


MEMORANDUM

To: John McCoy
Kay Force, Jim Sell Design
Fort Collins Staff

From: Matt Delich 

Date: December 6, 1993

Subject: Windtrail on Spring Creek PUD traffic study
(File: 9390MEM1)

This memorandum documents the findings of various traffic analyses related to the development of the Windtrail on Spring Creek PUD. The location of Windtrail is east of Shields Street and south of Spring Creek. Figure 1 shows the location of the site in the City of Fort Collins. Figure 2 shows a schematic of the site plan of Windtrail on Spring Creek PUD. Windtrail on Spring Creek PUD presently contains approximately 31.15 acres. The "College Park Student Apartments and Hill Pond Single Family Site Access Study," September 1991, evaluated the traffic impacts with development of this property as a single family detached development. That proposal contained 110 dwelling units. The current proposal is for 65 single family detached dwelling units and 37 townhome dwelling units. This memorandum acts as an addendum to the site access study. This study addresses the impacts of Parcel B (the Windtrail Townhomes), shown in Figure 2, in the short range (1995) future, and full development of Parcels A, B, and C in the long range future.

The analyses contained in this memorandum assume that the Spring Creek Village, as approved by the Fort Collins P & Z Board, will be implemented by 1995. In the short range future, the access to Parcel B will continue to be via Hill Pond Road and Shire Court. With development of Parcels A and C, it is expected that street connections will be made to Shields Street at the Rolland Moore Park intersection and to the street system within the Centre for Advanced Technology. A schematic of the future street system is shown in Figure 3. Parcel J of the Centre for Advanced Technology Amended Master Plan (provided in Appendix A) is assumed to be developed as medium density townhomes. The density used in this analysis was 6.0 dwelling units per acre (190 D.U.), which is compatible with the other townhome areas adjacent to it.

At the Shields/Hill Pond intersection (east leg), there are sight line constraints for vehicles entering Shields Street. The median separating the inbound and outbound lanes on Hill Pond Road creates a minor sight line constraint to the south. The minor street vehicle must "inch" out to see

northbound vehicles on Shields Street, particularly those in the right lane. To the north, there is a street tree with multiple trunks. These multiple trunks cause a sight line constraint to see the southbound traffic on Shields Street from a stopped vehicle on Hill Pond Road. Since these are existing problems, they should be corrected. Minor adjustment of the median treatment and removal of the multiple trunk street tree will improve these sight lines.

Figure 4 shows the recent traffic counts along Shields Street and at key intersections. All of these intersections have full-movements and stop sign control. Since these counts were performed in different years, they were adjusted and balanced to depict a 1993 peak hour condition. This is shown in Figure 5. These key intersections operate as indicated in Table 1. Calculation forms are provided in Appendix B. Minor street left turns experience significant delays during the peak hours. This level of service is primarily due to the high peak hour volumes on Shields Street. This type of operation is common at stop sign controlled intersections along arterial streets.

Table 2 shows the trip generation from the Windtrail on Spring Creek PUD. The initial phase of development will be the Windtrail Townhomes in Parcel B. This parcel will be included in the short range analysis. Development of Parcels A, B, and C were included in the long range analysis. The trip generation was estimated using Trip Generation, 5th Edition, ITE as a reference.

The short range trip distribution was assumed to be similar to that reflected in the latest traffic counts performed at the Shields/Hill Pond and Shields/Shire intersections. This is 60 percent to/from the north along Shields Street and 40 percent to/from the south along Shields Street. The long range trip distribution assumed that the travel patterns would modify somewhat, reflecting increased development in the southern portion of Fort Collins. The long range distribution used 55% to/from the north and 45% to/from the south.

Figure 6 shows the short range (1995) peak hour traffic at the key intersections. This projection assumes that the background traffic on Shields Street will increase at the rate of 1 percent per year. This assignment assumes that access to Shields Street will continue at the Hill Pond and Shire intersections. The Shields/Rolland Moore intersection was not included in this analysis, since the east leg will not likely be completed in the short range future. Based upon these traffic projections, signals will not be warranted at either analyzed intersection.

Table 3 shows the operation at the key intersections using the traffic shown in Figure 6. Calculation forms are provided in Appendix C. The operation at the key intersections will not be significantly different than the current operation. Minor street left turns will continue to experience delays.

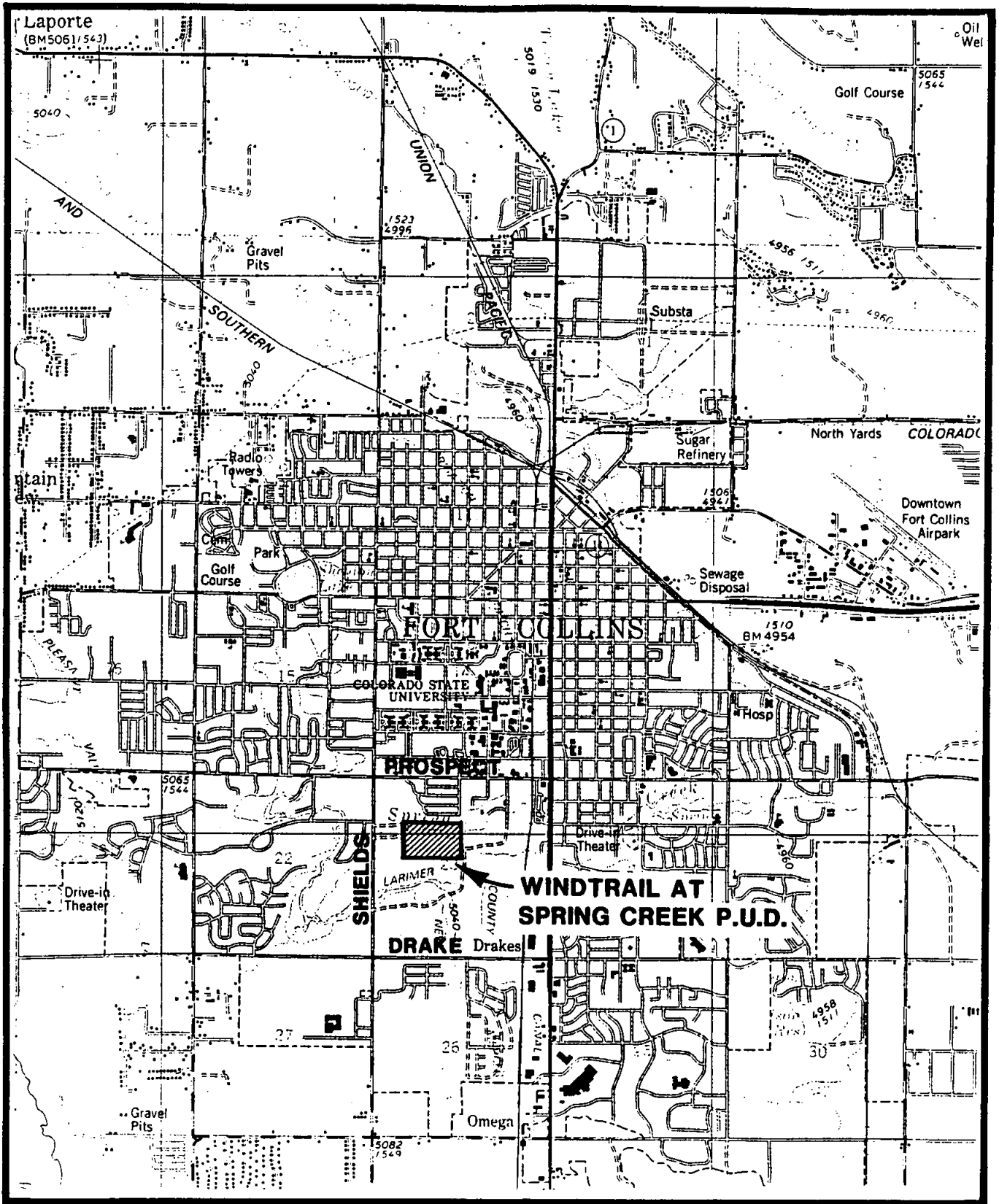
Figure 7 shows the long range (2010) peak hour traffic at the key intersections. This project assumes full development of Windtrail, and development of the Centre for Advanced Technology, Parcel J as a townhome residential use. It is expected that there will be a connection to Centre Avenue to the east of Windtrail. The vehicles using this connection would likely be minimal (15-30%). Based upon previous traffic studies for the Centre for Advanced Technology, there will be excess capacity on Centre Avenue to handle any vehicles that may use this route.

At this level of development, it is likely that a signal would be warranted at the Shields/Rolland Moore/Parcel J Access intersection. This intersection will likely meet a combination of warrants. The City has been considering a signal at this location due to the high seasonal activity at Rolland Moore Park. When this connection to Shields occurs, it is recommended that the Shields/Shire intersection either be closed or restricted to right-in/right-out. If no median is placed on Shields Street, then closure is recommended. It is further recommended that when Parcel J is developed, a connection to Shire Court be made similar to that indicated in Appendix D. This will allow convenient access to the signal at Shields/Rolland Moore/Parcel J Access intersection from Windtrail, Hill Pond, and Sundering Townhomes.

Table 4 shows the peak hour operation at the key intersections using the Figure 7 traffic projections. Calculation forms are provided in Appendix E. The Shields/Rolland Moore/Parcel J Access intersection will operate acceptably. Minor street left turns at the Shields/Hill Pond intersection will continue to experience level of service E operation. However, the left turns from the east side of Shields will have alternative routes to the Shields/Rolland Moore/Parcel J Access signal or to Centre Avenue to the east.

Conclusions

This study analyzed the impacts of the development of land to the east of Hill Pond and Sundering Townhomes. The sight line constraints at the Shields/Hill Pond intersection should be corrected. With this additional development, operation at the key intersections will be acceptable, except for minor street left turns in the short and long range futures. A signal will likely be warranted when the Parcel J Access to Shields Street is made. When this occurs, Shire Street should either be closed or access should be limited. It is recommended that Shire Court be connected to the Parcel J street system.

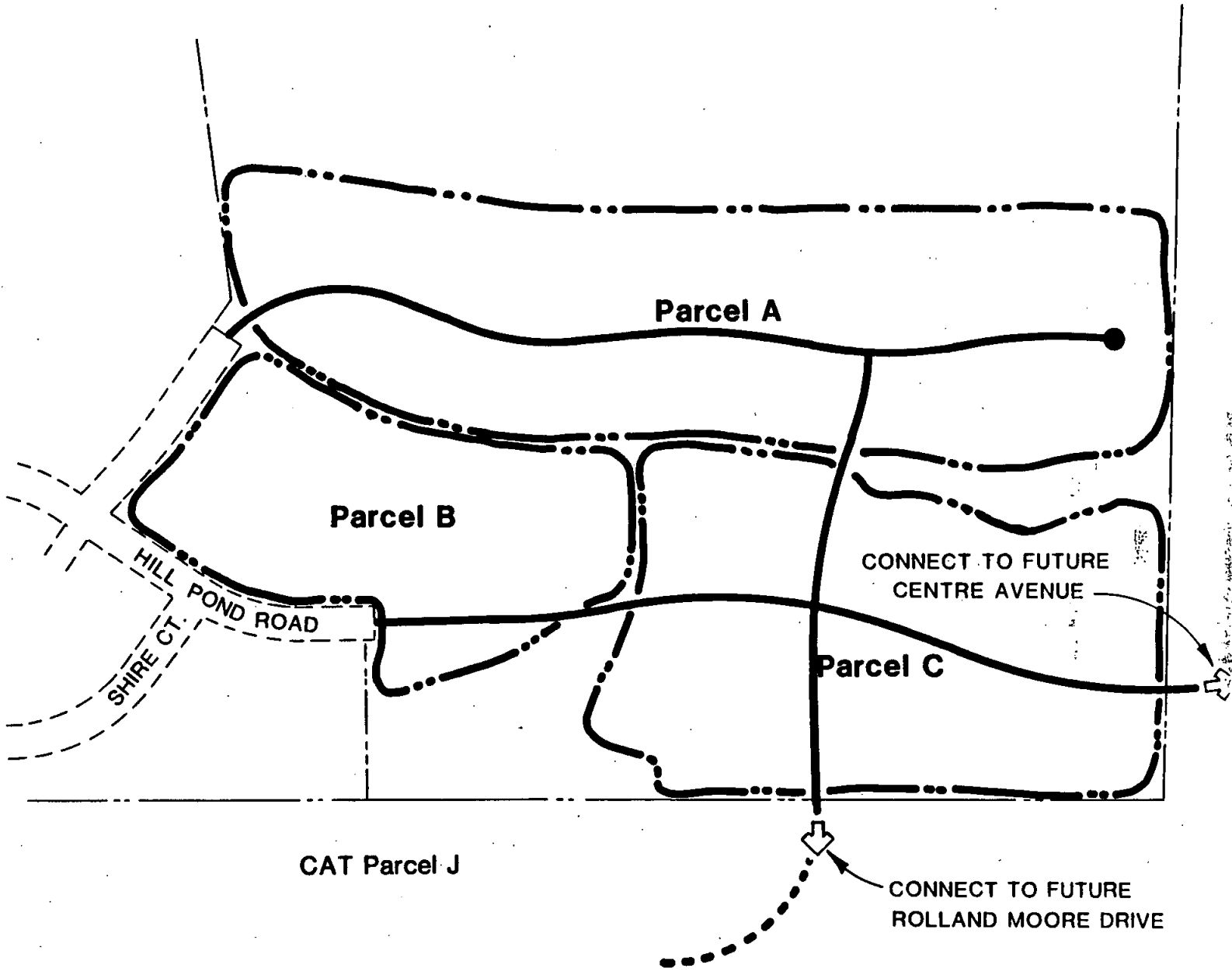
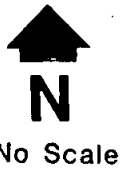


NO SCALE

SITE LOCATION

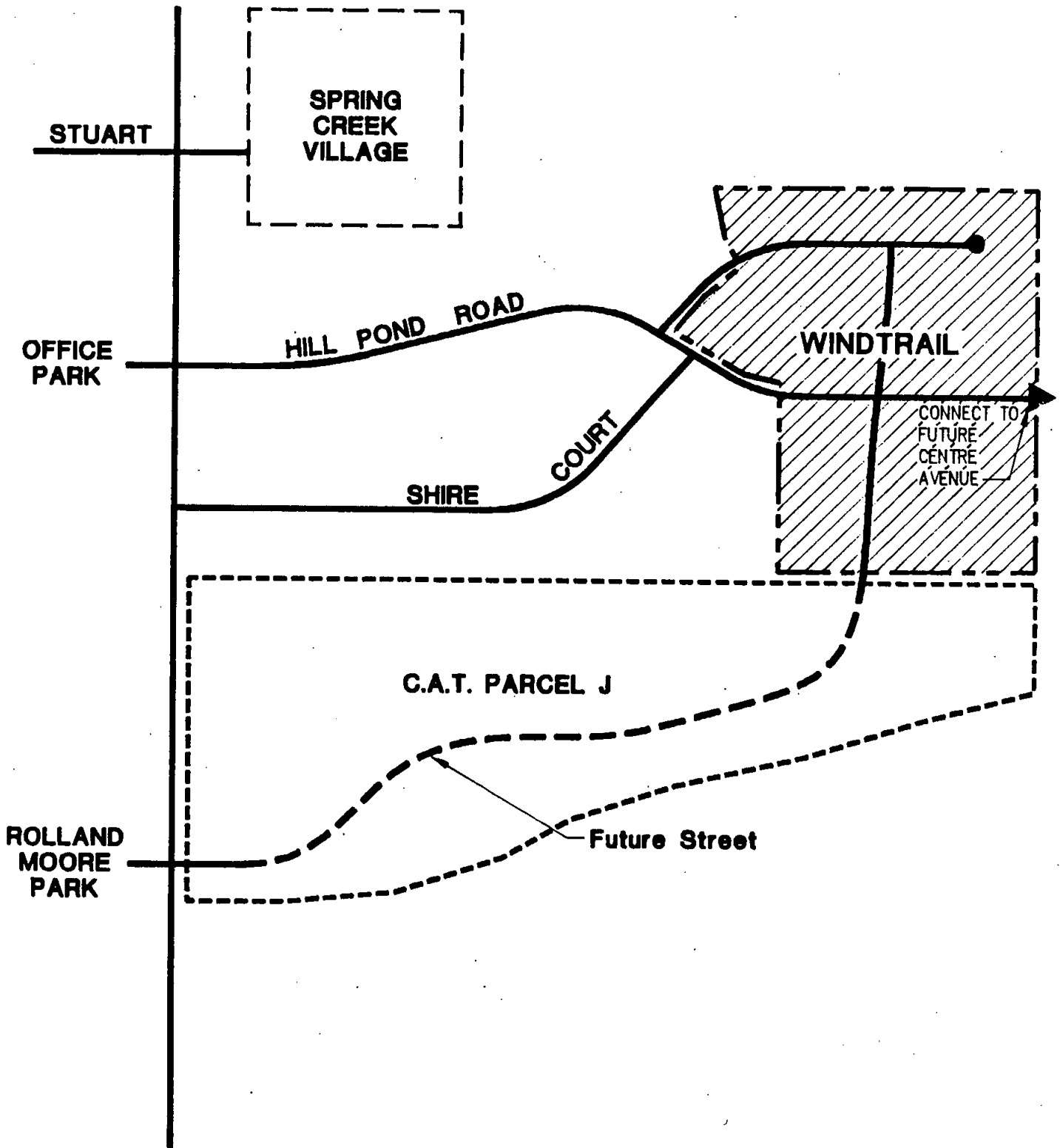
Figure 1

This unofficial copy was downloaded on Sep-20-2019 from the City of Fort Collins Public Records Website: <http://citydocs.fcgov.com>
 For additional information or an official copy, please contact Current Planning 281 North College Fort Collins, CO 80524 USA



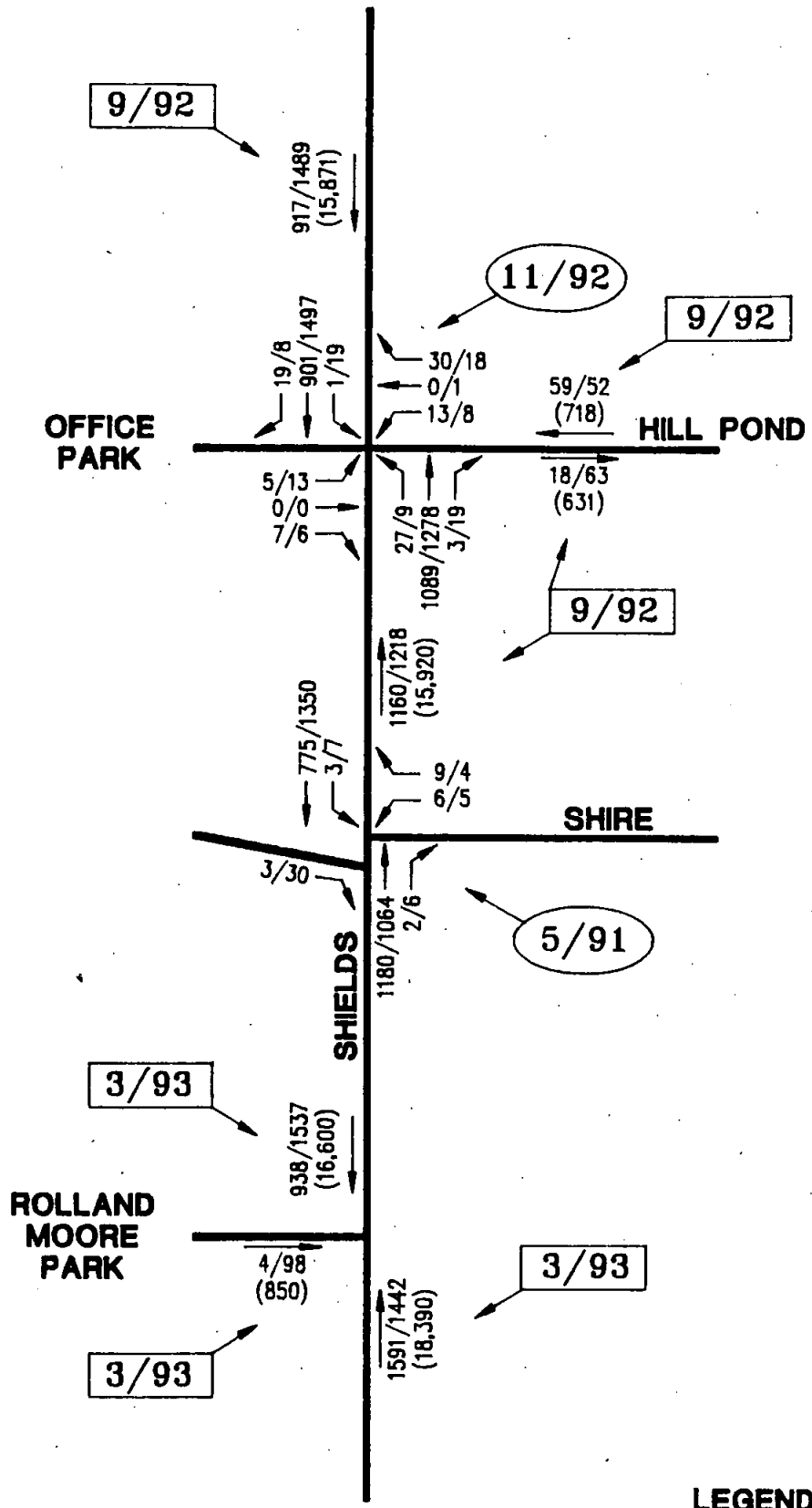
SITE PLAN

Figure 2



FUTURE STREET SYSTEM

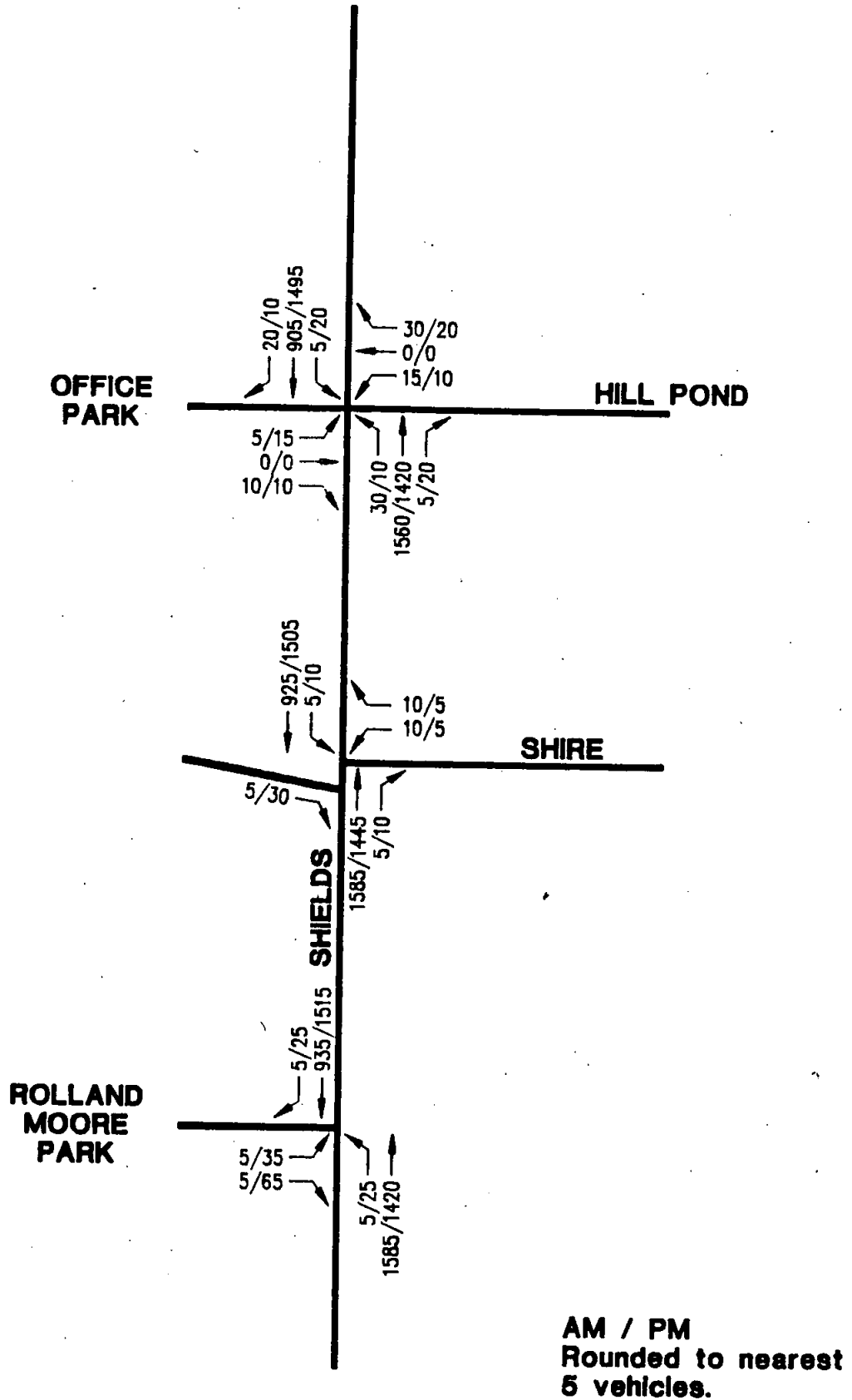
Figure 3



LEGEND:
 AM / PM
 (DAILY)

RECENT TRAFFIC COUNTS

Figure 4



1993 BALANCED PEAK HOUR TRAFFIC

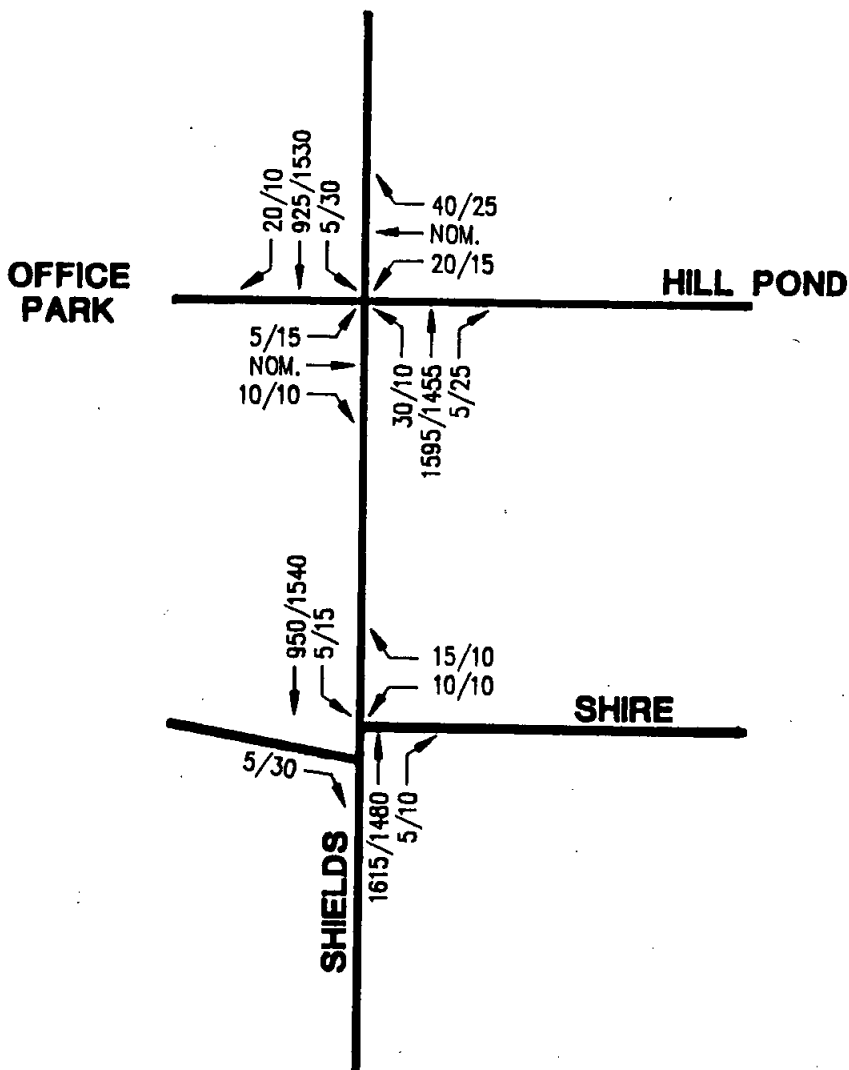
Figure 5

Table 1
Existing Peak Hour Operation

<u>Intersection</u>	Level of Service	
	<u>AM</u>	<u>PM</u>
Shields/Hill Pond (stop sign)		
EB LT/T	E	E
EB RT	A	A
WB LT/T	E	E
WB RT	A	A
SB LT	B	A
NB LT	A	A
Shields/Shire (stop sign)		
WB LT/RT	D	D
SB LT	B	A
Shields/Rolland Moore (stop sign)		
EB LT	E	E
EB RT	A	A
NB LT	A	B

Table 2
Trip Generation

Land Use	Daily Trips	A.M. Peak Trips in	Peak Trips out	P.M. Peak Trips in	Peak Trips out
<u>Windtrail at Spring Creek PUD</u>					
Parcel A - 36 S.F. D.U.	340	7	20	23	13
Parcel B - 37 T.H. D.U.	240	3	15	15	7
Parcel C - 29 S.F. D.U.	280	6	16	19	10
TOTAL	860	16	51	57	30



AM / PM
Rounded to nearest
5 vehicles.

SHORT RANGE PEAK HOUR TRAFFIC

Figure 6

Table 3

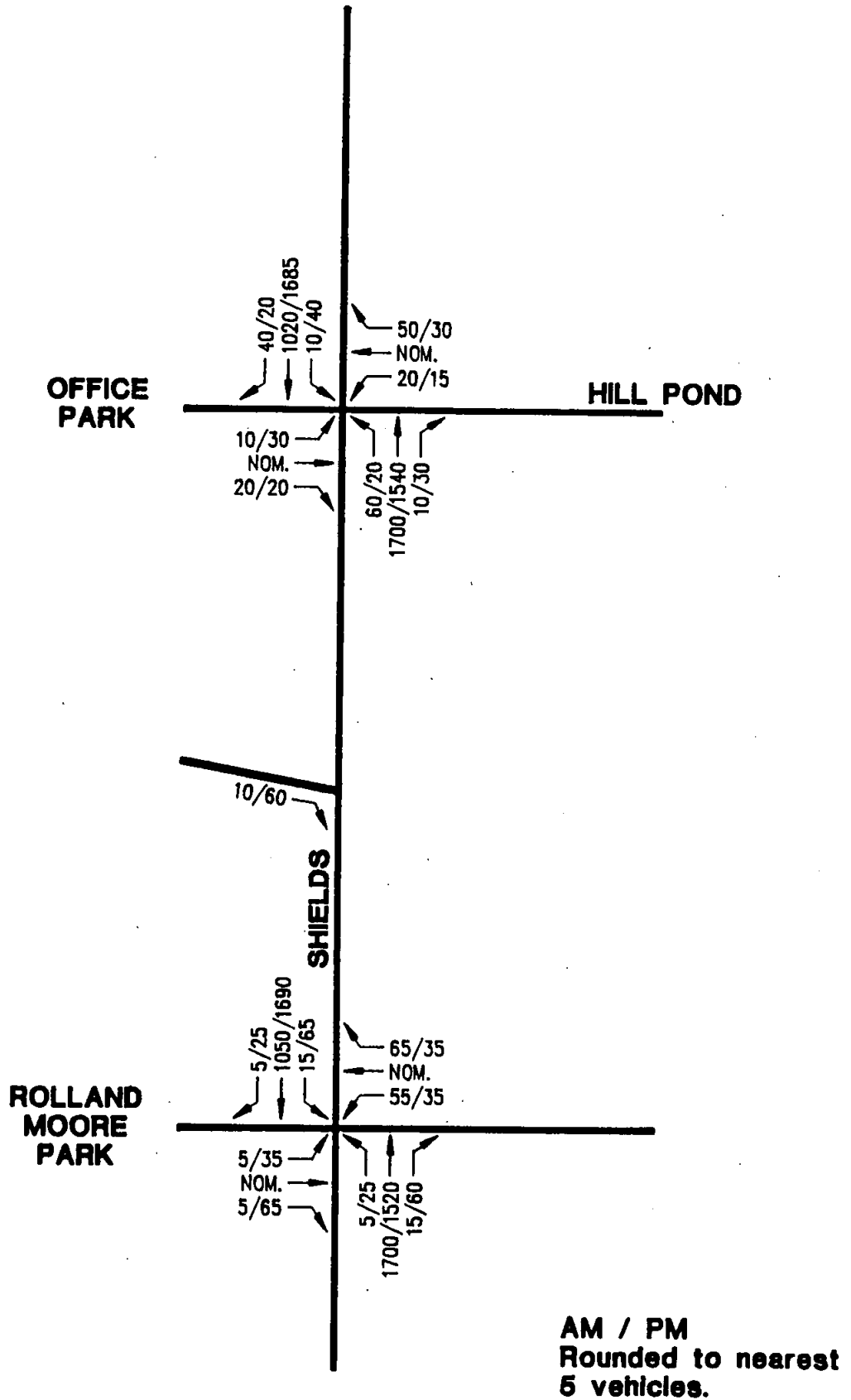
1995 Peak Hour Operation

<u>Intersection</u>	Level of Service	
	<u>AM</u>	<u>PM</u>
Shields/Hill Pond (stop sign)		
EB LT/T	E	E
EB RT	A	A
WB LT/T	E	E
WB RT	A	A
SB LT	B	B
NB LT	A	B
Shields/Shire (stop sign)		
WB LT/RT	D	E
SB LT	B	A

Table 4

Long Range Peak Hour Operation

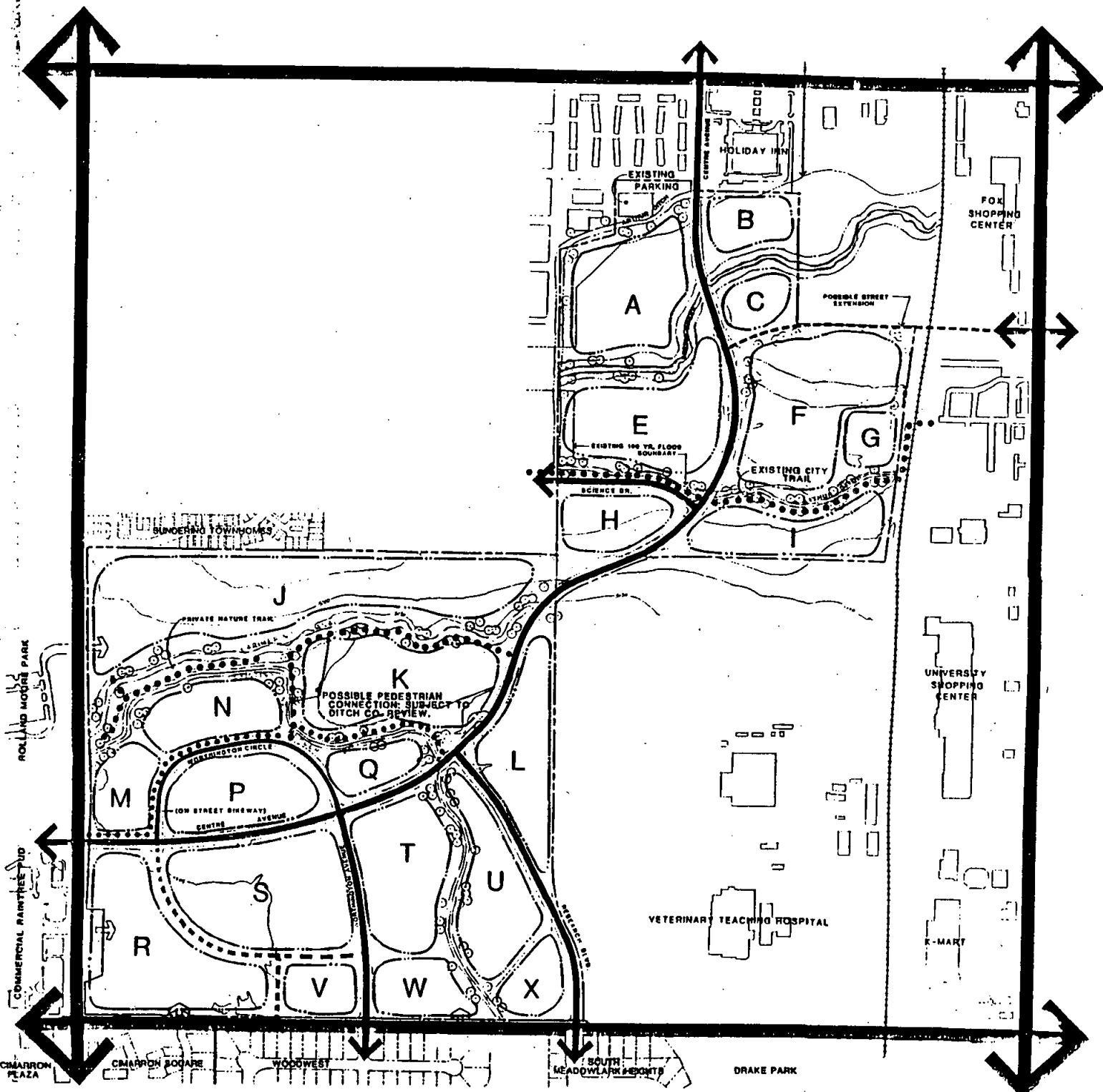
<u>Intersection</u>	Level of Service	
	<u>AM</u>	<u>PM</u>
Shields/Hill Pond (stop sign)		
EB LT/T	E	E
EB RT	A	A
WB LT/T	E	E
WB RT	A	A
SB LT	B	B
NB LT	A	B
Shields/Rolland Moore/Access (signal)	A	B



LONG RANGE PEAK HOUR TRAFFIC

Figure 7

APPENDIX A



CENTRE FOR ADVANCED TECHNOLOGY MASTER PLAN
1989

APPENDIX B

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET... 35
 PEAK HOUR FACTOR..... 1
 AREA POPULATION..... 100000
 NAME OF THE EAST/WEST STREET..... hill pond
 NAME OF THE NORTH/SOUTH STREET..... shields
 NAME OF THE ANALYST..... mjd
 DATE OF THE ANALYSIS (mm/dd/yy)..... 12/3/93
 TIME PERIOD ANALYZED..... am pm 1993 short
 OTHER INFORMATION.... long
 INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	5	15	30	5
THRU	1	1	819	475
RIGHT	10	30	5	20

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	2	2	2	2
LANE USAGE	LT + R	LT + R		

MOVEMENT	FLOW- RATE v (pcph)	POTEN- TIAL CAPACITY	ACTUAL MOVEMENT CAPACITY	SHARED CAPACITY		RESERVE CAPACITY		LOS
		c (pcph) P	c (pcph) M	c (pcph) SH	c (pcph) SH	c = c - v R SH		
MINOR STREET								
EB LEFT	6	94	87	>	91	87	>	85 82 >E E
THROUGH	1	124	119	>		119	>	118 > D
RIGHT	11	807	807			807		796 A
MINOR STREET								
WB LEFT	17	97	91	>	93	91	>	75 75 >E E
THROUGH	1	122	118	>		118	>	116 > D
RIGHT	33	659	659			659		626 A
MAJOR STREET								
SB LEFT	6	402	402			402		396 B
NB LEFT	33	616	616			616		583 A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... hill pond
 NAME OF THE NORTH/SOUTH STREET..... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 : am pm 1993 short
 OTHER INFORMATION.... long

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 35
 PEAK HOUR FACTOR..... 1
 AREA POPULATION..... 100000
 NAME OF THE EAST/WEST STREET..... hill pond
 NAME OF THE NORTH/SOUTH STREET..... shields
 NAME OF THE ANALYST..... mjd
 DATE OF THE ANALYSIS (mm/dd/yy)..... 12/3/93
 TIME PERIOD ANALYZED..... am pm 1993 short
 OTHER INFORMATION.... long

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	15	10	10	20
THRU	1	1	745	785
RIGHT	10	20	20	10

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	2	2	2	2
LANE USAGE	LT + R	LT + P		

MOVEMENT	FLOW-RATE v (pcph)	POTEN-TIAL	ACTUAL	SHARED	RESERVE		LOS
		CAPACITY c (pcph) p	CAPACITY c (pcph) M		CAPACITY c (pcph) SH	c = c - v R SH	
MINOR STREET							
EB LEFT	17	66	61	> 62	61	> 45	45 >E E
THROUGH	1	85	81	>	81	>	80 > E
RIGHT	11	670	670		670		659 A
MINOR STREET							
WB LEFT	11	67	63	> 64	63	> 52	52 >E E
THROUGH	1	86	82	>	82	>	81 > E
RIGHT	22	684	684		684		662 A
MAJOR STREET							
SB LEFT	22	435	435		435		413 A
NB LEFT	11	416	416		416		405 A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... hill pond.
 NAME OF THE NORTH/SOUTH STREET..... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 ; am pm 1993 short
 OTHER INFORMATION.... long

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 35
 PEAK HOUR FACTOR..... 1
 AREA POPULATION..... 100000
 NAME OF THE EAST/WEST STREET..... shire
 NAME OF THE NORTH/SOUTH STREET..... shields
 NAME OF THE ANALYST..... mjd
 DATE OF THE ANALYSIS (mm/dd/yy)..... 12/3/93
 TIME PERIOD ANALYZED..... am pm 1993 short
 OTHER INFORMATION.... long

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	10	0	5
THRU	--	0	832	486
RIGHT	--	10	5	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	2	2

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
WB LEFT	11	103	102	> 102	> 91	> E
RIGHT	11	655	655	> 177	> 155	> D
MAJOR STREET						
SB LEFT	6	395	395	395	390	B

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... shire
 NAME OF THE NORTH/SOUTH STREET..... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 am pm 1993 short
 OTHER INFORMATION.... long

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET... 35
 PEAK HOUR FACTOR..... 1
 AREA POPULATION..... 100000
 NAME OF THE EAST/WEST STREET..... shire
 NAME OF THE NORTH/SOUTH STREET..... shields
 NAME OF THE ANALYST..... mjd
 DATE OF THE ANALYSIS (mm/dd/yy)..... 12/3/93
 TIME PERIOD ANALYZED..... am pm 1993 short
 OTHER INFORMATION.... long

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	5	0	10
THRU	--	0	759	790
RIGHT	--	5	10	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	2	2

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
WB LEFT	6	70	69	> 69	> 115	64 > E
RIGHT	6	682	682	> 682	>	676 > A
MAJOR STREET						
SB LEFT	11	433	433	433		422 A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... shire
 NAME OF THE NORTH/SOUTH STREET..... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 : am pm 1993 short
 OTHER INFORMATION.... long

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.: 35
 PEAK HOUR FACTOR..... 1
 AREA POPULATION..... 100000
 NAME OF THE EAST/WEST STREET..... rolland moore
 NAME OF THE NORTH/SOUTH STREET..... shields
 NAME OF THE ANALYST..... mjd
 DATE OF THE ANALYSIS (mm/dd/yy)..... 12/3/93
 TIME PERIOD ANALYZED..... am pm 1993 short
 OTHER INFORMATION.... long
 INTERSECTION TYPE AND CONTROL
 INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	5	--	5	5
THRU	0	--	832	490
RIGHT	5	--	5	5

NUMBER OF LANES

	EB	WB	NB	SB
LANES	2	--	2	2

MOVEMENT	FLOW-RATE	POTENTIAL CAPACITY	ACTUAL MOVEMENT CAPACITY	SHARED CAPACITY	RESERVE CAPACITY	LOS
	v (pcph)	c (pcph) P	c (pcph) M	c (pcph) SH	c = c - v R SH	
MINOR STREET						
EB LEFT	6	102	102	102	96	E
RIGHT	6	807	807	807	802	A
MAJOR STREET						
NB LEFT	6	616	616	616	610	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... rolland moore
 NAME OF THE NORTH/SOUTH STREET..... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 : am pm 1993 short
 OTHER INFORMATION.... long

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 35
 PEAK HOUR FACTOR..... 1
 AREA POPULATION..... 100000
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 NAME OF THE NORTH/SOUTH STREET..... shields
 NAME OF THE ANALYST..... mjd
 DATE OF THE ANALYSIS (mm/dd/yy)..... 12/3/93
 TIME PERIOD ANALYZED..... am pm 1993 short
 OTHER INFORMATION.... long

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	35	--	25	15
THRU	0	--	745	795
RIGHT	65	--	25	25

NUMBER OF LANES

	EB	WB	NB	SB
LANES	2	--	2	2

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
EB LEFT	39	69	66	66	27	E
RIGHT	72	661	661	661	589	A
MAJOR STREET						
NB LEFT	28	404	404	404	376	B

IDENTIFYING INFORMATION

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 NAME OF THE NORTH/SOUTH STREET..... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 ; am pm 1993 short
 OTHER INFORMATION.... long

APPENDIX C

IDENTIFYING INFORMATION

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 OTHER INFORMATION.... long
 INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG

MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	5	20	30	5
THRU	1	1	837	486
RIGHT	10	40	5	20

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	2	2	2	2
LANE USAGE	LT + R	LT + R		

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL	ACTUAL	SHARED		RESERVE		LOS
		CAPACITY c (pcph) p	MOVEMENT CAPACITY c (pcph) M	CAPACITY c (pcph) SH	CAPACITY c (pcph) SH	c - v R	c - v SH	
MINOR STREET								
EB LEFT	6	88	81	>	85	81	>	78 75 >E E
THROUGH	1	118	113	>		113	>	112 > D
RIGHT	11	802	802			802		791 A
MINOR STREET								
WB LEFT	22	91	87	>	88	87	>	64 65 >E E
THROUGH	1	117	112	>		112	>	111 > D
RIGHT	44	653	653			653		609 A
MAJOR STREET								
SB LEFT	6	393	393			393		388 B
NB LEFT	33	608	608			608		575 A

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 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	15	15	10	30
THRU	1	1	764	803
RIGHT	10	25	25	10

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	2	2	2	2
LANE USAGE	LT + R	LT + P		

MOVEMENT	FLOW-RATE	POTENTIAL CAPACITY	ACTUAL MOVEMENT CAPACITY	SHARED CAPACITY	RESERVE CAPACITY	LOS
	v (pcph)	c (pcph) P	c (pcph) M	c (pcph) SH	c = c - v R SH	
MINOR STREET						
EB LEFT	17	66	60	> 61	60	> 43
THROUGH	1	83	78	>	78	> 43
RIGHT	11	663	663		663	> 77
MINOR STREET						
WB LEFT	17	66	61	> 62	61	> 44
THROUGH	1	83	78	>	78	> 44
RIGHT	28	673	673		673	> 77
MAJOR STREET						
SB LEFT	33	420	420		420	387
NB LEFT	11	407	407		407	396

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 NAME OF THE NORTH/SOUTH STREET..... shields
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 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	10	0	5
THRU	--	0	848	499
RIGHT	--	15	5	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	2	2

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE	POTENTIAL CAPACITY	ACTUAL MOVEMENT CAPACITY	SHARED CAPACITY	RESERVE CAPACITY	LOS
	v (pcph)	c (pcph) P	c (pcph) M	c (pcph) SH	c = c - v R SH	
MINOR STREET						
WB LEFT	11	98	97	> 198	> 97	86 > E
RIGHT	17	649	649	>	> 649	171 > D
MAJOR STREET						
SB LEFT	6	388	388		388	382 B

IDENTIFYING INFORMATION

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 NAME OF THE NORTH/SOUTH STREET..... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 : am pm 1993 short
 OTHER INFORMATION.... long

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 35
 PEAK HOUR FACTOR..... 1
 AREA POPULATION..... 100000
 NAME OF THE EAST/WEST STREET..... shire
 NAME OF THE NORTH/SOUTH STREET..... shields
 NAME OF THE ANALYST..... mjd
 DATE OF THE ANALYSIS (mm/dd/yy)..... 12/3/93
 TIME PERIOD ANALYZED..... am pm 1993 short
 OTHER INFORMATION.... long

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	---	10	0	15
THRU	--	0	777	808
RIGHT	--	10	10	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	2	2

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE	POTENTIAL CAPACITY	ACTUAL MOVEMENT CAPACITY	SHARED CAPACITY	RESERVE CAPACITY	LOS
	v (pcph)	c (pcph)	c (pcph)			
MINOR STREET						
WB LEFT	11	66	64	> 64	> 53	E
RIGHT	11	674	674	> 118	> 96	E
MAJOR STREET						
SB LEFT	17	421	421	421	405	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... shire
 NAME OF THE NORTH/SOUTH STREET.... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 ; am pm 1993 short
 OTHER INFORMATION.... long

APPENDIX D

RESTRICT/CLOSE SHIRE
AT SHIELDS.

PROVIDE CONNECTION FROM
SHIRE TO PARCEL J

WINDTRAIL ON
SPRING CREEK PUD

SUNDERING TOWNHOMES

PRIVATE NATURE TRAIL

FARMER NO

EXISTING

POSSIBLE PEDESTRIAN
CONNECTION: SUBJECT TO
DITCH CO. REVIEW.

N

K

M

P

Q

L

WORRINGTON CIRCLE

(ON STREET BIKEWAY)
CENTRE AVENUE

WORRINGTON AVENUE

T

U

R

S

V

W

X

DRAKE ROAD

CIMARRON SQUARE

WOODWEST

CIMARRON PLAZA

ROLL AND MOORE PARK

SHIELDS STREET

COMMERCIAL RAIN TREE POND

APPENDIX E

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 35
 PEAK HOUR FACTOR..... 1
 AREA POPULATION..... 100000
 NAME OF THE EAST/WEST STREET..... hill pond
 NAME OF THE NORTH/SOUTH STREET..... shields
 NAME OF THE ANALYST..... mJd
 DATE OF THE ANALYSIS (mm/dd/yy)..... 12/3/93
 TIME PERIOD ANALYZED..... am pm 1993 short
 OTHER INFORMATION... long
 INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	10	20	60	10
THRU	1	1	892	535
RIGHT	20	50	10	40

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	2	2	2	2
LANE USAGE	LT + R	LT + R		

MOVEMENT	FLOW- RATE v (pcph)	POTEN- TIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	>	SHARED CAPACITY c (pcph) SH	>	RESERVE CAPACITY c = c - v R SH		LOS	
MINOR STREET										
EB LEFT	11	69	59	>	60	59	>	48	48	>E E
THROUGH	1	94	85	>	85	83	>	84	82	> E
RIGHT	22	770	770		770	770		748	748	A
MINOR STREET										
WB LEFT	22	70	62	>	63	62	>	40	40	>E E
THROUGH	1	92	83	>	83	83	>	82	82	> E
RIGHT	55	632	632		632	632		577	577	A
MAJOR STREET										
SB LEFT	11	365	365		365	365		354	354	B
NB LEFT	66	558	558		558	558		492	492	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... hill pond
 NAME OF THE NORTH/SOUTH STREET..... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 am pm 1993 short
 OTHER INFORMATION... long

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 35
 PEAK HOUR FACTOR..... 1
 AREA POPULATION..... 100000
 NAME OF THE EAST/WEST STREET..... hill pond
 NAME OF THE NORTH/SOUTH STREET..... shields
 NAME OF THE ANALYST..... mjd
 DATE OF THE ANALYSIS (mm/dd/yy)..... 12/3/93
 TIME PERIOD ANALYZED..... am (pm) 1993 short
 OTHER INFORMATION... long
 INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG

MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	30	15	20	40
THRU	1	1	808	885
RIGHT	20	30	30	20

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	2	2	2	2
LANE USAGE	LT + R	LT + R		

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) P	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	L	O	S
MINOR STREET								
EB LEFT	33	66	57	> 57	57	>	23	24 >E E
THROUGH	1	83	74	>	74	>		73 > E
RIGHT	22	630	630		630			608 A
MINOR STREET								
WB LEFT	17	66	58	> 58	58	>	41	41 >E E
THROUGH	1	83	74	>	74	>		73 > E
RIGHT	33	654	654		654			621 A
MAJOR STREET								
SB LEFT	44	395	395		395			351 B
NB LEFT	22	363	363		363			341 B

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... hill pond
 NAME OF THE NORTH/SOUTH STREET..... shields
 DATE AND TIME OF THE ANALYSIS..... 12/3/93 ; am (pm) 1993 short
 OTHER INFORMATION... long

1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

INTERSECTION..rolland moore /shields

AREA TYPE.....OTHER

ANALYST.....mjd

DATE.....12/2/93

TIME.....am pm long

COMMENT.....

VOLUMES				GEOMETRY							
EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
5	55	5	15	L	12.0	L	12.0	L	12.0	L	12.0
1	1	1700	1050	TR	12.0	TR	12.0	T	12.0	T	12.0
5	65	15	5	:	12.0	:	12.0	TR	12.0	TR	12.0
0	0	0	0	:	12.0	:	12.0	:	12.0	:	12.0
:	:	:	:	:	12.0	:	12.0	:	12.0	:	12.0
:	:	:	:	:	12.0	:	12.0	:	12.0	:	12.0

ADJUSTMENT FACTORS										
GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR.	TYPE
0.00	1.00	N	0	0	0.90	50	Y	25.8	3	
0.00	1.00	N	0	0	0.90	50	Y	25.8	3	
0.00	1.00	N	0	0	0.90	50	Y	19.8	4	
0.00	1.00	N	0	0	0.90	50	Y	19.8	4	

SIGNAL SETTINGS					CYCLE LENGTH = 90.0				
	PH-1	PH-2	PH-3	PH-4		PH-1	PH-2	PH-3	PH-4
LT	X				NB	LT	X		
TH	X				TH	TH	X		
RT	X				RT	RT	X		
PD	X				PD	PD	X		
LT	X				SB	LT	X		
TH	X				TH	TH	X		
RT	X				RT	RT	X		
PD	X				PD	PD	X		
GREEN	15.0	0.0	0.0	0.0	GREEN	65.0	0.0	0.0	0.0
YELLOW	5.0	0.0	0.0	0.0	YELLOW	5.0	0.0	0.0	0.0

LEVEL OF SERVICE							
LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS	
L	0.020	0.189	22.6	C	20.7	C	
TR	0.023	0.189	19.2	C			
L	0.181	0.189	23.3	C	21.6	C	
TR	0.262	0.189	20.2	C			
L	0.025	0.744	2.3	A	4.2	A	
TR	0.750	0.744	4.2	A			
L	0.208	0.744	2.8	A	2.2	A	
TR	0.462	0.744	2.2	A			

INTERSECTION: Delay = 4.2 (sec/veh) V/C = 0.651 LOS = A

1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

INTERSECTION..rolland moore /shields

AREA TYPE.....OTHER

ANALYST.....mjd

DATE.....12/2/93

TIME.....am pm long

COMMENT.....

VOLUMES				GEOMETRY								
EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	
LT	35	35	25	65	L	12.0	L	12.0	L	12.0	L	12.0
TH	1	1	1520	1690	TR	12.0	TR	12.0	T	12.0	T	12.0
RT	65	35	60	25	:	12.0	:	12.0	TR	12.0	TR	12.0
RR	0	0	0	0	:	12.0	:	12.0	12.0	12.0	12.0	12.0
:	:	:	:	:	:	12.0	:	12.0	12.0	12.0	12.0	12.0
:	:	:	:	:	:	12.0	:	12.0	12.0	12.0	12.0	12.0

ADJUSTMENT FACTORS										
GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR.	TYPE
0.00	1.00	N	0	0	0.90	50	Y	25.8	3	
0.00	1.00	N	0	0	0.90	50	Y	25.8	3	
0.00	1.00	N	0	0	0.90	50	Y	19.8	4	
0.00	1.00	N	0	0	0.90	50	Y	19.8	4	

SIGNAL SETTINGS					CYCLE LENGTH = 120.0				
	PH-1	PH-2	PH-3	PH-4		PH-1	PH-2	PH-3	PH-4
EB	LT	X			NB	LT	X		
	TH	X			TH	TH	X		
	RT	X			RT	RT	X		
	PD	X			PD	PD	X		
WB	LT	X			SB	LT	X		
	TH	X			TH	TH	X		
	RT	X			RT	RT	X		
	PD	X			PD	PD	X		
GREEN	20.0	0.0	0.0	0.0	GREEN	7.0	79.0	0.0	0.0
YELLOW	5.0	0.0	0.0	0.0	YELLOW	4.0	5.0	0.0	0.0

LEVEL OF SERVICE							
LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS	
EB	L	0.138	0.183	31.2	D	28.7	D
	TR	0.269	0.183	27.3	D		
WB	L	0.152	0.183	31.3	D	28.9	D
	TR	0.147	0.183	26.6	D		
NB	L	0.064	0.767	2.6	A	7.8	B
	TR	0.767	0.675	7.9	B		
SB	L	0.078	0.767	2.6	A	9.7	B
	TR	0.830	0.675	10.0	B		

INTERSECTION: Delay = 9.7 (sec/veh) V/C = 0.649 LOS = B