PARSONS

1223 Michael Street, Suite 100, Ottawa, Ontario K1J 7T2
P: +1.613.738.4160 I F: +1.613.739.7105 I www.parsons.com

December 6, 2017

Email
Reference: 476574-01000

Mattamy Homes
50 Hines Road, Suite 100
Ottawa, ON K1K 2M5

Attention: **Jillian Normand**
Land Development Manager

Dear Jillian Normand

Subject: Transportation Brief
Cedarview Subdivision: Additional Access to O'Keefe Court

The project at 848 Cedarview Road has historically been known as the Onassa Spring Subdivision. It is our understanding that a Plan of Subdivision has been approved for this project consisting of approximately 147 country estate lots and that the new owner has no problem with the transportation-related conditions of approval.

In 2011 Parsons prepared/submitted the Transportation Impact Assessment in support of the proposed development that was accepted by the City. The TIA identified a peak hour site traffic generation of 147 vph two-way total, with the site access/egress being via a single connection to Cedarview Road. At this intersection, the City required, as a condition of approval:

- A southbound direct taper of 70 m;
- 2.0 m wide southbound bicycle pocket (incorporated into the above-noted taper); and
- A 2.5 m wide paved shoulder on the east side of Ceaderview for the full length of the site's frontage.

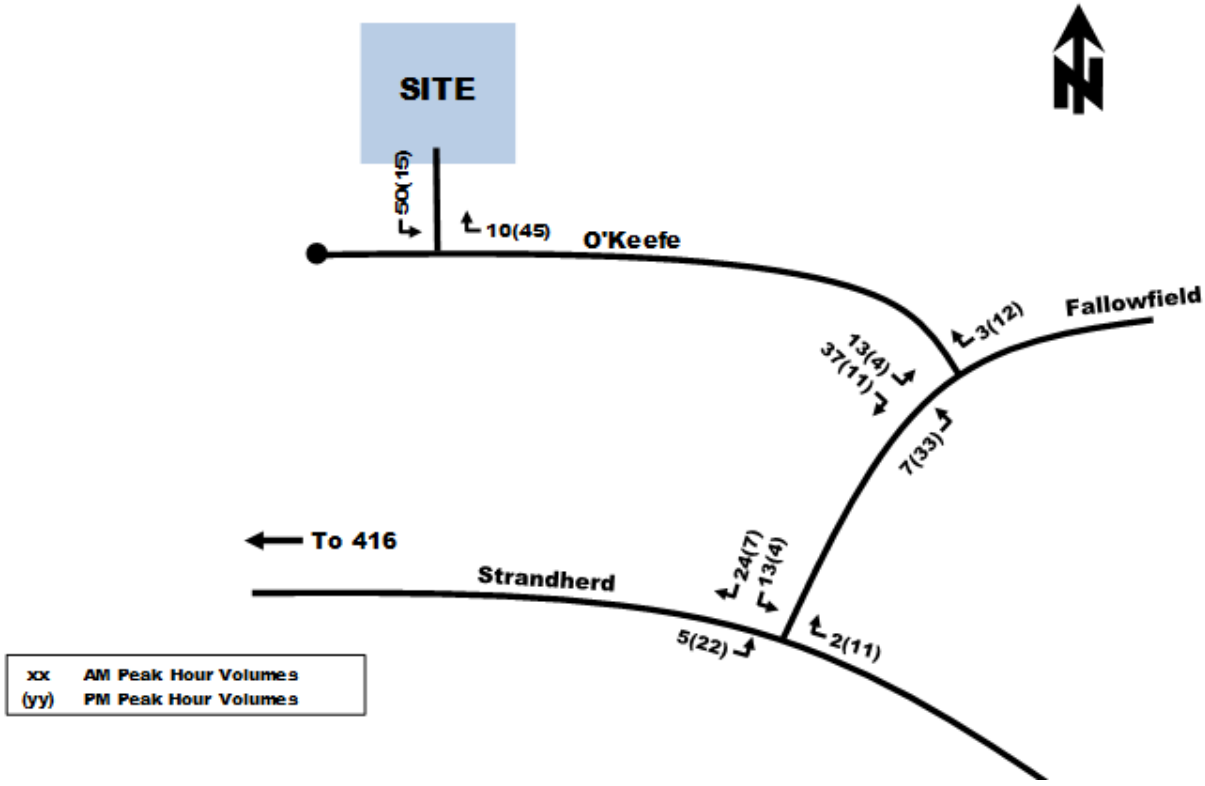
It is our understanding that the subject Plan of Subdivision now has a new owner (Mattamy) and that there is a desire, from a servicing perspective, to have an additional site connection from the south end of the subdivision to O'Keefe Court. This connection would not only facilitate site servicing, it would also provide a second vehicle outlet for the subdivision which improves both site-generated traffic distribution and emergency access. The approved Plan of Subdivision and a depiction of the proposed 22 m wide road link to O'Keefe Court are included as Appendix A and Appendix B respectively. It is our understanding that the proposed road link requires both City park land and land from the adjacent industrial lands owned by Simplicity, and that both are in agreement in principal with the alignment and right-of-way requirements depicted in the Appendix B figure.

From a transportation perspective, as the proposed road link will reduce site-generated traffic using the approved connection to Cedarview Road, there is no further analysis required at this location. As the new link will attract traffic to O'Keefe Court and therefore the O'Keefe/Fallowfield intersection, some analysis is required at this intersection to determine the impact/requirements, if any. At a recent pre-consult meeting with the City, it was agreed to that this Transportation Brief was sufficient to address this issue as no new development is proposed, the approved subdivision layout is the same, and the only consideration is the operation of the O'Keefe/Fallowfield intersection.

Based on the orientation of the subdivision and the location of the approved and proposed access points, it is assumed that site-generation traffic would be distributed approximately 60% to the approved Cedarview Road access and 40% to the proposed O'Keefe Court access. As the whole subdivision was projected to generate approximately 150 vph two-way total, a 40% distribution to the proposed new connection would result in 60 vph

two-way total using it during peak periods. Applying appropriate inbound and outbound distribution percentages would result in approximately 50 veh/h out and 10 veh/h in during the morning peak hour, and 15 veh/h out and 45 vph in during the afternoon peak hour. Based on the proximity of Fallowfield Road to the east, Strandherd Drive to the south and the Highway 416 to the west, the assumed distribution of site-generated traffic to these primary roads is 50 % to/from Highway 416, 25% to/from Fallowfield east and 25% to/from Strandherd south during peak periods. The resultant assignment of site-generated traffic is depicted in Figure 1.

Figure 1: Assignment of Site-Generated Traffic Via Proposed O'Keefe Court Connection



In January 2015 IBI prepared/submitted a comprehensive Community Transportation Study (CTS) that accounted for all the existing/projected development planned for the lands in and around the node centered on the O'Keefe/Fallowfield/Strandherd/Highway 416 intersections. It is our understanding that this CTS accounted for proposed development of all vacant lands in the area and included functional plans for required intersection modifications. The total projected 2022 volumes from the CTS are included as Appendix C and the proposed functional plan for the O'Keefe/Fallowfield intersection is included as Appendix D.

In review of the CTS's level of service analysis for the O'Keefe/Fallowfield intersection, we agree with the City's comment that a double left-turn is required for the future eastbound left-turn movement from Fallowfield onto O'Keefe. Assuming these double left-turn lanes are provided, the projected level of service for the projected 2022 volumes is summarized in Table 1. We are advised that there is no specific date for the proposed intersection modifications, and that it is dependent on the rate of area development.

For the purpose of this Transportation Brief, the reassigned Figure 1 volumes were added to the Appendix C volumes to determine the impacts/requirements, if any, of the reassigned site traffic. The resultant level of service of adding Figure 1 volumes to Appendix C volumes are summarized in Table 2. As can be seen by comparing the Table 1 and Table 2 v/c's and level of service, the addition of site-generated traffic to the O'Keefe/Fallowfield intersection has no or negligible impact on the operation of the intersection.

Table 1: Fallowfield/O'Keefe 2022 Level of Service

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Fallowfield/OKeefe	D(E)	0.89(0.94)	SBT(SBT)	27.6(38.0)	D(E)	0.81(0.91)
Note: Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.						

Figure 2: Fallowfield/O'Keefe 2022 Volumes Plus Site Traffic Level of Service

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Fallowfield/OKeefe/Cobble Hilll	D(E)	0.90(0.95)	SBT(EBL)	27.6(39.9)	D(E)	0.81(0.92)
Note: Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.						

In conclusion, assuming Mattamy, the City and Simplicity can come up with an acceptable alignment solution for the proposed new local street connection to O'Keefe Court, the road link is recommended from a transportation perspective.

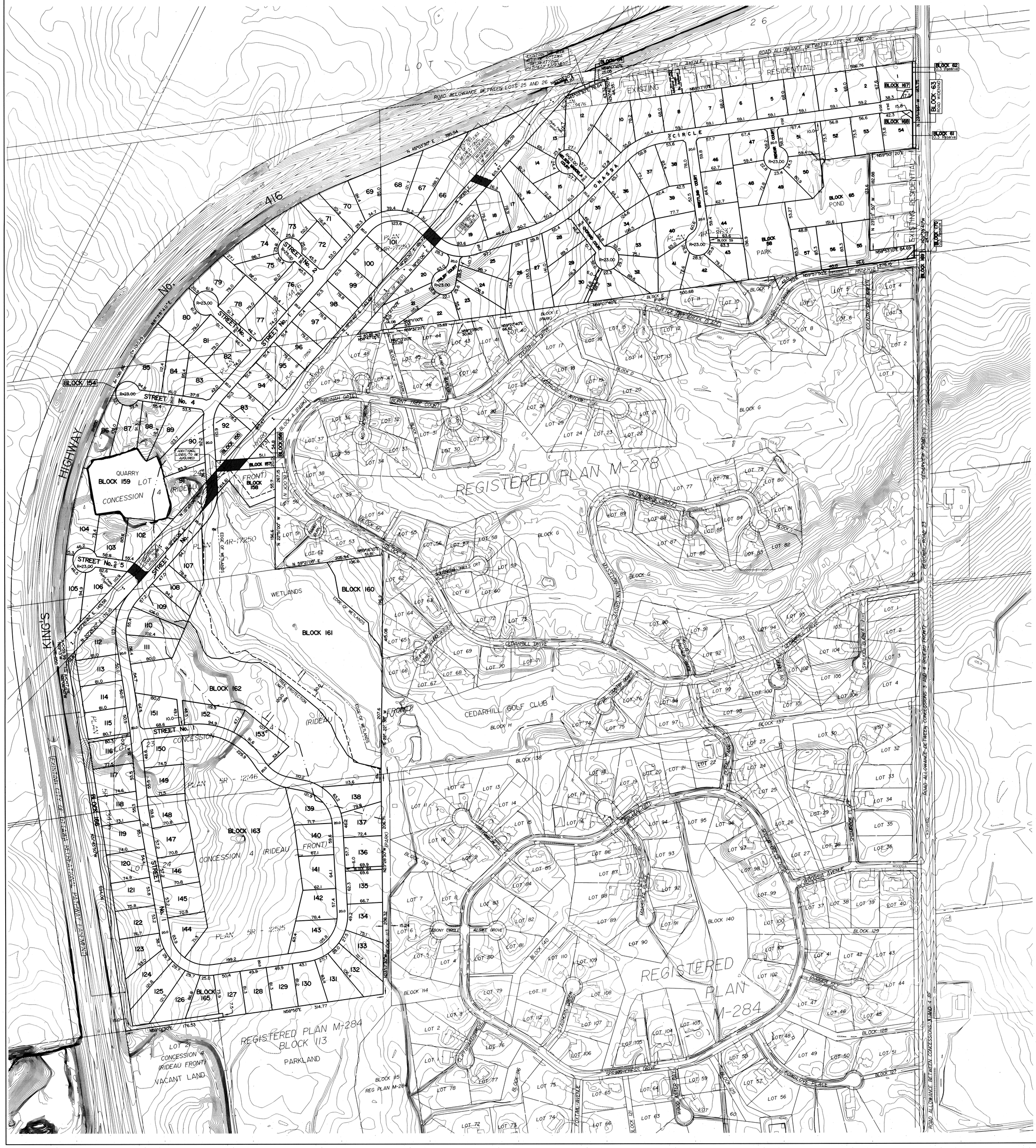
Sincerely,

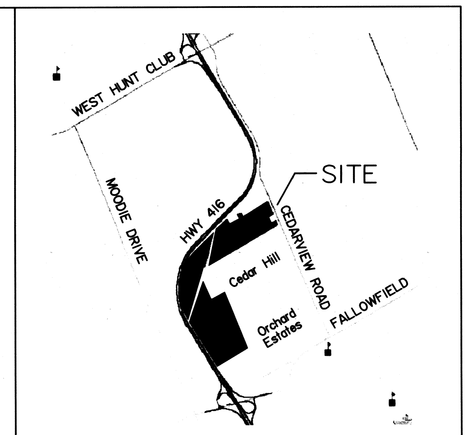
Christopher Gordon, P.Eng.
Senior Project Manager

Attachments

Appendix A

Approved Plan of Subdivision





KEY MAP
NOT TO SCALE

SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED

_____

THIS DRAFT PLAN IS APPROVED BY THE CITY OF OTTAWA UNDER SECTION 51 OF THE PLANNING ACT, THIS _____ DAY OF _____, _____

_____
DON HERWEYER, MANAGER
DEVELOPMENT REVIEW, SUBURBAN SERVICES
PLANNING AND GROWTH MANAGEMENT DEPARTMENT
INFRASTRUCTURE SERVICES AND COMMUNITY SUSTAINABILITY
CITY OF OTTAWA

DRAFT PLAN OF SUBDIVISION OF

PART OF LOTS 22, 23, 24 AND 25
CONCESSION 4 (Rideau Front)
GEOGRAPHIC TOWNSHIP OF NEPEAN
And
PART OF BLOCK F
REGISTERED PLAN M-278
CITY OF OTTAWA

SCALE 1 : 2500

100 75 50 25 0 50 100 150 200 Metres

METRIC : Distances shown on this plan are in metres and can be converted to feet by dividing by 0.3048

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :

The boundaries of the lands to be subdivided and their relationship to adjoining lands have been accurately and correctly shown as dimensioned from existing reference plans and subdivision plans.

May 17, 2012
DATE

E. H. HERWEYER
ONTARIO LAND SURVEYOR

MINIMUM LOT AREA = 4000 Sq. m
MINIMUM LOT FRONTAGE = 30m @ 7.5m

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51-17 OF THE PLANNING ACT

(a) see plan (boundaries)
(b) see plan (highways)
(c) see plan (key plan)
(d) single family estate lots
(e) see plan (adjoining lands)
(f) see plan (units)
(g) see plan (features)
(h) City of Ottawa water to be available.
(i) see soil report.
(j) see plan (elevations, contours)
(k) municipal water , bell , hydro , cable & gas. to be available.
(l) see plan (easements)

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
Ontario Land Surveyors
14 CONCOURSE GATE, SUITE 500, NEPEAN, ONTARIO K2E 7S6
TEL.(613)727-0850 FAX(613)727-1079
Job No. 8941-08 C

MAY 17, 2012

Appendix B

Proposed Road Connection to O'Keefe Court

0.64ha on park property

LIGHT POLE

LIGHT POLE

PROPOSED SWM POND
(0.38 ha)

O'KEEFE COURT

0.26ha on O'Keefe Court property

david schaeffer engineering ltd
SMART SUBDIVISIONS™

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9
TEL: (613) 836-0856
FAX: (613) 836-7183
www.DSEL.ca

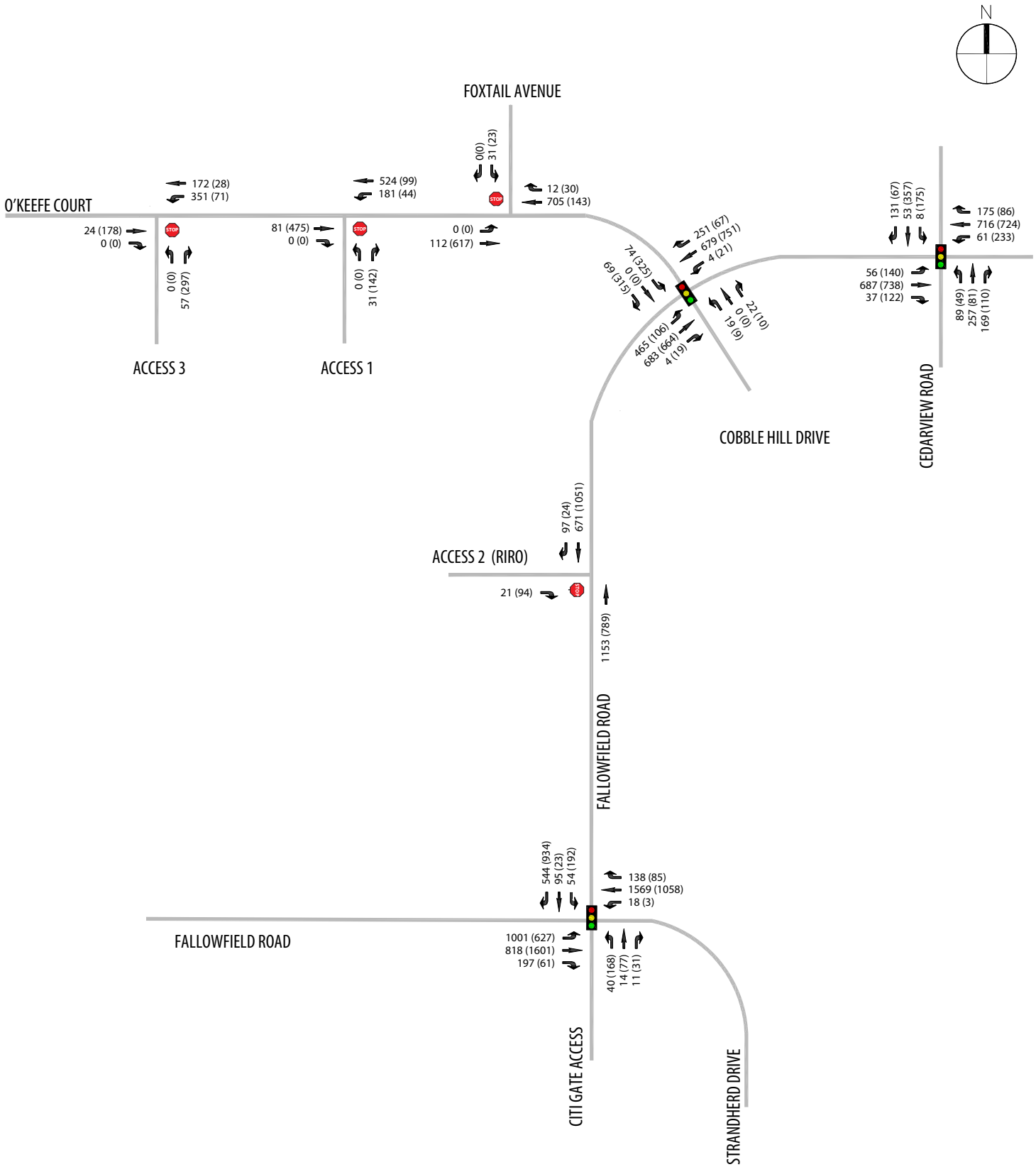
22m RIGHT-OF-WAY PARTIALLY ON CITY PARK / PARTIALLY ON O'KEEFE COURT PROPERTIES

PROJECT No.:	14-746
SCALE:	1:2000
DATE:	JULY 5, 2016
FIGURE:	2

z:\projects\14-746_800_cedarview\b_design\b2_drawings\b2-5_sketches and figures\2016-06-08_park_overlay\2016-07-04_746_park_overlay_opt2.dwg

Appendix C

CTS's Total Projected Peak Hour Volumes at Study Area Intersections



LEGEND

XX (XX) - AM (PM) PEAK HOUR TRAFFIC VOLUMES

IBI

4401 Fallowfield Road - Highway 416 Lands
Transportation Impact Study

EXHIBIT 10
Future (2022) Background plus
Site Generated Peak Hour Traffic Volumes

PROJECT No. 33453
DATE: JANUARY 2015
SCALE: NTS

Appendix D

CTS's Proposed Functional Design of O'Keefe/Fallowfield Intersection

FALLOWFIELD ROAD
AT O'KEEFE COURT AND COBBLE HILL DRIVE INTERSECTION

FUNCTIONAL DESIGN
ULTIMATE CONFIGURATION

IBI GROUP

Ottawa

IBI Group Project No.	Dwg. No.
33453	01

Sheet 01 of 01

Asset No.

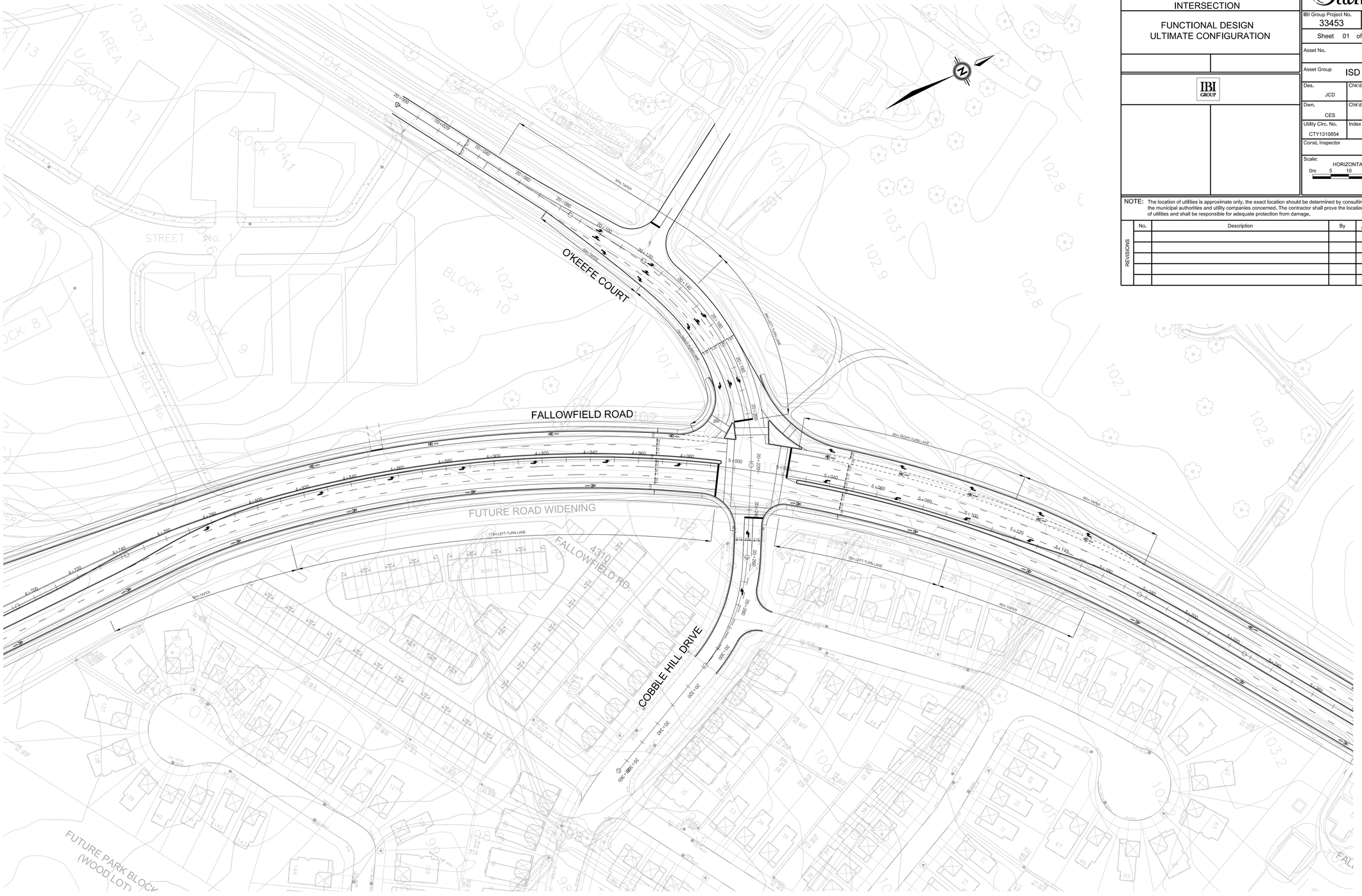
Asset Group: ISD

Des.	Chk'd.
JCD	DH
Dwn.	Chk'd.
CES	JCD
Utility Circ. No. CTY1310854	Index No.
Const. Inspector	

Scale: HORIZONTAL
0m 5 10 20

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

REVISIONS	No.	Description	By	Date (dd/mm/yy)



Appendix E

Fallowfield/O'Keefe 2022 SYNCHRO Analysis

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	87	0	19	0	472	683	4	4	679	254
Future Volume (vph)	87	0	19	0	472	683	4	4	679	254
Lane Group Flow (vph)	97	118	0	45	524	759	4	4	754	282
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Perm	NA	Perm
Protected Phases		4		8	5	2			6	
Permitted Phases	4		8				2	6		6
Detector Phase	4	4	8	8	5	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	28.4	28.4	10.9	22.9	22.9	22.9	22.9	22.9
Total Split (s)	28.4	28.4	28.4	28.4	28.0	91.6	91.6	63.6	63.6	63.6
Total Split (%)	23.7%	23.7%	23.7%	23.7%	23.3%	76.3%	76.3%	53.0%	53.0%	53.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.1	3.1	3.1	3.1	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	5.9	5.9	5.9	5.9	5.9	5.9
Lead/Lag					Lead			Lag	Lag	Lag
Lead-Lag Optimize?					Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)	14.3	14.3		14.3	20.3	75.0	75.0	48.6	48.6	48.6
Actuated g/C Ratio	0.14	0.14		0.14	0.20	0.74	0.74	0.48	0.48	0.48
v/c Ratio	0.54	0.21		0.18	0.80	0.58	0.00	0.01	0.89	0.36
Control Delay	55.1	0.9		3.6	51.1	8.6	0.0	15.5	38.5	11.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	0.9		3.6	51.1	8.6	0.0	15.5	38.5	11.8
LOS	E	A		A	D	A	A	B	D	B
Approach Delay		25.3		3.6		25.9			31.2	
Approach LOS		C		A		C			C	
Queue Length 50th (m)	19.4	0.0		0.0	53.7	55.5	0.0	0.4	132.0	20.1
Queue Length 95th (m)	37.2	0.0		3.0	#89.4	109.9	0.0	2.5	#231.3	43.5
Internal Link Dist (m)		156.0		92.8		282.5			212.7	
Turn Bay Length (m)	50.0				140.0			65.0		30.0
Base Capacity (vph)	288	649		360	733	1495	1276	392	1039	928
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.18		0.13	0.71	0.51	0.00	0.01	0.73	0.30

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 27.6	Intersection LOS: C
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 2: Fallowfield & OKeefe/Cobble Hilll

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	325	0	9	0	106	664	19	21	751	67
Future Volume (vph)	325	0	9	0	106	664	19	21	751	67
Lane Group Flow (vph)	361	350	0	21	118	738	21	23	834	74
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Perm	NA	Perm
Protected Phases		4		8	5	2			6	
Permitted Phases	4		8				2	6		6
Detector Phase	4	4	8	8	5	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	28.4	28.4	10.9	22.9	22.9	22.9	22.9	22.9
Total Split (s)	41.0	41.0	41.0	41.0	11.3	79.0	79.0	67.7	67.7	67.7
Total Split (%)	34.2%	34.2%	34.2%	34.2%	9.4%	65.8%	65.8%	56.4%	56.4%	56.4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.1	3.1	3.1	3.1	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	5.9	5.9	5.9	5.9	5.9	5.9
Lead/Lag					Lead			Lag	Lag	Lag
Lead-Lag Optimize?					Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)	33.0	33.0		33.0	5.5	67.7	67.7	56.3	56.3	56.3
Actuated g/C Ratio	0.29	0.29		0.29	0.05	0.60	0.60	0.50	0.50	0.50
v/c Ratio	0.93	0.60		0.05	0.75	0.69	0.02	0.09	0.94	0.09
Control Delay	72.5	19.0		0.2	83.2	19.9	2.1	16.1	46.4	2.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.5	19.0		0.2	83.2	19.9	2.1	16.1	46.4	2.8
LOS	E	B		A	F	B	A	B	D	A
Approach Delay		46.2		0.2		28.0			42.2	
Approach LOS		D		A		C			D	
Queue Length 50th (m)	83.1	28.0		0.0	14.4	108.7	0.0	2.7	172.7	0.0
Queue Length 95th (m)	#140.9	59.5		0.0	#30.3	151.8	2.2	7.4	#257.6	5.9
Internal Link Dist (m)		156.0		92.8		282.5			212.7	
Turn Bay Length (m)	50.0				140.0			65.0		30.0
Base Capacity (vph)	409	611		480	158	1163	1000	283	983	874
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.57		0.04	0.75	0.63	0.02	0.08	0.85	0.08

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 113.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 83.8%	ICU Level of Service E
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 2: Fallowfield & OKeefe/Cobble Hilll

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	87	0	19	0	472	683	4	4	679	254
Future Volume (vph)	87	0	19	0	472	683	4	4	679	254
Lane Group Flow (vph)	97	118	0	45	524	759	4	4	754	282
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Perm	NA	Perm
Protected Phases		4		8	5	2			6	
Permitted Phases	4		8				2	6		6
Detector Phase	4	4	8	8	5	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	28.4	28.4	10.9	22.9	22.9	22.9	22.9	22.9
Total Split (s)	28.4	28.4	28.4	28.4	39.0	91.6	91.6	52.6	52.6	52.6
Total Split (%)	23.7%	23.7%	23.7%	23.7%	32.5%	76.3%	76.3%	43.8%	43.8%	43.8%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.1	3.1	3.1	3.1	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	5.9	5.9	5.9	5.9	5.9	5.9
Lead/Lag					Lead			Lag	Lag	Lag
Lead-Lag Optimize?					Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)	13.8	13.8		13.8	21.1	74.1	74.1	47.1	47.1	47.1
Actuated g/C Ratio	0.14	0.14		0.14	0.21	0.74	0.74	0.47	0.47	0.47
v/c Ratio	0.54	0.18		0.18	0.76	0.58	0.00	0.01	0.90	0.37
Control Delay	53.0	0.6		3.7	45.1	8.6	0.0	18.8	42.0	14.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	0.6		3.7	45.1	8.6	0.0	18.8	42.0	14.5
LOS	D	A		A	D	A	A	B	D	B
Approach Delay		24.2		3.7		23.5			34.5	
Approach LOS		C		A		C			C	
Queue Length 50th (m)	17.7	0.0		0.0	48.6	53.1	0.0	0.4	126.0	21.2
Queue Length 95th (m)	35.8	0.0		3.0	72.8	111.3	0.0	2.8	#257.9	52.6
Internal Link Dist (m)		156.0		92.8		282.5			212.7	
Turn Bay Length (m)	50.0				140.0			65.0		30.0
Base Capacity (vph)	287	725		358	1093	1535	1310	316	836	759
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.16		0.13	0.48	0.49	0.00	0.01	0.90	0.37

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 100.3		
Natural Cycle: 100		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.90		
Intersection Signal Delay: 27.6	Intersection LOS: C	
Intersection Capacity Utilization 76.7%	ICU Level of Service D	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 2: Fallowfield & OKeefe/Cobble Hilll

Projected PM
2: Fallowfield & OKeefe/Cobble Hilll

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	329	0	9	0	139	664	19	21	751	79
Future Volume (vph)	329	0	9	0	139	664	19	21	751	79
Lane Group Flow (vph)	366	362	0	21	154	738	21	23	834	88
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Perm	NA	Perm
Protected Phases		4		8	5	2			6	
Permitted Phases	4		8				2	6		6
Detector Phase	4	4	8	8	5	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	28.4	28.4	10.9	22.9	22.9	22.9	22.9	22.9
Total Split (s)	41.0	41.0	41.0	41.0	12.6	79.0	79.0	66.4	66.4	66.4
Total Split (%)	34.2%	34.2%	34.2%	34.2%	10.5%	65.8%	65.8%	55.3%	55.3%	55.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.1	3.1	3.1	3.1	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	5.9	5.9	5.9	5.9	5.9	5.9
Lead/Lag					Lead			Lag	Lag	Lag
Lead-Lag Optimize?					Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)	33.4	33.4		33.4	6.7	69.4	69.4	56.7	56.7	56.7
Actuated g/C Ratio	0.29	0.29		0.29	0.06	0.60	0.60	0.49	0.49	0.49
v/c Ratio	0.95	0.61		0.05	0.80	0.69	0.02	0.09	0.95	0.11
Control Delay	76.8	18.7		0.2	84.2	19.7	2.1	16.7	49.1	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	18.7		0.2	84.2	19.7	2.1	16.7	49.1	3.9
LOS	E	B		A	F	B	A	B	D	A
Approach Delay		47.9		0.2		30.2			44.1	
Approach LOS		D		A		C			D	
Queue Length 50th (m)	84.7	27.9		0.0	18.8	108.7	0.0	2.7	177.1	0.4
Queue Length 95th (m)	#143.3	59.9		0.0	#37.1	151.8	2.2	7.5	#262.3	8.4
Internal Link Dist (m)		156.0		92.8		282.5			212.7	
Turn Bay Length (m)	50.0				140.0			65.0		30.0
Base Capacity (vph)	401	611		470	192	1139	980	278	942	841
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.59		0.04	0.80	0.65	0.02	0.08	0.89	0.10

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.2	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 39.9	Intersection LOS: D
Intersection Capacity Utilization 87.0%	ICU Level of Service E
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 2: Fallowfield & OKeefe/Cobble Hilll