

1841 Windermere Rd. • Requesting Special Exception



Public Hearing D.10 Exhibit 1 - Scott Baker

gather and grow

We are a green preschool. We foster a love of learning through our play based, developmentally appropriate and experiential approach. We develop the whole child offering a nurturing, healthy, safe and supportive environment, that is both engaging and challenging. In our organic garden children will learn the importance of environmental awareness and sustainability and can draw upon our natural surroundings to bring mindfulness and kindness to the classroom and surrounding community.

Farmhouse - Rural Country Estate Design



Site Plan Details

- 22.6 Acre Parcel
- Preschool is only building on <u>3 Acres</u>
- 1 acre on either side not included in special exception, will stay RCE
- 100% Wetlands Preserve (16+ Acres) to stay protected
- Portico for Drop-off/Pick up
- 74 parking spaces
- Setback is 150 feet from the street.
- In 2015, the site was given a special exception to build a 21,000 sqft 300 capacity church with 75 parking spaces on 22 Acre parcel.









Aerial View with Site Plan, Wetlands and Willows Subdivision



Area Schools Proximity to Nearby Homes – Less than 120 Feet



La Petite Academy 24'



Star Child Academy 118'



My Kids Academy 106'

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Proximity to Elementary Schools

- Preschool will serve as a feeder to the local public and private elementary schools
- Windermere Elementary is 1.8 miles from the preschool site
- Lake Whitney Elementary is 0.6 of a mile from the preschool site and located on Windermere Rd.



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Lake Whitney Elementary 544 students

Wondermere Garden Preschool 200 students

Windermere Elementary 754 students







Special Exception Criteria Met

On February 7, 2019 the BZA Voted YES 6-1 that Wondermere Garden Preschool meets all criteria

Section 38-78, Orange County Code stipulates specific criteria to be met for all Special Exception requests. No application for a Special Exception can be approved unless the BZA finds that the following criteria are met:

1. The use shall be consistent with the Comprehensive Policy Plan.

• The Future Land Use of the parcels are Rural Settlement along Windermere Rd, and Rural in the rear portion. Approval of the special exception will render the use consistent with the Comprehensive Plan.

2. The use shall be similar and compatible with the surrounding area and shall be consistent with the pattern of surrounding development.

• The proposed use as preschool is a neighborhood commercial use and shall serve the residents in the area. There is an elementary school located less than 1/2 mile to the north along Windermere Rd, and another one located less than 1 mile to the southwest.

3. The use shall not act as a detrimental intrusion into a surrounding area.

• The proposed site plan will preserve 1 acre on each side of the development for future residential development, which will provide a transition from the existing residential development. Also, the operating hours of the preschool are proposed to be Monday through Friday, 8:00AM - 6:00 PM. In addition, the playground will be situated in the rear of the building facing the wetland area, which will buffer it from the existing homes nearby.

4. The use shall meet the performance standards of the district in which the use is permitted.

The proposed site plan is meeting setback, open space, parking and height requirements as required per code.

5. The use shall be similar in noise, vibration, dust, odor, glare, heat producing and other characteristics that are associated with the majority of uses currently permitted in the zoning district.

• The proposed use will include a majority of indoor uses and activities which shall not produce any uncharacteristic dust, glare, odor, noise or heat in the immediate area. The outdoor uses will be limited to the playground behind the structure and there will be a condition of approval limiting any outdoor special events in other areas.

6. Landscape buffer yards shall be in accordance with section 24-5 of the Orange County Code. Buffer yard types shall track the district in which the use is permitted.

• The landscape plan provided overall meets the requirements of Chapter 24-5. The applicant will need to add building perimeter landscaping and shrubs along the north and south property lines (per condition of approval).



Special Exception Criteria

- Statement from BZA Board Representative Wesley A. Hodge, District 5
- "Is this use allowed as a zoning exception for this piece of property? Yes it is. You have 2 people that are respected in the community, Mr. Irwin and Mr. Coudriet, both who know the area and respect the area and I think have made extremely diligent efforts to make something that fits into the profile of what Windermere has and the reputation of Windermere....You see an extreme willingness to protect the Wetlands. In fact, there isn't even going to be an encroachment on the Wetlands. So when we're looking at an applicant that went above and beyond to accommodate you know what is expected from a property owner to meet the criteria I think we have that in this case and I applaud you all for this."

West Windermere Rural Settlement

- Population nearly 9,000*
- Largest Rural Settlement
 Acreage 5,835*
- No private preschool serves this rural settlement. Driving outside of the rural settlement to find goods and services creates significant leakage and is an inconvenience and burden on families.

Source : Orlando Sentinel 2013, 2012 BCC Orange County presentation



FLU Policy Allows Neighborhood Commercial Use

FLU6.2.9	Neighborhood commercial and office uses shall be allowed in Rural Settlements in areas designated for such on the Future Land Use Map. Only those commercial and office uses that will support existing residential uses, i.e., neighborhood commercial, shall be permitted in Rural Settlements. The scale and intensity of commercial and office uses must be <u>compatible with the development pattern of the existing Rural Settlement.</u> Corner stores, professional services that utilize existing structures, small scale personal services permitted within agricultural zoning are the type of non-residential uses consistent with Rural Settlements. Limited C-1 zoning uses and FARs up to 0.15 shall be considered suitable for Rural Settlements that have maintained their historic character. (Added 12/00,							
FLU6.2.10	Neighborhood commercial uses in Rural Settlements shall be developed according to the following criteria:							
	A. These uses shall be located to serve the residents of the rural area and not primarily to attract "pass-by" trips; and,							
	B. These uses shall contain retail and personal services intended to serve the immediate population. (Added 12/00, Ord, 00-25, Policy 2.1.14)							

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Serving the Immediate Population

- The proposed use is exactly the type of locally-oriented, low impact non-residential use contemplated for rural settlements.
- This neighborhood commercial private preschool will serve the immediate population of West Windermere RS
- Parents of young children prefer to keep their children close to home during the day not only to minimize travel times but also to participate in their local community in a meaningful way.
- Other Examples: Tangerine Schoolhouse is a commercial for profit private preschool serving the residents of the Tangerine RS and Premier Academy is a commercial for profit private preschool serving the residents of Gotha RS. These preschools are assets to the rural settlements in which they reside.





Sound Mitigation

- Building Design Courtyard Plan
- Classrooms rotate on playground, not all children are on playground at one time
- Landscaping and Fencing system
- Building entrance is approx 150 ft setback
 from the road
- 16+ wetlands acreage protection between preschool and closest neighborhood behind property
- Professional noise study confirms no issue





RML Acoustics – Noise Study

Engaged professional consultant RML Acoustics to study noise impacts.

CONCLUSIONS AND RECOMMENDATIONS

- Average sound levels from children playing on the proposed playground will be 30 dB or more **below** the Windermere Noise Control Ordinance's sound level limit of 60 dBA.
- 2. It is very unlikely that even the loudest sounds made by children playing on a playground at the proposed W ondermere Garden Preschool will be heard during the quietest time of the day at the residences in The Willows, as calculated sound levels in the critical frequencies at which the children generate their loudest sounds were approximately 10 dB below the quietest ambient sound levels at The Willows residences. Regardless, the possibility of very faint sounds of children playing in the distance occasionally being heard would not be out of character with the typical sounds heard in a residential community.
- 3. During the time ambient sound levels were measured at the residences in The Willows, sounds from highway traffic, lawn maintenance, UPS and Fed Ex trucks, pressure washing, sprinklers, planes passing overhead, birds chirping and wind in the trees were all a minimum of 10 dB greater (i.e., twice as loud), with some sources as much as 35 dB greater (i.e., five to seven 7 times louder) than any sounds from children playing on the proposed preschool playground would be at The Willows residences.





Noise Study Conclusions and Recommendations Continued

- 4. The results of the study are based on a very conservative approach to determining the audibility of sound from the children. There is a solid, 8 foot high fence that will be constructed around the playground that was not included in the analysis and the study looked at the loudest sounds from children occurring instantaneously and compared that sound to the very quietest sound level occurring at the residences, assuming those events happen simultaneously.
- 5. It is our understanding that there may be occasional (three or four times a year) preschool functions that would result in a larger number of students gathering outside at one time, along with their parents. Even with the full 200 students outside, the combined sound level would only increase by 7 to 10 dB compared to 40 students being present, which will still be more than 20 dB below the Windermere Noise Control Ordinance sound level limit of 60 dBA.

UNAMPLIFIED HUMAN VOICES ARE ALSO EXEMPT FROM THE NOISE ORDINANCE





Traffic Study

- 15,000 SF / 200-Student Preschool
- Full access on Windermere Road (2 lane roadway)
- School will generate approx. 500 new trips per day
- School traffic mostly distributed as follows:
 - Early drop-off 8am
 - Regular drop-off from 9am
 - Half-day pick up at 12:00 pm
 - Full day pick up from 2:30 pm to 6:00 pm
- Note: In 2015, the site was given a special exception to build a 21,000 SF with 300-seat church with 75 parking spaces

Traffic Study

- Extensive traffic analysis conducted
 on Windermere Road
- Collected current peak traffic data during morning, mid-day, & afternoon
- All intersections operate <u>adequately</u>
- Windermere Road operates at <u>35%</u> of its peak capacity
- Localized congestion at Lake Whitney Elementary driveway for 20-minute pick-up period





Site Circulation

- 74 parking spaces on-site
- On-site queue capacity of 33 vehicles
- Staggered arrivals and pick-ups reduce one time rush
- Approx. 30% of students have siblings at the school
- A peak of 75-80 cars <u>per hour</u> during drop-off & pick up
- No projected back up of traffic onto Windermere Rd



Wondermere Parking / Queuing Capacity

First Baptist	130 children	40 parking spaces	
Wondermere	200 children	74 parking spaces	33 vehicle queue capacity
Primrose Ocoee	240 children	42 parking spaces	
Ladybird Academy	250 children	33 parking spaces	15 vehicle queue capacity
Windermere Union	250 children	38 parking spaces	
Cranium Academy	350 children	28 parking spaces	
Star Child Academy	370 children	55 parking spaces	



Thank you for your consideration.





Additional Slides



Property Values

- As BZA board representative for District 1, Carolyn Cappleman Karraker stated during the BZA hearing <u>"Private schools do bring good things to neighborhoods.</u> <u>Look at Windermere Prep, the amount of houses that have been built around that</u> <u>since it was built. The homes that were built around it have certainly not lost value."</u>
- National Association of Realtors survey found that a home's proximity to a school plays big part in buying decision.
- Survey says buyers pay between 6-10% MORE for a home near a school
- 1 out of 10 people stated they would pay up to 20% MORE for a home in a good school area.
- Another survey showed 91% respondents included school boundaries in decision making process for choosing a home.



MEMORANDUM April 2, 2019

Re: Wondermere Academy Traffic Assessment Orange County, Florida Project № 19017

This traffic assessment was conducted to determine the traffic operations conditions in the vicinity of the proposed Wondermere Academy. The project site is located on Windermere Road north of McKinnon Road, as illustrated in **Figure 1**.



Figure 1 – Site Location

Wondermere Academy Traffic Assessment Project № 19017 April 2, 2019 Page 2 of 5

The proposed development is a 15,000 square foot preschool with an enrollment of 200 students. The site is proposed to be served by one full access point on Windermere Road. **Figure 2** illustrates the preliminary site plan.



Figure 2 – Preliminary Site Plan

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A trip generation analysis was prepared using information form the Institute of Transportation Engineers (ITE) *Trip Generation Report, 10th Edition.* Table 1 summarizes the results of the analysis for the 15,000 square foot preschool.

Analysis Period	Generation Rate	Total Trips	Directio Enter	nal Trips Exit
Daily	47.62 Trips/KSF	714	357	357
AM Peak	11.00 Trips/KSF	165	87	78
Mid Peak	11.82 Trips/KSF	177	83	94
PM Peak	11.12 Trips/KSF	167	78	89

Table 1 Trip Generation Analysis

Trip Generation analysis based on ITE Trip Generation Manual, 10th Edition

It should be noted that, given the nature of the proposed development, it is likely that some of these trips will be chained with trips to the nearby Lake Whitney Elementary School and/or work trips already existing on the roadway network. Based on information from Orange County's *Transportation Impact Fee Study* more than 25% of the trips will be existing trips on the network.

Therefore, the development is anticipated to generate approximately 520 new trips per day to the roadway network. These trips will be mainly drawn from area neighborhoods and businesses resulting in an estimated trip distribution of:

- To/From North 60%
- To/From South 40%

This distribution was used to allocate trips at the driveway and on the roadway network.

Wondermere Academy Traffic Assessment Project № 19017 April 2, 2019 Page 4 of 5

In order to assess traffic conditions in the area, traffic volume counts were collected at four existing intersections on Windermere Road. The data collection was conducted for a period of 8 hours at each of the locations listed below:

- 1. Windermere Road and Roberson Road
- 2. Windermere Road and Lake Whitney ES
- 3. Windermere Road and McKinnon Road
- 4. Windermere Road and Maguire Road

The data collection was performed using video traffic data recorders in order to observe operations and obtain vehicle turning movements at each location. The resulting traffic volumes counts are attached herewith.

In addition to the intersections above, traffic volumes were projected at the proposed Wondermere Academy driveway on Windermere Road. Using these volumes, intersection operations were evaluated using the methods of the *Highway Capacity Manual*, 6th Edition (HCM) and the Synchro analytical software. The AM, Mid-day, and PM peak hour traffic volumes and resulting Level of Service (LOS) at each intersection, are presented in **Figure 3**.

The analysis indicates that the intersections are all operating within an adequate LOS during the peak hours. It is noted that the four-way stop controlled intersection at Maguire Boulevard approaches capacity during the PM peak hour.

Wondermere Academy

Traffic Assessment Project № 19017 April 2, 2019 Page 5 of 5



Figure 3 – Traffic Evaluation

ATTACHMENTS

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Vehicle Trip Ends vs: 1000 Sq. Ft. GFA On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 27 1000 Sq. Ft. GFA: 5 Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
47.62	12.12 - 211.06	29.78



Vehicle Trip Ends vs: On a:	1000 Sq. Ft. GFA Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.
Setting/Location:	General Urban/Suburban
Number of Studies: 1000 Sq. Ft. GFA: Directional Distribution:	89 5 53% entering, 47% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.00	1.79 - 57.02	6.08



Vehicle Trip Ends vs: On a:	Students Weekday, PM Peak Hour of Generator
Setting/Location:	General Urban/Suburban
Number of Studies:	75
Avg. Num. of Students:	71
Directional Distribution:	47% entering, 53% exiting

Vehicle Trip Generation per Student

Average Rate	Range of Rates	Standard Deviation
0.81	0.29 - 1.72	0.30



1000 Sq. Ft. GFA
Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
General Urban/Suburban
90
5
47% entering, 53% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.12	1.56 - 40.85	6.28



Orange County | Transportation Impact Fee Update

					Calcu	lated Trans	Table D-1	act Fee Sched	ule										
	Gasoline Tax \$\$ per gallon to capital: Facility life (years): lobract rate:	Gasoline Tax \$\$ per gallon to capital: \$0.186 Facility life (years): 25			ax al: \$0,186 City Re s): 25 County Re			\$0.013 \$0.030 \$0.143		Uni Cap Effe	Construction Cost: acity per lane mile: Fuel Efficiency:	\$3,744,000 9,506 18.19 365	mpg	marra	Interstate	e/Toll Facility i	Adjustment Factor: Cost per VMC:	28.8% \$393.86	
ITE LUC	Land Use	Unit	Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Trip Length Source	% New Trips	% New Trips Source	Net VMT ⁽¹⁾	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Net Impact Fee	Curernt Adopted IF Rate	% Change			
210	Single Family (Detached)	du	7.81	Florida Studies	7.94	8.44	FL Studies	100%	N/A	22.08	\$8.695	\$123	\$1,734	\$6.961	\$2,869	143%			
220	Multi-Family (Apartment)	du	6.60	Blend ITE 8th & FL Studies	6.12	6.62	FL Studies (LUC 220/230)	100%	N/A	14.38	\$5,663	\$82	\$1,156	\$4,507	\$2,011	124%			
230	Residential Condominium/Townhouse	du	5.76	Blend ITE 8th & FL Studies	6.12	6.62	FL Studies (LUC 220/230)	100%	N/A	12.55	\$4,943	\$71	\$1,001	\$3,942	n/a	n/a			
232	High-Rise Residential Condo/Townhouse	du	4,18	ITE 8th Edition	6.12	6.62	Same as LUC 220	100%	N/A	9.11	\$3,587	\$52	\$733	\$2,854	n/a	n/a			
240	Mobile Home Park	du	4.17	Florida Studies	5.52	6.02	FL Studies	100%	N/A	8,19	\$3,227	\$47	\$662	\$2,565	\$1,497	71%			
251	Retirement Community/Age-Restricted	du	3.13	FL Studies	6.50	7.00	FL Studies	100%	N/A	7.24	\$2,853	\$41	\$578	\$2,275	\$646	252%			
n/a	Student Housing	du	2.82	Minnesota Study	6.12	6.62	220	100%	N/A	6.14	\$2,420	\$35	\$493	\$1,927	n/a	n/a			
1911-1921-1921				Blend ITE 8th &															
310	Hotel	room	6.36	FL Studies	7.51	8.01	FL Studies	66%	FL Studies	11.22	\$4,420	\$63	\$888	\$3,532	\$2,128	66%			
320	Motel	room	5,63	ITE 8th Edition	5.21	5.71	FL Studies	77%	FL Studies	8.04	\$3,167	\$46	\$648	\$2,519	\$2,128	18%			
n/a	Tourist Hotel	room	5.77	Studies	7.51	8.01	310	66%	Same as LUC 310	10.18	\$4,010	\$57	\$803	\$3,207	\$832	286%			
n/a	Time Share	du	7.01	Study ⁽³⁾	4.76	5.26	Study ⁽³⁾	100%	Study ⁽³⁾	11.88	\$4,679	\$69	\$972	\$3,707	\$1,016	265%			
							Same as LUC			1				T					
430	Golf Course	acre	5.04	ITE 8th Edition	7.94	8,44	210	90%	FL Schedules	12.82	\$5,050	\$71	\$1,001	\$4,049	r/a	n/a			
437	Bowling Alley	1,000 sf	33,33	ITE 8th Edition	6.18	6.68	710	90%	Same as LUC 430	66,00	\$25,993	\$374	\$5,271	\$20,722	n/a	n/a			
443	Movie Theater without Matinee	1,000 sf	78.06	ITE 8th Edition	2.66	3.16	444	88%	Same as LUC 444	65.05	\$25,620	\$405	\$5,708	\$19,912	n/a	n/a			
491	Racquet Club	1,000 sf	14.03	ITE 8th Edition	6.18	6.68	Same as LUC 710	94%	Same as LUC 492	29.02	\$11,428	\$164	\$2,311	\$9,117	\$2,461	271%			
492	Health/Filness Club	1,000 sf	32.93	ITE 8th Edition	6.18	6,68	Same as LUC 710	94%	FL Studies	68.10	\$26,822	\$386	\$5,440	\$21,382	n/a	n/a			
	INSTRUMENTONS				nemetinistense suurisee T														
565	Day Care	1,000 sf	75.07	ITE 8th Edition	2.13	2.63	FL Studies Same as LUC	73%	FL Studies Previous TIF	41.55	\$16,367	\$269	\$3,791	\$12,576	\$5,543	127%			
590	Library	1,000 sf	56.24	ITE 8th Edition	6.95	7.45	210	49%	Stud y ⁽³⁾	68.18	\$26,854	\$383	\$5,398	\$21,456	\$7,377	191%			

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Intersection: Windermere Rd & Lake Whitney Elementary School Parent Entrance

Site ID: 4

Date: March 28, 2019

Source:

Begin Time		South Winder	bound mere R	d	Westbound School Entrance				Northbound Windermere Rd				Eastbound School Entrance				RAW
	LT	Т	RT	RTOR	° ÌÌ (RTOR	LT		RT	RTOR	LT		RT	RTOR	TOTAL
7:00 AM	7	39	0	0	1	0	2	0	0	38	2	0	0	0	0	0	89
7:15 AM	8	39	0	0	3	0	1	0	0	27	2	0	0	0	0	0	80
7:30 AM	19	35	0	0	3	0	7	0	0	36	7	0	0	0	0	0	107
7:45 AM	56	51	0	0	7	0	24	0	0	61	18	0	0	0	0	0	217
8:00 AM	37	36	0	0	11	0	25	0	0	39	12	0	0	0	0	0	160
8:15 AM	56	48	0	0	19	0	51	0	0	32	24	0	0	0	0	0	230
8:30 AM	81	51	0	0	30	0	79	0	0	34	34	0	0	0	0	0	289
8:45 AM	7	35	0	0	4	0	5	0	0	50	0	0	0	0	0	0	101
9:00 AM	5	40	0	0	2	0	2	0	0	37	1	0	0	0	0	0	87
9:15 AM	3	43	0	0	0	0	4	0	0	50	1	0	0	0	0	0	101
9:30 AM	5	41	0	0	2	0	0	0	0	34	2	0	0	0	0	0	84
9:45 AM	1	27	0	0	2	0	2	0	0	36	1	0	0	0	0	0	69
AM PEAK HOUR	210	186	0	0	67	0	179	0	0	166	88	0	0	0	0	0	896
PEAK HOUR FACTOR																	0.78

Begin Time		South Winder	bound mere R	d		West School	bound Entranc	e		North Winder	bound mere Ro			East School	bound Entranc	e	RAW
	Ŭ,ŬT			RTOR	- ,LT	T		RTOR	LT S		RT	RTOR	LT	T	ŔŢ	RTOR	TOTAL
12:00 PM	8	18	0	0	0	0	4	0	0	35	0	0	0	0	0	0	65
12:15 PM	3	34	0	0	3	0	2	0	0	33	1	0	0	0	0	0	76
12:30 PM	3	35	0	0	0	0	4	0	0	39	0	0	0	0	0	0	81
12:45 PM	1	32	0	0	0	0	3	0	0	40	0	0	0	0	0	0	76
MID PEAK HOUR	15	119	0	0	3	0	13	0	0	147	1	0	0	0	0	0	298
PEAK HOUR FACTOR																	0.92

Begin Time		South Winder	bound mere Re	d	- 1-2	West School	bound Entranc	e		North Winder	bound mere Re			East School	bound Entranc	e	RAW
	LT,		RT	RTOR	LT			RTOR	LT:			RTOR	LT		RT	RTOR	COLLER.
2:00 PM	5	35	0	0	1	0	0	0	0	38	2	0	0	0	0	0	81
2:15 PM	17	34	0	0	1	0	5	0	0	33	6	0	0	0	0	0	96
2:30 PM	23	48	0	0	1	0	2	0	0	37	7	0	0	0	0	0	118
2:45 PM	18	41	0	0	6	0	6	0	0	28	16	0	0	0	0	0	115
3:00 PM	39	44	0	0	24	0	69	0	0	27	15	0	0	0	0	0	218
3:15 PM	5	46	0	0	13	0	50	0	0	36	6	0	0	0	0	0	156
3:30 PM	4	40	0	0	2	0	19	0	0	38	0	0	0	0	0	0	103
3:45 PM	1	48	0	0	5	0	12	0	0	43	0	0	0	0	0	0	109
4:00 PM	1	58	0	0	1	0	6	0	0	51	1	0	0	0	0	0	120
4:15 PM	8	45	0	0	3	0	8	0	0	54	2	0	0	0	0	0	120
4:30 PM	8	50	0	0	5	0	16	0	0	54	3	0	0	0	0	0	136
4:45 PM	7	58	0	0	3	0	14	0	0	61	4	0	0	0	0	0	147
5:00 PM	9	68	0	0	7	0	14	0	0	59	7	0	0	0	0	0	164
5:15 PM	8	87	0	0	2	0	8	0	0	63	3	0	0	0	0	0	171
5:30 PM	8	87	0	0	2	0	9	0	0	75	4	0	0	0	0	0	165
5:45 PM	26	84	0	0	0	0	3	0	0	58	8	0	0	0	0	0	179
PM PEAK HOUR	51	306	0	0	11	0	34	0	0	255	22	0	0	0	0	0	679
PEAK HOUR	-																0.78

Intersection: Windermere Rd & Maguire Rd Site ID 4

Date: March 28, 2019

Source:

Begin Time		South Maguir	bound e Rd			West Winder	bound mere R	d State		North Maguir	bound e Rd			East: Winder	ound mere Ro		RAW
	PLT of			RTOR	LT		RT	RTOR	LT		RT	RTOR	LT		RT	RTOR	TOTAL
7:00 AM	0	104	5	0	1	0	1	0	4	79	0	0	9	0	20	0	223
7:15 AM	0	99	6	0	0	0	1	0	5	93	0	0	11	0	39	0	254
7:30 AM	1	104	5	0	0	0	1	0	8	75	1	0	11	0	35	0	241
7:45 AM	1	99	13	0	4	0	1	0	11	84	0	0	18	1	33	0	265
8:00 AM	0	102	10	0	0	0	0	0	12	83	0	0	23	0	41	0	271
8:15 AM	0	111	12	0	1	0	0	0	10	88	0	0	25	0	44	0	291
8:30 AM	0	106	14	0	2	1	2	0	19	105	1	0	31	1	38	0	320
8:45 AM	1	100	10	0	1	1	1	0	18	96	0	0	30	0	40	0	298
9:00 AM	0	96	6	0	0	0	1	0	14	105	0	0	20	0	23	0	265
9:15 AM	1	90	8	0	1	0	1	0	10	91	1	0	18	1	18	0	240
9:30 AM	0	88	5	0	0	1	1	0	12	89	1	0	12	0	20	0	229
9:45 AM	1	95	8	0	1	0	2	0	10	84	0	0	15	0	17	0	233
AM PEAK HOUR	1	419	46	0	4	2	3	0	59	372	1	0	109	1	163	0	1180
PEAK HOUR FACTOR																	0.92

Begin Time		South Maguir	bound e Rd			West	bound mere R	d		North Maguir	bound e Rd			East Winder	bound mere R	d	RAW
	LT		RT	RTOR	UT .		RT	RTOR	LT		RT	RTOR	ĹŤ		RT	RTOR	TOTAL
12:00 PM	2	85	11	0	1	0	0	0	17	98	0	0	6	1	13	0	234
12:15 PM	0	91	10	0	0	0	1	0	17	89	1	0	6	0	13	0	228
12:30 PM	0	84	8	0	1	0	2	0	18	78	0	0	10	0	13	0	214
12:45 PM	0	76	4	0	1	2	1	0	8	59	2	0	з	1	12	0	169
MID PEAK HOUR	2	336	33	0	з	2	4	0	60	324	з	0	25	2	51	0	845
PEAK HOUR FACTOR	-																0.90

Begin Time	1927	South Maguire	bound e Rd			West Winder	bound	d	1373	North Maguir	bound e Rd			East Winder	bound mere Ro		RAW
	LT-			RTOR	LT-		RT	RTOR	LT	ार	RT	RTOR'	LT	T.	RT	RTOR	11.12
2:00 PM	2	96	16	0	0	3	0	0	20	82	0	0	16	1	13	0	249
2:15 PM	1	94	12	0	0	2	1	0	22	85	0	0	14	2	15	0	248
2:30 PM	2	101	15	0	0	1	1	0	19	88	0	0	17	0	18	0	262
2:45 PM	0	82	15	0	0	1	3	0	12	71	0	0	14	0	20	0	218
3:00 PM	0	88	17	0	0	2	1	0	15	80	1	0	15	1	22	0	242
3:15 PM	0	101	22	0	0	1	0	0	26	97	0	0	11	0	23	0	281
3:30 PM	1	94	20	0	1	1	1	0	25	100	0	0	14	2	20	0	279
3:45 PM	1	102	21	0	1	0	1	0	26	98	1	0	16	1	19	0	287
4:00 PM	0	101	17	0	1	1	1	0	21	116	0	0	10	0	17	0	285
4:15 PM	1	108	13	0	1	0	2	0	15	88	0	0	11	0	18	0	257
4:30 PM	2	119	18	0	2	0	2	0	9	99	0	0	6	0	16	0	273
4:45 PM	3	115	15	0	2	0	1	0	17	86	1	0	10	1	22	0	273
5:00 PM	4	117	20	0	2	1	2	0	11	90	0	0	11	0	20	0	278
5:15 PM	1	111	18	0	1	1	1	0	24	104	0	0	9	0	27	0	297
5:30 PM	2	128	10	0	1	1	1	0	21	112	2	0	15	0	22	0	315
5:45 PM	3	116	15	0	0	1	2	0	18	103	0	0	12	2	18	0	290
PM PEAK HOUR	10	472	63	0	4	4	6	0	74	409	2	0	47	2	87	0	1180
PEAK HOUR FACTOR																	0.94

intersection: Windermere Rd & McKinnon Rd

Site ID 4

Date: March 28, 2019

Source:

.

Begin Time		South Winder	bound mere Ro		he	West	bound non Rd	3.64		North Winder	bound mere R	4 19 S	12.47	East McKinn	ound on Rd		RAW
	LT			RTOR	2 LT 2			RTOR	LT		RT	RTOR			RT	RTOR	TOTAL
7:00 AM	0	23	12	0	0	0	0	0	3	5	0	0	20	0	3	0	66
7:15 AM	0	27	20	0	0	0	0	0	5	5	0	0	17	0	11	0	85
7:30 AM	0	26	11	0	0	0	0	0	7	13	0	0	31	0	11	0	99
7:45 AM	0	28	20	0	0	0	0	0	5	18	0	0	51	0	18	0	140
8:00 AM	0	27	30	0	0	0	0	0	10	17	0	0	24	0	16	0	124
8:15 AM	0	35	21	0	0	0	0	0	6	19	0	0	28	0	17	0	126
8:30 AM	0	29	42	0	0	0	0	0	11	16	0	0	27	0	24	0	149
8:45 AM	0	24	14	0	0	0	0	0	7	16	0	0	28	0	14	0	103
9:00 AM	0	22	21	0	0	0	0	0	7	15	0	0	23	0	17	0	105
9:15 AM	0	34	8	0	0	0	0	0	5	28	0	0	17	0	10	0	102
9:30 AM	0	19	12	0	0	0	0	0	6	12	0	0	17	1	10	0	77
9:45 AM	0	26	8	0	0	0	0	0	9	9	0	0	22	0	7	0	81
AM PEAK HOUR	0	119	113	0	0	0	0	0	32	70	0	0	130	0	75	0	539
PEAK HOUR FACTOR																	0.90

Begin Time		Sout! Winder	nbound mere R	d		Wes McKin	tbound non Rd			North Winder	ibound	d		East McKinn	ound ion Rd		RAW
	~LT-		RT	RTOR	LT_		RT	RTOR	LT .		RT	RTOR	LT,		RT	RTOR	
12:00 PM	0	8	8	0	0	0	0	0	9	18	0	0	11	0	7	0	61
12:15 PM	0	15	18	0	0	0	0	0	13	12	0	0	12	0	3	0	73
12:30 PM	0	17	9	0	0	0	0	0	5	16	0	0	19	0	8	0	72
12:45 PM	0	14	19	0	0	0	0	0	4	9	0	0	19	0	2	0	67
MID PEAK HOUR	0	54	54	0	0	0	0	0	31	55	0	0	61	0	18	0	273
PEAK HOUR FACTOR																	0.93

Begin Time		South Winder	bound			West McKinr	bound non Rd		1	North Winder	bound mere Ro			East McKinn	ound on Rd		RAW
	LT		RT	RTOR	LT	The state	RT	RTOR	LT		RT	RTOR	LT			RTOR	TOTAL
2:00 PM	0	15	17	0	0	0	0	0	10	17	0	0	14	0	5	0	78
2:15 PM	0	12	15	0	0	0	0	0	11	15	0	0	13	0	7	0	73
2:30 PM	0	15	25	0	0	0	0	0	8	18	0	0	15	0	10	0	91
2:45 PM	0	21	21	0	0	0	0	0	11	15	0	D	18	0	11	0	97
3:00 PM	0	26	26	0	0	0	0	0	15	18	0	0	15	0	4	0	104
3:15 PM	0	25	32	0	0	0	0	0	11	27	0	0	16	0	6	0	117
3:30 PM	0	29	30	0	0	0	0	0	12	25	0	0	18	0	7	0	121
3:45 PM	0	22	26	0	0	0	0	0	15	24	0	0	20	0	9	0	116
4:00 PM	0	15	22	0	0	0	0	0	9	21	0	0	32	0	7	0	106
4:15 PM	0	26	22	0	0	0	0	0	8	17	0	0	27	0	5	0	105
4:30 PM	0	20	20	0	0	0	0	0	10	19	0	0	29	0	8	0	106
4:45 PM	0	18	29	0	0	0	0	0	8	21	0	0	43	0	8	0	127
5:00 PM	0	21	33	0	0	0	0	0	11	28	0	0	40	0	10	0	143
5:15 PM	0	34	48	0	0	0	0	0	10	36	0	0	33	0	12	0	173
5:30 PM	0	36	51	0	0	0	0	0	8	24	0	0	34	0	13	0	166
5:45 PM	0	30	51	0	0	0	0	0	6	16	0	0	48	0	8	0	159
PM PEAK HOUR	0	121	183	0	0	0	0	0	35	104	0	0	155	0	43	0	641
EAK HOUR FACTOR								-	_								0.93

Intersection: Windermere Rd & Roberson Rd Site ID 4

Date: March 28, 2019

Source:

Begin Time		South Winder	bound mere Re	d		West Robers	bound on Rd			North Winder	bound mere Ri			East Robers	ound on Rd		RAW
	LT.	T.	RT	RTOR	LT	т	RT	RTOR	(Sut -)		RT	RTOR	LT	$\{\mathbf{J}_{\mathbf{t}}\}$	RT	RTOR	TOTAL
7:00 AM	8	17	21	0	8	41	29	0	10	46	8	0	26	58	24	0	296
7:15 AM	10	21	25	0	11	44	25	0	10	51	9	0	29	66	26	0	327
7:30 AM	15	25	27	0	10	48	27	0	12	60	10	0	25	54	25	0	338
7:45 AM	18	26	36	0	15	59	25	0	15	55	10	0	36	65	30	0	390
8:00 AM	25	35	42	0	11	73	22	0	15	33	11	0	40	81	31	0	419
8:15 AM	22	40	39	0	18	80	27	0	17	40	12	0	42	95	27	0	459
8:30 AM	24	33	40	0	20	69	29	0	14	41	14	0	39	102	29	0	454
8:45 AM	20	24	33	0	17	78	22	0	12	52	10	0	41	98	31	0	438
9:00 AM	18	20	30	0	10	66	20	0	10	48	9	0	35	100	28	0	394
9:15 AM	11	20	25	0	11	54	24	0	14	42	12	0	30	89	20	0	352
9:30 AM	15	21	19	0	8	50	20	0	12	39	7	0	26	77	24	0	318
9:45 AM	10	17	18	0	9	47	17	0	9	40	9	0	20	63	21	0	280
AM PEAK HOUR	84	117	142	0	65	293	98	0	53	181	45	0	157	395	115	0	1745
PEAK HOUR FACTOR																	0.95

Begin Time		South Winder	bound mere Ro			West Robers	bound on Rd			North Winder	ibound mere Ri	d a line	14.0	East Roberse	oound on Rd		RAW
	LT		TRT -	RTOR	LT		RT	RTOR	LT .		RT	RTOR	ĻŤ		RT	RTOR	TOTAL
12:00 PM	4	11	29	0	7	98	8	0	14	15	12	0	15	75	9	0	297
12:15 PM	5	15	33	0	11	90	8	0	11	20	10	0	12	89	10	0	292
12:30 PM	4	10	30	0	9	85	5	0	15	17	9	0	17	70	12	0	283
12:45 PM	12	18	38	0	8	87	16	0	12	20	8	0	12	63	10	0	302
MID PEAK HOUR	25	52	130	0	33	360	37	0	52	72	39	٥	56	277	41	0	1174
PEAK HOUR FACTOR																	0.99

Begin Time		South Winder	bound mere Ro	i 1		West Robers	bound on Rd			North Winder	bound mere Re	1		East Roberse	ound		RAW
	TUT'S		RT	RTOR	่นา		RT	RTOR	LT.		RT	RTOR	្ញុំដំរូន		RT	RTOR	TOTAL
2:00 PM	10	15	35	0	4	96	4	0	10	18	9	0	10	84	4	0	299
2:15 PM	13	21	43	0	6	88	6	0	10	21	16	0	15	80	7	0	326
2:30 PM	12	24	39	0	8	100	9	0	11	19	16	0	17	77	10	0	342
2:45 PM	15	31	41	0	11	96	12	0	12	22	18	0	15	63	11	0	347
3:00 PM	10	40	44	0	9	87	12	0	45	44	21	0	14	80	15	0	421
3:15 PM	18	28	27	0	11	95	15	0	23	39	11	0	16	69	18	0	370
3:30 PM	18	33	50	0	15	103	9	0	20	36	14	0	18	74	11	0	401
3:45 PM	20	44	44	0	11	110	10	0	24	30	10	0	15	90	12	0	420
4:00 PM	22	62	42	0	10	121	14	0	22	28	20	0	20	111	14	0	486
4:15 PM	30	57	36	0	12	116	17	0	14	29	18	0	17	99	18	0	461
4:30 PM	26	59	45	0	10	129	24	0	22	33	15	0	25	89	20	0	497
4:45 PM	30	54	47	0	13	115	20	0	16	30	12	0	20	101	14	0	472
5:00 PM	41	63	40	0	10	130	23	0	20	28	15	0	18	87	17	0	492
5:15 PM	39	57	38	0	9	118	20	0	14	30	11	0	18	74	10	0	438
5:30 PM	40	66	40	0	8	120	18	0	15	24	10	0	13	80	12	0	446
5:45 PM	35	54	35	0	10	101	12	0	12	26	11	0	10	78	10	0	392
PM PEAK HOUR	127	233	168	0	45	490	84	0	72	120	58	0	80	376	69	0	1922
EAK HOUR FACTOR																	0.97

HCM 6th Roundabout 11: Windermere Rd & Roberson Rd

.

Intersection				-	-	-			
Intersection Delay, s/veh	16.4								
Intersection LOS	C								
Accordence.	di		2. 4	AN	631. 1.		and the second		A B St
Entry Lanes		1		1		1		1	
Conflicting Circle Lanes		1		1		1		1	
Adj Approach Flow, veh/h		785		536		328		404	
Demand Flow Rate, veh/h		801		547		334		412	
Vehicles Circulating, veh/h	2 to a state the	320	the state of the s	469	A Contraction	764	1010	493	1.1.24
Vehicles Exiting, veh/h	a a sugar survey	585		629		357		523	
Ped Vol Grossing Leg, Wh		0		0	and a straight of	A 10	min and a second s	0	
Ped Cap Adj	يې يې د ۵۰ د وه هم	1.000	an of the second s	1.000		1.000		1.000	
Approach Delay, siveh	in Auron	20.9	The states of the second secon	14.8	here the second	14.7		8 8 Mit	
Approach LOS	e an the second design of the	С	name (1999) - real a strandere	В		В		В	
Lane	Left	- 11-11-1	Left		Lef	t	1	.eft	1000
Designated Moves	LTR		LTR	97 (St. Space	LTF	2	Ľ	TR	
RT Channelized			and de la serie de la serie La serie de la s		en de la composition de la composition Composition de la composition de la comp				
Lane Ulli	1.000	and the straight of the second s	1.000		1.000)	1.0	00	######################################
Follow-Up Headway, s	2.609		2.609		2.609	9	2.6	609	
Critical Headway, s	4.976	The second s	4.976		4.97(4.	76	
Entry Flow, veh/h	801		547		334	1	4	12	Service States
Entry HV Adj Factor	0.980		0.980		0.981	1	0.9	81	
Flow Entry, veh/h	785		536		328	3	4	04	unico, nanatario dan cindrando
Cap Entry, veh/h	975		838	a ng ng magang ng ma	621	1	8	19	
Control Delay, s/veh	20.9	and the second street	14.8		14.7	7	1	1.1	
LOS	С		В		E	3	anna ann an tar ann an e ir seine bhaile an tar ann an tar	B	ISAN NORTHIN AND IN THE REAL PROPERTY OF
95th %tile Queue, veh	9		5		3	3		3	

HCM 6th Roundabout 11: Windermere Rd & Roberson Rd

Intersection				
Intersection Delay, s/veh	9.2			
Intersection LOS	A			
Apprendit	7 B		1	
Entry Lanes	all	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	440	477	296	388
Demand Flow Rate, veh/h	449	486	302	396
Vehicles Circulating, veh/h	286	289	466	494
Vehicles Exiting, veh/h	602	479	271	281
Ped Vol Crossing Leg, #/h	1	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.5	9.1	8.3	10.7
Approach LOS	A	А	А	В
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
RT Channelized	dentaria de la composición de la compos			
Lane UMI	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	449	486	302	396
Cap Entry Lane, veh/h	1029	1028	858	834
Entry HV Adj Factor	0.981	0.982	0.980	0.980
Flow Entry, veh/h	440	477	296	388
Cap Entry, veh/h	1009	1009	841	817
V/C Ratio	0.436	0.473	0.352	0.475
Control Delay, s/veh	8.5	9.1	8.3	10.7
95th %tile Queue, veh	2	3	2	3

HCM 6th Roundabout 11: Windermere Rd & Roberson Rd

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Intersection							
Intersection Delay, s/veh	27.1						
Intersection LOS	D						
Approach		EB	WB		NB		SB
Entry Lanes		1	1		1		1
Conflicting Circle Lanes		1	1		1		1
Adj Approach Flow, veh/h		617	728		294	6	21
Demand Flow Rate, veh/h		630	743		300	6	33
Vehicles Circulating, veh/h	19	485	327	a chair no phone	699	. 7	29
Vehicles Exiting, veh/h		877	672		416	3	41
Ped Val Crossing Leg. #/h	The state of the	The bare there were an	.0	en en ser en se de-	0		0
Ped Cap Adj	an a chun n	1.000	1.000		1.000	1.0	00
Approach Delay, s/veh	a an inden	19.9	17.8	an alter and a g	11.9	52	2.4
Approach LOS		С	С		В		F
lane	Left	-	Left	Left		Left	
Designated Moves	LTR		LTR	LTR		LTR	
RT Channelized	<u>, ANGLE A. M</u>	he standarda		internet in the second			
Lane Ull	1.000	and the group day and the g	1.000	1.000	2.M	1.000	
Follow-Up Headway, s	2.609	· · · · · · · · ·	2.609	2.609		2.609	
Critical Headway, s	4.976	after and the second second	4.976	4.976		4.976	
Entry Flow, veh/h	630		743	300		633	
Entry HV Adj Factor	0.980		0.980	0.981		0.980	
Flow Entry, veh/h	617		728	294		621	
Cap Entry, veh/h	824		969	663		643	
//C Ratio	0.749		0.752	0.444		0.965	
Control Delay, s/veh	19.9		17.8	11.9		52.4	
OS	C		C	В		F	
95th %tile Queue, veh	7		7	2		14	

HCM 6th TWSC 9: Windermere Rd & Lk Whitney

Intersection		-		-			199	-		-		_		
Int Delay, s/veh	6.4			-										-
Movement.	WEL	WBR	NET	NOR	SEL	100	J. D. P.	El.	all is	e .].	the second second		2	and a
Lane Configurations	7	1	î.		7	*								
Traffic Vol. veh/h	67	179	166	88	210	186			2					
Future Vol, veh/h	67	179	166	88	210	186								
Conflicting Peds, #/hr	0	0	0	0	0	0		4						
Sign Control	Stop	Stop	Free	Free	Free	Free								
RT Channelized		None	-	None		None		1 ² 1						
Storage Length	0	0			300	-								-
Veh in Median Storag	e,# 0		0	· · · · · · · · · · · · · · · · · · ·	E M	0			1111 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5. 	No.	int for a content	- er	1 122
Grade, %	0	-	0		-	0		< .1 %			1. 1. ²	and the second		
Peak Hour Factor	85	85	85	85	85	85		fa ha	the set of the second	· · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	the same	
Heavy Vehicles, %	2	2	2	2	2	2	ne striger	wis Parr .	and the second second	- Mig . 1	1. 1. 1. p. 1	. (4. j 1	1.21 - 14.	· .
Mvmt Flow	79	211	195	104	247	219								
Major/Minor	Minor1	1	Major1		Major2				-				-	-
Conflicting Flow All	960	247	0	0	299	0								
Stage 1	247	-	-	1	¢.	+								
Stage 2	713	-	-	-	-	-								
Critical Hdwy	6.42	6.22	₩.	*	4.12	费								
Critical Hdwy Stg 1	5.42	-	-	-	-	-								
Critical Hdwy Stg 2	5.42	Ť		-	-	in.								
Follow-up Hdwy	3.518	3.318	-	-	2.218	-								
Pot Cap-1 Maneuver	285	792	ing.	14.	1262									
Stage 1	794	-	-	-	-	-								
Stage 2	486	*	-	ĬŔ	18									
Platoon blocked, %			-	-		-								
Mov Cap-1 Maneuver	229	792	**	×.	1262	×								
Mov Cap-2 Maneuver	229	-	-	-	-	-								
Stage 1	794			-	¥	*							2.2	
Stage 2	391	-	-	-	-									all the design of the design o
Approach	WB	-	NB		SB	-				-				
HCM Control Delay, s	16		0		4.5		-							
HCM LOS	C													
				-							-			
Minor Lane/Major Mys		HET	MEEN	BLaty	VBLn2	SEL	SBT	the second of	the second	repp or a fear a		iden i Bure an		
Capacity (veh/h)	and the second se	-	.**	229	792	1262	+			and the second designed as the	and side. Lowering	and the second second	and the second science	
HCM Lane V/C Ratio			-	0.344	0.266	0.196	-							
HCM Control Delay (s)	*	-100-	28.8	11.2	8.5	- Sie							
HCM Lane LOS		-	-	D	В	A	-							
HCM 95th %tile O/veh	1		(in	15	11	07				-			-	-

HCM 6th TWSC 9: Windermere Rd & Lk Whitney

Intersection	-		-	_		_								-
Int Delay, s/veh	4.2	-												
Movement	WBL	WBR	NBT	NBR	SBL	SBT						-		
Lane Configurations	5	1	1+	_	η	4	-	-	_		-			
Traffic Vol. veh/h	44	127	128	44	85	179							-	-
Future Vol. veh/h	44	127	128	44	85	179			_					
Conflicting Peds. #/hr	0	0	0	0	0	0								
Sian Control	Stop	Stop	Free	Free	Free	Free				_				
RT Channelized	-	None	344.	None	-	None								
Storage Length	0	0	-	-	300	-								
Veh in Median Storage	e.# 0	Y	0	(inc	-	0			-					
Grade, %	0	-	0	-	-	0								
Peak Hour Factor	85	85	85	85	85	85				-				
Heavy Vehicles, %	2	2	2	2	2	2								
Mymt Flow	52	149	151	52	100	211								
		-		_		_	-	_	_	_	_	_		
Major/Minor	Minor1		viajor1		Major2	-			-	-	-			~~~
Conflicting Flow All	588	177	0	0	203	0								
Stage 1	177	-	*	jn -		-								
Stage 2	411	-	-	-		-		_						
Critical Hdwy	6.42	6.22			4.12	-							_	
Critical Hdwy Stg 1	5.42	-	-	-	-	-		_						
Critical Hdwy Stg 2	5.42	-	~	4	-	-								
Follow-up Hdwy	3.518	3.318	-		2.218	-								
Pot Cap-1 Maneuver	471	866		-	1369	*								
Stage 1	854	-	**	-	-	-								-
Elen a defi	i dina di la		a de la		dia bi							s Saving		3
Platoon blocked, %	-			-		-						a de la casa		
Mov Cap-1 Maneuver	437	866		**	1369	-		_						
Mov Cap-2 Maneuver	437	-	-	-	-	-			_					
Stage 1	854	-		4	-	-				_				
Stage 2	620		-	-		-				-				-
annach	MIR		MR	-	SR	-	-	_	-			-		
ACM Control Dolou a	14.4		nuL 0		25									
HCM LOS	В		0		2.0								-	
Minor Lane/Major Myr	nt	NBT	NBRV	VBLn1	NBLn2	SBL	SBT	-	-	-		-	-	
Capacity (yeh/h)		- mic	*	437	866	1369	-							
HCM Lane V/C Ratio		-		0.118	0.173	0.073								
HCM Control Delay (s	0			14.3	10	7.8	-							
HCM Lane LOS	1			B	B	A	-							
HCM 95th %tile O(vet	1)	and.		0.4	0.6	0.2	1							

HCM 6th TWSC 9: Windermere Rd & Lk Whitney

Intersection	-	-		-	-	-	-			-	-		-		-	-
Int Delay, s/veh	1.4	-													-	
Movement ?	Wal	WBR	NET	NBR	SBL	SBT	5.26	- free	27		- Jul	2	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4. 100 - 20		
Lane Configurations	7	*	1.		h	*										
Traffic Vol. veh/h	11	34	255	22	51	306	· • • ·						3			
Future Vol, veh/h	11	34	255	22	51	306					-					
Conflicting Peds, #/hr	0	0	0	0	0	0										
Sign Control	Stop	Stop	Free	Free	Free	Free				_						
RT Channelized	-	None		None		None				an an			e.			
Storage Length	0	0	-	-	300	-										
Veh in Median Storage	e,# 0		0			0	• • •		177	2.4	A			· ·	· ·	
Grade, %	0	-	0	-	-	0										
Peak Hour Factor	85	85	85	85	85	85		· · · /·				1				
Heavy Vehicles, %	2	2	2	2	2	2		y '	*						1 <u>.</u>	
Mvmt Flow	13	40	300	26	60	360	· ·									
Real and Stream	Manut	-	Antonia	-	Mail of	_	_	_	_	_	_	_			_	_
ivajor/iminor	MINOCI	0.10	viajori	-	Major2		-	-								-
Conflicting Flow All	793	313	0	0	326	0			_					_		
Stage 1	313	-		-		~							_			
Stage 2	480	-	-	-	-	-									_	
Critical Hdwy	6.42	6.22		-	4.12			2								
Critical Hdwy Stg 1	5.42	-		-		-				_						
Critical Hdwy Stg 2	5.42	+	<i>j</i> #,	×	*	-										
Follow-up Hdwy	3.518	3.318	-	-	2.218	-	_							_		_
Pot Cap-1 Maneuver	358	727	-		1234	¥										2
Stage 1	741	-	-	-		-	-			_						
Stage 2	622	-	10	*	•	-										
Platoon blocked, %			-	-		-									_	
Mov Cap-1 Maneuver	340	727	-	(4)	1234	-										
Mov Cap-2 Maneuver	340	-	-	-	-	-										
Stage 1	741	34-	+	15	-	*										
Stage 2	592	-	-	-		•				-	_	-			_	
Annroach	WP	-	NR		SB	-		-		-	_	-			-	
HCM Control Dolou	11.0		0		10								-			
HCM LOS	B		U		1.2				-	_						-
Minor Lane/Maior Mym	nt	NBT	NBRV	VBLot	WBLn2	SBL	SBT		-	-						
Capacity (yeh/h)		-	-	340	727	1234	+		-	-						~
HCM Lane V/C Ratio	-			0.038	0.055	0.049										
HCM Control Delay (s)	1		-	16	10.2	8.1	·						-			
HCM Lane LOS			-	C	В	A	-									
HCM 95th %tile Q(veh))	+	-	0.1	0.2	0.2	12							-		

HCM 6th TWSC 14: Windermere Rd & Wondermere

Intersection	-		-	-	-	-	-		-	-	-	-	-	-
Int Delay, s/veh	2.3				-									
Mineser		MEE		12-										
Lane Configurations	ħ	#	1.			4								
Traffic Vol. veh/h	3.631	47	200	35	52	232	di di s						1. see	
Future Vol. veh/h	31	47	200	35	52	232							-	
Conflicting Peds. #/br	0	0	Ð	0	0	0	*	3.20						
Sian Control	Stop	Stop	Free	Free	Free	Free	£ * >		and the se	1	. 7.			_
RT Channelized		None	· · · · · · · ·	None	h. Tanna na .	None	he h		12 N Sec.		·	2 15 16		1
Storage Length	0	0	· · · ·	-	-	-								
Veh in Median Storage	e,# 0		0	+	-	0	1							
Grade, %	0	-	0		-	0	_			_				-
Peak Hour Factor	85	85	85	85	85	85	100000							
Heavy Vehicles, %	2	2	2	2	2	2								
Mvmt Flow	36	55	235	41	61	273								
Major/Minor	Minor1	1	Major1	1	Major2	2	-							
Conflicting Flow All	651	256	0	0	276	0								
Stage 1	256			-	-	-								
Stage 2	395	-	-	-	-	-								
Critical Hdwy	6.42	6.22		*	4.12									
Critical Hdwy Stg 1	5.42	-	-	-	-	-								
Follow-up Hdwy	3.518	3.318	*	-	2.218	-								
Pot Cap-1 Maneuver	433	783	J.		1287	~							_	
Stage 1	787	-	-	**	-	-								
	Sinananan			11.4.		. G.A. 7			and the state					
Platoon blocked, %	100	700	-	-	1007	-								
Mov Cap-1 Maneuver	409	183	łe		128/									
Mov Cap-2 Maneuver	409	-		-	-	-	_	_	_					-
Stage 1	642	*	×	*		-								
Stage 2	043	-	-		-					-				_
Annmach	MIR	-	NR	-	CP.	-			-	-	-	-	-	-
HCM Control Dalay	11.0		0	-	15									_
HCM LOS	B		0		1.0									
	-													
Minor Lane/Major Mvn	nt	NBT	NBRV	VBLn1	WBLn2	SBL	SBT							
Capacity (veh/h)	-	*		409	783	1287								
HCM Lane V/C Ratio			-	0.089	0.071	0.048	-					_		
HCM Control Delay (s)		+	=	14.7	9.9	7.9	0							
HCM Lane LOS		-	-	В	Α	A	A					_		
HCM 95th %tile Q(veh)	*	-	0.3	0.2	0.1	-							

HCM 6th TWSC 14: Windermere Rd & Wondermere

Int Delay, s/veh	2.8								- <u>2</u> 2 1 1.			**************************************				
Malement La .	Wat	WER	NET	NBR	· CORE	SBT	. e sture	akin .		1.000.00	. siles			de B		and maked
Lane Configurations	٦	1	1			र्भ										
Traffic Vol, veh/h	38	56	142	33	50	191					25					
Future Vol, veh/h	38	56	142	33	50	191										
Conflicting Peds, #/hr	0	0	0	0	0	0				a .	12					
Sign Control	Stop	Stop	Free	Free	Free	Free										
RT Channelized		None	· · · · · · · · · · · · · · · · · · ·	None	W.	None	a da an				1112					
Storage Length	0	0	-	-	-	-										
Veh in Median Storage	9,# 0		0		*	0			1.1.1							
Grade, %	0	-	0	-	-	0										
Peak Hour Factor	85	85	85	85	85	85				e	ene e la composition de la composition Nacional de la composition de la composit					
Heavy Vehicles, %	2	2	2	2	2	2										
Mymt Flow	45	66	167	39	59	225										
							_		_	-	_	_	_			_
Major/Minor	Minori	-1	Major1	-	Major2	-		-			aler -		and a	1-		
Conflicting Flow All	530	187	0	0	206	0										
Stage 1	187			*	-	-										
Stage 2	343	-	-	-	-	-			_	_		_				_
Critical Hdwy	6.42	6.22	•	-	4.12	-										
Critical Hdwy Stg 1	5.42	-	-	-	-	-										
Follow up Hduay	2 519	2 219			2 218	in an in the second										
Policw-up Huwy	510	855		-	1365	-							a na di antas antas antas	and an address of the data and the	vinadalain van daarscrab.	0101_30_01_01_01_01
Stage 1	845	000	-		1000						-			-		
Stage 1	710	-		-	-			~ ~	_				-			
Diatoon blocked %	115	-								-			-			
Moy Cap 1 Manauluar	485	955	-	2	1365					-				-		
Mov Cap-1 Maneuver	405	000		-	1000							_			-	
Stage 1	845	-	- 		-	-			-						-	-
Stage 2	684		-		-	-						_		~		
olage z	004	-	-		-	-										
Approach	WB	-	NB	-	SB	-						-	-			-
HCM Control Delay, s	11.1		0	-	1.6											
HCM LOS	В	_				_						_	_			
	-					-	-		-				-			-
Minor Lane/Major Mvn	nt	NBT	NBR	WBLn1V	VBLn2	SBL	SBT									
Capacity (veh/h)	-		-	485	855	1365	+									
HCM Lane V/C Ratio		-	-	0.092	0.077	0.043	-			_	_					_
HCM Control Delay (s))	-	-947	13.2	9.6	7.8	0		-							-
HCM Lane LOS		-	-	В	A	A	A			_				_		-
HCM 95th %tile Q(veh)	÷ +	<u> </u>	0.3	0.2	0.1	-									

HCM 6th TWSC 14: Windermere Rd & Wondermere

Intersection	-			-		-			-							-	
Int Delay, s/veh	2.1																
Movement	WEL	WER	HBT	NBR	SEL	SBT	1.4° 7	6.74	1.2	4			7 1 1	the second	ter B and	a hatata	. el meno
Lane Configurations	٦	1	ţ.			f)											
Traffic Vol. veh/h	36	53	259	31	47	304						5	**				
Future Vol. veh/h	36	53	259	31	47	304											
Conflicting Peds, #/hr	0	0	0	0	Ø	0		· · ·			10						-
Sign Control	Stop	Stop	Free	Free	Free	Free	_										
RT Channelized	-	None		None		None			1.10	1 1 1 1 1 1	1.1						
Storage Length	0	0	-	-	-	-				·· 3*						-	
Veh in Median Storage	B.# 0	20042 E.S. 39	0			0		1.1.1		14	·					• •	
Grade. %	0	-	0			0											
Peak Hour Factor	85	85	85	85	85	85			· ·	·	1.1						
Heavy Vehicles, %	2	2	2	2	2	2				·	2 2	1 ⁰ X					
Myint Flow	42	62	305	36	55	358			·	· · · · ·	•••						
Major/Minor	Minor1	1	Major1	1	Major2		-	-	-	-	-	-			-	-	
Conflicting Flow All	791	323	0	0	341	0					-	-					
Stage 1	323	-	14		-	M											0.753
Stage 2	468	-				-	_					_					
Critical Hdwv	6.42	6.22	-		4.12	***				-							
Critical Hdwy Stg 1	5.42	-			-	-			_		-						
Critical Hdwy Stg 2	5.42	-				*								-			
Follow-up Hdwy	3.518	3.318	-		2.218	-	_										
Pot Cap-1 Maneuver	358	718	-		1218						-						
Stage 1	734		-	-	-	-											
Stage 2	630	-			*	~											
Platoon blocked, %				-		-											
Mov Cap-1 Maneuver	338	718		*	1218	-	-										
Mov Cap-2 Maneuver	338	-				-											
Stage 1	734	-	-			+											
Stage 2	595		-	-		-									-		
				-													
Approach	WB	-	NB	-	SB	-		-				-	-	-	-	-	
HCM Control Delay, s	13.2		0		1.1	1			-								
HCM LOS	В						_		_					-			
Minor Lane/Major Mun	nt	NRT	NRP	NBI n1	VBI n2	SBI	SBT				-	-			-		
Canacity (veh/h)		mer	THEFT	338	718	1218						-				-	
HCM Lane V/C Patio				0 125	0.087	0.045			-				-	-			
HCM Control Delay (s)	1	-		17.2	10.5	81	0	-									
HCM Lane LOS			-	C	B	A	A										
HCM 95th %tile O(veh	1	-	-	0.4	03	0.1	itte	-					-			-	

HCM 6th TWSC 7: Windermere Rd & McKinnon Rd

							6.8352		-					Alter	1.1.1.1.	
Int Delay, s/veh	5.5	· . · · . · . ·	19 5 1 1 1 1 1 1 1 1					i e te <u>e</u> tr	re alta in tarr	1997 A. 1978.			<u>. (1967) (1967)</u>	- 19 4 194 	er, 1976.	poline <u>s (</u> 1911) A
Movement	BL	EBR	MEL	NOT	-881	SR	1		- Al-		is the	14 . B.C.			A	and do
Lane Configurations	Y			đ,	1.											
Traific Vol. veh/h	130	75	32	70	119	113			· · · · ·	•	•	`.				-
Future Vol, veh/h	130	75	32	70	119	113										
Conflicting Peds, #/hr	0	0	0	0	0	0				-		···· ·				1998
Sign Control	Stop	Stop	Free	Free	Free	Free										
RT Channelized		None	n yn an in Tagairt an i ang	None		None	* * * <u>*</u>				· · ·		· } ·		· · · ·	
Storage Length	0	-	- , A - 344 -	-	-	-			-							
Veh in Median Storage	e,# 0	· · · · · · · · · · · ·	****	0	0		· · · · · · · ·	10	an an Said		and a second		•	· · · ·		
Grade, %	0	-	ert or =	0	0	-	i de									
Peak Hour Factor	85	85	85	85	85	85			18.			32.00	8			
Heavy Vehicles, %	2	2	2	2	2	2								1	- 2 ,	
Mvmt Flow	153	88	38	82	140	133	1				5 					
				-			_	_			1	_	_	_	_	_
Major/Minor	Minor2	1	Major1	-	Major2	-										
Conflicting Flow All	365	207	273	0	-	0							_			-
Stage 1	207	-	ξ.	~	-											-
Stage 2	158	-			-	-				_		_				
Critical Hdwy	6.42	6.22	4.12	*		-										
Critical Hdwy Stg 1	5.42	-	-	-	-	-							S. 16-2	c.		
Follow-up Hdwy	3.518	3.318	2.218	- 191 -	-	-			Standard St.							
Pot Cap-1 Maneuver	635	833	1290	140		-						Anno Staddordd S	arte La Govel Laboratoria de Ast		in al source in the second	AND COMMINSI AND AND A
Stage 1	828	-		-												
Stage 2	871	-	94	÷.		-	-	-			-					1
Platoon blocked, %					-	-							-			_
Mov Cap-1 Maneuver	615	833	1290	-		-		-				16.2				
Mov Cap-2 Maneuver	615	-	-	-	-	-								_		_
Stage 1	802	-	~	-	- 2								100			
Stage 2	871	-	-	-	-	-		_			_				_	
Annroach	EP	-	NP	-	SP					-	-	-	-	-	-	-
HCM Control Dolou	12.0		2.5	-	00			-								
HCM LOS	13.2 B		2.0		0			_								_
Minor Long & Joins Marine		NDI	NOT	ERIAL	CDT	CPD	-			-	-	-				
Capacity (value)	at	1200	NDI	COULI	001	SON		-					-			
Capacity (ven/n)		0.000		000		-			-							
HCM Control Dolars (a)	-	0.029	0	12.2	-	-			_	-	-			-		
HCM Lang LOS	1	1.9	0	13.Z	*	-										
HOM Date Public Of the	1	A	A	10	-	-		-	-	-		-			-	-
HOW SOM WHE CLASH	1	0.1	, AM	1.0	12 \$100-										-	

HCM 6th TWSC 7: Windermere Rd & McKinnon Rd

2

Int Delay, s/veh	3.5		1.1			8-1
int Delay, siven	0.0				BW-SHARE	
Massurger		. Een	15	- 121		-
Lane Configurations	Y			म	1	
Traffic Vol, veh/h	64	31	45	78	87	104
Future Vol, veh/h	64	31	45	78	87	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	w.	None	+8'	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	e,# 0	÷.	نه	0	0	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mymt Flow	75	36	53	92	102	122
					196.	-
		_	-	-	-	_
Major/Minor	Minor2	-	Major1	-	Major2	
Conflicting Flow All	361	163	224	0	-	0
Stage 1	163	-		-	14	
Stage 2	198	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12		-	-26
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-			-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	638	882	1345	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	835		*		*	
Platoon blocked. %		-				-
Mov Cap-1 Maneuver	611	882	1345	-	·int.	-
Mov Can-2 Maneuver	611	-	1010	-		
Stone 1	830	-2				-
Stage 2	935			-		
Stage z	035			-	-	-
Approach	EB	-	NB	-	SB	-
HCM Control Delay s	11.3	-	2.8		0	-
HCMLOS	B		and a			
					-	
Minor Lang/Maine Mun	nt	NRI	NRT	FBInt	SRT	SBR
Capacity (vah/h)	ut	1245	TALET	670	- CUT	Starte
HCM Long V//C Datio		0.020	*	0.165	*	
HCM Control Dolor (7)		0.039	0	11.2	-	-
HOW CONTOI Delay (S)	/	1.0	U	11.3		*
HOM Lane LUS		A	A	B	-	-
HUW 9510 %tile Olven		0.1	-	0.0		

HCM 6th TWSC 7: Windermere Rd & McKinnon Rd

Intersection	_	-		-	-					-	-		-
Int Delay, s/veh	4.3											-	
May among -	E	EBR	MEL	. NET	TER	SER.			1	in.			and and
Lane Configurations	W			£.	t								
Traffic Vol. veh/h	43	155	35	104	121	183			- 1 - 1 - P				
Future Vol. veh/h	43	155	35	104	121	183		· · · · · · · · · · · · · · · · · · ·		*			
Conflicting Peds #hr	0	0	0	0	0	0	2	·	· · · · · · · · · · · · · · · · · · ·				
Sign Control	Stop	Ston	Free	Free	Free	Free	* * · · ·						
RT Channelized	otop	None	NR -	None	1100 5/8	None	, , ,		1	1			
Storage Length	0	-		A 15 M 18 AND	-	18 4 MAR & MP.		a a se de la companya			_		
Veb in Median Storaci	a # 11			0	A			and the second second	1972 - 1973 - 1		· • •		3
Grade %	0		- J	0	0	-	en e	a the second					
Peak Hour Factor	85	85	85	85	86	85	· · · · · ·						
Heavy Vehicles %	2	2	2	2	2	2	×						
Munt Flow	-	182	41	122	142	215			and the second sec	· · · · ·			
INTERNET INTR	. MA	144	44	I North	6.744	- My KAF		and a ka					
Major/Minor	Minor2	-	Major1	1	Major2					-	-		
Conflicting Flow All	454	250	357	0	-	0							_
Stage 1	250			14									
Stage 2	204	-		-	-								
Critical Hdwv	6.42	6.22	4.12	-	1.	-			1000				
Critical Hdwy Stg 1	5.42	-			-	-							
			State.						5.7				
Follow-up Hdwy	3.518	3.318	2.218	-	-	-	an san an tha san ta a'		1.695			the Sector - Man and	5444 - 567 Av. A
Pot Cap-1 Maneuver	564	789	1202	40°		~				an tha an	era alcanto calcia dala dala d		ushineat Airederation
Stage 1	792	-	-	-	-								_
Stage 2	830	-	× 4	*	4	*		-			-		
Platoon blocked, %				-		-				_			
Mov Cap-1 Maneuver	543	789	1202	949)	-	-							
Mov Cap-2 Maneuver	543	-	-	-	-	-					_		
Stage 1	763	-	- A		-							-	
Stage 2	830	-	-	-		-						_	
Approach	EB		NB	No.	SB								
HCM Control Delay, s	12.4	-	2	-	0								
HCM LOS	В				-						-		
Minor Lane/Major Mvn	nt	NBL	NBT	EBLn1	SBT	SBR	-						-
Capacity (veh/h)		1202	ýć.	718	34	-							
HCM Lane V/C Ratio		0.034	-	0.324		-							
HCM Control Delay (s)	8.1	0	12.4	-								
HCM Lane LOS		A	A	В	-	-							
HCM 95th %tile Q(veh	1)	0.1		1.4	+	.91				-			

HCM 6th AWSC 4: Maguire Blvd & Windermere Rd

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Intersection Delay, s/veh	34.5											-
Intersection LOS	D		_									
			11							2017-005		
Lane Configurations	an a	4	46.	an san san sa	4			4	and the second second	1920 - a - 42.	4	19.5
Traffic Vol, veh/h	109	Constant of	163	2.00 4	2	3	59	372	5. 1. 10.	1	419	46
Future Vol, veh/h	109	1	163	4	2	3	59	372	1	1	419	46
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
										1	493	54
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	-		WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	18.7			11.3			36.3			42.6		
HCM LOS	C			В			E			E		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	14%	40%	44%	0%	
Vol Right, %	0%	60%	33%	10%	ta Alita Prantes Anno Angele Anno Anno Anno Anno an Country Anno an Country and Anno Anno Anno Anno Anno Anno A
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	432	273	9	466	
Through Vol	372	1	2	419	
RT Vol	1	163	3	46	
Lane Flow Rate	508	321	11	548	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.864	0.588	0.024	0.911	
Departure Headway (Hd)	6,117	6.59	8.044	5.98	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	590	546	442	603	
Service Time	4.166	4.641	6.143	4.027	
HCM Lane V/C Ratio	0.861	0.588	0.025	0.909	
HCM Control Delay	36.3	18.7	11.3	42.6	
	4 M.				
HCM 95th-tile Q	9.7	3.8	0.1	11.3	

HCM 6th AWSC 4: Maguire Blvd & Windermere Rd

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Intersection Delay, s/veh Intersection LOS

18.9 C

	EBL	EBT	EB-		MET	WARE	Lal	151	IZR.			
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	57	1. 1. 1	83	0	5	5	72	336	8 S. M.	2	372	69
Future Vol, veh/h	57	1	83	0	5	5	72	336	1	2	372	69
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0,85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mymt Flow	67	1	98	0	6	6	85	395	1	2	438	. 81
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	and the second		-	WB	-	NB			SB		
Opposing Approach	WB				EB		SB			NB		
Opposing Lanes	1				1		1			1		
Conflicting Approach Left	SB				NB		EB			WB		
Conflicting Lanes Left	1				1		1			1		
Conflicting Approach Right	NB				SB		WB			EB		
Conflicting Lanes Right	1				1		1			1		
HCM Control Delay	11.5				9.8		19.6			20.8		
HCM LOS	В				A		C			C		

Lane	NBLn1	EBLn1	WBLn1	S8Ln1	
Vol Left, %	18%	40%	0%	0%	
Vol Thru, %	82%	1%	50%	84%	
Vol Right, %	0%	59%	50%	16%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	409	141	10	443	
LT Vol	72	57	0	2	
Through Vol	336	1	5	372	
Lane Flow Rate	481	166	12	521	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.699	0.281	0.021	· 0.734	
Departure Headway (Hd)	5.233	8.099	6.561	5.072	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	688	587	543	714	
Service Time	3.269	4.151	4.629	3.107	
HCM Lane V/C Ratio	0.699	0.283	0.022	0.73	
HCM Control Delay	19.6	11.5	9.8	20.8	
HCM 95th-tile O	57	11	0.1	6.5	

HCM 6th AWSC 4: Maguire Blvd & Windermere Rd

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Intersection			-	1-1-				-				
Intersection Delay, s/veh	36.1											
Intersection LOS	E											
Law and				AP-			INES.	NET	Nos A.			
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	47	2	87	4	4	6	74	409	2	10	472	63
Future Vol, veh/h	47	2	87	4	4	6	74	409	2	10	472	63
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	-	1000	WB			NB			SB	-	
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	12.4			10.7			33.7			44.9		
HCM LOS	В			В			D			E		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	15%	35%	29%	2%	
Vol Right, %	0%	64%	43%	12%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	485	136	14	545	
LT Vol	74	47	4	10	
Through Vol	409	2	4	472	
Lane Flow Rate	571	160	16	641	
Geometry Gro	1	1	. 1	1	
Degree of Util (X)	0.866	0.293	0.034	0.943	
Departure Headway (Hd)	5.485	8,59	7.415	5.297	Branch Brance - Car Share A ?
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cab	662	542	486	680	
Service Time	3.526	4.675	5.415	3.355	ing the second
HCM Lane V/C Ratio	0.863	0.295	0.033	0.943	
HCM Control Delay	33.7	12.4	10.7	44.9	
HCM 95th-tile Q	10.1	1.2	0.1	13.2	





NOISE STUDY WONDERMERE GARDEN PRESCHOOL

for:

Ray Coudriet Builder, Inc. 7635 Ashley Park Cr., Suite 505 Orlando, Florida 32835

by:

RML Acoustics, LLC 14688 NW 150th Lane Alachua, Florida 32615

March 22, 2019

I. INTRODUCTION/BACKGROUND

RML Acoustics was engaged by Ray Coudriet Builder, Inc., to conduct a study of potential noise impacts on residences in The Willows development in Windermere, Florida, from children playing on the playground of the proposed Wondermere Garden Preschool, to be located at 1841 Windermere Rd., in Windermere, Florida. The preschool is designed to house 200 students, age 18 months to 6 years old, and operate from 8 am to 6 pm on weekdays. Residents along the west side of Willow Gardens Drive in The Willows residential development have voiced concerns about noise from children playing during outdoor activities at the preschool.

Figure 1 contains a site plan of the proposed preschool showing the location of the building and proposed playground on the east side. Figure 2 contains an aerial photo showing the approximate distances between the playground and nearest homes in The Willows to the east.



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Figure 2. Aerial showing the location of the proposed Wondermere Garden Preschool relative to homes in The Willows to the east.

II. WINDERMERE NOISE CONTROL ORDINANCE

Division 9, Noise Control, of Article IX, Operational Performance Standards, of the Town of Windermere, Florida Code of Ordinances, hereinafter referred to as the "Windermere Noise Control Ordinance," contains a table of Maximum Allowable Sound Level Limits for sound transmitted into a residential area, as well as the maximum distance at which sounds propagated from a land use category must no longer be plainly audible. The only noise source considered in this study is the unamplified voices of children playing on the playground, which, per Section 9.00.10, *Exemptions*, of the Windermere Noise Control Ordinance, is exempt. However, it is understood that for the purposes of addressing homeowner concerns regarding the sounds of children playing at the school, it is necessary to evaluate the potential noise impacts on the concerned residents regardless of the Noise Ordinance's requirements.

The Windermere Noise Control Ordinance, which includes both sound level limits and "plainly audible" distance limits, will be used to assess the potential noise impacts for this project. Table 1 contains the maximum allowable sound level limits, measured with a sound level meter, from the Windermere Noise Control Ordinance.

Land Use Category	Measurement	Time of Day	Sound Level Limit (dBA)
Noise Sensitive Zone	Time Averaged (LEQ)	Any time	55 dB
	Impulsive	7:00 a.m.—10:00 p.m.	60 dB
	Impulsive	10:01 p.m.—6:59 a.m.	Not allowed
Residential Area	Time Averaged (LEQ)	7:00 a.m.—10:00 p.m.	60 dB
	Time Averaged (LEQ)	10:01 p.m.—6:59 a.m.	55 dB
	Impulsive	7:00 a.m.—10:00 p.m.	65 dB
	Impulsive	10:01 p.m.—6:59 a.m.	Not allowed

Table 1. Maximum permissible sound levels, land use categories, times and measurement descriptors (from Windermere Noise Control Ordinance).

The Time Averaged (LEQ) sound levels limits described in table one are based on a minimum 5-minute averages of sounds. The impulsive sound category does not apply to voices, but to sources like explosions and pile drivers.

Table 2 contains the Windermere Noise Control Ordinance's maximum allowable distance at which sound must no longer be plainly audible based on the land use from which the noise emanates, which in this case does not matter, as the distance requirement of 500 ft is the same for both Residential and Nonresidential during the hours in which the preschool will operate. Since the nearest houses in The Willows are more than 500 ft away, the likelihood that sounds from children playing on the playground will be plainly audible at the residences will be evaluated at the nearest residential property lines and not at 500 ft, which would be in the middle of an unoccupied wetland area.



Underlying Land Use Category (from which noise emanates)	Time of Day	Distnace
Residential Area	7:00 a.m.—10:00 p.m.	500 feet or more
	10:01 pm to 6:59 am	150 feet or more
Residential Area	7:00 a.m10:00 p.m.	500 feet or more
	10:01 p.m.—6:59 a.m.	300 feet or more

Table 2. Maximum permissible distance at which sound may be plainly audible (from Windermere Noise Control Ordinance).

III. NOISE STUDY METHOD AND RESULTS

Overall Method

The overall method for the Noise Study included the following elements.

- 1. Measure ambient sound levels at the homes in the Willows closest to the proposed school.
- 2. Measure the sound levels of typical pre-school and elementary school-age children (3 to 8 years old) playing on playgrounds at distances of 75 to 100 ft to obtain source sound level data.
- 3. Construct a computer model to estimate the sound levels at the nearest residences to the east in the Willows from children playing on the playground, using the source sound level data obtained from an existing preschool and the effects of distance, vegetation and atmospheric conditions.
- 4. Compare the results of the model to ambient sound levels measured at the residences.

Sound Level Measurement Times and Locations

Ambient sound levels in The Willows were measured in the morning (approximately 9 am) and the afternoon (approximately 3:15 pm) at 11476, 11484 and 11492 Willow Gardens Drive and 2122 Willow Lauren Lane, the locations of which are shown in the aerial photograph in Figure 3.

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Figure 3. Aerial photograph showing the locations of ambient sound level measurements in The Willows.

Sound levels of an existing school (O2B Kids in Alachua, Florida) where pre-school and elementary school-age children were playing on the playground were measured at distances of approximately 75 ft to 100 ft from where the children were playing (see Figure 4) on March 14, 2019 and March 21, 2019. Figure 5 contains a photograph of a jungle gym on which children were playing that was 75 ft from the measurement location. Sound level measurements were made during noon recess (3 to 4 year-old children) and afternoon recess (5 to 8 year-old children).

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Figure 4. Aerial photograph of pre-school and afterschool facility where sound level measurements were made.

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Figure 5. Photograph of playground where children were playing at O2B Kids in Alachua, Florida.

Sound Level Measurement Equipment

A Larson Davis 831 Sound Level Meter was used to measure sound levels at all locations. This meter meets ANSI Standard S1.4 requirements for Type 1 exponential-averaging sound level meters and ANSI Standard S1.43 requirements for Type 1 integrating-averaging sound level meters. A windscreen was affixed to the microphone for all measurements. The meter was calibrated with a Larson Davis CAL200 pistonphone before the measurements began and found to be within 0.1 dB of calibration at the completion of the measurements. Overall A-weighted

average (LAeq) and maximum (LAmax) sound levels were measured for each user-programmed time period. The average (Leq) and maximum (Lmax) octave band sound levels were also logged for each second of the measurements. The sound level data were downloaded from the meter and analyzed.

Sound Level Measurement Results

Table 3 contains a summary of the ranges of A-weighted sound levels and the overall average A-weighted sound levels measured for various noise sources and conditions at residences in The Willows development. Sound sources that were plainly audible at the residences included traffic noise on the Florida Turnpike, lawnmowing, leaf blowing, sprinklers running, pressure washing, UPS truck delivery, Fed Ex truck passing, prop planes overhead, jet planes overhead, birds chirping and wind blowing the leaves in the palm trees.

Table 4 contains a summary of the overall A-weighted average sound levels and instantaneous maximum A-weighted sound levels (Lmax) measured at O2B kids in Alachua, Florida. Sound sources included kids talking, kids crying, kids calling out names, and kids yelling.

Location	Approx.Time	Sound Sources	Range of Sound Levels (Leq)	Overall Average Sound Level (Leq)
11476 Willow	8:51 am	Traffic on the turnpike, birds chirping	45 to 48 dBA	46 dBA
Gardens Drive	8:53 am	Traffic on the turnpike, birds chirping	45 to 46 dBA	45 dBA
	8:54 am	Lawnmower several houses away, traffic on turnpike, birds chirping	46 to 47 dBA	46 dBA
	8:55 am	Plane overhead, lawnmower several houses away, traffic on turnpike, birds	46 to 54 dBA	50 dBA
	3:14 pm	Distant prop plane, pressure washing several houses away	47 to 51 dBA	48 dBA
	3:14 pm	Quiet ambient	41 to 44 dBA	43 dBA
	3:15 pm	Music from parked UPS truck, driver talking, truck start up and leave	42 to 66 dBA	55 dBA
	3:18 pm	Wind in palm trees, distant traffic, birds	42 to 47 dBA	45 dBA
	3:19 pm	Prop plane overhead	58 to 67 dBA	60 dBA
	3:20 pm	Wind in palm trees, distant traffic, birds	45 to 51 dBA	49 dBA
11484 Willow	8:58 am	Traffic on the turnpike, distant lawnmower, distant sprinkler, birds chirping	42 to 45 dBA	44 dBA
Gardens Drive	3:21 pm	Light breeze in palm trees, distant traffic (faint)	41 to 42 dBA	41 dBA
	3:22 pm	Fed Ex truck passing by	47 to 67 dBA	59 dBA
	3:23 pm	Wind in palm trees	42 to 45 dBA	43 dBA
	3:24 pm	Wind in palm trees	41 to 45 dBA	43 dBA
	3:25 pm	Wind in trees, distant pressure washing activity	37 to 41 dBA	39 dBA

Table 3. Summary of ambient sound levels measured in The Willows.

Location	Approx.Time	Sound Sources	Range of Sound Levels (Leq)	Overall Average Sound Level (Leq)
11492 Willow Gardens Drive	9:02 am	Traffic on the turnpike, birds chirping	44 to 46 dBA	45 dBA
2122 Willow	9:29 am	Distant lawnmowers and leaf blowers	45 to 48 dBA	47 dBA
Lauren Lane	9:32 am	Plane overhead, distant leaf blower, birds	49 to 55 dBA	53 dBA

Table 4. Summary of source sound levels measured at O2B Kids Alachua at approximately 75 to 100 ft.

Sound Sources	Overall Average Sound Level (Leq)	Range of Instantaneous Maximum (Lmax) Sound Levels
Instructor's and children's voices during snack time	56 dBA	56 to 69 dBA
Children playing on a playground and running around, yelling to each other	59 dBA	57 to 67 dBA
Children playing on a playground and running around, yelling to each other	60 dBA	55 to 73 dBA
Child crying on playground	56 dBA	55 to 67 dBA
Child yelling to friends	57 dBA	55 to 63 dBA
Children playing on playground	57 dBA	55 to 67 dBA
Children playing on playground, yelling to teacher	57 dBA	55 to 70 dBA

IV. DATA ANALYSIS

The only noise sources evaluated for this study were the sounds of children playing on a playground. According to the Client, there will be no bells or PA system at the preschool. Sound source data obtained from O2B Kids in Alachua were from groups of approximately 20 children playing simultaneously. According to the Client, the typical number of children expected on the proposed playground at any one time is 40. A computer model was developed to estimate the sound levels at The Willows residences, from children playing on the proposed playground, by taking into account the effects of doubling the number of children (from 20 to 40) on the playground, sound reflections off the wall of the preschool building, distance to the residences, vegetation and atmospheric effects under standard conditions, based on ISO Standard 9613, *Attenuation of sound during propagation outdoors*. The results of the model were compared to the Windermere Noise Control Ordinance's sound level limits and to the ambient sound levels measured at the homes in The Willows to determine the potential audibility of the sounds.

Comparison to Quantitative Noise Ordinance Sound Level Limit

Average sound levels from children playing measured between 56 and 60 dBA at 75 ft to 100 ft away. At the nearest home to the east, which is approximately 1,300 ft away through approximately 1,000 ft of medium-dense woods, the overall average sound level will be below 30 dBA, and therefore well below the 60 dBA daytime sound level limit described in the Windermere Noise Ordinance.

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Comparison to Ambient and Plainly Audible Standard

For a sound to be considered plainly audible, it typically needs to be at least 3 to 5 dB above the background, or ambient, sound level. Children's raised voices have most of their sound energy concentrated in the 1,000 Hz to 2,000 Hz frequency range, and very little sound energy outside that range. The greatest instantaneous maximum (Lmax) sound level measured in these frequencies was 64 dB. The lowest average (Leq) ambient sound levels measured at the homes in these frequencies were 36 to 38 at 1,000 Hz and 31 to 32 dB at 2,000 Hz at 11484 Willow Gardens Drive in the afternoon. Based on the results of the computer model study, the estimated maximum instantaneous sound level at 1,000 Hz and 2,000 Hz, due to children playing on the proposed preschool playground, will be 22 dB, which is approximately 10 or more dB below the ambient sound level. In other words, most sounds would be inaudible, and certainly not plainly audible.

V. CONCLUSIONS AND RECOMMENDATIONS

- 1. Average sound levels from children playing on the proposed playground will be 30 dB or more below the Windermere Noise Control Ordinance's sound level limit of 60 dBA.
- 2. It is very unlikely that even the loudest sounds made by children playing on a playground at the proposed Wondermere Garden Preschool will be heard during the quietest time of the day at the residences in The Willows, as calculated sound levels in the critical frequencies at which the children generate their loudest sounds were approximately 10 dB below the quietest ambient sound levels at The Willows residences. Regardless, the possibility of very faint sounds of children playing in the distance occasionally being heard would not be out of character with the typical sounds heard in a residential community.
- 3. During the time ambient sound levels were measured at the residences in The Willows, sounds from highway traffic, lawn maintenance, UPS and Fed Ex trucks, pressure washing, sprinklers, planes passing overhead, birds chirping and wind in the trees were all a minimum of 10 dB greater (i.e., twice as loud), with some sources as much as 35 dB greater (i.e., five to seven 7 times louder) than any sounds from children playing on the proposed preschool playground would be at The Willows residences.
- 4. The results of the study are based on a very conservative approach to determining the audibility of sound from the children. There is a solid, 8 foot high fence that will be constructed around the playground that was not included in the analysis and the study looked at the loudest sounds from children occurring instantaneously and compared that sound to the very quietest sound level occurring at the residences, assuming those events happen simultaneously.
- 5. It is our understanding that there may be occasional (three or four times a year) preschool functions that would result in a larger number of students gathering outside at one time, along with their parents. Even with the full 200 students outside, the combined sound level would only increase by 7 to 10 dB compared to 40 students being present, which will still be more than 20 dB below the Windermere Noise Control Ordinance sound level limit of 60 dBA.

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