



*In reply, please refer to: 20836215*

March 26, 2015

Mr. Ollie K. Mumpower.  
Engineering Services Director  
Department of Public Works  
800 Rabbit Road,  
Gaithersburg, Maryland 20878

Reference: Traffic Operational Analysis Memorandum  
MedImmune Childcare Center

Dear Mr. Mumpower,

This memorandum presents the results of traffic analyses conducted for the proposed MedImmune Childcare Center located at the southeast corner of the Orchard Ridge Drive and Winter Walk Drive intersection in the City of Gaithersburg, Maryland. A location map of the site is included as Figure 1.

The proposed development is intended to provide premium childcare services to MedImmune employees. The facility is anticipated to provide enrollment for up to 180 children, with staffing of approximately 35 employees. A site plan that shows the proposed childcare center along with the site access driveway is included as Figure 2. As shown in Figure 2, site access is proposed to be aligned with Winter Walk Drive to facilitate thru movements from Winter Walk Drive.

This traffic analysis includes Level of Service Analysis (LOS) per the Highway Capacity Manual (HCM) methodology. Queuing Analysis has also been conducted using HCM and State Highway Administration (SHA) methodologies. These analyses are conducted for the following two planning horizons:

- Existing Conditions
- Future Conditions (i.e., existing conditions with site traffic)

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**Existing Roadway Characteristics and Operational Analysis**

***Roadway Characteristics***

**Orchard Ridge Drive** is generally a 4 lane roadway (2 lanes in each direction) with turn lanes at the intersecting side streets. This roadway has a posted speed limit of 25 MPH and serves Medimmune and some residential properties to the east of Great Seneca Highway (between Quince Orchard Road and Orchard Ridge Drive).

**Winter Walk Drive** is a 2 lane roadway that serves Quince Orchard Park residential community, via Orchard Ridge Drive.

***Existing Condition Operational Analysis***

The existing peak hour intersection turning movement counts for the Orchard Ridge Drive and Winter Walk Drive intersection were collected by URS on Wednesday March 25, 2015. The counts were performed from 6:30 AM to 9:30 AM and from 3:30 PM to 6:30 PM. The count information is included in Appendix A. The existing lane use and traffic control at the subject intersection are shown on Figure 3. The AM and PM peak hour turning movement counts are shown on Figure 4.

The existing condition operational analysis is based on existing traffic counts, existing lane use and traffic control and Synchro software that utilizes HCM analysis procedures. A summary of the results of the intersection analysis is presented in Table 1. The results of the queuing analysis are presented in Table 2. Copies of the Synchro LOS and queuing reports for existing conditions are included in Appendix B.

**Table 1**  
**Intersection Levels of Service Summary**

Street Name	Orientation	Movement	Existing Conditions				Future Conditions With Childcare			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			LOS	Delay (seconds/vehicle)	LOS	Delay (seconds/vehicle)	LOS	Delay (seconds/vehicle)	LOS	Delay (seconds/vehicle)
Orchard Ridge Drive	East-West	EBL	A	7.6	A	7.7	A	7.6	A	7.7
		WBL	-	-	-	-	A	7.5	-	-
Winter Walk Drive	North-South	SBLR	A	9.3	A	9.7	A	9.7	B	10.0
Childcare Center Access (Future Driveway)	North-South	NBL	-	-	-	-	B	13.4	B	11.8
		NBR	-	-	-	-	-	-	A	9.0
Overall Intersection LOS/Delay			A	2.5	A	1.6	A	4.9	A	3.0

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The analysis shows that the Orchard Ridge Drive and Winter Walk Drive intersection currently operates at overall Level of Service (LOS) A during both the AM and PM peak hours. The existing storage length for the eastbound left turn lane adequately accommodates the left turning vehicles onto Winter Walk Drive. As indicated in Table 2, no queuing is reported for either through or right turn movements on Orchard Ridge Drive as the subject movements are unrestrained.

**Table 2**  
**Queuing Analysis Summary**

Street Name	Orientation	Movement	Existing Storage Length (Feet)	Existing Conditions				Future Conditions				Is Existing/Proposed Storage Length Adequate?			
				Queues Length (feet) (HCM Methodology)		Queues Length (feet)* (SHA Methodology)		Queues Length (feet) (HCM Methodology)		Queues Length (feet)* (SHA Methodology)					
				AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Orchard Ridge Drive	East-West	EBL	100	1	2	21	50	1	2	21	50	Yes	Yes	Yes	Yes
		WBL	120	0	0	1	0	3	0	56	0	Yes	Yes	Yes	Yes
Winter Walk Drive	North-South	SBLR	275	6	3	68	35	6	3	68	35	Yes	Yes	Yes	Yes
Childcare Center Access	North-South	NBL <sup>1</sup>	125	-	-	-	-	17	7	100	56	Yes	Yes	Yes	Yes
		NBR <sup>1</sup>	275	-	-	-	-	0	4	0	54	Yes	Yes	Yes	Yes

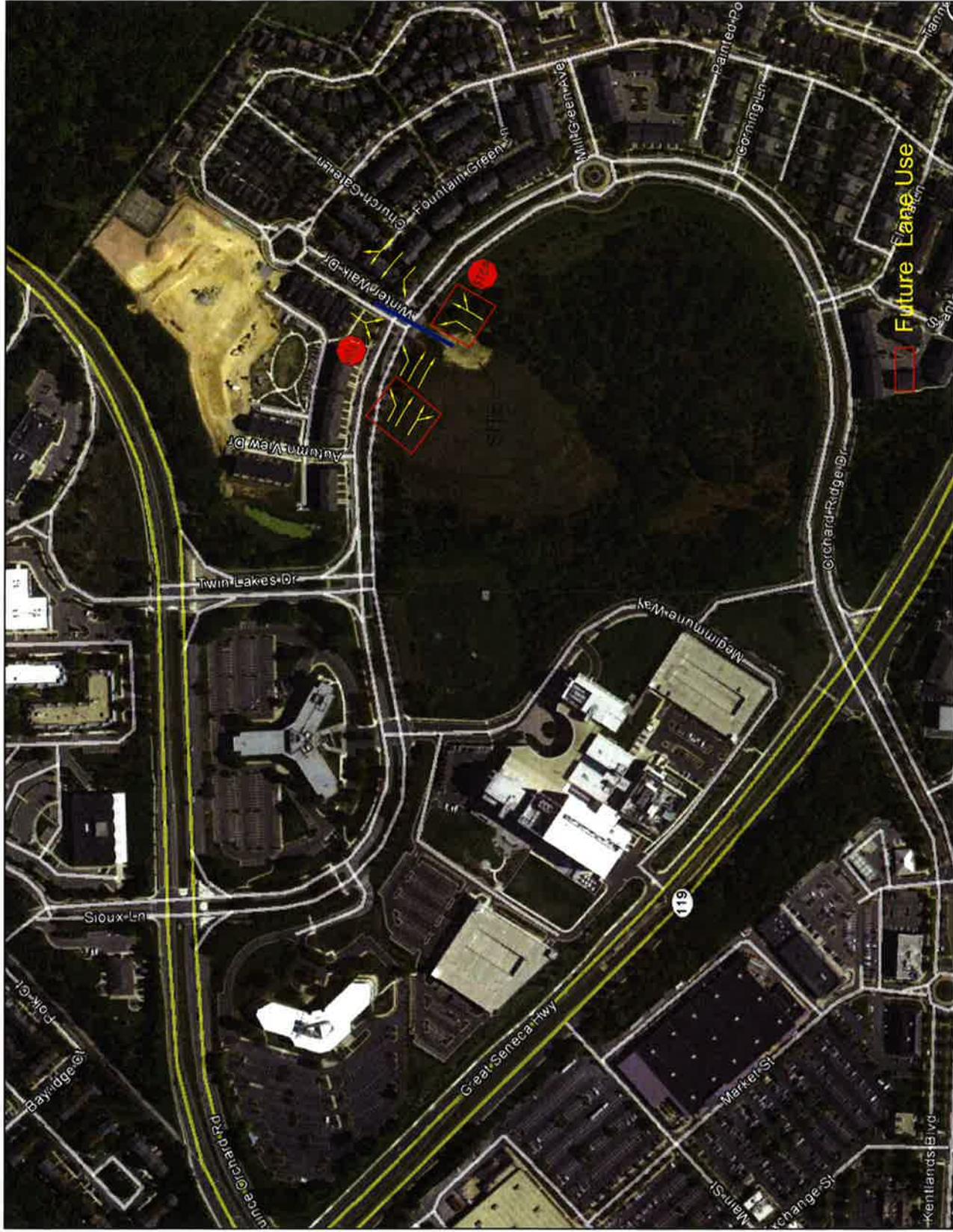
\* Queue computation based on the SHA Methodology, Queue Length = 1.25 x (Peak Hour Volume)  
 1. Refers to the proposed Childcare Access



N.T.S

Figure 1  
MedImmune Childcare Center Site Location Map





N. T. S

Figure 3  
Intersection Lane Use and Traffic Control

22 (36) - AM Peak hour trips (PM Peak hour trips)



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**Future Conditions with Site Traffic**

***Site Access Concept***

The site driveway onto Orchard Ridge Drive is planned to include two exit lanes (a left lane and a shared through-right lane) and one entry lane. As shown on the conceptual plan (Figure 2), two access points connecting the childcare parking lot are planned, with the northern access (the one closer to Orchard Ridge Drive) being right-out only.

***Future Traffic Projections***

Future condition analysis includes traffic from two components – existing traffic and site generated traffic. The trip generation for the proposed development is based on the childcare center rates/equations established in the ITE Trip Generation Manual 9<sup>th</sup> Edition. The results of the trip generation analysis are presented in Table 3.

**Table 3**  
**Site-Trip Generation Analysis**

Land Use	Size	Units	ITE Land Use	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Childcare Center Trips*	35	Employees	565	90	80	170	78	88	166

\* Includes trips from child pick-up/drop-off and childcare employee trips  
 Childcare center is intended to serve MedImmune Staff Only

As indicated in Table 3, the proposed childcare center is anticipated to generate a total of 170 trips in the AM peak hour and 166 trips in the PM peak hour. Though the proposed development is anticipated to only add the trips resulting from the childcare center employees, ITE trip generation rates provide estimates for the children drop-off and pick-up traffic as well. We have included the drop-off/pick-up traffic in order to address a worst case scenario for queues.

***Site Traffic and Assignment***

Trip distribution for the proposed childcare center is based on review of existing traffic patterns at nearby intersections, and is shown in Figure 5. The thru volume on Orchard Ridge Drive was observed to be low and is anticipated to have minor impacts, if any, on the turn volumes entering/exiting the site. Therefore, for the purpose of this study, queuing analysis includes only the incoming and outgoing traffic from the proposed development. The site traffic volumes are shown on Figure 6.

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Total future volumes are obtained by adding site traffic volumes (shown on Figure 6) to the existing traffic volumes shown on Figure 4. The resultant future traffic volumes are shown on Figure 7.

### ***Future Conditions Operational Analysis***

The future condition operational analysis is based on future traffic counts, existing lane use and traffic control and Synchro software that utilizes HCM analysis procedures. A summary of the results of the intersection analysis is presented in Table 1. The results of the queuing analysis conducted are presented in Table 2. Copies of the Synchro LOS and queuing reports for future conditions are included in **Appendix B**.

The analysis shows that the Orchard Ridge Drive and Winter Walk Drive intersection continues to operate at LOS A during both AM and PM peak hours. The existing turn lane storage length for the westbound left turn lane (on Orchard Ridge) adequately accommodates the turning movements into the site. As indicated in Table 2, no queuing is report for either through or right turn movements on Orchard Ridge Drive as the subject movements are unrestrained. The proposed childcare center will not have any major impact on the operational capacity of the Orchard Ridge Drive and Winter Walk Drive intersection.

As the posted speed limit on Orchard Ridge Drive is low (25 MPH), the reduction in vehicular speed to facilitate turning maneuvers into the site is not significant to disrupt the following/conflicting vehicles and is not expected to contribute to any accidents. As such, no acceleration or deceleration lanes are deemed to be required for the proposed development. Further, provision of acceleration or deceleration lanes at the subject intersection would be inconsistent with the overall roadway infrastructure on Orchard Ridge Drive.

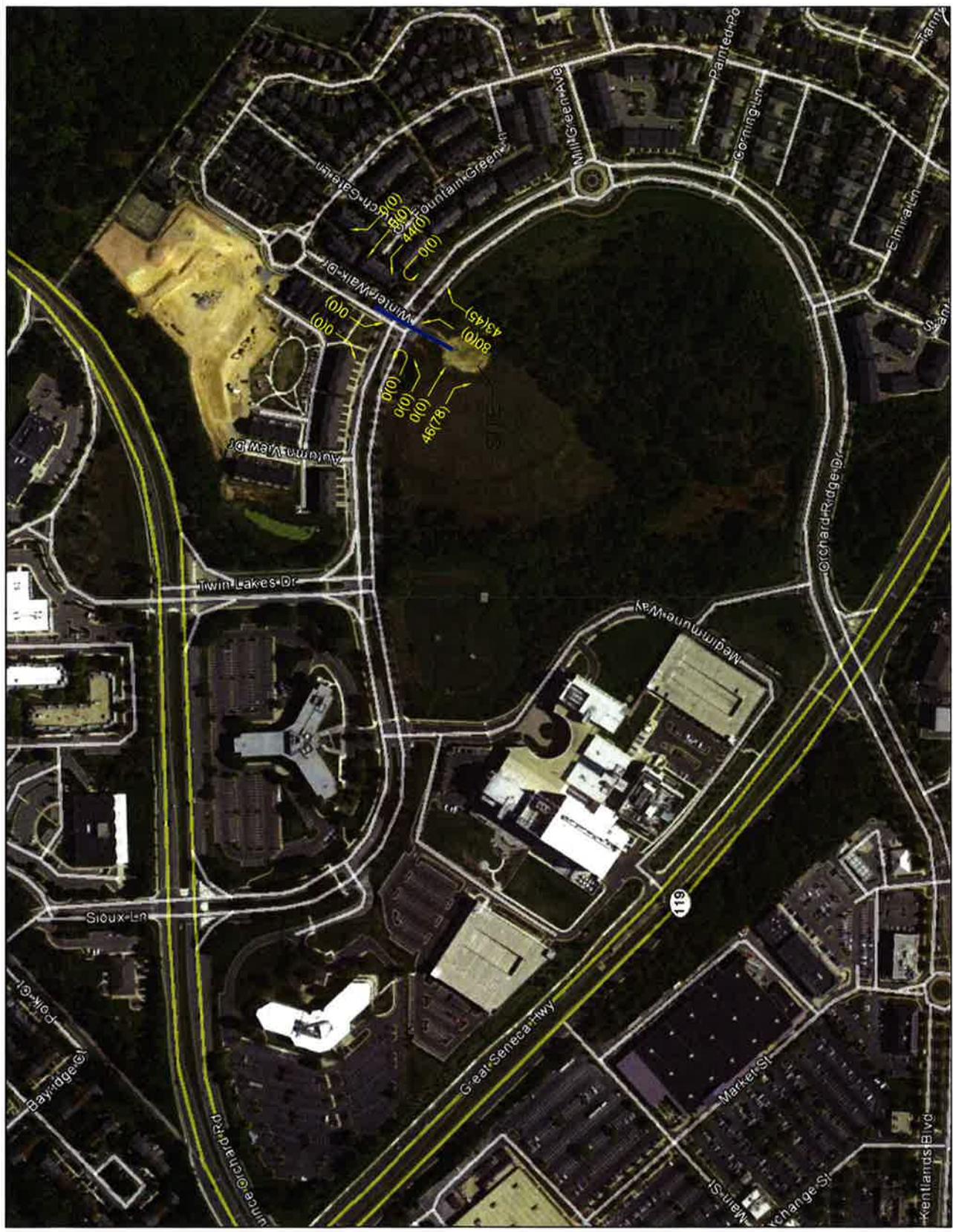
The existing U turn volumes on Orchard Ridge Drive are low in any of the peak hour and will not be affected by the site traffic as the childcare access will be stop controlled. Due to low through volumes on Orchard Ridge Drive, sufficient gaps are available and are anticipated to facilitate U-turn traffic (on Orchard Ridge Drive) without serious disruptions. As such it does not appear that any acceleration lanes or deceleration lanes are required from a potential U-turn conflict perspective.



Figure 5  
MedImmune Childcare Center Trip Distribution

N. T. S

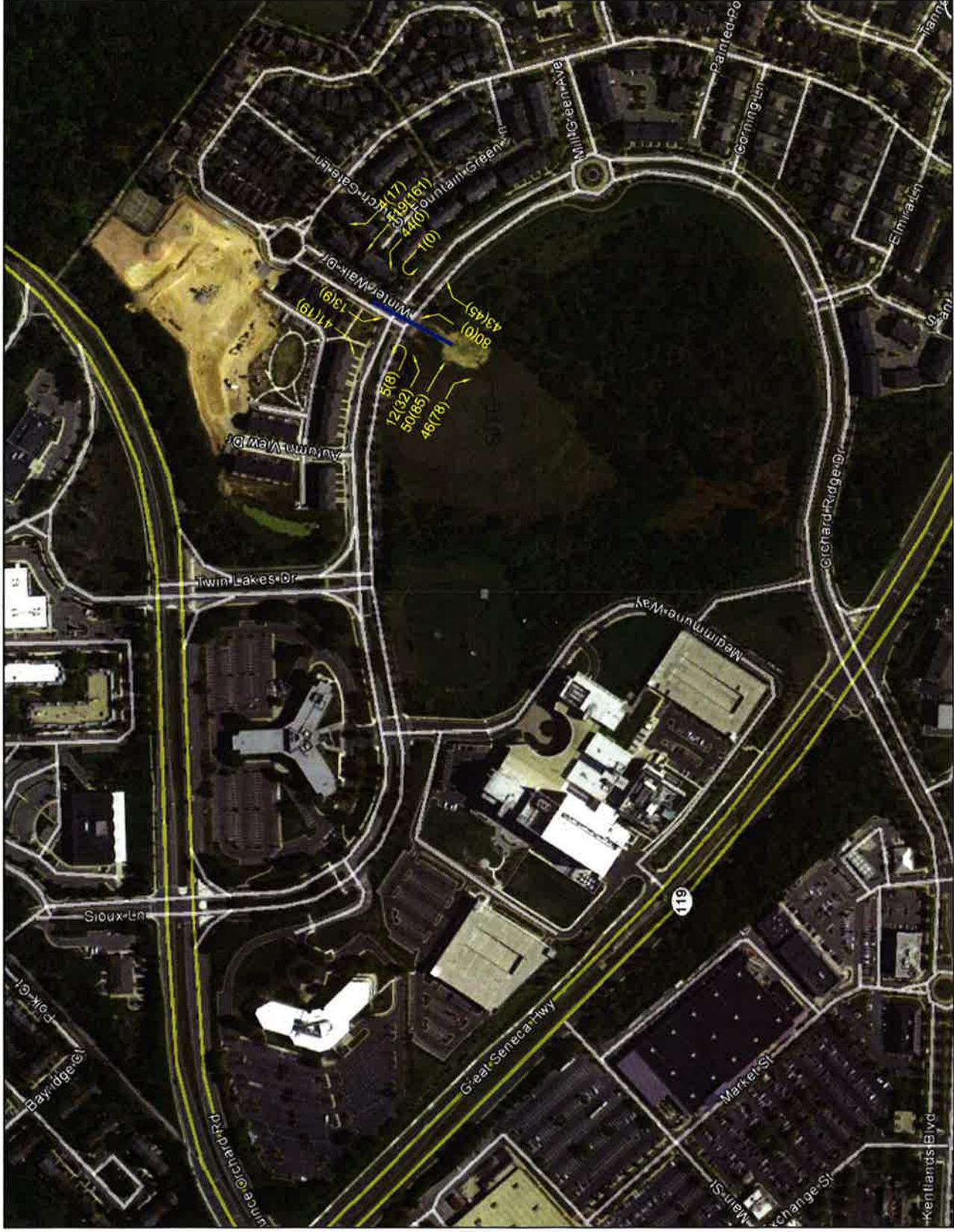
100%/51% - AM Peak/PM Peak Trip Distribution



N. T. S

Figure 6  
Site Generated Peak Hour Traffic Volumes

22 (36) - AM Peak hour trips (PM Peak hour trips)



N. T. S

Figure 7  
Future Conditions Peak Hour Volumes

22 (36) - AM Peak hour trips (PM Peak hour trips)

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### **Conclusions**

- 1) The intersection at Orchard Ridge Drive and Winter Walk Drive operates at an overall LOS A or better under existing conditions. No major queuing was observed and the existing turn lane storage lengths adequately accommodate the turning vehicular volume.
- 2) The intersection at Orchard Ridge Drive and Winter Walk Drive continues to operate at an over LOS A or better under future conditions with the childcare center. Based on the analysis conducted, no major queuing is anticipated on the site driveway and the existing turn lane lengths adequately accommodate the vehicular volume tuning into the site. The proposed childcare center is not anticipated to have any major operational impacts on the subject intersection.
- 3) It does not appear that any acceleration or deceleration lanes are necessary for this development. Further, provision of acceleration or deceleration lanes at the subject intersection would be inconsistent with the overall roadway infrastructure on Orchard Ridge Drive.

Thank you for working with us on this assignment. If you have any questions or desire further information, please do not hesitate to contact me at 410-785-7220.

Sincerely,

***URS Corporation***

Shourie Kondagari, PE, PTOE  
Senior Traffic Engineer

cc: Erik Morrison, MedImmune  
Timothy A. Ryan, URS

## **Appendix A**

### **Orchard Ridge Drive and Winter Walk Drive Turning Movement Counts**

Intersection: Orchard Ridge Drive and Winter Walk Drive  
 Turning Movement Counts - AM & PM Peak\*

Time	Southbound Street Name: Winter Walk Drive				SB Approach Total	Westbound Street Name: Orchard Ridge Drive				WB Approach Total	Eastbound Street Name: Orchard Ridge Drive				EB Approach Total	Intersection Total	PHF
	Right	Thru	Left	U		Right	Thru	Left	U		Right	Thru	Left	U			
<b>AM Peak 15 Minute Interval Counts</b>																	
6:30-6:45	1	0	0	0	1	0	5	0	0	5	0	2	0	0	2	8	
6:45-7:00	2	0	0	0	2	0	8	0	0	8	0	6	0	0	6	16	
7:00-7:15	2	0	1	0	3	1	15	0	0	16	0	14	2	0	16	35	
7:15-7:30	3	0	2	0	5	1	20	0	0	21	0	10	2	0	12	38	
7:30-7:45	7	0	7	0	14	2	25	0	0	27	0	13	2	0	15	56	
7:45-8:00	8	0	3	0	11	0	28	0	0	28	0	4	0	0	4	43	
8:00-8:15	8	0	4	0	12	1	29	0	1	31	0	12	3	2	17	60	
8:15-8:30	9	0	3	0	12	1	25	0	0	26	0	16	5	1	22	60	
8:30-8:45	11	0	3	0	14	1	20	0	0	21	0	10	2	2	14	49	
8:45-9:00	13	0	3	0	16	1	45	0	0	46	0	12	2	0	14	76	
9:00-9:15	6	0	1	0	7	1	34	0	0	35	0	10	2	3	15	57	
9:15-9:30	9	0	5	0	14	2	25	0	1	28	0	8	3	1	12	54	
<b>AM Hourly Counts</b>																	
6:30 - 7:30	8	0	3	0	11	2	48	0	0	50	0	32	4	0	36	97	0.64
6:45 - 7:45	14	0	10	0	24	4	68	0	0	72	0	43	6	0	49	145	0.65
7:00 - 8:00	20	0	13	0	33	4	88	0	0	92	0	41	6	0	47	172	0.77
7:15 - 8:15	26	0	16	0	42	4	102	0	1	107	0	39	7	2	48	197	0.82
7:30 - 8:30	32	0	17	0	49	4	107	0	1	112	0	45	10	3	58	219	0.91
7:45 - 8:45	36	0	13	0	49	3	102	0	1	106	0	42	10	5	57	212	0.88
<b>8:00-9:00</b>	<b>41</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>54</b>	<b>4</b>	<b>119</b>	<b>0</b>	<b>1</b>	<b>124</b>	<b>0</b>	<b>50</b>	<b>12</b>	<b>5</b>	<b>67</b>	<b>245</b>	<b>0.81</b>
8:15-9:15	39	0	10	0	49	4	124	0	0	128	0	48	11	6	65	242	0.8
8:30-9:30	39	0	12	0	51	5	124	0	1	130	0	40	9	6	55	236	0.78
<b>PM Peak 15 Minute Interval Counts</b>																	
3:30-3:45	3	0	2	0	5	0	13	0	0	13	0	14	3	2	19	37	
3:45-4:00	2	0	1	0	3	0	15	0	1	16	0	17	5	1	23	42	
4:00-4:15	2	0	0	0	2	4	15	0	0	19	0	11	4	0	15	36	
4:15-4:30	2	0	0	0	2	5	10	0	0	15	0	9	10	0	19	36	
4:30-4:45	1	0	1	0	2	3	18	0	0	21	0	14	2	1	17	40	
4:45-5:00	1	0	0	0	1	0	21	0	0	21	0	14	3	1	18	40	
5:00-5:15	2	0	0	0	2	4	21	0	0	25	0	23	7	0	30	57	
5:15-5:30	4	0	2	0	6	1	20	0	0	21	0	27	10	5	42	69	
5:30-5:45	3	0	1	0	4	4	32	0	0	36	0	22	6	4	32	72	
5:45-6:00	7	0	2	0	9	4	43	0	0	47	0	23	12	1	36	92	
6:00-6:15	5	0	2	0	7	5	45	0	0	50	0	25	10	2	37	94	
6:15-6:30	4	0	4	0	8	4	41	0	0	45	0	15	4	1	20	73	
<b>PM Hourly Counts</b>																	
3:30 - 4:30	9	0	3	0	12	9	53	0	1	63	0	51	22	3	76	151	0.90
3:45 - 4:45	7	0	2	0	9	12	58	0	1	71	0	51	21	2	74	154	0.92
4:00 - 5:00	6	0	1	0	7	12	64	0	0	76	0	48	19	2	69	152	0.95
4:15 - 5:15	6	0	1	0	7	12	70	0	0	82	0	60	22	2	84	173	0.76
4:30 - 5:30	8	0	3	0	11	8	80	0	0	88	0	78	22	7	107	206	0.75
4:45 - 5:45	10	0	3	0	13	9	94	0	0	103	0	86	26	10	122	238	0.83
5:00 - 6:00	16	0	5	0	21	13	116	0	0	129	0	95	35	10	140	290	0.79
5:15-6:15	19	0	7	0	26	14	140	0	0	154	0	97	38	12	147	327	0.87
<b>5:30-6:30</b>	<b>19</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>28</b>	<b>17</b>	<b>161</b>	<b>0</b>	<b>0</b>	<b>178</b>	<b>0</b>	<b>85</b>	<b>32</b>	<b>8</b>	<b>125</b>	<b>331</b>	<b>0.88</b>

\* Turning Movements Counts Collected on March 25, 2015

## **Appendix B**

### **Existing and Future LOS Analysis Spreadsheets**

# HCM Unsignalized Intersection Capacity Analysis

## 1: Orchard Ridge Drive & Winter Walk Drive

3/26/2015

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	5	12	50	0	1	0	119	4	0	0	0	13
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	0	15	62	0	0	0	147	5	0	0	0	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None				None					
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	152			0	62			215	243	31	210
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	152			0	62			215	243	31	210
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	99			0	100			100	100	100	98
cM capacity (veh/h)	0	1427			0	1539			679	651	1036	723
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>EB 3</b>	<b>WB 1</b>	<b>WB 2</b>	<b>WB 3</b>	<b>SB 1</b>					
Volume Total	15	31	31	0	98	54	67					
Volume Left	15	0	0	0	0	0	16					
Volume Right	0	0	0	0	0	5	51					
cSH	1427	1700	1700	1700	1700	1700	896					
Volume to Capacity	0.01	0.02	0.02	0.00	0.06	0.03	0.07					
Queue Length 95th (ft)	1	0	0	0	0	0	6					
Control Delay (s)	7.6	0.0	0.0	0.0	0.0	0.0	9.3					
Lane LOS	A						A					
Approach Delay (s)	1.5			0.0			9.3					
Approach LOS							A					

### Intersection Summary

Average Delay		2.5										
Intersection Capacity Utilization		20.1%		ICU Level of Service					A			
Analysis Period (min)		15										

HCM Unsignalized Intersection Capacity Analysis  
 1: Orchard Ridge Drive & Winter Walk Drive

3/26/2015



Movement	SBT	SBR
Lane Configurations	↔	
Volume (veh/h)	0	41
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.81	0.81
Hourly flow rate (vph)	0	51
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	241	76
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	241	76
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	95
cM capacity (veh/h)	653	970
Direction, Lane #		

HCM Unsignalized Intersection Capacity Analysis  
 1: Orchard Ridge Drive & Winter Walk Drive

3/26/2015

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	8	32	85	0	1	0	161	17	0	0	0	9
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	36	97	0	0	0	183	19	0	0	0	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None				None					
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	202			0	97			282	372	48	314
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	202			0	97			282	372	48	314
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	97			0	100			100	100	100	98
cM capacity (veh/h)	0	1367			0	1495			620	542	1010	603
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1					
Volume Total	36	48	48	0	122	80	32					
Volume Left	36	0	0	0	0	0	10					
Volume Right	0	0	0	0	0	19	22					
cSH	1367	1700	1700	1700	1700	1700	794					
Volume to Capacity	0.03	0.03	0.03	0.00	0.07	0.05	0.04					
Queue Length 95th (ft)	2	0	0	0	0	0	3					
Control Delay (s)	7.7	0.0	0.0	0.0	0.0	0.0	9.7					
Lane LOS	A						A					
Approach Delay (s)	2.1			0.0			9.7					
Approach LOS							A					

**Intersection Summary**

Average Delay		1.6										
Intersection Capacity Utilization		21.7%		ICU Level of Service					A			
Analysis Period (min)		15										

HCM Unsignalized Intersection Capacity Analysis  
 1: Orchard Ridge Drive & Winter Walk Drive

3/26/2015



Movement	SBT	SBR
Lane Configurations	↔	
Volume (veh/h)	0	19
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.88	0.88
Hourly flow rate (vph)	0	22
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	362	101
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	362	101
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	98
cM capacity (veh/h)	549	935
Direction, Lane #		

# HCM Unsignalized Intersection Capacity Analysis

## 1: MedImmune Child Care Access/Winter Walk Drive & Orchard Ridge Drive

3/26/2015



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	5	12	50	46	1	44	119	4	80	0	0	13
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	0	15	62	57	0	54	147	5	99	0	0	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None				None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	152			0	119			352	380	59	319
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	152			0	119			352	380	59	319
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	99			0	96			81	100	100	97
cM capacity (veh/h)	0	1427			0	1467			528	525	994	589

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	15	41	77	54	98	54	99	0	67
Volume Left	15	0	0	54	0	0	99	0	16
Volume Right	0	0	57	0	0	5	0	0	51
cSH	1427	1700	1700	1467	1700	1700	528	1700	839
Volume to Capacity	0.01	0.02	0.05	0.04	0.06	0.03	0.19	0.00	0.08
Queue Length 95th (ft)	1	0	0	3	0	0	17	0	6
Control Delay (s)	7.6	0.0	0.0	7.5	0.0	0.0	13.4	0.0	9.7
Lane LOS	A			A			B	A	A
Approach Delay (s)	0.8			2.0			13.4		9.7
Approach LOS							B		A

Intersection Summary		
Average Delay	4.9	
Intersection Capacity Utilization	27.8%	ICU Level of Service A
Analysis Period (min)	15	

# HCM Unsignalized Intersection Capacity Analysis

## 1: MedImmune Child Care Access/Winter Walk Drive & Orchard Ridge Drive

3/26/2015



Movement	SBT	SBR
Lane Configurations	↕	
Volume (veh/h)	0	41
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.81	0.81
Hourly flow rate (vph)	0	51
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	406	76
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	406	76
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	95
cM capacity (veh/h)	508	970
<b>Direction, Lane #</b>		

# HCM Unsignalized Intersection Capacity Analysis

## 1: Orchard Ridge Drive & Winter Walk Drive

3/26/2015

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	8	32	85	78	1	0	161	17	45	0	43	9
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	36	97	89	0	0	183	19	51	0	49	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None				None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	202			0	185			327	416	93	362
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	202			0	185			327	416	93	362
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	97			0	100			91	100	95	98
cM capacity (veh/h)	0	1367			0	1387			577	512	946	528
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	36	64	121	0	122	80	51	49	32			
Volume Left	36	0	0	0	0	0	51	0	10			
Volume Right	0	0	89	0	0	19	0	49	22			
cSH	1367	1700	1700	1700	1700	1700	577	946	749			
Volume to Capacity	0.03	0.04	0.07	0.00	0.07	0.05	0.09	0.05	0.04			
Queue Length 95th (ft)	2	0	0	0	0	0	7	4	3			
Control Delay (s)	7.7	0.0	0.0	0.0	0.0	0.0	11.8	9.0	10.0			
Lane LOS	A						B	A	B			
Approach Delay (s)	1.3			0.0			10.5		10.0			
Approach LOS							B		B			
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			26.7%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 1: Orchard Ridge Drive & Winter Walk Drive

3/26/2015



Movement	SBT	SBR
Lane Configurations	↔	
Volume (veh/h)	0	19
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.88	0.88
Hourly flow rate (vph)	0	22
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	451	101
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol	451	101
tC, single (s)	6.5	6.9
tC, 2 stage (s)		
tF (s)	4.0	3.3
p0 queue free %	100	98
cM capacity (veh/h)	489	935
<b>Direction, Lane #</b>		



*In reply, please refer to: 20836215*

March 27, 2015

Mr. Rob Robinson  
Long Range Planning Manager  
Planning Services, City of Gaithersburg,  
31 South Summit Avenue  
Gaithersburg, Maryland 20877

Reference: Traffic Operational Analysis Summary  
MedImmune Childcare Center

Dear Mr. Robinson:

URS has completed queuing analysis and operational analysis of the Orchard Ridge Drive and Winter Walk Drive intersection to study the anticipated impacts of the proposed MedImmune Childcare Facility. Based on the analyses conducted, we anticipate that the existing lane configuration will successfully accommodate traffic once Childcare facility is completed. The findings of our study are summarized below:

- 1) The intersection of Orchard Ridge Drive and Winter Walk Drive currently operates very well. (In technical terms, it operates at an overall Level of Service (LOS) A, which is the best possible LOS.) This intersection will continue to operate very well (at an overall LOS A), after the Childcare Facility is constructed. Based on the analyses conducted we anticipated that the existing configuration will successfully accommodate traffic once Childcare facility is completed.
- 2) The existing turn lanes on Orchard Ridge Drive are long enough to fully accommodate turning vehicle volumes. This applies to both existing conditions and future conditions, after construction of the Childcare Facility.
- 3) It appears that acceleration and/or deceleration lanes are not required for this development. The combination of the low posted speed limit on Orchard Ridge Drive (25 MPH) and the relatively low number of turning vehicles provide the basis for this conclusion. In addition, acceleration/deceleration lanes would be inconsistent with the current configuration of Orchard Ridge Drive.
- 4) U-turns on Orchard Ridge Drive currently operate very well, and the ability of those vehicles to make U-turns is not expected to be adversely affected by the Childcare Center. Thus, it does not appear that any acceleration lanes and/or deceleration lanes are required for U-turns.

Additional details regarding these findings may be found in the Traffic Operational Analysis Memorandum (March 26, 2015) prepared for the project.

Thank you for working with us on this assignment. If you have any questions or desire further information, please do not hesitate to contact me at 410-785-7220.

Sincerely,

***URS Corporation***

Shourie Kondagari, PE, PTOE  
Senior Traffic Engineer

cc: Erik Morrison, MedImmune  
Timothy A. Ryan, URS

**From:** [Rob Robinson](#)  
**To:** [Rob Robinson](#)  
**Subject:** FW: MedImmune Childcare -Joint Public Hearing Comments (SDP 6905-2015)  
**Date:** Monday, April 06, 2015 11:12:04 AM

---

-----Original Message-----

From: Ollie Mumpower  
Sent: Monday, April 06, 2015 11:11 AM  
To: Rob Robinson  
Subject: FW: MedImmune Childcare -Joint Public Hearing Comments (SDP 6905-2015)

Rob:

Engineering Services Director Ollie Mumpower has reviewed the URS MedImmune Childcare Traffic Impact Summary and agrees with the findings detailed in this report that the existing lane configuration will successfully accommodate traffic once the childcare facility is completed.

Ollie K. Mumpower

Engineering Services Division Chief

Department of Public Works

800 Rabbitt Road Gaithersburg, Maryland 20878-1600 301-258-6370 Ext. 106

301-258-6375 FAX

301-258-6430 TTY

omumpower@gaithersburgmd.gov

www.gaithersburgmd.gov

# STORMWATER MANAGEMENT CONCEPT AND PRELIMINARY COMPUTATIONS PACKAGE, REPORT, and SOILS INFORMATION

MedImmune Meadows Daycare Facility

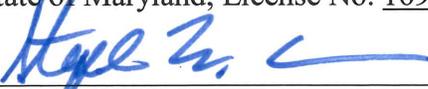
MHG PROJECT No. 1989.157.54

March 2015

CITY OF GAITHERSBURG	
DEPARTMENT OF PUBLIC WORKS	
<b>STORMWATER MANAGEMENT</b>	
APPLICATION NO.	SWM-69072015
CONCEPT PLAN <input checked="" type="checkbox"/>	PRELIMINARY PLAN <input checked="" type="checkbox"/>
APPROVAL DATE	04-01-15
BY	<i>Oliver Yampolsky</i>

Professional Certification:

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. 16905, Expiration Date: 4-21-16



Stephen E. Crum, P.E.

**Prepared for:**

**MedImmune, Inc.**  
1 MedImmune Way  
Gaithersburg, MD 20878



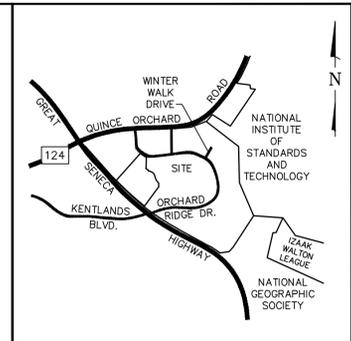
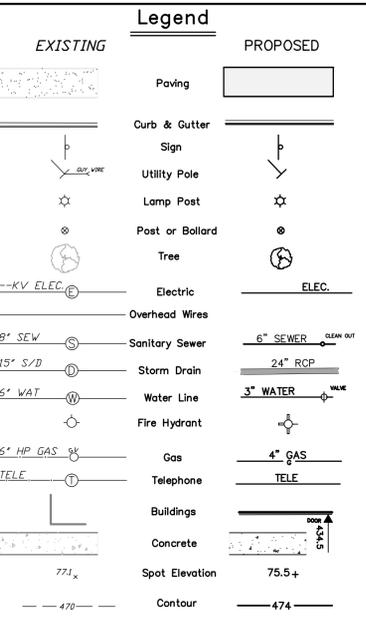
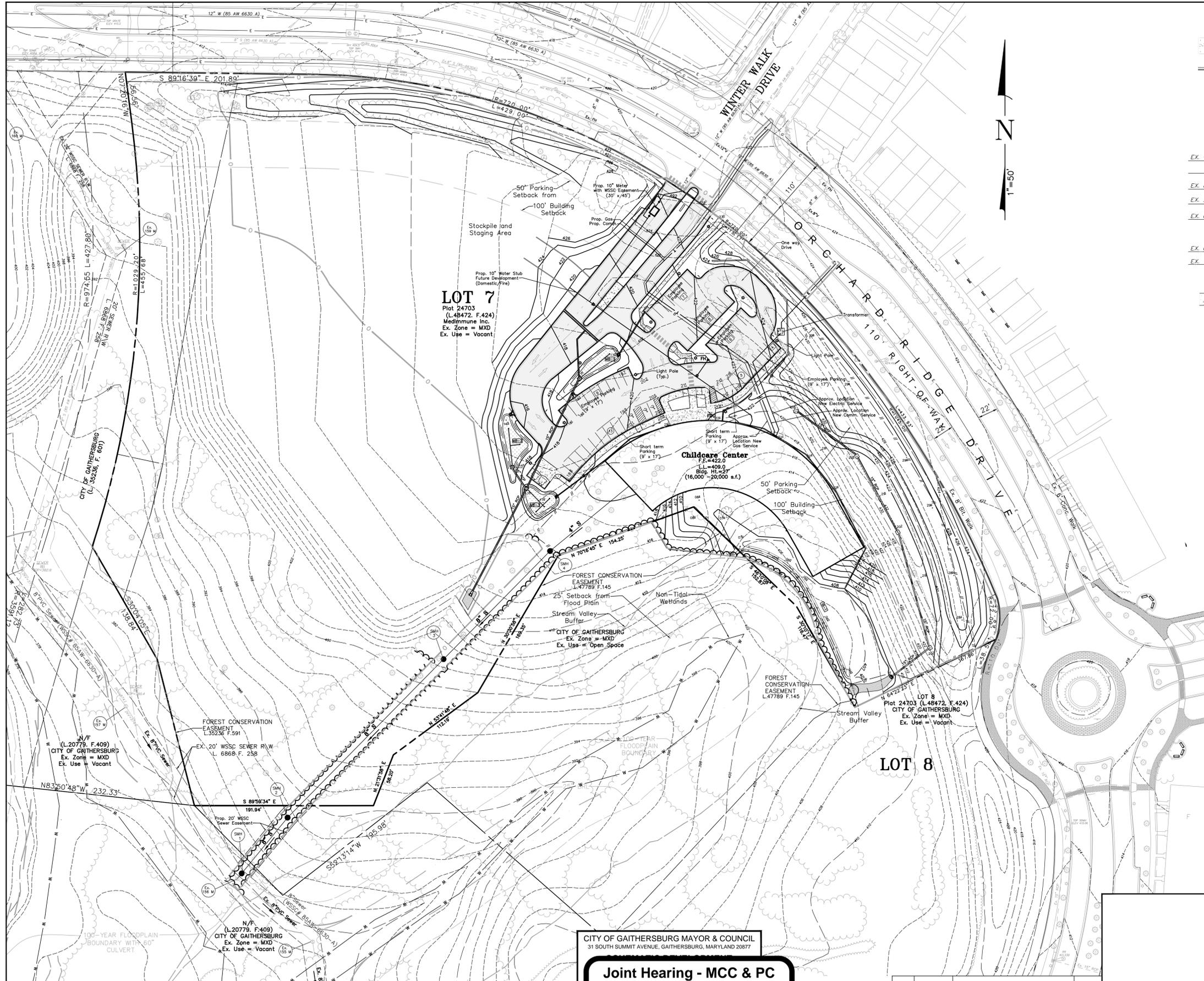
**Macris, Hendricks & Glascock, P.A.**  
Engineers • Planners • Surveyors • Landscape Architects

9220 Wightman Road, Suite 120  
Montgomery Village, Maryland  
20886-1279



Joint Hearing - MCC & PC  
SDP-6905-2015

Phone 301.670.0840  
Fax 301.948.0693



**VICINITY MAP**  
 SCALE 1" = 2,000'  
 COPYRIGHT 1994 BY ADC OF ALEXANDRIA, INC.  
 PERMITTED USE NO. 20192133

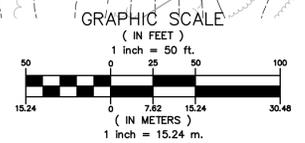
- #### DEVELOPMENT DATA
- Property Information: 501 Orchard Ridge Drive  
 Tax Identification # 03726370  
 Quince Orchard Corporate Center - Lot 7 (N439)
  - Zone: MXD (Mixed Use Development)
  - Proposed Use = Office and Medical Research Development  
 This proposed development is for a Childcare facility as an accessory use to the proposed office. The Childcare facility is intended to serve the employees of Medimmune and AstraZeneca containing +/-180 children and +/-35 Childcare peak hour employees.
  - Total Site Area (Lot 7- Plat 24703) = 473,782 sf or 10.87 acres  
 Site Area of Proposed Childcare Center = +/-138,700 sf or +/-3.2 ac
  - Allowable Building Area - "The Meadows" = 300,000 sf (Total)  
 Proposed Daycare Facility +/- 16-20,000 sf  
 Allowable GFA Remaining - "The Meadows" +/-280 to 284,000 sf  
 \*Per Annexation Agreement, Sixth Amendment (X-129), recorded March 14, 2013 in the Montgomery County Land Records at Liber 46317 / Folio 139.  
 Gross Floor Areas do not include Mechanical Space, Elevator shafts and Stairways, Covered parking, or unoccupied space below grade.
  - Building Setback - 100' setback for building and 50' setback for parking per Annexation Agreement.
  - Allowable Building Height limited to Five stories per Annexation Agreement  
 Proposed Building Height of Childcare Facility +/-27' (Two Stories)
  - Parking Required = 40 to 50 spaces  
 [+/-16 to 20,000 sf, 1 space per 400 sf GFA (per Annexation Agreement)]  
 Parking Provided = 52 spaces  
 Future Parking to serve future development of the Meadows not part of parking totals  
 Accessible Spaces - Required = 3 spaces (1 van spaces)  
 Provided = 3 spaces (1 van spaces)
  - Internal Green Space Required (Total) = 10.0% or 2,475 sf  
 Internal Green Space Provided = 14.9% or 3,690 sf  
 Parking Compound (Total) = 24,750 sf
  - Green Area Required 25% or 34,675 s.f.  
 (Based on 3.2 acre Development Area)  
 Green Area Provided 65% or +/- 90,000 s.f.

OWNER  
**MEDIMMUNE, Inc.**  
 One Medimmune Way  
 Gaithersburg, MD  
 Phone: 301-398-5527  
 Contact: Erik Morrison  
 Associate Director Master Planning

ARCHITECT  
**StudioMLA Architects**  
 233 Harvard Street, Suite 32  
 Brookline, MA 02446  
 Phone: (617) 608-1551 X302  
 Contact: Mike Lindstrom, Principal

WSSC 222 NW 11 / ABC Map 5047 D-10

Call "Miss Utility" at 1-800-257-7777,  
 48 hours prior to the start of work.  
 The excavator must notify all public utility companies with underground facilities in the area of proposed excavation and have those facilities located by the utility companies prior to commencing excavation. The excavator is responsible for compliance with requirements of Chapter 36A of the Montgomery County Code.



CITY OF GAITHERSBURG MAYOR & COUNCIL  
 31 SOUTH SUMMIT AVENUE, GAITHERSBURG, MARYLAND 20877

**Joint Hearing - MCC & PC**  
**SDP-6905-2015**  
**35a**

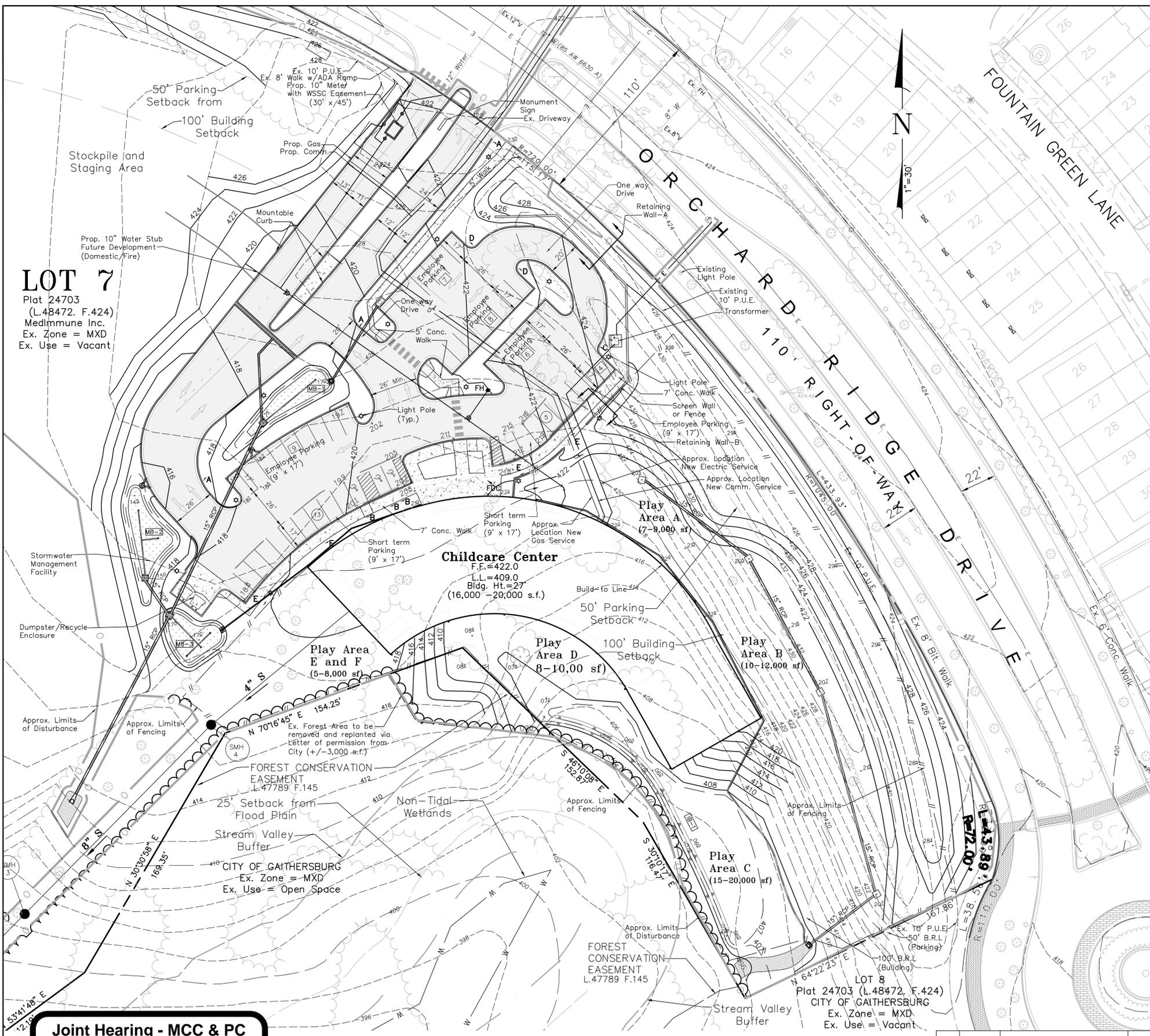
NOTE: REAPPROVED BY THE MAYOR & CITY COUNCIL

NO.	DATE	DESCRIPTION	BY
4	03-25-15	Submit SDP to City	
3	03-17-15	Progress Set	
2	02-11-15	Submit SDP to City	
1	01-14-15	Pre-Application Review-City	

Professional Certification  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the Laws of the State of Maryland License No. 14979, Expiration Date: 07/20/2014

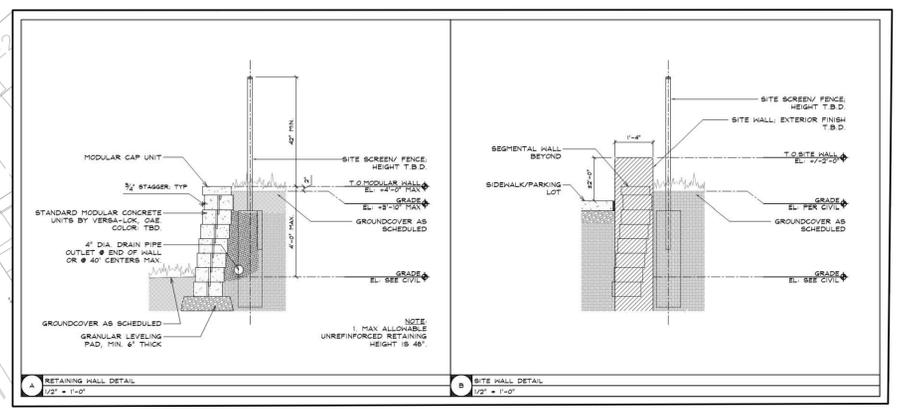
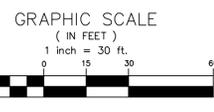
**SCHEMATIC DEVELOPMENT PLAN**  
**MEDIMMUNE CHILDCARE CENTER**  
**QUINCE ORCHARD PARK - THE MEADOWS**  
 Lot 7 (Plat 24703)  
 CITY OF GAITHERSBURG - 9TH ELECTION DISTRICT - MONTGOMERY COUNTY - MARYLAND

	Macris, Hendricks & Glascock, P.A. Engineers ■ Planners Landscape Architects ■ Surveyors	Proj. Mgr. B.J.D	Designer R.J.B
		Date 02-02-15	Scale 1"=50'
9220 Wightman Road, Suite 120 Montgomery Village, Maryland 20886-1279		Phone 301.670.0840 Fax 301.948.0693 www.mhgap.com	Project No. 89.157.84
		Sheet 1 of 2	



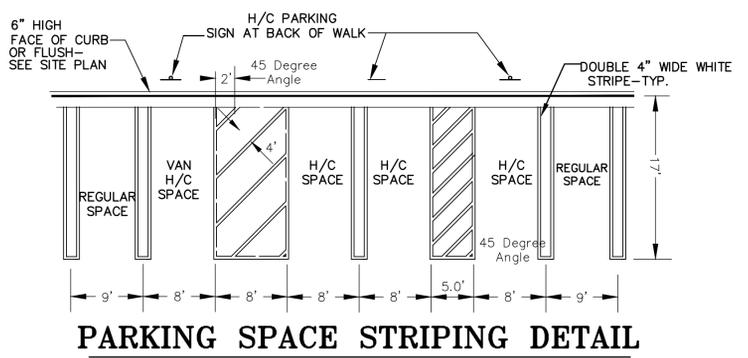
**LOT 7**  
 Plat 24703  
 (L.48472, F.424)  
 Medimmune Inc.  
 Ex. Zone = MXD  
 Ex. Use = Vacant

**Joint Hearing - MCC & PC**  
**SDP-6905-2015**  
**35b**



**CONCEPT RETAINING WALL SECTION**

Detailed prepared by studio MLA Architects, dated 02-11-2015  
 Not for Construction. Wall for Concept Only



**PARKING SPACE STRIPING DETAIL**

**NOTES:**

1. ALL PERIMETERS, PAVING EDGES AND ISLANDS SHALL BE CURBED.
2. CURBS, GUTTERS, SIDEWALKS AND PAVING SHALL BE INSTALLED IN SUCH A MANNER AS TO PROVIDE POSITIVE DRAINAGE OF ALL AREAS SO THERE IS NO ACCUMULATION OF SURFACE WATER.
3. ALL PAVING, STORM DRAINAGE, UTILITIES AND IMPROVEMENTS ON THIS LOT ARE PRIVATE AND MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER.
4. ALL PAVING EXISTING AND PROPOSED MUST BE A MINIMUM OF 6"-THICK BITUMINOUS CONCRETE.
5. ALL CURB RADII 5' UNLESS OTHERWISE NOTED.

CITY OF GAITHERSBURG MAYOR & COUNCIL  
 31 SOUTH SUMMIT AVENUE, GAITHERSBURG, MARYLAND 20877  
**SCHEMATIC DEVELOPMENT PLAN APPROVAL**  
 AT THE REGULARLY SCHEDULED MEETING OF THE MAYOR AND CITY COUNCIL HELD ON  
 APPLICATION NO. SDP-6905-2015 WAS GRANTED  
 SCHEMATIC DEVELOPMENT PLAN APPROVAL  
 BY RESOLUTION \_\_\_\_\_ WITH \_\_\_\_\_ ( ) CONDITIONS.  
 DATE \_\_\_\_\_ BY \_\_\_\_\_  
**NOTE:** ANY REVISIONS TO SIGNED PLANS MUST BE REAPPROVED BY THE MAYOR & CITY COUNCIL

**SCHEMATIC DEVELOPMENT PLAN**  
**MEDIMMUNE CHILDCARE CENTER**  
**QUINCE ORCHARD PARK - THE MEADOWS**  
 Lot 7 (Plat 24703)

CITY OF GAITHERSBURG - 9TH ELECTION DISTRICT - MONTGOMERY COUNTY - MARYLAND

<b>Macris, Hendricks &amp; Glascock, P.A.</b> Engineers ■ Planners Landscape Architects ■ Surveyors	9220 Wightman Road, Suite 120 Montgomery Village, Maryland 20886-1279	Phone 301.670.0840 Fax 301.948.0693 www.mhgap.com	Proj. Mgr. BJD	Designer RJB
	Date 12-16-14	Scale 1"=30'	Project No. 89.157.84	Sheet 2 of 2

NO.	DATE	DESCRIPTION	BY
4	03-25-15	Submit SDP to City	
3	03-17-15	Progress Set	
2	02-11-15	Submit SDP to City	
1	01-14-15	Pre-Application Review-City	

Professional Certification  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the Laws of the State of Maryland License No. 14979, Expiration Date: 07/20/2014