
Area averaged Fm value =    0.232(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      113.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   191.000(Ft.)
Downstream point/station elevation =   110.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     7.924(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     7.924(CFS)
Normal flow depth in pipe =    4.67(In.)
Flow top width inside pipe =    8.99(In.)
Critical depth could not be calculated.
Pipe flow velocity =     34.23(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =     8.35 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      114.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   110.000(Ft.)
Downstream point elevation =    50.000(Ft.)
Channel length thru subarea  =   125.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =      8.882(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      8.882(CFS)
Depth of flow =   0.602(Ft.), Average velocity =  24.478(Ft/s)
Channel flow top width =    1.205(Ft.)
Flow Velocity =   24.48(Ft/s)
```

```
Travel time  =    0.09 min.
Time of concentration =    8.43 min.
Critical depth =      1.344(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.008(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.008(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.827
Subarea runoff =      1.774(CFS) for    0.760(Ac.)
Total runoff =      9.698(CFS)      Total area =        3.90(Ac.)
Area averaged Fm value =    0.246(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.008(In/Hr) for a    10.0 year storm
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      3.900(Ac.)
Runoff from this stream =      9.698(CFS)
Time of concentration =    8.43 min.
Rainfall intensity =     3.008(In/Hr)
Area averaged loss rate (Fm) =    0.2455(In/Hr)
Area averaged Pervious ratio (Ap) = 0.8185


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      115.000 to Point/Station      116.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   315.000(Ft.)
Top (of initial area) elevation =   288.100(Ft.)
Bottom (of initial area) elevation =   258.000(Ft.)
Difference in elevation =    30.100(Ft.)
Slope =    0.09556  s(%)=       9.56
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.384 min.
Rainfall intensity =      3.019(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.811
```

```
Subarea runoff =      1.811(CFS)
Total initial stream area =        0.740(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      117.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      4.258(CFS)
Depth of flow =   0.068(Ft.), Average velocity =   3.013(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               2.00
      2             20.00               0.00
      3             40.00               0.00
      4             60.00               2.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------
Sub-Channel flow  =      4.258(CFS)
  '      '    flow top width =     21.366(Ft.)
  '      '    velocity=    3.014(Ft/s)
  '      '    area =      1.413(Sq.Ft)
  '      '    Froude number =     2.065

Upstream point elevation =   258.000(Ft.)
Downstream point elevation =   177.000(Ft.)
Flow length =   585.000(Ft.)
Travel time  =    3.24 min.
Time of concentration =   11.62 min.
Depth of flow =   0.068(Ft.)
Average velocity =   3.013(Ft/s)
Total irregular channel flow =     4.258(CFS)
Irregular channel normal depth above invert elev. =   0.068(Ft.)
Average velocity of channel(s) =   3.013(Ft/s)

Sub-Channel No. 1 Critical depth =      0.109(Ft.)
  '      '       '     Critical flow top width =     22.188(Ft.)
  '      '       '     Critical flow velocity=    1.846(Ft/s)
  '      '       '     Critical flow area =      2.307(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.504(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.504(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.792
```

```
Subarea runoff =      3.624(CFS) for    2.000(Ac.)
Total runoff =      5.435(CFS)      Total area =        2.74(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      117.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
Rainfall intensity =      2.504(In/Hr) for a    10.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =    11.62 min.
Rainfall intensity =      2.504(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.809
Subarea runoff =      1.835(CFS) for    0.850(Ac.)
Total runoff =      7.270(CFS)      Total area =        3.59(Ac.)
Area averaged Fm value =    0.254(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      117.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
Rainfall intensity =      2.504(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    11.62 min.
Rainfall intensity =      2.504(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.820
Subarea runoff =      1.314(CFS) for    0.590(Ac.)
Total runoff =      8.584(CFS)      Total area =        4.18(Ac.)
Area averaged Fm value =    0.222(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      118.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
Top of street segment elevation =   177.000(Ft.)
End of street segment elevation =   130.000(Ft.)
Length of street segment  =   270.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
```

```
Width of half street (curb to crown)  =  10.000(Ft.)
Distance from crown to crossfall grade break  =   9.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   0.500(Ft.)
Gutter hike from flowline =  0.500(In.)
 Manning's N in gutter =  0.0170
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      8.789(CFS)
Depth of flow =   0.192(Ft.), Average velocity =   6.734(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   8.029(Ft.)
Flow velocity =   6.73(Ft/s)
Travel time =    0.67 min.     TC =   12.29  min.
 Adding area flow to street
Rainfall intensity =      2.425(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.425(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.821
Subarea runoff =      0.134(CFS) for    0.200(Ac.)
Total runoff =      8.718(CFS)      Total area =        4.38(Ac.)
Area averaged Fm value =    0.213(In/Hr)
Street flow at end of street =      8.718(CFS)
Half street flow at end of street =      4.359(CFS)
Depth of flow =   0.192(Ft.), Average velocity =   6.721(Ft/s)
Flow width (from curb towards crown)=   8.004(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      118.000 to Point/Station      114.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =   130.000(Ft.)
Downstream point elevation =    50.000(Ft.)
Channel length thru subarea  =   500.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =     10.838(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     10.838(CFS)
Depth of flow =   0.798(Ft.), Average velocity =  17.039(Ft/s)
Channel flow top width =    1.595(Ft.)
Flow Velocity =   17.04(Ft/s)
```

```
Travel time  =    0.49 min.
Time of concentration =   12.78 min.
Critical depth =      1.484(Ft.)
 Adding area flow to channel
Rainfall intensity =      2.371(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.371(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.808
Subarea runoff =      3.760(CFS) for    2.130(Ac.)
Total runoff =     12.478(CFS)      Total area =        6.51(Ac.)
Area averaged Fm value =    0.242(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.371(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =   12.78 min.
Rainfall intensity =      2.371(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.815
Subarea runoff =      1.307(CFS) for    0.620(Ac.)
Total runoff =     13.784(CFS)      Total area =        7.13(Ac.)
Area averaged Fm value =    0.223(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.371(In/Hr) for a    10.0 year storm
RESIDENTIAL(8 - 10 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.4000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.120(In/Hr)
Time of concentration =   12.78 min.
```

```
Rainfall intensity =      2.371(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.816
Subarea runoff =      0.466(CFS) for    0.230(Ac.)
Total runoff =     14.250(CFS)      Total area =        7.36(Ac.)
Area averaged Fm value =    0.220(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.371(In/Hr) for a    10.0 year storm
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      7.360(Ac.)
Runoff from this stream =     14.250(CFS)
Time of concentration =   12.78 min.
Rainfall intensity =     2.371(In/Hr)
Area averaged loss rate (Fm) =    0.2201(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7338
Summary of stream data:

Stream    Flow rate      TC            Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1          9.698       8.43                  3.008
2         14.250      12.78                  2.371
Qmax(1) =
          1.000 *     1.000 *     9.698) +
          1.296 *     0.660 *    14.250) + =       21.891
Qmax(2) =
          0.769 *     1.000 *     9.698) +
          1.000 *     1.000 *    14.250) + =       21.712

Total of 2 streams to confluence:
Flow rates before confluence point:
        9.698       14.250
Maximum flow rates at confluence using above data:
        21.891       21.712
Area of streams before confluence:
         3.900        7.360
Effective area values after confluence:
         8.759       11.260
Results of confluence:
Total flow rate =      21.891(CFS)
Time of concentration =      8.435 min.
Effective stream area after confluence =       8.759(Ac.)
Study area average Pervious fraction(Ap) =  0.763
Study area average soil loss rate(Fm) =    0.229(In/Hr)
Study area total (this main stream) =      11.26(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      119.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
```

```
Upstream point/station elevation =     50.000(Ft.)
Downstream point/station elevation =    12.000(Ft.)
Pipe length  =    67.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    21.891(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =    21.891(CFS)
Normal flow depth in pipe =    8.24(In.)
Flow top width inside pipe =   11.13(In.)
Critical depth could not be calculated.
Pipe flow velocity =     38.09(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     8.46 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      119.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.002(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     8.46 min.
Rainfall intensity =     3.002(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.831
Subarea runoff =      0.727(CFS) for    0.310(Ac.)
Total runoff =     22.618(CFS)      Total area =        9.07(Ac.)
Area averaged Fm value =    0.231(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    12.000(Ft.)
Downstream point/station elevation =     8.000(Ft.)
Pipe length  =   130.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    22.618(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    22.618(CFS)
Normal flow depth in pipe =   14.39(In.)
Flow top width inside pipe =   19.51(In.)
Critical Depth =   19.79(In.)
Pipe flow velocity =     12.88(Ft/s)
Travel time through pipe =    0.17 min.
Time of concentration (TC) =     8.63 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
```

```
The following data inside Main Stream is listed:
Rainfall intensity =      2.969(In/Hr) for a    10.0 year storm
In Main Stream number: 2
Stream flow area =       9.069(Ac.)
Runoff from this stream =     22.618(CFS)
Time of concentration =    8.63 min.
Rainfall intensity =     2.969(In/Hr)
Area averaged loss rate (Fm) =    0.2314(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7712
Program is now starting with Main Stream No. 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.000 to Point/Station      120.500
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   218.000(Ft.)
Top (of initial area) elevation =   250.700(Ft.)
Bottom (of initial area) elevation =   230.000(Ft.)
Difference in elevation =    20.700(Ft.)
Slope =    0.09495  s(%)=       9.50
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.245 min.
Rainfall intensity =      3.282(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.818
Subarea runoff =      1.718(CFS)
Total initial stream area =        0.640(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.500 to Point/Station      121.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      8.186(CFS)
Depth of flow =   0.247(Ft.), Average velocity =   6.041(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             10.00               0.00
      3             15.00               0.00
      4             25.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
```

```
Sub-Channel flow  =      8.186(CFS)
   '      '     flow top width =      5.987(Ft.)
   '      '     velocity=    6.041(Ft/s)
   '      '     area =      1.355(Sq.Ft)
   '      '     Froude number =     2.238

Upstream point elevation =   230.000(Ft.)
Downstream point elevation =   178.000(Ft.)
Flow length =   470.000(Ft.)
Travel time  =    1.30 min.
Time of concentration =    8.54 min.
Depth of flow =   0.247(Ft.)
Average velocity =   6.041(Ft/s)
Total irregular channel flow =     8.186(CFS)
Irregular channel normal depth above invert elev. =   0.247(Ft.)
Average velocity of channel(s) =   6.041(Ft/s)

Sub-Channel No. 1 Critical depth =      0.414(Ft.)
   '      '       '     Critical flow top width =      6.656(Ft.)
   '      '       '     Critical flow velocity=    3.392(Ft/s)
   '      '       '     Critical flow area =      2.413(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.987(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.987(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.810
Subarea runoff =     11.485(CFS) for    4.820(Ac.)
Total runoff =     13.203(CFS)      Total area =        5.46(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      121.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.987(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.54 min.
Rainfall intensity =      2.987(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.817
```

```
Subarea runoff =      1.543(CFS) for    0.580(Ac.)
Total runoff =     14.747(CFS)      Total area =        6.04(Ac.)
Area averaged Fm value =    0.274(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      122.000
**** IMPROVED CHANNEL TRAVEL TIME ****
----------------------------------------------------------------------------
Upstream point elevation =   178.000(Ft.)
Downstream point elevation =   115.000(Ft.)
Channel length thru subarea  =   410.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =     15.564(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     15.564(CFS)
Depth of flow =   0.920(Ft.), Average velocity =  18.372(Ft/s)
Channel flow top width =    1.841(Ft.)
Flow Velocity =   18.37(Ft/s)
Travel time  =    0.37 min.
Time of concentration =    8.91 min.
Critical depth =      1.719(Ft.)
 Adding area flow to channel
Rainfall intensity =      2.915(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.915(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.815
Subarea runoff =      1.185(CFS) for    0.670(Ac.)
Total runoff =     15.931(CFS)      Total area =        6.71(Ac.)
Area averaged Fm value =    0.277(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      123.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =   115.000(Ft.)
Downstream point/station elevation =    16.000(Ft.)
Pipe length  =   230.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    15.931(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =    15.931(CFS)
Normal flow depth in pipe =    7.27(In.)
Flow top width inside pipe =   11.73(In.)
Critical depth could not be calculated.
Pipe flow velocity =     32.01(Ft/s)
```

```
Travel time through pipe =     0.12 min.
Time of concentration (TC) =      9.03 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       123.000 to Point/Station       124.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =     16.000(Ft.)
Downstream point elevation =     14.000(Ft.)
Channel length thru subarea  =    130.000(Ft.)
Channel base width       =     4.000(Ft.)
Slope or 'Z' of left channel bank =    1.000
Slope or 'Z' of right channel bank =    1.000
Estimated mean flow rate at midpoint of channel =      16.276(CFS)
Manning's 'N'     = 0.015
Maximum depth of channel  =     1.000(Ft.)
Flow(q) thru subarea =      16.276(CFS)
Depth of flow =    0.517(Ft.), Average velocity =    6.972(Ft/s)
Channel flow top width =     5.034(Ft.)
Flow Velocity =     6.97(Ft/s)
Travel time  =     0.31 min.
Time of concentration =     9.34 min.
Critical depth =       0.750(Ft.)
 Adding area flow to channel
Rainfall intensity =       2.837(In/Hr) for a     10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.300(In/Hr)
Rainfall intensity =       2.837(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.812
Subarea runoff =       0.193(CFS) for     0.290(Ac.)
Total runoff =      16.124(CFS)       Total area =         7.00(Ac.)
Area averaged Fm value =     0.278(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       124.000 to Point/Station       109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     11.000(Ft.)
Downstream point/station elevation =      8.000(Ft.)
Pipe length  =    150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     16.124(CFS)
Nearest computed pipe diameter  =      21.00(In.)
Calculated individual pipe flow  =     16.124(CFS)
Normal flow depth in pipe =    13.20(In.)
Flow top width inside pipe =    20.30(In.)
Critical Depth =    17.77(In.)
Pipe flow velocity =      10.14(Ft/s)
Travel time through pipe =     0.25 min.
```

```
Time of concentration (TC) =      9.59 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------
The following data inside Main Stream is listed:
Rainfall intensity =      2.795(In/Hr) for a     10.0 year storm
In Main Stream number: 3
Stream flow area =       7.000(Ac.)
Runoff from this stream =      16.124(CFS)
Time of concentration =     9.59 min.
Rainfall intensity =      2.795(In/Hr)
Area averaged loss rate (Fm) =     0.2776(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9254
Summary of stream data:

Stream    Flow rate       TC            Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1        21.176       8.97                2.904
2        22.618       8.63                2.969
3        16.124       9.59                2.795
Qmax(1) =
          1.000 *     1.000 *     21.176) +
          0.976 *     1.000 *     22.618) +
          1.043 *     0.935 *     16.124) + =       58.995
Qmax(2) =
          1.023 *     0.962 *     21.176) +
          1.000 *     1.000 *     22.618) +
          1.069 *     0.900 *     16.124) + =       58.985
Qmax(3) =
          0.961 *     1.000 *     21.176) +
          0.937 *     1.000 *     22.618) +
          1.000 *     1.000 *     16.124) + =       57.651

Total of 3 main streams to confluence:
Flow rates before confluence point:
      22.176       23.618       17.124
Maximum flow rates at confluence using above data:
       58.995       58.985       57.651
Area of streams before confluence:
        8.320        9.069        7.000
Effective area values after confluence:
       23.937       23.375       24.389


Results of confluence:
Total flow rate =      58.995(CFS)
Time of concentration =      8.971 min.
Effective stream area after confluence  =      23.937(Ac.)
Study area average Pervious fraction(Ap) =  0.697
Study area average soil loss rate(Fm) =     0.209(In/Hr)
Study area total =       24.39(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.904(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.97 min.
Rainfall intensity =      2.904(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.837
Subarea runoff =      1.622(CFS) for    0.990(Ac.)
Total runoff =     60.617(CFS)      Total area =       24.93(Ac.)
Area averaged Fm value =     0.202(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      125.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     8.000(Ft.)
Downstream point/station elevation =     7.000(Ft.)
Pipe length  =    90.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    60.617(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    60.617(CFS)
Normal flow depth in pipe =   25.78(In.)
Flow top width inside pipe =   32.46(In.)
Critical Depth =   30.15(In.)
Pipe flow velocity =     11.19(Ft/s)
Travel time through pipe =     0.13 min.
Time of concentration (TC) =     9.10 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.880(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     24.927(Ac.)
Runoff from this stream =     60.617(CFS)
Time of concentration =    9.10 min.
Rainfall intensity =     2.880(In/Hr)
Area averaged loss rate (Fm) =    0.2020(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6735


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      126.000 to Point/Station      127.000
```

```
**** INITIAL AREA EVALUATION ****
-------------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =   145.000(Ft.)
Bottom (of initial area) elevation =    14.200(Ft.)
Difference in elevation =   130.800(Ft.)
Slope =    1.30800  s(%)=     130.80
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    4.222 min.
Rainfall intensity =      4.473(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.840
Subarea runoff =      2.028(CFS)
Total initial stream area =        0.540(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      127.000 to Point/Station      125.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
-------------------------------------------------------------------------------
Top of street segment elevation =    14.200(Ft.)
End of street segment elevation =    12.000(Ft.)
Length of street segment  =   350.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      2.779(CFS)
Depth of flow =   0.268(Ft.), Average velocity =   1.511(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   9.135(Ft.)
Flow velocity =   1.51(Ft/s)
Travel time =    3.86 min.     TC =    8.08  min.
 Adding area flow to street
Rainfall intensity =      3.083(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
```

```
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.083(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =      0.424(CFS) for    0.400(Ac.)
Total runoff =      2.452(CFS)      Total area =        0.94(Ac.)
Area averaged Fm value =    0.185(In/Hr)
Street flow at end of street =      2.452(CFS)
Half street flow at end of street =      1.226(CFS)
Depth of flow =   0.258(Ft.), Average velocity =   1.470(Ft/s)
Flow width (from curb towards crown)=   8.655(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.083(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.940(Ac.)
Runoff from this stream =      2.452(CFS)
Time of concentration =    8.08 min.
Rainfall intensity =     3.083(In/Hr)
Area averaged loss rate (Fm) =    0.1851(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6170
Summary of stream data:

Stream    Flow rate      TC             Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1        60.617       9.10                2.880
2         2.452       8.08                3.083
Qmax(1) =
          1.000 *     1.000 *    60.617) +
          0.930 *     1.000 *     2.452) + =       62.897
Qmax(2) =
          1.076 *     0.888 *    60.617) +
          1.000 *     1.000 *     2.452) + =       60.346

Total of 2 streams to confluence:
Flow rates before confluence point:
      60.617       2.452
Maximum flow rates at confluence using above data:
       62.897       60.346
Area of streams before confluence:
       24.927        0.940
Effective area values after confluence:
       25.867       23.064
Results of confluence:
Total flow rate =     62.897(CFS)
Time of concentration =     9.105 min.
Effective stream area after confluence =     25.867(Ac.)
```

```
Study area average Pervious fraction(Ap) =  0.671
Study area average soil loss rate(Fm) =    0.201(In/Hr)
Study area total (this main stream) =      25.87(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      128.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     7.000(Ft.)
Downstream point/station elevation =     6.000(Ft.)
Pipe length  =    80.00(Ft.)   Manning's N = 0.015
No. of pipes = 1  Required pipe flow  =    62.897(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    62.897(CFS)
Normal flow depth in pipe =   28.69(In.)
Flow top width inside pipe =   28.97(In.)
Critical Depth =   30.63(In.)
Pipe flow velocity =     10.42(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =     9.23 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      128.000 to Point/Station      128.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.857(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     9.23 min.
Rainfall intensity =      2.857(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.840
Subarea runoff =      3.417(CFS) for    1.770(Ac.)
Total runoff =     66.314(CFS)      Total area =       27.64(Ac.)
Area averaged Fm value =    0.190(In/Hr)
End of computations, total study area =          30.59 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.646
Area averaged SCS curve number (AMC 2) =  67.5
SCS curve number this storm year   10.0 (AMC 2) =  67.5
```

AREA B

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXB200.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
EXISTING CONDITIONS - AREA B
FILE: J:\13266000\DRAIN\EXB200

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 200.000 to Point/Station 201.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 78.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 540.000(Ft.)
Top (of initial area) elevation = 288.100(Ft.)
Bottom (of initial area) elevation = 202.500(Ft.)
Difference in elevation = 85.600(Ft.)
Slope = 0.15852 s(%)= 15.85
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.399 min.
Rainfall intensity = 2.827(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.805
Subarea runoff = 3.981(CFS)
Total initial stream area = 1.750(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 201.000 to Point/Station 202.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =     10.623(CFS)
Depth of flow =   0.110(Ft.), Average velocity =   2.320(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               4.00
      2             40.00               0.00
      3             80.00               0.00
      4            160.00               4.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =     10.623(CFS)
   '      '    flow top width =     43.298(Ft.)
   '      '    velocity=    2.320(Ft/s)
   '      '    area =      4.579(Sq.Ft)
   '      '    Froude number =     1.257

Upstream point elevation =   202.500(Ft.)
Downstream point elevation =   163.000(Ft.)
Flow length =   900.000(Ft.)
Travel time  =    6.47 min.
Time of concentration =   15.86 min.
Depth of flow =   0.110(Ft.)
Average velocity =   2.320(Ft/s)
Total irregular channel flow =    10.623(CFS)
Irregular channel normal depth above invert elev. =   0.110(Ft.)
Average velocity of channel(s) =   2.320(Ft/s)

Sub-Channel No. 1 Critical depth =      0.127(Ft.)
   '      '        '     Critical flow top width =     43.809(Ft.)
   '      '        '     Critical flow velocity=    1.997(Ft/s)
   '      '        '     Critical flow area =      5.320(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.095(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.095(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.771
Subarea runoff =      8.279(CFS) for    5.840(Ac.)
Total runoff =     12.260(CFS)      Total area =        7.59(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      202.000
**** SUBAREA FLOW ADDITION ****

------------------------------------------------------------------------
Rainfall intensity =      2.095(In/Hr) for a    10.0 year storm
```

```
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    15.86 min.
Rainfall intensity =      2.095(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.796
Subarea runoff =      3.810(CFS) for    2.050(Ac.)
Total runoff =     16.070(CFS)      Total area =        9.64(Ac.)
Area averaged Fm value =    0.243(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      202.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.095(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    15.86 min.
Rainfall intensity =      2.095(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.781
Subarea runoff =     22.437(CFS) for   13.890(Ac.)
Total runoff =     38.506(CFS)      Total area =       23.53(Ac.)
Area averaged Fm value =    0.276(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      202.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.095(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    15.86 min.
Rainfall intensity =      2.095(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.781
Subarea runoff =      2.229(CFS) for    1.380(Ac.)
```

```
Total runoff =     40.735(CFS)       Total area =       24.91(Ac.)
Area averaged Fm value =    0.278(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     44.595(CFS)
Depth of flow =   0.383(Ft.), Average velocity =   3.261(Ft/s)
      ******* Irregular Channel Data ***********
----------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               2.00
      2             30.00               0.00
      3             60.00               0.00
      4             90.00               2.00
Manning's 'N' friction factor =   0.030
----------------------------------------------------------------------
Sub-Channel flow  =     44.595(CFS)
   '      '    flow top width =     41.479(Ft.)
   '      '    velocity=    3.261(Ft/s)
   '      '    area =     13.675(Sq.Ft)
   '      '    Froude number =     1.001

Upstream point elevation =   163.000(Ft.)
Downstream point elevation =   157.000(Ft.)
Flow length =   315.000(Ft.)
Travel time  =    1.61 min.
Time of concentration =   17.47 min.
Depth of flow =   0.383(Ft.)
Average velocity =   3.261(Ft/s)
Total irregular channel flow =    44.595(CFS)
Irregular channel normal depth above invert elev. =   0.383(Ft.)
Average velocity of channel(s) =   3.261(Ft/s)

Sub-Channel No. 1 Critical depth =      0.383(Ft.)
   '      '       '     Critical flow top width =     41.484(Ft.)
   '      '       '     Critical flow velocity=    3.259(Ft/s)
   '      '       '     Critical flow area =     13.683(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      1.982(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      1.982(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.772
Subarea runoff =      4.615(CFS) for    4.720(Ac.)
Total runoff =    45.350(CFS)       Total area =       29.63(Ac.)
```

```
Area averaged Fm value =     0.281(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      1.982(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     29.630(Ac.)
Runoff from this stream =     45.350(CFS)
Time of concentration =   17.47 min.
Rainfall intensity =     1.982(In/Hr)
Area averaged loss rate (Fm) =    0.2813(In/Hr)
Area averaged Pervious ratio (Ap) = 0.9377


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      205.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   221.000(Ft.)
Bottom (of initial area) elevation =   202.000(Ft.)
Difference in elevation =    19.000(Ft.)
Slope =    0.06333  s(%)=       6.33
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.121 min.
Rainfall intensity =      3.615(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.874
Subarea runoff =      2.906(CFS)
Total initial stream area =        0.920(Ac.)
Pervious area fraction = 0.350
Initial area Fm value =    0.105(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      4.786(CFS)
Depth of flow =   0.182(Ft.), Average velocity =   3.722(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               2.00
      2             20.00               0.00
```

```
      3              25.00              0.00
      4              50.00              2.00
Manning's 'N' friction factor =   0.030
-----------------------------------------------------------------
Sub-Channel flow  =      4.786(CFS)
   '      '    flow top width =      9.103(Ft.)
   '      '    velocity=    3.722(Ft/s)
   '      '    area =      1.286(Sq.Ft)
   '      '    Froude number =     1.745

Upstream point elevation =   202.000(Ft.)
Downstream point elevation =   157.000(Ft.)
Flow length =   585.000(Ft.)
Travel time  =    2.62 min.
Time of concentration =    8.74 min.
Depth of flow =   0.182(Ft.)
Average velocity =   3.722(Ft/s)
Total irregular channel flow =     4.786(CFS)
Irregular channel normal depth above invert elev. =   0.182(Ft.)
Average velocity of channel(s) =   3.722(Ft/s)

Sub-Channel No. 1 Critical depth =      0.250(Ft.)
   '      '       '     Critical flow top width =     10.625(Ft.)
   '      '       '     Critical flow velocity=    2.451(Ft/s)
   '      '       '     Critical flow area =      1.953(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.948(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.948(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.834
Subarea runoff =      2.283(CFS) for    1.190(Ac.)
Total runoff =      5.189(CFS)      Total area =        2.11(Ac.)
Area averaged Fm value =    0.215(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** CONFLUENCE OF MINOR STREAMS ****
-----------------------------------------------------------------
Rainfall intensity =      2.948(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.110(Ac.)
Runoff from this stream =      5.189(CFS)
Time of concentration =    8.74 min.
Rainfall intensity =     2.948(In/Hr)
Area averaged loss rate (Fm) =    0.2150(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7166
Summary of stream data:
```

```
Stream    Flow rate      TC              Rainfall Intensity
 No.       (CFS)        (min)                 (In/Hr)


1        45.350      17.47                  1.982
2         5.189       8.74                  2.948
Qmax(1) =
          1.000 *     1.000 *    45.350) +
          0.647 *     1.000 *     5.189) + =       48.705
Qmax(2) =
          1.568 *     0.500 *    45.350) +
          1.000 *     1.000 *     5.189) + =       40.755

Total of 2 streams to confluence:
Flow rates before confluence point:
      45.350       5.189
Maximum flow rates at confluence using above data:
       48.705       40.755
Area of streams before confluence:
       29.630        2.110
Effective area values after confluence:
       31.740       16.931
Results of confluence:
Total flow rate =      48.705(CFS)
Time of concentration =    17.474 min.
Effective stream area after confluence =      31.740(Ac.)
Study area average Pervious fraction(Ap) =  0.923
Study area average soil loss rate(Fm) =     0.277(In/Hr)
Study area total (this main stream) =       31.74(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      206.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      52.634(CFS)
Depth of flow =   0.267(Ft.), Average velocity =   9.583(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              10.00
      2             20.00               0.00
      3             40.00               0.00
      4             60.00              10.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------
Sub-Channel flow  =     52.634(CFS)
  '      '    flow top width =     21.070(Ft.)
  '      '    velocity=    9.583(Ft/s)
  '      '    area =      5.492(Sq.Ft)
  '      '    Froude number =     3.308

Upstream point elevation =   157.000(Ft.)
Downstream point elevation =    12.000(Ft.)
Flow length =   640.000(Ft.)
```

```
Travel time  =    1.11 min.
Time of concentration =   18.59 min.
Depth of flow =   0.267(Ft.)
Average velocity =   9.583(Ft/s)
Total irregular channel flow =    52.634(CFS)
Irregular channel normal depth above invert elev. =   0.267(Ft.)
Average velocity of channel(s) =   9.583(Ft/s)

Sub-Channel No. 1 Critical depth =      0.586(Ft.)
  '     '       '     Critical flow top width =     22.344(Ft.)
  '     '       '     Critical flow velocity=    4.243(Ft/s)
  '     '       '     Critical flow area =     12.405(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      1.913(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      1.913(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area, (total area with modified
rational method) (Q=KCIA) is C = 0.768
Subarea runoff =      5.465(CFS) for    5.120(Ac.)
Total runoff =     54.170(CFS)      Total area =       36.86(Ac.)
Area averaged Fm value =    0.280(In/Hr)
End of computations, total study area =           36.86 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.934
Area averaged SCS curve number (AMC 2) =  73.2
SCS curve number this storm year   10.0 (AMC 2) =  73.2
```

AREA C

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-1998 Version 5.4
Rational Hydrology Study, Date: 02/17/00 File Name: EXC300.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
EXISTING CONDITIONS - AREA C
FILE: J:\13266000\DRAIN\EXC300

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 300.000 to Point/Station 301.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 78.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 750.000(Ft.)
Top (of initial area) elevation = 250.700(Ft.)
Bottom (of initial area) elevation = 222.700(Ft.)
Difference in elevation = 28.000(Ft.)
Slope = 0.03733 s(%)= 3.73
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 14.314 min.
Rainfall intensity = 2.222(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.778
Subarea runoff = 1.782(CFS)
Total initial stream area = 1.030(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 301.000 to Point/Station 302.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

```
Top of street segment elevation =   222.700(Ft.)
End of street segment elevation =   210.000(Ft.)
Length of street segment  =   130.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  12.000(Ft.)
Distance from crown to crossfall grade break  =  10.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      2.154(CFS)
Depth of flow =   0.165(Ft.), Average velocity =   4.391(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   4.003(Ft.)
Flow velocity =   4.39(Ft/s)
Travel time =    0.49 min.     TC =   14.81  min.
 Adding area flow to street
Rainfall intensity =      2.179(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.179(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.809
Subarea runoff =      0.792(CFS) for    0.430(Ac.)
Total runoff =      2.574(CFS)      Total area =        1.46(Ac.)
Area averaged Fm value =    0.220(In/Hr)
Street flow at end of street =      2.574(CFS)
Half street flow at end of street =      1.287(CFS)
Depth of flow =   0.175(Ft.), Average velocity =   4.490(Ft/s)
Flow width (from curb towards crown)=   4.490(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      302.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.179(In/Hr) for a    10.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
```

```
Time of concentration =    14.81 min.
Rainfall intensity =      2.179(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.823
Subarea runoff =      1.195(CFS) for    0.640(Ac.)
Total runoff =      3.768(CFS)      Total area =        2.10(Ac.)
Area averaged Fm value =    0.185(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      302.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
Rainfall intensity =      2.179(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    14.81 min.
Rainfall intensity =      2.179(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.809
Subarea runoff =      1.556(CFS) for    0.920(Ac.)
Total runoff =      5.324(CFS)      Total area =        3.02(Ac.)
Area averaged Fm value =    0.220(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      303.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      6.638(CFS)
Depth of flow =   0.146(Ft.), Average velocity =   4.431(Ft/s)
      ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate      'Y' coordinate
      1              0.00               5.00
      2             10.00               0.00
      3             20.00               0.00
      4             30.00               5.00
Manning's 'N' friction factor =   0.030
----------------------------------------------------------------
Sub-Channel flow  =      6.638(CFS)
  '      '    flow top width =     10.582(Ft.)
  '      '    velocity=    4.431(Ft/s)
  '      '    area =      1.498(Sq.Ft)
  '      '    Froude number =     2.075

Upstream point elevation =   210.000(Ft.)
Downstream point elevation =   140.000(Ft.)
Flow length =   640.000(Ft.)
Travel time  =    2.41 min.
```

```
Time of concentration =   17.22 min.
Depth of flow =   0.146(Ft.)
Average velocity =   4.431(Ft/s)
Total irregular channel flow =     6.638(CFS)
Irregular channel normal depth above invert elev. =   0.146(Ft.)
Average velocity of channel(s) =   4.431(Ft/s)

Sub-Channel No. 1 Critical depth =      0.234(Ft.)
  '     '       '     Critical flow top width =     10.938(Ft.)
  '     '       '     Critical flow velocity=    2.705(Ft/s)
  '     '       '     Critical flow area =      2.454(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      1.999(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      1.999(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.789
Subarea runoff =      1.788(CFS) for    1.490(Ac.)
Total runoff =      7.113(CFS)      Total area =        4.51(Ac.)
Area averaged Fm value =    0.247(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      303.000 to Point/Station      304.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     11.923(CFS)
Depth of flow =   0.051(Ft.), Average velocity =   7.754(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             10.00               0.00
      3             40.00               0.00
      4             50.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     11.923(CFS)
  '     '    flow top width =     30.204(Ft.)
  '     '    velocity=    7.754(Ft/s)
  '     '    area =      1.538(Sq.Ft)
  '     '    Froude number =     6.056

Upstream point elevation =   140.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   100.000(Ft.)
Travel time  =    0.21 min.
Time of concentration =   17.43 min.
```

```
Depth of flow =   0.051(Ft.)
Average velocity =   7.754(Ft/s)
Total irregular channel flow =    11.923(CFS)
Irregular channel normal depth above invert elev. =   0.051(Ft.)
Average velocity of channel(s) =   7.754(Ft/s)

Sub-Channel No. 1 Critical depth =      0.170(Ft.)
  '     '       '     Critical flow top width =     30.680(Ft.)
  '     '       '     Critical flow velocity=    2.313(Ft/s)
  '     '       '     Critical flow area =      5.155(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      1.985(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      1.985(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.774
Subarea runoff =      9.192(CFS) for    6.100(Ac.)
Total runoff =     16.305(CFS)      Total area =       10.61(Ac.)
Area averaged Fm value =    0.277(In/Hr)
End of computations, total study area =           10.61 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.924
Area averaged SCS curve number (AMC 2) =  69.3
SCS curve number this storm year   10.0 (AMC 2) =  69.3
```

AREA D

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-1999 Version 6.2
Rational Hydrology Study, Date: 05/25/00 File Name: exd400.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
EXISTING CONDITIONS - AREA D
FILE: J:\13266000\DRAIN\EXD400

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 400.000 to Point/Station 401.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 78.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 200.000(Ft.)
Top (of initial area) elevation = 253.600(Ft.)
Bottom (of initial area) elevation = 230.000(Ft.)
Difference in elevation = 23.600(Ft.)
Slope = 0.11800 s(%)= 11.80
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.702 min.
Rainfall intensity = 3.432(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.821
Subarea runoff = 3.016(CFS)
Total initial stream area = 1.070(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 401.000 to Point/Station 402.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

```
Top of street segment elevation =   230.000(Ft.)
End of street segment elevation =   210.000(Ft.)
Length of street segment  =   220.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  14.000(Ft.)
Distance from crown to crossfall grade break  =  12.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      3.679(CFS)
Depth of flow =   0.197(Ft.), Average velocity =   4.619(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   5.597(Ft.)
Flow velocity =   4.62(Ft/s)
Travel time =    0.79 min.     TC =    7.50  min.
 Adding area flow to street
Rainfall intensity =     3.219(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.219(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.839
Subarea runoff =      1.144(CFS) for    0.470(Ac.)
Total runoff =      4.160(CFS)      Total area =        1.54(Ac.)
Area averaged Fm value =    0.218(In/Hr)
Street flow at end of street =      4.160(CFS)
Half street flow at end of street =      2.080(CFS)
Depth of flow =   0.204(Ft.), Average velocity =   4.725(Ft/s)
Flow width (from curb towards crown)=   5.960(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      402.000 to Point/Station      403.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      6.253(CFS)
Depth of flow =   0.086(Ft.), Average velocity =   2.850(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              5.00
      2             25.00              0.00
      3             50.00              0.00
```

```
      4              75.00                5.00
Manning's 'N' friction factor =   0.030
-----------------------------------------------------------------
Sub-Channel flow  =      6.253(CFS)
   '      '    flow top width =     25.863(Ft.)
   '      '    velocity=    2.850(Ft/s)
   '      '    area =      2.194(Sq.Ft)
   '      '    Froude number =     1.724

Upstream point elevation =   210.000(Ft.)
Downstream point elevation =   190.000(Ft.)
Flow length =   225.000(Ft.)
Travel time  =    1.32 min.
Time of concentration =    8.81 min.
Depth of flow =   0.086(Ft.)
Average velocity =   2.850(Ft/s)
Total irregular channel flow =     6.253(CFS)
Irregular channel normal depth above invert elev. =   0.086(Ft.)
Average velocity of channel(s) =   2.850(Ft/s)

Sub-Channel No. 1 Critical depth =      0.123(Ft.)
   '      '       '     Critical flow top width =     26.230(Ft.)
   '      '       '     Critical flow velocity=    1.984(Ft/s)
   '      '       '     Critical flow area =      3.152(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.934(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.934(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.821
Subarea runoff =      3.280(CFS) for    1.550(Ac.)
Total runoff =      7.440(CFS)      Total area =        3.09(Ac.)
Area averaged Fm value =    0.259(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      403.000 to Point/Station      404.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
-----------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     11.075(CFS)
Depth of flow =   0.136(Ft.), Average velocity =   3.178(Ft/s)
      ******* Irregular Channel Data ***********
-----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
```

```
Manning's 'N' friction factor =   0.030
-----------------------------------------------------------------
Sub-Channel flow  =     11.075(CFS)
   '      '    flow top width =     26.357(Ft.)
   '      '    velocity=    3.178(Ft/s)
   '      '    area =      3.484(Sq.Ft)
   '      '    Froude number =     1.541

Upstream point elevation =   190.000(Ft.)
Downstream point elevation =   160.000(Ft.)
Flow length =   490.000(Ft.)
Travel time  =    2.57 min.
Time of concentration =   11.38 min.
Depth of flow =   0.136(Ft.)
Average velocity =   3.178(Ft/s)
Total irregular channel flow =    11.075(CFS)
Irregular channel normal depth above invert elev. =   0.136(Ft.)
Average velocity of channel(s) =   3.178(Ft/s)

Sub-Channel No. 1 Critical depth =      0.180(Ft.)
   '      '       '     Critical flow top width =     26.797(Ft.)
   '      '       '     Critical flow velocity=    2.380(Ft/s)
   '      '       '     Critical flow area =      4.654(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.534(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.534(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.801
Subarea runoff =      4.959(CFS) for    3.020(Ac.)
Total runoff =     12.399(CFS)      Total area =        6.11(Ac.)
Area averaged Fm value =    0.279(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      404.000 to Point/Station      405.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
-----------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     25.132(CFS)
Depth of flow =   0.134(Ft.), Average velocity =   7.288(Ft/s)
      ******* Irregular Channel Data ***********
-----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
Manning's 'N' friction factor =  0.030
```

```
------------------------------------------------------------------
Sub-Channel flow  =     25.132(CFS)
   '      '     flow top width =     26.343(Ft.)
   '      '     velocity=    7.288(Ft/s)
   '      '     area =      3.449(Sq.Ft)
   '      '     Froude number =     3.550

Upstream point elevation =   160.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   460.000(Ft.)
Travel time  =    1.05 min.
Time of concentration =   12.43 min.
Depth of flow =   0.134(Ft.)
Average velocity =   7.288(Ft/s)
Total irregular channel flow =    25.132(CFS)
Irregular channel normal depth above invert elev. =   0.134(Ft.)
Average velocity of channel(s) =   7.288(Ft/s)

Sub-Channel No. 1 Critical depth =      0.309(Ft.)
   '      '       '     Critical flow top width =     28.086(Ft.)
   '      '       '     Critical flow velocity=    3.068(Ft/s)
   '      '       '     Critical flow area =      8.191(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.409(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =     2.409(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.790
Subarea runoff =     23.130(CFS) for   12.550(Ac.)
Total runoff =     35.529(CFS)      Total area =       18.66(Ac.)
Area averaged Fm value =    0.293(In/Hr)
End of computations, total study area =           18.66 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.977
Area averaged SCS curve number (AMC 2) =  69.2
SCS curve number this storm year   10.0 (AMC 2) =  69.2
```

AREA E

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/06/01 File Name: exe500.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
EXISTING CONDITIONS - AREA E
FILE: J:\13266000\DRAIN\EXE500

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++

Process from Point/Station 500.000 to Point/Station 501.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 660.000(Ft.)
Top (of initial area) elevation = 230.000(Ft.)
Bottom (of initial area) elevation = 165.000(Ft.)
Difference in elevation = 65.000(Ft.)
Slope = 0.09848 s(%)= 9.85
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 15.064 min.
Rainfall intensity = 2.158(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.775
Subarea runoff = 1.655(CFS)
Total initial stream area = 0.990(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++

Process from Point/Station 501.000 to Point/Station 502.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =      9.213(CFS)
Depth of flow =   0.053(Ft.), Average velocity =   6.849(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =      9.213(CFS)
   '      '    flow top width =     25.532(Ft.)
   '      '    velocity=    6.850(Ft/s)
   '      '    area =      1.345(Sq.Ft)
   '      '    Froude number =     5.259

Upstream point elevation =   165.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   160.000(Ft.)
Travel time  =    0.39 min.
Time of concentration =   15.45 min.
Depth of flow =   0.053(Ft.)
Average velocity =   6.849(Ft/s)
Total irregular channel flow =     9.213(CFS)
Irregular channel normal depth above invert elev. =   0.053(Ft.)
Average velocity of channel(s) =   6.849(Ft/s)

Sub-Channel No. 1 Critical depth =      0.160(Ft.)
   '      '       '     Critical flow top width =     26.602(Ft.)
   '      '       '     Critical flow velocity=    2.230(Ft/s)
   '      '       '     Critical flow area =      4.132(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.127(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.127(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.773
Subarea runoff =     14.833(CFS) for    9.040(Ac.)
Total runoff =     16.488(CFS)      Total area =       10.03(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      502.000 to Point/Station      502.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity =      2.127(In/Hr) for a    10.0 year storm
```

RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.7000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.210(In/Hr)
Time of concentration = 15.45 min.
Rainfall intensity = 2.127(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.777
Subarea runoff = 1.966(CFS) for 1.140(Ac.)
Total runoff = 18.454(CFS) Total area = 11.17(Ac.)
Area averaged Fm value = 0.291(In/Hr)
End of computations, total study area = 11.17 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.969
Area averaged SCS curve number (AMC 2) = 67.7
SCS curve number this storm year 10.0 (AMC 2) = 67.7

AREA F

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXF600.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
EXISTING CONDITIONS - AREA F
FILE: J:\13266000\DRAIN\EXF600

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 600.000 to Point/Station 601.000
**** INITIAL AREA EVALUATION ****

APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.2000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.060(In/Hr)
Initial subarea data:
Initial area flow distance = 300.000(Ft.)
Top (of initial area) elevation = 195.000(Ft.)
Bottom (of initial area) elevation = 185.000(Ft.)
Difference in elevation = 10.000(Ft.)
Slope = 0.03333 s(%)= 3.33
TC = k(0.324)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.264 min.
Rainfall intensity = 3.568(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.885
Subarea runoff = 3.378(CFS)
Total initial stream area = 1.070(Ac.)
Pervious area fraction = 0.200
Initial area Fm value = 0.060(In/Hr)

++
Process from Point/Station 601.000 to Point/Station 602.000
**** IMPROVED CHANNEL TRAVEL TIME ****

```
Upstream point elevation =   185.000(Ft.)
Downstream point elevation =   173.000(Ft.)
Channel length thru subarea  =   410.000(Ft.)
Channel base width       =    5.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =      8.003(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      8.003(CFS)
Depth of flow =   0.230(Ft.), Average velocity =   5.654(Ft/s)
Channel flow top width =    7.301(Ft.)
Flow Velocity =    5.65(Ft/s)
Travel time  =    1.21 min.
Time of concentration =    7.47 min.
Critical depth =      0.375(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.225(In/Hr) for a    10.0 year storm
APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.060(In/Hr)
Rainfall intensity =      3.225(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.883
Subarea runoff =      8.015(CFS) for    2.930(Ac.)
Total runoff =     11.393(CFS)      Total area =        4.00(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      602.000 to Point/Station      602.500
**** IMPROVED CHANNEL TRAVEL TIME ****

------------------------------------------------------------------------------
Upstream point elevation =   165.500(Ft.)
Downstream point elevation =   160.500(Ft.)
Channel length thru subarea  =   350.000(Ft.)
Channel base width       =    5.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     16.762(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     16.762(CFS)
Depth of flow =   0.423(Ft.), Average velocity =   5.574(Ft/s)
Channel flow top width =    9.227(Ft.)
Flow Velocity =    5.57(Ft/s)
Travel time  =    1.05 min.
Time of concentration =    8.52 min.
Critical depth =      0.578(Ft.)
 Adding area flow to channel
Rainfall intensity =      2.991(In/Hr) for a    10.0 year storm
APARTMENT subarea type
```

```
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.060(In/Hr)
Rainfall intensity =      2.991(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.882
Subarea runoff =      9.106(CFS) for    3.770(Ac.)
Total runoff =     20.500(CFS)      Total area =        7.77(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      602.500 to Point/Station      603.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of street segment elevation =   165.500(Ft.)
End of street segment elevation =   160.500(Ft.)
Length of street segment  =   350.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  35.000(Ft.)
Distance from crown to crossfall grade break  =  33.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     21.265(CFS)
Depth of flow =   0.476(Ft.), Average velocity =   3.345(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  17.469(Ft.)
Flow velocity =   3.35(Ft/s)
Travel time =    1.74 min.     TC =   10.26  min.
 Adding area flow to street
Rainfall intensity =      2.689(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     19.770(CFS)
therefore the upstream flow rate of Q =     20.500(CFS) is being used
Rainfall intensity =      2.689(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.881
```

```
Subarea runoff =      0.000(CFS) for    0.580(Ac.)
Total runoff =     20.500(CFS)      Total area =        8.35(Ac.)
Area averaged Fm value =    0.058(In/Hr)
Street flow at end of street =     20.500(CFS)
Half street flow at end of street =     10.250(CFS)
Depth of flow =   0.471(Ft.), Average velocity =   3.316(Ft/s)
Flow width (from curb towards crown)=  17.217(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      604.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     21.764(CFS)
Depth of flow =   0.948(Ft.), Average velocity =  12.118(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              10.00
      2             20.00               0.00
      3             40.00              10.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     21.764(CFS)
  '      '    flow top width =      3.791(Ft.)
  '      '    velocity=   12.118(Ft/s)
  '      '    area =      1.796(Sq.Ft)
  '      '    Froude number =     3.102

Upstream point elevation =   160.500(Ft.)
Downstream point elevation =    90.000(Ft.)
Flow length =   375.000(Ft.)
Travel time  =    0.52 min.
Time of concentration =   10.78 min.
Depth of flow =   0.948(Ft.)
Average velocity =  12.118(Ft/s)
Total irregular channel flow =    21.764(CFS)
Irregular channel normal depth above invert elev. =   0.948(Ft.)
Average velocity of channel(s) =  12.118(Ft/s)

Sub-Channel No. 1 Critical depth =      1.492(Ft.)
  '      '       '     Critical flow top width =      5.969(Ft.)
  '      '       '     Critical flow velocity=    4.887(Ft/s)
  '      '       '     Critical flow area =      4.453(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.614(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.614(In/Hr) for a    10.0 year storm
```

```
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.871
Subarea runoff =      0.856(CFS) for    1.030(Ac.)
Total runoff =     21.356(CFS)      Total area =        9.38(Ac.)
Area averaged Fm value =    0.084(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
Rainfall intensity =      2.614(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    10.78 min.
Rainfall intensity =      2.614(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.869
Subarea runoff =      0.604(CFS) for    0.290(Ac.)
Total runoff =     21.960(CFS)      Total area =        9.67(Ac.)
Area averaged Fm value =    0.091(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------
Rainfall intensity =      2.614(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      9.670(Ac.)
Runoff from this stream =     21.960(CFS)
Time of concentration =   10.78 min.
Rainfall intensity =     2.614(In/Hr)
Area averaged loss rate (Fm) =    0.0910(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3032


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      606.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
```

```
Top (of initial area) elevation =   161.500(Ft.)
Bottom (of initial area) elevation =   160.000(Ft.)
Difference in elevation =     1.500(Ft.)
Slope =    0.00500  s(%)=       0.50
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.589 min.
Rainfall intensity =      2.977(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.891
Subarea runoff =      4.695(CFS)
Total initial stream area =        1.770(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      606.000 to Point/Station      607.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   160.000(Ft.)
End of street segment elevation =   159.000(Ft.)
Length of street segment  =   141.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  40.000(Ft.)
Distance from crown to crossfall grade break  =  38.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.010
Slope from grade break to crown (v/hz)  =   0.010
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.010
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      6.698(CFS)
Depth of flow =   0.404(Ft.), Average velocity =   1.932(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  25.768(Ft.)
Flow velocity =   1.93(Ft/s)
Travel time =    1.22 min.     TC =    9.80  min.
 Adding area flow to street
Rainfall intensity =      2.760(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.760(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.890
Subarea runoff =      3.363(CFS) for    1.510(Ac.)
Total runoff =      8.059(CFS)      Total area =        3.28(Ac.)
Area averaged Fm value =    0.030(In/Hr)
Street flow at end of street =      8.059(CFS)
```

```
Half street flow at end of street =      8.059(CFS)
Depth of flow =   0.424(Ft.), Average velocity =   2.020(Ft/s)
Flow width (from curb towards crown)=  27.722(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      607.000 to Point/Station      608.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     10.380(CFS)
Depth of flow =   0.257(Ft.), Average velocity =   3.847(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             10.00               0.00
      3             20.00               0.00
      4             30.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     10.380(CFS)
  '      '    flow top width =     11.027(Ft.)
  '      '    velocity=    3.847(Ft/s)
  '      '    area =      2.698(Sq.Ft)
  '      '    Froude number =     1.371

Upstream point elevation =   159.000(Ft.)
Downstream point elevation =   155.000(Ft.)
Flow length =   100.000(Ft.)
Travel time  =    0.43 min.
Time of concentration =   10.24 min.
Depth of flow =   0.257(Ft.)
Average velocity =   3.847(Ft/s)
Total irregular channel flow =    10.380(CFS)
Irregular channel normal depth above invert elev. =   0.257(Ft.)
Average velocity of channel(s) =   3.847(Ft/s)

Sub-Channel No. 1 Critical depth =      0.316(Ft.)
  '      '        '     Critical flow top width =     11.266(Ft.)
  '      '        '     Critical flow velocity=    3.085(Ft/s)
  '      '        '     Critical flow area =      3.364(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.692(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.692(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.857
Subarea runoff =      3.870(CFS) for    1.890(Ac.)
```

```
Total runoff =     11.928(CFS)      Total area =        5.17(Ac.)
Area averaged Fm value =    0.129(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      608.000 to Point/Station      608.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      2.692(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    10.24 min.
Rainfall intensity =      2.692(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =      2.133(CFS) for    0.890(Ac.)
Total runoff =     14.061(CFS)      Total area =        6.06(Ac.)
Area averaged Fm value =    0.114(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      608.000 to Point/Station      604.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     14.629(CFS)
Depth of flow =   1.548(Ft.), Average velocity =  12.210(Ft/s)
      ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              20.00
      2             10.00               0.00
      3             20.00              20.00
Manning's 'N' friction factor =   0.030
----------------------------------------------------------------
Sub-Channel flow  =     14.630(CFS)
  '     '    flow top width =      1.548(Ft.)
  '     '    velocity=   12.210(Ft/s)
  '     '    area =      1.198(Sq.Ft)
  '     '    Froude number =     2.446

Upstream point elevation =   155.000(Ft.)
Downstream point elevation =    90.000(Ft.)
Flow length =   260.000(Ft.)
Travel time  =    0.35 min.
Time of concentration =   10.59 min.
Depth of flow =   1.548(Ft.)
Average velocity =  12.210(Ft/s)
Total irregular channel flow =    14.629(CFS)
Irregular channel normal depth above invert elev. =   1.548(Ft.)
Average velocity of channel(s) =  12.210(Ft/s)
```

```
Sub-Channel No. 1 Critical depth =      2.219(Ft.)
  '      '        '     Critical flow top width =      2.219(Ft.)
  '      '        '     Critical flow velocity=    5.944(Ft/s)
  '      '        '     Critical flow area =      2.461(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.640(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.640(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.856
Subarea runoff =      0.748(CFS) for    0.490(Ac.)
Total runoff =     14.809(CFS)      Total area =        6.55(Ac.)
Area averaged Fm value =    0.128(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.640(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      6.550(Ac.)
Runoff from this stream =     14.809(CFS)
Time of concentration =   10.59 min.
Rainfall intensity =     2.640(In/Hr)
Area averaged loss rate (Fm) =    0.1281(In/Hr)
Area averaged Pervious ratio (Ap) = 0.4270
Summary of stream data:

Stream    Flow rate       TC             Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1        21.960      10.78                2.614
2        14.809      10.59                2.640
Qmax(1) =
          1.000 *     1.000 *    21.960) +
          0.990 *     1.000 *    14.809) + =      36.615
Qmax(2) =
          1.010 *     0.983 *    21.960) +
          1.000 *     1.000 *    14.809) + =      36.615

Total of 2 streams to confluence:
Flow rates before confluence point:
      21.960      14.809
Maximum flow rates at confluence using above data:
       36.615       36.615
Area of streams before confluence:
```

```
        9.670        6.550
Effective area values after confluence:
       16.220       16.054
Results of confluence:
Total flow rate =      36.615(CFS)
Time of concentration =    10.778 min.
Effective stream area after confluence =      16.220(Ac.)
Study area average Pervious fraction(Ap) =  0.353
Study area average soil loss rate(Fm) =    0.106(In/Hr)
Study area total (this main stream) =      16.22(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      609.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     38.759(CFS)
Depth of flow =   1.820(Ft.), Average velocity =  15.599(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              20.00
      2             15.00               0.00
      3             30.00              20.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =     38.759(CFS)
  '      '    flow top width =      2.730(Ft.)
  '      '    velocity=   15.599(Ft/s)
  '      '    area =      2.485(Sq.Ft)
  '      '    Froude number =     2.882

Upstream point elevation =    90.000(Ft.)
Downstream point elevation =    30.000(Ft.)
Flow length =   270.000(Ft.)
Travel time  =    0.29 min.
Time of concentration =   11.07 min.
Depth of flow =   1.820(Ft.)
Average velocity =  15.599(Ft/s)
Total irregular channel flow =    38.759(CFS)
Irregular channel normal depth above invert elev. =   1.820(Ft.)
Average velocity of channel(s) =  15.599(Ft/s)

Sub-Channel No. 1 Critical depth =      2.781(Ft.)
  '      '       '     Critical flow top width =      4.172(Ft.)
  '      '       '     Critical flow velocity=    6.681(Ft/s)
  '      '       '     Critical flow area =      5.802(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.575(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
```

```
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.575(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.856
Subarea runoff =      3.317(CFS) for    1.900(Ac.)
Total runoff =     39.932(CFS)      Total area =       18.12(Ac.)
Area averaged Fm value =    0.126(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      609.000 to Point/Station      610.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     40.582(CFS)
Depth of flow =   0.321(Ft.), Average velocity =  10.912(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              2.00
      2             10.00              0.00
      3             20.00              0.00
      4             30.00              2.00
Manning's 'N' friction factor =   0.018
------------------------------------------------------------------------
Sub-Channel flow  =     40.582(CFS)
  '      '    flow top width =     13.205(Ft.)
  '      '    velocity=   10.912(Ft/s)
  '      '    area =      3.719(Sq.Ft)
  '      '    Froude number =     3.623

Upstream point elevation =    30.000(Ft.)
Downstream point elevation =    20.000(Ft.)
Flow length =   105.000(Ft.)
Travel time  =    0.16 min.
Time of concentration =   11.23 min.
Depth of flow =   0.321(Ft.)
Average velocity =  10.912(Ft/s)
Total irregular channel flow =    40.582(CFS)
Irregular channel normal depth above invert elev. =   0.321(Ft.)
Average velocity of channel(s) =  10.912(Ft/s)

Sub-Channel No. 1 Critical depth =      0.703(Ft.)
  '      '       '     Critical flow top width =     17.031(Ft.)
  '      '       '     Critical flow velocity=    4.270(Ft/s)
  '      '       '     Critical flow area =      9.503(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.554(In/Hr) for a    10.0 year storm
MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2500  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =      0.075(In/Hr)
Rainfall intensity =       2.554(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.856
Subarea runoff =       0.971(CFS) for     0.590(Ac.)
Total runoff =      40.903(CFS)       Total area =        18.71(Ac.)
Area averaged Fm value =     0.125(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      610.000 to Point/Station      611.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      41.308(CFS)
Depth of flow =    0.223(Ft.), Average velocity =    8.783(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate      'Y' coordinate
      1               0.00                1.00
      2               5.00                0.00
      3              25.00                0.00
      4              30.00                1.00
Manning's 'N' friction factor =    0.030
------------------------------------------------------------------------------
Sub-Channel flow  =      41.308(CFS)
  '      '     flow top width =      22.228(Ft.)
  '      '     velocity=     8.783(Ft/s)
  '      '     area =       4.703(Sq.Ft)
  '      '     Froude number =      3.365

Upstream point elevation =     20.000(Ft.)
Downstream point elevation =     10.000(Ft.)
Flow length =     40.000(Ft.)
Travel time  =     0.08 min.
Time of concentration =    11.30 min.
Depth of flow =    0.223(Ft.)
Average velocity =    8.783(Ft/s)
Total irregular channel flow =     41.308(CFS)
Irregular channel normal depth above invert elev. =    0.223(Ft.)
Average velocity of channel(s) =    8.783(Ft/s)

Sub-Channel No. 1 Critical depth =       0.488(Ft.)
  '      '       '     Critical flow top width =      24.883(Ft.)
  '      '       '     Critical flow velocity=     3.770(Ft/s)
  '      '       '     Critical flow area =      10.958(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =       2.544(In/Hr) for a     10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.300(In/Hr)
```

Rainfall intensity = 2.544(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.855
Subarea runoff = 0.582(CFS) for 0.370(Ac.)
Total runoff = 41.485(CFS) Total area = 19.08(Ac.)
Area averaged Fm value = 0.128(In/Hr)
End of computations, total study area = 19.08 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.427
Area averaged SCS curve number (AMC 2) = 60.2
SCS curve number this storm year 10.0 (AMC 2) = 60.2

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXG700.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
EXISTING CONDITIONS - AREA G
FILE: J:\13266000\DRAIN\EXG700

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 700.000 to Point/Station 701.000
**** INITIAL AREA EVALUATION ****

MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.2500 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.075(In/Hr)
Initial subarea data:
Initial area flow distance = 310.000(Ft.)
Top (of initial area) elevation = 91.000(Ft.)
Bottom (of initial area) elevation = 79.000(Ft.)
Difference in elevation = 12.000(Ft.)
Slope = 0.03871 s(%)= 3.87
TC = k(0.336)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.387 min.
Rainfall intensity = 3.528(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.881
Subarea runoff = 4.102(CFS)
Total initial stream area = 1.320(Ac.)
Pervious area fraction = 0.250
Initial area Fm value = 0.075(In/Hr)

++
Process from Point/Station 701.000 to Point/Station 702.000
**** IMPROVED CHANNEL TRAVEL TIME ****

```
Upstream point elevation =     79.000(Ft.)
Downstream point elevation =     52.000(Ft.)
Channel length thru subarea  =    530.000(Ft.)
Channel base width       =     0.000(Ft.)
Slope or 'Z' of left channel bank =    5.000
Slope or 'Z' of right channel bank =    5.000
Estimated mean flow rate at midpoint of channel =      12.866(CFS)
Manning's 'N'    = 0.018
Maximum depth of channel  =     1.000(Ft.)
Flow(q) thru subarea =      12.866(CFS)
Depth of flow =    0.569(Ft.), Average velocity =    7.954(Ft/s)
Channel flow top width =     5.688(Ft.)
Flow Velocity =     7.95(Ft/s)
Travel time  =     1.11 min.
Time of concentration =     7.50 min.
Critical depth =       0.836(Ft.)
 Adding area flow to channel
Rainfall intensity =       3.218(In/Hr) for a     10.0 year storm
MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2500  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.075(In/Hr)
Rainfall intensity =       3.218(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.879
Subarea runoff =      15.588(CFS) for     5.640(Ac.)
Total runoff =      19.690(CFS)       Total area =         6.96(Ac.)
Area averaged Fm value =     0.075(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       702.000 to Point/Station       703.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     52.000(Ft.)
Downstream point/station elevation =     10.000(Ft.)
Pipe length  =     50.00(Ft.)   Manning's N = 0.015
No. of pipes = 1  Required pipe flow  =     19.690(CFS)
Nearest computed pipe diameter  =      12.00(In.)
Calculated individual pipe flow  =     19.690(CFS)
Normal flow depth in pipe =     7.37(In.)
Flow top width inside pipe =    11.68(In.)
Critical depth could not be calculated.
Pipe flow velocity =      38.94(Ft/s)
Travel time through pipe =     0.02 min.
Time of concentration (TC) =      7.52 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       703.000 to Point/Station       703.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =       3.213(In/Hr) for a     10.0 year storm
```

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 78.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Time of concentration = 7.52 min.
Rainfall intensity = 3.213(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.870
Subarea runoff = 2.904(CFS) for 1.120(Ac.)
Total runoff = 22.594(CFS) Total area = 8.08(Ac.)
Area averaged Fm value = 0.106(In/Hr)
End of computations, total study area = 8.08 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.354
Area averaged SCS curve number (AMC 2) = 59.0
SCS curve number this storm year 10.0 (AMC 2) = 59.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXH800.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
EXISTING CONDITIONS _ AREA H
FILE: J:\13266.00\DRAIN\EXH800

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 800.000 to Point/Station 801.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.030(In/Hr)
Initial subarea data:
Initial area flow distance = 130.000(Ft.)
Top (of initial area) elevation = 41.000(Ft.)
Bottom (of initial area) elevation = 40.000(Ft.)
Difference in elevation = 1.000(Ft.)
Slope = 0.00769 s(%)= 0.77
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.639 min.
Rainfall intensity = 3.789(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.893
Subarea runoff = 3.282(CFS)
Total initial stream area = 0.970(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.030(In/Hr)

++
Process from Point/Station 801.000 to Point/Station 802.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =      5.430(CFS)
Depth of flow =   0.042(Ft.), Average velocity =   6.260(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               1.00
      2             20.00               0.00
      3             40.00               0.00
      4             60.00               1.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =      5.430(CFS)
   '      '    flow top width =     21.665(Ft.)
   '      '    velocity=    6.261(Ft/s)
   '      '    area =       0.867(Sq.Ft)
   '      '    Froude number =     5.514

Upstream point elevation =    45.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =    30.000(Ft.)
Travel time  =    0.08 min.
Time of concentration =    5.72 min.
Depth of flow =   0.042(Ft.)
Average velocity =   6.260(Ft/s)
Total irregular channel flow =     5.430(CFS)
Irregular channel normal depth above invert elev. =   0.042(Ft.)
Average velocity of channel(s) =   6.260(Ft/s)

Sub-Channel No. 1 Critical depth =      0.127(Ft.)
   '      '       '     Critical flow top width =     25.078(Ft.)
   '      '       '     Critical flow velocity=    1.898(Ft/s)
   '      '       '     Critical flow area =      2.861(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      3.759(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.759(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.856
Subarea runoff =      3.927(CFS) for    1.270(Ac.)
Total runoff =      7.208(CFS)      Total area =        2.24(Ac.)
Area averaged Fm value =    0.183(In/Hr)
End of computations, total study area =            2.24 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.610
```

Area averaged SCS curve number (AMC 2) = 68.5
SCS curve number this storm year 10.0 (AMC 2) = 68.5

AREA I

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: EXI900.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
EXISTING CONDITIONS - AREA I
FILE: J:\13266.000\DRAIN\EXI900

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++

Process from Point/Station 900.000 to Point/Station 901.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 84.03
Pervious ratio(Ap) = 0.9000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.270(In/Hr)
Initial subarea data:
Initial area flow distance = 300.000(Ft.)
Top (of initial area) elevation = 150.000(Ft.)
Bottom (of initial area) elevation = 118.000(Ft.)
Difference in elevation = 32.000(Ft.)
Slope = 0.10667 s(%)= 10.67
TC = k(0.496)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.605 min.
Rainfall intensity = 3.192(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.824
Subarea runoff = 3.551(CFS)
Total initial stream area = 1.350(Ac.)
Pervious area fraction = 0.900
Initial area Fm value = 0.270(In/Hr)

++

Process from Point/Station 901.000 to Point/Station 902.000
**** IMPROVED CHANNEL TRAVEL TIME ****

Upstream point elevation = 118.000(Ft.)
Downstream point elevation = 83.000(Ft.)
Channel length thru subarea = 290.000(Ft.)

```
Channel base width       =     0.000(Ft.)
Slope or 'Z' of left channel bank =    5.000
Slope or 'Z' of right channel bank =    5.000
Estimated mean flow rate at midpoint of channel =       5.221(CFS)
Manning's 'N'     = 0.018
Maximum depth of channel  =     1.000(Ft.)
Flow(q) thru subarea =       5.221(CFS)
Depth of flow =    0.345(Ft.), Average velocity =    8.772(Ft/s)
Channel flow top width =     3.450(Ft.)
Flow Velocity =     8.77(Ft/s)
Travel time  =     0.55 min.
Time of concentration =     8.16 min.
Critical depth =       0.586(Ft.)
 Adding area flow to channel
Rainfall intensity =       3.067(In/Hr) for a     10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.9000  Max loss rate(Fp)=      0.400(In/Hr)
Max Catchment Loss (Fm) =      0.360(In/Hr)
Rainfall intensity =       3.067(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.808
Subarea runoff =       2.942(CFS) for     1.270(Ac.)
Total runoff =       6.492(CFS)       Total area =         2.62(Ac.)
Area averaged Fm value =     0.314(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       902.000 to Point/Station       902.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
Rainfall intensity =       3.067(In/Hr) for a     10.0 year storm
MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2500  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.075(In/Hr)
Time of concentration =      8.16 min.
Rainfall intensity =       3.067(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.817
Subarea runoff =       1.023(CFS) for     0.380(Ac.)
Total runoff =       7.515(CFS)       Total area =         3.00(Ac.)
Area averaged Fm value =     0.283(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       902.000 to Point/Station       903.000
**** IMPROVED CHANNEL TRAVEL TIME ****
----------------------------------------------------------------------
Upstream point elevation =     83.000(Ft.)
Downstream point elevation =     38.000(Ft.)
Channel length thru subarea  =    490.000(Ft.)
```

```
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =      7.941(CFS)
Manning's 'N'    = 0.018
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      7.941(CFS)
Depth of flow =   0.425(Ft.), Average velocity =   8.793(Ft/s)
Channel flow top width =    4.250(Ft.)
Flow Velocity =    8.79(Ft/s)
Travel time  =    0.93 min.
Time of concentration =    9.08 min.
Critical depth =      0.691(Ft.)
 Adding area flow to channel
Rainfall intensity =      2.883(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.883(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.820
Subarea runoff =      0.377(CFS) for    0.340(Ac.)
Total runoff =      7.892(CFS)      Total area =        3.34(Ac.)
Area averaged Fm value =    0.258(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      903.000 to Point/Station      903.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.883(In/Hr) for a    10.0 year storm
MOBILE HOME PARK subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.075(In/Hr)
Time of concentration =     9.08 min.
Rainfall intensity =      2.883(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.831
Subarea runoff =      2.173(CFS) for    0.860(Ac.)
Total runoff =     10.066(CFS)      Total area =        4.20(Ac.)
Area averaged Fm value =    0.220(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      903.000 to Point/Station      903.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
```

```
Rainfall intensity =      2.883(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     9.08 min.
Rainfall intensity =      2.883(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.829
Subarea runoff =      0.883(CFS) for    0.380(Ac.)
Total runoff =     10.949(CFS)      Total area =        4.58(Ac.)
Area averaged Fm value =    0.227(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      903.000 to Point/Station      903.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.883(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     9.08 min.
Rainfall intensity =      2.883(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.826
Subarea runoff =      2.046(CFS) for    0.880(Ac.)
Total runoff =     12.995(CFS)      Total area =        5.46(Ac.)
Area averaged Fm value =    0.239(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      903.000 to Point/Station      904.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =    38.000(Ft.)
Downstream point elevation =    20.000(Ft.)
Channel length thru subarea  =   205.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     14.364(CFS)
Manning's 'N'    = 0.018
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     14.364(CFS)
Depth of flow =   0.535(Ft.), Average velocity =  10.027(Ft/s)
Channel flow top width =    5.353(Ft.)
Flow Velocity =   10.03(Ft/s)
```

```
Travel time  =    0.34 min.
Time of concentration =    9.43 min.
Critical depth =      0.875(Ft.)
 Adding area flow to channel
Rainfall intensity =      2.823(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.823(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.835
Subarea runoff =      2.595(CFS) for    1.150(Ac.)
Total runoff =     15.590(CFS)      Total area =        6.61(Ac.)
Area averaged Fm value =    0.202(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      904.000 to Point/Station      904.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.823(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     9.43 min.
Rainfall intensity =      2.823(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.825
Subarea runoff =      7.629(CFS) for    3.360(Ac.)
Total runoff =     23.219(CFS)      Total area =        9.97(Ac.)
Area averaged Fm value =    0.235(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      904.000 to Point/Station      905.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     23.639(CFS)
Depth of flow =   0.154(Ft.), Average velocity =   7.407(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              1.00
      2              5.00              0.00
      3             25.00              0.00
      4             30.00              1.00
```

```
Manning's 'N' friction factor =   0.030
-----------------------------------------------------------------
Sub-Channel flow  =     23.639(CFS)
   '      '    flow top width =     21.537(Ft.)
   '      '    velocity=    7.407(Ft/s)
   '      '    area =      3.191(Sq.Ft)
   '      '    Froude number =     3.391

Upstream point elevation =    20.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =    35.000(Ft.)
Travel time  =    0.08 min.
Time of concentration =    9.50 min.
Depth of flow =   0.154(Ft.)
Average velocity =   7.407(Ft/s)
Total irregular channel flow =    23.639(CFS)
Irregular channel normal depth above invert elev. =   0.154(Ft.)
Average velocity of channel(s) =   7.407(Ft/s)

Sub-Channel No. 1 Critical depth =      0.340(Ft.)
   '      '       '     Critical flow top width =     23.398(Ft.)
   '      '       '     Critical flow velocity=    3.206(Ft/s)
   '      '       '     Critical flow area =      7.374(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.810(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.810(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.824
Subarea runoff =      0.693(CFS) for    0.360(Ac.)
Total runoff =     23.912(CFS)      Total area =       10.33(Ac.)
Area averaged Fm value =    0.238(In/Hr)
End of computations, total study area =           10.33 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.755
Area averaged SCS curve number (AMC 2) =  67.8
SCS curve number this storm year   10.0 (AMC 2) =  67.8
```

DEVELOPED CONDITIONS

10 YEAR STORM

AREA A

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/09/01 File Name: DEVA20.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
DEVELOPED CONDITIONS - AREA A
FILE: J:\13266.00\DRAIN\DEVA20

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.030(In/Hr)
Initial subarea data:
Initial area flow distance = 260.000(Ft.)
Top (of initial area) elevation = 202.000(Ft.)
Bottom (of initial area) elevation = 198.000(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01538 s(%)= 1.54
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.478 min.
Rainfall intensity = 3.500(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.892
Subarea runoff = 1.999(CFS)
Total initial stream area = 0.640(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.030(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 102.000
**** SUBAREA FLOW ADDITION ****

```
Rainfall intensity =      3.500(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     6.48 min.
Rainfall intensity =      3.500(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.860
Subarea runoff =      1.641(CFS) for    0.570(Ac.)
Total runoff =      3.640(CFS)      Total area =        1.21(Ac.)
Area averaged Fm value =    0.157(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   198.000(Ft.)
End of street segment elevation =   165.000(Ft.)
Length of street segment  =   470.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   2.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0170
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      8.152(CFS)
Depth of flow =   0.355(Ft.), Average velocity =   5.684(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  11.435(Ft.)
Flow velocity =   5.68(Ft/s)
Travel time =    1.38 min.     TC =    7.86  min.
 Adding area flow to street
Rainfall intensity =      3.133(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.133(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.881
```

```
Subarea runoff =      7.981(CFS) for    3.000(Ac.)
Total runoff =     11.620(CFS)      Total area =        4.21(Ac.)
Area averaged Fm value =    0.067(In/Hr)
Street flow at end of street =     11.620(CFS)
Half street flow at end of street =     11.620(CFS)
Depth of flow =   0.392(Ft.), Average velocity =   6.180(Ft/s)
Flow width (from curb towards crown)=  13.243(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   161.000(Ft.)
Downstream point/station elevation =   158.000(Ft.)
Pipe length  =    85.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.620(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    11.620(CFS)
Normal flow depth in pipe =   11.77(In.)
Flow top width inside pipe =   12.34(In.)
Critical depth could not be calculated.
Pipe flow velocity =     11.26(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =     7.98 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.105(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     7.98 min.
Rainfall intensity =      3.105(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.882
Subarea runoff =      1.221(CFS) for    0.480(Ac.)
Total runoff =     12.841(CFS)      Total area =        4.69(Ac.)
Area averaged Fm value =    0.063(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   158.000(Ft.)
Downstream point/station elevation =    13.000(Ft.)
Pipe length  =   160.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.841(CFS)
```

```
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =    12.841(CFS)
Normal flow depth in pipe =    6.18(In.)
Flow top width inside pipe =    8.35(In.)
Critical depth could not be calculated.
Pipe flow velocity =     39.74(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =     8.05 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.090(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.05 min.
Rainfall intensity =      3.090(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.883
Subarea runoff =      1.369(CFS) for    0.520(Ac.)
Total runoff =     14.211(CFS)      Total area =        5.21(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.090(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.210(Ac.)
Runoff from this stream =     14.211(CFS)
Time of concentration =    8.05 min.
Rainfall intensity =     3.090(In/Hr)
Area averaged loss rate (Fm) =    0.0595(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1985


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =      0.030(In/Hr)
Initial subarea data:
Initial area flow distance =    275.000(Ft.)
Top (of initial area) elevation =    190.500(Ft.)
Bottom (of initial area) elevation =    165.000(Ft.)
Difference in elevation =     25.500(Ft.)
Slope =    0.09273  s(%)=        9.27
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =     4.626 min.
Rainfall intensity =       4.245(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.894
Subarea runoff =       3.490(CFS)
Total initial stream area =         0.920(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =     0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       107.000 to Point/Station       108.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    162.000(Ft.)
Downstream point/station elevation =    100.000(Ft.)
Pipe length  =     60.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =      3.490(CFS)
Nearest computed pipe diameter  =       6.00(In.)
Calculated individual pipe flow  =      3.490(CFS)
Normal flow depth in pipe =     3.39(In.)
Flow top width inside pipe =     5.95(In.)
Critical depth could not be calculated.
Pipe flow velocity =      30.51(Ft/s)
Travel time through pipe =     0.03 min.
Time of concentration (TC) =      4.66 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       108.000 to Point/Station       105.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =    100.000(Ft.)
Downstream point elevation =     13.000(Ft.)
Channel length thru subarea  =    275.000(Ft.)
Channel base width       =     0.000(Ft.)
Slope or 'Z' of left channel bank =    1.000
Slope or 'Z' of right channel bank =    1.000
Estimated mean flow rate at midpoint of channel =       5.955(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =     1.000(Ft.)
Flow(q) thru subarea =       5.955(CFS)
Depth of flow =    0.561(Ft.), Average velocity =   18.944(Ft/s)
Channel flow top width =     1.121(Ft.)
Flow Velocity =    18.94(Ft/s)
Travel time  =     0.24 min.
Time of concentration =     4.90 min.
Critical depth =       1.148(Ft.)
 Adding area flow to channel
Rainfall intensity =       4.107(In/Hr) for a     10.0 year storm
```

```
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      4.107(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.859
Subarea runoff =      4.339(CFS) for    1.300(Ac.)
Total runoff =      7.829(CFS)      Total area =        2.22(Ac.)
Area averaged Fm value =    0.188(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      4.107(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.220(Ac.)
Runoff from this stream =      7.829(CFS)
Time of concentration =    4.90 min.
Rainfall intensity =     4.107(In/Hr)
Area averaged loss rate (Fm) =    0.1881(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6270
Summary of stream data:

Stream    Flow rate       TC             Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1        14.211       8.05                3.090
2         7.829       4.90                4.107
Qmax(1) =
          1.000 *     1.000 *     14.211) +
          0.741 *     1.000 *      7.829) + =       20.009
Qmax(2) =
          1.335 *     0.609 *     14.211) +
          1.000 *     1.000 *      7.829) + =       19.382

Total of 2 streams to confluence:
Flow rates before confluence point:
      14.211       7.829
Maximum flow rates at confluence using above data:
       20.009       19.382
Area of streams before confluence:
        5.210        2.220
Effective area values after confluence:
        7.430        5.392
Results of confluence:
Total flow rate =     20.009(CFS)
Time of concentration =     8.049 min.
Effective stream area after confluence =       7.430(Ac.)
Study area average Pervious fraction(Ap) =  0.327
```

```
Study area average soil loss rate(Fm) =     0.098(In/Hr)
Study area total (this main stream) =       7.43(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     10.000(Ft.)
Downstream point/station elevation =     8.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    20.009(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    20.009(CFS)
Normal flow depth in pipe =   15.74(In.)
Flow top width inside pipe =   22.81(In.)
Critical Depth =   19.28(In.)
Pipe flow velocity =      9.16(Ft/s)
Travel time through pipe =    0.27 min.
Time of concentration (TC) =     8.32 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
Rainfall intensity =      3.032(In/Hr) for a    10.0 year storm
In Main Stream number: 1
Stream flow area =      7.430(Ac.)
Runoff from this stream =     20.009(CFS)
Time of concentration =    8.32 min.
Rainfall intensity =     3.032(In/Hr)
Area averaged loss rate (Fm) =    0.0980(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3265
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      110.000 to Point/Station      111.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   380.000(Ft.)
Top (of initial area) elevation =   273.500(Ft.)
Bottom (of initial area) elevation =   192.200(Ft.)
Difference in elevation =    81.300(Ft.)
Slope =    0.21395  s(%)=      21.39
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
```

```
Initial area time of concentration =    7.692 min.
Rainfall intensity =      3.172(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.815
Subarea runoff =      5.867(CFS)
Total initial stream area =        2.270(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      112.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   192.200(Ft.)
End of street segment elevation =   191.000(Ft.)
Length of street segment  =    90.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  15.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =    0.020
Slope from grade break to crown (v/hz)  =    0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      6.604(CFS)
Depth of flow =   0.309(Ft.), Average velocity =   2.462(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  11.209(Ft.)
Flow velocity =   2.46(Ft/s)
Travel time =    0.61 min.     TC =    8.30  min.
 Adding area flow to street
Rainfall intensity =      3.036(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.036(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.827
Subarea runoff =      1.265(CFS) for    0.570(Ac.)
Total runoff =      7.132(CFS)      Total area =        2.84(Ac.)
Area averaged Fm value =    0.246(In/Hr)
Street flow at end of street =      7.132(CFS)
Half street flow at end of street =      3.566(CFS)
Depth of flow =   0.316(Ft.), Average velocity =   2.506(Ft/s)
Flow width (from curb towards crown)=  11.567(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      112.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.036(In/Hr) for a    10.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =     8.30 min.
Rainfall intensity =      3.036(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.831
Subarea runoff =      0.791(CFS) for    0.300(Ac.)
Total runoff =      7.924(CFS)      Total area =        3.14(Ac.)
Area averaged Fm value =    0.232(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      112.000 to Point/Station      113.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   191.000(Ft.)
Downstream point/station elevation =   110.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     7.924(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     7.924(CFS)
Normal flow depth in pipe =    4.67(In.)
Flow top width inside pipe =    8.99(In.)
Critical depth could not be calculated.
Pipe flow velocity =     34.23(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =     8.35 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      114.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   110.000(Ft.)
Downstream point elevation =    50.000(Ft.)
Channel length thru subarea  =   125.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =      8.882(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      8.882(CFS)
Depth of flow =   0.602(Ft.), Average velocity =  24.478(Ft/s)
Channel flow top width =    1.205(Ft.)
Flow Velocity =   24.48(Ft/s)
```

```
Travel time  =    0.09 min.
Time of concentration =    8.43 min.
Critical depth =      1.344(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.008(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.008(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.827
Subarea runoff =      1.774(CFS) for    0.760(Ac.)
Total runoff =      9.698(CFS)      Total area =        3.90(Ac.)
Area averaged Fm value =    0.246(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.008(In/Hr) for a    10.0 year storm
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      3.900(Ac.)
Runoff from this stream =      9.698(CFS)
Time of concentration =    8.43 min.
Rainfall intensity =     3.008(In/Hr)
Area averaged loss rate (Fm) =    0.2455(In/Hr)
Area averaged Pervious ratio (Ap) = 0.8185


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      115.000 to Point/Station      116.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   325.000(Ft.)
Top (of initial area) elevation =   288.100(Ft.)
Bottom (of initial area) elevation =   258.000(Ft.)
Difference in elevation =    30.100(Ft.)
Slope =    0.09262  s(%)=       9.26
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.542 min.
Rainfall intensity =      2.987(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.810
```

```
Subarea runoff =      1.548(CFS)
Total initial stream area =        0.640(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      117.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      3.095(CFS)
Depth of flow =   0.058(Ft.), Average velocity =   2.590(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               2.00
      2             20.00               0.00
      3             40.00               0.00
      4             60.00               2.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------------
Sub-Channel flow  =      3.095(CFS)
  '      '    flow top width =     21.161(Ft.)
  '      '    velocity=    2.590(Ft/s)
  '      '    area =      1.195(Sq.Ft)
  '      '    Froude number =     1.921

Upstream point elevation =   258.000(Ft.)
Downstream point elevation =   186.000(Ft.)
Flow length =   570.000(Ft.)
Travel time  =    3.67 min.
Time of concentration =   12.21 min.
Depth of flow =   0.058(Ft.)
Average velocity =   2.590(Ft/s)
Total irregular channel flow =     3.095(CFS)
Irregular channel normal depth above invert elev. =   0.058(Ft.)
Average velocity of channel(s) =   2.590(Ft/s)

Sub-Channel No. 1 Critical depth =      0.089(Ft.)
  '      '       '     Critical flow top width =     21.777(Ft.)
  '      '       '     Critical flow velocity=    1.667(Ft/s)
  '      '       '     Critical flow area =      1.856(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.434(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.434(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.789
```

```
Subarea runoff =      2.140(CFS) for    1.280(Ac.)
Total runoff =      3.687(CFS)      Total area =        1.92(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      117.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      2.434(In/Hr) for a    10.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =    12.21 min.
Rainfall intensity =      2.434(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.811
Subarea runoff =      1.782(CFS) for    0.850(Ac.)
Total runoff =      5.469(CFS)      Total area =        2.77(Ac.)
Area averaged Fm value =    0.240(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      117.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      2.434(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    12.21 min.
Rainfall intensity =      2.434(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.822
Subarea runoff =      1.017(CFS) for    0.470(Ac.)
Total runoff =      6.486(CFS)      Total area =        3.24(Ac.)
Area averaged Fm value =    0.210(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      118.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of street segment elevation =   186.000(Ft.)
End of street segment elevation =   130.000(Ft.)
Length of street segment  =   400.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
```

```
Width of half street (curb to crown)  =  10.000(Ft.)
Distance from crown to crossfall grade break  =   9.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   0.500(Ft.)
Gutter hike from flowline =  0.500(In.)
 Manning's N in gutter =  0.0170
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      6.806(CFS)
Depth of flow =   0.184(Ft.), Average velocity =   5.823(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   7.593(Ft.)
Flow velocity =   5.82(Ft/s)
Travel time =    1.14 min.     TC =   13.35  min.
 Adding area flow to street
Rainfall intensity =      2.312(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.312(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.825
Subarea runoff =      0.302(CFS) for    0.320(Ac.)
Total runoff =      6.788(CFS)      Total area =        3.56(Ac.)
Area averaged Fm value =    0.194(In/Hr)
Street flow at end of street =      6.788(CFS)
Half street flow at end of street =      3.394(CFS)
Depth of flow =   0.183(Ft.), Average velocity =   5.819(Ft/s)
Flow width (from curb towards crown)=   7.585(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      118.000 to Point/Station      114.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   130.000(Ft.)
Downstream point elevation =    50.000(Ft.)
Channel length thru subarea  =   500.000(Ft.)
Channel base width      =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =      8.818(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =      8.818(CFS)
Depth of flow =   0.738(Ft.), Average velocity =  16.183(Ft/s)
Channel flow top width =    1.476(Ft.)
Flow Velocity =   16.18(Ft/s)
```

```
Travel time  =    0.51 min.
Time of concentration =   13.87 min.
Critical depth =      1.375(Ft.)
 Adding area flow to channel
Rainfall intensity =      2.262(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.262(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.807
Subarea runoff =      3.603(CFS) for    2.130(Ac.)
Total runoff =     10.391(CFS)      Total area =        5.69(Ac.)
Area averaged Fm value =    0.233(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      2.262(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    13.87 min.
Rainfall intensity =      2.262(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.815
Subarea runoff =      1.246(CFS) for    0.620(Ac.)
Total runoff =     11.637(CFS)      Total area =        6.31(Ac.)
Area averaged Fm value =    0.213(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      2.262(In/Hr) for a    10.0 year storm
RESIDENTIAL(8 - 10 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.4000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.120(In/Hr)
Time of concentration =    13.87 min.
```

```
Rainfall intensity =      2.262(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.816
Subarea runoff =      0.443(CFS) for    0.230(Ac.)
Total runoff =     12.080(CFS)      Total area =        6.54(Ac.)
Area averaged Fm value =    0.210(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      114.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.262(In/Hr) for a    10.0 year storm
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      6.540(Ac.)
Runoff from this stream =     12.080(CFS)
Time of concentration =   13.87 min.
Rainfall intensity =     2.262(In/Hr)
Area averaged loss rate (Fm) =    0.2101(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7004
Summary of stream data:

Stream    Flow rate       TC             Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1          9.698       8.43                  3.008
2         12.080      13.87                  2.262
Qmax(1) =
          1.000 *     1.000 *      9.698) +
          1.363 *     0.608 *     12.080) + =       19.715
Qmax(2) =
          0.730 *     1.000 *      9.698) +
          1.000 *     1.000 *     12.080) + =       19.160

Total of 2 streams to confluence:
Flow rates before confluence point:
        9.698       12.080
Maximum flow rates at confluence using above data:
        19.715       19.160
Area of streams before confluence:
         3.900        6.540
Effective area values after confluence:
         7.877       10.440
Results of confluence:
Total flow rate =      19.715(CFS)
Time of concentration =      8.435 min.
Effective stream area after confluence =       7.877(Ac.)
Study area average Pervious fraction(Ap) =  0.744
Study area average soil loss rate(Fm) =    0.223(In/Hr)
Study area total (this main stream) =      10.44(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      114.000 to Point/Station      119.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
```

```
Upstream point/station elevation =    50.000(Ft.)
Downstream point/station elevation =    12.000(Ft.)
Pipe length  =    67.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    19.715(CFS)
Nearest computed pipe diameter  =    12.00(In.)
Calculated individual pipe flow  =    19.715(CFS)
Normal flow depth in pipe =    7.64(In.)
Flow top width inside pipe =   11.54(In.)
Critical depth could not be calculated.
Pipe flow velocity =    37.33(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =    8.46 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      119.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.002(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     8.46 min.
Rainfall intensity =      3.002(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.832
Subarea runoff =      0.741(CFS) for    0.310(Ac.)
Total runoff =     20.456(CFS)      Total area =        8.19(Ac.)
Area averaged Fm value =    0.226(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    12.000(Ft.)
Downstream point/station elevation =     8.000(Ft.)
Pipe length  =   130.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    20.456(CFS)
Nearest computed pipe diameter  =    21.00(In.)
Calculated individual pipe flow  =    20.456(CFS)
Normal flow depth in pipe =   13.39(In.)
Flow top width inside pipe =   20.19(In.)
Critical Depth =   19.31(In.)
Pipe flow velocity =    12.63(Ft/s)
Travel time through pipe =    0.17 min.
Time of concentration (TC) =    8.64 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
```

```
The following data inside Main Stream is listed:
Rainfall intensity =      2.968(In/Hr) for a    10.0 year storm
In Main Stream number: 2
Stream flow area =      8.187(Ac.)
Runoff from this stream =     20.456(CFS)
Time of concentration =    8.64 min.
Rainfall intensity =     2.968(In/Hr)
Area averaged loss rate (Fm) =    0.2263(In/Hr)
Area averaged Pervious ratio (Ap) = 0.7542
Program is now starting with Main Stream No. 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.000 to Point/Station      120.100
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
PARK subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.8500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.255(In/Hr)
Initial subarea data:
Initial area flow distance =   275.000(Ft.)
Top (of initial area) elevation =   261.000(Ft.)
Bottom (of initial area) elevation =   222.000(Ft.)
Difference in elevation =    39.000(Ft.)
Slope =    0.14182  s(%)=      14.18
TC = k(0.483)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.750 min.
Rainfall intensity =      3.418(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.833
Subarea runoff =      3.985(CFS)
Total initial stream area =        1.400(Ac.)
Pervious area fraction = 0.850
Initial area Fm value =    0.255(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.100 to Point/Station      120.200
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   222.000(Ft.)
End of street segment elevation =   177.000(Ft.)
Length of street segment  =   520.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  14.000(Ft.)
Distance from crown to crossfall grade break  =  12.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
```

```
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      5.281(CFS)
Depth of flow =   0.220(Ft.), Average velocity =   4.856(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   6.773(Ft.)
Flow velocity =   4.86(Ft/s)
Travel time =    1.78 min.     TC =    8.54  min.
 Adding area flow to street
Rainfall intensity =      2.988(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.988(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.850
Subarea runoff =      1.881(CFS) for    0.910(Ac.)
Total runoff =      5.866(CFS)      Total area =        2.31(Ac.)
Area averaged Fm value =    0.166(In/Hr)
Street flow at end of street =      5.866(CFS)
Half street flow at end of street =      2.933(CFS)
Depth of flow =   0.227(Ft.), Average velocity =   4.962(Ft/s)
Flow width (from curb towards crown)=   7.114(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.200 to Point/Station      121.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   174.000(Ft.)
Downstream point/station elevation =   173.000(Ft.)
Pipe length  =   180.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.866(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     5.866(CFS)
Normal flow depth in pipe =   11.63(In.)
Flow top width inside pipe =   17.22(In.)
Critical Depth =   11.22(In.)
Pipe flow velocity =      4.86(Ft/s)
Travel time through pipe =    0.62 min.
Time of concentration (TC) =     9.15 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      121.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.871(In/Hr) for a    10.0 year storm
Along Main Stream number: 3 in normal stream number 1
Stream flow area =      2.310(Ac.)
```

```
Runoff from this stream =      5.866(CFS)
Time of concentration =    9.15 min.
Rainfall intensity =    2.871(In/Hr)
Area averaged loss rate (Fm) =    0.1664(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5545


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.100 to Point/Station      121.100
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   222.000(Ft.)
Bottom (of initial area) elevation =   210.000(Ft.)
Difference in elevation =    12.000(Ft.)
Slope =    0.04000  s(%)=       4.00
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.666 min.
Rainfall intensity =      3.779(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.893
Subarea runoff =      4.217(CFS)
Total initial stream area =        1.250(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.100 to Point/Station      121.200
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   205.000(Ft.)
Downstream point/station elevation =   195.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     4.217(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     4.217(CFS)
Normal flow depth in pipe =    7.28(In.)
Flow top width inside pipe =    7.08(In.)
Critical depth could not be calculated.
Pipe flow velocity =     11.02(Ft/s)
Travel time through pipe =    0.23 min.
Time of concentration (TC) =     5.89 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.200 to Point/Station      121.200
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
```

```
Rainfall intensity =      3.695(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     5.89 min.
Rainfall intensity =      3.695(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.893
Subarea runoff =      5.413(CFS) for    1.670(Ac.)
Total runoff =      9.631(CFS)      Total area =        2.92(Ac.)
Area averaged Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.200 to Point/Station      121.300
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   195.000(Ft.)
Downstream point/station elevation =   194.000(Ft.)
Pipe length  =   120.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.631(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     9.631(CFS)
Normal flow depth in pipe =   14.81(In.)
Flow top width inside pipe =   13.74(In.)
Critical Depth =   14.39(In.)
Pipe flow velocity =      6.19(Ft/s)
Travel time through pipe =    0.32 min.
Time of concentration (TC) =     6.22 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.300 to Point/Station      121.300
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.583(In/Hr) for a    10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     6.22 min.
Rainfall intensity =      3.583(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.872
Subarea runoff =      3.342(CFS) for    1.230(Ac.)
Total runoff =     12.972(CFS)      Total area =        4.15(Ac.)
Area averaged Fm value =    0.110(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.300 to Point/Station      121.000
```

**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 194.000(Ft.)
Downstream point/station elevation = 173.000(Ft.)
Pipe length = 100.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 12.972(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 12.972(CFS)
Normal flow depth in pipe = 8.07(In.)
Flow top width inside pipe = 11.26(In.)
Critical depth could not be calculated.
Pipe flow velocity = 23.06(Ft/s)
Travel time through pipe = 0.07 min.
Time of concentration (TC) = 6.29 min.

++
Process from Point/Station 121.000 to Point/Station 121.000
**** CONFLUENCE OF MINOR STREAMS ****

Rainfall intensity = 3.560(In/Hr) for a 10.0 year storm
Along Main Stream number: 3 in normal stream number 2
Stream flow area = 4.150(Ac.)
Runoff from this stream = 12.972(CFS)
Time of concentration = 6.29 min.
Rainfall intensity = 3.560(In/Hr)
Area averaged loss rate (Fm) = 0.1100(In/Hr)
Area averaged Pervious ratio (Ap) = 0.3667
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	5.866	9.15	2.871
2	12.972	6.29	3.560

Qmax(1) =
1.000 * 1.000 * 5.866) +
0.800 * 1.000 * 12.972) + = 16.249
Qmax(2) =
1.255 * 0.687 * 5.866) +
1.000 * 1.000 * 12.972) + = 18.030

Total of 2 streams to confluence:
Flow rates before confluence point:
5.866 12.972
Maximum flow rates at confluence using above data:
16.249 18.030
Area of streams before confluence:
2.310 4.150
Effective area values after confluence:
6.460 5.737
Results of confluence:
Total flow rate = 18.030(CFS)
Time of concentration = 6.289 min.
Effective stream area after confluence = 5.737(Ac.)
Study area average Pervious fraction(Ap) = 0.434

```
Study area average soil loss rate(Fm) =     0.130(In/Hr)
Study area total (this main stream) =       6.46(Ac.)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      122.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   173.000(Ft.)
Downstream point/station elevation =   115.000(Ft.)
Pipe length  =   410.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    18.030(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    18.030(CFS)
Normal flow depth in pipe =    9.62(In.)
Flow top width inside pipe =   14.39(In.)
Critical depth could not be calculated.
Pipe flow velocity =     21.68(Ft/s)
Travel time through pipe =    0.32 min.
Time of concentration (TC) =     6.60 min.

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      122.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      3.461(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     6.60 min.
Rainfall intensity =      3.461(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =      1.077(CFS) for    0.670(Ac.)
Total runoff =     19.106(CFS)      Total area =        6.41(Ac.)
Area averaged Fm value =    0.148(In/Hr)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      123.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   115.000(Ft.)
Downstream point/station elevation =    16.000(Ft.)
Pipe length  =   230.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    19.106(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =    19.106(CFS)
Normal flow depth in pipe =    8.25(In.)
Flow top width inside pipe =   11.12(In.)
Critical depth could not be calculated.
```

```
Pipe flow velocity =     33.19(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     6.72 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      123.000 to Point/Station      124.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =    16.000(Ft.)
Downstream point elevation =    14.000(Ft.)
Channel length thru subarea  =   130.000(Ft.)
Channel base width       =    4.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =     19.539(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     19.539(CFS)
Depth of flow =   0.576(Ft.), Average velocity =   7.411(Ft/s)
Channel flow top width =    5.152(Ft.)
Flow Velocity =    7.41(Ft/s)
Travel time  =    0.29 min.
Time of concentration =    7.01 min.
Critical depth =      0.844(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.344(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      3.344(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.858
Subarea runoff =      0.121(CFS) for    0.290(Ac.)
Total runoff =     19.227(CFS)      Total area =        6.70(Ac.)
Area averaged Fm value =    0.155(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      124.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    11.000(Ft.)
Downstream point/station elevation =     8.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    19.227(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    19.227(CFS)
Normal flow depth in pipe =   14.98(In.)
Flow top width inside pipe =   19.00(In.)
Critical Depth =   18.95(In.)
Pipe flow velocity =     10.47(Ft/s)
```

```
Travel time through pipe =     0.24 min.
Time of concentration (TC) =      7.25 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------------
The following data inside Main Stream is listed:
Rainfall intensity =      3.281(In/Hr) for a    10.0 year storm
In Main Stream number: 3
Stream flow area =       6.697(Ac.)
Runoff from this stream =      19.227(CFS)
Time of concentration =     7.25 min.
Rainfall intensity =      3.281(In/Hr)
Area averaged loss rate (Fm) =     0.1545(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5150
Summary of stream data:

Stream    Flow rate       TC             Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1        20.009       8.32                3.032
2        20.456       8.64                2.968
3        19.227       7.25                3.281
Qmax(1) =
          1.000 *     1.000 *     20.009) +
          1.023 *     0.964 *     20.456) +
          0.920 *     1.000 *     19.227) + =       57.874
Qmax(2) =
          0.978 *     1.000 *     20.009) +
          1.000 *     1.000 *     20.456) +
          0.900 *     1.000 *     19.227) + =       57.335
Qmax(3) =
          1.085 *     0.871 *     20.009) +
          1.114 *     0.840 *     20.456) +
          1.000 *     1.000 *     19.227) + =       57.274

Total of 3 main streams to confluence:
Flow rates before confluence point:
      21.009       21.456       20.227
Maximum flow rates at confluence using above data:
       57.874       57.335       57.274
Area of streams before confluence:
        7.430        8.187        6.697
Effective area values after confluence:
       22.017       22.315       20.045


Results of confluence:
Total flow rate =      57.874(CFS)
Time of concentration =      8.322 min.
Effective stream area after confluence  =      22.017(Ac.)
Study area average Pervious fraction(Ap) =  0.540
Study area average soil loss rate(Fm) =     0.162(In/Hr)
Study area total =       22.31(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      109.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      3.032(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.32 min.
Rainfall intensity =      3.032(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.854
Subarea runoff =      1.665(CFS) for    0.990(Ac.)
Total runoff =     59.539(CFS)      Total area =       23.01(Ac.)
Area averaged Fm value =    0.156(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      109.000 to Point/Station      125.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =     8.000(Ft.)
Downstream point/station elevation =     7.000(Ft.)
Pipe length  =    90.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    59.539(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    59.539(CFS)
Normal flow depth in pipe =   25.41(In.)
Flow top width inside pipe =   32.81(In.)
Critical Depth =   29.90(In.)
Pipe flow velocity =     11.16(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =     8.46 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Rainfall intensity =      3.004(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     23.007(Ac.)
Runoff from this stream =     59.539(CFS)
Time of concentration =    8.46 min.
Rainfall intensity =     3.004(In/Hr)
Area averaged loss rate (Fm) =    0.1563(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5211


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

```
Process from Point/Station      126.000 to Point/Station      127.000
**** INITIAL AREA EVALUATION ****

-------------------------------------------------------------------------------
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Initial subarea data:
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =   145.000(Ft.)
Bottom (of initial area) elevation =    14.200(Ft.)
Difference in elevation =   130.800(Ft.)
Slope =    1.30800  s(%)=     130.80
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    4.222 min.
Rainfall intensity =      4.473(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.840
Subarea runoff =      2.028(CFS)
Total initial stream area =        0.540(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      127.000 to Point/Station      125.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

-------------------------------------------------------------------------------
Top of street segment elevation =    14.200(Ft.)
End of street segment elevation =    12.000(Ft.)
Length of street segment  =   350.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =    0.020
Slope from grade break to crown (v/hz)  =    0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =    5.000(Ft.)
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      2.779(CFS)
Depth of flow =   0.268(Ft.), Average velocity =   1.511(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   9.135(Ft.)
Flow velocity =   1.51(Ft/s)
Travel time =    3.86 min.      TC =    8.08  min.
 Adding area flow to street
Rainfall intensity =      3.083(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
```

```
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      3.083(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.846
Subarea runoff =      0.424(CFS) for    0.400(Ac.)
Total runoff =      2.452(CFS)      Total area =        0.94(Ac.)
Area averaged Fm value =    0.185(In/Hr)
Street flow at end of street =      2.452(CFS)
Half street flow at end of street =      1.226(CFS)
Depth of flow =   0.258(Ft.), Average velocity =   1.470(Ft/s)
Flow width (from curb towards crown)=   8.655(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      125.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      3.083(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.940(Ac.)
Runoff from this stream =      2.452(CFS)
Time of concentration =    8.08 min.
Rainfall intensity =     3.083(In/Hr)
Area averaged loss rate (Fm) =    0.1851(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6170
Summary of stream data:

Stream    Flow rate      TC            Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1        59.539       8.46                3.004
2         2.452       8.08                3.083
Qmax(1) =
          1.000 *     1.000 *     59.539) +
          0.973 *     1.000 *      2.452) + =       61.924
Qmax(2) =
          1.028 *     0.956 *     59.539) +
          1.000 *     1.000 *      2.452) + =       60.931

Total of 2 streams to confluence:
Flow rates before confluence point:
      59.539       2.452
Maximum flow rates at confluence using above data:
       61.924       60.931
Area of streams before confluence:
       23.007        0.940
Effective area values after confluence:
       23.947       22.926
Results of confluence:
Total flow rate =      61.924(CFS)
Time of concentration =      8.456 min.
```

```
Effective stream area after confluence =     23.947(Ac.)
Study area average Pervious fraction(Ap) =  0.525
Study area average soil loss rate(Fm) =    0.157(In/Hr)
Study area total (this main stream) =      23.95(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      125.000 to Point/Station      128.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =     7.000(Ft.)
Downstream point/station elevation =     6.000(Ft.)
Pipe length  =    80.00(Ft.)   Manning's N = 0.015
No. of pipes = 1  Required pipe flow  =    61.924(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    61.924(CFS)
Normal flow depth in pipe =   28.22(In.)
Flow top width inside pipe =   29.64(In.)
Critical Depth =   30.40(In.)
Pipe flow velocity =     10.41(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =     8.58 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      128.000 to Point/Station      128.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.978(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.58 min.
Rainfall intensity =      2.978(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.855
Subarea runoff =      3.567(CFS) for    1.770(Ac.)
Total runoff =     65.491(CFS)      Total area =       25.72(Ac.)
Area averaged Fm value =    0.149(In/Hr)
End of computations, total study area =           29.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.516
Area averaged SCS curve number (AMC 2) =  63.2
SCS curve number this storm year   10.0 (AMC 2) =  63.2
```

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/12/01 File Name: 214.roc

DANA POINT HEADLANDS
10 YEAR STORM
DEVELOPED CONDITIONS
FILE: J:\13266.00\DRAIN\214

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 200.000 to Point/Station 201.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.7000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.210(In/Hr)
Initial subarea data:
Initial area flow distance = 250.000(Ft.)
Top (of initial area) elevation = 261.000(Ft.)
Bottom (of initial area) elevation = 257.000(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01600 s(%)= 1.60
TC = k(0.438)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.116 min.
Rainfall intensity = 2.877(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.834
Subarea runoff = 2.281(CFS)
Total initial stream area = 0.950(Ac.)
Pervious area fraction = 0.700
Initial area Fm value = 0.210(In/Hr)

++
Process from Point/Station 201.000 to Point/Station 202.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

```
Top of street segment elevation =   257.000(Ft.)
End of street segment elevation =   250.500(Ft.)
Length of street segment  =   560.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  21.000(Ft.)
Distance from crown to crossfall grade break  =  19.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      5.978(CFS)
Depth of flow =   0.416(Ft.), Average velocity =   2.696(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  14.460(Ft.)
Flow velocity =   2.70(Ft/s)
Travel time =    3.46 min.     TC =   12.58  min.
 Adding area flow to street
Rainfall intensity =      2.393(In/Hr) for a    10.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Rainfall intensity =      2.393(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.821
Subarea runoff =      5.636(CFS) for    3.080(Ac.)
Total runoff =      7.917(CFS)      Total area =        4.03(Ac.)
Area averaged Fm value =    0.210(In/Hr)
Street flow at end of street =      7.917(CFS)
Half street flow at end of street =      7.917(CFS)
Depth of flow =   0.450(Ft.), Average velocity =   2.881(Ft/s)
Flow width (from curb towards crown)=  16.190(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      203.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   250.500(Ft.)
End of street segment elevation =   222.000(Ft.)
Length of street segment  =   600.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  21.000(Ft.)
Distance from crown to crossfall grade break  =  19.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
```

```
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      8.143(CFS)
Depth of flow =   0.372(Ft.), Average velocity =   4.973(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  12.291(Ft.)
Flow velocity =   4.97(Ft/s)
Travel time =    2.01 min.     TC =   14.59  min.
 Adding area flow to street
Rainfall intensity =      2.198(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =      7.658(CFS)
therefore the upstream flow rate of Q =      7.917(CFS) is being used
Rainfall intensity =      2.198(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.818
Subarea runoff =      0.000(CFS) for    0.230(Ac.)
Total runoff =      7.917(CFS)      Total area =       4.26(Ac.)
Area averaged Fm value =    0.200(In/Hr)
Street flow at end of street =      7.917(CFS)
Half street flow at end of street =      7.917(CFS)
Depth of flow =   0.370(Ft.), Average velocity =   4.941(Ft/s)
Flow width (from curb towards crown)=  12.147(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.198(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 78.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    14.59 min.
Rainfall intensity =      2.198(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.804
Subarea runoff =      3.653(CFS) for    2.290(Ac.)
Total runoff =     11.570(CFS)      Total area =       6.55(Ac.)
```

```
Area averaged Fm value =     0.235(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      203.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.198(In/Hr) for a     10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =    14.59 min.
Rainfall intensity =      2.198(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.815
Subarea runoff =      2.029(CFS) for     1.040(Ac.)
Total runoff =     13.599(CFS)      Total area =        7.59(Ac.)
Area averaged Fm value =     0.207(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      204.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =    216.000(Ft.)
Downstream point/station elevation =    215.000(Ft.)
Pipe length  =     50.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     13.599(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     13.599(CFS)
Normal flow depth in pipe =    13.55(In.)
Flow top width inside pipe =    15.53(In.)
Critical Depth =    16.44(In.)
Pipe flow velocity =      9.53(Ft/s)
Travel time through pipe =     0.09 min.
Time of concentration (TC) =     14.68 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.190(In/Hr) for a     10.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Time of concentration =    14.68 min.
```

```
Rainfall intensity =      2.190(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.815
Subarea runoff =      4.600(CFS) for    2.610(Ac.)
Total runoff =     18.199(CFS)      Total area =       10.20(Ac.)
Area averaged Fm value =    0.208(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      205.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   216.000(Ft.)
Downstream point/station elevation =   195.000(Ft.)
Pipe length  =   320.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    18.199(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    18.199(CFS)
Normal flow depth in pipe =   10.85(In.)
Flow top width inside pipe =   17.61(In.)
Critical depth could not be calculated.
Pipe flow velocity =     16.36(Ft/s)
Travel time through pipe =    0.33 min.
Time of concentration (TC) =    15.00 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      205.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.163(In/Hr) for a    10.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Time of concentration =    15.00 min.
Rainfall intensity =      2.163(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.813
Subarea runoff =      6.199(CFS) for    3.670(Ac.)
Total runoff =     24.398(CFS)      Total area =       13.87(Ac.)
Area averaged Fm value =    0.208(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   195.000(Ft.)
Downstream point/station elevation =   180.000(Ft.)
Pipe length  =   220.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    24.398(CFS)
Nearest computed pipe diameter  =     18.00(In.)
```

```
Calculated individual pipe flow =    24.398(CFS)
Normal flow depth in pipe =   13.22(In.)
Flow top width inside pipe =   15.90(In.)
Critical depth could not be calculated.
Pipe flow velocity =     17.54(Ft/s)
Travel time through pipe =    0.21 min.
Time of concentration (TC) =    15.21 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      206.000 to Point/Station      206.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.146(In/Hr) for a    10.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Time of concentration =    15.21 min.
Rainfall intensity =      2.146(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.812
Subarea runoff =      6.146(CFS) for    3.650(Ac.)
Total runoff =     30.544(CFS)      Total area =       17.52(Ac.)
Area averaged Fm value =    0.209(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      206.000 to Point/Station      207.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   180.000(Ft.)
Downstream point/station elevation =   160.000(Ft.)
Pipe length  =   230.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    30.544(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    30.544(CFS)
Normal flow depth in pipe =   14.53(In.)
Flow top width inside pipe =   14.20(In.)
Critical depth could not be calculated.
Pipe flow velocity =     19.98(Ft/s)
Travel time through pipe =    0.19 min.
Time of concentration (TC) =    15.40 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      207.000 to Point/Station      207.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.130(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     17.520(Ac.)
Runoff from this stream =     30.544(CFS)
```

```
Time of concentration =   15.40 min.
Rainfall intensity =     2.130(In/Hr)
Area averaged loss rate (Fm) =    0.2087(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6957


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      208.000 to Point/Station      209.000
**** INITIAL AREA EVALUATION ****

------------------------------------------------------------------------
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Initial subarea data:
Initial area flow distance =   270.000(Ft.)
Top (of initial area) elevation =   261.000(Ft.)
Bottom (of initial area) elevation =   256.500(Ft.)
Difference in elevation =     4.500(Ft.)
Slope =    0.01667  s(%)=       1.67
TC = k(0.438)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.325 min.
Rainfall intensity =      2.840(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.833
Subarea runoff =      2.131(CFS)
Total initial stream area =        0.900(Ac.)
Pervious area fraction = 0.700
Initial area Fm value =    0.210(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      209.000 to Point/Station      210.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

------------------------------------------------------------------------
Top of street segment elevation =   256.500(Ft.)
End of street segment elevation =   250.500(Ft.)
Length of street segment  =   550.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  21.000(Ft.)
Distance from crown to crossfall grade break  =  19.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      4.569(CFS)
Depth of flow =   0.389(Ft.), Average velocity =   2.472(Ft/s)
Streetflow hydraulics at midpoint of street travel:
```

```
Halfstreet flow width =  13.121(Ft.)
Flow velocity =   2.47(Ft/s)
Travel time =    3.71 min.     TC =   13.03  min.
 Adding area flow to street
Rainfall intensity =      2.345(In/Hr) for a    10.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Rainfall intensity =      2.345(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.819
Subarea runoff =      3.556(CFS) for    2.060(Ac.)
Total runoff =      5.686(CFS)      Total area =        2.96(Ac.)
Area averaged Fm value =    0.210(In/Hr)
Street flow at end of street =      5.686(CFS)
Half street flow at end of street =      5.686(CFS)
Depth of flow =   0.414(Ft.), Average velocity =   2.602(Ft/s)
Flow width (from curb towards crown)=  14.349(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      210.000 to Point/Station      211.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   250.500(Ft.)
End of street segment elevation =   218.000(Ft.)
Length of street segment  =   500.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  21.000(Ft.)
Distance from crown to crossfall grade break  =  19.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      6.272(CFS)
Depth of flow =   0.332(Ft.), Average velocity =   5.293(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  10.288(Ft.)
Flow velocity =   5.29(Ft/s)
Travel time =    1.57 min.     TC =   14.61  min.
 Adding area flow to street
Rainfall intensity =      2.196(In/Hr) for a    10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 0.5000  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =     0.150(In/Hr)
Rainfall intensity =      2.196(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.818
Subarea runoff =      0.728(CFS) for    0.610(Ac.)
Total runoff =      6.415(CFS)      Total area =        3.57(Ac.)
Area averaged Fm value =    0.200(In/Hr)
Street flow at end of street =      6.415(CFS)
Half street flow at end of street =      6.415(CFS)
Depth of flow =   0.334(Ft.), Average velocity =   5.320(Ft/s)
Flow width (from curb towards crown)=  10.388(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      211.000 to Point/Station      212.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   214.000(Ft.)
Downstream point/station elevation =   193.000(Ft.)
Pipe length  =   300.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.415(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     6.415(CFS)
Normal flow depth in pipe =    7.26(In.)
Flow top width inside pipe =   11.73(In.)
Critical depth could not be calculated.
Pipe flow velocity =     12.91(Ft/s)
Travel time through pipe =    0.39 min.
Time of concentration (TC) =    15.00 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      212.000 to Point/Station      212.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.164(In/Hr) for a    10.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Time of concentration =    15.00 min.
Rainfall intensity =      2.164(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.815
Subarea runoff =      5.521(CFS) for    3.200(Ac.)
Total runoff =     11.936(CFS)      Total area =        6.77(Ac.)
Area averaged Fm value =    0.205(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      212.000 to Point/Station      213.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
```

```
Upstream point/station elevation =   193.000(Ft.)
Downstream point/station elevation =   163.000(Ft.)
Pipe length  =   550.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.936(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =    11.936(CFS)
Normal flow depth in pipe =   10.07(In.)
Flow top width inside pipe =   14.09(In.)
Critical depth could not be calculated.
Pipe flow velocity =     13.63(Ft/s)
Travel time through pipe =    0.67 min.
Time of concentration (TC) =    15.67 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      213.000 to Point/Station      213.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.110(In/Hr) for a    10.0 year storm
RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.7000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.210(In/Hr)
Time of concentration =    15.67 min.
Rainfall intensity =      2.110(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.812
Subarea runoff =      8.838(CFS) for    5.360(Ac.)
Total runoff =     20.773(CFS)      Total area =       12.13(Ac.)
Area averaged Fm value =    0.207(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      213.000 to Point/Station      207.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   160.500(Ft.)
Downstream point/station elevation =   160.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    20.773(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    20.773(CFS)
Normal flow depth in pipe =   20.98(In.)
Flow top width inside pipe =   22.48(In.)
Critical Depth =   19.13(In.)
Pipe flow velocity =      6.27(Ft/s)
Travel time through pipe =    0.27 min.
Time of concentration (TC) =    15.93 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      207.000 to Point/Station      207.000
**** CONFLUENCE OF MINOR STREAMS ****
```

```
Rainfall intensity =      2.090(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =     12.130(Ac.)
Runoff from this stream =     20.773(CFS)
Time of concentration =   15.93 min.
Rainfall intensity =     2.090(In/Hr)
Area averaged loss rate (Fm) =    0.2070(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6899
Summary of stream data:

Stream    Flow rate       TC              Rainfall Intensity
 No.        (CFS)        (min)                   (In/Hr)


1        30.544      15.40                2.130
2        20.773      15.93                2.090
Qmax(1) =
          1.000 *     1.000 *     30.544) +
          1.022 *     0.967 *     20.773) + =       51.063
Qmax(2) =
          0.979 *     1.000 *     30.544) +
          1.000 *     1.000 *     20.773) + =       50.668

Total of 2 streams to confluence:
Flow rates before confluence point:
      30.544       20.773
Maximum flow rates at confluence using above data:
       51.063       50.668
Area of streams before confluence:
       17.520       12.130
Effective area values after confluence:
       29.247       29.650
Results of confluence:
Total flow rate =     51.063(CFS)
Time of concentration =    15.404 min.
Effective stream area after confluence =     29.247(Ac.)
Study area average Pervious fraction(Ap) =  0.693
Study area average soil loss rate(Fm) =    0.208(In/Hr)
Study area total (this main stream) =      29.65(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      207.000 to Point/Station      214.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation =   160.000(Ft.)
Downstream point/station elevation =   154.000(Ft.)
Pipe length =    80.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow =    51.063(CFS)
Nearest computed pipe diameter =     24.00(In.)
Calculated individual pipe flow =    51.063(CFS)
Normal flow depth in pipe =   16.59(In.)
Flow top width inside pipe =   22.17(In.)
Critical depth could not be calculated.
Pipe flow velocity =     22.02(Ft/s)
Travel time through pipe =    0.06 min.
```

```
Time of concentration (TC) =     15.46 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      214.000 to Point/Station      214.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.126(In/Hr) for a     10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     29.247(Ac.)
Runoff from this stream =     51.063(CFS)
Time of concentration =   15.46 min.
Rainfall intensity =     2.126(In/Hr)
Area averaged loss rate (Fm) =     0.2080(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6934


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      215.000 to Point/Station      216.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.060(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   195.000(Ft.)
Bottom (of initial area) elevation =   185.000(Ft.)
Difference in elevation =    10.000(Ft.)
Slope =    0.03333  s(%)=       3.33
TC = k(0.324)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.264 min.
Rainfall intensity =      3.568(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.885
Subarea runoff =      3.378(CFS)
Total initial stream area =        1.070(Ac.)
Pervious area fraction = 0.200
Initial area Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      216.000 to Point/Station      217.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   185.000(Ft.)
Downstream point elevation =   173.000(Ft.)
Channel length thru subarea  =   410.000(Ft.)
Channel base width       =    5.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =      8.003(CFS)
Manning's 'N'    = 0.015
```

```
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      8.003(CFS)
Depth of flow =   0.230(Ft.), Average velocity =   5.654(Ft/s)
Channel flow top width =    7.301(Ft.)
Flow Velocity =    5.65(Ft/s)
Travel time  =    1.21 min.
Time of concentration =    7.47 min.
Critical depth =      0.375(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.225(In/Hr) for a    10.0 year storm
APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.060(In/Hr)
Rainfall intensity =      3.225(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.883
Subarea runoff =      8.015(CFS) for    2.930(Ac.)
Total runoff =     11.393(CFS)      Total area =        4.00(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      217.000 to Point/Station      218.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   173.000(Ft.)
Downstream point elevation =   165.500(Ft.)
Channel length thru subarea  =   250.000(Ft.)
Channel base width      =    5.000(Ft.)
Slope or 'Z' of left channel bank =   5.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =     16.762(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =     16.762(CFS)
Depth of flow =   0.345(Ft.), Average velocity =   7.214(Ft/s)
Channel flow top width =    8.454(Ft.)
Flow Velocity =    7.21(Ft/s)
Travel time  =    0.58 min.
Time of concentration =    8.05 min.
Critical depth =      0.578(Ft.)
 Adding area flow to channel
Rainfall intensity =      3.090(In/Hr) for a    10.0 year storm
APARTMENT subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.2000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.060(In/Hr)
Rainfall intensity =      3.090(In/Hr) for a    10.0 year storm
```

```
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.883
Subarea runoff =      9.796(CFS) for    3.770(Ac.)
Total runoff =     21.189(CFS)      Total area =        7.77(Ac.)
Area averaged Fm value =    0.060(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      218.000 to Point/Station      214.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   165.500(Ft.)
End of street segment elevation =   159.000(Ft.)
Length of street segment  =   350.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  35.000(Ft.)
Distance from crown to crossfall grade break  =  33.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =     21.980(CFS)
Depth of flow =   0.463(Ft.), Average velocity =   3.726(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  16.802(Ft.)
Flow velocity =   3.73(Ft/s)
Travel time =    1.57 min.     TC =    9.62  min.
 Adding area flow to street
Rainfall intensity =      2.791(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     20.538(CFS)
therefore the upstream flow rate of Q =     21.189(CFS) is being used
Rainfall intensity =      2.791(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.881
Subarea runoff =      0.000(CFS) for    0.580(Ac.)
Total runoff =     21.189(CFS)      Total area =        8.35(Ac.)
Area averaged Fm value =    0.058(In/Hr)
Street flow at end of street =     21.189(CFS)
Half street flow at end of street =     10.595(CFS)
Depth of flow =   0.458(Ft.), Average velocity =   3.693(Ft/s)
Flow width (from curb towards crown)=  16.559(Ft.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      214.000 to Point/Station      214.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.791(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      8.350(Ac.)
Runoff from this stream =     21.189(CFS)
Time of concentration =    9.62 min.
Rainfall intensity =     2.791(In/Hr)
Area averaged loss rate (Fm) =    0.0579(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1931


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      219.000 to Point/Station      220.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   221.000(Ft.)
Bottom (of initial area) elevation =   202.000(Ft.)
Difference in elevation =    19.000(Ft.)
Slope =    0.06333  s(%)=       6.33
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.121 min.
Rainfall intensity =      3.615(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.874
Subarea runoff =      3.791(CFS)
Total initial stream area =        1.200(Ac.)
Pervious area fraction = 0.350
Initial area Fm value =    0.105(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      220.000 to Point/Station      214.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   202.000(Ft.)
End of street segment elevation =   159.000(Ft.)
Length of street segment  =   700.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  15.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
```

```
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      4.770(CFS)
Depth of flow =   0.259(Ft.), Average velocity =   4.243(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   6.599(Ft.)
Flow velocity =   4.24(Ft/s)
Travel time =    2.75 min.      TC =    8.87  min.
 Adding area flow to street
Rainfall intensity =      2.923(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.923(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.876
Subarea runoff =      0.866(CFS) for    0.620(Ac.)
Total runoff =      4.657(CFS)      Total area =        1.82(Ac.)
Area averaged Fm value =    0.079(In/Hr)
Street flow at end of street =      4.657(CFS)
Half street flow at end of street =      2.329(CFS)
Depth of flow =   0.257(Ft.), Average velocity =   4.225(Ft/s)
Flow width (from curb towards crown)=   6.516(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      214.000 to Point/Station      214.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.923(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 3
Stream flow area =      1.820(Ac.)
Runoff from this stream =      4.657(CFS)
Time of concentration =    8.87 min.
Rainfall intensity =     2.923(In/Hr)
Area averaged loss rate (Fm) =    0.0795(In/Hr)
Area averaged Pervious ratio (Ap) = 0.2648
Summary of stream data:

Stream    Flow rate       TC            Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1        51.063      15.46                2.126
2        21.189       9.62                2.791
3         4.657       8.87                2.923
Qmax(1) =
          1.000 *     1.000 *     51.063) +
```

```
          0.757 *    1.000 *    21.189) +
          0.720 *    1.000 *     4.657) + =      70.446
Qmax(2) =
          1.347 *    0.622 *    51.063) +
          1.000 *    1.000 *    21.189) +
          0.954 *    1.000 *     4.657) + =      68.394
Qmax(3) =
          1.416 *    0.574 *    51.063) +
          1.048 *    0.923 *    21.189) +
          1.000 *    1.000 *     4.657) + =      66.616

Total of 3 streams to confluence:
Flow rates before confluence point:
      51.063       21.189        4.657
Maximum flow rates at confluence using above data:
       70.446       68.394       66.616
Area of streams before confluence:
       29.247        8.350        1.820
Effective area values after confluence:
       39.417       28.355       26.300
Results of confluence:
Total flow rate =      70.446(CFS)
Time of concentration =    15.465 min.
Effective stream area after confluence =     39.417(Ac.)
Study area average Pervious fraction(Ap) =  0.568
Study area average soil loss rate(Fm) =    0.170(In/Hr)
Study area total (this main stream) =      39.42(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      214.000 to Point/Station      214.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.126(In/Hr) for a    10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    15.46 min.
Rainfall intensity =      2.126(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.825
Subarea runoff =      3.095(CFS) for    2.540(Ac.)
Total runoff =     73.541(CFS)      Total area =       41.96(Ac.)
Area averaged Fm value =    0.178(In/Hr)
End of computations, total study area =           42.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.595
Area averaged SCS curve number (AMC 2) =  59.3
SCS curve number this storm year   10.0 (AMC 2) =  59.3
```

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/12/01 File Name: DEV254.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
DEVELOPED CONDITIONS - AREA B2
FILE: J:\13266.00\DRAIN\DEV254

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 214.000 to Point/Station 214.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 84.08
Pervious ratio(Ap) = 0.5950 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.178(In/Hr)
Rainfall intensity = 2.126(In/Hr) for a 10.0 year storm
User specified values are as follows:
TC = 15.46 min. Rain intensity = 2.13(In/Hr)
Total area = 21.18(Ac.) Total runoff = 36.75(CFS)

++
Process from Point/Station 214.000 to Point/Station 250.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 154.000(Ft.)
Downstream point/station elevation = 30.000(Ft.)
Pipe length = 820.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 36.750(CFS)
Nearest computed pipe diameter = 18.00(In.)
Calculated individual pipe flow = 36.750(CFS)
Normal flow depth in pipe = 13.34(In.)
Flow top width inside pipe = 15.77(In.)
Critical depth could not be calculated.
Pipe flow velocity = 26.16(Ft/s)
Travel time through pipe = 0.52 min.
Time of concentration (TC) = 15.98 min.

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      250.000 to Point/Station      250.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.086(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     21.180(Ac.)
Runoff from this stream =     36.750(CFS)
Time of concentration =   15.98 min.
Rainfall intensity =     2.086(In/Hr)
Area averaged loss rate (Fm) =    0.1780(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5950


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      251.000 to Point/Station      252.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =    50.000(Ft.)
Bottom (of initial area) elevation =    43.200(Ft.)
Difference in elevation =     6.800(Ft.)
Slope =    0.02267  s(%)=       2.27
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.603 min.
Rainfall intensity =      2.975(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.846
Subarea runoff =      3.320(CFS)
Total initial stream area =        1.320(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.180(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      252.000 to Point/Station      253.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =    43.200(Ft.)
End of street segment elevation =    40.000(Ft.)
Length of street segment  =   660.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  16.000(Ft.)
Distance from crown to crossfall grade break  =  14.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
```

```
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      7.583(CFS)
Depth of flow =   0.414(Ft.), Average velocity =   1.734(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  14.350(Ft.)
Flow velocity =   1.73(Ft/s)
Travel time =    6.34 min.     TC =   14.95  min.
 Adding area flow to street
Rainfall intensity =     2.168(In/Hr) for a    10.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Rainfall intensity =     2.168(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.825
Subarea runoff =      5.106(CFS) for    3.390(Ac.)
Total runoff =      8.426(CFS)      Total area =        4.71(Ac.)
Area averaged Fm value =    0.180(In/Hr)
Street flow at end of street =      8.426(CFS)
Half street flow at end of street =      4.213(CFS)
Depth of flow =   0.426(Ft.), Average velocity =   1.778(Ft/s)
Flow width (from curb towards crown)=  14.975(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      253.000 to Point/Station      254.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    35.000(Ft.)
Downstream point/station elevation =    30.000(Ft.)
Pipe length  =    65.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     8.426(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     8.426(CFS)
Normal flow depth in pipe =    8.52(In.)
Flow top width inside pipe =   10.89(In.)
Critical depth could not be calculated.
Pipe flow velocity =     14.13(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =    15.02 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      250.000 to Point/Station      250.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.161(In/Hr) for a    10.0 year storm
```

```
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.710(Ac.)
Runoff from this stream =      8.426(CFS)
Time of concentration =   15.02 min.
Rainfall intensity =     2.161(In/Hr)
Area averaged loss rate (Fm) =    0.1800(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

Stream    Flow rate      TC            Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1        36.750      15.98                2.086
2         8.426      15.02                2.161
Qmax(1) =
          1.000 *     1.000 *    36.750) +
          0.962 *     1.000 *     8.426) + =      44.855
Qmax(2) =
          1.040 *     0.940 *    36.750) +
          1.000 *     1.000 *     8.426) + =      44.332

Total of 2 streams to confluence:
Flow rates before confluence point:
      36.750       8.426
Maximum flow rates at confluence using above data:
       44.855       44.332
Area of streams before confluence:
       21.180        4.710
Effective area values after confluence:
       25.890       24.617
Results of confluence:
Total flow rate =     44.855(CFS)
Time of concentration =    15.983 min.
Effective stream area after confluence =     25.890(Ac.)
Study area average Pervious fraction(Ap) =  0.596
Study area average soil loss rate(Fm) =    0.178(In/Hr)
Study area total (this main stream) =      25.89(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      250.000 to Point/Station      254.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    30.000(Ft.)
Downstream point/station elevation =    10.000(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    44.855(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    44.855(CFS)
Normal flow depth in pipe =   13.90(In.)
Flow top width inside pipe =   19.87(In.)
Critical depth could not be calculated.
Pipe flow velocity =     26.57(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =    16.08 min.
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      254.000 to Point/Station      254.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      2.079(In/Hr) for a    10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    16.08 min.
Rainfall intensity =      2.079(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.821
Subarea runoff =      1.223(CFS) for    1.120(Ac.)
Total runoff =     46.078(CFS)      Total area =       27.01(Ac.)
Area averaged Fm value =    0.183(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      254.000 to Point/Station      254.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      2.079(In/Hr) for a    10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    16.08 min.
Rainfall intensity =      2.079(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.816
Subarea runoff =      4.595(CFS) for    2.870(Ac.)
Total runoff =     50.672(CFS)      Total area =       29.88(Ac.)
Area averaged Fm value =    0.195(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      254.000 to Point/Station      254.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      2.079(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =    16.08 min.
Rainfall intensity =      2.079(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.814
Subarea runoff =      2.369(CFS) for    1.480(Ac.)
```

Total runoff = 53.042(CFS) Total area = 31.36(Ac.)
Area averaged Fm value = 0.200(In/Hr)
End of computations, total study area = 31.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.666
Area averaged SCS curve number (AMC 2) = 79.1
SCS curve number this storm year 10.0 (AMC 2) = 79.1

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/12/01 File Name: DEV225.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
DEVELOPED CONDITIONS - AREA B3
FILE: J:\13266.00\DRAIN\DEV225

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 214.000 to Point/Station 214.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 84.08
Pervious ratio(Ap) = 0.5950 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.178(In/Hr)
Rainfall intensity = 2.126(In/Hr) for a 10.0 year storm
User specified values are as follows:
TC = 15.46 min. Rain intensity = 2.13(In/Hr)
Total area = 21.18(Ac.) Total runoff = 36.75(CFS)

++
Process from Point/Station 214.000 to Point/Station 221.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 154.000(Ft.)
Downstream point/station elevation = 108.000(Ft.)
Pipe length = 500.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 36.750(CFS)
Nearest computed pipe diameter = 21.00(In.)
Calculated individual pipe flow = 36.750(CFS)
Normal flow depth in pipe = 13.76(In.)
Flow top width inside pipe = 19.96(In.)
Critical depth could not be calculated.
Pipe flow velocity = 22.01(Ft/s)
Travel time through pipe = 0.38 min.
Time of concentration (TC) = 15.84 min.

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      221.000 to Point/Station      221.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Rainfall intensity =      2.097(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     21.180(Ac.)
Runoff from this stream =     36.750(CFS)
Time of concentration =   15.84 min.
Rainfall intensity =     2.097(In/Hr)
Area averaged loss rate (Fm) =    0.1780(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5950


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      222.000 to Point/Station      223.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Initial subarea data:
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   161.500(Ft.)
Bottom (of initial area) elevation =   160.000(Ft.)
Difference in elevation =     1.500(Ft.)
Slope =    0.00500  s(%)=       0.50
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.589 min.
Rainfall intensity =      2.977(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.891
Subarea runoff =      5.358(CFS)
Total initial stream area =        2.020(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      223.000 to Point/Station      224.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   160.000(Ft.)
Downstream point elevation =   159.000(Ft.)
Channel length thru subarea  =   200.000(Ft.)
Channel base width       =    2.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   5.000
Estimated mean flow rate at midpoint of channel =      7.560(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      7.560(CFS)
```

```
Depth of flow =   0.567(Ft.), Average velocity =   3.602(Ft/s)
Channel flow top width =    5.403(Ft.)
Flow Velocity =    3.60(Ft/s)
Travel time  =    0.93 min.
Time of concentration =    9.51 min.
Critical depth =      0.570(Ft.)
 Adding area flow to channel
Rainfall intensity =      2.808(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.808(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.890
Subarea runoff =      3.842(CFS) for    1.660(Ac.)
Total runoff =      9.200(CFS)      Total area =        3.68(Ac.)
Area averaged Fm value =    0.030(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      224.000 to Point/Station      221.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   155.000(Ft.)
Downstream point/station elevation =   108.000(Ft.)
Pipe length  =   120.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.200(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     9.200(CFS)
Normal flow depth in pipe =    6.61(In.)
Flow top width inside pipe =    7.95(In.)
Critical depth could not be calculated.
Pipe flow velocity =     26.48(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =     9.59 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      221.000 to Point/Station      221.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Rainfall intensity =      2.795(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      3.680(Ac.)
Runoff from this stream =      9.200(CFS)
Time of concentration =    9.59 min.
Rainfall intensity =     2.795(In/Hr)
Area averaged loss rate (Fm) =    0.0300(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
```

```
 No.        (CFS)        (min)                    (In/Hr)


1        36.750      15.84                 2.097
2         9.200       9.59                 2.795
Qmax(1) =
          1.000 *     1.000 *     36.750) +
          0.747 *     1.000 *      9.200) + =       43.626
Qmax(2) =
          1.364 *     0.605 *     36.750) +
          1.000 *     1.000 *      9.200) + =       39.551

Total of 2 streams to confluence:
Flow rates before confluence point:
      36.750       9.200
Maximum flow rates at confluence using above data:
      43.626       39.551
Area of streams before confluence:
       21.180        3.680
Effective area values after confluence:
       24.860       16.504
Results of confluence:
Total flow rate =      43.626(CFS)
Time of concentration =     15.839 min.
Effective stream area after confluence =      24.860(Ac.)
Study area average Pervious fraction(Ap) =  0.522
Study area average soil loss rate(Fm) =     0.156(In/Hr)
Study area total (this main stream) =       24.86(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      221.000 to Point/Station      225.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   108.000(Ft.)
Downstream point/station elevation =    10.000(Ft.)
Pipe length  =   800.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    43.626(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    43.626(CFS)
Normal flow depth in pipe =   14.04(In.)
Flow top width inside pipe =   19.77(In.)
Critical depth could not be calculated.
Pipe flow velocity =      25.54(Ft/s)
Travel time through pipe =    0.52 min.
Time of concentration (TC) =    16.36 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      225.000 to Point/Station      225.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.058(In/Hr) for a    10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
```

Max Catchment Loss (Fm) = 0.300(In/Hr)
Time of concentration = 16.36 min.
Rainfall intensity = 2.058(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.828
Subarea runoff = 1.557(CFS) for 1.660(Ac.)
Total runoff = 45.183(CFS) Total area = 26.52(Ac.)
Area averaged Fm value = 0.165(In/Hr)
End of computations, total study area = 26.52 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.552
Area averaged SCS curve number (AMC 2) = 80.2
SCS curve number this storm year 10.0 (AMC 2) = 80.2

AREA C

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-1999 Version 6.2
Rational Hydrology Study, Date: 06/11/01 File Name: DEVC30.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
DEVELOPED CONDITIONS - AREA C
FILE: J:\13266000\DRAIN\DEVC30

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 300.000 to Point/Station 301.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 279.000(Ft.)
Top (of initial area) elevation = 248.000(Ft.)
Bottom (of initial area) elevation = 225.000(Ft.)
Difference in elevation = 23.000(Ft.)
Slope = 0.08244 s(%)= 8.24
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.062 min.
Rainfall intensity = 2.576(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.795
Subarea runoff = 0.860(CFS)
Total initial stream area = 0.420(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 301.000 to Point/Station 301.100
**** IMPROVED CHANNEL TRAVEL TIME ****

```
Upstream point elevation =   225.000(Ft.)
Downstream point elevation =   218.000(Ft.)
Channel length thru subarea  =   404.000(Ft.)
Channel base width       =    0.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Estimated mean flow rate at midpoint of channel =      1.843(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      1.843(CFS)
Depth of flow =   0.807(Ft.), Average velocity =   2.827(Ft/s)
Channel flow top width =    1.615(Ft.)
Flow Velocity =    2.83(Ft/s)
Travel time  =    2.38 min.
Time of concentration =   13.44 min.
Critical depth =      0.734(Ft.)
 Adding area flow to channel
Rainfall intensity =      2.303(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.303(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.783
Subarea runoff =      1.628(CFS) for    0.960(Ac.)
Total runoff =      2.488(CFS)      Total area =        1.38(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      301.100 to Point/Station      302.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =   218.000(Ft.)
Downstream point elevation =   210.000(Ft.)
Channel length thru subarea  =    86.000(Ft.)
Channel base width       =   20.000(Ft.)
Slope or 'Z' of left channel bank =   2.000
Slope or 'Z' of right channel bank =   2.000
Estimated mean flow rate at midpoint of channel =      2.713(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    1.000(Ft.)
Flow(q) thru subarea =      2.713(CFS)
Depth of flow =   0.039(Ft.), Average velocity =   3.464(Ft/s)
Channel flow top width =   20.156(Ft.)
Flow Velocity =    3.46(Ft/s)
Travel time  =    0.41 min.
Time of concentration =   13.86 min.
Critical depth =      0.083(Ft.)
 Adding area flow to channel
Rainfall intensity =      2.264(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
```

```
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Rainfall intensity =      2.264(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.797
Subarea runoff =      0.453(CFS) for    0.250(Ac.)
Total runoff =      2.941(CFS)      Total area =        1.63(Ac.)
Area averaged Fm value =    0.259(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      302.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity =      2.264(In/Hr) for a    10.0 year storm
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.105(In/Hr)
Time of concentration =    13.86 min.
Rainfall intensity =      2.264(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.814
Subarea runoff =      1.243(CFS) for    0.640(Ac.)
Total runoff =      4.185(CFS)      Total area =        2.27(Ac.)
Area averaged Fm value =    0.215(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      303.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      5.558(CFS)
Depth of flow =   0.131(Ft.), Average velocity =   4.137(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             10.00               0.00
      3             20.00               0.00
      4             30.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =      5.558(CFS)
  '     '    flow top width =     10.524(Ft.)
  '     '    velocity=    4.137(Ft/s)
  '     '    area =      1.343(Sq.Ft)
```

```
'      '     Froude number =      2.041

Upstream point elevation =   210.000(Ft.)
Downstream point elevation =   140.000(Ft.)
Flow length =   640.000(Ft.)
Travel time  =    2.58 min.
Time of concentration =   16.44 min.
Depth of flow =   0.131(Ft.)
Average velocity =   4.137(Ft/s)
Total irregular channel flow =      5.558(CFS)
Irregular channel normal depth above invert elev. =   0.131(Ft.)
Average velocity of channel(s) =   4.137(Ft/s)

Sub-Channel No. 1 Critical depth =      0.209(Ft.)
  '      '       '     Critical flow top width =     10.836(Ft.)
  '      '       '     Critical flow velocity=    2.553(Ft/s)
  '      '       '     Critical flow area =      2.177(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.053(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.053(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.791
Subarea runoff =      1.920(CFS) for    1.490(Ac.)
Total runoff =      6.104(CFS)      Total area =        3.76(Ac.)
Area averaged Fm value =    0.249(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      303.000 to Point/Station      304.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     11.056(CFS)
Depth of flow =   0.049(Ft.), Average velocity =   7.524(Ft/s)
      ******* Irregular Channel Data ***********
----------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             10.00               0.00
      3             40.00               0.00
      4             50.00               5.00
Manning's 'N' friction factor =   0.030
----------------------------------------------------------------------
Sub-Channel flow  =     11.056(CFS)
  '      '    flow top width =     30.195(Ft.)
  '      '    velocity=    7.524(Ft/s)
  '      '    area =      1.469(Sq.Ft)
  '      '    Froude number =     6.011
```

```
Upstream point elevation =   140.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   100.000(Ft.)
Travel time  =    0.22 min.
Time of concentration =   16.66 min.
Depth of flow =   0.049(Ft.)
Average velocity =   7.524(Ft/s)
Total irregular channel flow =    11.056(CFS)
Irregular channel normal depth above invert elev. =   0.049(Ft.)
Average velocity of channel(s) =   7.524(Ft/s)

Sub-Channel No. 1 Critical depth =      0.160(Ft.)
  '      '       '     Critical flow top width =     30.641(Ft.)
  '      '       '     Critical flow velocity=    2.277(Ft/s)
  '      '       '     Critical flow area =      4.856(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.037(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.037(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.776
Subarea runoff =      9.483(CFS) for    6.100(Ac.)
Total runoff =     15.588(CFS)      Total area =        9.86(Ac.)
Area averaged Fm value =    0.280(In/Hr)
End of computations, total study area =            9.86 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.935
Area averaged SCS curve number (AMC 2) =  67.8
SCS curve number this storm year   10.0 (AMC 2) =  67.8
```

AREA D

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-1998 Version 5.4
Rational Hydrology Study, Date: 02/17/00 File Name: DEVD40.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
DEVELOPED CONDITIONS - AREA D
FILE: J:\13266000\DRAIN\DEVD40

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 400.000 to Point/Station 403.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 330.000(Ft.)
Top (of initial area) elevation = 225.000(Ft.)
Bottom (of initial area) elevation = 190.000(Ft.)
Difference in elevation = 35.000(Ft.)
Slope = 0.10606 s(%)= 10.61
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.249 min.
Rainfall intensity = 2.551(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.794
Subarea runoff = 3.140(CFS)
Total initial stream area = 1.550(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 403.000 to Point/Station 403.000
**** SUBAREA FLOW ADDITION ****

```
 Rainfall intensity =      2.551(In/Hr) for a    10.0 year storm
 COMMERCIAL subarea type
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 SCS curve number for soil(AMC 2)  = 56.00
 Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
 Max Catchment Loss (Fm) =     0.030(In/Hr)
 Time of concentration =    11.25 min.
 Rainfall intensity =      2.551(In/Hr) for a    10.0 year storm
 Effective runoff coefficient used for area,(total area with modified
 rational method)(Q=KCIA) is C = 0.807
 Subarea runoff =      0.545(CFS) for    0.240(Ac.)
 Total runoff =      3.685(CFS)      Total area =        1.79(Ac.)
 Area averaged Fm value =    0.264(In/Hr)


 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station      403.000 to Point/Station      404.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
 ----------------------------------------------------------------------------
 Estimated mean flow rate at midpoint of channel =      6.793(CFS)
 Depth of flow =   0.101(Ft.), Average velocity =   2.628(Ft/s)
       ******* Irregular Channel Data ***********
 ----------------------------------------------------------------------------
 Information entered for subchannel number 1 :
 Point number      'X' coordinate     'Y' coordinate
       1              0.00              5.00
       2             25.00              0.00
       3             50.00              0.00
       4             75.00              5.00
 Manning's 'N' friction factor =   0.030
 ----------------------------------------------------------------------------
 Sub-Channel flow  =      6.793(CFS)
    '      '    flow top width =     26.013(Ft.)
    '      '    velocity=    2.628(Ft/s)
    '      '    area =      2.585(Sq.Ft)
    '      '    Froude number =     1.469

 Upstream point elevation =   190.000(Ft.)
 Downstream point elevation =   160.000(Ft.)
 Flow length =   490.000(Ft.)
 Travel time  =    3.11 min.
 Time of concentration =   14.36 min.
 Depth of flow =   0.101(Ft.)
 Average velocity =   2.628(Ft/s)
 Total irregular channel flow =     6.793(CFS)
 Irregular channel normal depth above invert elev. =   0.101(Ft.)
 Average velocity of channel(s) =   2.628(Ft/s)

 Sub-Channel No. 1 Critical depth =      0.131(Ft.)
    '      '      '     Critical flow top width =     26.309(Ft.)
    '      '      '     Critical flow velocity=    2.023(Ft/s)
    '      '      '     Critical flow area =      3.357(Sq.Ft)

  Adding area flow to channel
```

```
Rainfall intensity =      2.218(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.218(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.784
Subarea runoff =      4.678(CFS) for    3.020(Ac.)
Total runoff =      8.362(CFS)      Total area =        4.81(Ac.)
Area averaged Fm value =    0.287(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      404.000 to Point/Station      405.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     19.271(CFS)
Depth of flow =   0.115(Ft.), Average velocity =   6.573(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------------
Sub-Channel flow  =     19.271(CFS)
  '      '    flow top width =     26.146(Ft.)
  '      '    velocity=    6.573(Ft/s)
  '      '    area =      2.932(Sq.Ft)
  '      '    Froude number =     3.459

Upstream point elevation =   160.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   460.000(Ft.)
Travel time  =    1.17 min.
Time of concentration =   15.52 min.
Depth of flow =   0.115(Ft.)
Average velocity =   6.573(Ft/s)
Total irregular channel flow =    19.271(CFS)
Irregular channel normal depth above invert elev. =   0.115(Ft.)
Average velocity of channel(s) =   6.573(Ft/s)

Sub-Channel No. 1 Critical depth =      0.260(Ft.)
  '      '       '     Critical flow top width =     27.598(Ft.)
  '      '       '     Critical flow velocity=    2.821(Ft/s)
  '      '       '     Critical flow area =      6.832(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.121(In/Hr) for a    10.0 year storm
```

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Rainfall intensity = 2.121(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.774
Subarea runoff = 20.149(CFS) for 12.550(Ac.)
Total runoff = 28.511(CFS) Total area = 17.36(Ac.)
Area averaged Fm value = 0.296(In/Hr)
End of computations, total study area = 17.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.988
Area averaged SCS curve number (AMC 2) = 68.8
SCS curve number this storm year 10.0 (AMC 2) = 68.8

AREA E

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/05/01 File Name: DEVE50.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
DEVELOPED CONDITIONS - AREA E
FILE: J:\13266000\DRAIN\DEVE50

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 500.000 to Point/Station 501.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.300(In/Hr)
Initial subarea data:
Initial area flow distance = 530.000(Ft.)
Top (of initial area) elevation = 220.000(Ft.)
Bottom (of initial area) elevation = 165.000(Ft.)
Difference in elevation = 55.000(Ft.)
Slope = 0.10377 s(%)= 10.38
TC = k(0.706)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 13.655 min.
Rainfall intensity = 2.283(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.782
Subarea runoff = 0.999(CFS)
Total initial stream area = 0.560(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.300(In/Hr)

++
Process from Point/Station 501.000 to Point/Station 502.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =      8.565(CFS)
Depth of flow =   0.054(Ft.), Average velocity =   6.220(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00               5.00
      2             25.00               0.00
      3             50.00               0.00
      4             75.00               5.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =      8.566(CFS)
   '      '    flow top width =     25.545(Ft.)
   '      '    velocity=    6.221(Ft/s)
   '      '    area =      1.377(Sq.Ft)
   '      '    Froude number =     4.722

Upstream point elevation =   165.000(Ft.)
Downstream point elevation =    10.000(Ft.)
Flow length =   200.000(Ft.)
Travel time  =    0.54 min.
Time of concentration =   14.19 min.
Depth of flow =   0.054(Ft.)
Average velocity =   6.220(Ft/s)
Total irregular channel flow =     8.565(CFS)
Irregular channel normal depth above invert elev. =   0.054(Ft.)
Average velocity of channel(s) =   6.220(Ft/s)

Sub-Channel No. 1 Critical depth =      0.152(Ft.)
   '      '       '     Critical flow top width =     26.523(Ft.)
   '      '       '     Critical flow velocity=    2.183(Ft/s)
   '      '       '     Critical flow area =      3.925(Sq.Ft)

 Adding area flow to channel
Rainfall intensity =      2.233(In/Hr) for a    10.0 year storm
UNDEVELOPED (average cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Rainfall intensity =      2.233(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.779
Subarea runoff =     14.727(CFS) for    8.480(Ac.)
Total runoff =     15.726(CFS)      Total area =        9.04(Ac.)
Area averaged Fm value =    0.300(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      502.000 to Point/Station      502.000
**** SUBAREA FLOW ADDITION ****

------------------------------------------------------------------------
Rainfall intensity =      2.233(In/Hr) for a    10.0 year storm
```

RESIDENTIAL(2 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.7000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.210(In/Hr)
Time of concentration = 14.19 min.
Rainfall intensity = 2.233(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area,(total area with modified rational method)(Q=KCIA) is C = 0.783
Subarea runoff = 2.076(CFS) for 1.140(Ac.)
Total runoff = 17.802(CFS) Total area = 10.18(Ac.)
Area averaged Fm value = 0.290(In/Hr)
End of computations, total study area = 10.18 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.966
Area averaged SCS curve number (AMC 2) = 67.5
SCS curve number this storm year 10.0 (AMC 2) = 67.5

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2001 Version 6.3
Rational Hydrology Study, Date: 04/12/01 File Name: DEV610.roc

---

DANA POINT HEADLANDS
10 YEAR STORM
DEVELOPED CONDITIONS - AREA F
FILE: J:\13266.00\DRAIN\DEV610

The Keith Companies, Costa Mesa, California - S/N 708

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++
Process from Point/Station 600.000 to Point/Station 601.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.6000 Max loss rate(Fp)= 0.300(In/Hr)
Max Catchment Loss (Fm) = 0.180(In/Hr)
Initial subarea data:
Initial area flow distance = 270.000(Ft.)
Top (of initial area) elevation = 157.000(Ft.)
Bottom (of initial area) elevation = 140.000(Ft.)
Difference in elevation = 17.000(Ft.)
Slope = 0.06296 s(%)= 6.30
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.724 min.
Rainfall intensity = 3.426(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.853
Subarea runoff = 3.564(CFS)
Total initial stream area = 1.220(Ac.)
Pervious area fraction = 0.600
Initial area Fm value = 0.180(In/Hr)

++
Process from Point/Station 601.000 to Point/Station 602.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

```
Upstream point/station elevation =    135.000(Ft.)
Downstream point/station elevation =     76.000(Ft.)
Pipe length  =    750.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =      3.564(CFS)
Nearest computed pipe diameter  =       9.00(In.)
Calculated individual pipe flow  =      3.564(CFS)
Normal flow depth in pipe =     5.91(In.)
Flow top width inside pipe =     8.55(In.)
Critical depth could not be calculated.
Pipe flow velocity =      11.58(Ft/s)
Travel time through pipe =     1.08 min.
Time of concentration (TC) =      7.80 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       602.000 to Point/Station       602.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =       3.146(In/Hr) for a     10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.300(In/Hr)
Time of concentration =      7.80 min.
Rainfall intensity =       3.146(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.826
Subarea runoff =       5.378(CFS) for     2.220(Ac.)
Total runoff =       8.942(CFS)       Total area =         3.44(Ac.)
Area averaged Fm value =     0.257(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       602.000 to Point/Station       602.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =       3.146(In/Hr) for a     10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=      0.300(In/Hr)
Max Catchment Loss (Fm) =      0.030(In/Hr)
Time of concentration =      7.80 min.
Rainfall intensity =       3.146(In/Hr) for a     10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.839
Subarea runoff =       2.355(CFS) for     0.840(Ac.)
Total runoff =      11.297(CFS)       Total area =         4.28(Ac.)
Area averaged Fm value =     0.213(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       602.000 to Point/Station       602.000
```

```
**** SUBAREA FLOW ADDITION ****

Rainfall intensity =      3.146(In/Hr) for a    10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     7.80 min.
Rainfall intensity =      3.146(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.830
Subarea runoff =      6.198(CFS) for    2.420(Ac.)
Total runoff =     17.495(CFS)      Total area =        6.70(Ac.)
Area averaged Fm value =    0.244(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      602.000 to Point/Station      603.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation =    76.000(Ft.)
Downstream point/station elevation =    74.000(Ft.)
Pipe length  =    30.00(Ft.)   Manning's N = 0.015
No. of pipes = 1  Required pipe flow  =    17.495(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    17.495(CFS)
Normal flow depth in pipe =   11.57(In.)
Flow top width inside pipe =   17.25(In.)
Critical depth could not be calculated.
Pipe flow velocity =     14.57(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     7.84 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      603.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity =      3.138(In/Hr) for a    10.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Time of concentration =     7.84 min.
Rainfall intensity =      3.138(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.832
Subarea runoff =      2.534(CFS) for    0.970(Ac.)
Total runoff =     20.029(CFS)      Total area =        7.67(Ac.)
Area averaged Fm value =    0.236(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      603.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      3.138(In/Hr) for a    10.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Time of concentration =     7.84 min.
Rainfall intensity =      3.138(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.837
Subarea runoff =      9.423(CFS) for    3.540(Ac.)
Total runoff =     29.452(CFS)      Total area =       11.21(Ac.)
Area averaged Fm value =    0.218(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      603.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity =      3.138(In/Hr) for a    10.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Time of concentration =     7.84 min.
Rainfall intensity =      3.138(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.838
Subarea runoff =      3.327(CFS) for    1.250(Ac.)
Total runoff =     32.780(CFS)      Total area =       12.46(Ac.)
Area averaged Fm value =    0.215(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      604.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =    74.000(Ft.)
Downstream point/station elevation =    48.000(Ft.)
Pipe length  =   230.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    32.780(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    32.780(CFS)
Normal flow depth in pipe =   13.71(In.)
Flow top width inside pipe =   15.34(In.)
Critical depth could not be calculated.
```

```
Pipe flow velocity =     22.70(Ft/s)
Travel time through pipe =    0.17 min.
Time of concentration (TC) =     8.01 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      3.100(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.030(In/Hr)
Time of concentration =     8.01 min.
Rainfall intensity =      3.100(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.840
Subarea runoff =      1.286(CFS) for    0.620(Ac.)
Total runoff =     34.065(CFS)      Total area =       13.08(Ac.)
Area averaged Fm value =    0.206(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      605.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    48.000(Ft.)
Downstream point/station elevation =    30.000(Ft.)
Pipe length  =   970.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    34.065(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    34.065(CFS)
Normal flow depth in pipe =   18.40(In.)
Flow top width inside pipe =   25.16(In.)
Critical Depth =   23.90(In.)
Pipe flow velocity =     11.81(Ft/s)
Travel time through pipe =    1.37 min.
Time of concentration (TC) =     9.38 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      605.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.832(In/Hr) for a    10.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
```

```
Max Catchment Loss (Fm) =     0.180(In/Hr)
Time of concentration =     9.38 min.
Rainfall intensity =     2.832(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.837
Subarea runoff =      7.106(CFS) for    4.300(Ac.)
Total runoff =     41.172(CFS)      Total area =       17.38(Ac.)
Area averaged Fm value =    0.199(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      605.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Rainfall intensity =      2.832(In/Hr) for a    10.0 year storm
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     17.380(Ac.)
Runoff from this stream =     41.172(CFS)
Time of concentration =    9.38 min.
Rainfall intensity =     2.832(In/Hr)
Area averaged loss rate (Fm) =    0.1994(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6648


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      606.000 to Point/Station      607.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Initial subarea data:
Initial area flow distance =   200.000(Ft.)
Top (of initial area) elevation =   153.000(Ft.)
Bottom (of initial area) elevation =   107.000(Ft.)
Difference in elevation =    46.000(Ft.)
Slope =    0.23000  s(%)=      23.00
TC = k(0.412)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    4.602 min.
Rainfall intensity =      4.257(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.862
Subarea runoff =      2.422(CFS)
Total initial stream area =        0.660(Ac.)
Pervious area fraction = 0.600
Initial area Fm value =    0.180(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      607.000 to Point/Station      608.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of street segment elevation =   107.000(Ft.)
```

```
End of street segment elevation =    87.000(Ft.)
Length of street segment  =   380.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  16.000(Ft.)
Distance from crown to crossfall grade break  =  14.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      4.091(CFS)
Depth of flow =   0.305(Ft.), Average velocity =   4.441(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   8.914(Ft.)
Flow velocity =   4.44(Ft/s)
Travel time =    1.43 min.     TC =    6.03  min.
 Adding area flow to street
Rainfall intensity =      3.647(In/Hr) for a    10.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Rainfall intensity =      3.647(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.856
Subarea runoff =      2.477(CFS) for    0.910(Ac.)
Total runoff =      4.899(CFS)      Total area =        1.57(Ac.)
Area averaged Fm value =    0.180(In/Hr)
Street flow at end of street =      4.899(CFS)
Half street flow at end of street =      4.899(CFS)
Depth of flow =   0.320(Ft.), Average velocity =   4.617(Ft/s)
Flow width (from curb towards crown)=   9.667(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      608.000 to Point/Station      609.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =    87.000(Ft.)
End of street segment elevation =    55.000(Ft.)
Length of street segment  =   500.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  16.000(Ft.)
Distance from crown to crossfall grade break  =  14.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
```

```
Slope from curb to property line (v/hz) =    0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0170
 Manning's N from grade break to crown =  0.0170
Estimated mean flow rate at midpoint of street =      8.940(CFS)
Depth of flow =   0.304(Ft.), Average velocity =   4.887(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   8.876(Ft.)
Flow velocity =   4.89(Ft/s)
Travel time =    1.71 min.     TC =    7.73  min.
 Adding area flow to street
Rainfall intensity =      3.162(In/Hr) for a    10.0 year storm
RESIDENTIAL(3 - 4 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Pervious ratio(Ap) = 0.6000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.180(In/Hr)
Rainfall intensity =      3.162(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.849
Subarea runoff =      6.265(CFS) for    2.590(Ac.)
Total runoff =     11.164(CFS)      Total area =        4.16(Ac.)
Area averaged Fm value =    0.180(In/Hr)
Street flow at end of street =     11.164(CFS)
Half street flow at end of street =      5.582(CFS)
Depth of flow =   0.323(Ft.), Average velocity =   5.128(Ft/s)
Flow width (from curb towards crown)=   9.808(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      609.000 to Point/Station      605.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =    50.000(Ft.)
Downstream point/station elevation =    30.000(Ft.)
Pipe length  =   200.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.164(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =    11.164(CFS)
Normal flow depth in pipe =    9.74(In.)
Flow top width inside pipe =    9.39(In.)
Critical depth could not be calculated.
Pipe flow velocity =     16.35(Ft/s)
Travel time through pipe =    0.20 min.
Time of concentration (TC) =     7.94 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      605.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Rainfall intensity =      3.115(In/Hr) for a    10.0 year storm
```

```
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.160(Ac.)
Runoff from this stream =     11.164(CFS)
Time of concentration =    7.94 min.
Rainfall intensity =     3.115(In/Hr)
Area averaged loss rate (Fm) =    0.1800(In/Hr)
Area averaged Pervious ratio (Ap) = 0.6000
Summary of stream data:

Stream    Flow rate      TC            Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1        41.172       9.38                2.832
2        11.164       7.94                3.115
Qmax(1) =
          1.000 *     1.000 *     41.172) +
          0.903 *     1.000 *     11.164) + =       51.257
Qmax(2) =
          1.108 *     0.847 *     41.172) +
          1.000 *     1.000 *     11.164) + =       49.774

Total of 2 streams to confluence:
Flow rates before confluence point:
      41.172       11.164
Maximum flow rates at confluence using above data:
       51.257       49.774
Area of streams before confluence:
       17.380        4.160
Effective area values after confluence:
       21.540       18.874
Results of confluence:
Total flow rate =     51.257(CFS)
Time of concentration =     9.376 min.
Effective stream area after confluence =     21.540(Ac.)
Study area average Pervious fraction(Ap) =  0.652
Study area average soil loss rate(Fm) =    0.196(In/Hr)
Study area total (this main stream) =      21.54(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      610.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    30.000(Ft.)
Downstream point/station elevation =    10.000(Ft.)
Pipe length  =   250.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    51.257(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    51.257(CFS)
Normal flow depth in pipe =   16.27(In.)
Flow top width inside pipe =   22.43(In.)
Critical depth could not be calculated.
Pipe flow velocity =     22.64(Ft/s)
Travel time through pipe =    0.18 min.
Time of concentration (TC) =     9.56 min.
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      610.000 to Point/Station      610.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.800(In/Hr) for a    10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     9.56 min.
Rainfall intensity =      2.800(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.835
Subarea runoff =      1.866(CFS) for    1.170(Ac.)
Total runoff =     53.124(CFS)      Total area =       22.71(Ac.)
Area averaged Fm value =     0.201(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      610.000 to Point/Station      610.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity =      2.800(In/Hr) for a    10.0 year storm
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 84.03
Pervious ratio(Ap) = 1.0000  Max loss rate(Fp)=     0.300(In/Hr)
Max Catchment Loss (Fm) =     0.300(In/Hr)
Time of concentration =     9.56 min.
Rainfall intensity =      2.800(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.834
Subarea runoff =      1.778(CFS) for    0.790(Ac.)
Total runoff =     54.901(CFS)      Total area =       23.50(Ac.)
Area averaged Fm value =     0.204(In/Hr)
End of computations, total study area =          23.50 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.681
Area averaged SCS curve number (AMC 2) =  63.9
SCS curve number this storm year   10.0 (AMC 2) =  63.9
```

APPENDIX G

NOISE MODEL DATA

DANA POINT HEADLANDS PROJECT

FHWA TRAFFIC NOISE MODEL PRINTOUTS

EXISTING CONDITIONS

TABLE HEADLANDS EX1
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY N/O VALLEY PARKWAY
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 34800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
103.1	317.9	1002.7	3169.7

TABLE HEADLANDS EX2
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY BTW CROWN VALLEY PRKW AND NIGUEL RD
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
75.9	229.0	720.5	2277.2

TABLE HEADLANDS EX3
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY BTW NIGUEL RD AND SELVA RD
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25700 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
77.8	235.4	740.7	2341.0

TABLE HEADLANDS EX4
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY BTW SELVA RD AND SITE
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24600 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.06

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
74.8	225.4	709.0	2240.8

TABLE HEADLANDS EX5
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY BTW SITE AND GREEN LANTERN
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24600 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.06

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
74.8	225.4	709.0	2240.8

TABLE HEADLANDS EX6
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY BTW GREEN LANTERN AND AMBER LANTERN
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12300 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	112.5	355.4	1123.6

TABLE HEADLANDS EX7
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY BTW AMBER LANTERN AND GOLDEN LANTERN
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17350 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.55

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
50.5	158.6	501.2	1584.8

TABLE HEADLANDS EX8
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY BTW GOLDEN LANTERN AND JUNCTURE
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16700 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	152.7	482.5	1525.5

TABLE HEADLANDS EX9
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY BWT JUNCTURE AND DANA PT HARBOR DR
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35100 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
103.9	320.7	1011.3	3197.1

TABLE HEADLANDS EX10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HIGHWAY S/O DANA PT HARBOR DR
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 40000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
117.7	365.2	1152.5	3643.3

TABLE HEADLANDS EX11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW STONEHILL DR AND SELVA RD
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16800 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.07

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.5	202.4	630.7	1991.5

TABLE HEADLANDS EX12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW SELVA RD AND LA CRESTA DR
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16400 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.96

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
71.2	197.7	615.8	1944.1

TABLE HEADLANDS EX13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW LA GRESTA DR AND PCH W
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15800 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) =. 68.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
69.3	190.7	593.3	1873.0

TABLE HEADLANDS EX14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW PCH W AND PCH E
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15300 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
67.7	184.9	574.6	1813.7

TABLE HEADLANDS EX15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW PCH E AND DANA PT HARBOR DR
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7400 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	71.6	214.5	674.5

TABLE HEADLANDS EX16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: DANA PT HARBOR DR BTW COVE RD AND GOLDEN LANTERN
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7500 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	72.4	217.4	683.6

TABLE HEADLANDS EX17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: DANA PT HARBOR DR BTW GOLDEN LANTERN AND PACIFIC COAST HWY
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11100 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	103.9	320.7	1011.4

TABLE HEADLANDS EX18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: DANA PT HARBOR DR N/O PACIFIC COAST HWY
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12900 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	120.0	372.4	1175.3

TABLE HEADLANDS EX19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD W/O PACIFIC COAST HWY
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	69.1	211.7

TABLE HEADLANDS EX20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD BTW PACIFIC COAST HWY AND BLUE LANTERN
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	96.4	300.0

TABLE HEADLANDS EX21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD BTW BLUE LANTERN AND GREEN LANTERN
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	72.5	226.2

TABLE HEADLANDS EX22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA DR BTW GREEN LANTERN AND STONEHILL DR
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5700 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	89.3	280.2

TABLE HEADLANDS EX23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: LA CRESTA DR BTW BLUE LANTERN AND GREEN LANTERN
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4700 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	73.3	231.2

TABLE HEADLANDS EX24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: LA CRESTA DR E/O GREEN LANTERN
NOTES: EXISTING CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3400 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	53.2	167.3

TABLE HEADLANDS EX25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT:
CROWN VALLEY PKWY BTW PACIFIC COAST HIGHWAY AND CAMINO DEL AVION
NOTES: EXISTING CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18200 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.75

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
57.7	167.5	524.8	1657.9

TABLE HEADLANDS EX26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: NIGUEL RD BTW PACIFIC COAST HIGHWAY AND STONEHILL DR
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13100 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	121.7	378.2	1193.6

TABLE HEADLANDS EX27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: BLUE LANTERN BTW LA CRESTA DR AND PACIFIC COAST HWY
NOTES: EXISTING TRAFFIC CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	103.7

DANA POINT HEADLANDS PROJECT

FHWA TRAFFIC NOISE MODEL PRINTOUTS

FUTURE BUILDOUT NO PROJECT CONDITIONS

TABLE HEADLANDS FNP1
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY N/O CROWN VALLEY PKWY
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45600 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.74

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
133.5	416.1	1313.7	4153.4

TABLE HEADLANDS FNP2
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW CROWN VALLEY PKWY AND NIGUEL RD
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43200 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
126.8	394.3	1244.6	3934.8

TABLE HEADLANDS FNP3
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW NIGUEL RD AND SELVA RD
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 44200 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
129.6	403.4	1273.4	4025.9

TABLE HEADLANDS FNP4
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW SELVA RD AND SITE
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35300 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
104.5	322.5	1017.1	3215.3

TABLE HEADLANDS FNP5
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW SITE AND GREEN LANTERN
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35700 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
105.6	326.1	1028.6	3251.7

TABLE HEADLANDS FNP6
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW GREEN LANTERN AND AMBER LANTERN
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19400 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.03

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
56.4	177.3	560.4	1772.0

TABLE HEADLANDS FNP7
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW AMBER LANTERN AND GOLDEN LANTERN
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18100 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
52.6	165.5	522.9	1653.3

TABLE HEADLANDS FNP8
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW GOLDEN LANTERN AND JUNCTURE
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24300 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.01

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
70.5	222.1	702.0	2219.6

TABLE HEADLANDS FNP9
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW JUNCTURE AND DANA PT HARBOR DR
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 48600 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.01

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
142.1	443.4	1400.1	4426.6

TABLE HEADLANDS FNP10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY S/O DANA PT HARBOR DR
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 74800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
216.8	681.8	2154.7	6812.8

TABLE HEADLANDS FNP11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GREEN LANTERN BTW STONEHILL DR AND SELVA RD
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27000 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
107.4	322.1	1012.7	3200.2

TABLE HEADLANDS FNP12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GREEN LANTERN BTW SELVA RD AND LA CRESTA DR
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32900 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
128.5	391.6	1233.7	3899.4

TABLE HEADLANDS FNP13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GREEN LANTERN BTW LA CRESTA DR AND PACIFIC COAST HWY W
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35800 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
138.9	425.9	1342.3	4243.1

TABLE HEADLANDS FNP14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW PCH W AND PCH E
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 34800 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
135.3	414.1	1304.9	4124.5

TABLE HEADLANDS FNP15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW PCH E AND DANA PT HARBOR DR
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
69.9	209.1	657.2	2076.8

TABLE HEADLANDS FNP16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: DANA PT HARBOR DR BTW COVE RD AND GOLDEN LANTERN
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19900 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
62.2	182.9	573.7	1812.7

TABLE HEADLANDS FNP17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: DANA PT HARBOR DR BTW GOLDEN LANTERN AND PACIFIC COAST HWY
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25900 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
78.4	237.2	746.4	2359.2

TABLE HEADLANDS FNP18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: DANA PT HARBOR DR N/O PACIFIC COAST HWY
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25900 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
78.4	237.2	746.4	2359.2

TABLE HEADLANDS FNP19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD W/O PACIFIC COAST HWY
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	69.1	211.7

TABLE HEADLANDS FNP20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD BTW PACIFIC COAST HWY AND BLUE LANTERN
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.03

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	68.4	209.5	660.2

TABLE HEADLANDS FNP21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD BTW BLUE LANTERN AND GREEN LANTERN
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	124.8	393.1

TABLE HEADLANDS FNP22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA DR BTW GREEN LANTERN AND STONEHILL DR
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6900 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	107.8	339.1

TABLE HEADLANDS FNP23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: LA CRESTA DR BTW BLUE LANTERN AND GREEN LANTERN
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	78.0	245.9

TABLE HEADLANDS FNP24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: LA CRESTA DR E/O GREEN LANTERN
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2900 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	142.7

TABLE HEADLANDS FNP25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT:
CROWN VALLEY PKWY BTW PACIFIC COAST HIGHWAY AND CAMINO DEL AVION
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36500 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
107.9	333.4	1051.7	3324.6

TABLE HEADLANDS FNP26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: NIGUEL RD BTW PACIFIC COAST HIGHWAY AND STONEHILL DR
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 29200 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
87.5	267.1	841.5	2659.7

TABLE HEADLANDS FNP27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: BLUE LANTERN BTW LA CRESTA DR AND PACIFIC COAST HWY
NOTES: FUTURE NO PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2600 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	58.8	177.8

DANA POINT HEADLANDS PROJECT

FHWA TRAFFIC NOISE MODEL PRINTOUTS

FUTURE BUILDOUT WITH PROJECT CONDITIONS

TABLE HEADLANDS FP1
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/16/01
ROADWAY SEGMENT: PACIFIC COAST HWY N/O CROWN VALLEY PKWY
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 46000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
134.7	419.7	1325.2	4189.8

TABLE HEADLANDS FP2
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW CROWN VALLEY PKWY AND NIGUEL RD
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 44000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
129.0	401.5	1267.6	4007.6

TABLE HEADLANDS FP3
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/16/01
ROADWAY SEGMENT: PACIFIC COAST HWY BTW NIGUEL RD AND SELVA RD
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 46000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
134.7	419.7	1325.2	4189.8

TABLE HEADLANDS FP4
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW SELVA RD AND SITE
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
109.3	337.9	1066.1	3370.1

TABLE HEADLANDS FP5
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW SITE AND GREEN LANTERN
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.94

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
112.1	347.0	1094.9	3461.2

TABLE HEADLANDS FP6
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW GREEN LANTERN AND AMBER LANTERN
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20400 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
59.2	186.5	589.3	1863.3

TABLE HEADLANDS FP7
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW AMBER LANTERN AND GOLDEN LANTERN
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.94

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
55.2	173.7	548.9	1735.5

TABLE HEADLANDS FP8
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW GOLDEN LANTERN AND JUNCTURE
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.5	228.5	722.2	2283.5

TABLE HEADLANDS FP9
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY BTW JUNCTURE AND DANA PT HARBOR DR
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 50000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
146.0	456.1	1440.4	4554.1

TABLE HEADLANDS FP10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: PACIFIC COAST HWY S/O DANA PT HARBOR DR
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 76000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.95

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
220.3	692.7	2189.3	6922.1

TABLE HEADLANDS FP11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GREEN LANTERN BTW STONEHILL DR AND SELVA RD
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27000 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
107.4	322.1	1012.7	3200.2

TABLE HEADLANDS FP12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW SELVA RD AND LA CRESTA DR
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38000 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.61

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
146.9	451.9	1424.8	4503.8

TABLE HEADLANDS FP13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GREEN LANTERN BTW LA CRESTA DR AND PACIFIC COAST HWY W
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36000 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
139.7	428.3	1349.8	4266.8

TABLE HEADLANDS FP14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW PCH W AND PCH E
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35000 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
136.1	416.4	1312.3	4148.2

TABLE HEADLANDS FP15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: GOLDEN LANTERN BTW PCH E AND DANA PT HARBOR DR
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
70.5	210.9	663.0	2095.0

TABLE HEADLANDS FP16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: DANA PT HARBOR DR BTW COVE RD AND GOLDEN LANTERN
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
62.4	183.8	576.6	1821.8

TABLE HEADLANDS FP17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: DANA PT HARBOR DR BTW GOLDEN LANTERN AND PACIFIC COAST HWY
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.30

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
78.7	238.1	749.3	2368.3

TABLE HEADLANDS FP18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: DANA PT HARBOR DR N/O PACIFIC COAST HWY
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.30

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
78.7	238.1	749.3	2368.3

TABLE HEADLANDS FP19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD W/O PACIFIC COAST HWY
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	90.1	279.6

TABLE HEADLANDS FP20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD BTW PACIFIC COAST HWY AND BLUE LANTERN
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	70.4	215.9	680.6

TABLE HEADLANDS FP21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD BTW BLUE LANTERN AND GREEN LANTERN
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	124.8	393.1

TABLE HEADLANDS FP22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: SELVA RD BTW GREEN LANTERN AND STONEHILL DR
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	109.4	344.0

TABLE HEADLANDS FP23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: LA CRESTA DR BTW BLUE LANTERN AND GREEN LANTERN
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	78.0	245.9

TABLE HEADLANDS FP24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: LA CRESTA DR E/O GREEN LANTERN
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	147.6

TABLE HEADLANDS FP25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT:
CROWN VALLEY PKWY BTW PACIFIC COAST HIGHWAY AND CAMINO DEL AVION
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
109.3	337.9	1066.1	3370.1

TABLE HEADLANDS FP26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: NIGUEL RD BTW PACIFIC COAST HIGHWAY AND STONEHILL DR
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
89.7	274.3	864.5	2732.6

TABLE HEADLANDS FP27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/08/2001
ROADWAY SEGMENT: BLUE LANTERN BTW LA CRESTA DR AND PACIFIC COAST HWY
NOTES: FUTURE PROJECT CONDITIONS

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	67.0	204.9

DANA POINT HEADLANDS PROJECT

FHWA TRAFFIC NOISE MODEL PRINTOUTS

EXISTING PLUS PROJECT CONDITIONS

TABLE HLR103EXP1
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH N/O CROWN VALLEY PKWY
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35200 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.61

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
104.2	321.6	1014.2	3206.2

TABLE HLR103EXP2
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH CROWN VALLEY PKWY TO NIGUEL RD
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
78.1	236.3	743.6	2350.1

TABLE HLR103EXP3
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH NIGUEL RD TO SELVA RD
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27500 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
82.8	251.7	792.5	2504.9

TABLE HLR103EXP4
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH SELVA RD TO SITE
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26300 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
79.5	240.8	758.0	2395.6

TABLE HLR103EXP5
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH SITE TO GREEN L
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26900 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
81.1	246.2	775.2	2450.2

TABLE HLR130EXP6A
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH GREEN L TO AMBER L
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13300 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.39

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	121.7	384.3	1215.0

TABLE HLR130EXP7A
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH AMBER L TO GOLDEN L
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
51.8	162.7	514.2	1625.9

TABLE HLR130EXP8A
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH GOLDEN L TO JUNCTURE
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17400 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
50.6	159.1	502.7	1589.3

TABLE HLR130EXP9
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH JUNCTURE TO DANA POINT HARBOR DR
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36400 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
107.6	332.5	1048.8	3315.5

TABLE HLR130EXP10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: PCH S/O DPH DR
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 41200 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
121.1	376.1	1187.0	3752.6

TABLE HLR130EXP11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: GOLDEN L STONEHILL DR TO SELVA RD
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16800 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.07

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.5	202.4	630.7	1991.4

TABLE HLR130EXP12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: GOLDEN L SELVA RD TO LA CRESTA DR
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16500 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
71.6	198.9	619.5	1955.9

TABLE HLR130EXP13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: GOLDEN L LA CRESTA DR TO PCH W
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16000 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
70.0	193.0	600.8	1896.7

TABLE HLR130EXP14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: GOLDEN L PCH W TO PCH E
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15500 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
68.4	187.2	582.1	1837.4

TABLE HLR130EXP15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: GOLDEN L PCH E TO DPH DR
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7600 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.95

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	73.3	220.3	692.7

TABLE HLR130EXP16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: DPH DR COVE RD TO GOLDEN L
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7600 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.95

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	73.3	220.3	692.7

TABLE HLR130EXP17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: DPH DR GOLDEN L TO PCH
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11200 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	104.8	323.5	1020.5

TABLE HLR130EXP18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: DPH DR N/O PCH
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	120.8	375.3	1184.4

TABLE HLR130EXP19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: SELVA RD W/O PCH
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	90.1	279.6

TABLE HLR130EXP20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: SELVA RD PCH TO BLUE L
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	102.7	320.3

TABLE HLR130EXP21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: SELVA RD BLUE L TO GOLDEN L
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	72.5	226.2

TABLE HLR130EXP22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: SELVA RD GOLDEN L TO STONEHILL DR
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5800 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.71

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	90.9	285.1

TABLE HLR130EXP23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: LA CRESTA DR BLUE L TO GOLDEN L
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4700 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	73.3	231.2

TABLE HLR130EXP24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: LA CRESTA DR E/O GOLDEN L
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3500 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	54.8	172.2

TABLE HLR130EXP25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: CROWN VALLEY PKWY PCH TO CAMINO DEL AVION
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18700 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.86

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
59.0	172.0	539.2	1703.4

TABLE HLR130EXP26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: NIGUEL RD PCH TO STONEHILL DR
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13900 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	128.9	401.2	1266.4

TABLE HLR130EXP27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 7/26/01
ROADWAY SEGMENT: BLUE L LA CRESTA DR TO PCH
NOTES: EXISTING PLUS PROJECT TRAFFIC NOISE

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: HARD

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.95

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	130.6

APPENDIX H

TRAFFIC STUDY

Traffic Study Appendices A – L

APPENDIX A

LEVEL OF SERVICE DESCRIPTION

LEVEL OF SERVICE - DEFINITIONS*

Service Level	General Definition	Freeways Criteria for measurement: Density (cars per lane-mile)	Arterials Criteria for measurement: Average travel speed (mph)
A	Free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. The general level of comfort and convenience provided to the motorist, passenger, or pedestrian is excellent.	Free flow operations. Average travel speeds near 60 mph generally prevail on 70-mph freeway elements. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The average spacing between vehicles is about 440 ft, or 22 car-lengths, with a maximum density of 12 cars/mi/ln. The effects of minor incidents or breakdowns are easily absorbed at this level. Although they may cause a deterioration in LOS in the vicinity of the incident, standing queues will not form, and traffic quickly returns to LOS A on passing the disruption.	Primarily free flow-operations at average travel speeds usually within 90 percent of the free flow speed. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A. The level of comfort and convenience provided is somewhat less than at LOS A, because the presence of others in the traffic stream begins to affect individual behavior.	Reasonably free-flow conditions, and speeds of over 57 mph are maintained on 70-mph freeway elements. The average spacing between vehicles is about 260 ft, or 13 car-lengths, with a maximum density of 20 cars/mi/ln. The ability to maneuver within the traffic stream is only slightly restricted. The effects of minor incidents and breakdowns are still easily absorbed, though local deterioration in service would be more severe than for LOS A.	Unimpeded operations at average travel speeds usually within 70 percent of the free flow speed. The ability to maneuver within the traffic stream is slightly restricted and stopped delays are not bothersome.
C	Stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.	Stable operations, but flows approach the range in which small increases in flow will cause substantial deterioration in service. Average travel speeds are still over 54 mph. Freedom to maneuver within the traffic stream is noticeably restricted at LOS C, and lane changes require additional care and vigilance by the driver. Average spacings are in the range of 175 ft, or 9 car-lengths, with a maximum density of 30/cars/mi/ln. Minor incidents may still be absorbed, but the local deterioration in service will be substantial. Queues may be expected to form behind any significant blockage. Additional vigilance by driver required for safe operation.	Stable operations. Ability to maneuver and change lanes in midblock locations may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds of about 50 percent of the average free flow speed.

D	High-density, but stable, flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.	Borders on unstable flow. In this range, small increases in flow cause substantial deterioration in service. Average travel speeds of 46 mph or more can still be maintained on 70-mph freeway elements. Freedom to maneuver within the traffic stream is severely limited. Even minor incidents can be expected to create substantial queuing, because the traffic stream has little space to absorb disruptions. Average spacings are about 125 ft, or 6 car-lengths, with a maximum density of 42 cars/mi/ln.	Borders on a range on which small increases in flow may cause substantial increases in approach delay and, hence, decreases in arterial speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40 percent of free flow speed.
E	Operating conditions at or near the capacity level. All speeds are reduced to a low but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.	The boundary between LOS D and LOS E describes operation at capacity. Operations in this level are extremely unstable, because there are virtually no usable gaps in the traffic stream. Vehicles are spaced at approximately 80 ft, or 4 car-lengths, at relatively uniform headways. This, however, represents the minimum spacing at which stable flow can be accommodated. Any disruption to the traffic stream, such as a vehicle entering from a ramp, or a vehicle changing lanes, causes following vehicles to give way to admit the vehicle. At capacity, the traffic stream has no ability to dissipate even the most minor disruptions. Any incident can be expected to produce a serious breakdown with extensive queuing. The range of flows encompassed by LOS E is relatively small compared to other levels, but reflects a substantial deterioration in service. Maneuverability within the traffic stream is extremely limited. Average travel speeds at capacity are approximately 30 mph.	Significant approach delays and average travel speeds of one-third the free flow speed or lower. Such operations are caused by some combination or adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.
F	Level-of-service F. Forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Arrival flow exceeds discharge flow.	Level F describes forced or breakdown flow. Such conditions generally exist within queues forming behind breakdown points. Breakdown occurs when the ratio of actual arrival flow rate to actual capacity or the forecasted flow rate to estimated capacity exceeds 1.00. Operations at such a point will generally be at or near capacity, and downstream operations may be better as vehicles pass the bottleneck (assuming that there are no additional downstream problems). The LOS F operations observed within a queue are the result of a breakdown or bottleneck at a downstream point.	Arterial flow at extremely low speeds below one-third to one-quarter of the free flow speed. Intersection congestion is likely at critical signalized locations, with high approach delays resulting. Adverse progression is frequently a contributor to this condition.

*Source: "Highway Capacity Manual, Special Report 209" Transportation Research Board, Washington D.C., 1985

APPENDIX B

TRAFFIC COUNT WORKSHEETS

Location:Del Prado btn. Blue Lntrn.-Amber Lntrn. Volumes for Tue. 2/1/00 00830013

AM Period	EB				PM Period	EB			
12:00-12:15	12				12:00-12:15	194			
12:15-12:30	12				12:15-12:30	186			
12:30-12:45	10				12:30-12:45	159			
12:45-1:00	12	46	0	46	12:45-1:00	195	734	0	734
1:00-1:15	12				1:00-1:15	203			
1:15-1:30	5				1:15-1:30	206			
1:30-1:45	6				1:30-1:45	226			
1:45-2:00	6	29	0	29	1:45-2:00	198	833	0	833
2:00-2:15	6				2:00-2:15	208			
2:15-2:30	8				2:15-2:30	201			
2:30-2:45	4				2:30-2:45	224			
2:45-3:00	2	20	0	20	2:45-3:00	199	832	0	832
3:00-3:15	3				3:00-3:15	216			
3:15-3:30	4				3:15-3:30	205			
3:30-3:45	5				3:30-3:45	215			
3:45-4:00	2	14	0	14	3:45-4:00	201	837	0	837
4:00-4:15	10				4:00-4:15	299			
4:15-4:30	9				4:15-4:30	309			
4:30-4:45	7				4:30-4:45	304			
4:45-5:00	20	46	0	46	4:45-5:00	303	1215	0	1215
5:00-5:15	24				5:00-5:15	297			
5:15-5:30	35				5:15-5:30	304			
5:30-5:45	35				5:30-5:45	310			
5:45-6:00	64	158	0	158	5:45-6:00	298	1209	0	1209
6:00-6:15	88				6:00-6:15	173			
6:15-6:30	93				6:15-6:30	178			
6:30-6:45	97				6:30-6:45	152			
6:45-7:00	99	377	0	377	6:45-7:00	155	658	0	658
7:00-7:15	181				7:00-7:15	129			
7:15-7:30	187				7:15-7:30	138			
7:30-7:45	205				7:30-7:45	110			
7:45-8:00	199	772	0	772	7:45-8:00	123	500	0	500
8:00-8:15	187				8:00-8:15	87			
8:15-8:30	198				8:15-8:30	79			
8:30-8:45	209				8:30-8:45	97			
8:45-9:00	186	780	0	780	8:45-9:00	87	350	0	350
9:00-9:15	187				9:00-9:15	82			
9:15-9:30	179				9:15-9:30	75			
9:30-9:45	195				9:30-9:45	70			
9:45-10:00	179	740	0	740	9:45-10:00	86	313	0	313
10:00-10:15	152				10:00-10:15	59			
10:15-10:30	159				10:15-10:30	65			
10:30-10:45	161				10:30-10:45	38			
10:45-11:00	153	625	0	625	10:45-11:00	35	197	0	197
11:00-11:15	287				11:00-11:15	33			
11:15-11:30	287				11:15-11:30	20			
11:30-11:45	197				11:30-11:45	26			
11:45-12:00	176	947	0	947	11:45-12:00	17	96	0	96
Total Vol	4554		0	4554		7774		0	7774
Daily Totals						12328		0	12328

Location:Blue Lantern btn PCH-La Crest Dana Point Volumes for Tue. 2/1/00 00830003

AM Period	NB		SB			PM Period	NB		SB		
12:00-12:15	1		3			12:00-12:15	14		20		
12:15-12:30	0		3			12:15-12:30	9		13		
12:30-12:45	0		1			12:30-12:45	10		13		
12:45-1:00	0	1	1	8	9	12:45-1:00	17	50	12	58	108
1:00-1:15	0		1			1:00-1:15	12		24		
1:15-1:30	0		0			1:15-1:30	14		15		
1:30-1:45	0		0			1:30-1:45	17		18		
1:45-2:00	0	0	0	1	1	1:45-2:00	12	55	10	67	122
2:00-2:15	0		0			2:00-2:15	6		12		
2:15-2:30	0		1			2:15-2:30	10		16		
2:30-2:45	0		0			2:30-2:45	6		20		
2:45-3:00	0	0	0	1	1	2:45-3:00	13	35	17	65	100
3:00-3:15	0		0			3:00-3:15	7		19		
3:15-3:30	0		0			3:15-3:30	9		15		
3:30-3:45	0		1			3:30-3:45	10		16		
3:45-4:00	0	0	0	1	1	3:45-4:00	15	41	21	71	112
4:00-4:15	2		1			4:00-4:15	18		17		
4:15-4:30	2		0			4:15-4:30	12		16		
4:30-4:45	0		0			4:30-4:45	13		21		
4:45-5:00	0	4	0	1	5	4:45-5:00	17	60	18	72	132
5:00-5:15	0		0			5:00-5:15	11		20		
5:15-5:30	1		1			5:15-5:30	18		23		
5:30-5:45	0		0			5:30-5:45	15		23		
5:45-6:00	1	2	3	4	6	5:45-6:00	5	49	26	92	141
6:00-6:15	1		0			6:00-6:15	5		13		
6:15-6:30	4		0			6:15-6:30	1		16		
6:30-6:45	6		4			6:30-6:45	5		14		
6:45-7:00	10	21	1	5	26	6:45-7:00	4	15	4	47	62
7:00-7:15	8		5			7:00-7:15	8		12		
7:15-7:30	12		8			7:15-7:30	2		10		
7:30-7:45	16		9			7:30-7:45	5		8		
7:45-8:00	14	50	17	39	89	7:45-8:00	1	16	9	39	55
8:00-8:15	16		14			8:00-8:15	4		7		
8:15-8:30	29		15			8:15-8:30	1		5		
8:30-8:45	21		19			8:30-8:45	3		10		
8:45-9:00	20	86	9	57	143	8:45-9:00	1	9	5	27	36
9:00-9:15	7		7			9:00-9:15	4		6		
9:15-9:30	7		7			9:15-9:30	2		10		
9:30-9:45	8		12			9:30-9:45	3		4		
9:45-10:00	11	33	7	33	66	9:45-10:00	1	10	5	25	35
10:00-10:15	16		5			10:00-10:15	2		5		
10:15-10:30	9		12			10:15-10:30	0		1		
10:30-10:45	15		14			10:30-10:45	2		1		
10:45-11:00	2	42	17	48	90	10:45-11:00	0	4	7	14	18
11:00-11:15	17		9			11:00-11:15	2		2		
11:15-11:30	20		11			11:15-11:30	0		4		
11:30-11:45	13		18			11:30-11:45	1		1		
11:45-12:00	10	60	22	60	120	11:45-12:00	0	3	1	8	11
Total Vol	299		258		557		347		585		932
Daily Totals							646		843		1489

Location:PCH btn Del Prdo-Del Obp Dana Point			Volumes for Tue. 2/1/00							00830001	
AM Period	EB		WB			PM Period	EB		WB		
12:00-12:15	22		24			12:00-12:15	268		268		
12:15-12:30	29		27			12:15-12:30	260		286		
12:30-12:45	20		33			12:30-12:45	242		299		
12:45-1:00	21	92	18	102	194	12:45-1:00	305	1075	278	1131	2206
1:00-1:15	14		16			1:00-1:15	295		317		
1:15-1:30	18		15			1:15-1:30	308		290		
1:30-1:45	10		12			1:30-1:45	278		322		
1:45-2:00	6	48	8	51	99	1:45-2:00	268	1149	293	1222	2371
2:00-2:15	8		11			2:00-2:15	284		306		
2:15-2:30	10		4			2:15-2:30	304		284		
2:30-2:45	12		9			2:30-2:45	268		304		
2:45-3:00	8	38	11	35	73	2:45-3:00	288	1144	306	1200	2344
3:00-3:15	6		14			3:00-3:15	311		308		
3:15-3:30	7		6			3:15-3:30	317		311		
3:30-3:45	4		9			3:30-3:45	313		270		
3:45-4:00	3	20	5	34	54	3:45-4:00	312	1253	314	1203	2456
4:00-4:15	7		7			4:00-4:15	349		312		
4:15-4:30	4		11			4:15-4:30	343		313		
4:30-4:45	14		8			4:30-4:45	342		379		
4:45-5:00	10	35	13	39	74	4:45-5:00	343	1377	324	1328	2705
5:00-5:15	15		25			5:00-5:15	333		350		
5:15-5:30	36		32			5:15-5:30	365		328		
5:30-5:45	40		37			5:30-5:45	335		324		
5:45-6:00	61	152	49	143	295	5:45-6:00	361	1394	352	1354	2748
6:00-6:15	101		80			6:00-6:15	334		358		
6:15-6:30	112		94			6:15-6:30	301		334		
6:30-6:45	141		133			6:30-6:45	257		309		
6:45-7:00	138	492	169	476	968	6:45-7:00	228	1120	278	1279	2399
7:00-7:15	247		257			7:00-7:15	217		249		
7:15-7:30	249		249			7:15-7:30	205		225		
7:30-7:45	303		298			7:30-7:45	160		214		
7:45-8:00	329	1128	306	1110	2238	7:45-8:00	162	744	184	872	1616
8:00-8:15	391		358			8:00-8:15	153		195		
8:15-8:30	337		331			8:15-8:30	141		174		
8:30-8:45	354		335			8:30-8:45	132		136		
8:45-9:00	343	1425	306	1330	2755	8:45-9:00	120	546	138	643	1189
9:00-9:15	293		266			9:00-9:15	131		138		
9:15-9:30	258		281			9:15-9:30	133		154		
9:30-9:45	260		243			9:30-9:45	139		137		
9:45-10:00	275	1086	265	1055	2141	9:45-10:00	101	504	117	546	1050
10:00-10:15	279		237			10:00-10:15	97		94		
10:15-10:30	262		249			10:15-10:30	95		88		
10:30-10:45	230		243			10:30-10:45	86		89		
10:45-11:00	215	986	254	983	1969	10:45-11:00	82	360	76	347	707
11:00-11:15	221		280			11:00-11:15	55		60		
11:15-11:30	238		232			11:15-11:30	61		53		
11:30-11:45	257		249			11:30-11:45	47		43		
11:45-12:00	273	989	290	1051	2040	11:45-12:00	45	208	40	196	404
Total Vol	6491		6409		12900		10874		11321		22195
Daily Totals							17365		17730		35095

Location:PCH btn Del Prado-Golden Lan Dana Point			Volumes for Tue. 2/1/00			00830004			
AM Period		WB			PM Period		WB		
12:00-12:15		17			12:00-12:15		232		
12:15-12:30		13			12:15-12:30		276		
12:30-12:45		19			12:30-12:45		244		
12:45-1:00	0	12	61	61	12:45-1:00	0	236	988	988
1:00-1:15		7			1:00-1:15		276		
1:15-1:30		10			1:15-1:30		269		
1:30-1:45		8			1:30-1:45		259		
1:45-2:00	0	6	31	31	1:45-2:00	0	284	1088	1088
2:00-2:15		8			2:00-2:15		267		
2:15-2:30		4			2:15-2:30		246		
2:30-2:45		10			2:30-2:45		289		
2:45-3:00	0	4	26	26	2:45-3:00	0	277	1079	1079
3:00-3:15		3			3:00-3:15		236		
3:15-3:30		2			3:15-3:30		263		
3:30-3:45		6			3:30-3:45		241		
3:45-4:00	0	3	14	14	3:45-4:00	0	273	1013	1013
4:00-4:15		5			4:00-4:15		281		
4:15-4:30		8			4:15-4:30		254		
4:30-4:45		9			4:30-4:45		294		
4:45-5:00	0	19	41	41	4:45-5:00	0	261	1090	1090
5:00-5:15		19			5:00-5:15		286		
5:15-5:30		29			5:15-5:30		261		
5:30-5:45		44			5:30-5:45		252		
5:45-6:00	0	70	162	162	5:45-6:00	0	256	1055	1055
6:00-6:15		86			6:00-6:15		226		
6:15-6:30		115			6:15-6:30		233		
6:30-6:45		168			6:30-6:45		205		
6:45-7:00	0	194	563	563	6:45-7:00	0	226	890	890
7:00-7:15		224			7:00-7:15		169		
7:15-7:30		240			7:15-7:30		186		
7:30-7:45		249			7:30-7:45		145		
7:45-8:00	0	302	1015	1015	7:45-8:00	0	147	647	647
8:00-8:15		319			8:00-8:15		140		
8:15-8:30		290			8:15-8:30		123		
8:30-8:45		298			8:30-8:45		107		
8:45-9:00	0	255	1162	1162	8:45-9:00	0	105	475	475
9:00-9:15		234			9:00-9:15		117		
9:15-9:30		217			9:15-9:30		109		
9:30-9:45		223			9:30-9:45		93		
9:45-10:00	0	204	878	878	9:45-10:00	0	81	400	400
10:00-10:15		241			10:00-10:15		83		
10:15-10:30		182			10:15-10:30		57		
10:30-10:45		242			10:30-10:45		51		
10:45-11:00	0	226	891	891	10:45-11:00	0	49	240	240
11:00-11:15		235			11:00-11:15		38		
11:15-11:30		238			11:15-11:30		35		
11:30-11:45		240			11:30-11:45		27		
11:45-12:00	0	243	956	956	11:45-12:00	0	28	128	128
Total Vol	0	5800		5800		0	9093		9093
Daily Totals						0	14893		14893

Location:PCH e/o Selva Rd			Dana Point			Volumes for Tue. 2/1/00				00830007	
AM Period	EB		WB			PM Period	EB		WB		
12:00-12:15	10		20			12:00-12:15	216		173		
12:15-12:30	15		8			12:15-12:30	246		179		
12:30-12:45	9		13			12:30-12:45	239		205		
12:45-1:00	12	46	8	49	95	12:45-1:00	197	898	185	742	1640
1:00-1:15	11		9			1:00-1:15	174		190		
1:15-1:30	11		7			1:15-1:30	173		192		
1:30-1:45	12		10			1:30-1:45	188		189		
1:45-2:00	5	39	5	31	70	1:45-2:00	202	737	238	809	1546
2:00-2:15	6		6			2:00-2:15	210		212		
2:15-2:30	6		3			2:15-2:30	180		213		
2:30-2:45	10		7			2:30-2:45	175		181		
2:45-3:00	9	31	8	24	55	2:45-3:00	223	788	206	812	1600
3:00-3:15	5		5			3:00-3:15	229		192		
3:15-3:30	3		-2			3:15-3:30	238		190		
3:30-3:45	4		3			3:30-3:45	243		176		
3:45-4:00	1	13	2	12	25	3:45-4:00	253	963	183	741	1704
4:00-4:15	3		3			4:00-4:15	278		251		
4:15-4:30	4		4			4:15-4:30	297		280		
4:30-4:45	9		7			4:30-4:45	294		249		
4:45-5:00	8	24	12	26	50	4:45-5:00	284	1153	256	1036	2189
5:00-5:15	7		19			5:00-5:15	271		241		
5:15-5:30	15		22			5:15-5:30	282		258		
5:30-5:45	30		27			5:30-5:45	276		236		
5:45-6:00	38	90	43	111	201	5:45-6:00	321	1150	249	984	2134
6:00-6:15	51		68			6:00-6:15	193		173		
6:15-6:30	60		86			6:15-6:30	198		189		
6:30-6:45	68		122			6:30-6:45	200		200		
6:45-7:00	75	254	146	422	676	6:45-7:00	145	736	151	713	1449
7:00-7:15	227		226			7:00-7:15	106		132		
7:15-7:30	138		241			7:15-7:30	133		133		
7:30-7:45	181		249			7:30-7:45	121		125		
7:45-8:00	188	734	254	970	1704	7:45-8:00	108	468	121	511	979
8:00-8:15	249		296			8:00-8:15	96		108		
8:15-8:30	218		282			8:15-8:30	87		94		
8:30-8:45	224		273			8:30-8:45	76		82		
8:45-9:00	232	923	262	1113	2036	8:45-9:00	65	324	84	368	692
9:00-9:15	175		225			9:00-9:15	71		80		
9:15-9:30	189		193			9:15-9:30	72		67		
9:30-9:45	213		168			9:30-9:45	67		94		
9:45-10:00	183	760	199	785	1545	9:45-10:00	49	259	61	302	561
10:00-10:15	198		182			10:00-10:15	72		65		
10:15-10:30	188		183			10:15-10:30	56		59		
10:30-10:45	165		172			10:30-10:45	39		44		
10:45-11:00	179	730	203	740	1470	10:45-11:00	36	203	45	213	416
11:00-11:15	184		192			11:00-11:15	40		28		
11:15-11:30	190		178			11:15-11:30	40		28		
11:30-11:45	207		199			11:30-11:45	28		27		
11:45-12:00	207	788	187	756	1544	11:45-12:00	23	131	13	96	227
Total Vol	4432		5039		9471		7810		7327		15137
Daily Totals							12242		12366		24608

Location:PCH w/o Selva Rd				Dana Point		Volumes for Tue. 2/1/00				00830008	
AM Period	EB		WB			PM Period	EB		WB		
12:00-12:15	16		8			12:00-12:15	254		187		
12:15-12:30	11		10			12:15-12:30	214		171		
12:30-12:45	12		7			12:30-12:45	219		207		
12:45-1:00	15	54	7	32	86	12:45-1:00	177	864	176	741	1605
1:00-1:15	17		9			1:00-1:15	179		189		
1:15-1:30	9		6			1:15-1:30	193		197		
1:30-1:45	7		6			1:30-1:45	217		202		
1:45-2:00	6	39	6	27	66	1:45-2:00	185	774	226	814	1588
2:00-2:15	6		5			2:00-2:15	178		211		
2:15-2:30	7		9			2:15-2:30	214		202		
2:30-2:45	6		5			2:30-2:45	223		220		
2:45-3:00	4	23	7	26	49	2:45-3:00	232	847	209	842	1689
3:00-3:15	3		0			3:00-3:15	268		176		
3:15-3:30	4		3			3:15-3:30	255		175		
3:30-3:45	3		3			3:30-3:45	251		191		
3:45-4:00	2	12	8	14	26	3:45-4:00	263	1037	204	746	1783
4:00-4:15	8		6			4:00-4:15	349		288		
4:15-4:30	7		5			4:15-4:30	347		262		
4:30-4:45	8		18			4:30-4:45	305		222		
4:45-5:00	12	35	24	53	88	4:45-5:00	355	1356	257	1029	2385
5:00-5:15	18		28			5:00-5:15	332		253		
5:15-5:30	23		34			5:15-5:30	322		265		
5:30-5:45	39		62			5:30-5:45	363		233		
5:45-6:00	44	124	84	208	332	5:45-6:00	287	1304	220	971	2275
6:00-6:15	60		111			6:00-6:15	258		218		
6:15-6:30	58		153			6:15-6:30	256		188		
6:30-6:45	71		181			6:30-6:45	197		165		
6:45-7:00	107	296	222	667	963	6:45-7:00	188	899	149	720	1619
7:00-7:15	138		271			7:00-7:15	125		111		
7:15-7:30	147		286			7:15-7:30	133		117		
7:30-7:45	180		296			7:30-7:45	102		121		
7:45-8:00	213	678	353	1206	1884	7:45-8:00	111	471	83	432	903
8:00-8:15	230		286			8:00-8:15	96		88		
8:15-8:30	217		279			8:15-8:30	85		63		
8:30-8:45	194		279			8:30-8:45	76		93		
8:45-9:00	178	819	254	1098	1917	8:45-9:00	80	337	73	317	654
9:00-9:15	214		211			9:00-9:15	83		70		
9:15-9:30	206		177			9:15-9:30	62		67		
9:30-9:45	194		190			9:30-9:45	85		58		
9:45-10:00	188	802	183	761	1563	9:45-10:00	75	305	63	258	563
10:00-10:15	177		193			10:00-10:15	56		51		
10:15-10:30	179		185			10:15-10:30	51		50		
10:30-10:45	189		196			10:30-10:45	50		31		
10:45-11:00	170	715	194	768	1483	10:45-11:00	49	206	28	160	366
11:00-11:15	188		184			11:00-11:15	41		25		
11:15-11:30	201		187			11:15-11:30	27		22		
11:30-11:45	219		179			11:30-11:45	32		10		
11:45-12:00	220	828	204	754	1582	11:45-12:00	22	122	20	77	199
Total Vol	4425		5614		10039		8522		7107		15629
Daily Totals							12947		12721		25668

Location:PCH btn Niguel-Crown Vl			Dana Point			Volumes for Tue. 2/1/00				00830002	
AM Period	EB		WB			PM Period	EB		WB		
12:00-12:15	11		10			12:00-12:15	205		190		
12:15-12:30	13		7			12:15-12:30	200		210		
12:30-12:45	7		12			12:30-12:45	188		182		
12:45-1:00	16	47	8	37	84	12:45-1:00	207	800	200	782	1582
1:00-1:15	11		5			1:00-1:15	187		215		
1:15-1:30	11		8			1:15-1:30	181		195		
1:30-1:45	9		8			1:30-1:45	178		211		
1:45-2:00	6	37	4	25	62	1:45-2:00	220	766	222	843	1609
2:00-2:15	3		6			2:00-2:15	197		222		
2:15-2:30	1		4			2:15-2:30	206		212		
2:30-2:45	7		8			2:30-2:45	225		190		
2:45-3:00	6	17	2	20	37	2:45-3:00	249	877	235	859	1736
3:00-3:15	2		4			3:00-3:15	240		195		
3:15-3:30	2		0			3:15-3:30	263		234		
3:30-3:45	3		2			3:30-3:45	235		183		
3:45-4:00	4	11	3	9	20	3:45-4:00	235	973	216	828	1801
4:00-4:15	2		9			4:00-4:15	289		227		
4:15-4:30	9		6			4:15-4:30	305		250		
4:30-4:45	7		6			4:30-4:45	277		247		
4:45-5:00	8	26	18	39	65	4:45-5:00	291	1162	214	938	2100
5:00-5:15	14		18			5:00-5:15	292		219		
5:15-5:30	16		30			5:15-5:30	272		215		
5:30-5:45	29		46			5:30-5:45	336		211		
5:45-6:00	34	93	73	167	260	5:45-6:00	305	1205	227	872	2077
6:00-6:15	34		78			6:00-6:15	281		196		
6:15-6:30	49		120			6:15-6:30	252		179		
6:30-6:45	39		176			6:30-6:45	197		149		
6:45-7:00	70	192	218	592	784	6:45-7:00	221	951	158	682	1633
7:00-7:15	105		275			7:00-7:15	148		120		
7:15-7:30	126		340			7:15-7:30	138		107		
7:30-7:45	123		302			7:30-7:45	129		111		
7:45-8:00	184	538	338	1255	1793	7:45-8:00	107	522	95	433	955
8:00-8:15	165		371			8:00-8:15	109		87		
8:15-8:30	156		291			8:15-8:30	99		88		
8:30-8:45	164		271			8:30-8:45	115		79		
8:45-9:00	183	668	296	1229	1897	8:45-9:00	111	434	72	326	760
9:00-9:15	145		228			9:00-9:15	96		73		
9:15-9:30	195		199			9:15-9:30	92		67		
9:30-9:45	163		208			9:30-9:45	97		60		
9:45-10:00	181	684	170	805	1489	9:45-10:00	87	372	65	265	637
10:00-10:15	150		204			10:00-10:15	80		53		
10:15-10:30	157		171			10:15-10:30	90		43		
10:30-10:45	164		195			10:30-10:45	64		41		
10:45-11:00	151	622	189	759	1381	10:45-11:00	66	300	28	165	465
11:00-11:15	173		197			11:00-11:15	35		28		
11:15-11:30	184		177			11:15-11:30	43		26		
11:30-11:45	207		187			11:30-11:45	32		18		
11:45-12:00	208	772	190	751	1523	11:45-12:00	32	142	22	94	236
Total Vol	3707		5688		9395		8504		7087		15591
Daily Totals							12211		12775		24986

Location:Golden Lntrn. btn. Del Prado-D.P. Harbor Volumes for Tue. 2/1/00 00830010

AM Period	NB		SB			PM Period	NB		SB		
12:00-12:15	8		8			12:00-12:15	86		104		
12:15-12:30	4		0			12:15-12:30	56		102		
12:30-12:45	0		1			12:30-12:45	86		81		
12:45-1:00	3	15	3	12	27	12:45-1:00	91	319	105	392	711
1:00-1:15	1		2			1:00-1:15	89		96		
1:15-1:30	0		0			1:15-1:30	58		58		
1:30-1:45	0		2			1:30-1:45	84		55		
1:45-2:00	0	1	2	6	7	1:45-2:00	80	311	61	270	581
2:00-2:15	2		3			2:00-2:15	70		62		
2:15-2:30	0		2			2:15-2:30	82		59		
2:30-2:45	4		1			2:30-2:45	65		62		
2:45-3:00	0	6	2	8	14	2:45-3:00	76	293	68	251	544
3:00-3:15	0		1			3:00-3:15	81		69		
3:15-3:30	1		1			3:15-3:30	53		68		
3:30-3:45	1		2			3:30-3:45	63		69		
3:45-4:00	1	3	3	7	10	3:45-4:00	78	275	57	263	538
4:00-4:15	1		1			4:00-4:15	79		67		
4:15-4:30	2		0			4:15-4:30	84		63		
4:30-4:45	1		2			4:30-4:45	90		71		
4:45-5:00	4	8	14	17	25	4:45-5:00	85	338	50	251	589
5:00-5:15	6		7			5:00-5:15	77		80		
5:15-5:30	7		6			5:15-5:30	94		72		
5:30-5:45	7		6			5:30-5:45	89		63		
5:45-6:00	4	24	23	42	66	5:45-6:00	73	333	64	279	612
6:00-6:15	10		23			6:00-6:15	80		47		
6:15-6:30	11		26			6:15-6:30	61		45		
6:30-6:45	10		23			6:30-6:45	46		41		
6:45-7:00	23	54	43	115	169	6:45-7:00	47	234	45	178	412
7:00-7:15	20		24			7:00-7:15	55		31		
7:15-7:30	33		46			7:15-7:30	43		50		
7:30-7:45	47		51			7:30-7:45	41		31		
7:45-8:00	39	139	54	175	314	7:45-8:00	49	188	36	148	336
8:00-8:15	53		71			8:00-8:15	43		18		
8:15-8:30	43		48			8:15-8:30	42		19		
8:30-8:45	45		50			8:30-8:45	26		22		
8:45-9:00	42	183	71	240	423	8:45-9:00	30	141	13	72	213
9:00-9:15	47		69			9:00-9:15	27		15		
9:15-9:30	49		61			9:15-9:30	32		9		
9:30-9:45	55		70			9:30-9:45	35		11		
9:45-10:00	50	201	67	267	468	9:45-10:00	13	107	7	42	149
10:00-10:15	52		62			10:00-10:15	14		10		
10:15-10:30	60		72			10:15-10:30	13		9		
10:30-10:45	51		81			10:30-10:45	12		9		
10:45-11:00	69	232	53	268	500	10:45-11:00	5	44	12	40	84
11:00-11:15	54		54			11:00-11:15	9		1		
11:15-11:30	68		74			11:15-11:30	6		2		
11:30-11:45	74		60			11:30-11:45	3		3		
11:45-12:00	62	258	87	275	533	11:45-12:00	9	27	2	8	35
Total Vol	1124		1432		2556		2610		2194		4804
Daily Totals							3734		3626		7360

Location:Selva Rd. s/o PCH			Dana Point			Volumes for Tue. 2/1/00			00830009		
AM Period	NB		SB			PM Period	NB		SB		
12:00-12:15	2		1			12:00-12:15	21		19		
12:15-12:30	6		3			12:15-12:30	29		22		
12:30-12:45	1		1			12:30-12:45	17		23		
12:45-1:00	5	14	0	5	19	12:45-1:00	22	89	20	84	173
1:00-1:15	0		0			1:00-1:15	22		26		
1:15-1:30	0		1			1:15-1:30	21		19		
1:30-1:45	2		0			1:30-1:45	30		18		
1:45-2:00	0	2	0	1	3	1:45-2:00	32	105	29	92	197
2:00-2:15	0		1			2:00-2:15	34		28		
2:15-2:30	2		5			2:15-2:30	26		23		
2:30-2:45	2		2			2:30-2:45	27		26		
2:45-3:00	1	5	1	9	14	2:45-3:00	31	118	24	101	219
3:00-3:15	0		0			3:00-3:15	34		27		
3:15-3:30	0		0			3:15-3:30	29		24		
3:30-3:45	0		0			3:30-3:45	25		27		
3:45-4:00	0	0	2	2	2	3:45-4:00	41	129	29	107	236
4:00-4:15	0		0			4:00-4:15	30		30		
4:15-4:30	3		1			4:15-4:30	26		29		
4:30-4:45	1		1			4:30-4:45	35		19		
4:45-5:00	1	5	3	5	10	4:45-5:00	49	140	37	115	255
5:00-5:15	2		4			5:00-5:15	38		33		
5:15-5:30	3		7			5:15-5:30	42		27		
5:30-5:45	1		8			5:30-5:45	30		34		
5:45-6:00	2	8	12	31	39	5:45-6:00	40	150	29	123	273
6:00-6:15	4		8			6:00-6:15	29		20		
6:15-6:30	3		18			6:15-6:30	27		10		
6:30-6:45	9		22			6:30-6:45	33		17		
6:45-7:00	6	22	20	68	90	6:45-7:00	28	117	13	60	177
7:00-7:15	10		33			7:00-7:15	24		15		
7:15-7:30	11		33			7:15-7:30	18		14		
7:30-7:45	11		30			7:30-7:45	17		15		
7:45-8:00	11	43	53	149	192	7:45-8:00	29	88	12	56	144
8:00-8:15	16		41			8:00-8:15	13		4		
8:15-8:30	18		34			8:15-8:30	26		11		
8:30-8:45	27		34			8:30-8:45	11		13		
8:45-9:00	17	78	28	137	215	8:45-9:00	8	58	6	34	92
9:00-9:15	22		25			9:00-9:15	17		9		
9:15-9:30	15		20			9:15-9:30	12		7		
9:30-9:45	23		24			9:30-9:45	20		5		
9:45-10:00	24	84	22	91	175	9:45-10:00	18	67	10	31	98
10:00-10:15	14		24			10:00-10:15	12		5		
10:15-10:30	26		29			10:15-10:30	13		3		
10:30-10:45	26		26			10:30-10:45	15		6		
10:45-11:00	14	80	21	100	180	10:45-11:00	5	45	3	17	62
11:00-11:15	17		18			11:00-11:15	5		1		
11:15-11:30	31		29			11:15-11:30	5		3		
11:30-11:45	23		23			11:30-11:45	3		1		
11:45-12:00	26	97	19	89	186	11:45-12:00	12	25	1	6	31
Total Vol	438		687		1125		1131		826		1957
Daily Totals							1569		1513		3082

Location:Selva Rd. n/o PCH				Dana Point		Volumes for Tue. 2/1/00				00830005	
AM Period	NB		SB			PM Period	NB		SB		
12:00-12:15	3		0			12:00-12:15	35		48		
12:15-12:30	0		1			12:15-12:30	34		35		
12:30-12:45	3		0			12:30-12:45	35		39		
12:45-1:00	1	7	1	2	9	12:45-1:00	33	137	46	168	305
1:00-1:15	2		1			1:00-1:15	39		40		
1:15-1:30	5		1			1:15-1:30	32		35		
1:30-1:45	4		3			1:30-1:45	31		21		
1:45-2:00	0	11	0	5	16	1:45-2:00	37	139	46	142	281
2:00-2:15	0		0			2:00-2:15	36		33		
2:15-2:30	1		0			2:15-2:30	33		39		
2:30-2:45	0		4			2:30-2:45	53		32		
2:45-3:00	1	2	0	4	6	2:45-3:00	45	167	66	170	337
3:00-3:15	0		0			3:00-3:15	36		52		
3:15-3:30	0		0			3:15-3:30	34		34		
3:30-3:45	1		0			3:30-3:45	42		35		
3:45-4:00	0	1	2	2	3	3:45-4:00	46	158	31	152	310
4:00-4:15	0		0			4:00-4:15	51		47		
4:15-4:30	0		1			4:15-4:30	42		31		
4:30-4:45	2		0			4:30-4:45	46		26		
4:45-5:00	1	3	3	4	7	4:45-5:00	43	182	33	137	319
5:00-5:15	1		5			5:00-5:15	44		44		
5:15-5:30	0		7			5:15-5:30	47		42		
5:30-5:45	6		8			5:30-5:45	46		30		
5:45-6:00	2	9	14	34	43	5:45-6:00	53	190	37	153	343
6:00-6:15	5		12			6:00-6:15	39		26		
6:15-6:30	3		15			6:15-6:30	49		36		
6:30-6:45	2		17			6:30-6:45	41		22		
6:45-7:00	6	16	33	77	93	6:45-7:00	31	160	24	108	268
7:00-7:15	16		28			7:00-7:15	38		25		
7:15-7:30	16		52			7:15-7:30	31		18		
7:30-7:45	22		50			7:30-7:45	24		18		
7:45-8:00	29	83	74	204	287	7:45-8:00	29	122	8	69	191
8:00-8:15	39		62			8:00-8:15	20		17		
8:15-8:30	59		72			8:15-8:30	20		9		
8:30-8:45	71		64			8:30-8:45	13		13		
8:45-9:00	28	197	57	255	452	8:45-9:00	12	65	10	49	114
9:00-9:15	26		31			9:00-9:15	27		7		
9:15-9:30	31		37			9:15-9:30	15		13		
9:30-9:45	23		40			9:30-9:45	10		5		
9:45-10:00	41	121	39	147	268	9:45-10:00	12	64	13	38	102
10:00-10:15	15		44			10:00-10:15	14		6		
10:15-10:30	31		49			10:15-10:30	12		8		
10:30-10:45	28		25			10:30-10:45	12		0		
10:45-11:00	18	92	35	153	245	10:45-11:00	9	47	2	16	63
11:00-11:15	22		33			11:00-11:15	11		3		
11:15-11:30	34		40			11:15-11:30	7		2		
11:30-11:45	34		33			11:30-11:45	3		1		
11:45-12:00	38	128	37	143	271	11:45-12:00	4	25	3	9	34
Total Vol	670		1030		1700		1456		1211		2667
Daily Totals							2126		2241		4367

Location:Niguel Rd. btn. PCH-Stonehill					Dana Poi	Volumes for Tue. 2/1/00					00830011
AM Period	NB		SB			PM Period	NB		SB		
12:00-12:15	2		8			12:00-12:15	105		102		
12:15-12:30	2		6			12:15-12:30	96		94		
12:30-12:45	6		7			12:30-12:45	105		97		
12:45-1:00	2	12	2	23	35	12:45-1:00	82	388	101	394	782
1:00-1:15	4		6			1:00-1:15	96		96		
1:15-1:30	2		2			1:15-1:30	84		96		
1:30-1:45	0		4			1:30-1:45	104		87		
1:45-2:00	4	10	2	14	24	1:45-2:00	87	371	106	385	756
2:00-2:15	2		5			2:00-2:15	81		115		
2:15-2:30	0		4			2:15-2:30	111		125		
2:30-2:45	0		1			2:30-2:45	93		121		
2:45-3:00	6	8	7	17	25	2:45-3:00	104	389	113	474	863
3:00-3:15	1		1			3:00-3:15	124		116		
3:15-3:30	1		1			3:15-3:30	120		104		
3:30-3:45	0		2			3:30-3:45	124		105		
3:45-4:00	4	6	2	6	12	3:45-4:00	95	463	152	477	940
4:00-4:15	1		1			4:00-4:15	138		166		
4:15-4:30	1		3			4:15-4:30	147		174		
4:30-4:45	7		5			4:30-4:45	140		181		
4:45-5:00	13	22	5	14	36	4:45-5:00	141	566	180	701	1267
5:00-5:15	10		11			5:00-5:15	136		184		
5:15-5:30	19		3			5:15-5:30	130		198		
5:30-5:45	24		16			5:30-5:45	127		221		
5:45-6:00	41	94	16	46	140	5:45-6:00	123	516	155	758	1274
6:00-6:15	52		25			6:00-6:15	76		155		
6:15-6:30	83		33			6:15-6:30	75		116		
6:30-6:45	100		41			6:30-6:45	67		87		
6:45-7:00	124	359	58	157	516	6:45-7:00	49	267	80	438	705
7:00-7:15	145		66			7:00-7:15	48		81		
7:15-7:30	150		62			7:15-7:30	56		65		
7:30-7:45	149		105			7:30-7:45	41		62		
7:45-8:00	208	652	129	362	1014	7:45-8:00	30	175	50	258	433
8:00-8:15	176		93			8:00-8:15	32		58		
8:15-8:30	146		96			8:15-8:30	38		50		
8:30-8:45	138		89			8:30-8:45	30		51		
8:45-9:00	156	616	115	393	1009	8:45-9:00	24	124	54	213	337
9:00-9:15	128		92			9:00-9:15	31		49		
9:15-9:30	101		88			9:15-9:30	16		59		
9:30-9:45	97		91			9:30-9:45	31		40		
9:45-10:00	103	429	89	360	789	9:45-10:00	21	99	42	190	289
10:00-10:15	85		83			10:00-10:15	15		32		
10:15-10:30	95		80			10:15-10:30	13		27		
10:30-10:45	94		100			10:30-10:45	17		25		
10:45-11:00	86	360	97	360	720	10:45-11:00	18	63	23	107	170
11:00-11:15	103		104			11:00-11:15	9		21		
11:15-11:30	92		110			11:15-11:30	6		23		
11:30-11:45	99		106			11:30-11:45	11		18		
11:45-12:00	111	405	105	425	830	11:45-12:00	4	30	12	74	104
Total Vol	2973		2177		5150		3451		4469		7920
Daily Totals							6424		6646		13070

Location:Del Prado btn. PCH-Golden Lntrn. Dana Poi Volumes for Tue. 2/1/00 00830012

AM Period	EB				PM Period	EB			
12:00-12:15	35				12:00-12:15	273			
12:15-12:30	20				12:15-12:30	290			
12:30-12:45	22				12:30-12:45	310			
12:45-1:00	15	92	0	92	12:45-1:00	336	1209	0	1209
1:00-1:15	16				1:00-1:15	335			
1:15-1:30	14				1:15-1:30	294			
1:30-1:45	6				1:30-1:45	264			
1:45-2:00	9	45	0	45	1:45-2:00	308	1201	0	1201
2:00-2:15	9				2:00-2:15	307			
2:15-2:30	12				2:15-2:30	281			
2:30-2:45	9				2:30-2:45	307			
2:45-3:00	9	39	0	39	2:45-3:00	302	1197	0	1197
3:00-3:15	6				3:00-3:15	338			
3:15-3:30	4				3:15-3:30	345			
3:30-3:45	6				3:30-3:45	347			
3:45-4:00	4	20	0	20	3:45-4:00	321	1351	0	1351
4:00-4:15	6				4:00-4:15	340			
4:15-4:30	14				4:15-4:30	315			
4:30-4:45	10				4:30-4:45	315			
4:45-5:00	17	47	0	47	4:45-5:00	321	1291	0	1291
5:00-5:15	30				5:00-5:15	357			
5:15-5:30	39				5:15-5:30	292			
5:30-5:45	54				5:30-5:45	337			
5:45-6:00	84	207	0	207	5:45-6:00	286	1272	0	1272
6:00-6:15	83				6:00-6:15	285			
6:15-6:30	120				6:15-6:30	263			
6:30-6:45	113				6:30-6:45	251			
6:45-7:00	169	485	0	485	6:45-7:00	187	986	0	986
7:00-7:15	149				7:00-7:15	196			
7:15-7:30	229				7:15-7:30	193			
7:30-7:45	245				7:30-7:45	170			
7:45-8:00	250	873	0	873	7:45-8:00	156	715	0	715
8:00-8:15	274				8:00-8:15	135			
8:15-8:30	261				8:15-8:30	131			
8:30-8:45	252				8:30-8:45	106			
8:45-9:00	254	1041	0	1041	8:45-9:00	133	505	0	505
9:00-9:15	247				9:00-9:15	125			
9:15-9:30	263				9:15-9:30	122			
9:30-9:45	258				9:30-9:45	99			
9:45-10:00	288	1056	0	1056	9:45-10:00	89	435	0	435
10:00-10:15	284				10:00-10:15	100			
10:15-10:30	235				10:15-10:30	67			
10:30-10:45	240				10:30-10:45	66			
10:45-11:00	241	1000	0	1000	10:45-11:00	59	292	0	292
11:00-11:15	267				11:00-11:15	65			
11:15-11:30	262				11:15-11:30	46			
11:30-11:45	296				11:30-11:45	29			
11:45-12:00	301	1126	0	1126	11:45-12:00	36	176	0	176
Total Vol	6031		0	6031		10630		0	10630
Daily Totals						16661		0	16661

Location:PCH btn. Blue Lntrn.-Amber Lntrn D.P.					Volumes for Tue. 2/1/00					00830014
AM Period		WB			PM Period		WB			
12:00-12:15		13			12:00-12:15		276			
12:15-12:30		19			12:15-12:30		244			
12:30-12:45		12			12:30-12:45		236			
12:45-1:00	0	7	51	51	12:45-1:00	0	276	1032		1032
1:00-1:15		10			1:00-1:15		269			
1:15-1:30		8			1:15-1:30		259			
1:30-1:45		6			1:30-1:45		284			
1:45-2:00	0	8	32	32	1:45-2:00	0	267	1079		1079
2:00-2:15		4			2:00-2:15		246			
2:15-2:30		10			2:15-2:30		289			
2:30-2:45		4			2:30-2:45		277			
2:45-3:00	0	3	21	21	2:45-3:00	0	236	1048		1048
3:00-3:15		2			3:00-3:15		263			
3:15-3:30		6			3:15-3:30		241			
3:30-3:45		3			3:30-3:45		273			
3:45-4:00	0	5	16	16	3:45-4:00	0	281	1058		1058
4:00-4:15		8			4:00-4:15		254			
4:15-4:30		9			4:15-4:30		294			
4:30-4:45		19			4:30-4:45		261			
4:45-5:00	0	19	55	55	4:45-5:00	0	286	1095		1095
5:00-5:15		29			5:00-5:15		261			
5:15-5:30		44			5:15-5:30		252			
5:30-5:45		70			5:30-5:45		256			
5:45-6:00	0	86	229	229	5:45-6:00	0	226	995		995
6:00-6:15		115			6:00-6:15		233			
6:15-6:30		168			6:15-6:30		205			
6:30-6:45		194			6:30-6:45		226			
6:45-7:00	0	224	701	701	6:45-7:00	0	169	833		833
7:00-7:15		240			7:00-7:15		186			
7:15-7:30		249			7:15-7:30		145			
7:30-7:45		302			7:30-7:45		147			
7:45-8:00	0	316	1107	1107	7:45-8:00	0	140	618		618
8:00-8:15		290			8:00-8:15		123			
8:15-8:30		298			8:15-8:30		107			
8:30-8:45		255			8:30-8:45		105			
8:45-9:00	0	234	1077	1077	8:45-9:00	0	117	452		452
9:00-9:15		217			9:00-9:15		109			
9:15-9:30		223			9:15-9:30		93			
9:30-9:45		204			9:30-9:45		81			
9:45-10:00	0	241	885	885	9:45-10:00	0	83	366		366
10:00-10:15		182			10:00-10:15		57			
10:15-10:30		242			10:15-10:30		51			
10:30-10:45		226			10:30-10:45		49			
10:45-11:00	0	235	885	885	10:45-11:00	0	38	195		195
11:00-11:15		238			11:00-11:15		35			
11:15-11:30		240			11:15-11:30		27			
11:30-11:45		243			11:30-11:45		28			
11:45-12:00	0	232	953	953	11:45-12:00	0	21	111		111
Total Vol	0	6012		6012		0	8882			8882
Daily Totals						0	14894			14894

Location:Blue Lantern btn PCH-Del Prad Dana Point						Volumes for Tue. 2/1/00					00830006
AM Period	NB		SB			PM Period	NB		SB		
12:00-12:15	2		1			12:00-12:15	27		12		
12:15-12:30	2		5			12:15-12:30	19		11		
12:30-12:45	1		1			12:30-12:45	20		8		
12:45-1:00	1	6	0	7	13	12:45-1:00	24	90	10	41	131
1:00-1:15	0		0			1:00-1:15	20		19		
1:15-1:30	0		0			1:15-1:30	26		14		
1:30-1:45	0		0			1:30-1:45	28		18		
1:45-2:00	0	0	1	1	1	1:45-2:00	31	105	7	58	163
2:00-2:15	1		0			2:00-2:15	25		12		
2:15-2:30	0		2			2:15-2:30	31		13		
2:30-2:45	0		0			2:30-2:45	21		14		
2:45-3:00	0	1	0	2	3	2:45-3:00	29	106	11	50	156
3:00-3:15	0		0			3:00-3:15	25		17		
3:15-3:30	0		0			3:15-3:30	18		16		
3:30-3:45	0		1			3:30-3:45	28		15		
3:45-4:00	2	2	0	1	3	3:45-4:00	22	93	16	64	157
4:00-4:15	1		0			4:00-4:15	33		23		
4:15-4:30	0		1			4:15-4:30	36		31		
4:30-4:45	1		0			4:30-4:45	35		20		
4:45-5:00	1	3	0	1	4	4:45-5:00	34	138	18	92	230
5:00-5:15	3		1			5:00-5:15	37		26		
5:15-5:30	3		3			5:15-5:30	46		21		
5:30-5:45	0		0			5:30-5:45	38		26		
5:45-6:00	4	10	1	5	15	5:45-6:00	32	153	12	85	238
6:00-6:15	3		6			6:00-6:15	15		10		
6:15-6:30	2		2			6:15-6:30	23		8		
6:30-6:45	2		3			6:30-6:45	20		10		
6:45-7:00	3	10	6	17	27	6:45-7:00	15	73	6	34	107
7:00-7:15	18		8			7:00-7:15	12		19		
7:15-7:30	22		5			7:15-7:30	21		7		
7:30-7:45	11		5			7:30-7:45	14		9		
7:45-8:00	17	68	6	24	92	7:45-8:00	18	65	6	41	106
8:00-8:15	27		14			8:00-8:15	8		4		
8:15-8:30	28		13			8:15-8:30	15		6		
8:30-8:45	22		15			8:30-8:45	14		13		
8:45-9:00	19	96	11	53	149	8:45-9:00	14	51	1	24	75
9:00-9:15	17		5			9:00-9:15	6		0		
9:15-9:30	29		8			9:15-9:30	5		4		
9:30-9:45	18		10			9:30-9:45	13		2		
9:45-10:00	26	90	12	35	125	9:45-10:00	12	36	7	13	49
10:00-10:15	11		4			10:00-10:15	9		6		
10:15-10:30	17		14			10:15-10:30	6		0		
10:30-10:45	18		6			10:30-10:45	3		2		
10:45-11:00	21	67	7	31	98	10:45-11:00	4	22	0	8	30
11:00-11:15	24		9			11:00-11:15	8		5		
11:15-11:30	18		9			11:15-11:30	5		2		
11:30-11:45	25		21			11:30-11:45	5		0		
11:45-12:00	29	96	10	49	145	11:45-12:00	2	20	0	7	27
Total Vol	449		226		675		952		517		1469
Daily Totals							1401		743		2144

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: CROWN VALLEY PKWY. DATE: 1/12/2000 CITY: DANA POINT

E-W STREET: PACIFIC COAST HWY. DAY: WEDNESDAY PROJECT# 0029001A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	2	0.5	1.5	2	2	0	1	2	1	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	4	6	4	26	2	73	71	73	3	12	242	40	556
15 AM	5	8	7	41	5	85	91	124	4	3	216	37	626
30 AM	4	14	3	37	4	82	100	138	0	2	234	43	661
45 AM	3	9	11	72	4	171	129	167	4	9	212	52	843
8:00 AM	6	6	5	35	6	120	137	144	3	12	209	49	732
15 AM	3	9	7	54	6	85	126	176	3	5	246	74	794
30 AM	6	14	5	49	5	73	91	117	1	11	265	60	697
45 AM	7	8	8	57	5	85	119	136	6	4	217	74	726
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	NL 38	NT 74	NR 50	SL 371	ST 37	SR 774	EL 864	ET 1075	ER 24	WL 58	WT 1841	WR 429	TOTAL 5635

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	18	38	28	210	21	449	483	604	11	37	932	235	3066

ADDITIONS:SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: CROWN VALLEY PKWY. DATE: 1/12/2000 CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY. DAY: WEDNESDAY
PROJECT# 0029001P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	2	0.5	1.5	2	2	0	1	2	1	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	3	6	7	69	19	105	165	295	6	9	135	42	861
15 PM	1	10	5	42	8	92	178	268	9	13	170	63	859
30 PM	9	8	6	61	8	72	154	282	6	1	181	40	828
45 PM	3	7	9	48	9	72	168	259	5	17	180	43	820
5:00 PM	3	10	5	50	11	71	227	286	2	11	203	61	940
15 PM	2	4	4	48	12	114	223	264	4	5	142	27	849
30 PM	4	6	2	46	11	71	184	298	9	4	133	44	812
45 PM	6	9	4	45	15	70	157	244	9	9	165	34	767
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	31	60	42	409	93	667	1456	2196	50	69	1309	354	6736
PEAK VOLUMES =	16	35	25	201	36	307	727	1095	22	42	734	207	3447

PM Peak Hr Begins at 415 PM

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: NIGUEL RD. DATE: 1/12/2000 CITY: DANA POINT

E-W STREET: PACIFIC COAST HWY. DAY: WEDNESDAY PROJECT# 0029002A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	2	2	1	1	2	1	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	7	8	10	22	31	63	22	60	7	17	211	33	491
15 AM	9	13	21	30	24	69	33	96	9	20	198	34	556
30 AM	8	20	29	46	33	72	35	104	8	21	234	46	656
45 AM	13	17	34	63	41	81	43	133	11	19	260	43	758
8:00 AM	16	19	30	74	45	88	41	138	14	16	233	51	765
15 AM	14	22	26	71	39	64	39	111	12	12	211	53	674
30 AM	24	21	30	65	41	58	34	109	10	11	247	47	697
45 AM	24	20	31	63	39	51	32	102	12	12	238	42	666
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	115	140	211	434	293	546	279	853	83	128	1832	349	5263

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	67	79	120	273	166	291	157	491	47	58	951	194	2894

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: NIGUEL RD. DATE: 1/12/2000 CITY: DANA POINT

E-W STREET: PACIFIC COAST HWY. DAY: WEDNESDAY PROJECT# 0029002P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 2	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	14	25	27	61	18	49	71	266	13	18	210	73	845
15 PM	12	36	33	70	16	44	81	167	14	31	169	75	748
30 PM	18	54	46	86	24	56	83	206	21	31	157	81	863
45 PM	20	48	41	76	28	48	87	154	16	28	146	79	771
5:00 PM	31	39	33	71	20	53	91	217	17	26	166	83	847
15 PM	25	36	21	68	16	46	76	189	11	13	162	71	734
30 PM	15	30	22	75	14	41	80	244	13	10	148	68	760
45 PM	15	33	27	60	12	39	72	161	12	9	128	60	628
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	NL 150	NT 301	NR 250	SL 567	ST 148	SR 376	EL 641	ET 1604	ER 117	WL 166	WT 1286	WR 590	TOTAL 6196
PEAK VOLUMES =	81	177	153	303	88	201	342	744	68	116	638	318	3229

PM Peak Hr Begins at 415 PM

ADDITIONS:SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: SELVA RD. DATE: 1/12/2000 CITY: DANA POINT

E-W STREET: PACIFIC COAST HWY. DAY: WEDNESDAY PROJECT# 0029003A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	1	2	1	1	3	1	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	12	6	17	10	0	32	5	83	3	2	215	3	388
15 AM	13	5	18	8	2	18	9	134	2	4	222	8	443
30 AM	24	7	19	16	2	38	16	158	3	1	246	7	537
45 AM	11	9	26	7	6	50	20	203	10	4	274	15	635
8:00 AM	12	14	16	14	7	40	33	199	8	4	247	25	619
15 AM	9	8	10	21	8	29	26	181	4	7	232	23	558
30 AM	13	3	6	18	3	29	17	185	3	7	268	15	567
45 AM	18	5	13	20	6	40	19	169	10	9	236	8	553
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	112	57	125	114	34	276	145	1312	43	38	1940	104	4300

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	45	34	58	60	24	148	96	768	25	22	1021	78	2379

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: SELVA RD. DATE: 1/12/2000 CITY: DANA POINT

E-W STREET: PACIFIC COAST HWY. DAY: WEDNESDAY

PROJECT# 0029003P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	1	2	1	1	3	1	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	6	9	12	16	10	21	20	246	17	13	211	16	597
15 PM	11	5	11	12	8	13	26	317	10	14	274	21	722
30 PM	11	7	10	13	10	21	22	297	11	15	247	20	684
45 PM	12	4	13	15	7	17	23	225	18	13	224	16	587
5:00 PM	14	7	12	11	3	25	26	290	15	23	259	22	707
15 PM	10	5	11	11	4	13	33	241	12	17	210	16	583
30 PM	13	8	10	11	10	11	36	309	19	19	204	20	670
45 PM	4	4	5	12	10	20	26	211	8	14	165	21	500
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	NL 81	NT 49	NR 84	SL 101	ST 62	SR 141	EL 212	ET 2136	ER 110	WL 128	WT 1794	WR 152	TOTAL 5050

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	48	23	46	51	28	76	97	1129	54	65	1004	79	2700

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GREEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY.
DAY: WEDNESDAY
PROJECT# 0029004A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0					2	0		2		
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	0	0	0					105	5		226		336
15 AM	0	0	0					149	4		239		392
30 AM	0	0	0					183	9		259		451
45 AM	0	0	0					219	14		298		531
8:00 AM	0	0	0					229	12		281		522
15 AM	0	0	0					210	10		264		484
30 AM	0	0	0					189	17		293		499
45 AM	0	0	0					181	20		264		465
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	0	0	0	0	0	0	0	1465	91	0	2124	0	3680

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	847	53	0	1136	0	2036

ADDITIONS:NO CONTROL

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GREEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY.
DAY: WEDNESDAY
PROJECT# 0029004P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0					2	0		2		
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	0	0	0					256	12		246		514
15 PM	0	0	0					288	21		301		610
30 PM	0	0	0					297	23		277		597
45 PM	0	0	0					323	17		263		603
5:00 PM	0	0	0					271	14		289		574
15 PM	0	0	0					242	12		251		505
30 PM	0	0	0					297	11		243		551
45 PM	0	0	0					230	15		200		445
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	0	0	0	0	0	0	0	2204	125	0	2070	0	4399

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	0	0	0	0	0	0	0	1179	75	0	1130	0	2384

ADDITIONS:NO CONTROL

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE BLUE LANTERN
E-W STREET: PACIFIC COAST HWY.
DATE: 1/12/2000
DAY: WEDNESDAY
CITY: DANA POINT
PROJECT# 0029005A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	1	1	1	2	0	1	2	0	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	9	2	4	7	3	5	1	110	1	4	217	4	367
15 AM	7	1	4	8	1	4	2	139	3	1	233	3	406
30 AM	8	0	6	7	0	1	0	183	0	2	255	8	470
45 AM	6	2	10	12	3	3	3	213	3	3	294	12	564
8:00 AM	10	4	11	15	5	4	0	229	0	6	272	7	563
15 AM	11	4	12	14	7	7	5	203	2	10	251	15	541
30 AM	16	3	13	12	3	4	3	185	1	8	278	11	537
45 AM	15	2	7	9	1	2	1	177	2	12	251	12	491
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	82	18	67	84	23	30	15	1439	12	46	2051	72	3939

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	43	13	46	53	18	18	11	830	6	27	1095	45	2205

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE BLUE LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY.
DAY: WEDNESDAY
PROJECT# 0029005P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	1	1	1	2	0	1	2	0	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	21	5	14	9	2	3	9	272	2	16	240	13	606
15 PM	23	6	11	7	5	5	5	317	11	24	222	14	650
30 PM	15	6	13	6	4	0	3	281	5	12	259	11	615
45 PM	29	4	16	8	6	1	5	250	8	15	277	15	634
5:00 PM	22	5	18	6	3	11	11	253	4	17	263	17	630
15 PM	16	3	14	5	2	4	4	240	4	11	231	9	543
30 PM	15	4	14	7	4	5	5	289	3	9	223	8	586
45 PM	12	2	10	6	3	0	6	224	0	12	187	10	472
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	153	35	110	54	29	29	48	2126	37	116	1902	97	4736

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	89	21	58	27	18	17	24	1101	28	68	1021	57	2529

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE AMBER LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY.
DAY: WEDNESDAY
PROJECT# 0029008A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0.5			0.5	0.5				0	3	0	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	2	3			7	2				27	279	5	325
15 AM	3	2			8	3				29	240	4	289
30 AM	4	4			13	7				22	258	6	314
45 AM	8	6			13	8				17	264	4	320
8:00 AM	6	7			14	10				28	278	8	351
15 AM	5	6			11	6				37	296	7	368
30 AM	10	8			15	7				30	261	8	339
45 AM	13	4			10	4				38	241	5	315
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	51	40	0	0	91	47	0	0	0	228	2117	47	2621

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	29	27	0	0	53	31	0	0	0	112	1099	27	1378

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE AMBER LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY.
DAY: WEDNESDAY
PROJECT# 0029008P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0.5			0.5	0.5				0	3	0	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	7	10			10	7				48	242	17	341
15 PM	8	11			13	8				50	263	16	369
30 PM	12	13			12	10				62	282	18	409
45 PM	10	11			9	4				56	263	16	369
5:00 PM	9	12			10	7				49	282	21	39[illegible]
15 PM	7	11			9	6				34	256	18	34[illegible]
30 PM	6	8			12	7				30	291	22	376
45 PM	2	7			9	6				28	217	20	289
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	61	83	0	0	84	55	0	0	0	357	2096	148	2884

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	39	47	0	0	44	29	0	0	0	217	1090	71	1537

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE AMBER LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: DEL PRADO AVE.
DAY: WEDNESDAY
PROJECT# 0029010A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:		0.5	0.5	0.5	0.5		0	3	0				
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM		7	3	32	3		7	115	2				169
15 AM		5	5	37	5		8	159	4				223
30 AM		1	1	34	3		7	180	2				228
45 AM		4	4	40	7		10	201	3				269
8:00 AM		5	2	45	10		11	216	4				293
15 AM		4	3	47	6		8	210	2				280
30 AM		3	4	40	4		11	201	1				264
45 AM		2	5	32	3		10	198	2				252
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	0	31	27	307	41	0	72	1480	20	0	0	0	1978

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	0	16	13	172	27	0	40	828	10	0	0	0	1106

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE AMBER LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: DEL PRADO AVE.
DAY: WEDNESDAY
PROJECT# 0029010P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:		0.5	0.5	0.5	0.5		0	3	0				
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM		2	3	38	4		15	287	1				350
15 PM		2	7	62	7		16	320	3				417
30 PM		3	8	59	9		11	301	2				393
45 PM		4	6	59	10		16	297	4				396
5:00 PM		1	5	49	15		15	274	5				364
15 PM		2	4	41	11		13	286	2				359
30 PM		1	2	34	8		12	308	1				366
45 PM		2	3	30	18		10	287	2				352
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	NL 0	NT 17	NR 38	SL 372	ST 82	SR 0	EL 108	ET 2360	ER 20	WL 0	WT 0	WR 0	TOTAL 2997

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	0	10	26	229	41	0	58	1192	14	0	0	0	1570

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE VIOLET LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY.
DAY: WEDNESDAY
PROJECT# 0029009A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0.5			0.5	0.5				0	4	0	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	8	1			2	7				12	209	7	246
15 AM	7	6			2	8				20	259	6	308
30 AM	8	6			6	3				23	272	8	326
45 AM	4	5			7	8				17	292	9	342
8:00 AM	13	10			5	10				18	301	8	365
15 AM	10	8			11	8				20	305	9	371
30 AM	10	9			9	7				17	294	8	354
45 AM	9	8			8	8				16	267	8	324
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	69	53	0	0	50	59	0	0	0	143	2199	63	2636

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	37	32	0	0	32	33	0	0	0	72	1192	34	1432

ADDITIONS:SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE VIOLET LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY.
DAY: WEDNESDAY
PROJECT# 0029009P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0.5			0.5	0.5				0	4	0	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	19	14			9	9				20	265	13	349
15 PM	20	14			12	8				28	334	16	432
30 PM	24	16			11	9				22	322	14	418
45 PM	18	25			7	8				33	318	18	427
5:00 PM	36	19			6	7				27	323	12	430
15 PM	24	20			9	7				33	287	21	401
30 PM	14	16			8	10				14	237	16	315
45 PM	11	13			7	8				16	207	14	276
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	166	137	0	0	69	66	0	0	0	193	2293	124	3048

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	98	74	0	0	36	32	0	0	0	110	1297	60	1707

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE VIOLET LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: DEL PRADO AVE.
DAY: WEDNESDAY
PROJECT# 0029011A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:		0.5	0.5	0.5	0.5		0	3	0				
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM		1	6	8	2		9	122	0				148
15 AM		2	4	8	6		14	187	3				224
30 AM		1	4	12	13		8	209	3				250
45 AM		1	2	18	8		13	229	1				272
8:00 AM		1	7	14	8		19	249	3				301
15 AM		3	5	15	5		25	254	2				309
30 AM		1	6	14	9		21	227	0				278
45 AM		2	5	14	10		18	212	1				262
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	0	12	39	103	61	0	127	1689	13	0	0	0	2044

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	0	6	20	61	30	0	78	959	6	0	0	0	1160

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE VIOLET LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: DEL PRADO AVE.
DAY: WEDNESDAY
PROJECT# 0029011P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:		0.5	0.5	0.5	0.5		0	3	0				
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM		4	6	15	4		28	290	4				351
15 PM		3	6	20	11		26	284	6				356
30 PM		4	5	21	10		37	313	7				397
45 PM		2	6	22	11		32	315	8				396
5:00 PM		4	10	32	16		36	303	5				406
15 PM		6	2	17	7		30	297	7				366
30 PM		5	8	26	8		31	299	4				381
45 PM		7	7	22	9		26	281	2				354
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	NL 0	NT 35	NR 50	SL 175	ST 76	SR 0	EL 246	ET 2382	ER 43	WL 0	WT 0	WR 0	TOTAL 3007

PM Peak Hr Begins at 430 PM

PEAK VOLUMES =	0	16	23	92	44	0	135	1228	27	0	0	0	1565

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: SELVA RD.
DAY: WEDNESDAY
PROJECT# 0029014A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	3	0	1	1	0	1	1	0	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	2	42	12	8	58	9	12	17	8	1	5	13	187
15 AM	2	58	12	15	79	11	11	27	6	10	3	15	249
30 AM	7	74	18	21	75	6	14	35	2	8	11	20	291
45 AM	0	78	15	59	102	6	18	38	14	11	22	23	386
8:00 AM	4	82	11	27	124	16	21	34	11	9	27	22	388
15 AM	1	73	18	38	124	14	21	48	8	6	24	19	394
30 AM	1	76	13	15	116	9	7	38	6	4	10	14	309
45 AM	3	80	11	4	106	2	14	28	8	9	10	14	289
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	20	563	110	187	784	73	118	265	63	58	112	140	2493

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	6	309	57	139	466	45	67	158	39	30	83	78	1477

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN DATE: 1/12/2000 CITY: DANA POINT
E-W STREET: SELVA RD. DAY: WEDNESDAY
PROJECT# 0029014P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	3	0	1	1	0	1	1	0	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	11	146	20	21	122	16	16	16	11	11	17	21	428
15 PM	8	129	15	15	114	21	16	27	8	12	19	18	402
30 PM	7	151	18	16	117	20	18	20	5	12	15	26	425
45 PM	12	134	15	22	131	19	21	15	9	13	10	18	419
5:00 PM	15	146	10	29	127	15	22	23	6	5	11	19	428
15 PM	7	146	17	25	125	19	11	29	10	14	27	23	453
30 PM	11	121	25	14	129	20	13	17	6	14	6	18	394
45 PM	9	128	12	17	146	14	33	37	7	23	19	37	482
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	NL 80	NT 1101	NR 132	SL 159	ST 1011	SR 144	EL 150	ET 184	ER 62	WL 104	WT 124	WR 180	TOTAL 3431

PM Peak Hr Begins at 500 PM

PEAK VOLUMES =	42	541	64	85	527	68	79	106	29	56	63	97	1757

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: LA CRESTA DR.
DAY: WEDNESDAY
PROJECT# 0029013A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	3	0	0	1	0	0	1	0	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	1	35	2	3	80	8	16	2	8	9	5	12	181
15 AM	3	41	5	6	82	6	19	5	11	11	6	7	202
30 AM	4	58	3	8	91	3	22	6	15	13	7	2	232
45 AM	3	73	5	6	112	11	40	7	16	8	11	7	299
8:00 AM	7	84	1	5	134	12	21	19	15	11	37	8	354
15 AM	8	68	4	6	121	10	24	12	11	10	16	10	300
30 AM	6	62	6	5	118	8	22	7	6	9	8	9	266
45 AM	6	54	3	6	109	7	17	6	7	8	7	10	240
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	38	475	29	45	847	65	181	64	89	79	97	65	2074

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	24	287	16	22	485	41	107	45	48	38	72	34	1219

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: LA CRESTA DR.
DAY: WEDNESDAY
PROJECT# 0029013P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 3	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	10	119	13	12	119	10	21	15	14	13	6	11	363
15 PM	10	140	8	10	138	7	30	16	12	12	9	8	400
30 PM	9	132	12	7	142	14	31	15	17	19	11	9	418
45 PM	9	134	13	4	129	13	33	22	18	16	14	11	416
5:00 PM	9	159	16	13	140	15	39	15	16	10	8	6	446
15 PM	2	135	19	7	128	19	27	16	15	9	7	7	391
30 PM	8	128	9	15	111	18	36	12	8	10	4	5	364
45 PM	6	117	8	11	96	14	28	10	7	8	9	6	320
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	NL 63	NT 1064	NR 98	SL 79	ST 1003	SR 110	EL 245	ET 121	ER 107	WL 97	WT 68	WR 63	TOTAL 3118

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	37	565	49	34	549	49	133	68	63	57	42	34	1680

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY.
DAY: WEDNESDAY
PROJECT# 0029015A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2			3	1				1	3	1	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	13	23			51	28				15	181	15	326
15 AM	18	25			65	25				18	234	23	408
30 AM	17	26			84	28				17	267	50	489
45 AM	18	36			103	33				22	246	41	499
8:00 AM	16	49			123	47				25	275	52	587
15 AM	22	43			97	41				29	288	48	568
30 AM	29	39			79	36				26	283	41	533
45 AM	26	41			73	34				22	259	27	482
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	159	282	0	0	675	272	0	0	0	174	2033	297	3892

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	85	167	0	0	402	157	0	0	0	102	1092	182	2187

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: PACIFIC COAST HWY.
DAY: WEDNESDAY
PROJECT# 0029015P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2			3	1				1	3	1	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	48	96			104	43				45	263	54	653
15 PM	51	86			93	44				38	226	77	615
30 PM	58	102			107	53				57	241	63	681
45 PM	61	110			116	47				52	214	69	669
5:00 PM	65	101			128	41				47	237	58	677
15 PM	46	94			117	51				39	197	58	602
30 PM	98	80			119	48				36	231	68	680
45 PM	51	86			108	42				34	229	50	600
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	478	755	0	0	892	369	0	0	0	348	1838	497	5177

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	235	399	0	0	444	185	0	0	0	194	918	267	2642

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN DATE: 1/12/2000 CITY: DANA POINT
E-W STREET: DEL PRADO AVE. DAY: WEDNESDAY
PROJECT# 0029012A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:		2	1	2	2		1	3	1				
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM		18	9	48	20		7	135	22				259
15 AM		19	15	58	19		9	154	13				287
30 AM		32	14	95	25		11	180	16				373
45 AM		25	8	123	43		17	240	25				481
8:00 AM		47	7	116	34		25	259	24				512
15 AM		30	13	109	20		21	195	28				416
30 AM		20	4	86	25		15	219	27				396
45 AM		46	8	101	30		35	218	22				460
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	0	237	78	736	216	0	140	1600	177	0	0	0	3184

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	0	122	32	434	122	0	78	913	104	0	0	0	1805

ADDITIONS: SIGNALIZED
APPROXIMATELY 10% OF SL ARE U-TURNS.

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: DEL PRADO AVE.
DAY: WEDNESDAY
PROJECT# 0029012P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:		2	1	2	2		1	3	1				
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM		89	10	93	39		48	227	34				540
15 PM		78	8	118	42		43	258	36				583
30 PM		88	15	107	33		45	250	27				565
45 PM		64	18	108	37		57	240	32				556
5:00 PM		78	9	163	39		52	282	38				661
15 PM		85	7	90	15		34	230	18				479
30 PM		63	8	112	38		35	250	20				526
45 PM		43	8	129	44		38	246	25				533
6:00 PM													
15 PM													
30 PM													
45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	588	83	920	287	0	352	1983	230	0	0	0	4443

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	308	50	496	151	0	197	1030	133	0	0	0	2365

ADDITIONS: SIGNALIZED
APPROXIMATELY 10% OF SL ARE U-TURNS.

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: DANA POINT HARBOR DR.
DAY: WEDNESDAY
PROJECT# 0029006A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	1	1	2	0	1	2	0	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	5	10	9	14	12	12	19	29	8	19	35	10	182
15 AM	4	9	12	12	18	13	17	25	6	22	39	11	188
30 AM	6	15	18	10	22	14	9	31	8	23	48	9	213
45 AM	7	14	16	21	16	10	19	48	5	29	36	7	228
8:00 AM	4	8	11	16	17	15	26	35	7	26	29	13	207
15 AM	2	7	15	11	16	15	21	42	9	25	42	12	217
30 AM	11	16	26	19	21	18	16	26	3	24	32	11	223
45 AM	10	14	23	15	19	21	15	22	7	23	36	10	215
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	49	93	130	118	141	118	142	258	53	191	297	83	1673

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	24	45	68	67	70	58	82	151	24	104	139	43	875

ADDITIONS: SIGNALIZED

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: STREET OF THE GOLDEN LANTERN
DATE: 1/12/2000
CITY: DANA POINT
E-W STREET: DANA POINT HARBOR DR.
DAY: WEDNESDAY
PROJECT# 0029006P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	1	1	2	0	1	2	0	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	7	27	41	29	12	26	28	30	6	31	49	28	314
15 PM	2	28	31	50	19	30	27	44	3	10	38	29	311
30 PM	6	20	19	12	6	12	30	43	5	36	33	29	251
45 PM	3	20	21	20	30	35	36	35	6	29	51	27	313
5:00 PM	3	19	29	24	20	17	44	79	5	23	34	18	315
15 PM	3	25	23	11	17	14	38	44	5	39	32	18	269
30 PM	3	18	26	18	23	15	31	41	3	31	42	19	270
45 PM	1	30	26	20	27	23	28	29	6	23	51	37	301
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	28	187	216	184	154	172	262	345	39	222	330	205	2344

PM Peak Hr Begins at 415 PM

PEAK VOLUMES =	14	87	100	106	75	94	137	201	19	98	156	103	1190

ADDITIONS: SIGNALIZED

"New"

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: DANA POINTE HARBOR/DEL OBISPO DATE: 10/24/2000 CITY: DANA POINTE
E-W STREET: PCH DAY: TUESDAY
PROJECT# 1011001A

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	2	1	1	1	2	0	2	2	0	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	4	6	25	47	22	30	13	198	7	41	250	24	667
15 AM	5	5	32	57	13	26	20	208	8	42	241	30	687
30 AM	4	7	33	68	28	28	23	288	6	43	267	27	822
45 AM	5	10	38	57	19	35	21	325	8	68	357	46	989
8:00 AM	8	18	46	67	17	32	32	275	12	59	302	37	905
15 AM	9	15	41	51	21	36	29	311	13	65	291	32	914
30 AM	6	13	39	49	24	33	25	298	10	51	287	31	866
45 AM	7	14	29	42	19	27	24	267	9	43	276	24	781
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
TOTAL VOLUMES =	48	88	283	438	163	247	187	2170	73	412	2271	251	6631

AM Peak Hr Begins at 745 AM

PEAK VOLUMES =	28	56	164	224	81	136	107	1209	43	243	1237	146	3674

ADDITIONS: SIGNALIZED

"New"

SOUTHLAND CAR COUNTERS
VEHICLE AND MANUAL COUNTS

N-S STREET: DANA POINTE HARBOR/DEL OBISPO DATE: 10/24/2000 CITY: DANA POINTE
E-W STREET: PCH DAY: TUESDAY
PROJECT# 1011001P

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	2	1	1	1	2	0	2	2	0	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	11	25	55	49	19	39	69	279	10	99	287	39	981
15 PM	15	31	65	54	26	47	71	301	18	107	298	48	1081
30 PM	12	27	58	55	28	57	58	278	15	79	291	57	1015
45 PM	7	31	79	59	29	48	59	251	12	68	327	54	1024
5:00 PM	9	27	79	49	22	41	67	268	10	69	201	59	901
15 PM	11	19	68	48	18	54	64	281	9	77	305	52	1006
30 PM	12	24	61	47	24	48	57	269	14	58	298	49	961
45 PM	8	15	57	37	24	43	49	251	12	47	259	47	849
6:00 PM													
15 PM													
30 PM													
45 PM													
TOTAL VOLUMES =	85	199	522	398	190	377	494	2178	100	604	2266	405	7818
PEAK VOLUMES =	45	114	257	217	102	191	257	1109	55	353	1203	198	4101

PM Peak Hr Begins at 400 PM

ADDITIONS: SIGNALIZED

APPENDIX C

ICU CALCULATIONS – EXISTING

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	18	0.01
NT	2.0	3400	38	0.02*
NR	0.0	1700	28	0.02
SL	2.0	3400	210	0.06*
ST	0.5	850	21	0.02
SR >	1.5	2550	449	0.03-
EL	2.0	3400	483	0.14*
ET	2.0	3400	604	0.18
ER	1.0	1700	11	0.01-
WL	1.0	1700	37	0.02
WT	2.0	3400	932	0.27*
WR >	1.0	1700	235	0.07-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.54 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	16	0.01
NT	2.0	3400	35	0.02*
NR	0.0	1700	25	0.01
SL	2.0	3400	201	0.06*
ST	0.5	850	36	0.04
SR >	1.5	2550	307	0.00-
EL	2.0	3400	727	0.21*
ET	2.0	3400	1095	0.32
ER	1.0	1700	22	0.01-
WL	1.0	1700	42	0.02
WT	2.0	3400	734	0.22*
WR >	1.0	1700	207	0.05-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.56 A

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	67	0.04
NT	2.0	3400	79	0.02
NR	1.0	1700	120	0.06-*
SL	1.0	1700	273	0.16*
ST	2.0	3400	166	0.05
SR	1.0	1700	291	0.14-
EL	2.0	3400	157	0.05*
ET	2.0	3400	491	0.14
ER	1.0	1700	47	0.03-
WL	1.0	1700	58	0.03
WT	2.0	3400	951	0.28*
WR	1.0	1700	194	0.09-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.60 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	81	0.05
NT	2.0	3400	177	0.05
NR	1.0	1700	153	0.08-*
SL	1.0	1700	303	0.18*
ST	2.0	3400	88	0.03
SR	1.0	1700	201	0.10-
EL	2.0	3400	342	0.10*
ET	2.0	3400	744	0.22
ER	1.0	1700	68	0.03-
WL	1.0	1700	116	0.07
WT	2.0	3400	638	0.19*
WR	1.0	1700	318	0.16-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.60 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	22	0.01
NT	3.0	5100	1021	0.20*
NR	1.0	1700	78	0.04-
SL	1.0	1700	96	0.06*
ST	2.0	3400	768	0.23
SR	1.0	1700	25	0.01-
EL	0.0	1700	45	0.03*
ET	2.0	3400	34	0.02
ER	1.0	1700	58	0.03-
WL	0.0	1700	60	0.04
WT	2.0	3400	24	0.02
WR	1.0	1700	148	0.08-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.42 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	65	0.04*
NT	3.0	5100	1004	0.20
NR	1.0	1700	79	0.04-
SL	1.0	1700	97	0.06
ST	2.0	3400	1129	0.33*
SR	1.0	1700	54	0.03-
EL	0.0	1700	48	0.03*
ET	2.0	3400	23	0.02
ER	1.0	1700	46	0.03-
WL	0.0	1700	51	0.03
WT	2.0	3400	28	0.02
WR	1.0	1700	76	0.03-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.48 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00*
ET	2.0	3400	847	0.26
ER	0.0	1700	53	0.03
WL	0.0	0	0	0.00
WT	2.0	3400	1136	0.33*
WR	0.0	0	0	0.00
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.38 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1179	0.37*
ER	0.0	1700	75	0.04
WL	0.0	0	0	0.00*
WT	2.0	3400	1130	0.33
WR	0.0	0	0	0.00
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.42 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio	
NL	1.0	1700	43	0.03	
NT	2.0	3400	13	0.02	
NR	0.0	1700	46	0.03*	
SL	1.0	1700	53	0.03*	
ST	1.0	1700	18	0.01	
SR	1.0	1700	18	0.01-	
EL	1.0	1700	11	0.01*	
ET	2.0	3400	830	0.25	
ER	0.0	1700	6	0.01	
WL	1.0	1700	27	0.02	
WT	2.0	3400	1095	0.32*	
WR	1.0	1700	45	0.03-	
				=======	
			Clearance Interval Percentage =	0.05	
			Sum of Critical Movements =	0.44	A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio	
NL	1.0	1700	89	0.05*	
NT	2.0	3400	21	0.02	
NR	0.0	1700	58	0.03	
SL	1.0	1700	27	0.02	
ST	1.0	1700	18	0.01*	
SR	1.0	1700	17	0.01-	
EL	1.0	1700	24	0.01	
ET	2.0	3400	1101	0.33*	
ER	0.0	1700	28	0.02	
WL	1.0	1700	68	0.04*	
WT	2.0	3400	1021	0.30	
WR	1.0	1700	57	0.03-	
				=======	
			Clearance Interval Percentage =	0.05	
			Sum of Critical Movements =	0.48	A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	29	0.02*
NT	1.0	1700	27	0.03
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	1.0	1700	53	0.05*
SR	0.0	1700	31	0.02
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	0.0	1700	112	0.07
WT	3.0	5100	1099	0.24*
WR	1.0	1700	27	0.02-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.36 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	39	0.02*
NT	1.0	1700	47	0.05
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	1.0	1700	44	0.04*
SR	0.0	1700	29	0.02
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	0.0	1700	217	0.13
WT	3.0	5100	1090	0.26*
WR	1.0	1700	71	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.37 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	1.0	1700	16	0.02*
NR	0.0	1700	13	0.01
SL	0.0	1700	172	0.10*
ST	1.0	1700	27	0.12
SR	0.0	0	0	0.00
EL	0.0	1700	40	0.02
ET	3.0	5100	828	0.17*
ER	1.0	1700	10	0.01-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.34 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00*
NT	1.0	1700	10	0.02
NR	0.0	1700	26	0.02
SL	0.0	1700	229	0.13
ST	1.0	1700	41	0.16*
SR	0.0	0	0	0.00
EL	0.0	1700	58	0.03
ET	3.0	5100	1192	0.25*
ER	1.0	1700	14	0.01-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.46 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	37	0.02*
NT	1.0	1700	32	0.04
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	1.0	1700	32	0.04*
SR	0.0	1700	33	0.02
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	0.0	1700	72	0.04
WT	3.0	5100	1192	0.25*
WR	1.0	1700	34	0.02-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.36 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	98	0.06
NT	1.0	1700	74	0.10*
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00*
ST	1.0	1700	36	0.04
SR	0.0	1700	32	0.02
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	0.0	1700	110	0.06
WT	3.0	5100	1297	0.28*
WR	1.0	1700	60	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.43 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	1.0	1700	6	0.02*
NR	0.0	1700	20	0.01
SL	0.0	1700	61	0.04*
ST	1.0	1700	30	0.05
SR	0.0	0	0	0.00
EL	0.0	1700	78	0.05
ET	3.0	5100	959	0.20*
ER	1.0	1700	6	0.01-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.31 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00*
NT	1.0	1700	16	0.02
NR	0.0	1700	23	0.01
SL	0.0	1700	92	0.05
ST	1.0	1700	44	0.08*
SR	0.0	0	0	0.00
EL	0.0	1700	135	0.08
ET	3.0	5100	1228	0.27*
ER	1.0	1700	27	0.02-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.40 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	6	0.01
NT	3.0	5100	309	0.06*
NR	1.0	1700	57	0.03-
SL	1.0	1700	139	0.08*
ST	3.0	5100	466	0.09
SR	1.0	1700	45	0.03-
EL	1.0	1700	67	0.04
ET	1.0	1700	158	0.09*
ER	1.0	1700	39	0.02-
WL	1.0	1700	30	0.02*
WT	1.0	1700	83	0.05
WR	1.0	1700	78	0.04-
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.30 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	42	0.02
NT	3.0	5100	541	0.11*
NR	1.0	1700	64	0.03-
SL	1.0	1700	85	0.05*
ST	3.0	5100	527	0.10
SR	1.0	1700	68	0.03-
EL	1.0	1700	79	0.05*
ET	1.0	1700	106	0.06
ER	1.0	1700	29	0.02-
WL	1.0	1700	56	0.03
WT	1.0	1700	63	0.04
WR	1.0	1700	97	0.05-*
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.31 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	24	0.01*
NT	3.0	5100	287	0.06
NR	1.0	1700	16	0.01-
SL	1.0	1700	22	0.01
ST	3.0	5100	485	0.10*
SR	1.0	1700	41	0.02-
EL	0.0	1700	107	0.06*
ET	1.0	1700	45	0.12
ER	0.0	1700	48	0.03
WL	0.0	1700	38	0.02
WT	1.0	1700	72	0.08*
WR	0.0	1700	34	0.02
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.30 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	37	0.02*
NT	3.0	5100	565	0.11
NR	1.0	1700	49	0.03-
SL	1.0	1700	34	0.02
ST	3.0	5100	549	0.11*
SR	1.0	1700	49	0.03-
EL	0.0	1700	133	0.08
ET	1.0	1700	68	0.16*
ER	0.0	1700	63	0.04
WL	0.0	1700	57	0.03*
WT	1.0	1700	42	0.08
WR	0.0	1700	34	0.02
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.37 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	85	0.05*
NT	2.0	3400	167	0.05
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	3.0	5100	402	0.08*
SR	1.0	1700	157	0.08-
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	1.0	1700	102	0.06
WT	3.0	5100	1092	0.21*
WR	1.0	1700	182	0.09-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.39 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	235	0.14*
NT	2.0	3400	399	0.12
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	3.0	5100	444	0.09*
SR	1.0	1700	185	0.09-
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	1.0	1700	194	0.11
WT	3.0	5100	918	0.18*
WR	1.0	1700	267	0.14-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.46 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	2.0	3400	122	0.04*
NR >>	1.0	1700	32	0.02
SL	2.0	3400	434	0.13*
ST	2.0	3400	122	0.04
SR	0.0	0	0	0.00
EL	1.0	1700	78	0.05
ET	3.0	5100	913	0.18*
ER	1.0	1700	104	0.05-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	2.0	3400	308	0.09*
NR >>	1.0	1700	50	0.03
SL	2.0	3400	496	0.15*
ST	2.0	3400	151	0.04
SR	0.0	0	0	0.00
EL	1.0	1700	197	0.12
ET	3.0	5100	1030	0.20*
ER	1.0	1700	133	0.07-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.49 A

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	24	0.01
NT	1.0	1700	45	0.03*
NR >	1.0	1700	68	0.00-
SL	1.0	1700	67	0.04*
ST	1.0	1700	70	0.04
SR >	1.0	1700	58	0.00-
EL	1.0	1700	82	0.05
ET	2.0	3400	151	0.04*
ER	1.0	1700	24	0.01-
WL	1.0	1700	104	0.06*
WT	2.0	3400	139	0.04
WR	1.0	1700	43	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.22 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	14	0.01
NT	1.0	1700	87	0.05*
NR >	1.0	1700	100	0.00-
SL	1.0	1700	106	0.06*
ST	1.0	1700	75	0.04
SR >	1.0	1700	94	0.00-
EL	1.0	1700	137	0.08*
ET	2.0	3400	201	0.06
ER	1.0	1700	19	0.01-
WL	1.0	1700	98	0.06
WT	2.0	3400	156	0.05*
WR	1.0	1700	103	0.05-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.29 A

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	28	0.02
NT	1.0	1700	56	0.03*
NR >	1.0	1700	164	0.03-
SL	2.0	3400	224	0.07*
ST	1.0	1700	81	0.05
SR	1.0	1700	136	0.07-
EL	1.0	1700	107	0.06*
ET	2.0	3400	1209	0.36
ER	1.0	1700	43	0.03-
WL	2.0	3400	243	0.07
WT	2.0	3400	1237	0.41*
WR	0.0	1700	146	0.09
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.62 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	45	0.03
NT	1.0	1700	114	0.07*
NR >	1.0	1700	257	0.04-
SL	2.0	3400	217	0.06*
ST	1.0	1700	102	0.06
SR	1.0	1700	191	0.09-
EL	1.0	1700	257	0.15*
ET	2.0	3400	1109	0.33
ER	1.0	1700	55	0.03-
WL	2.0	3400	353	0.10
WT	2.0	3400	1203	0.41*
WR	0.0	1700	198	0.12
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.74 C

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	19	0	0	19	0.01
NT	2.0	3400	41	0	0	41	0.03*
NR	0.0	1700	30	0	0	30	0.02
SL	2.0	3400	231	0	0	231	0.07*
ST	0.5	850	23	0	0	23	0.03
SR >	1.5	2550	493	0	0	493	0.03-
EL	2.0	3400	531	0	0	531	0.16*
ET	2.0	3400	664	0	0	664	0.20
ER	1.0	1700	12	0	0	12	0.01-
WL	1.0	1700	40	0	0	40	0.02
WT	2.0	3400	1025	0	0	1025	0.30*
WR >	1.0	1700	258	0	0	258	0.07-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.61

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	17	0	0	17	0.01
NT	2.0	3400	38	0	0	38	0.02*
NR	0.0	1700	27	0	0	27	0.02
SL	2.0	3400	221	0	0	221	0.07*
ST	0.5	850	39	0	0	39	0.05
SR >	1.5	2550	337	0	0	337	0.00-
EL	2.0	3400	799	0	0	799	0.24*
ET	2.0	3400	1204	0	0	1204	0.35
ER	1.0	1700	24	0	0	24	0.01-
WL	1.0	1700	46	0	0	46	0.03
WT	2.0	3400	807	0	0	807	0.24*
WR >	1.0	1700	227	0	0	227	0.05-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.62

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	73	0	0	73	0.04
NT	2.0	3400	86	0	0	86	0.03
NR	1.0	1700	132	0	0	132	0.07-*
SL	1.0	1700	300	0	0	300	0.18*
ST	2.0	3400	182	0	0	182	0.05
SR	1.0	1700	320	0	0	320	0.16-
EL	2.0	3400	172	0	0	172	0.05*
ET	2.0	3400	540	0	0	540	0.16
ER	1.0	1700	51	0	0	51	0.03-
WL	1.0	1700	63	0	0	63	0.04
WT	2.0	3400	1046	0	0	1046	0.31*
WR	1.0	1700	213	0	0	213	0.11-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.66 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	89	0	0	89	0.05
NT	2.0	3400	194	0	0	194	0.06
NR	1.0	1700	168	0	0	168	0.09-*
SL	1.0	1700	333	0	0	333	0.20*
ST	2.0	3400	96	0	0	96	0.03
SR	1.0	1700	221	0	0	221	0.11-
EL	2.0	3400	376	0	0	376	0.11*
ET	2.0	3400	818	0	0	818	0.24
ER	1.0	1700	74	0	0	74	0.03-
WL	1.0	1700	127	0	0	127	0.08
WT	2.0	3400	701	0	0	701	0.21*
WR	1.0	1700	349	0	0	349	0.18-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.66 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	24	0	0	24	0.01
NT	3.0	5100	1123	0	0	1123	0.22*
NR	1.0	1700	85	0	0	85	0.04-
SL	1.0	1700	105	0	0	105	0.06*
ST	2.0	3400	844	0	0	844	0.25
SR	1.0	1700	27	0	0	27	0.02-
EL	0.0	1700	49	0	0	49	0.03*
ET	2.0	3400	37	0	0	37	0.03
ER	1.0	1700	63	0	0	63	0.03-
WL	0.0	1700	66	0	0	66	0.04
WT	2.0	3400	26	0	0	26	0.03
WR	1.0	1700	162	0	0	162	0.09-*
							=======
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.45

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	71	0	0	71	0.04*
NT	3.0	5100	1104	0	0	1104	0.22
NR	1.0	1700	86	0	0	86	0.04-
SL	1.0	1700	106	0	0	106	0.06
ST	2.0	3400	1241	0	0	1241	0.37*
SR	1.0	1700	59	0	0	59	0.03-
EL	0.0	1700	52	0	0	52	0.03*
ET	2.0	3400	25	0	0	25	0.02
ER	1.0	1700	50	0	0	50	0.03-
WL	0.0	1700	56	0	0	56	0.03
WT	2.0	3400	30	0	0	30	0.03
WR	1.0	1700	83	0	0	83	0.04-*
							=======
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.53

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	0.0	0	0	0	0	0	0.00
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	0.0	0	0	0	0	0	0.00
SR	0.0	0	0	0	0	0	0.00
EL	0.0	0	0	0	0	0	0.00*
ET	2.0	3400	931	0	0	931	0.29
ER	0.0	1700	58	0	0	58	0.03
WL	0.0	0	0	0	0	0	0.00
WT	2.0	3400	1249	0	0	1249	0.37*
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.42 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	0.0	0	0	0	0	0	0.00
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	0.0	0	0	0	0	0	0.00
SR	0.0	0	0	0	0	0	0.00
EL	0.0	0	0	0	0	0	0.00
ET	2.0	3400	1296	0	0	1296	0.41*
ER	0.0	1700	82	0	0	82	0.05
WL	0.0	0	0	0	0	0	0.00*
WT	2.0	3400	1243	0	0	1243	0.37
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.46 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	47	0	0	47	0.03
NT	2.0	3400	14	0	0	14	0.02
NR	0.0	1700	50	0	0	50	0.03*
SL	1.0	1700	58	0	0	58	0.03*
ST	1.0	1700	19	0	0	19	0.01
SR	1.0	1700	19	0	0	19	0.01-
EL	1.0	1700	12	0	0	12	0.01*
ET	2.0	3400	913	0	0	913	0.27
ER	0.0	1700	6	0	0	6	0.01
WL	1.0	1700	29	0	0	29	0.02
WT	2.0	3400	1204	0	0	1204	0.35*
WR	1.0	1700	49	0	0	49	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.47 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	97	0	0	97	0.06*
NT	2.0	3400	23	0	0	23	0.03
NR	0.0	1700	63	0	0	63	0.04
SL	1.0	1700	29	0	0	29	0.02
ST	1.0	1700	19	0	0	19	0.01*
SR	1.0	1700	18	0	0	18	0.01-
EL	1.0	1700	26	0	0	26	0.02
ET	2.0	3400	1211	0	0	1211	0.37*
ER	0.0	1700	30	0	0	30	0.02
WL	1.0	1700	74	0	0	74	0.04*
WT	2.0	3400	1123	0	0	1123	0.33
WR	1.0	1700	62	0	0	62	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.53 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	31	0	0	31	0.02*
NT	1.0	1700	29	0	0	29	0.04
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	58	0	0	58	0.05*
SR	0.0	1700	34	0	0	34	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	123	0	0	123	0.07
WT	3.0	5100	1208	0	0	1208	0.26*
WR	1.0	1700	29	0	0	29	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.38 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	42	0	0	42	0.03*
NT	1.0	1700	51	0	0	51	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	48	0	0	48	0.05*
SR	0.0	1700	31	0	0	31	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	238	0	0	238	0.14
WT	3.0	5100	1199	0	0	1199	0.28*
WR	1.0	1700	78	0	0	78	0.04-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.41 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	17	0	0	17	0.02
NR	0.0	1700	14	0	0	14	0.01
SL	0.0	1700	189	0	0	189	0.11
ST	1.0	1700	29	0	0	29	0.13*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	44	0	0	44	0.03
ET	3.0	5100	910	0	0	910	0.19*
ER	1.0	1700	11	0	0	11	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.37

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	11	0	0	11	0.02
NR	0.0	1700	28	0	0	28	0.02
SL	0.0	1700	251	0	0	251	0.15
ST	1.0	1700	45	0	0	45	0.17*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	63	0	0	63	0.04
ET	3.0	5100	1311	0	0	1311	0.27*
ER	1.0	1700	15	0	0	15	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.49

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	40	0	0	40	0.02*
NT	1.0	1700	35	0	0	35	0.04
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	35	0	0	35	0.04*
SR	0.0	1700	36	0	0	36	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	79	0	0	79	0.05
WT	3.0	5100	1311	0	0	1311	0.27*
WR	1.0	1700	37	0	0	37	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.38 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	107	0	0	107	0.06
NT	1.0	1700	81	0	0	81	0.11*
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00*
ST	1.0	1700	39	0	0	39	0.04
SR	0.0	1700	35	0	0	35	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	121	0	0	121	0.07
WT	3.0	5100	1426	0	0	1426	0.30*
WR	1.0	1700	66	0	0	66	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.46 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	6	0	0	6	0.02
NR	0.0	1700	22	0	0	22	0.01
SL	0.0	1700	67	0	0	67	0.04
ST	1.0	1700	33	0	0	33	0.06*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	85	0	0	85	0.05
ET	3.0	5100	1054	0	0	1054	0.22*
ER	1.0	1700	6	0	0	6	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.33 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	17	0	0	17	0.03
NR	0.0	1700	25	0	0	25	0.01
SL	0.0	1700	101	0	0	101	0.06
ST	1.0	1700	48	0	0	48	0.09*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	148	0	0	148	0.09
ET	3.0	5100	1350	0	0	1350	0.29*
ER	1.0	1700	29	0	0	29	0.02-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.43 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	6	0	0	6	0.01
NT	3.0	5100	339	0	0	339	0.07*
NR	1.0	1700	62	0	0	62	0.03-
SL	1.0	1700	152	0	0	152	0.09*
ST	3.0	5100	512	0	0	512	0.10
SR	1.0	1700	49	0	0	49	0.03-
EL	1.0	1700	73	0	0	73	0.04
ET	1.0	1700	173	0	0	173	0.10*
ER	1.0	1700	42	0	0	42	0.03-
WL	1.0	1700	33	0	0	33	0.02*
WT	1.0	1700	91	0	0	91	0.05
WR	1.0	1700	85	0	0	85	0.04-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.33 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	46	0	0	46	0.03
NT	3.0	5100	595	0	0	595	0.12*
NR	1.0	1700	70	0	0	70	0.03-
SL	1.0	1700	93	0	0	93	0.06*
ST	3.0	5100	579	0	0	579	0.11
SR	1.0	1700	74	0	0	74	0.03-
EL	1.0	1700	86	0	0	86	0.05
ET	1.0	1700	116	0	0	116	0.07*
ER	1.0	1700	31	0	0	31	0.02-
WL	1.0	1700	61	0	0	61	0.04*
WT	1.0	1700	69	0	0	69	0.04
WR	1.0	1700	106	0	0	106	0.05-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.34 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	26	0	0	26	0.02*
NT	3.0	5100	315	0	0	315	0.06
NR	1.0	1700	17	0	0	17	0.01-
SL	1.0	1700	24	0	0	24	0.01
ST	3.0	5100	533	0	0	533	0.10*
SR	1.0	1700	45	0	0	45	0.03-
EL	0.0	1700	117	0	0	117	0.07*
ET	1.0	1700	49	0	0	49	0.13
ER	0.0	1700	52	0	0	52	0.03
WL	0.0	1700	41	0	0	41	0.02
WT	1.0	1700	79	0	0	79	0.09*
WR	0.0	1700	37	0	0	37	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.33

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	40	0	0	40	0.02*
NT	3.0	5100	621	0	0	621	0.12
NR	1.0	1700	53	0	0	53	0.03-
SL	1.0	1700	37	0	0	37	0.02
ST	3.0	5100	603	0	0	603	0.12*
SR	1.0	1700	53	0	0	53	0.03-
EL	0.0	1700	146	0	0	146	0.09
ET	1.0	1700	74	0	0	74	0.17*
ER	0.0	1700	69	0	0	69	0.04
WL	0.0	1700	62	0	0	62	0.04*
WT	1.0	1700	46	0	0	46	0.09
WR	0.0	1700	37	0	0	37	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	93	0	0	93	0.06*
NT	2.0	3400	183	0	0	183	0.05
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	442	0	0	442	0.09*
SR	1.0	1700	172	0	0	172	0.09-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	112	0	0	112	0.07
WT	3.0	5100	1201	0	0	1201	0.24*
WR	1.0	1700	200	0	0	200	0.10-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.44 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	258	0	0	258	0.15*
NT	2.0	3400	438	0	0	438	0.13
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	488	0	0	488	0.10*
SR	1.0	1700	203	0	0	203	0.10-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	213	0	0	213	0.13
WT	3.0	5100	1009	0	0	1009	0.20*
WR	1.0	1700	293	0	0	293	0.14-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.50 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	134	0	0	134	0.04*
NR >>	1.0	1700	35	0	0	35	0.02
SL	2.0	3400	477	0	0	477	0.14*
ST	2.0	3400	134	0	0	134	0.04
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	85	0	0	85	0.05
ET	3.0	5100	1004	0	0	1004	0.20*
ER	1.0	1700	114	0	0	114	0.06-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.43 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	338	0	0	338	0.10*
NR >>	1.0	1700	55	0	0	55	0.03
SL	2.0	3400	545	0	0	545	0.16*
ST	2.0	3400	166	0	0	166	0.05
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	216	0	0	216	0.13
ET	3.0	5100	1133	0	0	1133	0.22*
ER	1.0	1700	146	0	0	146	0.08-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.53 A

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	31	0	0	31	0.02
NT	1.0	1700	59	0	0	59	0.04*
NR >	1.0	1700	90	0	0	90	0.00-
SL	1.0	1700	89	0	0	89	0.05*
ST	1.0	1700	93	0	0	93	0.05
SR >	1.0	1700	77	0	0	77	0.00-
EL	1.0	1700	109	0	0	109	0.06
ET	2.0	3400	200	0	0	200	0.06*
ER	1.0	1700	31	0	0	31	0.02-
WL	1.0	1700	138	0	0	138	0.08*
WT	2.0	3400	184	0	0	184	0.05
WR	1.0	1700	57	0	0	57	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.28 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	18	0	0	18	0.01
NT	1.0	1700	115	0	0	115	0.07*
NR >	1.0	1700	133	0	0	133	0.00-
SL	1.0	1700	140	0	0	140	0.08*
ST	1.0	1700	99	0	0	99	0.06
SR >	1.0	1700	125	0	0	125	0.00-
EL	1.0	1700	182	0	0	182	0.11*
ET	2.0	3400	267	0	0	267	0.08
ER	1.0	1700	25	0	0	25	0.01-
WL	1.0	1700	130	0	0	130	0.08
WT	2.0	3400	207	0	0	207	0.06
WR	1.0	1700	136	0	0	136	0.07-*
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.38 A

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	30	0	0	30	0.02
NT	1.0	1700	61	0	0	61	0.04*
NR >	1.0	1700	180	0	0	180	0.03-
SL	2.0	3400	246	0	0	246	0.07*
ST	1.0	1700	89	0	0	89	0.05
SR	1.0	1700	149	0	0	149	0.08-
EL	1.0	1700	117	0	0	117	0.07*
ET	2.0	3400	1329	0	0	1329	0.39
ER	1.0	1700	47	0	0	47	0.03-
WL	2.0	3400	267	0	0	267	0.08
WT	2.0	3400	1360	0	0	1360	0.45*
WR	0.0	1700	160	0	0	160	0.09
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.68 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	49	0	0	49	0.03
NT	1.0	1700	125	0	0	125	0.07*
NR >	1.0	1700	282	0	0	282	0.05-
SL	2.0	3400	238	0	0	238	0.07*
ST	1.0	1700	112	0	0	112	0.07
SR	1.0	1700	210	0	0	210	0.10-
EL	1.0	1700	282	0	0	282	0.17*
ET	2.0	3400	1219	0	0	1219	0.36
ER	1.0	1700	60	0	0	60	0.03-
WL	2.0	3400	388	0	0	388	0.11
WT	2.0	3400	1323	0	0	1323	0.45*
WR	0.0	1700	217	0	0	217	0.13
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.81 D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

APPENDIX D

TRAFFIC SIGNAL WARRANTS

TRAFFIC SIGNAL WARRANTS

(Based on Estimated Average Daily Traffic-See Note 2)

Major St: Pacific Coast Hwy. Minor St: Project Entrance Year = OY W/ P

Volume = 38,700 Lanes= 2 Volume = 1,400 Lanes= 1 (one-way)

URBAN RURAL XX

Minimum Requirements EADT

1. Minimum Vehicular				Vehicles per day on major street (both approaches)		Vehicles per day on higher volume minor-street approach (one direction only)	
Satisfied	Not Satisfied XX						
Number of lanes for moving traffic on each approach.							
Major Street		Minor Street		Urban	Rural	Urban	Rural
1		1		8,000	5,600	2,400	1,680
2 +	38,700	1	1,400	9,600	6,720 *	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
2. Interruption of Continuous traffic				Vehicles per day on major street (both approaches)		Vehicles per day on higher volume minor-street approach (one direction only)	
Satisfied XX	Not Satisfied						
Number of lanes for moving traffic on each approach.							
Major Street		Minor Street		Urban	Rural	Urban	Rural
1		1		12,000	8,400	1,200	850
2 +	38,700	1	1,400	14,400	10,080 *	1,200	850 *
2 +		2 +		14,000	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
3. Combination				2 Warrants		2 Warrants	
Satisfied XX	Not Satisfied						
No one warrant satisfied but following warrants fulfilled 80% or more..							
83%	100%						
1	2						

NOTES: 1. Heavier left turn movement from the major street may be included with minor street volume if a separate signal phase is to be provided for the left-turn movement.

2. To be used only for NEW INTERSECTIONS or other locations where actual traffic volumes cannot be counTed.

APPENDIX E

ICU CALCULATIONS - EXISTING WITH PROJECT

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	0.0	1700	18	0	18	0.01
NT	2.0	3400	38	0	38	0.02*
NR	0.0	1700	28	0	28	0.02
SL	2.0	3400	210	10	220	0.06*
ST	0.5	850	21	0	21	0.02
SR >	1.5	2550	449	0	449	0.03-
EL	2.0	3400	483	0	483	0.14*
ET	2.0	3400	604	8	612	0.18
ER	1.0	1700	11	0	11	0.01-
WL	1.0	1700	37	0	37	0.02
WT	2.0	3400	932	9	941	0.28*
WR >	1.0	1700	235	11	246	0.07-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.55 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	0.0	1700	16	0	16	0.01
NT	2.0	3400	35	0	35	0.02*
NR	0.0	1700	25	0	25	0.01
SL	2.0	3400	201	22	223	0.07*
ST	0.5	850	36	0	36	0.04
SR >	1.5	2550	307	0	307	0.00-
EL	2.0	3400	727	0	727	0.21*
ET	2.0	3400	1095	18	1113	0.33
ER	1.0	1700	22	0	22	0.01-
WL	1.0	1700	42	0	42	0.02
WT	2.0	3400	734	14	748	0.22*
WR >	1.0	1700	207	18	225	0.05-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.57 A

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	67	0	67	0.04
NT	2.0	3400	79	0	79	0.02
NR	1.0	1700	120	2	122	0.06-*
SL	1.0	1700	273	17	290	0.17*
ST	2.0	3400	166	0	166	0.05
SR	1.0	1700	291	0	291	0.14-
EL	2.0	3400	157	0	157	0.05*
ET	2.0	3400	491	18	509	0.15
ER	1.0	1700	47	0	47	0.03-
WL	1.0	1700	58	2	60	0.04
WT	2.0	3400	951	20	971	0.29*
WR	1.0	1700	194	20	214	0.11-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.62 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	81	0	81	0.05
NT	2.0	3400	177	0	177	0.05
NR	1.0	1700	153	4	157	0.08-*
SL	1.0	1700	303	37	340	0.20*
ST	2.0	3400	88	0	88	0.03
SR	1.0	1700	201	0	201	0.10-
EL	2.0	3400	342	0	342	0.10*
ET	2.0	3400	744	40	784	0.23
ER	1.0	1700	68	0	68	0.03-
WL	1.0	1700	116	4	120	0.07
WT	2.0	3400	638	32	670	0.20*
WR	1.0	1700	318	31	349	0.18-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.63 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	29	0.02
NT	3.0	5100	1042	0.20*
NR	1.0	1700	81	0.04-
SL	1.0	1700	96	0.06*
ST	2.0	3400	797	0.23
SR	1.0	1700	35	0.02-
EL	0.0	1700	70	0.04*
ET	2.0	3400	38	0.03
ER	1.0	1700	78	0.04-
WL	0.0	1700	64	0.04
WT	2.0	3400	26	0.03
WR	1.0	1700	148	0.08-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.43 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	88	0.05*
NT	3.0	5100	1055	0.21
NR	1.0	1700	86	0.04-
SL	1.0	1700	97	0.06
ST	2.0	3400	1184	0.35*
SR	1.0	1700	84	0.04-
EL	0.0	1700	66	0.04*
ET	2.0	3400	26	0.03
ER	1.0	1700	60	0.03-
WL	0.0	1700	61	0.04
WT	2.0	3400	32	0.03*
WR	1.0	1700	76	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.52 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Project Entrance (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	33	0.02
NT	2.0	3400	1146	0.34*
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00*
ST	2.0	3400	929	0.27
SR	1.0	1700	23	0.01-
EL	1.0	1700	22	0.01
ET	0.0	0	0	0.00
ER	1.0	1700	31	0.02-*
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.41 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	77	0.05*
NT	2.0	3400	1185	0.35
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	2.0	3400	1279	0.38*
SR	1.0	1700	54	0.03-
EL	1.0	1700	43	0.03*
ET	0.0	0	0	0.00
ER	1.0	1700	63	0.03-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.51 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00*
ET	2.0	3400	897	0.28
ER	0.0	1700	62	0.04
WL	0.0	0	0	0.00
WT	2.0	3400	1179	0.35*
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1256	0.39*
ER	0.0	1700	86	0.05
WL	0.0	0	0	0.00*
WT	2.0	3400	1243	0.37
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.44 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	53	0.03
NT	2.0	3400	18	0.03
NR	0.0	1700	76	0.04*
SL	1.0	1700	53	0.03*
ST	1.0	1700	25	0.01
SR	1.0	1700	32	0.02-
EL	1.0	1700	28	0.02*
ET	2.0	3400	905	0.27
ER	0.0	1700	6	0.01
WL	1.0	1700	59	0.03
WT	2.0	3400	1170	0.34*
WR	1.0	1700	45	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.48 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	112	0.07*
NT	2.0	3400	32	0.04
NR	0.0	1700	87	0.05
SL	1.0	1700	27	0.02
ST	1.0	1700	29	0.02
SR	1.0	1700	54	0.03-*
EL	1.0	1700	51	0.03
ET	2.0	3400	1222	0.37*
ER	0.0	1700	28	0.02
WL	1.0	1700	133	0.08*
WT	2.0	3400	1187	0.35
WR	1.0	1700	57	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.60 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	1700	29	2	31	0.02*
NT	1.0	1700	27	0	27	0.03
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00
ST	1.0	1700	53	0	53	0.05*
SR	0.0	1700	31	0	31	0.02
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	0.0	1700	112	0	112	0.07
WT	3.0	5100	1099	41	1140	0.25*
WR	1.0	1700	27	0	27	0.02-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.37 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	1700	39	4	43	0.03*
NT	1.0	1700	47	0	47	0.05
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00
ST	1.0	1700	44	0	44	0.04*
SR	0.0	1700	29	0	29	0.02
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	0.0	1700	217	0	217	0.13
WT	3.0	5100	1090	87	1177	0.27*
WR	1.0	1700	71	0	71	0.03-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.39 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00
NT	1.0	1700	16	0	16	0.02*
NR	0.0	1700	13	0	13	0.01
SL	0.0	1700	172	0	172	0.10*
ST	1.0	1700	27	0	27	0.12
SR	0.0	0	0	0	0	0.00
EL	0.0	1700	40	2	42	0.02
ET	3.0	5100	828	44	872	0.18*
ER	1.0	1700	10	0	10	0.01-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.35 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00*
NT	1.0	1700	10	0	10	0.02
NR	0.0	1700	26	0	26	0.02
SL	0.0	1700	229	0	229	0.13
ST	1.0	1700	41	0	41	0.16*
SR	0.0	0	0	0	0	0.00
EL	0.0	1700	58	4	62	0.04
ET	3.0	5100	1192	77	1269	0.26*
ER	1.0	1700	14	0	14	0.01-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.47 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	VOLUMES Project	VOLUMES Total	V/C Ratio
NL	0.0	1700	37	2	39	0.02*
NT	1.0	1700	32	0	32	0.04
NR	0.0	0	0	0	0	0.00-
SL	0.0	0	0	0	0	0.00
ST	1.0	1700	32	0	32	0.04*
SR	0.0	1700	33	0	33	0.02
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	0.0	1700	72	0	72	0.04
WT	3.0	5100	1192	39	1231	0.26*
WR	1.0	1700	34	0	34	0.02-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.37 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	VOLUMES Project	VOLUMES Total	V/C Ratio
NL	0.0	1700	98	4	102	0.06
NT	1.0	1700	74	0	74	0.10*
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00*
ST	1.0	1700	36	0	36	0.04
SR	0.0	1700	32	0	32	0.02
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	0.0	1700	110	0	110	0.06
WT	3.0	5100	1297	83	1380	0.29*
WR	1.0	1700	60	0	60	0.03-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.44 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00
NT	1.0	1700	6	0	6	0.02*
NR	0.0	1700	20	0	20	0.01
SL	0.0	1700	61	0	61	0.04*
ST	1.0	1700	30	0	30	0.05
SR	0.0	0	0	0	0	0.00
EL	0.0	1700	78	2	80	0.05
ET	3.0	5100	959	42	1001	0.21*
ER	1.0	1700	6	0	6	0.01-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.32 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00*
NT	1.0	1700	16	0	16	0.02
NR	0.0	1700	23	0	23	0.01
SL	0.0	1700	92	0	92	0.05
ST	1.0	1700	44	0	44	0.08*
SR	0.0	0	0	0	0	0.00
EL	0.0	1700	135	4	139	0.08
ET	3.0	5100	1228	73	1301	0.28*
ER	1.0	1700	27	0	27	0.02-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.41 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	VOLUMES Project	VOLUMES Total	V/C Ratio
NL	1.0	1700	6	0	6	0.01
NT	3.0	5100	309	1	310	0.06*
NR	1.0	1700	57	2	59	0.03-
SL	1.0	1700	139	0	139	0.08*
ST	3.0	5100	466	1	467	0.09
SR	1.0	1700	45	0	45	0.03-
EL	1.0	1700	67	0	67	0.04
ET	1.0	1700	158	0	158	0.09*
ER	1.0	1700	39	0	39	0.02-
WL	1.0	1700	30	2	32	0.02*
WT	1.0	1700	83	0	83	0.05
WR	1.0	1700	78	0	78	0.04-
						=======
					Clearance Interval Percentage =	0.05
					Sum of Critical Movements =	0.30 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	VOLUMES Project	VOLUMES Total	V/C Ratio
NL	1.0	1700	42	0	42	0.02
NT	3.0	5100	541	2	543	0.11*
NR	1.0	1700	64	4	68	0.03-
SL	1.0	1700	85	0	85	0.05*
ST	3.0	5100	527	2	529	0.10
SR	1.0	1700	68	0	68	0.03-
EL	1.0	1700	79	0	79	0.05*
ET	1.0	1700	106	0	106	0.06
ER	1.0	1700	29	0	29	0.02-
WL	1.0	1700	56	4	60	0.04
WT	1.0	1700	63	0	63	0.04
WR	1.0	1700	97	0	97	0.05-*
						=======
					Clearance Interval Percentage =	0.05
					Sum of Critical Movements =	0.31 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	24	0	24	0.01*
NT	3.0	5100	287	3	290	0.06
NR	1.0	1700	16	2	18	0.01-
SL	1.0	1700	22	0	22	0.01
ST	3.0	5100	485	3	488	0.10*
SR	1.0	1700	41	0	41	0.02-
EL	0.0	1700	107	0	107	0.06*
ET	1.0	1700	45	0	45	0.12
ER	0.0	1700	48	0	48	0.03
WL	0.0	1700	38	2	40	0.02
WT	1.0	1700	72	0	72	0.09*
WR	0.0	1700	34	0	34	0.02
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.31 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	37	0	37	0.02*
NT	3.0	5100	565	6	571	0.11
NR	1.0	1700	49	4	53	0.03-
SL	1.0	1700	34	0	34	0.02
ST	3.0	5100	549	6	555	0.11*
SR	1.0	1700	49	0	49	0.03-
EL	0.0	1700	133	0	133	0.08
ET	1.0	1700	68	0	68	0.16*
ER	0.0	1700	63	0	63	0.04
WL	0.0	1700	57	4	61	0.04*
WT	1.0	1700	42	0	42	0.08
WR	0.0	1700	34	0	34	0.02
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.38 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	1.0	1700	85	4	89	0.05*
NT	2.0	3400	167	5	172	0.05
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00
ST	3.0	5100	402	0	402	0.08
SR	1.0	1700	157	5	162	0.09-*
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	1.0	1700	102	0	102	0.06
WT	3.0	5100	1092	30	1122	0.22*
WR	1.0	1700	182	0	182	0.09-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.41 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	1.0	1700	235	8	243	0.14*
NT	2.0	3400	399	10	409	0.12
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00
ST	3.0	5100	444	0	444	0.09*
SR	1.0	1700	185	10	195	0.09-
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	1.0	1700	194	0	194	0.11
WT	3.0	5100	918	65	983	0.19*
WR	1.0	1700	267	0	267	0.14-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.47 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00
NT	2.0	3400	122	4	126	0.04*
NR >>	1.0	1700	32	0	32	0.02
SL	2.0	3400	434	0	434	0.13*
ST	2.0	3400	122	0	122	0.04
SR	0.0	0	0	0	0	0.00
EL	1.0	1700	78	5	83	0.05
ET	3.0	5100	913	33	946	0.19*
ER	1.0	1700	104	4	108	0.05-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.41 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00
NT	2.0	3400	308	8	316	0.09*
NR >>	1.0	1700	50	0	50	0.03
SL	2.0	3400	496	0	496	0.15*
ST	2.0	3400	151	0	151	0.04
SR	0.0	0	0	0	0	0.00
EL	1.0	1700	197	10	207	0.12
ET	3.0	5100	1030	55	1085	0.21*
ER	1.0	1700	133	8	141	0.07-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.50 A

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	24	1	25	0.01
NT	1.0	1700	45	2	47	0.03*
NR >	1.0	1700	68	0	68	0.00-
SL	1.0	1700	67	0	67	0.04*
ST	1.0	1700	70	2	72	0.04
SR >	1.0	1700	58	0	58	0.00-
EL	1.0	1700	82	0	82	0.05
ET	2.0	3400	151	2	153	0.05*
ER	1.0	1700	24	1	25	0.01-
WL	1.0	1700	104	0	104	0.06*
WT	2.0	3400	139	2	141	0.04
WR	1.0	1700	43	0	43	0.03-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.23 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	14	2	16	0.01
NT	1.0	1700	87	4	91	0.05*
NR >	1.0	1700	100	0	100	0.00-
SL	1.0	1700	106	0	106	0.06*
ST	1.0	1700	75	4	79	0.05
SR >	1.0	1700	94	0	94	0.00-
EL	1.0	1700	137	0	137	0.08*
ET	2.0	3400	201	4	205	0.06
ER	1.0	1700	19	2	21	0.01-
WL	1.0	1700	98	0	98	0.06
WT	2.0	3400	156	4	160	0.05*
WR	1.0	1700	103	0	103	0.05-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.29 A

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	28	0	28	0.02
NT	1.0	1700	56	1	57	0.03*
NR >	1.0	1700	164	1	165	0.03-
SL	2.0	3400	224	0	224	0.07*
ST	1.0	1700	81	1	82	0.05
SR	1.0	1700	136	1	137	0.07-
EL	1.0	1700	107	1	108	0.06*
ET	2.0	3400	1209	27	1236	0.36
ER	1.0	1700	43	0	43	0.03-
WL	2.0	3400	243	1	244	0.07
WT	2.0	3400	1237	24	1261	0.41*
WR	0.0	1700	146	0	146	0.09
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.62 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	45	0	45	0.03
NT	1.0	1700	114	2	116	0.07*
NR >	1.0	1700	257	2	259	0.04-
SL	2.0	3400	217	0	217	0.06*
ST	1.0	1700	102	2	104	0.06
SR	1.0	1700	191	2	193	0.09-
EL	1.0	1700	257	2	259	0.15*
ET	2.0	3400	1109	43	1152	0.34
ER	1.0	1700	55	0	55	0.03-
WL	2.0	3400	353	2	355	0.10
WT	2.0	3400	1203	53	1256	0.43*
WR	0.0	1700	198	0	198	0.12
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.76 C

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	19	0	0	19	0.01
NT	2.0	3400	41	0	0	41	0.03*
NR	0.0	1700	30	0	0	30	0.02
SL	2.0	3400	231	10	0	241	0.07*
ST	0.5	850	23	0	0	23	0.03
SR >	1.5	2550	493	0	0	493	0.03-
EL	2.0	3400	531	0	0	531	0.16*
ET	2.0	3400	664	8	0	672	0.20
ER	1.0	1700	12	0	0	12	0.01-
WL	1.0	1700	40	0	0	40	0.02
WT	2.0	3400	1025	9	0	1034	0.30*
WR >	1.0	1700	258	11	0	269	0.08-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.61 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	17	0	0	17	0.01
NT	2.0	3400	38	0	0	38	0.02*
NR	0.0	1700	27	0	0	27	0.02
SL	2.0	3400	221	22	0	243	0.07*
ST	0.5	850	39	0	0	39	0.05
SR >	1.5	2550	337	0	0	337	0.00-
EL	2.0	3400	799	0	0	799	0.24*
ET	2.0	3400	1204	18	0	1222	0.36
ER	1.0	1700	24	0	0	24	0.01-
WL	1.0	1700	46	0	0	46	0.03
WT	2.0	3400	807	14	0	821	0.24*
WR >	1.0	1700	227	18	0	245	0.06-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.62 B

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	73	0	0	73	0.04
NT	2.0	3400	86	0	0	86	0.03
NR	1.0	1700	132	2	0	134	0.07-*
SL	1.0	1700	300	17	0	317	0.19*
ST	2.0	3400	182	0	0	182	0.05
SR	1.0	1700	320	0	0	320	0.16-
EL	2.0	3400	172	0	0	172	0.05*
ET	2.0	3400	540	18	0	558	0.16
ER	1.0	1700	51	0	0	51	0.03-
WL	1.0	1700	63	2	0	65	0.04
WT	2.0	3400	1046	20	0	1066	0.31*
WR	1.0	1700	213	20	0	233	0.12-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.67 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	89	0	0	89	0.05
NT	2.0	3400	194	0	0	194	0.06
NR	1.0	1700	168	4	0	172	0.09-*
SL	1.0	1700	333	37	0	370	0.22*
ST	2.0	3400	96	0	0	96	0.03
SR	1.0	1700	221	0	0	221	0.11-
EL	2.0	3400	376	0	0	376	0.11*
ET	2.0	3400	818	40	0	858	0.25
ER	1.0	1700	74	0	0	74	0.03-
WL	1.0	1700	127	4	0	131	0.08
WT	2.0	3400	701	32	0	733	0.22*
WR	1.0	1700	349	31	0	380	0.19-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.69 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	31	0.02*
NT	3.0	5100	1144	0.22
NR	1.0	1700	89	0.04-
SL	1.0	1700	105	0.06
ST	2.0	3400	873	0.26*
SR	1.0	1700	37	0.02-
EL	0.0	1700	74	0.04*
ET	2.0	3400	41	0.03
ER	1.0	1700	83	0.04-
WL	0.0	1700	70	0.04
WT	2.0	3400	28	0.03
WR	1.0	1700	162	0.09-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.46 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	94	0.06*
NT	3.0	5100	1155	0.23
NR	1.0	1700	93	0.04-
SL	1.0	1700	106	0.06
ST	2.0	3400	1296	0.38*
SR	1.0	1700	89	0.04-
EL	0.0	1700	70	0.04*
ET	2.0	3400	28	0.03
ER	1.0	1700	64	0.03-
WL	0.0	1700	66	0.04
WT	2.0	3400	34	0.03
WR	1.0	1700	83	0.04-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.57 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Project Entrance (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	33	0.02
NT	2.0	3400	1259	0.37*
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00*
ST	2.0	3400	1019	0.30
SR	1.0	1700	23	0.01-
EL	1.0	1700	22	0.01
ET	0.0	0	0	0.00
ER	1.0	1700	31	0.02-*
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.44 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	77	0.05*
NT	2.0	3400	1299	0.38
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	2.0	3400	1404	0.41*
SR	1.0	1700	54	0.03-
EL	1.0	1700	43	0.03*
ET	0.0	0	0	0.00
ER	1.0	1700	63	0.03-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.54 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00*
ET	2.0	3400	981	0.31
ER	0.0	1700	67	0.04
WL	0.0	0	0	0.00
WT	2.0	3400	1292	0.38*
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.43 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1373	0.43*
ER	0.0	1700	93	0.05
WL	0.0	0	0	0.00*
WT	2.0	3400	1356	0.40
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.48 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	57	0.03
NT	2.0	3400	19	0.03
NR	0.0	1700	83	0.05*
SL	1.0	1700	58	0.03*
ST	1.0	1700	27	0.02
SR	1.0	1700	34	0.02-
EL	1.0	1700	30	0.02*
ET	2.0	3400	991	0.29
ER	0.0	1700	6	0.01
WL	1.0	1700	63	0.04
WT	2.0	3400	1283	0.38*
WR	1.0	1700	49	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.53 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	121	0.07*
NT	2.0	3400	34	0.04
NR	0.0	1700	94	0.06
SL	1.0	1700	29	0.02
ST	1.0	1700	31	0.02
SR	1.0	1700	57	0.03-*
EL	1.0	1700	55	0.03
ET	2.0	3400	1337	0.40*
ER	0.0	1700	30	0.02
WL	1.0	1700	145	0.09*
WT	2.0	3400	1297	0.38
WR	1.0	1700	62	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.64 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	31	2	0	33	0.02*
NT	1.0	1700	29	0	0	29	0.04
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	58	0	0	58	0.05*
SR	0.0	1700	34	0	0	34	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	123	0	0	123	0.07
WT	3.0	5100	1208	41	0	1249	0.27*
WR	1.0	1700	29	0	0	29	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.39 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	42	4	0	46	0.03*
NT	1.0	1700	51	0	0	51	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	48	0	0	48	0.05*
SR	0.0	1700	31	0	0	31	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	238	0	0	238	0.14
WT	3.0	5100	1199	87	0	1286	0.30*
WR	1.0	1700	78	0	0	78	0.04-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.43 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	17	0	0	17	0.02
NR	0.0	1700	14	0	0	14	0.01
SL	0.0	1700	189	0	0	189	0.11
ST	1.0	1700	29	0	0	29	0.13*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	44	2	0	46	0.03
ET	3.0	5100	910	44	0	954	0.20*
ER	1.0	1700	11	0	0	11	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.38 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	11	0	0	11	0.02
NR	0.0	1700	28	0	0	28	0.02
SL	0.0	1700	251	0	0	251	0.15
ST	1.0	1700	45	0	0	45	0.17*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	63	4	0	67	0.04
ET	3.0	5100	1311	77	0	1388	0.29*
ER	1.0	1700	15	0	0	15	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.51 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	40	2	0	42	0.03*
NT	1.0	1700	35	0	0	35	0.05
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	35	0	0	35	0.04*
SR	0.0	1700	36	0	0	36	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	79	0	0	79	0.05
WT	3.0	5100	1311	39	0	1350	0.28*
WR	1.0	1700	37	0	0	37	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	107	4	0	111	0.07*
NT	1.0	1700	81	0	0	81	0.11
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	39	0	0	39	0.04*
SR	0.0	1700	35	0	0	35	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	121	0	0	121	0.07
WT	3.0	5100	1426	83	0	1509	0.32*
WR	1.0	1700	66	0	0	66	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.48 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	6	0	0	6	0.02
NR	0.0	1700	22	0	0	22	0.01
SL	0.0	1700	67	0	0	67	0.04
ST	1.0	1700	33	0	0	33	0.06*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	85	2	0	87	0.05
ET	3.0	5100	1054	42	0	1096	0.23*
ER	1.0	1700	6	0	0	6	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.34 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	17	0	0	17	0.03
NR	0.0	1700	25	0	0	25	0.01
SL	0.0	1700	101	0	0	101	0.06
ST	1.0	1700	48	0	0	48	0.09*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	148	4	0	152	0.09
ET	3.0	5100	1350	73	0	1423	0.31*
ER	1.0	1700	29	0	0	29	0.02-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	6	0	0	6	0.01
NT	3.0	5100	339	1	0	340	0.07*
NR	1.0	1700	62	2	0	64	0.03-
SL	1.0	1700	152	0	0	152	0.09*
ST	3.0	5100	512	1	0	513	0.10
SR	1.0	1700	49	0	0	49	0.03-
EL	1.0	1700	73	0	0	73	0.04
ET	1.0	1700	173	0	0	173	0.10*
ER	1.0	1700	42	0	0	42	0.03-
WL	1.0	1700	33	2	0	35	0.02*
WT	1.0	1700	91	0	0	91	0.05
WR	1.0	1700	85	0	0	85	0.04-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.33 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	46	0	0	46	0.03
NT	3.0	5100	595	2	0	597	0.12*
NR	1.0	1700	70	4	0	74	0.03-
SL	1.0	1700	93	0	0	93	0.06*
ST	3.0	5100	579	2	0	581	0.11
SR	1.0	1700	74	0	0	74	0.03-
EL	1.0	1700	86	0	0	86	0.05
ET	1.0	1700	116	0	0	116	0.07*
ER	1.0	1700	31	0	0	31	0.02-
WL	1.0	1700	61	4	0	65	0.04*
WT	1.0	1700	69	0	0	69	0.04
WR	1.0	1700	106	0	0	106	0.05-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.34 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	26	0	0	26	0.02*
NT	3.0	5100	315	3	0	318	0.06
NR	1.0	1700	17	2	0	19	0.01-
SL	1.0	1700	24	0	0	24	0.01
ST	3.0	5100	533	3	0	536	0.11*
SR	1.0	1700	45	0	0	45	0.03-
EL	0.0	1700	117	0	0	117	0.07*
ET	1.0	1700	49	0	0	49	0.13
ER	0.0	1700	52	0	0	52	0.03
WL	0.0	1700	41	2	0	43	0.03
WT	1.0	1700	79	0	0	79	0.09*
WR	0.0	1700	37	0	0	37	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.34 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	40	0	0	40	0.02*
NT	3.0	5100	621	6	0	627	0.12
NR	1.0	1700	53	4	0	57	0.03-
SL	1.0	1700	37	0	0	37	0.02
ST	3.0	5100	603	6	0	609	0.12*
SR	1.0	1700	53	0	0	53	0.03-
EL	0.0	1700	146	0	0	146	0.09
ET	1.0	1700	74	0	0	74	0.17*
ER	0.0	1700	69	0	0	69	0.04
WL	0.0	1700	62	4	0	66	0.04*
WT	1.0	1700	46	0	0	46	0.09
WR	0.0	1700	37	0	0	37	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	93	4	0	97	0.06*
NT	2.0	3400	183	5	0	188	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	442	0	0	442	0.09*
SR	1.0	1700	172	5	0	177	0.09-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	112	0	0	112	0.07
WT	3.0	5100	1201	30	0	1231	0.24*
WR	1.0	1700	200	0	0	200	0.10-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.44 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	258	8	0	266	0.16*
NT	2.0	3400	438	10	0	448	0.13
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	488	0	0	488	0.10
SR	1.0	1700	203	10	0	213	0.11-*
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	213	0	0	213	0.13
WT	3.0	5100	1009	65	0	1074	0.21*
WR	1.0	1700	293	0	0	293	0.14-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.53 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	134	4	0	138	0.04*
NR >>	1.0	1700	35	0	0	35	0.02
SL	2.0	3400	477	0	0	477	0.14*
ST	2.0	3400	134	0	0	134	0.04
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	85	5	0	90	0.05
ET	3.0	5100	1004	33	0	1037	0.20*
ER	1.0	1700	114	4	0	118	0.06-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.43 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	338	8	0	346	0.10*
NR >>	1.0	1700	55	0	0	55	0.03
SL	2.0	3400	545	0	0	545	0.16*
ST	2.0	3400	166	0	0	166	0.05
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	216	10	0	226	0.13
ET	3.0	5100	1133	55	0	1188	0.23*
ER	1.0	1700	146	8	0	154	0.08-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.54 A

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	26	1	0	27	0.02*
NT	1.0	1700	49	2	0	51	0.03
NR >	1.0	1700	74	0	0	74	0.00-
SL	1.0	1700	73	0	0	73	0.04
ST	1.0	1700	77	2	0	79	0.05*
SR >	1.0	1700	63	0	0	63	0.00-
EL	1.0	1700	90	0	0	90	0.05
ET	2.0	3400	166	2	0	168	0.05*
ER	1.0	1700	26	1	0	27	0.02-
WL	1.0	1700	114	0	0	114	0.07*
WT	2.0	3400	152	2	0	154	0.05
WR	1.0	1700	47	0	0	47	0.03-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.24 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	15	2	0	17	0.01
NT	1.0	1700	95	4	0	99	0.06*
NR >	1.0	1700	110	0	0	110	0.00-
SL	1.0	1700	116	0	0	116	0.07*
ST	1.0	1700	82	4	0	86	0.05
SR >	1.0	1700	103	0	0	103	0.00-
EL	1.0	1700	150	0	0	150	0.09*
ET	2.0	3400	221	4	0	225	0.07
ER	1.0	1700	20	2	0	22	0.01-
WL	1.0	1700	107	0	0	107	0.06
WT	2.0	3400	171	4	0	175	0.05
WR	1.0	1700	113	0	0	113	0.06-*
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.33 A

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Existing + Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio	
NL	1.0	1700	30	0	0	30	0.02	
NT	1.0	1700	61	1	0	62	0.04*	
NR >	1.0	1700	180	1	0	181	0.03-	
SL	2.0	3400	246	0	0	246	0.07*	
ST	1.0	1700	89	1	0	90	0.05	
SR	1.0	1700	149	1	0	150	0.08-	
EL	1.0	1700	117	1	0	118	0.07*	
ET	2.0	3400	1329	27	0	1356	0.40	
ER	1.0	1700	47	0	0	47	0.03-	
WL	2.0	3400	267	1	0	268	0.08	
WT	2.0	3400	1360	24	0	1384	0.45*	
WR	0.0	1700	160	0	0	160	0.09	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.68	B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio	
NL	1.0	1700	49	0	0	49	0.03	
NT	1.0	1700	125	2	0	127	0.07*	
NR >	1.0	1700	282	2	0	284	0.05-	
SL	2.0	3400	238	0	0	238	0.07*	
ST	1.0	1700	112	2	0	114	0.07	
SR	1.0	1700	210	2	0	212	0.10-	
EL	1.0	1700	282	2	0	284	0.17*	
ET	2.0	3400	1219	43	0	1262	0.37	
ER	1.0	1700	60	0	0	60	0.03-	
WL	2.0	3400	388	2	0	390	0.11	
WT	2.0	3400	1323	53	0	1376	0.47*	
WR	0.0	1700	217	0	0	217	0.13	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.83	D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

APPENDIX F

ICU CALCULATIONS – SHORT-RANGE WITHOUT PROJECT

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	19	0	0	19	0.01
NT	2.0	3400	41	0	0	41	0.03*
NR	0.0	1700	30	0	0	30	0.02 -
SL	2.0	3400	231	0	38	269	0.08*
ST	0.5	850	23	0	0	23	0.03
SR >	1.5	2550	493	0	2	495	0.03-
EL	2.0	3400	531	0	1	532	0.16*
ET	2.0	3400	664	0	43	707	0.21
ER	1.0	1700	12	0	0	12	0.01-
WL	1.0	1700	40	0	0	40	0.02
WT	2.0	3400	1025	0	47	1072	0.32*
WR >	1.0	1700	258	0	35	293	0.08-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.64 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	17	0	0	17	0.01
NT	2.0	3400	38	0	0	38	0.02*
NR	0.0	1700	27	0	0	27	0.02
SL	2.0	3400	221	0	62	283	0.08*
ST	0.5	850	39	0	0	39	0.05
SR >	1.5	2550	337	0	1	338	0.00-
EL	2.0	3400	799	0	2	801	0.24*
ET	2.0	3400	1204	0	73	1277	0.38
ER	1.0	1700	24	0	0	24	0.01-
WL	1.0	1700	46	0	0	46	0.03
WT	2.0	3400	807	0	63	870	0.26*
WR >	1.0	1700	227	0	56	283	0.08-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.65 B

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	73	0	0	73	0.04
NT	2.0	3400	86	0	0	86	0.03
NR	1.0	1700	132	0	2	134	0.07-*
SL	1.0	1700	300	0	64	364	0.21*
ST	2.0	3400	182	0	0	182	0.05
SR	1.0	1700	320	0	49	369	0.19-
EL	2.0	3400	172	0	44	216	0.06*
ET	2.0	3400	540	0	48	588	0.17
ER	1.0	1700	51	0	0	51	0.03-
WL	1.0	1700	63	0	1	64	0.04
WT	2.0	3400	1046	0	38	1084	0.32*
WR	1.0	1700	213	0	48	261	0.13-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.71 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	89	0	0	89	0.05
NT	2.0	3400	194	0	0	194	0.06
NR	1.0	1700	168	0	4	172	0.09-*
SL	1.0	1700	333	0	92	425	0.25*
ST	2.0	3400	96	0	0	96	0.03
SR	1.0	1700	221	0	64	285	0.14-
EL	2.0	3400	376	0	67	443	0.13*
ET	2.0	3400	818	0	75	893	0.26
ER	1.0	1700	74	0	0	74	0.03-
WL	1.0	1700	127	0	4	131	0.08
WT	2.0	3400	701	0	72	773	0.23*
WR	1.0	1700	349	0	99	448	0.22-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.75 C

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	24	0	1	25	0.01
NT	3.0	5100	1123	0	62	1185	0.23*
NR	1.0	1700	85	0	2	87	0.04-
SL	1.0	1700	105	0	24	129	0.08*
ST	2.0	3400	844	0	90	934	0.27
SR	1.0	1700	27	0	0	27	0.02-
EL	0.0	1700	49	0	4	53	0.03*
ET	2.0	3400	37	0	1	38	0.03
ER	1.0	1700	63	0	4	67	0.03-
WL	0.0	1700	66	0	3	69	0.04
WT	2.0	3400	26	0	0	26	0.03
WR	1.0	1700	162	0	21	183	0.09-*
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.48 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	71	0	4	75	0.04*
NT	3.0	5100	1104	0	160	1264	0.25
NR	1.0	1700	86	0	8	94	0.05-
SL	1.0	1700	106	0	14	120	0.07
ST	2.0	3400	1241	0	153	1394	0.41*
SR	1.0	1700	59	0	4	63	0.03-
EL	0.0	1700	52	0	1	53	0.03*
ET	2.0	3400	25	0	0	25	0.02
ER	1.0	1700	50	0	1	51	0.03-
WL	0.0	1700	56	0	9	65	0.04
WT	2.0	3400	30	0	1	31	0.03
WR	1.0	1700	83	0	14	97	0.05-*
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.58 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Project Entrance (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	0	0	0	0	0.00
NT	2.0	3400	1249	0	65	1314	0.39*
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00*
ST	2.0	3400	990	0	97	1087	0.32
SR	1.0	1700	0	0	0	0	0.00-
EL	1.0	1700	0	0	0	0	0.00*
ET	0.0	0	0	0	0	0	0.00
ER	1.0	1700	0	0	0	0	0.00-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.44 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	0	0	0	0	0.00*
NT	2.0	3400	1262	0	172	1434	0.42
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	2.0	3400	1379	0	163	1542	0.45*
SR	1.0	1700	0	0	0	0	0.00-
EL	1.0	1700	0	0	0	0	0.00*
ET	0.0	0	0	0	0	0	0.00
ER	1.0	1700	0	0	0	0	0.00-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.50 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	0.0	0	0	0	0	0	0.00
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	0.0	0	0	0	0	0	0.00
SR	0.0	0	0	0	0	0	0.00
EL	0.0	0	0	0	0	0	0.00*
ET	2.0	3400	931	0	97	1028	0.32
ER	0.0	1700	58	0	0	58	0.03
WL	0.0	0	0	0	0	0	0.00
WT	2.0	3400	1249	0	65	1314	0.39*
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.44 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	0.0	0	0	0	0	0	0.00
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	0.0	0	0	0	0	0	0.00
SR	0.0	0	0	0	0	0	0.00
EL	0.0	0	0	0	0	0	0.00
ET	2.0	3400	1296	0	167	1463	0.45*
ER	0.0	1700	82	0	-4	78	0.05
WL	0.0	0	0	0	0	0	0.00*
WT	2.0	3400	1243	0	172	1415	0.42
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.50 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project w/ Santa Clara Imp
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	43	0.03
NT	2.0	3400	12	0.02
NR	0.0	1700	66	0.04*
SL	1.0	1700	61	0.04*
ST	1.0	1700	19	0.01
SR	1.0	1700	19	0.01-
EL	1.0	1700	13	0.01*
ET	2.0	3400	1009	0.30
ER	0.0	1700	6	0.01
WL	1.0	1700	44	0.03
WT	2.0	3400	1286	0.38*
WR	1.0	1700	51	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.52 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	96	0.06
NT	2.0	3400	22	0.03
NR	0.0	1700	96	0.06*
SL	1.0	1700	38	0.02*
ST	1.0	1700	17	0.01
SR	1.0	1700	19	0.01-
EL	1.0	1700	26	0.02
ET	2.0	3400	1378	0.41*
ER	0.0	1700	30	0.02
WL	1.0	1700	111	0.07*
WT	2.0	3400	1312	0.39
WR	1.0	1700	70	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.61 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	31	0	0	31	0.02*
NT	1.0	1700	29	0	0	29	0.04
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	58	0	0	58	0.05*
SR	0.0	1700	34	0	0	34	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	123	0	0	123	0.07
WT	3.0	5100	1208	0	70	1278	0.27*
WR	1.0	1700	29	0	0	29	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.39 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	42	0	0	42	0.03*
NT	1.0	1700	51	0	0	51	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	48	0	0	48	0.05*
SR	0.0	1700	31	0	0	31	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	238	0	0	238	0.14
WT	3.0	5100	1199	0	177	1376	0.32*
WR	1.0	1700	78	0	0	78	0.04-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	17	0	0	17	0.02
NR	0.0	1700	14	0	0	14	0.01
SL	0.0	1700	189	0	0	189	0.11
ST	1.0	1700	29	0	0	29	0.13*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	44	0	0	44	0.03
ET	3.0	5100	910	0	96	1006	0.21*
ER	1.0	1700	11	0	0	11	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.39 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	11	0	0	11	0.02
NR	0.0	1700	28	0	0	28	0.02
SL	0.0	1700	251	0	0	251	0.15
ST	1.0	1700	45	0	0	45	0.17*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	63	0	0	63	0.04
ET	3.0	5100	1311	0	175	1486	0.30*
ER	1.0	1700	15	0	0	15	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.52 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	40	0	0	40	0.02*
NT	1.0	1700	35	0	0	35	0.04
NR	0.0	0 -	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	35	0	0	35	0.04*
SR	0.0	1700	36	0	0	36	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	79	0	0	79	0.05
WT	3.0	5100	1311	0	70	1381	0.29*
WR	1.0	1700	37	0	0	37	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	107	0	0	107	0.06
NT	1.0	1700	81	0	0	81	0.11*
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00*
ST	1.0	1700	39	0	0	39	0.04
SR	0.0	1700	35	0	0	35	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	121	0	0	121	0.07
WT	3.0	5100	1426	0	177	1603	0.34*
WR	1.0	1700	66	0	0	66	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.50 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	6	0	0	6	0.02
NR	0.0	1700	22	0	0	22	0.01
SL	0.0	1700	67	0	0	67	0.04
ST	1.0	1700	33	0	0	33	0.06*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	85	0	0	85	0.05
ET	3.0	5100	1054	0	96	1150	0.24*
ER	1.0	1700	6	0	0	6	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.35 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	17	0	0	17	0.03
NR	0.0	1700	25	0	0	25	0.01
SL	0.0	1700	101	0	0	101	0.06
ST	1.0	1700	48	0	0	48	0.09*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	148	0	0	148	0.09
ET	3.0	5100	1350	0	175	1525	0.33*
ER	1.0	1700	29	0	0	29	0.02-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.47 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	6	0	0	6	0.01
NT	3.0	5100	339	0	5	344	0.07*
NR	1.0	1700	62	0	7	69	0.03-
SL	1.0	1700	152	0	29	181	0.11*
ST	3.0	5100	512	0	10	522	0.10
SR	1.0	1700	49	0	0	49	0.03-
EL	1.0	1700	73	0	0	73	0.04
ET	1.0	1700	173	0	2	175	0.10*
ER	1.0	1700	42	0	0	42	0.03-
WL	1.0	1700	33	0	8	41	0.02*
WT	1.0	1700	91	0	3	94	0.06
WR	1.0	1700	85	0	26	111	0.06-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.35 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	46	0	0	46	0.03
NT	3.0	5100	595	0	25	620	0.12*
NR	1.0	1700	70	0	6	76	0.03-
SL	1.0	1700	93	0	0	93	0.06*
ST	3.0	5100	579	0	27	606	0.12
SR	1.0	1700	74	0	0	74	0.03-
EL	1.0	1700	86	0	0	86	0.05
ET	1.0	1700	116	0	2	118	0.07*
ER	1.0	1700	31	0	0	31	0.02-
WL	1.0	1700	61	0	7	68	0.04*
WT	1.0	1700	69	0	1	70	0.04
WR	1.0	1700	106	0	0	106	0.05-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.34 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	26	0	0	26	0.02*
NT	3.0	5100	315	0	6	321	0.06
NR	1.0	1700	17	0	1	18	0.01-
SL	1.0	1700	24	0	0	24	0.01
ST	3.0	5100	533	0	13	546	0.11*
SR	1.0	1700	45	0	0	45	0.03-
EL	0.0	1700	117	0	0	117	0.07*
ET	1.0	1700	49	0	18	67	0.14
ER	0.0	1700	52	0	0	52	0.03
WL	0.0	1700	41	0	1	42	0.03
WT	1.0	1700	79	0	15	94	0.10*
WR	0.0	1700	37	0	0	37	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.35 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	40	0	0	40	0.02*
NT	3.0	5100	621	0	31	652	0.13
NR	1.0	1700	53	0	0	53	0.03-
SL	1.0	1700	37	0	0	37	0.02
ST	3.0	5100	603	0	34	637	0.13*
SR	1.0	1700	53	0	0	53	0.03-
EL	0.0	1700	146	0	0	146	0.09
ET	1.0	1700	74	0	0	74	0.17*
ER	0.0	1700	69	0	0	69	0.04
WL	0.0	1700	62	0	0	62	0.04*
WT	1.0	1700	46	0	0	46	0.09
WR	0.0	1700	37	0	0	37	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.41 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	93	0	30	123	0.07*
NT	2.0	3400	183	0	6	189	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	442	0	13	455	0.09*
SR	1.0	1700	172	0	0	172	0.09-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	112	0	0	112	0.07
WT	3.0	5100	1201	0	40	1241	0.24*
WR	1.0	1700	200	0	0	200	0.10-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.45 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	258	0	114	372	0.22*
NT	2.0	3400	438	0	31	469	0.14
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	488	0	34	522	0.10*
SR	1.0	1700	203	0	0	203	0.10-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	213	0	0	213	0.13
WT	3.0	5100	1009	0	63	1072	0.21*
WR	1.0	1700	293	0	0	293	0.14-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.58 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	134	0	36	170	0.05*
NR >>	1.0	1700	35	0	0	35	0.02
SL	2.0	3400	477	0	0	477	0.14*
ST	2.0	3400	134	0	13	147	0.04
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	85	0	0	85	0.05
ET	3.0	5100	1004	0	44	1048	0.21*
ER	1.0	1700	114	0	52	166	0.09-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	338	0	145	483	0.14*
NR >>	1.0	1700	55	0	0	55	0.03
SL	2.0	3400	545	0	0	545	0.16*
ST	2.0	3400	166	0	34	200	0.06
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	216	0	0	216	0.13
ET	3.0	5100	1133	0	56	1189	0.23*
ER	1.0	1700	146	0	119	265	0.14-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.58 A

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio	
NL	1.0	1700	26	0	0	26	0.02*	
NT	1.0	1700	49	0	36	85	0.05	
NR >	1.0	1700	74	0	15	89	0.00-	
SL	1.0	1700	73	0	0	73	0.04	
ST	1.0	1700	77	0	66	143	0.08*	
SR >	1.0	1700	63	0	0	63	0.00-	
EL	1.0	1700	90	0	0	90	0.05	
ET	2.0	3400	166	0	0	166	0.05*	
ER	1.0	1700	26	0	0	26	0.02-	
WL	1.0	1700	114	0	32	146	0.09*	
WT	2.0	3400	152	0	0	152	0.05	
WR	1.0	1700	47	0	0	47	0.03-	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.29	A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio	
NL	1.0	1700	15	0	0	15	0.01	
NT	1.0	1700	95	0	147	242	0.14*	
NR >	1.0	1700	110	0	76	186	0.00-	
SL	1.0	1700	116	0	0	116	0.07*	
ST	1.0	1700	82	0	155	237	0.14	
SR >	1.0	1700	103	0	0	103	0.00-	
EL	1.0	1700	150	0	0	150	0.09	
ET	2.0	3400	221	0	0	221	0.07*	
ER	1.0	1700	20	0	0	20	0.01-	
WL	1.0	1700	107	0	80	187	0.11*	
WT	2.0	3400	171	0	0	171	0.05	
WR	1.0	1700	113	0	0	113	0.06-	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.44	A

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	30	0	0	30	0.02
NT	1.0	1700	61	0	2	63	0.04*
NR >	1.0	1700	180	0	13	193	0.02-
SL	2.0	3400	246	0	6	252	0.07*
ST	1.0	1700	89	0	5	94	0.06
SR	1.0	1700	149	0	5	154	0.08-
EL	1.0	1700	117	0	1	118	0.07*
ET	2.0	3400	1329	0	43	1372	0.40
ER	1.0	1700	47	0	1	48	0.03-
WL	2.0	3400	267	0	26	293	0.09
WT	2.0	3400	1360	0	36	1396	0.46*
WR	0.0	1700	160	0	2	162	0.10
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.69 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	49	0	2	51	0.03
NT	1.0	1700	125	0	12	137	0.08*
NR >	1.0	1700	282	0	62	344	0.06-
SL	2.0	3400	238	0	4	242	0.07*
ST	1.0	1700	112	0	12	124	0.07
SR	1.0	1700	210	0	4	214	0.11-
EL	1.0	1700	282	0	7	289	0.17*
ET	2.0	3400	1219	0	51	1270	0.37
ER	1.0	1700	60	0	2	62	0.03-
WL	2.0	3400	388	0	66	454	0.13
WT	2.0	3400	1323	0	60	1383	0.47*
WR	0.0	1700	217	0	6	223	0.13
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.84 D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (W/ IMP.)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	30	0	0	30	0.02*
NT	2.0	3400	61	0	2	63	0.02
NR >	1.0	1700	180	0	13	193	0.02-
SL	2.0	3400	246	0	6	252	0.07
ST	2.0	3400	89	0	5	94	0.07
SR	0.0	1700	149	0	5	154	0.09*
EL	1.0	1700	117	0	1	118	0.07
ET	2.0	3400	1329	0	43	1372	0.40*
ER	1.0	1700	47	0	1	48	0.03-
WL	2.0	3400	267	0	26	293	0.09*
WT	2.0	3400	1360	0	36	1396	0.41
WR >	1.0	1700	160	0	2	162	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.65 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	49	0	2	51	0.03*
NT	2.0	3400	125	0	12	137	0.04
NR >	1.0	1700	282	0	62	344	0.06-
SL	2.0	3400	238	0	4	242	0.07
ST	2.0	3400	112	0	12	124	0.10
SR	0.0	1700	210	0	4	214	0.13*
EL	1.0	1700	282	0	7	289	0.17*
ET	2.0	3400	1219	0	51	1270	0.37
ER	1.0	1700	60	0	2	62	0.03-
WL	2.0	3400	388	0	66	454	0.13
WT	2.0	3400	1323	0	60	1383	0.41*
WR >	1.0	1700	217	0	6	223	0.05-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.79 C

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	21	0	0	21	0.01
NT	2.0	3400	45	0	0	45	0.03*
NR	0.0	1700	33	0	0	33	0.02
SL	2.0	3400	254	0	38	292	0.09*
ST	0.5	850	25	0	0	25	0.03
SR >	1.5	2550	543	0	2	545	0.03-
EL	2.0	3400	584	0	1	585	0.17*
ET	2.0	3400	730	0	43	773	0.23
ER	1.0	1700	13	0	0	13	0.01-
WL	1.0	1700	44	0	0	44	0.03
WT	2.0	3400	1127	0	47	1174	0.35*
WR >	1.0	1700	284	0	35	319	0.09-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.69 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	19	0	0	19	0.01
NT	2.0	3400	42	0	0	42	0.03*
NR	0.0	1700	30	0	0	30	0.02
SL	2.0	3400	243	0	62	305	0.09*
ST	0.5	850	43	0	0	43	0.05
SR >	1.5	2550	371	0	1	372	0.00-
EL	2.0	3400	879	0	2	881	0.26*
ET	2.0	3400	1324	0	73	1397	0.41
ER	1.0	1700	26	0	0	26	0.02-
WL	1.0	1700	50	0	0	50	0.03
WT	2.0	3400	888	0	63	951	0.28*
WR >	1.0	1700	250	0	56	306	0.08-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.71 C

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	81	0	0	81	0.05
NT	2.0	3400	95	0	0	95	0.03
NR	1.0	1700	145	0	2	147	0.08-*
SL	1.0	1700	330	0	64	394	0.23*
ST	2.0	3400	200	0	0	200	0.06
SR	1.0	1700	352	0	49	401	0.20-
EL	2.0	3400	189	0	44	233	0.07*
ET	2.0	3400	594	0	48	642	0.19
ER	1.0	1700	56	0	0	56	0.03-
WL	1.0	1700	70	0	1	71	0.04
WT	2.0	3400	1150	0	38	1188	0.35*
WR	1.0	1700	234	0	48	282	0.14-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.78 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	98	0	0	98	0.06
NT	2.0	3400	214	0	0	214	0.06
NR	1.0	1700	185	0	4	189	0.09-*
SL	1.0	1700	366	0	92	458	0.27*
ST	2.0	3400	106	0	0	106	0.03
SR	1.0	1700	243	0	64	307	0.15-
EL	2.0	3400	413	0	67	480	0.14*
ET	2.0	3400	900	0	75	975	0.29
ER	1.0	1700	82	0	0	82	0.04-
WL	1.0	1700	140	0	4	144	0.08
WT	2.0	3400	771	0	72	843	0.25*
WR	1.0	1700	384	0	99	483	0.24-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.80 C

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	26	0	1	27	0.02
NT	3.0	5100	1235	0	62	1297	0.25*
NR	1.0	1700	94	0	2	96	0.05-
SL	1.0	1700	116	0	24	140	0.08*
ST	2.0	3400	929	0	90	1019	0.30
SR	1.0	1700	30	0	0	30	0.02-
EL	0.0	1700	54	0	4	58	0.03*
ET	2.0	3400	41	0	1	42	0.03
ER	1.0	1700	70	0	4	74	0.03-
WL	0.0	1700	72	0	3	75	0.04
WT	2.0	3400	29	0	0	29	0.03
WR	1.0	1700	179	0	21	200	0.10-*
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.51 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	78	0	4	82	0.05*
NT	3.0	5100	1214	0	160	1374	0.27
NR	1.0	1700	95	0	8	103	0.05-
SL	1.0	1700	117	0	14	131	0.08
ST	2.0	3400	1366	0	153	1519	0.45*
SR	1.0	1700	65	0	4	69	0.03-
EL	0.0	1700	58	0	1	59	0.03*
ET	2.0	3400	27	0	0	27	0.03
ER	1.0	1700	55	0	1	56	0.03-
WL	0.0	1700	61	0	9	70	0.04
WT	2.0	3400	33	0	1	34	0.03
WR	1.0	1700	91	0	14	105	0.05-*
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.63 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Project Entrance (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	0	0	0	0	0.00
NT	2.0	3400	1374	0	65	1439	0.42*
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00*
ST	2.0	3400	1089	0	97	1186	0.35
SR	1.0	1700	0	0	0	0	0.00-
EL	1.0	1700	0	0	0	0	0.00*
ET	0.0	0	0	0	0	0	0.00
ER	1.0	1700	0	0	0	0	0.00-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.47 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	0	0	0	0	0.00*
NT	2.0	3400	1389	0	172	1561	0.46
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	2.0	3400	1517	0	163	1680	0.49*
SR	1.0	1700	0	0	0	0	0.00-
EL	1.0	1700	0	0	0	0	0.00*
ET	0.0	0	0	0	0	0	0.00
ER	1.0	1700	0	0	0	0	0.00-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.54 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	0.0	0	0	0	0	0	0.00
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	0.0	0	0	0	0	0	0.00
SR	0.0	0	0	0	0	0	0.00
EL	0.0	0	0	0	0	0	0.00*
ET	2.0	3400	1024	0	97	1121	0.35
ER	0.0	1700	64	0	0	64	0.04
WL	0.0	0	0	0	0	0	0.00
WT	2.0	3400	1374	0	65	1439	0.42*
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.47 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	0.0	0	0	0	0	0	0.00
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	0.0	0	0	0	0	0	0.00
SR	0.0	0	0	0	0	0	0.00
EL	0.0	0	0	0	0	0	0.00
ET	2.0	3400	1426	0	167	1593	0.49*
ER	0.0	1700	90	0	-4	86	0.05
WL	0.0	0	0	0	0	0	0.00*
WT	2.0	3400	1367	0	172	1539	0.45
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.54 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer) W/ Santa Clara Imp.
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	48	0.03
NT	2.0	3400	13	0.02
NR	0.0	1700	71	0.04*
SL	1.0	1700	67	0.04*
ST	1.0	1700	21	0.01
SR	1.0	1700	21	0.01-
EL	1.0	1700	14	0.01*
ET	2.0	3400	1100	0.33
ER	0.0	1700	7	0.01
WL	1.0	1700	47	0.03
WT	2.0	3400	1406	0.41*
WR	1.0	1700	56	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.55 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	106	0.06
NT	2.0	3400	24	0.04
NR	0.0	1700	103	0.06*
SL	1.0	1700	41	0.02*
ST	1.0	1700	19	0.01
SR	1.0	1700	21	0.01-
EL	1.0	1700	29	0.02
ET	2.0	3400	1499	0.45*
ER	0.0	1700	33	0.02
WL	1.0	1700	119	0.07*
WT	2.0	3400	1424	0.42
WR	1.0	1700	76	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.65 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	35	0	0	35	0.02*
NT	1.0	1700	32	0	0	32	0.04
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	64	0	0	64	0.06*
SR	0.0	1700	37	0	0	37	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	135	0	0	135	0.08
WT	3.0	5100	1329	0	70	1399	0.30*
WR	1.0	1700	32	0	0	32	0.02-

Clearance Interval Percentage = 0.05
Sum of Critical Movements = 0.43 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	47	0	0	47	0.03*
NT	1.0	1700	56	0	0	56	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	53	0	0	53	0.05*
SR	0.0	1700	35	0	0	35	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	262	0	0	262	0.15
WT	3.0	5100	1318	0	177	1495	0.34*
WR	1.0	1700	85	0	0	85	0.04-

Clearance Interval Percentage = 0.05
Sum of Critical Movements = 0.47 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	19	0	0	19	0.02
NR	0.0	1700	15	0	0	15	0.01
SL	0.0	1700	208	0	0	208	0.12
ST	1.0	1700	32	0	0	32	0.14*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	48	0	0	48	0.03
ET	3.0	5100	1001	0	96	1097	0.22*
ER	1.0	1700	12	0	0	12	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.41 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	12	0	0	12	0.03
NR	0.0	1700	31	0	0	31	0.02
SL	0.0	1700	277	0	0	277	0.16
ST	1.0	1700	49	0	0	49	0.19*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	70	0	0	70	0.04
ET	3.0	5100	1442	0	175	1617	0.33*
ER	1.0	1700	16	0	0	16	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.57 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	44	0	0	44	0.03*
NT	1.0	1700	38	0	0	38	0.05
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	38	0	0	38	0.05*
SR	0.0	1700	39	0	0	39	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	87	0	0	87	0.05
WT	3.0	5100	1442	0	70	1512	0.31*
WR	1.0	1700	41	0	0	41	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.44 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	118	0	0	118	0.07*
NT	1.0	1700	89	0	0	89	0.12
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	43	0	0	43	0.05*
SR	0.0	1700	38	0	0	38	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	133	0	0	133	0.08
WT	3.0	5100	1569	0	177	1746	0.37*
WR	1.0	1700	72	0	0	72	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.54 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	7	0	0	7	0.02
NR	0.0	1700	24	0	0	24	0.01
SL	0.0	1700	73	0	0	73	0.04
ST	1.0	1700	36	0	0	36	0.06*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	94	0	0	94	0.06
ET	3.0	5100	1160	0	96	1256	0.26*
ER	1.0	1700	7	0	0	7	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.37 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	19	0	0	19	0.03
NR	0.0	1700	27	0	0	27	0.02
SL	0.0	1700	111	0	0	111	0.07
ST	1.0	1700	53	0	0	53	0.10*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	163	0	0	163	0.10
ET	3.0	5100	1485	0	175	1660	0.36*
ER	1.0	1700	32	0	0	32	0.02-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.51 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	7	0	0	7	0.01
NT	3.0	5100	373	0	5	378	0.07*
NR	1.0	1700	68	0	7	75	0.03-
SL	1.0	1700	168	0	29	197	0.12*
ST	3.0	5100	563	0	10	573	0.11
SR	1.0	1700	54	0	0	54	0.03-
EL	1.0	1700	81	0	0	81	0.05
ET	1.0	1700	191	0	2	193	0.11*
ER	1.0	1700	47	0	0	47	0.03-
WL	1.0	1700	36	0	8	44	0.03*
WT	1.0	1700	100	0	3	103	0.06
WR	1.0	1700	94	0	26	120	0.06-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.38 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	50	0	0	50	0.03
NT	3.0	5100	654	0	25	679	0.13*
NR	1.0	1700	77	0	6	83	0.04-
SL	1.0	1700	102	0	0	102	0.06*
ST	3.0	5100	637	0	27	664	0.13
SR	1.0	1700	82	0	0	82	0.04-
EL	1.0	1700	95	0	0	95	0.06*
ET	1.0	1700	128	0	2	130	0.08
ER	1.0	1700	35	0	0	35	0.02-
WL	1.0	1700	67	0	7	74	0.04
WT	1.0	1700	76	0	1	77	0.05
WR	1.0	1700	117	0	0	117	0.06-*
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.36 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	29	0	0	29	0.02*
NT	3.0	5100	347	0	6	353	0.07
NR	1.0	1700	19	0	1	20	0.01-
SL	1.0	1700	26	0	0	26	0.02
ST	3.0	5100	586	0	13	599	0.12*
SR	1.0	1700	49	0	0	49	0.03-
EL	0.0	1700	129	0	0	129	0.08*
ET	1.0	1700	54	0	18	72	0.15
ER	0.0	1700	58	0	0	58	0.03
WL	0.0	1700	45	0	1	46	0.03
WT	1.0	1700	87	0	15	102	0.11*
WR	0.0	1700	41	0	0	41	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.38 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	44	0	0	44	0.03*
NT	3.0	5100	683	0	31	714	0.14
NR	1.0	1700	59	0	0	59	0.03-
SL	1.0	1700	41	0	0	41	0.02
ST	3.0	5100	664	0	34	698	0.14*
SR	1.0	1700	59	0	0	59	0.03-
EL	0.0	1700	160	0	0	160	0.09
ET	1.0	1700	82	0	0	82	0.19*
ER	0.0	1700	76	0	0	76	0.04
WL	0.0	1700	68	0	0	68	0.04*
WT	1.0	1700	50	0	0	50	0.09
WR	0.0	1700	41	0	0	41	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	102	0	30	132	0.08*
NT	2.0	3400	202	0	6	208	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	486	0	13	499	0.10*
SR	1.0	1700	189	0	0	189	0.09-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	123	0	0	123	0.07
WT	3.0	5100	1321	0	40	1361	0.27*
WR	1.0	1700	220	0	0	220	0.11-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.50 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	284	0	114	398	0.23*
NT	2.0	3400	482	0	31	513	0.15
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	537	0	34	571	0.11*
SR	1.0	1700	223	0	0	223	0.11-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	234	0	0	234	0.14
WT	3.0	5100	1110	0	63	1173	0.23*
WR	1.0	1700	323	0	0	323	0.16-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.62 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	147	0	36	183	0.05*
NR >>	1.0	1700	38	0	0	38	0.02
SL	2.0	3400	525	0	0	525	0.15*
ST	2.0	3400	147	0	13	160	0.05
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	94	0	0	94	0.06
ET	3.0	5100	1104	0	44	1148	0.23*
ER	1.0	1700	125	0	52	177	0.09-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.48 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	372	0	145	517	0.15*
NR >>	1.0	1700	60	0	0	60	0.04
SL	2.0	3400	600	0	0	600	0.18*
ST	2.0	3400	182	0	34	216	0.06
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	238	0	0	238	0.14
ET	3.0	5100	1246	0	56	1302	0.26*
ER	1.0	1700	160	0	119	279	0.14-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.64 B

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	29	0	0	29	0.02*
NT	1.0	1700	54	0	36	90	0.05
NR >	1.0	1700	82	0	15	97	0.00-
SL	1.0	1700	81	0	0	81	0.05
ST	1.0	1700	84	0	66	150	0.09*
SR >	1.0	1700	70	0	0	70	0.00-
EL	1.0	1700	99	0	0	99	0.06
ET	2.0	3400	182	0	0	182	0.05*
ER	1.0	1700	29	0	0	29	0.02-
WL	1.0	1700	125	0	32	157	0.09*
WT	2.0	3400	168	0	0	168	0.05
WR	1.0	1700	52	0	0	52	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.30 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	16	0	0	16	0.01
NT	1.0	1700	105	0	147	252	0.15*
NR >	1.0	1700	121	0	76	197	0.00-
SL	1.0	1700	128	0	0	128	0.08*
ST	1.0	1700	90	0	155	245	0.14
SR >	1.0	1700	113	0	0	113	0.00-
EL	1.0	1700	165	0	0	165	0.10
ET	2.0	3400	243	0	0	243	0.07*
ER	1.0	1700	22	0	0	22	0.01-
WL	1.0	1700	118	0	80	198	0.12*
WT	2.0	3400	188	0	0	188	0.06
WR	1.0	1700	124	0	0	124	0.06-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.47 A

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	33	0	0	33	0.02
NT	1.0	1700	67	0	2	69	0.04*
NR >	1.0	1700	198	0	13	211	0.03-
SL	2.0	3400	271	0	6	277	0.08*
ST	1.0	1700	98	0	5	103	0.06
SR	1.0	1700	164	0	5	169	0.09-
EL	1.0	1700	129	0	1	130	0.08*
ET	2.0	3400	1462	0	43	1505	0.44
ER	1.0	1700	52	0	1	53	0.03-
WL	2.0	3400	294	0	26	320	0.09
WT	2.0	3400	1496	0	36	1532	0.50*
WR	0.0	1700	176	0	2	178	0.11
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.75 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	54	0	2	56	0.03
NT	1.0	1700	137	0	12	149	0.09*
NR >	1.0	1700	310	0	62	372	0.06-
SL	2.0	3400	262	0	4	266	0.08*
ST	1.0	1700	123	0	12	135	0.08
SR	1.0	1700	231	0	4	235	0.12-
EL	1.0	1700	310	0	7	317	0.19*
ET	2.0	3400	1341	0	51	1392	0.41
ER	1.0	1700	66	0	2	68	0.03-
WL	2.0	3400	427	0	66	493	0.15
WT	2.0	3400	1455	0	60	1515	0.52*
WR	0.0	1700	239	0	6	245	0.14
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.93 E

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range Without Project (Summer) (W/ IMP.)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S				V/C Ratio
			Future BG	Project	Other	Total	
NL	1.0	1700	33	0	0	33	0.02*
NT	2.0	3400	67	0	2	69	0.02
NR >	1.0	1700	198	0	13	211	0.03–
SL	2.0	3400	271	0	6	277	0.08
ST	2.0	3400	98	0	5	103	0.08
SR	0.0	1700	164	0	5	169	0.10*
EL	1.0	1700	129	0	1	130	0.08*
ET	2.0	3400	1462	0	43	1505	0.44
ER	1.0	1700	52	0	1	53	0.03–
WL	2.0	3400	294	0	26	320	0.09
WT	2.0	3400	1496	0	36	1532	0.45*
WR >	1.0	1700	176	0	2	178	0.03–
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.70 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S				V/C Ratio
			Future BG	Project	Other	Total	
NL	1.0	1700	54	0	2	56	0.03*
NT	2.0	3400	137	0	12	149	0.04
NR >	1.0	1700	310	0	62	372	0.06–
SL	2.0	3400	262	0	4	266	0.08
ST	2.0	3400	123	0	12	135	0.11
SR	0.0	1700	231	0	4	235	0.14*
EL	1.0	1700	310	0	7	317	0.19*
ET	2.0	3400	1341	0	51	1392	0.41
ER	1.0	1700	66	0	2	68	0.03–
WL	2.0	3400	427	0	66	493	0.15
WT	2.0	3400	1455	0	60	1515	0.45*
WR >	1.0	1700	239	0	6	245	0.05–
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.86 D

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
– denotes V/C ratio reduced 15 percent for right turn on red

APPENDIX G

ICU CALCULATIONS – SHORT-RANGE WITH PROJECT

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	19	0	0	19	0.01
NT	2.0	3400	41	0	0	41	0.03*
NR	0.0	1700	30	0	0	30	0.02
SL	2.0	3400	231	10	38	279	0.08*
ST	0.5	850	23	0	0	23	0.03
SR >	1.5	2550	493	0	2	495	0.03-
EL	2.0	3400	531	0	1	532	0.16*
ET	2.0	3400	664	8	43	715	0.21
ER	1.0	1700	12	0	0	12	0.01-
WL	1.0	1700	40	0	0	40	0.02
WT	2.0	3400	1025	9	47	1081	0.32*
WR >	1.0	1700	258	11	35	304	0.09-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.64 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	17	0	0	17	0.01
NT	2.0	3400	38	0	0	38	0.02*
NR	0.0	1700	27	0	0	27	0.02
SL	2.0	3400	221	22	62	305	0.09*
ST	0.5	850	39	0	0	39	0.05
SR >	1.5	2550	337	0	1	338	0.00-
EL	2.0	3400	799	0	2	801	0.24*
ET	2.0	3400	1204	18	73	1295	0.38
ER	1.0	1700	24	0	0	24	0.01-
WL	1.0	1700	46	0	0	46	0.03
WT	2.0	3400	807	14	63	884	0.26*
WR >	1.0	1700	227	18	56	301	0.08-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.66 B

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	73	0	0	73	0.04
NT	2.0	3400	86	0	0	86	0.03
NR	1.0	1700	132	2	2	136	0.07-*
SL	1.0	1700	300	17	64	381	0.22*
ST	2.0	3400	182	0	0	182	0.05
SR	1.0	1700	320	0	49	369	0.19-
EL	2.0	3400	172	0	44	216	0.06*
ET	2.0	3400	540	18	48	606	0.18
ER	1.0	1700	51	0	0	51	0.03-
WL	1.0	1700	63	2	1	66	0.04
WT	2.0	3400	1046	20	38	1104	0.32*
WR	1.0	1700	213	20	48	281	0.14-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.72

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	89	0	0	89	0.05
NT	2.0	3400	194	0	0	194	0.06
NR	1.0	1700	168	4	4	176	0.09-*
SL	1.0	1700	333	37	92	462	0.27*
ST	2.0	3400	96	0	0	96	0.03
SR	1.0	1700	221	0	64	285	0.14-
EL	2.0	3400	376	0	67	443	0.13*
ET	2.0	3400	818	40	75	933	0.27
ER	1.0	1700	74	0	0	74	0.03-
WL	1.0	1700	127	4	4	135	0.08
WT	2.0	3400	701	32	72	805	0.24*
WR	1.0	1700	349	31	99	479	0.24-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.78

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	32	0.02
NT	3.0	5100	1206	0.24*
NR	1.0	1700	91	0.04-
SL	1.0	1700	129	0.08*
ST	2.0	3400	963	0.28
SR	1.0	1700	37	0.02-
EL	0.0	1700	78	0.05*
ET	2.0	3400	42	0.04
ER	1.0	1700	87	0.04-
WL	0.0	1700	73	0.04
WT	2.0	3400	28	0.03
WR	1.0	1700	183	0.09-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.51 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	98	0.06*
NT	3.0	5100	1315	0.26
NR	1.0	1700	101	0.05-
SL	1.0	1700	120	0.07
ST	2.0	3400	1449	0.43*
SR	1.0	1700	93	0.04-
EL	0.0	1700	71	0.04*
ET	2.0	3400	28	0.03
ER	1.0	1700	65	0.03-
WL	0.0	1700	75	0.04
WT	2.0	3400	35	0.03
WR	1.0	1700	97	0.05-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.63 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Project Entrance (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio	
NL	1.0	1700	33	0.02	
NT	2.0	3400	1324	0.39*	
NR	0.0	0	0	0.00	
SL	0.0	0	0	0.00*	
ST	2.0	3400	1116	0.33	
SR	1.0	1700	23	0.01-	
EL	1.0	1700	22	0.01	
ET	0.0	0	0	0.00	
ER	1.0	1700	31	0.02-*	
WL	0.0	0	0	0.00	
WT	0.0	0	0	0.00	
WR	0.0	0	0	0.00	
				=======	
Clearance Interval Percentage =				0.05	
Sum of Critical Movements =				0.46	A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio	
NL	1.0	1700	77	0.05*	
NT	2.0	3400	1471	0.43	
NR	0.0	0	0	0.00	
SL	0.0	0	0	0.00	
ST	2.0	3400	1567	0.46*	
SR	1.0	1700	54	0.03-	
EL	1.0	1700	43	0.03*	
ET	0.0	0	0	0.00	
ER	1.0	1700	63	0.03-	
WL	0.0	0	0	0.00	
WT	0.0	0	0	0.00	
WR	0.0	0	0	0.00	
				=======	
Clearance Interval Percentage =				0.05	
Sum of Critical Movements =				0.59	A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio	
NL	0.0	0	0	0.00	
NT	0.0	0	0	0.00	
NR	0.0	0	0	0.00	
SL	0.0	0	0	0.00	
ST	0.0	0	0	0.00	
SR	0.0	0	0	0.00	
EL	0.0	0	0	0.00*	
ET	2.0	3400	1078	0.34	
ER	0.0	1700	67	0.04	
WL	0.0	0	0	0.00	
WT	2.0	3400	1357	0.40*	
WR	0.0	0	0	0.00	
				=======	
Clearance Interval Percentage =				0.05	
Sum of Critical Movements =				0.45	A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio	
NL	0.0	0	0	0.00	
NT	0.0	0	0	0.00	
NR	0.0	0	0	0.00	
SL	0.0	0	0	0.00	
ST	0.0	0	0	0.00	
SR	0.0	0	0	0.00	
EL	0.0	0	0	0.00	
ET	2.0	3400	1540	0.48*	
ER	0.0	1700	89	0.05	
WL	0.0	0	0	0.00*	
WT	2.0	3400	1528	0.45	
WR	0.0	0	0	0.00	
				=======	
Clearance Interval Percentage =				0.05	
Sum of Critical Movements =				0.53	A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project w/ Santa Clara Imp.
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	47	0.03
NT	2.0	3400	13	0.02
NR	0.0	1700	71	0.04*
SL	1.0	1700	61	0.04*
ST	1.0	1700	22	0.01
SR	1.0	1700	24	0.01-
EL	1.0	1700	20	0.01*
ET	2.0	3400	1051	0.31
ER	0.0	1700	6	0.01
WL	1.0	1700	54	0.03
WT	2.0	3400	1320	0.39*
WR	1.0	1700	51	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.53 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	109	0.06
NT	2.0	3400	26	0.04
NR	0.0	1700	111	0.07*
SL	1.0	1700	38	0.02*
ST	1.0	1700	20	0.01
SR	1.0	1700	35	0.02-
EL	1.0	1700	36	0.02
ET	2.0	3400	1445	0.43*
ER	0.0	1700	30	0.02
WL	1.0	1700	123	0.07*
WT	2.0	3400	1396	0.41
WR	1.0	1700	70	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.64 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	31	2	0	33	0.02*
NT	1.0	1700	29	0	0	29	0.04
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	58	0	0	58	0.05*
SR	0.0	1700	34	0	0	34	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	123	0	0	123	0.07
WT	3.0	5100	1208	41	70	1319	0.28*
WR	1.0	1700	29	0	0	29	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	42	4	0	46	0.03*
NT	1.0	1700	51	0	0	51	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	48	0	0	48	0.05*
SR	0.0	1700	31	0	0	31	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	238	0	0	238	0.14
WT	3.0	5100	1199	87	177	1463	0.33*
WR	1.0	1700	78	0	0	78	0.04-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.46 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	17	0	0	17	0.02
NR	0.0	1700	14	0	0	14	0.01
SL	0.0	1700	189	0	0	189	0.11
ST	1.0	1700	29	0	0	29	0.13*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	44	2	0	46	0.03
ET	3.0	5100	910	44	96	1050	0.22*
ER	1.0	1700	11	0	0	11	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	11	0	0	11	0.02
NR	0.0	1700	28	0	0	28	0.02
SL	0.0	1700	251	0	0	251	0.15
ST	1.0	1700	45	0	0	45	0.17*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	63	4	0	67	0.04
ET	3.0	5100	1311	77	175	1563	0.32*
ER	1.0	1700	15	0	0	15	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.54 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	40	2	0	42	0.03*
NT	1.0	1700	35	0	0	35	0.05
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	35	0	0	35	0.04*
SR	0.0	1700	36	0	0	36	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	79	0	0	79	0.05
WT	3.0	5100	1311	39	70	1420	0.29*
WR	1.0	1700	37	0	0	37	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.41 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	107	4	0	111	0.07*
NT	1.0	1700	81	0	0	81	0.11
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	39	0	0	39	0.04*
SR	0.0	1700	35	0	0	35	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	121	0	0	121	0.07
WT	3.0	5100	1426	83	177	1686	0.35*
WR	1.0	1700	66	0	0	66	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.51 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	6	0	0	6	0.02
NR	0.0	1700	22	0	0	22	0.01
SL	0.0	1700	67	0	0	67	0.04
ST	1.0	1700	33	0	0	33	0.06*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	85	2	0	87	0.05
ET	3.0	5100	1054	42	96	1192	0.25*
ER	1.0	1700	6	0	0	6	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.36

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	17	0	0	17	0.03
NR	0.0	1700	25	0	0	25	0.01
SL	0.0	1700	101	0	0	101	0.06
ST	1.0	1700	48	0	0	48	0.09*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	148	4	0	152	0.09
ET	3.0	5100	1350	73	175	1598	0.34*
ER	1.0	1700	29	0	0	29	0.02-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.48

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio	
NL	1.0	1700	6	0	0	6	0.01	
NT	3.0	5100	339	1	5	345	0.07*	
NR	1.0	1700	62	2	7	71	0.03-	
SL	1.0	1700	152	0	29	181	0.11*	
ST	3.0	5100	512	1	10	523	0.10	
SR	1.0	1700	49	0	0	49	0.03-	
EL	1.0	1700	73	0	0	73	0.04	
ET	1.0	1700	173	0	2	175	0.10*	
ER	1.0	1700	42	0	0	42	0.03-	
WL	1.0	1700	33	2	8	43	0.03*	
WT	1.0	1700	91	0	3	94	0.06	
WR	1.0	1700	85	0	26	111	0.06-	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.36	A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio	
NL	1.0	1700	46	0	0	46	0.03	
NT	3.0	5100	595	2	25	622	0.12*	
NR	1.0	1700	70	4	6	80	0.04-	
SL	1.0	1700	93	0	0	93	0.06*	
ST	3.0	5100	579	2	27	608	0.12	
SR	1.0	1700	74	0	0	74	0.03-	
EL	1.0	1700	86	0	0	86	0.05	
ET	1.0	1700	116	0	2	118	0.07*	
ER	1.0	1700	31	0	0	31	0.02-	
WL	1.0	1700	61	4	7	72	0.04*	
WT	1.0	1700	69	0	1	70	0.04	
WR	1.0	1700	106	0	0	106	0.05-	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.34	A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	26	0	0	26	0.02*
NT	3.0	5100	315	3	6	324	0.06
NR	1.0	1700	17	2	1	20	0.01-
SL	1.0	1700	24	0	0	24	0.01
ST	3.0	5100	533	3	13	549	0.11*
SR	1.0	1700	45	0	0	45	0.03-
EL	0.0	1700	117	0	0	117	0.07*
ET	1.0	1700	49	0	18	67	0.14
ER	0.0	1700	52	0	0	52	0.03
WL	0.0	1700	41	2	1	44	0.03
WT	1.0	1700	79	0	15	94	0.10*
WR	0.0	1700	37	0	0	37	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.35

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	40	0	0	40	0.02*
NT	3.0	5100	621	6	31	658	0.13
NR	1.0	1700	53	4	0	57	0.03-
SL	1.0	1700	37	0	0	37	0.02
ST	3.0	5100	603	6	34	643	0.13*
SR	1.0	1700	53	0	0	53	0.03-
EL	0.0	1700	146	0	0	146	0.09
ET	1.0	1700	74	0	0	74	0.17*
ER	0.0	1700	69	0	0	69	0.04
WL	0.0	1700	62	4	0	66	0.04*
WT	1.0	1700	46	0	0	46	0.09
WR	0.0	1700	37	0	0	37	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.41

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	93	4	30	127	0.08*
NT	2.0	3400	183	5	6	194	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	442	0	13	455	0.09*
SR	1.0	1700	172	5	0	177	0.09-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	112	0	0	112	0.07
WT	3.0	5100	1201	30	40	1271	0.25*
WR	1.0	1700	200	0	0	200	0.10-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.47 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	258	8	114	380	0.22*
NT	2.0	3400	438	10	31	479	0.14
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	488	0	34	522	0.10
SR	1.0	1700	203	10	0	213	0.11-*
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	213	0	0	213	0.13
WT	3.0	5100	1009	65	63	1137	0.22*
WR	1.0	1700	293	0	0	293	0.14-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.60 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	134	4	36	174	0.05*
NR >>	1.0	1700	35	0	0	35	0.02
SL	2.0	3400	477	0	0	477	0.14*
ST	2.0	3400	134	0	13	147	0.04
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	85	5	0	90	0.05
ET	3.0	5100	1004	33	44	1081	0.21*
ER	1.0	1700	114	4	52	170	0.09-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	338	8	145	491	0.14*
NR >>	1.0	1700	55	0	0	55	0.03
SL	2.0	3400	545	0	0	545	0.16*
ST	2.0	3400	166	0	34	200	0.06
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	216	10	0	226	0.13
ET	3.0	5100	1133	55	56	1244	0.24*
ER	1.0	1700	146	8	119	273	0.14-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.59

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	26	1	0	27	0.02*
NT	1.0	1700	49	2	36	87	0.05
NR >	1.0	1700	74	0	15	89	0.00-
SL	1.0	1700	73	0	0	73	0.04
ST	1.0	1700	77	2	66	145	0.09*
SR >	1.0	1700	63	0	0	63	0.00-
EL	1.0	1700	90	0	0	90	0.05
ET	2.0	3400	166	2	0	168	0.05*
ER	1.0	1700	26	1	0	27	0.02-
WL	1.0	1700	114	0	32	146	0.09*
WT	2.0	3400	152	2	0	154	0.05
WR	1.0	1700	47	0	0	47	0.03-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.30 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	15	2	0	17	0.01
NT	1.0	1700	95	4	147	246	0.15*
NR >	1.0	1700	110	0	76	186	0.00-
SL	1.0	1700	116	0	0	116	0.07*
ST	1.0	1700	82	4	155	241	0.14
SR >	1.0	1700	103	0	0	103	0.00-
EL	1.0	1700	150	0	0	150	0.09
ET	2.0	3400	221	4	0	225	0.07*
ER	1.0	1700	20	2	0	22	0.01-
WL	1.0	1700	107	0	80	187	0.11*
WT	2.0	3400	171	4	0	175	0.05
WR	1.0	1700	113	0	0	113	0.06-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.45 A

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	30	0	0	30	0.02
NT	1.0	1700	61	1	2	64	0.04*
NR >	1.0	1700	180	1	13	194	0.02-
SL	2.0	3400	246	0	6	252	0.07*
ST	1.0	1700	89	1	5	95	0.06
SR	1.0	1700	149	1	5	155	0.08-
EL	1.0	1700	117	1	1	119	0.07*
ET	2.0	3400	1329	27	43	1399	0.41
ER	1.0	1700	47	0	1	48	0.03-
WL	2.0	3400	267	1	26	294	0.09
WT	2.0	3400	1360	24	36	1420	0.47*
WR	0.0	1700	160	0	2	162	0.10
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.70

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	49	0	2	51	0.03
NT	1.0	1700	125	2	12	139	0.08*
NR >	1.0	1700	282	2	62	346	0.06-
SL	2.0	3400	238	0	4	242	0.07*
ST	1.0	1700	112	2	12	126	0.07
SR	1.0	1700	210	2	4	216	0.11-
EL	1.0	1700	282	2	7	291	0.17*
ET	2.0	3400	1219	43	51	1313	0.39
ER	1.0	1700	60	0	2	62	0.03-
WL	2.0	3400	388	2	66	456	0.13
WT	2.0	3400	1323	53	60	1436	0.49*
WR	0.0	1700	217	0	6	223	0.13
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.86

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	30	0	0	30	0.02*
NT	2.0	3400	61	1	2	64	0.02
NR >	1.0	1700	180	1	13	194	0.02-
SL	2.0	3400	246	0	6	252	0.07
ST	2.0	3400	89	1	5	95	0.07
SR	0.0	1700	149	1	5	155	0.09*
EL	1.0	1700	117	1	1	119	0.07
ET	2.0	3400	1329	27	43	1399	0.41*
ER	1.0	1700	47	0	1	48	0.03-
WL	2.0	3400	267	1	26	294	0.09*
WT	2.0	3400	1360	24	36	1420	0.42
WR >	1.0	1700	160	0	2	162	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.66 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	49	0	2	51	0.03*
NT	2.0	3400	125	2	12	139	0.04
NR >	1.0	1700	282	2	62	346	0.06-
SL	2.0	3400	238	0	4	242	0.07
ST	2.0	3400	112	2	12	126	0.10
SR	0.0	1700	210	2	4	216	0.13*
EL	1.0	1700	282	2	7	291	0.17*
ET	2.0	3400	1219	43	51	1313	0.39
ER	1.0	1700	60	0	2	62	0.03-
WL	2.0	3400	388	2	66	456	0.13
WT	2.0	3400	1323	53	60	1436	0.42*
WR >	1.0	1700	217	0	6	223	0.05-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.80 C

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	21	0	0	21	0.01
NT	2.0	3400	45	0	0	45	0.03*
NR	0.0	1700	33	0	0	33	0.02
SL	2.0	3400	254	10	38	302	0.09*
ST	0.5	850	25	0	0	25	0.03
SR >	1.5	2550	543	0	2	545	0.03-
EL	2.0	3400	584	0	1	585	0.17*
ET	2.0	3400	730	8	43	781	0.23
ER	1.0	1700	13	0	0	13	0.01-
WL	1.0	1700	44	0	0	44	0.03
WT	2.0	3400	1127	9	47	1183	0.35*
WR >	1.0	1700	284	11	35	330	0.09-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.69

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	19	0	0	19	0.01
NT	2.0	3400	42	0	0	42	0.03*
NR	0.0	1700	30	0	0	30	0.02
SL	2.0	3400	243	22	62	327	0.10*
ST	0.5	850	43	0	0	43	0.05
SR >	1.5	2550	371	0	1	372	0.00-
EL	2.0	3400	879	0	2	881	0.26*
ET	2.0	3400	1324	18	73	1415	0.42
ER	1.0	1700	26	0	0	26	0.02-
WL	1.0	1700	50	0	0	50	0.03
WT	2.0	3400	888	14	63	965	0.28*
WR >	1.0	1700	250	18	56	324	0.08-
						Clearance Interval Percentage =	0.05
						Sum of Critical Movements =	0.72

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	81	0	0	81	0.05
NT	2.0	3400	95	0	0	95	0.03
NR	1.0	1700	145	2	2	149	0.08-*
SL	1.0	1700	330	17	64	411	0.24*
ST	2.0	3400	200	0	0	200	0.06
SR	1.0	1700	352	0	49	401	0.20-
EL	2.0	3400	189	0	44	233	0.07*
ET	2.0	3400	594	18	48	660	0.19
ER	1.0	1700	56	0	0	56	0.03-
WL	1.0	1700	70	2	1	73	0.04
WT	2.0	3400	1150	20	38	1208	0.36*
WR	1.0	1700	234	20	48	302	0.15-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.80 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	98	0	0	98	0.06
NT	2.0	3400	214	0	0	214	0.06
NR	1.0	1700	185	4	4	193	0.09-*
SL	1.0	1700	366	37	92	495	0.29*
ST	2.0	3400	106	0	0	106	0.03
SR	1.0	1700	243	0	64	307	0.15-
EL	2.0	3400	413	0	67	480	0.14*
ET	2.0	3400	900	40	75	1015	0.30
ER	1.0	1700	82	0	0	82	0.04-
WL	1.0	1700	140	4	4	148	0.09
WT	2.0	3400	771	32	72	875	0.26*
WR	1.0	1700	384	31	99	514	0.26-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.83 D

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	34	0.02
NT	3.0	5100	1318	0.26*
NR	1.0	1700	100	0.05-
SL	1.0	1700	140	0.08*
ST	2.0	3400	1048	0.31
SR	1.0	1700	40	0.02-
EL	0.0	1700	83	0.05*
ET	2.0	3400	46	0.04
ER	1.0	1700	94	0.05-
WL	0.0	1700	79	0.05
WT	2.0	3400	31	0.03
WR	1.0	1700	200	0.10-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.54 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	105	0.06*
NT	3.0	5100	1425	0.28
NR	1.0	1700	110	0.05-
SL	1.0	1700	131	0.08
ST	2.0	3400	1574	0.46*
SR	1.0	1700	99	0.05-
EL	0.0	1700	77	0.05*
ET	2.0	3400	30	0.03
ER	1.0	1700	70	0.03-
WL	0.0	1700	80	0.05
WT	2.0	3400	38	0.03
WR	1.0	1700	105	0.05-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.67 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Project Entrance (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	33	0.02
NT	2.0	3400	1449	0.43*
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00*
ST	2.0	3400	1215	0.36
SR	1.0	1700	23	0.01-
EL	1.0	1700	22	0.01
ET	0.0	0	0	0.00
ER	1.0	1700	31	0.02-*
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.50 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	77	0.05*
NT	2.0	3400	1598	0.47
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	2.0	3400	1705	0.50*
SR	1.0	1700	54	0.03-
EL	1.0	1700	43	0.03*
ET	0.0	0	0	0.00
ER	1.0	1700	63	0.03-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.63 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00*
ET	2.0	3400	1171	0.37
ER	0.0	1700	73	0.04
WL	0.0	0	0	0.00
WT	2.0	3400	1482	0.44*
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.49 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1670	0.52*
ER	0.0	1700	97	0.06
WL	0.0	0	0	0.00*
WT	2.0	3400	1652	0.49
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.57 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer) w/ Santa Clara Imp.
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	52	0.03
NT	2.0	3400	14	0.03
NR	0.0	1700	76	0.04*
SL	1.0	1700	67	0.04*
ST	1.0	1700	24	0.01
SR	1.0	1700	26	0.02-
EL	1.0	1700	21	0.01*
ET	2.0	3400	1142	0.34
ER	0.0	1700	7	0.01
WL	1.0	1700	57	0.03
WT	2.0	3400	1440	0.42*
WR	1.0	1700	56	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.56 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	119	0.07*
NT	2.0	3400	28	0.04
NR	0.0	1700	118	0.07
SL	1.0	1700	41	0.02
ST	1.0	1700	22	0.01
SR	1.0	1700	37	0.02-*
EL	1.0	1700	39	0.02
ET	2.0	3400	1566	0.47*
ER	0.0	1700	33	0.02
WL	1.0	1700	131	0.08*
WT	2.0	3400	1512	0.44
WR	1.0	1700	76	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.69 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	35	2	0	37	0.02*
NT	1.0	1700	32	0	0	32	0.04
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	64	0	0	64	0.06*
SR	0.0	1700	37	0	0	37	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	135	0	0	135	0.08
WT	3.0	5100	1329	41	70	1440	0.31*
WR	1.0	1700	32	0	0	32	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.44

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	47	4	0	51	0.03*
NT	1.0	1700	56	0	0	56	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	53	0	0	53	0.05*
SR	0.0	1700	35	0	0	35	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	262	0	0	262	0.15
WT	3.0	5100	1318	87	177	1582	0.36*
WR	1.0	1700	85	0	0	85	0.04-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.49

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	19	0	0	19	0.02
NR	0.0	1700	15	0	0	15	0.01
SL	0.0	1700	208	0	0	208	0.12
ST	1.0	1700	32	0	0	32	0.14*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	48	2	0	50	0.03
ET	3.0	5100	1001	44	96	1141	0.23*
ER	1.0	1700	12	0	0	12	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.42 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	12	0	0	12	0.03
NR	0.0	1700	31	0	0	31	0.02
SL	0.0	1700	277	0	0	277	0.16
ST	1.0	1700	49	0	0	49	0.19*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	70	4	0	74	0.04
ET	3.0	5100	1442	77	175	1694	0.35*
ER	1.0	1700	16	0	0	16	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.59 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	44	2	0	46	0.03*
NT	1.0	1700	38	0	0	38	0.05
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	38	0	0	38	0.05*
SR	0.0	1700	39	0	0	39	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	87	0	0	87	0.05
WT	3.0	5100	1442	39	70	1551	0.32*
WR	1.0	1700	41	0	0	41	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	118	4	0	122	0.07*
NT	1.0	1700	89	0	0	89	0.12
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	43	0	0	43	0.05*
SR	0.0	1700	38	0	0	38	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	133	0	0	133	0.08
WT	3.0	5100	1569	83	177	1829	0.38*
WR	1.0	1700	72	0	0	72	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.55

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	7	0	0	7	0.02
NR	0.0	1700	24	0	0	24	0.01
SL	0.0	1700	73	0	0	73	0.04
ST	1.0	1700	36	0	0	36	0.06*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	94	2	0	96	0.06
ET	3.0	5100	1160	42	96	1298	0.27*
ER	1.0	1700	7	0	0	7	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.38 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	19	0	0	19	0.03
NR	0.0	1700	27	0	0	27	0.02
SL	0.0	1700	111	0	0	111	0.07
ST	1.0	1700	53	0	0	53	0.10*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	163	4	0	167	0.10
ET	3.0	5100	1485	73	175	1733	0.37*
ER	1.0	1700	32	0	0	32	0.02-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.52 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	7	0	0	7	0.01
NT	3.0	5100	373	1	5	379	0.07*
NR	1.0	1700	68	2	7	77	0.04-
SL	1.0	1700	168	0	29	197	0.12*
ST	3.0	5100	563	1	10	574	0.11
SR	1.0	1700	54	0	0	54	0.03-
EL	1.0	1700	81	0	0	81	0.05
ET	1.0	1700	191	0	2	193	0.11*
ER	1.0	1700	47	0	0	47	0.03-
WL	1.0	1700	36	2	8	46	0.03*
WT	1.0	1700	100	0	3	103	0.06
WR	1.0	1700	94	0	26	120	0.06-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.38

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	50	0	0	50	0.03
NT	3.0	5100	654	2	25	681	0.13*
NR	1.0	1700	77	4	6	87	0.04-
SL	1.0	1700	102	0	0	102	0.06*
ST	3.0	5100	637	2	27	666	0.13
SR	1.0	1700	82	0	0	82	0.04-
EL	1.0	1700	95	0	0	95	0.06
ET	1.0	1700	128	0	2	130	0.08*
ER	1.0	1700	35	0	0	35	0.02-
WL	1.0	1700	67	4	7	78	0.05*
WT	1.0	1700	76	0	1	77	0.05
WR	1.0	1700	117	0	0	117	0.06-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.37

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	29	0	0	29	0.02*
NT	3.0	5100	347	3	6	356	0.07
NR	1.0	1700	19	2	1	22	0.01-
SL	1.0	1700	26	0	0	26	0.02
ST	3.0	5100	586	3	13	602	0.12*
SR	1.0	1700	49	0	0	49	0.03-
EL	0.0	1700	129	0	0	129	0.08*
ET	1.0	1700	54	0	18	72	0.15
ER	0.0	1700	58	0	0	58	0.03
WL	0.0	1700	45	2	1	48	0.03
WT	1.0	1700	87	0	15	102	0.11*
WR	0.0	1700	41	0	0	41	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.38 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	44	0	0	44	0.03*
NT	3.0	5100	683	6	31	720	0.14
NR	1.0	1700	59	4	0	63	0.03-
SL	1.0	1700	41	0	0	41	0.02
ST	3.0	5100	664	6	34	704	0.14*
SR	1.0	1700	59	0	0	59	0.03-
EL	0.0	1700	160	0	0	160	0.09
ET	1.0	1700	82	0	0	82	0.19*
ER	0.0	1700	76	0	0	76	0.04
WL	0.0	1700	68	4	0	72	0.04*
WT	1.0	1700	50	0	0	50	0.10
WR	0.0	1700	41	0	0	41	0.02
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	102	4	30	136	0.08*
NT	2.0	3400	202	5	6	213	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	486	0	13	499	0.10*
SR	1.0	1700	189	5	0	194	0.09-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	123	0	0	123	0.07
WT	3.0	5100	1321	30	40	1391	0.27*
WR	1.0	1700	220	0	0	220	0.11-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.50

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	284	8	114	406	0.24*
NT	2.0	3400	482	10	31	523	0.15
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	537	0	34	571	0.11
SR	1.0	1700	223	10	0	233	0.12-*
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	234	0	0	234	0.14
WT	3.0	5100	1110	65	63	1238	0.24*
WR	1.0	1700	323	0	0	323	0.16-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.65

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	147	4	36	187	0.06*
NR >>	1.0	1700	38	0	0	38	0.02
SL	2.0	3400	525	0	0	525	0.15*
ST	2.0	3400	147	0	13	160	0.05
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	94	5	0	99	0.06
ET	3.0	5100	1104	33	44	1181	0.23*
ER	1.0	1700	125	4	52	181	0.09-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.49 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	372	8	145	525	0.15*
NR >>	1.0	1700	60	0	0	60	0.04
SL	2.0	3400	600	0	0	600	0.18*
ST	2.0	3400	182	0	34	216	0.06
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	238	10	0	248	0.15
ET	3.0	5100	1246	55	56	1357	0.27*
ER	1.0	1700	160	8	119	287	0.14-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.65 B

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	29	1	0	30	0.02*
NT	1.0	1700	54	2	36	92	0.05
NR >	1.0	1700	82	0	15	97	0.00-
SL	1.0	1700	81	0	0	81	0.05
ST	1.0	1700	84	2	66	152	0.09*
SR >	1.0	1700	70	0	0	70	0.00-
EL	1.0	1700	99	0	0	99	0.06
ET	2.0	3400	182	2	0	184	0.05*
ER	1.0	1700	29	1	0	30	0.02-
WL	1.0	1700	125	0	32	157	0.09*
WT	2.0	3400	168	2	0	170	0.05
WR	1.0	1700	52	0	0	52	0.03-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.30

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	16	2	0	18	0.01
NT	1.0	1700	105	4	147	256	0.15*
NR >	1.0	1700	121	0	76	197	0.00-
SL	1.0	1700	128	0	0	128	0.08*
ST	1.0	1700	90	4	155	249	0.15
SR >	1.0	1700	113	0	0	113	0.00-
EL	1.0	1700	165	0	0	165	0.10
ET	2.0	3400	243	4	0	247	0.07*
ER	1.0	1700	22	2	0	24	0.01-
WL	1.0	1700	118	0	80	198	0.12*
WT	2.0	3400	188	4	0	192	0.06
WR	1.0	1700	124	0	0	124	0.06-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.47

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy: (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	33	0	0	33	0.02
NT	1.0	1700	67	1	2	70	0.04*
NR >	1.0	1700	198	1	13	212	0.03-
SL	2.0	3400	271	0	6	277	0.08*
ST	1.0	1700	98	1	5	104	0.06
SR	1.0	1700	164	1	5	170	0.09-
EL	1.0	1700	129	1	1	131	0.08*
ET	2.0	3400	1462	27	43	1532	0.45
ER	1.0	1700	52	0	1	53	0.03-
WL	2.0	3400	294	1	26	321	0.09
WT	2.0	3400	1496	24	36	1556	0.51*
WR	0.0	1700	176	0	2	178	0.11
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.76 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	54	0	2	56	0.03
NT	1.0	1700	137	2	12	151	0.09*
NR >	1.0	1700	310	2	62	374	0.06-
SL	2.0	3400	262	0	4	266	0.08*
ST	1.0	1700	123	2	12	137	0.08
SR	1.0	1700	231	2	4	237	0.12-
EL	1.0	1700	310	2	7	319	0.19*
ET	2.0	3400	1341	43	51	1435	0.42
ER	1.0	1700	66	0	2	68	0.03-
WL	2.0	3400	427	2	66	495	0.15
WT	2.0	3400	1455	53	60	1568	0.53*
WR	0.0	1700	239	0	6	245	0.14
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.94 E

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Short-Range With Project (Summer) (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	33	0	0	33	0.02*
NT	2.0	3400	67	1	2	70	0.02
NR >	1.0	1700	198	1	13	212	0.03-
SL	2.0	3400	271	0	6	277	0.08
ST	2.0	3400	98	1	5	104	0.08
SR	0.0	1700	164	1	5	170	0.10*
EL	1.0	1700	129	1	1	131	0.08*
ET	2.0	3400	1462	27	43	1532	0.45
ER	1.0	1700	52	0	1	53	0.03-
WL	2.0	3400	294	1	26	321	0.09
WT	2.0	3400	1496	24	36	1556	0.46*
WR >	1.0	1700	176	0	2	178	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.71

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	54	0	2	56	0.03*
NT	2.0	3400	137	2	12	151	0.04
NR >	1.0	1700	310	2	62	374	0.06-
SL	2.0	3400	262	0	4	266	0.08
ST	2.0	3400	123	2	12	137	0.11
SR	0.0	1700	231	2	4	237	0.14*
EL	1.0	1700	310	2	7	319	0.19*
ET	2.0	3400	1341	43	51	1435	0.42
ER	1.0	1700	66	0	2	68	0.03-
WL	2.0	3400	427	2	66	495	0.15
WT	2.0	3400	1455	53	60	1568	0.46*
WR >	1.0	1700	239	0	6	245	0.05-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.87

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

APPENDIX H

ICU CALCULATIONS – BUILDOUT WITHOUT PROJECT

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	VOLUMES Project	VOLUMES Total	V/C Ratio
NL	0.0	1700	36	0	36	0.02
NT	2.0	3400	113	0	113	0.05*
NR	0.0	1700	31	0	31	0.02
SL	2.0	3400	255	-10	245	0.07*
ST	0.5	850	43	0	43	0.05
SR >	1.5	2550	766	0	766	0.01-
EL	2.0	3400	998	0	998	0.29*
ET	2.0	3400	1017	-8	1009	0.30
ER	1.0	1700	18	0	18	0.01-
WL	1.0	1700	41	0	41	0.02
WT	2.0	3400	908	-9	899	0.26*
WR >	1.0	1700	310	-11	299	0.09-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.72 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	VOLUMES Project	VOLUMES Total	V/C Ratio
NL	0.0	1700	44	0	44	0.03*
NT	2.0	3400	58	0	58	0.04
NR	0.0	1700	28	0	28	0.02
SL	2.0	3400	507	-22	485	0.14
ST	0.5	850	137	0	137	0.16*
SR >	1.5	2550	959	0	959	0.12-
EL	2.0	3400	800	0	800	0.24*
ET	2.0	3400	1242	-18	1224	0.36
ER	1.0	1700	38	0	38	0.02-
WL	1.0	1700	46	0	46	0.03
WT	2.0	3400	1003	-14	989	0.29*
WR >	1.0	1700	526	-18	508	0.14-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.77 C

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	1.0	1700	74	0	74	0.04
NT	2.0	3400	111	0	111	0.03
NR	1.0	1700	132	-2	130	0.07-*
SL	1.0	1700	396	-17	379	0.22*
ST	2.0	3400	183	0	183	0.05
SR	1.0	1700	320	0	320	0.16-
EL	2.0	3400	173	0	173	0.05
ET	2.0	3400	973	-18	955	0.28*
ER	1.0	1700	155	0	155	0.08-
WL	1.0	1700	100	-2	98	0.06*
WT	2.0	3400	976	-20	956	0.28
WR	1.0	1700	210	-20	190	0.09-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.68 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	1.0	1700	278	0	278	0.16*
NT	2.0	3400	207	0	207	0.06
NR	1.0	1700	168	-4	164	0.09-
SL	1.0	1700	427	-37	390	0.23
ST	2.0	3400	330	0	330	0.10
SR	1.0	1700	341	0	341	0.17-*
EL	2.0	3400	376	0	376	0.11
ET	2.0	3400	1264	-40	1224	0.36*
ER	1.0	1700	195	0	195	0.09-
WL	1.0	1700	174	-4	170	0.10*
WT	2.0	3400	898	-32	866	0.25
WR	1.0	1700	389	-31	358	0.18-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.84 D

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.5	2550	74	0	74	0.03
NT	1.5	2550	111	0	111	0.04
NR	1.0	1700	132	-2	130	0.07-*
SL	1.5	2550	396	-17	379	0.15
ST	1.5	2550	183	0	183	0.07
SR	1.0	1700	320	0	320	0.16-*
EL	2.0	3400	173	0	173	0.05
ET	2.0	3400	973	-18	955	0.28*
ER	1.0	1700	155	0	155	0.08-
WL	1.0	1700	100	-2	98	0.06*
WT	2.0	3400	976	-20	956	0.28
WR	1.0	1700	210	-20	190	0.09-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.62 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.5	2550	278	0	278	0.11*
NT	1.5	2550	207	0	207	0.08
NR	1.0	1700	168	-4	164	0.09-
SL	1.5	2550	427	-37	390	0.15
ST	1.5	2550	330	0	330	0.13
SR	1.0	1700	341	0	341	0.17-*
EL	2.0	3400	376	0	376	0.11
ET	2.0	3400	1264	-40	1224	0.36*
ER	1.0	1700	195	0	195	0.09-
WL	1.0	1700	174	-4	170	0.10*
WT	2.0	3400	898	-32	866	0.25
WR	1.0	1700	389	-31	358	0.18-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.79 C

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	25	0.01*
NT	3.0	5100	1078	0.21
NR	1.0	1700	86	0.04-
SL	1.0	1700	125	0.07
ST	2.0	3400	1221	0.36*
SR	1.0	1700	39	0.02-
EL	0.0	1700	50	0.03*
ET	2.0	3400	37	0.03
ER	1.0	1700	64	0.03-
WL	0.0	1700	66	0.04
WT	2.0	3400	26	0.03
WR	1.0	1700	163	0.09-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.54 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	72	0.04*
NT	3.0	5100	1136	0.22
NR	1.0	1700	87	0.04-
SL	1.0	1700	221	0.13
ST	2.0	3400	1394	0.41*
SR	1.0	1700	59	0.03-
EL	0.0	1700	55	0.03*
ET	2.0	3400	25	0.02
ER	1.0	1700	51	0.03-
WL	0.0	1700	56	0.03
WT	2.0	3400	31	0.03
WR	1.0	1700	170	0.09-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.62 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1295	0.40*
ER	0.0	1700	58	0.03
WL	0.0	0	0	0.00*
WT	2.0	3400	1185	0.35
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.45 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1448	0.45*
ER	0.0	1700	83	0.05
WL	0.0	0	0	0.00*
WT	2.0	3400	1290	0.38
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.50 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (WITH SANTA CLARA IMP.)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	47	0.03
NT	2.0	3400	14	0.02
NR	0.0	1700	70	0.04*
SL	1.0	1700	58	0.03*
ST	1.0	1700	20	0.01
SR	1.0	1700	20	0.01-
EL	1.0	1700	12	0.01
ET	2.0	3400	1270	0.38*
ER	0.0	1700	7	0.01
WL	1.0	1700	46	0.03*
WT	2.0	3400	1106	0.33
WR	1.0	1700	50	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.53 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	98	0.06
NT	2.0	3400	23	0.04
NR	0.0	1700	98	0.06*
SL	1.0	1700	31	0.02*
ST	1.0	1700	20	0.01
SR	1.0	1700	19	0.01-
EL	1.0	1700	26	0.02
ET	2.0	3400	1424	0.43*
ER	0.0	1700	34	0.02
WL	1.0	1700	115	0.07*
WT	2.0	3400	1192	0.35
WR	1.0	1700	63	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.63 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	1700	34	-2	32	0.02*
NT	1.0	1700	30	0	30	0.04
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00
ST	1.0	1700	58	0	58	0.05*
SR	0.0	1700	34	0	34	0.02
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	0.0	1700	123	0	123	0.07
WT	3.0	5100	1151	-41	1110	0.24*
WR	1.0	1700	30	0	30	0.02-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.36 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	1700	47	-4	43	0.03*
NT	1.0	1700	52	0	52	0.06
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00
ST	1.0	1700	48	0	48	0.05*
SR	0.0	1700	32	0	32	0.02
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	0.0	1700	239	0	239	0.14
WT	3.0	5100	1242	-87	1155	0.27*
WR	1.0	1700	78	0	78	0.04-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.40 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00*
NT	1.0	1700	18	0	18	0.02
NR	0.0	1700	14	0	14	0.01
SL	0.0	1700	189	0	189	0.11
ST	1.0	1700	30	0	30	0.13*
SR	0.0	0	0	0	0	0.00
EL	0.0	1700	46	-2	44	0.03
ET	3.0	5100	1265	-44	1221	0.25*
ER	1.0	1700	11	0	11	0.01-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.43 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00*
NT	1.0	1700	11	0	11	0.02
NR	0.0	1700	29	0	29	0.02
SL	0.0	1700	252	0	252	0.15
ST	1.0	1700	45	0	45	0.17*
SR	0.0	0	0	0	0	0.00
EL	0.0	1700	68	-4	64	0.04
ET	3.0	5100	1481	-77	1404	0.29*
ER	1.0	1700	15	0	15	0.01-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.51 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	1700	43	-2	41	0.02*
NT	1.0	1700	35	0	35	0.04
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00
ST	1.0	1700	35	0	35	0.04*
SR	0.0	1700	36	0	36	0.02
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	0.0	1700	79	0	79	0.05
WT	3.0	5100	1193	-39	1154	0.24*
WR	1.0	1700	37	0	37	0.02-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.35 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	1700	112	-4	108	0.06
NT	1.0	1700	81	0	81	0.11*
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00*
ST	1.0	1700	40	0	40	0.04
SR	0.0	1700	35	0	35	0.02
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	0.0	1700	122	0	122	0.07
WT	3.0	5100	1359	-83	1276	0.27*
WR	1.0	1700	66	0	66	0.03-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.43 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00*
NT	1.0	1700	7	0	7	0.02
NR	0.0	1700	22	0	22	0.01
SL	0.0	1700	67	0	67	0.04
ST	1.0	1700	33	0	33	0.06*
SR	0.0	0	0	0	0	0.00
EL	0.0	1700	88	-2	86	0.05
ET	3.0	5100	1292	-42	1250	0.26*
ER	1.0	1700	7	0	7	0.01-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.37 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00*
NT	1.0	1700	18	0	18	0.03
NR	0.0	1700	25	0	25	0.01
SL	0.0	1700	101	0	101	0.06
ST	1.0	1700	48	0	48	0.09*
SR	0.0	0	0	0	0	0.00
EL	0.0	1700	153	-4	149	0.09
ET	3.0	5100	1570	-73	1497	0.32*
ER	1.0	1700	30	0	30	0.02-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.46 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio	
NL	1.0	1700	7	0	7	0.01	
NT	3.0	5100	696	-1	695	0.14*	
NR	1.0	1700	81	-2	79	0.04-	
SL	1.0	1700	153	0	153	0.09*	
ST	3.0	5100	630	-1	629	0.12	
SR	1.0	1700	50	0	50	0.03-	
EL	1.0	1700	74	0	74	0.04	
ET	1.0	1700	174	0	174	0.10*	
ER	1.0	1700	43	0	43	0.03-	
WL	1.0	1700	71	-2	69	0.04*	
WT	1.0	1700	91	0	91	0.05	
WR	1.0	1700	86	0	86	0.04-	
						=======	
					Clearance Interval Percentage =	0.05	
					Sum of Critical Movements =	0.42	A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio	
NL	1.0	1700	52	0	52	0.03*	
NT	3.0	5100	769	-2	767	0.15	
NR	1.0	1700	183	-4	179	0.09-	
SL	1.0	1700	94	0	94	0.06	
ST	3.0	5100	1335	-2	1333	0.26*	
SR	1.0	1700	75	0	75	0.03-	
EL	1.0	1700	87	0	87	0.05	
ET	1.0	1700	117	0	117	0.07*	
ER	1.0	1700	62	0	62	0.03-	
WL	1.0	1700	77	-4	73	0.04*	
WT	1.0	1700	69	0	69	0.04	
WR	1.0	1700	107	0	107	0.05-	
						=======	
					Clearance Interval Percentage =	0.05	
					Sum of Critical Movements =	0.45	A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	61	0	61	0.04*
NT	3.0	5100	705	-3	702	0.14
NR	1.0	1700	20	-2	18	0.01-
SL	1.0	1700	24	0	24	0.01
ST	3.0	5100	690	-3	687	0.13*
SR	1.0	1700	45	0	45	0.03-
EL	0.0	1700	118	0	118	0.07*
ET	1.0	1700	50	0	50	0.15
ER	0.0	1700	94	0	94	0.06
WL	0.0	1700	65	-2	63	0.04
WT	1.0	1700	79	0	79	0.12*
WR	0.0	1700	54	0	54	0.03
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.41 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	127	0	127	0.07*
NT	3.0	5100	921	-6	915	0.18
NR	1.0	1700	92	-4	88	0.04-
SL	1.0	1700	55	0	55	0.03
ST	3.0	5100	1396	-6	1390	0.27*
SR	1.0	1700	53	0	53	0.03-
EL	0.0	1700	146	0	146	0.09
ET	1.0	1700	75	0	75	0.19*
ER	0.0	1700	101	0	101	0.06
WL	0.0	1700	88	-4	84	0.05*
WT	1.0	1700	46	0	46	0.10
WR	0.0	1700	41	0	41	0.02
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.63 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	105	-4	101	0.06*
NT	2.0	3400	184	-5	179	0.05
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00
ST	3.0	5100	733	0	733	0.14*
SR	1.0	1700	178	-5	173	0.09-
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	1.0	1700	105	0	105	0.06
WT	3.0	5100	1031	-30	1001	0.20
WR	1.0	1700	662	0	662	0.33-*
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.58 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	259	-8	251	0.15*
NT	2.0	3400	680	-10	670	0.20
NR	0.0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0.00
ST	3.0	5100	1514	0	1514	0.30*
SR	1.0	1700	214	-10	204	0.10-
EL	0.0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0.00
WL	1.0	1700	338	0	338	0.20
WT	3.0	5100	1084	-65	1019	0.20
WR	1.0	1700	494	0	494	0.25-*
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.75 C

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00
NT	2.0	3400	224	-4	220	0.06*
NR >>	1.0	1700	64	0	64	0.04
SL	2.0	3400	563	0	563	0.17*
ST	2.0	3400	228	0	228	0.07
SR	0.0	0	0	0	0	0.00
EL	1.0	1700	91	-5	86	0.05
ET	3.0	5100	1069	-33	1036	0.20*
ER	1.0	1700	201	-4	197	0.10-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.48 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	0.0	0	0	0	0	0.00
NT	2.0	3400	807	-8	799	0.24*
NR >>	1.0	1700	66	0	66	0.04
SL	2.0	3400	821	0	821	0.24*
ST	2.0	3400	1011	0	1011	0.30
SR	0.0	0	0	0	0	0.00
EL	1.0	1700	227	-10	217	0.13
ET	3.0	5100	1175	-55	1120	0.22*
ER	1.0	1700	294	-8	286	0.14-
WL	0.0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0.00
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.75 C

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	27	-1	26	0.02*
NT	1.0	1700	52	-2	50	0.03
NR >	1.0	1700	75	0	75	0.00-
SL	1.0	1700	74	0	74	0.04
ST	1.0	1700	79	-2	77	0.05
SR >	1.0	1700	221	0	221	0.07-*
EL	1.0	1700	90	0	90	0.05*
ET	2.0	3400	168	-2	166	0.05
ER	1.0	1700	27	-1	26	0.02-
WL	1.0	1700	114	0	114	0.07
WT	2.0	3400	268	-2	266	0.08*
WR	1.0	1700	129	0	129	0.07-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.27 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio
NL	1.0	1700	17	-2	15	0.01
NT	1.0	1700	281	-4	277	0.16*
NR >	1.0	1700	110	0	110	0.00-
SL	1.0	1700	641	0	641	0.38*
ST	1.0	1700	93	-4	89	0.05
SR >	1.0	1700	342	0	342	0.09-
EL	1.0	1700	176	0	176	0.10*
ET	2.0	3400	461	-4	457	0.13
ER	1.0	1700	23	-2	21	0.01-
WL	1.0	1700	124	0	124	0.07
WT	2.0	3400	474	-4	470	0.14*
WR	1.0	1700	240	0	240	0.12-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.83 D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio	
NL	1.0	1700	32	0	32	0.02	
NT	1.0	1700	63	-1	62	0.04*	
NR >	1.0	1700	200	-1	199	0.02-	
SL	2.0	3400	246	0	246	0.07*	
ST	1.0	1700	91	-1	90	0.05	
SR	1.0	1700	151	-1	150	0.08-	
EL	1.0	1700	144	-1	143	0.08*	
ET	2.0	3400	1633	-27	1606	0.47	
ER	1.0	1700	58	0	58	0.03-	
WL	2.0	3400	350	-1	349	0.10	
WT	2.0	3400	1924	-24	1900	0.76*	
WR	0.0	1700	693	0	693	0.41	
						=======	
				Clearance Interval Percentage =		0.05	
				Sum of Critical Movements =		1.00	E

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Background	Project	Total	V/C Ratio	
NL	1.0	1700	33	0	33	0.02	
NT	1.0	1700	197	-2	195	0.11	
NR >	1.0	1700	881	-2	879	0.28-*	
SL	2.0	3400	271	0	271	0.08*	
ST	1.0	1700	160	-2	158	0.09	
SR	1.0	1700	243	-2	241	0.12-	
EL	1.0	1700	299	-2	297	0.17*	
ET	2.0	3400	1820	-43	1777	0.52	
ER	1.0	1700	50	0	50	0.03-	
WL	2.0	3400	632	-2	630	0.19	
WT	2.0	3400	1879	-53	1826	0.73*	
WR	0.0	1700	651	0	651	0.38	
						=======	
				Clearance Interval Percentage =		0.05	
				Sum of Critical Movements =		1.31	F

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	1.0	1700	32	0	32	0.02
NT	1.0	1700	63	-1	62	0.04*
NR >	2.0	3400	200	-1	199	0.00-
SL	2.0	3400	246	0	246	0.07*
ST	1.0	1700	91	-1	90	0.05
SR	1.0	1700	151	-1	150	0.08-
EL	1.0	1700	144	-1	143	0.08*
ET	3.0	5100	1633	-27	1606	0.33
ER	0.0	1700	58	0	58	0.03
WL	2.0	3400	350	-1	349	0.10
WT	3.0	5100	1924	-24	1900	0.37*
WR	1.0	1700	693	0	693	0.35-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.61 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	1.0	1700	33	0	33	0.02
NT	1.0	1700	197	-2	195	0.11*
NR >	2.0	3400	881	-2	879	0.06-
SL	2.0	3400	271	0	271	0.08*
ST	1.0	1700	160	-2	158	0.09
SR	1.0	1700	243	-2	241	0.12-
EL	1.0	1700	299	-2	297	0.17
ET	3.0	5100	1820	-43	1777	0.36*
ER	0.0	1700	50	0	50	0.03
WL	2.0	3400	632	-2	630	0.19*
WT	3.0	5100	1879	-53	1826	0.36
WR	1.0	1700	651	0	651	0.32-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.79 C

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	39	0	0	39	0.02
NT	2.0	3400	124	0	0	124	0.06*
NR	0.0	1700	34	0	0	34	0.02
SL	2.0	3400	280	-10	0	270	0.08*
ST	0.5	850	47	0	0	47	0.06
SR >	1.5	2550	842	0	0	842	0.01-
EL	2.0	3400	1097	0	0	1097	0.32*
ET	2.0	3400	1118	-8	0	1110	0.33
ER	1.0	1700	19	0	0	19	0.01-
WL	1.0	1700	45	0	0	45	0.03
WT	2.0	3400	998	-9	0	989	0.29*
WR >	1.0	1700	341	-11	0	330	0.09-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.80 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	48	0	0	48	0.03*
NT	2.0	3400	63	0	0	63	0.04
NR	0.0	1700	30	0	0	30	0.02
SL	2.0	3400	557	-22	0	535	0.16
ST	0.5	850	150	0	0	150	0.18*
SR >	1.5	2550	1054	0	0	1054	0.13-
EL	2.0	3400	880	0	0	880	0.26*
ET	2.0	3400	1366	-18	0	1348	0.40
ER	1.0	1700	41	0	0	41	0.02-
WL	1.0	1700	50	0	0	50	0.03
WT	2.0	3400	1103	-14	0	1089	0.32*
WR >	1.0	1700	578	-18	0	560	0.14-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.84 D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	81	0	0	81	0.05
NT	2.0	3400	122	0	0	122	0.04
NR	1.0	1700	145	-2	0	143	0.07-*
SL	1.0	1700	435	-17	0	418	0.25*
ST	2.0	3400	201	0	0	201	0.06
SR	1.0	1700	352	0	0	352	0.18-
EL	2.0	3400	190	0	0	190	0.06*
ET	2.0	3400	1070	-18	0	1052	0.31
ER	1.0	1700	170	0	0	170	0.09-
WL	1.0	1700	110	-2	0	108	0.06
WT	2.0	3400	1073	-20	0	1053	0.31*
WR	1.0	1700	231	-20	0	211	0.10-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.74 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	305	0	0	305	0.18*
NT	2.0	3400	227	0	0	227	0.07
NR	1.0	1700	184	-4	0	180	0.09-
SL	1.0	1700	469	-37	0	432	0.25
ST	2.0	3400	363	0	0	363	0.11
SR	1.0	1700	375	0	0	375	0.19-*
EL	2.0	3400	413	0	0	413	0.12
ET	2.0	3400	1390	-40	0	1350	0.40*
ER	1.0	1700	214	0	0	214	0.11-
WL	1.0	1700	191	-4	0	187	0.11*
WT	2.0	3400	987	-32	0	955	0.28
WR	1.0	1700	427	-31	0	396	0.20-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.93 E

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer) (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.5	2550	81	0	0	81	0.03
NT	1.5	2550	122	0	0	122	0.05
NR	1.0	1700	145	-2	0	143	0.07-*
SL	1.5	2550	435	-17	0	418	0.16
ST	1.5	2550	201	0	0	201	0.08
SR	1.0	1700	352	0	0	352	0.18-*
EL	2.0	3400	190	0	0	190	0.06*
ET	2.0	3400	1070	-18	0	1052	0.31
ER	1.0	1700	170	0	0	170	0.09-
WL	1.0	1700	110	-2	0	108	0.06
WT	2.0	3400	1073	-20	0	1053	0.31*
WR	1.0	1700	231	-20	0	211	0.10-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.67 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.5	2550	305	0	0	305	0.12*
NT	1.5	2550	227	0	0	227	0.09
NR	1.0	1700	184	-4	0	180	0.09-
SL	1.5	2550	469	-37	0	432	0.17
ST	1.5	2550	363	0	0	363	0.14
SR	1.0	1700	375	0	0	375	0.19-*
EL	2.0	3400	413	0	0	413	0.12
ET	2.0	3400	1390	-40	0	1350	0.40*
ER	1.0	1700	214	0	0	214	0.11-
WL	1.0	1700	191	-4	0	187	0.11*
WT	2.0	3400	987	-32	0	955	0.28
WR	1.0	1700	427	-31	0	396	0.20-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.87 D

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	28	0.02*
NT	3.0	5100	1187	0.23
NR	1.0	1700	95	0.05-
SL	1.0	1700	137	0.08
ST	2.0	3400	1346	0.40*
SR	1.0	1700	43	0.03-
EL	0.0	1700	57	0.03*
ET	2.0	3400	41	0.03
ER	1.0	1700	72	0.03-
WL	0.0	1700	73	0.04
WT	2.0	3400	28	0.03
WR	1.0	1700	179	0.09-*
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.59 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	81	0.05*
NT	3.0	5100	1254	0.25
NR	1.0	1700	96	0.05-
SL	1.0	1700	243	0.14
ST	2.0	3400	1538	0.45*
SR	1.0	1700	67	0.03-
EL	0.0	1700	62	0.04*
ET	2.0	3400	27	0.03
ER	1.0	1700	57	0.03-
WL	0.0	1700	62	0.04
WT	2.0	3400	34	0.03
WR	1.0	1700	187	0.09-*
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.68 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1429	0.44*
ER	0.0	1700	64	0.04
WL	0.0	0	0	0.00*
WT	2.0	3400	1307	0.38
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.49 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1600	0.50*
ER	0.0	1700	92	0.05
WL	0.0	0	0	0.00*
WT	2.0	3400	1430	0.42
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.55 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer) (With Santa Clara Imp.)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	52	0.03
NT	2.0	3400	15	0.03
NR	0.0	1700	75	0.04*
SL	1.0	1700	63	0.04*
ST	1.0	1700	22	0.01
SR	1.0	1700	22	0.01-
EL	1.0	1700	13	0.01
ET	2.0	3400	1401	0.41*
ER	0.0	1700	7	0.01
WL	1.0	1700	50	0.03*
WT	2.0	3400	1218	0.36
WR	1.0	1700	55	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.57 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	109	0.06
NT	2.0	3400	25	0.04
NR	0.0	1700	105	0.06*
SL	1.0	1700	34	0.02*
ST	1.0	1700	22	0.01
SR	1.0	1700	22	0.01-
EL	1.0	1700	29	0.02
ET	2.0	3400	1573	0.47*
ER	0.0	1700	37	0.02
WL	1.0	1700	123	0.07*
WT	2.0	3400	1317	0.39
WR	1.0	1700	69	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.67 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	37	-2	0	35	0.02*
NT	1.0	1700	33	0	0	33	0.04
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	63	0	0	63	0.06*
SR	0.0	1700	37	0	0	37	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	135	0	0	135	0.08
WT	3.0	5100	1266	-41	0	1225	0.27*
WR	1.0	1700	33	0	0	33	0.02-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	51	-4	0	47	0.03*
NT	1.0	1700	57	0	0	57	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	52	0	0	52	0.05*
SR	0.0	1700	35	0	0	35	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	262	0	0	262	0.15
WT	3.0	5100	1366	-87	0	1279	0.30*
WR	1.0	1700	85	0	0	85	0.04-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.43 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	19	0	0	19	0.02
NR	0.0	1700	15	0	0	15	0.01
SL	0.0	1700	207	0	0	207	0.12
ST	1.0	1700	33	0	0	33	0.14*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	50	-2	0	48	0.03
ET	3.0	5100	1391	-44	0	1347	0.27*
ER	1.0	1700	12	0	0	12	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.46 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	12	0	0	12	0.03
NR	0.0	1700	31	0	0	31	0.02
SL	0.0	1700	277	0	0	277	0.16
ST	1.0	1700	49	0	0	49	0.19*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	74	-4	0	70	0.04
ET	3.0	5100	1629	-77	0	1552	0.32*
ER	1.0	1700	16	0	0	16	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.56 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio	
NL	0.0	1700	47	-2	0	45	0.03*	
NT	1.0	1700	38	0	0	38	0.05	
NR	0.0	0	0	0	0	0	0.00	
SL	0.0	0	0	0	0	0	0.00	
ST	1.0	1700	38	0	0	38	0.05*	
SR	0.0	1700	39	0	0	39	0.02	
EL	0.0	0	0	0	0	0	0.00	
ET	0.0	0	0	0	0	0	0.00	
ER	0.0	0	0	0	0	0	0.00	
WL	0.0	1700	86	0	0	86	0.05	
WT	3.0	5100	1312	-39	0	1273	0.27*	
WR	1.0	1700	40	0	0	40	0.02-	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.40	A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio	
NL	0.0	1700	123	-4	0	119	0.07*	
NT	1.0	1700	89	0	0	89	0.12	
NR	0.0	0	0	0	0	0	0.00	
SL	0.0	0	0	0	0	0	0.00	
ST	1.0	1700	44	0	0	44	0.05*	
SR	0.0	1700	38	0	0	38	0.02	
EL	0.0	0	0	0	0	0	0.00	
ET	0.0	0	0	0	0	0	0.00	
ER	0.0	0	0	0	0	0	0.00	
WL	0.0	1700	134	0	0	134	0.08	
WT	3.0	5100	1494	-83	0	1411	0.30*	
WR	1.0	1700	72	0	0	72	0.03-	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.47	A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	7	0	0	7	0.02
NR	0.0	1700	24	0	0	24	0.01
SL	0.0	1700	73	0	0	73	0.04
ST	1.0	1700	36	0	0	36	0.06*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	96	-2	0	94	0.06
ET	3.0	5100	1421	-42	0	1379	0.29*
ER	1.0	1700	7	0	0	7	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	19	0	0	19	0.03
NR	0.0	1700	27	0	0	27	0.02
SL	0.0	1700	111	0	0	111	0.07
ST	1.0	1700	52	0	0	52	0.10*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	168	-4	0	164	0.10
ET	3.0	5100	1727	-73	0	1654	0.36*
ER	1.0	1700	33	0	0	33	0.02-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.51 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	7	0	0	7	0.01
NT	3.0	5100	765	-1	0	764	0.15*
NR	1.0	1700	89	-2	0	87	0.04-
SL	1.0	1700	168	0	0	168	0.10*
ST	3.0	5100	693	-1	0	692	0.14
SR	1.0	1700	55	0	0	55	0.03-
EL	1.0	1700	81	0	0	81	0.05
ET	1.0	1700	191	0	0	191	0.11*
ER	1.0	1700	47	0	0	47	0.03-
WL	1.0	1700	78	-2	0	76	0.04*
WT	1.0	1700	100	0	0	100	0.06
WR	1.0	1700	94	0	0	94	0.05-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	57	0	0	57	0.03*
NT	3.0	5100	845	-2	0	843	0.17
NR	1.0	1700	201	-4	0	197	0.10-
SL	1.0	1700	103	0	0	103	0.06
ST	3.0	5100	1468	-2	0	1466	0.29*
SR	1.0	1700	82	0	0	82	0.04-
EL	1.0	1700	95	0	0	95	0.06
ET	1.0	1700	128	0	0	128	0.08*
ER	1.0	1700	68	0	0	68	0.03-
WL	1.0	1700	84	-4	0	80	0.05*
WT	1.0	1700	75	0	0	75	0.04
WR	1.0	1700	117	0	0	117	0.06-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.50 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	67	0	0	67	0.04*
NT	3.0	5100	775	-3	0	772	0.15
NR	1.0	1700	22	-2	0	20	0.01-
SL	1.0	1700	26	0	0	26	0.02
ST	3.0	5100	759	-3	0	756	0.15*
SR	1.0	1700	49	0	0	49	0.03-
EL	0.0	1700	129	0	0	129	0.08
ET	1.0	1700	55	0	0	55	0.17*
ER	0.0	1700	103	0	0	103	0.06
WL	0.0	1700	71	-2	0	69	0.04*
WT	1.0	1700	86	0	0	86	0.13
WR	0.0	1700	59	0	0	59	0.03
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	139	0	0	139	0.08*
NT	3.0	5100	1013	-6	0	1007	0.20
NR	1.0	1700	101	-4	0	97	0.05-
SL	1.0	1700	60	0	0	60	0.04
ST	3.0	5100	1535	-6	0	1529	0.30*
SR	1.0	1700	58	0	0	58	0.03-
EL	0.0	1700	160	0	0	160	0.09
ET	1.0	1700	82	0	0	82	0.21*
ER	0.0	1700	111	0	0	111	0.07
WL	0.0	1700	96	-4	0	92	0.05*
WT	1.0	1700	50	0	0	50	0.11
WR	0.0	1700	45	0	0	45	0.03
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.69 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	115	-4	0	111	0.07*
NT	2.0	3400	202	-5	0	197	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	806	0	0	806	0.16*
SR	1.0	1700	195	-5	0	190	0.09-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	115	0	0	115	0.07
WT	3.0	5100	1134	-30	0	1104	0.22
WR	1.0	1700	728	0	0	728	0.37-*
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.65 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	284	-8	0	276	0.16*
NT	2.0	3400	748	-10	0	738	0.22
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	1665	0	0	1665	0.33*
SR	1.0	1700	235	-10	0	225	0.11-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	371	0	0	371	0.22
WT	3.0	5100	1192	-65	0	1127	0.22
WR	1.0	1700	543	0	0	543	0.27-*
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.81 D

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	246	-4	0	242	0.07*
NR >>	1.0	1700	70	0	0	70	0.04
SL	2.0	3400	619	0	0	619	0.18*
ST	2.0	3400	250	0	0	250	0.07
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	100	-5	0	95	0.06
ET	3.0	5100	1175	-33	0	1142	0.22*
ER	1.0	1700	221	-4	0	217	0.11-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.52 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	887	-8	0	879	0.26*
NR >>	1.0	1700	72	0	0	72	0.04
SL	2.0	3400	903	0	0	903	0.27*
ST	2.0	3400	1112	0	0	1112	0.33
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	249	-10	0	239	0.14
ET	3.0	5100	1292	-55	0	1237	0.24*
ER	1.0	1700	323	-8	0	315	0.16-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.82 D

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	29	-1	0	28	0.02*
NT	1.0	1700	57	-2	0	55	0.03
NR >	1.0	1700	82	0	0	82	0.00-
SL	1.0	1700	81	0	0	81	0.05
ST	1.0	1700	86	-2	0	84	0.05
SR >	1.0	1700	243	0	0	243	0.07-*
EL	1.0	1700	99	0	0	99	0.06*
ET	2.0	3400	184	-2	0	182	0.05
ER	1.0	1700	29	-1	0	28	0.02-
WL	1.0	1700	125	0	0	125	0.07
WT	2.0	3400	294	-2	0	292	0.09*
WR	1.0	1700	141	0	0	141	0.07-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.29 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	18	-2	0	16	0.01
NT	1.0	1700	309	-4	0	305	0.18*
NR >	1.0	1700	121	0	0	121	0.00-
SL	1.0	1700	705	0	0	705	0.41*
ST	1.0	1700	102	-4	0	98	0.06
SR >	1.0	1700	376	0	0	376	0.09-
EL	1.0	1700	193	0	0	193	0.11*
ET	2.0	3400	507	-4	0	503	0.15
ER	1.0	1700	25	-2	0	23	0.01-
WL	1.0	1700	136	0	0	136	0.08
WT	2.0	3400	521	-4	0	517	0.15*
WR	1.0	1700	264	0	0	264	0.14-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.90 D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	35	0	0	35	0.02
NT	1.0	1700	69	-1	0	68	0.04*
NR >	1.0	1700	220	-1	0	219	0.02-
SL	2.0	3400	270	0	0	270	0.08*
ST	1.0	1700	100	-1	0	99	0.06
SR	1.0	1700	166	-1	0	165	0.09-
EL	1.0	1700	158	-1	0	157	0.09*
ET	2.0	3400	1796	-27	0	1769	0.52
ER	1.0	1700	63	0	0	63	0.03-
WL	2.0	3400	385	-1	0	384	0.11
WT	2.0	3400	2116	-24	0	2092	0.84*
WR	0.0	1700	762	0	0	762	0.45
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		1.10 F

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	36	0	0	36	0.02
NT	1.0	1700	216	-2	0	214	0.13
NR >	1.0	1700	969	-2	0	967	0.31-*
SL	2.0	3400	298	0	0	298	0.09*
ST	1.0	1700	176	-2	0	174	0.10
SR	1.0	1700	267	-2	0	265	0.14-
EL	1.0	1700	328	-2	0	326	0.19*
ET	2.0	3400	2002	-43	0	1959	0.58
ER	1.0	1700	55	0	0	55	0.03-
WL	2.0	3400	695	-2	0	693	0.20
WT	2.0	3400	2066	-53	0	2013	0.80*
WR	0.0	1700	716	0	0	716	0.42
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		1.44 F

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out Without Project (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	1.0	1700	32	0	32	0.02
NT	1.0	1700	63	-1	62	0.04*
NR >	2.0	3400	200	-1	199	0.00-
SL	2.0	3400	246	0	246	0.07*
ST	1.0	1700	91	-1	90	0.05
SR	1.0	1700	151	-1	150	0.08-
EL	1.0	1700	144	-1	143	0.08*
ET	3.0	5100	1633	-27	1606	0.33
ER	0.0	1700	58	0	58	0.03
WL	2.0	3400	350	-1	349	0.10
WT	3.0	5100	1924	-24	1900	0.37*
WR	1.0	1700	693	0	693	0.35-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.61 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Background	Project	Total	V/C Ratio
NL	1.0	1700	33	0	33	0.02
NT	1.0	1700	197	-2	195	0.11*
NR >	2.0	3400	881	-2	879	0.06-
SL	2.0	3400	271	0	271	0.08*
ST	1.0	1700	160	-2	158	0.09
SR	1.0	1700	243	-2	241	0.12-
EL	1.0	1700	299	-2	297	0.17
ET	3.0	5100	1820	-43	1777	0.36*
ER	0.0	1700	50	0	50	0.03
WL	2.0	3400	632	-2	630	0.19*
WT	3.0	5100	1879	-53	1826	0.36
WR	1.0	1700	651	0	651	0.32-
						=======
				Clearance Interval Percentage =		0.05
				Sum of Critical Movements =		0.79 C

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

APPENDIX I

ICU CALCULATIONS – BUILDOUT WITH PROJECT

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	36	0.02
NT	2.0	3400	113	0.05*
NR	0.0	1700	31	0.02
SL	2.0	3400	255	0.08*
ST	0.5	850	43	0.05
SR >	1.5	2550	766	0.01-
EL	2.0	3400	998	0.29*
ET	2.0	3400	1017	0.30
ER	1.0	1700	18	0.01-
WL	1.0	1700	41	0.02
WT	2.0	3400	908	0.27*
WR >	1.0	1700	310	0.09-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.74 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	44	0.03*
NT	2.0	3400	58	0.04
NR	0.0	1700	28	0.02
SL	2.0	3400	507	0.15
ST	0.5	850	137	0.16*
SR >	1.5	2550	959	0.12-
EL	2.0	3400	800	0.24*
ET	2.0	3400	1242	0.37
ER	1.0	1700	38	0.02-
WL	1.0	1700	46	0.03
WT	2.0	3400	1003	0.30*
WR >	1.0	1700	526	0.14-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.78 C

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	74	0.04
NT	2.0	3400	111	0.03
NR	1.0	1700	132	0.07-*
SL	1.0	1700	396	0.23*
ST	2.0	3400	183	0.05
SR	1.0	1700	320	0.16-
EL	2.0	3400	173	0.05
ET	2.0	3400	973	0.29*
ER	1.0	1700	155	0.08-
WL	1.0	1700	100	0.06*
WT	2.0	3400	976	0.29
WR	1.0	1700	210	0.10-
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.70 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	278	0.16
NT	2.0	3400	207	0.06
NR	1.0	1700	168	0.09-*
SL	1.0	1700	427	0.25*
ST	2.0	3400	330	0.10
SR	1.0	1700	341	0.17-
EL	2.0	3400	376	0.11
ET	2.0	3400	1264	0.37*
ER	1.0	1700	195	0.09-
WL	1.0	1700	174	0.10*
WT	2.0	3400	898	0.26
WR	1.0	1700	389	0.20-
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.86 D

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.5	2550	74	0.03
NT	1.5	2550	111	0.04
NR	1.0	1700	132	0.07-*
SL	1.5	2550	396	0.16*
ST	1.5	2550	183	0.07
SR	1.0	1700	320	0.16-
EL	2.0	3400	173	0.05
ET	2.0	3400	973	0.29*
ER	1.0	1700	155	0.08-
WL	1.0	1700	100	0.06*
WT	2.0	3400	976	0.29
WR	1.0	1700	210	0.10-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.63 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.5	2550	278	0.11*
NT	1.5	2550	207	0.08
NR	1.0	1700	168	0.09-
SL	1.5	2550	427	0.17*
ST	1.5	2550	330	0.13
SR	1.0	1700	341	0.17-
EL	2.0	3400	376	0.11
ET	2.0	3400	1264	0.37*
ER	1.0	1700	195	0.09-
WL	1.0	1700	174	0.10*
WT	2.0	3400	898	0.26
WR	1.0	1700	389	0.20-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.80 C

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	32	0.02*
NT	3.0	5100	1099	0.22
NR	1.0	1700	90	0.04-
SL	1.0	1700	125	0.07
ST	2.0	3400	1250	0.37*
SR	1.0	1700	49	0.03-
EL	0.0	1700	75	0.04*
ET	2.0	3400	41	0.03
ER	1.0	1700	84	0.04-
WL	0.0	1700	70	0.04
WT	2.0	3400	28	0.03
WR	1.0	1700	163	0.09-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.57 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	95	0.06*
NT	3.0	5100	1187	0.23
NR	1.0	1700	94	0.05-
SL	1.0	1700	221	0.13
ST	2.0	3400	1449	0.43*
SR	1.0	1700	89	0.04-
EL	0.0	1700	73	0.04*
ET	2.0	3400	28	0.03
ER	1.0	1700	65	0.03-
WL	0.0	1700	66	0.04
WT	2.0	3400	35	0.03
WR	1.0	1700	170	0.09-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.67 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Project Entrance (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	33	0.02*
NT	2.0	3400	1195	0.35
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	2.0	3400	1381	0.41*
SR	1.0	1700	23	0.01-
EL	1.0	1700	22	0.01
ET	0.0	0	0	0.00
ER	1.0	1700	31	0.02-*
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.50 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	77	0.05*
NT	2.0	3400	1326	0.39
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	2.0	3400	1546	0.45*
SR	1.0	1700	54	0.03-
EL	1.0	1700	43	0.03*
ET	0.0	0	0	0.00
ER	1.0	1700	63	0.03-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.58 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1345	0.42*
ER	0.0	1700	67	0.04
WL	0.0	0	0	0.00*
WT	2.0	3400	1228	0.36
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.47 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	0.0	0	0	0.00
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	0.0	0	0	0.00
SR	0.0	0	0	0.00
EL	0.0	0	0	0.00
ET	2.0	3400	1525	0.48*
ER	0.0	1700	94	0.06
WL	0.0	0	0	0.00*
WT	2.0	3400	1403	0.41
WR	0.0	0	0	0.00
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.53 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out With Project (WITH SANTA CLARA IMP.)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	51	0.03
NT	2.0	3400	15	0.03
NR	0.0	1700	75	0.04*
SL	1.0	1700	58	0.03*
ST	1.0	1700	23	0.01
SR	1.0	1700	25	0.01-
EL	1.0	1700	19	0.01
ET	2.0	3400	1312	0.39*
ER	0.0	1700	7	0.01
WL	1.0	1700	56	0.03*
WT	2.0	3400	1140	0.34
WR	1.0	1700	50	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.54 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	111	0.07*
NT	2.0	3400	27	0.04
NR	0.0	1700	113	0.07
SL	1.0	1700	31	0.02
ST	1.0	1700	23	0.01
SR	1.0	1700	35	0.02-*
EL	1.0	1700	36	0.02
ET	2.0	3400	1491	0.45*
ER	0.0	1700	34	0.02
WL	1.0	1700	127	0.07*
WT	2.0	3400	1276	0.38
WR	1.0	1700	63	0.03-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.66 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	34	0.02*
NT	1.0	1700	30	0.04
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	1.0	1700	58	0.05*
SR	0.0	1700	34	0.02
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	0.0	1700	123	0.07
WT	3.0	5100	1151	0.25*
WR	1.0	1700	30	0.02-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.37 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	47	0.03*
NT	1.0	1700	52	0.06
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	1.0	1700	48	0.05*
SR	0.0	1700	32	0.02
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	0.0	1700	239	0.14
WT	3.0	5100	1242	0.29*
WR	1.0	1700	78	0.04-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.42 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00*
NT	1.0	1700	18	0.02
NR	0.0	1700	14	0.01
SL	0.0	1700	189	0.11
ST	1.0	1700	30	0.13*
SR	0.0	0	0	0.00
EL	0.0	1700	46	0.03
ET	3.0	5100	1265	0.26*
ER	1.0	1700	11	0.01-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.44 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00*
NT	1.0	1700	11	0.02
NR	0.0	1700	29	0.02
SL	0.0	1700	252	0.15
ST	1.0	1700	45	0.17*
SR	0.0	0	0	0.00
EL	0.0	1700	68	0.04
ET	3.0	5100	1481	0.30*
ER	1.0	1700	15	0.01-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.52 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	43	0.03*
NT	1.0	1700	35	0.05
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	1.0	1700	35	0.04*
SR	0.0	1700	36	0.02
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	0.0	1700	79	0.05
WT	3.0	5100	1193	0.25*
WR	1.0	1700	37	0.02-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.37 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	1700	112	0.07*
NT	1.0	1700	81	0.11
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	1.0	1700	40	0.04*
SR	0.0	1700	35	0.02
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	0.0	1700	122	0.07
WT	3.0	5100	1359	0.29*
WR	1.0	1700	66	0.03-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.45 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00*
NT	1.0	1700	7	0.02
NR	0.0	1700	22	0.01
SL	0.0	1700	67	0.04
ST	1.0	1700	33	0.06*
SR	0.0	0	0	0.00
EL	0.0	1700	88	0.05
ET	3.0	5100	1292	0.27*
ER	1.0	1700	7	0.01-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
Clearance Interval Percentage =				0.05
Sum of Critical Movements =				0.38 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00*
NT	1.0	1700	18	0.03
NR	0.0	1700	25	0.01
SL	0.0	1700	101	0.06
ST	1.0	1700	48	0.09*
SR	0.0	0	0	0.00
EL	0.0	1700	153	0.09
ET	3.0	5100	1570	0.34*
ER	1.0	1700	30	0.02-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
Clearance Interval Percentage =				0.05
Sum of Critical Movements =				0.48 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	7	0.01
NT	3.0	5100	696	0.14*
NR	1.0	1700	81	0.04-
SL	1.0	1700	153	0.09*
ST	3.0	5100	630	0.12
SR	1.0	1700	50	0.03-
EL	1.0	1700	74	0.04
ET	1.0	1700	174	0.10*
ER	1.0	1700	43	0.03-
WL	1.0	1700	71	0.04*
WT	1.0	1700	91	0.05
WR	1.0	1700	86	0.04-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.42 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	52	0.03*
NT	3.0	5100	769	0.15
NR	1.0	1700	183	0.09-
SL	1.0	1700	94	0.06
ST	3.0	5100	1335	0.26*
SR	1.0	1700	75	0.03-
EL	1.0	1700	87	0.05
ET	1.0	1700	117	0.07*
ER	1.0	1700	62	0.03-
WL	1.0	1700	77	0.05*
WT	1.0	1700	69	0.04
WR	1.0	1700	107	0.05-
				=======
			Clearance Interval Percentage =	0.05
			Sum of Critical Movements =	0.46 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	61	0.04*
NT	3.0	5100	705	0.14
NR	1.0	1700	20	0.01-
SL	1.0	1700	24	0.01
ST	3.0	5100	690	0.14*
SR	1.0	1700	45	0.03-
EL	0.0	1700	118	0.07*
ET	1.0	1700	50	0.15
ER	0.0	1700	94	0.06
WL	0.0	1700	65	0.04
WT	1.0	1700	79	0.12*
WR	0.0	1700	54	0.03
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.42 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	127	0.07*
NT	3.0	5100	921	0.18
NR	1.0	1700	92	0.04-
SL	1.0	1700	55	0.03
ST	3.0	5100	1396	0.27*
SR	1.0	1700	53	0.03-
EL	0.0	1700	146	0.09
ET	1.0	1700	75	0.19*
ER	0.0	1700	101	0.06
WL	0.0	1700	88	0.05*
WT	1.0	1700	46	0.10
WR	0.0	1700	41	0.02
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.63 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	105	0.06*
NT	2.0	3400	184	0.05
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	3.0	5100	733	0.14*
SR	1.0	1700	178	0.09-
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	1.0	1700	105	0.06
WT	3.0	5100	1031	0.20
WR	1.0	1700	662	0.33-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.58 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	259	0.15*
NT	2.0	3400	680	0.20
NR	0.0	0	0	0.00
SL	0.0	0	0	0.00
ST	3.0	5100	1514	0.30*
SR	1.0	1700	214	0.11-
EL	0.0	0	0	0.00
ET	0.0	0	0	0.00
ER	0.0	0	0	0.00
WL	1.0	1700	338	0.20
WT	3.0	5100	1084	0.21
WR	1.0	1700	494	0.25-*
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.75 C

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	2.0	3400	224	0.07*
NR >>	1.0	1700	64	0.04
SL	2.0	3400	563	0.17*
ST	2.0	3400	228	0.07
SR	0.0	0	0	0.00
EL	1.0	1700	91	0.05
ET	3.0	5100	1069	0.21*
ER	1.0	1700	201	0.10-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
Clearance Interval Percentage =				0.05
Sum of Critical Movements =				0.50 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	0.0	0	0	0.00
NT	2.0	3400	807	0.24*
NR >>	1.0	1700	66	0.04
SL	2.0	3400	821	0.24*
ST	2.0	3400	1011	0.30
SR	0.0	0	0	0.00
EL	1.0	1700	227	0.13
ET	3.0	5100	1175	0.23*
ER	1.0	1700	294	0.14-
WL	0.0	0	0	0.00
WT	0.0	0	0	0.00
WR	0.0	0	0	0.00
				=======
Clearance Interval Percentage =				0.05
Sum of Critical Movements =				0.76 C

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	27	0.02*
NT	1.0	1700	52	0.03
NR >	1.0	1700	75	0.00-
SL	1.0	1700	74	0.04
ST	1.0	1700	79	0.05
SR >	1.0	1700	221	0.07-*
EL	1.0	1700	90	0.05*
ET	2.0	3400	168	0.05
ER	1.0	1700	27	0.02-
WL	1.0	1700	114	0.07
WT	2.0	3400	268	0.08*
WR	1.0	1700	129	0.07-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.27 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	17	0.01
NT	1.0	1700	281	0.17*
NR >	1.0	1700	110	0.00-
SL	1.0	1700	641	0.38*
ST	1.0	1700	93	0.05
SR >	1.0	1700	342	0.09-
EL	1.0	1700	176	0.10*
ET	2.0	3400	461	0.14
ER	1.0	1700	23	0.01-
WL	1.0	1700	124	0.07
WT	2.0	3400	474	0.14*
WR	1.0	1700	240	0.12-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.84 D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	32	0.02
NT	1.0	1700	63	0.04*
NR >	1.0	1700	200	0.02-
SL	2.0	3400	246	0.07*
ST	1.0	1700	91	0.05
SR	1.0	1700	151	0.08-
EL	1.0	1700	144	0.08*
ET	2.0	3400	1633	0.48
ER	1.0	1700	58	0.03-
WL	2.0	3400	350	0.10
WT	2.0	3400	1924	0.77*
WR	0.0	1700	693	0.41
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		1.01 F

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	33	0.02
NT	1.0	1700	197	0.12
NR >	1.0	1700	881	0.28-*
SL	2.0	3400	271	0.08*
ST	1.0	1700	160	0.09
SR	1.0	1700	243	0.12-
EL	1.0	1700	299	0.18*
ET	2.0	3400	1820	0.54
ER	1.0	1700	50	0.03-
WL	2.0	3400	632	0.19
WT	2.0	3400	1879	0.74*
WR	0.0	1700	651	0.38
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		1.33 F

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	32	0.02
NT	1.0	1700	63	0.04*
NR >	2.0	3400	200	0.00-
SL	2.0	3400	246	0.07*
ST	1.0	1700	91	0.05
SR	1.0	1700	151	0.08-
EL	1.0	1700	144	0.08*
ET	3.0	5100	1633	0.33
ER	0.0	1700	58	0.03
WL	2.0	3400	350	0.10
WT	3.0	5100	1924	0.38*
WR	1.0	1700	693	0.35-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.62 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	Volume	V/C Ratio
NL	1.0	1700	33	0.02
NT	1.0	1700	197	0.12*
NR >	2.0	3400	881	0.06-
SL	2.0	3400	271	0.08*
ST	1.0	1700	160	0.09
SR	1.0	1700	243	0.12-
EL	1.0	1700	299	0.18
ET	3.0	5100	1820	0.37*
ER	0.0	1700	50	0.03
WL	2.0	3400	632	0.19*
WT	3.0	5100	1879	0.37
WR	1.0	1700	651	0.32-
				=======
		Clearance Interval Percentage =		0.05
		Sum of Critical Movements =		0.81 D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Crown Valley Pkwy. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	39	0	0	39	0.02
NT	2.0	3400	124	0	0	124	0.06*
NR	0.0	1700	34	0	0	34	0.02
SL	2.0	3400	280	0	0	280	0.08*
ST	0.5	850	47	0	0	47	0.06
SR >	1.5	2550	842	0	0	842	0.01-
EL	2.0	3400	1097	0	0	1097	0.32*
ET	2.0	3400	1118	0	0	1118	0.33
ER	1.0	1700	19	0	0	19	0.01-
WL	1.0	1700	45	0	0	45	0.03
WT	2.0	3400	998	0	0	998	0.29*
WR >	1.0	1700	341	0	0	341	0.10-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.80 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	48	0	0	48	0.03*
NT	2.0	3400	63	0	0	63	0.04
NR	0.0	1700	30	0	0	30	0.02
SL	2.0	3400	557	0	0	557	0.16
ST	0.5	850	150	0	0	150	0.18*
SR >	1.5	2550	1054	0	0	1054	0.13-
EL	2.0	3400	880	0	0	880	0.26*
ET	2.0	3400	1366	0	0	1366	0.40
ER	1.0	1700	41	0	0	41	0.02-
WL	1.0	1700	50	0	0	50	0.03
WT	2.0	3400	1103	0	0	1103	0.32*
WR >	1.0	1700	578	0	0	578	0.15-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.84 D

* denotes critical movement
> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	81	0	0	81	0.05
NT	2.0	3400	122	0	0	122	0.04
NR	1.0	1700	145	0	0	145	0.08-*
SL	1.0	1700	435	0	0	435	0.26*
ST	2.0	3400	201	0	0	201	0.06
SR	1.0	1700	352	0	0	352	0.18-
EL	2.0	3400	190	0	0	190	0.06*
ET	2.0	3400	1070	0	0	1070	0.31
ER	1.0	1700	170	0	0	170	0.09-
WL	1.0	1700	110	0	0	110	0.06
WT	2.0	3400	1073	0	0	1073	0.32*
WR	1.0	1700	231	0	0	231	0.12-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.77 C

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	305	0	0	305	0.18*
NT	2.0	3400	227	0	0	227	0.07
NR	1.0	1700	184	0	0	184	0.09-
SL	1.0	1700	469	0	0	469	0.28
ST	2.0	3400	363	0	0	363	0.11
SR	1.0	1700	375	0	0	375	0.19-*
EL	2.0	3400	413	0	0	413	0.12
ET	2.0	3400	1390	0	0	1390	0.41*
ER	1.0	1700	214	0	0	214	0.11-
WL	1.0	1700	191	0	0	191	0.11*
WT	2.0	3400	987	0	0	987	0.29
WR	1.0	1700	427	0	0	427	0.21-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.94 E

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Niguel Rd. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer) (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.5	2550	81	0	0	81	0.03
NT	1.5	2550	122	0	0	122	0.05
NR	1.0	1700	145	0	0	145	0.08-*
SL	1.5	2550	435	0	0	435	0.17
ST	1.5	2550	201	0	0	201	0.08
SR	1.0	1700	352	0	0	352	0.18-*
EL	2.0	3400	190	0	0	190	0.06*
ET	2.0	3400	1070	0	0	1070	0.31
ER	1.0	1700	170	0	0	170	0.09-
WL	1.0	1700	110	0	0	110	0.06
WT	2.0	3400	1073	0	0	1073	0.32*
WR	1.0	1700	231	0	0	231	0.12-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.69 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.5	2550	305	0	0	305	0.12*
NT	1.5	2550	227	0	0	227	0.09
NR	1.0	1700	184	0	0	184	0.09-
SL	1.5	2550	469	0	0	469	0.18
ST	1.5	2550	363	0	0	363	0.14
SR	1.0	1700	375	0	0	375	0.19-*
EL	2.0	3400	413	0	0	413	0.12
ET	2.0	3400	1390	0	0	1390	0.41*
ER	1.0	1700	214	0	0	214	0.11-
WL	1.0	1700	191	0	0	191	0.11*
WT	2.0	3400	987	0	0	987	0.29
WR	1.0	1700	427	0	0	427	0.21-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.88 D

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	35	0	0	35	0.02*
NT	3.0	5100	1208	0	0	1208	0.24
NR	1.0	1700	99	0	0	99	0.05-
SL	1.0	1700	137	0	0	137	0.08
ST	2.0	3400	1375	0	0	1375	0.40*
SR	1.0	1700	53	0	0	53	0.03-
EL	0.0	1700	82	0	0	82	0.05*
ET	2.0	3400	45	0	0	45	0.04
ER	1.0	1700	92	0	0	92	0.04-
WL	0.0	1700	77	0	0	77	0.05
WT	2.0	3400	30	0	0	30	0.03
WR	1.0	1700	179	0	0	179	0.09-*
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.61 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	104	0	0	104	0.06*
NT	3.0	5100	1305	0	0	1305	0.26
NR	1.0	1700	103	0	0	103	0.05-
SL	1.0	1700	243	0	0	243	0.14
ST	2.0	3400	1593	0	0	1593	0.47*
SR	1.0	1700	97	0	0	97	0.05-
EL	0.0	1700	80	0	0	80	0.05*
ET	2.0	3400	30	0	0	30	0.03
ER	1.0	1700	71	0	0	71	0.03-
WL	0.0	1700	72	0	0	72	0.04
WT	2.0	3400	38	0	0	38	0.03
WR	1.0	1700	187	0	0	187	0.09-*
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.72 C

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Pacific Coast Hwy. (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

Intersection: Pacific Coast Hwy. (NS) / Project Entrance (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	36	0	0	36	0.02*
NT	2.0	3400	1314	0	0	1314	0.39
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	2.0	3400	1519	0	0	1519	0.45*
SR	1.0	1700	25	0	0	25	0.01-
EL	1.0	1700	24	0	0	24	0.01
ET	0.0	0	0	0	0	0	0.00
ER	1.0	1700	34	0	0	34	0.02-*
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.54 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	84	0	0	84	0.05*
NT	2.0	3400	1458	0	0	1458	0.43
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	2.0	3400	1700	0	0	1700	0.50*
SR	1.0	1700	59	0	0	59	0.03-
EL	1.0	1700	47	0	0	47	0.03*
ET	0.0	0	0	0	0	0	0.00
ER	1.0	1700	69	0	0	69	0.03-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.63 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Green Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	0.0	0	0	0	0	0	0.00
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	0.0	0	0	0	0	0	0.00
SR	0.0	0	0	0	0	0	0.00
EL	0.0	0	0	0	0	0	0.00
ET	2.0	3400	1479	0	0	1479	0.46*
ER	0.0	1700	73	0	0	73	0.04
WL	0.0	0	0	0	0	0	0.00*
WT	2.0	3400	1350	0	0	1350	0.40
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.51 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	0.0	0	0	0	0	0	0.00
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	0.0	0	0	0	0	0	0.00
SR	0.0	0	0	0	0	0	0.00
EL	0.0	0	0	0	0	0	0.00
ET	2.0	3400	1677	0	0	1677	0.52*
ER	0.0	1700	103	0	0	103	0.06
WL	0.0	0	0	0	0	0	0.00*
WT	2.0	3400	1543	0	0	1543	0.45
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.57 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Blue Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Build-Out With Project (Summer) (WITH SANTA CLAR IMP.)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	56	0	0	56	0.03
NT	2.0	3400	16	0	0	16	0.03
NR	0.0	1700	82	0	0	82	0.05*
SL	1.0	1700	63	0	0	63	0.04*
ST	1.0	1700	25	0	0	25	0.01
SR	1.0	1700	27	0	0	27	0.02-
EL	1.0	1700	20	0	0	20	0.01
ET	2.0	3400	1443	0	0	1443	0.43*
ER	0.0	1700	7	0	0	7	0.01
WL	1.0	1700	61	0	0	61	0.04*
WT	2.0	3400	1254	0	0	1254	0.37
WR	1.0	1700	55	0	0	55	0.03-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.61 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	122	0	0	122	0.07*
NT	2.0	3400	29	0	0	29	0.05
NR	0.0	1700	124	0	0	124	0.07
SL	1.0	1700	34	0	0	34	0.02
ST	1.0	1700	25	0	0	25	0.01
SR	1.0	1700	38	0	0	38	0.02-*
EL	1.0	1700	39	0	0	39	0.02
ET	2.0	3400	1640	0	0	1640	0.49*
ER	0.0	1700	37	0	0	37	0.02
WL	1.0	1700	139	0	0	139	0.08*
WT	2.0	3400	1403	0	0	1403	0.41
WR	1.0	1700	69	0	0	69	0.03-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.71 C

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S				V/C Ratio
			Future BG	Project	Other	Total	
NL	0.0	1700	37	0	0	37	0.02*
NT	1.0	1700	33	0	0	33	0.04
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	63	0	0	63	0.06*
SR	0.0	1700	37	0	0	37	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	135	0	0	135	0.08
WT	3.0	5100	1266	0	0	1266	0.27*
WR	1.0	1700	33	0	0	33	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S				V/C Ratio
			Future BG	Project	Other	Total	
NL	0.0	1700	51	0	0	51	0.03*
NT	1.0	1700	57	0	0	57	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	52	0	0	52	0.05*
SR	0.0	1700	35	0	0	35	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	262	0	0	262	0.15
WT	3.0	5100	1366	0	0	1366	0.32*
WR	1.0	1700	85	0	0	85	0.04-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Amber Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	19	0	0	19	0.02
NR	0.0	1700	15	0	0	15	0.01
SL	0.0	1700	207	0	0	207	0.12
ST	1.0	1700	33	0	0	33	0.14*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	50	0	0	50	0.03
ET	3.0	5100	1391	0	0	1391	0.28*
ER	1.0	1700	12	0	0	12	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.47 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	12	0	0	12	0.03
NR	0.0	1700	31	0	0	31	0.02
SL	0.0	1700	277	0	0	277	0.16
ST	1.0	1700	49	0	0	49	0.19*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	74	0	0	74	0.04
ET	3.0	5100	1629	0	0	1629	0.33*
ER	1.0	1700	16	0	0	16	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.57 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	47	0	0	47	0.03*
NT	1.0	1700	38	0	0	38	0.05
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	38	0	0	38	0.05*
SR	0.0	1700	39	0	0	39	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	86	0	0	86	0.05
WT	3.0	5100	1312	0	0	1312	0.27*
WR	1.0	1700	40	0	0	40	0.02-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.40 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	1700	123	0	0	123	0.07*
NT	1.0	1700	89	0	0	89	0.12
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	1.0	1700	44	0	0	44	0.05*
SR	0.0	1700	38	0	0	38	0.02
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	0.0	1700	134	0	0	134	0.08
WT	3.0	5100	1494	0	0	1494	0.32*
WR	1.0	1700	72	0	0	72	0.03-
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.49 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Violet Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	7	0	0	7	0.02
NR	0.0	1700	24	0	0	24	0.01
SL	0.0	1700	73	0	0	73	0.04
ST	1.0	1700	36	0	0	36	0.06*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	96	0	0	96	0.06
ET	3.0	5100	1421	0	0	1421	0.30*
ER	1.0	1700	7	0	0	7	0.01-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.41 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00*
NT	1.0	1700	19	0	0	19	0.03
NR	0.0	1700	27	0	0	27	0.02
SL	0.0	1700	111	0	0	111	0.07
ST	1.0	1700	52	0	0	52	0.10*
SR	0.0	0	0	0	0	0	0.00
EL	0.0	1700	168	0	0	168	0.10
ET	3.0	5100	1727	0	0	1727	0.37*
ER	1.0	1700	33	0	0	33	0.02-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.52 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Selva Rd. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	7	0	0	7	0.01
NT	3.0	5100	765	0	0	765	0.15*
NR	1.0	1700	89	0	0	89	0.04-
SL	1.0	1700	168	0	0	168	0.10*
ST	3.0	5100	693	0	0	693	0.14
SR	1.0	1700	55	0	0	55	0.03-
EL	1.0	1700	81	0	0	81	0.05
ET	1.0	1700	191	0	0	191	0.11*
ER	1.0	1700	47	0	0	47	0.03-
WL	1.0	1700	78	0	0	78	0.05*
WT	1.0	1700	100	0	0	100	0.06
WR	1.0	1700	94	0	0	94	0.05-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.46 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	57	0	0	57	0.03*
NT	3.0	5100	845	0	0	845	0.17
NR	1.0	1700	201	0	0	201	0.10-
SL	1.0	1700	103	0	0	103	0.06
ST	3.0	5100	1468	0	0	1468	0.29*
SR	1.0	1700	82	0	0	82	0.04-
EL	1.0	1700	95	0	0	95	0.06
ET	1.0	1700	128	0	0	128	0.08*
ER	1.0	1700	68	0	0	68	0.03-
WL	1.0	1700	84	0	0	84	0.05*
WT	1.0	1700	75	0	0	75	0.04
WR	1.0	1700	117	0	0	117	0.06-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.50 A

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / La Cresta Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	67	0	0	67	0.04*
NT	3.0	5100	775	0	0	775	0.15
NR	1.0	1700	22	0	0	22	0.01-
SL	1.0	1700	26	0	0	26	0.02
ST	3.0	5100	759	0	0	759	0.15*
SR	1.0	1700	49	0	0	49	0.03-
EL	0.0	1700	129	0	0	129	0.08
ET	1.0	1700	55	0	0	55	0.17*
ER	0.0	1700	103	0	0	103	0.06
WL	0.0	1700	71	0	0	71	0.04*
WT	1.0	1700	86	0	0	86	0.13
WR	0.0	1700	59	0	0	59	0.03
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.45 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	139	0	0	139	0.08*
NT	3.0	5100	1013	0	0	1013	0.20
NR	1.0	1700	101	0	0	101	0.05-
SL	1.0	1700	60	0	0	60	0.04
ST	3.0	5100	1535	0	0	1535	0.30*
SR	1.0	1700	58	0	0	58	0.03-
EL	0.0	1700	160	0	0	160	0.09
ET	1.0	1700	82	0	0	82	0.21*
ER	0.0	1700	111	0	0	111	0.07
WL	0.0	1700	96	0	0	96	0.06*
WT	1.0	1700	50	0	0	50	0.11
WR	0.0	1700	45	0	0	45	0.03
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.70 B

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S				V/C Ratio
			Future BG	Project	Other	Total	
NL	1.0	1700	115	0	0	115	0.07*
NT	2.0	3400	202	0	0	202	0.06
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	806	0	0	806	0.16*
SR	1.0	1700	195	0	0	195	0.10-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	115	0	0	115	0.07
WT	3.0	5100	1134	0	0	1134	0.22
WR	1.0	1700	728	0	0	728	0.37-*
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.65 B

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S				V/C Ratio
			Future BG	Project	Other	Total	
NL	1.0	1700	284	0	0	284	0.17*
NT	2.0	3400	748	0	0	748	0.22
NR	0.0	0	0	0	0	0	0.00
SL	0.0	0	0	0	0	0	0.00
ST	3.0	5100	1665	0	0	1665	0.33*
SR	1.0	1700	235	0	0	235	0.12-
EL	0.0	0	0	0	0	0	0.00
ET	0.0	0	0	0	0	0	0.00
ER	0.0	0	0	0	0	0	0.00
WL	1.0	1700	371	0	0	371	0.22
WT	3.0	5100	1192	0	0	1192	0.23
WR	1.0	1700	543	0	0	543	0.27-*
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.82 D

* denotes critical movement
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Del Prado (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	246	0	0	246	0.07*
NR >>	1.0	1700	70	0	0	70	0.04
SL	2.0	3400	619	0	0	619	0.18*
ST	2.0	3400	250	0	0	250	0.07
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	100	0	0	100	0.06
ET	3.0	5100	1175	0	0	1175	0.23*
ER	1.0	1700	221	0	0	221	0.11-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00

Clearance Interval Percentage = 0.05
Sum of Critical Movements = 0.53 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	0.0	0	0	0	0	0	0.00
NT	2.0	3400	887	0	0	887	0.26*
NR >>	1.0	1700	72	0	0	72	0.04
SL	2.0	3400	903	0	0	903	0.27*
ST	2.0	3400	1112	0	0	1112	0.33
SR	0.0	0	0	0	0	0	0.00
EL	1.0	1700	249	0	0	249	0.15
ET	3.0	5100	1292	0	0	1292	0.25*
ER	1.0	1700	323	0	0	323	0.16-
WL	0.0	0	0	0	0	0	0.00
WT	0.0	0	0	0	0	0	0.00
WR	0.0	0	0	0	0	0	0.00

Clearance Interval Percentage = 0.05
Sum of Critical Movements = 0.83 D

* denotes critical movement
>> denotes free right turn
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: St. of the Golden Lantern (NS) / Dana Point Harbor Dr. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	29	0	0	29	0.02*
NT	1.0	1700	57	0	0	57	0.03
NR >	1.0	1700	82	0	0	82	0.00-
SL	1.0	1700	81	0	0	81	0.05
ST	1.0	1700	86	0	0	86	0.05
SR >	1.0	1700	243	0	0	243	0.07-*
EL	1.0	1700	99	0	0	99	0.06*
ET	2.0	3400	184	0	0	184	0.05
ER	1.0	1700	29	0	0	29	0.02-
WL	1.0	1700	125	0	0	125	0.07
WT	2.0	3400	294	0	0	294	0.09*
WR	1.0	1700	141	0	0	141	0.07-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.29 A

PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	18	0	0	18	0.01
NT	1.0	1700	309	0	0	309	0.18*
NR >	1.0	1700	121	0	0	121	0.00-
SL	1.0	1700	705	0	0	705	0.41*
ST	1.0	1700	102	0	0	102	0.06
SR >	1.0	1700	376	0	0	376	0.09-
EL	1.0	1700	193	0	0	193	0.11*
ET	2.0	3400	507	0	0	507	0.15
ER	1.0	1700	25	0	0	25	0.01-
WL	1.0	1700	136	0	0	136	0.08
WT	2.0	3400	521	0	0	521	0.15*
WR	1.0	1700	264	0	0	264	0.14-
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		0.90 D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer)
Lane Configuration: Initial

AM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	35	0	0	35	0.02
NT	1.0	1700	69	0	0	69	0.04*
NR >	1.0	1700	220	0	0	220	0.02-
SL	2.0	3400	270	0	0	270	0.08*
ST	1.0	1700	100	0	0	100	0.06
SR	1.0	1700	166	0	0	166	0.09-
EL	1.0	1700	158	0	0	158	0.09*
ET	2.0	3400	1796	0	0	1796	0.53
ER	1.0	1700	63	0	0	63	0.03-
WL	2.0	3400	385	0	0	385	0.11
WT	2.0	3400	2116	0	0	2116	0.85*
WR	0.0	1700	762	0	0	762	0.45
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		1.11 F

PM Intersection Capacity Analysis

Move	Lanes	Capacity	V O L U M E S Future BG	Project	Other	Total	V/C Ratio
NL	1.0	1700	36	0	0	36	0.02
NT	1.0	1700	216	0	0	216	0.13
NR >	1.0	1700	969	0	0	969	0.31-*
SL	2.0	3400	298	0	0	298	0.09*
ST	1.0	1700	176	0	0	176	0.10
SR	1.0	1700	267	0	0	267	0.14-
EL	1.0	1700	328	0	0	328	0.19*
ET	2.0	3400	2002	0	0	2002	0.59
ER	1.0	1700	55	0	0	55	0.03-
WL	2.0	3400	695	0	0	695	0.20
WT	2.0	3400	2066	0	0	2066	0.82*
WR	0.0	1700	716	0	0	716	0.42
							=======
					Clearance Interval Percentage =		0.05
					Sum of Critical Movements =		1.46 F

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

Intersection: Dana Point Harbor Dr. (NS) / Pacific Coast Hwy. (EW)

Project: Dana Point Headlands

Traffic Condition: Buildout With Project (Summer) (W/ IMP.)
Lane Configuration: Alternate

AM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio	
NL	1.0	1700	35	0	0	35	0.02	
NT	1.0	1700	69	0	0	69	0.04*	
NR >	2.0	3400	220	0	0	220	0.00-	
SL	2.0	3400	270	0	0	270	0.08*	
ST	1.0	1700	100	0	0	100	0.06	
SR	1.0	1700	166	0	0	166	0.09-	
EL	1.0	1700	158	0	0	158	0.09*	
ET	3.0	5100	1796	0	0	1796	0.36	
ER	0.0	1700	63	0	0	63	0.04	
WL	2.0	3400	385	0	0	385	0.11	
WT	3.0	5100	2116	0	0	2116	0.42*	
WR	1.0	1700	762	0	0	762	0.38-	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.68	P

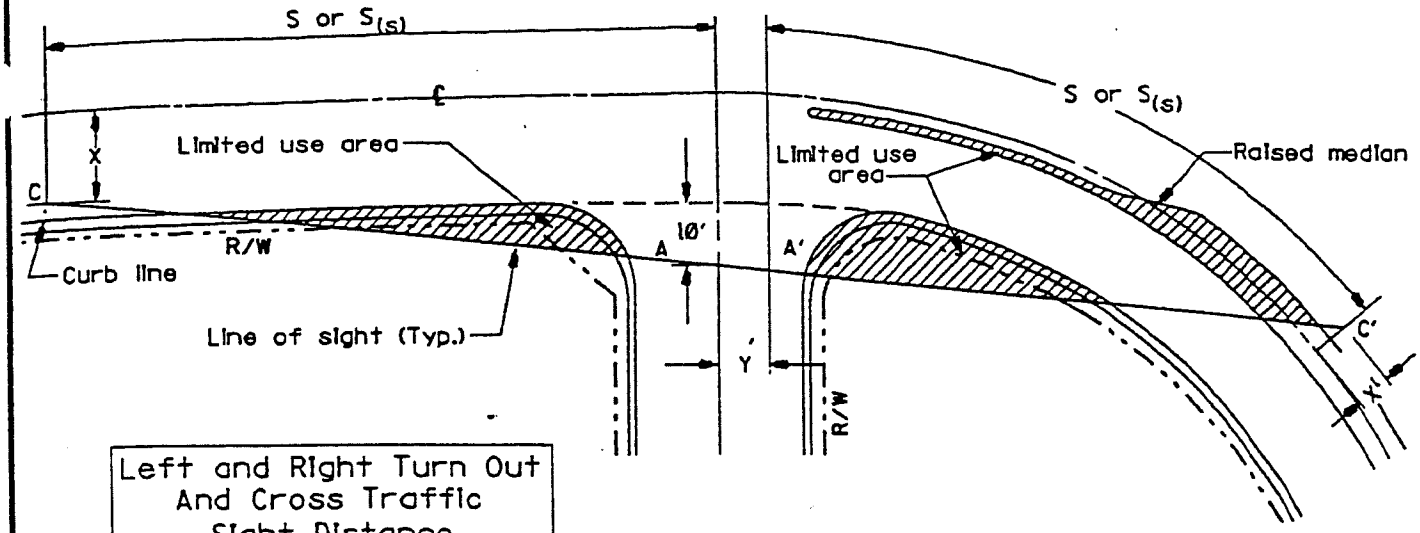
PM Intersection Capacity Analysis

Move	Lanes	Capacity	VOLUMES Future BG	Project	Other	Total	V/C Ratio	
NL	1.0	1700	36	0	0	36	0.02	
NT	1.0	1700	216	0	0	216	0.13*	
NR >	2.0	3400	969	0	0	969	0.08-	
SL	2.0	3400	298	0	0	298	0.09*	
ST	1.0	1700	176	0	0	176	0.10	
SR	1.0	1700	267	0	0	267	0.14-	
EL	1.0	1700	328	0	0	328	0.19*	
ET	3.0	5100	2002	0	0	2002	0.40	
ER	0.0	1700	55	0	0	55	0.03	
WL	2.0	3400	695	0	0	695	0.20	
WT	3.0	5100	2066	0	0	2066	0.41*	
WR	1.0	1700	716	0	0	716	0.36-	
							=======	
					Clearance Interval Percentage =		0.05	
					Sum of Critical Movements =		0.87	D

* denotes critical movement
\> denotes protected right turn (right turn overlap with adjacent left)
\- denotes V/C ratio reduced 15 percent for right turn on red

APPENDIX J

STANDARD PLAN 1117



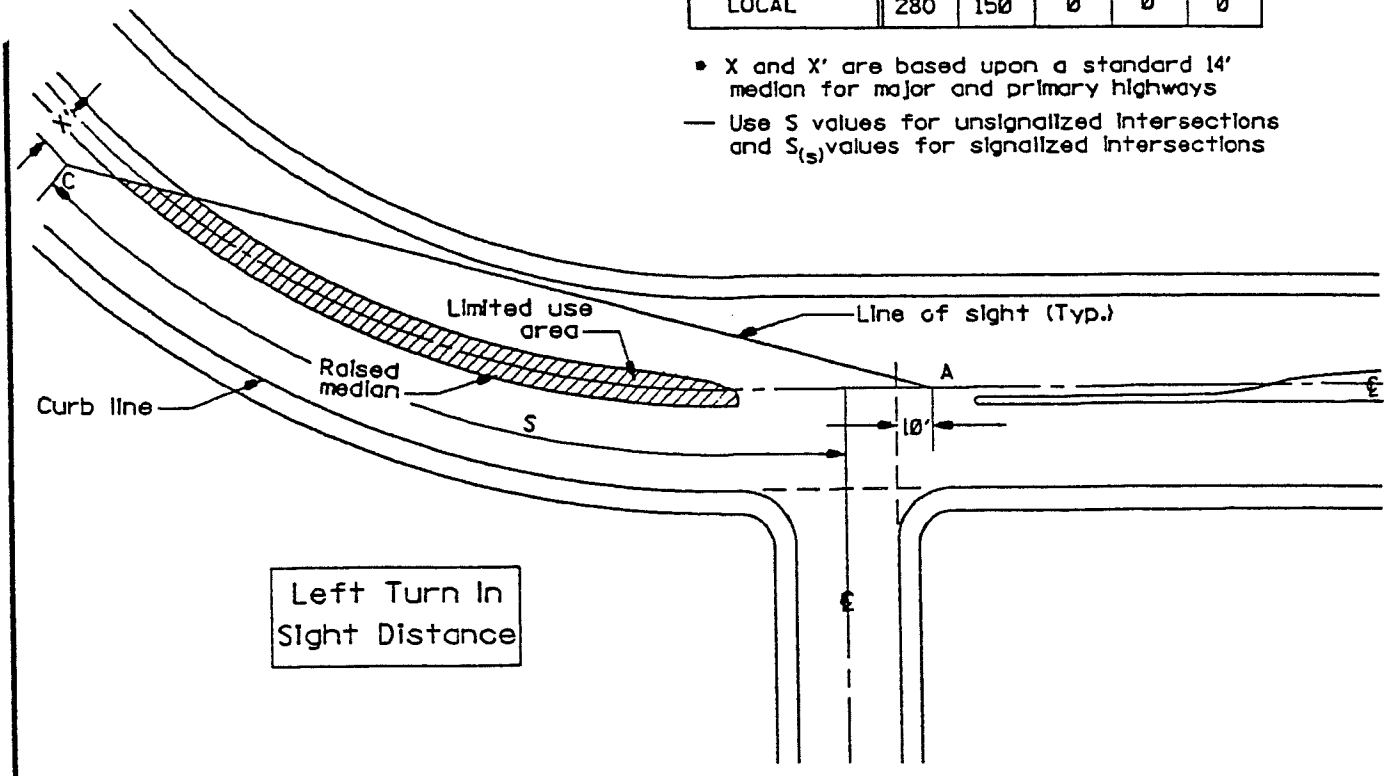
Left and Right Turn Out And Cross Traffic Sight Distance

DISTANCE (FT.)

	S	$S_{(s)}$	Y'	X*	X'*
MAJOR	660	580	37	37	13
PRIMARY	610	500	25	25	13
SECONDARY	550	430	18	18	6
COMMUTER	500	360	0	0	0
COLLECTOR	390	250	0	0	0
LOCAL	280	150	0	0	0

* X and X' are based upon a standard 14' median for major and primary highways

— Use S values for unsignalized intersections and $S_{(s)}$ values for signalized intersections



Left Turn In Sight Distance

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY

Approved W.L. Zoon 11-15-91
W.L. Zoon, Director of Public Works

Adopted: Res. 77-92 Revised: Res. 82-718; 86-1141; 88-1341; 91-1481

STD. PLAN 1117

INTERSECTION SIGHT DISTANCE

SHT. 1 OF 3

NOTES:

1. The distance S represents the corner sight distance measured along the centerline of the road. The corner sight distance is the distance required to allow 7 1/2 seconds for the driver on the cross road (or left turn pocket) to safely cross the main roadway or turn left while the approach vehicle travels at the assumed design speed of the main roadway.

2. The distance S should be increased by 20% from the amount shown on the table on sustained downgrades steeper than 3% and longer than one mile.

3. Points A and A' are the locations of a driver's line of sight (3.5 foot eye height) to oncoming vehicles (4.25 foot object height) located at Points C and C' while in a vehicle at an intersection 10 feet back from the projection of the curb line. In no case shall Points A or A' be less than fifteen feet from the edge of the traveled way.

4. The distance Y' is the distance measured from the centerline of the main road to the far right through travel lane. The distance Y' is equal to zero for T-intersections. The distance X is the distance measured from the centerline of the main road to the center of the far right through travel lane. The distance X' is the distance measured from the centerline of the main road to the center of the travel lane nearest the centerline of the road.

5. The Limited Use Area is determined by the graphical method using the appropriate distances given in the above table. It shall be used for the purpose of prohibiting or clearing obstructions in order to maintain adequate sight distance at intersections.

6. The Line of Sight line shall be shown at intersections on all landscaping plans, grading plans and tentative tract plans where safe sight distance is questionable. In cases where an intersection is located on a vertical curve, a profile of the line of sight may be required.

7. Obstructions such as bus shelters, walls or landscaping within the Limited Use Area which could restrict the line of sight shall not be permitted.
   a. Plants and shrubs within the Limited Use Area shall be of the type that wil ,grow no higher than 12 inches above the ground and shall be maintained at a maximum height of 12 inches above the ground. Maintenance at a lower height may be required on crest vertical curves per Note 6 above.

   b. A profile of the line of sight may be required to verify 12" minimum vertical clearance above variable height obstructions such as slope landscaping, plants and shrubs.

   c. The toe of slope may encroach into the Limited Use Area provided that the requirements of (b) above are satisfied.

   d. In lieu of providing a profile of the line of sight, the toe of slope shall not encroach into the Limited Use Area, and the Limited Use Area shall slope at 2% maximum to the roadway.

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY

Approved W.L. Zoulk 11-15-91
W.L. Zoulk, Director of Public Works

Adopted: Res. 77-92 Revised: Res. 82-718; 86-1141; 88-1341: 91-1481

STD. PLAN 1117

INTERSECTION SIGHT DISTANCE

SHT. 2 OF 3

8. Trees shall not be permitted within any portion of the Limited Use Area.

9. Median areas less than six (6) feet in width shall be paved with concrete per Standard Plan 1114.

10. Residential driveways serving four or more units and comercial driveways shall be treated as a local street intersection.

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY

Approved W.L. Zaun 11-15-91
W.L. Zaun, Director of Public Works

Adopted: Res. 77-92 Revised: Res. 82-718; 86-1141; 88-1341; 91-1481

STD. PLAN

1117

INTERSECTION SIGHT DISTANCE

SHT. 3 OF 3

APPENDIX K

STANDARD PLAN 1107

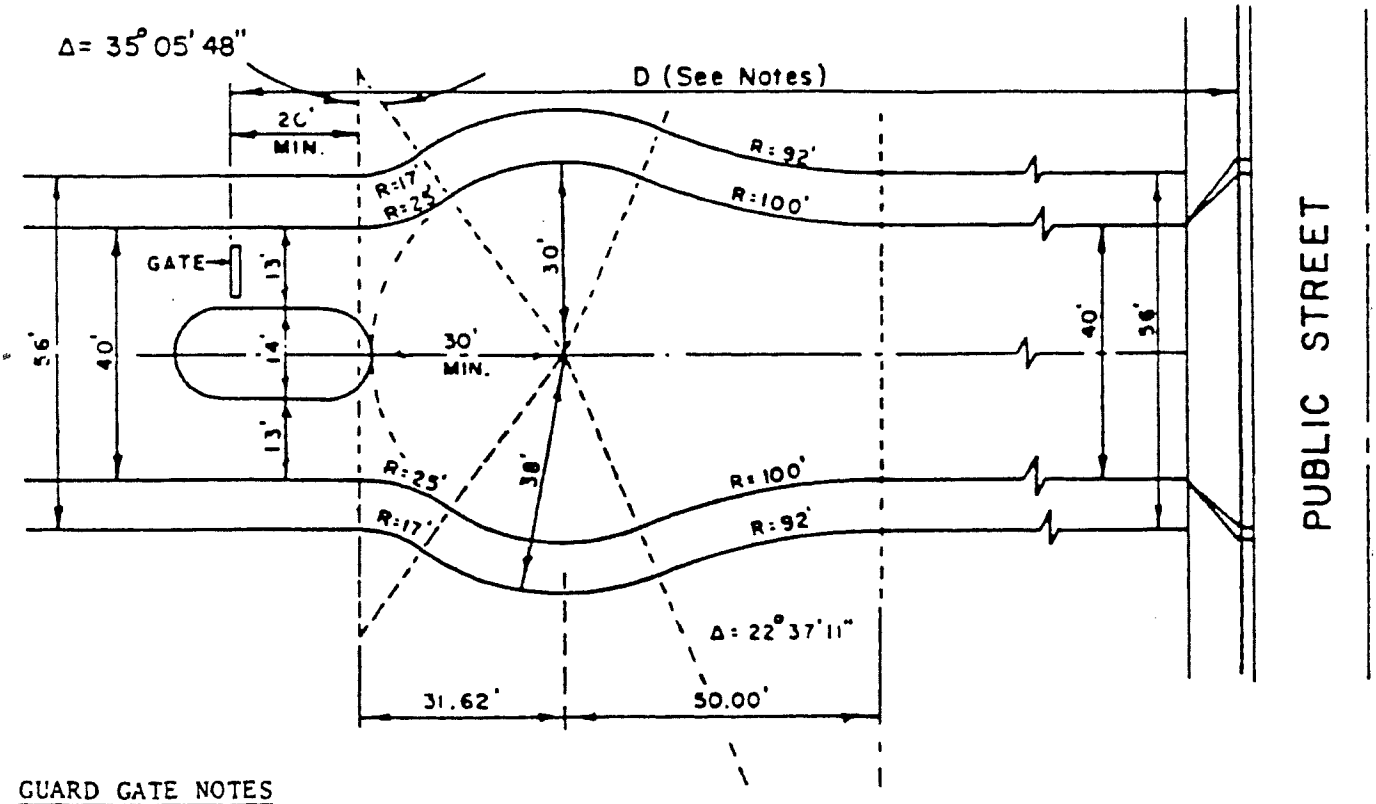
NOTES:

1. Private streets shall be permitted only as described in the Orange County Subdivision Code, subject to review and approval by the Engineer, the Subdivision Committee, and the Planning Commission.

2. Private streets shall provide a paved travel way in conformance with Std. Plan 1107. Walkways shall be provided on all private streets in conformance with Std. Plans 1107 and 1205 unless an alternate pedestrian circulation system is provided meeting the approval of the Engineer.

3. Required pavement structural section shall be determined by the Engineer.

4. Entryways to private tracts shall be designed to emphasize their private status. Textured concrete or wide flare driveways, guard gates or other access controls shall be required for private tracts. Entry gates shall be set back from the near curb line of any public street to provide a minimum 100 feet of storage for entering vehicles to stack without interfering with through traffic. Minimum design criteria and required features for guard gates are shown below:



GUARD GATE NOTES

1. D = 1' Per Dwelling Unit Served, 100' Minimum
   (Multiple lanes may be used to satisfy storage distance requirement.)

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY

Approved C. R. Nelson
C R Nelson, Director of Public Works

STD PLAN 1107

Adopted: Res 77-92. Revised: Res. 78-791

PRIVATE STREET STANDARDS

SHEET 3 OF 4

APPENDIX L

PARKING SURVEY RESULTS

EXHIBIT B

SALT CREEK BEACH PARKING LOT
UTILIZATION STUDY
September 8, 1993

In response to questions as to the utilization of the Salt Creek Beach County Parking Lot at Selva Road, a survey was conducted. The Orange County Harbors, Beaches and Parks Department, which owns the lot, does not monitor the use of the lot. Recently, the city and county approved a new ferry service from the Dana Point Harbor to Catalina Island. Users of the ferry are required to use the Salt Creek Beach County Parking Lot. This survey was conducted subsequent to the commencement of the ferry service and thus represents their use of the lot. In order to ensure a worst-case scenario, the survey was made on four consecutive sunny summer weekends, including Labor Day.

Date	Available Spaces	Occupied Spaces	Vacant Spaces
Saturday, August 14, 1993, 2:30 p.m.	593	195 33%	398 67%
Comments: Clear sunny skies; 79 degrees; rollerblade hockey game using ±40 spaces; 11 vacant handicapped spaces.			
Sunday, August 22, 1993 2 p.m.	593	347 59%	246 41%
Comments: Clear sunny skies; 80 degrees			
Sunday, August 29, 1993 12:30 p.m.	593	125 21%	468 79%
Comments: Clear sunny skies; 82 degrees			
Labor Day, Monday, September 6, 1993 1:30 p.m.	593	463 78%	130 22%
Comments: Clear sunny skies, 82 degrees			
AVERAGE:		282.5 48%	310.5 52%

Catalina Ferry - 150-seat boat, leaves once daily at 9 a.m., returns at 7:30 p.m.

Southland Car Counters
1407 N. Batavia St., Ste. 107
Orange, CA 92867
(714) 997-4498

Salt Creek Beach Parking Dana Point
Occupied Parking Spaces

Date	Time	Parking lot	Handicapped	West side of Selva Rd	Total	Weather	Temperature	% of CAPACITY
8/18/2001	2:30pm	230	1	25	256	Sunny	81	43
8/19/2001	2:30pm	238	3	24	265	Sunny	78	45
8/25/2001	2:30pm	166	0	30	196	Overcast	76	33
8/26/2001	2:30pm	181	1	23	205	Overcast	77	35
9/1/2001	2:30pm	224	1	32	257	Clear	78	43
9/2/2001	2:30pm	241	0	36	277	Clear	80	47
9/3/2001	2:30pm	236	0	33	269	Overcast	74	45

Southland Car Counters surveyed the parking lot twice a day between 11:00am and 2:30pm on the days indicated. The survey time with the highest count is shown on the matrix.

LABOR DAY