

April 22, 2020

Michael Hendershot, P.E. City of Dublin, Engineering 5800 Shier Rings Road Dublin, Ohio 43016

Subject: Oak Park Reserves A and D

Stormwater Management Plan Update

Dear Michael,

On April 17, 2017, EMH&T provided a letter to the City regarding a change from 36 townhomes to 20 single family homes in the Oak Park development. The conclusion was that there would be reduced runoff volume with the change and no changes to the stormwater basin would be required.

This letter summarizes another change to the approved Oak Park Development Plan in reserves A and D. The current proposed change includes the conversion of the commercial land totaling approximately 3.46 acres to 12 single family lots. This area is tributary to the regional basin and will result in further reduction of impervious area. The commercial as originally approved with commercial buildings and surface parking lots is anticipated to be 90% impervious area. The proposed 12 single family lots are anticipated to reduce that impervious area to less than 60% for this area.

No changes to the regional basin or its tributary area are required or are being proposed at this time. With the further reduction in runoff volume, the performance of the regional detention system will not be adversely affected by the land use and zoning change.

If you have any questions please feel free to give me a call at 614-775-4213.

Sincerely,

Douglas C. Turney

Green Infrastructure Practice Leader

Doug Tuney



July 24, 2019

Tina Wawszkiewicz, P.E. Civil Engineer II City of Dublin 6555 Shier Rings Road Dublin, Ohio 43016

Subject: Oak Park Rezoning-Trip Generation Analysis

Dear Ms. Wawszkiewicz,

This letter serves to document analysis of proposed zoning modifications for Oak Park, a residential development site located in the southwest quadrant of the Hyland-Croy Road/Mitchell-Dewitt Road intersection. Dublin first zoned the site over 10 years ago (referred to herein as the initial zoning). Dublin approved a zoning modification in 2017 and is currently considering another change. This submission documents the difference in vehicle trips generated by the two previously approved plans and the pending plan, and shows that the requested change generates less traffic than prior plans.

Site Description

The two previously approved development plans and the currently pending rezoning request permit the following land uses:

Dublin approved the initial zoning with the following:

- 72 Single-family detached lots
- 36 Townhome lots
- Maximum of 39,700 sf of retail and/or office uses (see attached text)

A 2017 rezoning removed the townhome lots resulting in the following development plan:

- 92 Single-family detached lots
- Maximum of 39,700 sf of retail and/or office uses (see attached text)

The current rezoning request eliminates the commercial uses resulting in the following development plan:

104 Single-family detached lots

Volume Development

This submission includes detailed trip generation calculations for the development program represented in each of the three plans. Vehicular trips were determined using the data and methodology contained in the <u>Trip Generation Manual</u> 10th edition (Institute of Transportation Engineers, 2017). Development plans with a commercial component generate pass-by trips and potentially share trips with residential portions of Oak Park. Attached calculations detail those components and trip generation results summarized in **Table 1** below show total trips, internal and pass-by trips, and net new trips for each scenario.

Table 1-Trip Generation Comparison

								<u></u>				• · · · · · · · ·							
Period	Land Use		Total		Inte	rnal T	rips	Pas	s-By T	rips		New Trip	s		Chan	ge from I	nitial Lan	d Use	
Period	Scenario	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	-	Total Trip	s		New Trip	s
	Initial	2104	2104	4208	0	0	0	0	0	0	2104	2104	4208	Enter	Exit	Total	Enter	Exit	Total
Daily	2017 Zoning	2085	2085	4170	0	0	0	0	0	0	2085	2085	4170	-19	-19	-38	-19	-19	-38
	2019 Zoning	539	539	1078	0	0	0	0	0	0	539	539	1078	-1565	-1565	-3130	-1565	-1565	-3130
	Initial	124	121	245	3	4	7	0	0	0	121	117	238						
AM Peak	2017 Zoning	124	118	242	6	6	12	0	0	0	118	112	230	0	-3	-3	-3	-5	-8
	2019 Zoning	20	59	79	0	0	0	0	0	0	20	59	79	-104	-62	-166	-101	-58	-159
	Initial	194	179	373	22	22	44	42	44	86	130	113	243						
PM Peak	2017 Zoning	191	178	369	40	40	80	40	39	79	111	99	210	-3	-1	-4	-19	-14	-33
	2019 Zoning	66	39	105	0	0	0	0	0	0	66	39	105	-128	-140	-268	-64	-74	-138

On a daily basis, the currently proposed zoning reduces trip generation about 74% compared to the initial zoning. Attachments to this submission provide detailed calculations supporting the values summarized above. Based on the foregoing, the currently pending request to rezone Oak Park (the 2019 zoning) significantly reduces vehicle trips generated by the site compared to previously approved zonings.

Should questions or comments arise during your review of this analysis or if I may be of further assistance in this matter, please feel free to contact me at (614) 775-4640.

Sincerely,

Lawrence C. Creed, Esq., PE

Principal

Director of Traffic Engineering Services

Enclosures: Trip Generation Calculations, Zoning Text

PROJECT DETAILS

Project Name:Oak Park- 2019 zoningType of Project:Project No:20190713City:Country:Built-up Area(Sq.ft):Analyst Name:Charles WuClients Name:Date:7/22/2019ZIP/Postal Code:State/Province:No. of Scenarios:3

SCENARIO SUMMARY

Scenarios	Name	No. of Land Uses	Phases of	Horizon Year	User Group	Estimated New Vehicle Trips		
Scellatios	Name	No. of Land Uses	Development	HOIIZOII Tear	Oser Group	Entry	Exit	Total
Scenario - 1	Daily	1	1	2018		539	539	1078
Scenario - 2	AM Peak	1	1	2019		20	59	79
Scenario - 3	PM Peak	1	1	2019		66	39	105

Analysis Region:

Scenario - 1		
Scenario Name: Daily Dev. phase: 1	User Group: Horizon Year: 2018	
Dev. phase: 1	Horizon Year: 2018	
Analyst Note:		
Warning:		

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	General	Dwelling Units	104	Weekday	Best Fit (LOG)	539	539	1078
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dweining Othics	104	vvcekudy	Ln(T) =0.92Ln(X) + 2.71	50%	50%	10/0

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Ve	hicle Mode Share	Baseline Site Veh	icle Occupancy	Baseline Site Vehicle Directional Split	
Lanu Osc	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	50	50

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
Lanu Ose	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	539	539	0	0	539	539
210 - Single-ranniy Detached Housing	1078		0		1078	

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
210 - Single-Family Detached Housing	Residential

BALANCED PERSON TRIPS:

INTERNAL PERSON TRIPS:

210 - Single-Family Detached Housing

Internal Person Trips From	Entry	Exit	Total
Total Internal Person Trips	0	0	0

INTERNAL VEHICLE TRIPS AND CAPTURE:

210 - Single-Family Detached Housing

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	=
Total Vehicle Internal Trips	0	0	0
Total External Vehicle Trips	539	539	1078
Internal Vehicle Trip Capture	0%	0%	0%

PASS-BY VEHICLE TRIP REDUCTION	NC	REDUCT	TRIP R	/FHICLE	PASS-BY
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Land Use	External \	/ehicle Trips	Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
Land USE	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	539	539	0.00%	0.00%	0	0

DIVERTED VEHICLE TRIP REDUCTION

Land Use	External \	/ehicle Trips	Diverted Vehicle Trip %		Diverted Vehicle Trips	
Lanu Ose	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	539	539	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Trip Reduction %		Extra Reduced Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	539	539	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

land lies		New Vehicle Trips			
Land Use	Entry	Exit	Total		
210 - Single-Family Detached Housing	539	539	1078		

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	539	539	1078
Internal Vehicle Trips	0	0	0
External Vehicle Trips	539	539	1078
Internal Vehicle Trip Capture	0%	0%	0%
Pass-by Vehicle Trips	0	0	0
Diverted Vehicle Trips	0	0	0
Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	539	539	1078

Scenario - 2		
Scenario Name: AM Peak Dev. phase: 1	User Group: Horizon Year: 2019	
Dev. phase: 1	Horizon Year: 2019	
Analyst Note:		
Warning:		

Land Use & Data Source Locati	Location	Location IV	Size	Time Period	Method	Entry	Exit	Total
zana ose a bata source	Location		3120	Time renou	Rate/Equation	Split%	Split%	10141
210 - Single-Family Detached Housing	General	Dwelling Units	104	Weekday, Peak Hour of	Best Fit (LIN)	20	59	70
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dweiling Offics	104	Adjacent Street Traffic,	T = 0.71(X) + 4.80	25%	75%	79

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	25	75

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
Lanu ose	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	20	59	0	0	20	59
210 - Single-ranniy Detached Housing		79	0		7	9

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
210 - Single-Family Detached Housing	Residential

BALANCED PERSON TRIPS:

INTERNAL PERSON TRIPS:

210 - Single-Family Detached Housing

Internal Person Trips From	Entry	Exit	Total
Total Internal Person Trips	0	0	0

INTERNAL VEHICLE TRIPS AND CAPTURE:

210 - Single-Family Detached Housing

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	=
Total Vehicle Internal Trips	0	0	0
Total External Vehicle Trips	20	59	79
Internal Vehicle Trip Capture	0%	0%	0%

ASS-BY VEHICLE TRIP REDUCTION	PASS-BY VEHICLE TRIP REDU
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Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	20	59	0.00%	0.00%	0	0

DIVERTED VEHICLE TRIP REDUCTION

Landlica	External V	/ehicle Trips	Diverted Veh	icle Trip %	Diverted Ve	ehicle Trips
Land Use	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	20	59	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by +	Diverted)) Vehicle Trips	Extra Vehicle Tri	p Reduction %	Extra Reduced	Vehicle Trips
Land OSC	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	20	59	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

Land Use		New Vehicle Trips	
Land Ose	Entry	Exit	Total
210 - Single-Family Detached Housing	20	59	79

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	20	59	79
Internal Vehicle Trips	0	0	0
External Vehicle Trips	20	59	79
Internal Vehicle Trip Capture	0%	0%	0%
Pass-by Vehicle Trips	0	0	0
Diverted Vehicle Trips	0	0	0
Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	20	59	79

Scenario - 3		
Scenario Name: PM Peak Dev. phase: 1	User Group: Horizon Year: 2019	
Dev. phase: 1	Horizon Year: 2019	
Analyst Note:		
Warning:		

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
Land Ose & Data Source	Location	.,	3126	Time renou	Rate/Equation	Split%	Split%	Total
210 - Single-Family Detached Housing	General	Dwelling Units	104	Weekday, Peak Hour of	Best Fit (LOG)	66	39	105
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dweiling Offics	104	Adjacent Street Traffic,	Ln(T) =0.96Ln(X) + 0.20	63%	37%	105

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Ve	hicle Mode Share	Baseline Site Veh	icle Occupancy	Baseline Site Vehic	le Directional Split
Land USE	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trip	os by Vehicle	Person Trips by	Other Modes	Total Baseline S	ite Person Trips
Lanu Ose	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	66	39	0	0	66	39
210 - Single-Family Detaction nousing	1	.05	0		10	05

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
210 - Single-Family Detached Housing	Residential

BALANCED PERSON TRIPS:

INTERNAL PERSON TRIPS:

210 - Single-Family Detached Housing

Internal Person Trips From	Entry	Exit	Total
Total Internal Person Trips	0	0	0

INTERNAL VEHICLE TRIPS AND CAPTURE:

210 - Single-Family Detached Housing

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	=
Total Vehicle Internal Trips	0	0	0
Total External Vehicle Trips	66	39	105
Internal Vehicle Trip Capture	0%	0%	0%

ASS-BY VEHICLE TRIP REDUCTION	PASS-BY VEHICLE TRIP REDU
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Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
Latiu OSE	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	66	39	0.00%	0.00%	0	0

DIVERTED VEHICLE TRIP REDUCTION

Land Hea	External Vehicle Trips		Diverted Vehicle Trip %		Diverted Vehicle Trips	
Land Use	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	66	39	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Trip Reduction %		Extra Reduced Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	66	39	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips				
	Entry	Exit	Total		
210 - Single-Family Detached Housing	66	39	105		

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	66	39	105
Internal Vehicle Trips	0	0	0
External Vehicle Trips	66	39	105
Internal Vehicle Trip Capture	0%	0%	0%
Pass-by Vehicle Trips	0	0	0
Diverted Vehicle Trips	0	0	0
Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	66	39	105

PROJECT DETAILS

Type of Project:

Cit

Built-up Area(Sq.ft): Clients Name: ZIP/Postal Code:

No. of Scenarios: 3

State/Province: Analysis Region:

Project Name:

Analyst Name:

Project No: Country:

Date:

Oak Park- 2017 zoning

20190713

Charles Wu

7/21/2019

SCENARIO SUMMARY

Scenarios	Namo	Name No. of Land Uses Phases of Hor		Horizon Year	User Group	Estimated New Vehicle Trips		
	Ivanie	No. of Land Oses	Development	HOIIZOII TEAI	Oser Group	Entry	Exit	Total
Scenario - 1	Daily	2	1	2018		2085	2085	4170
Scenario - 2	AM Peak	2	1	2019		118	112	230
Scenario - 3	PM Peak	2	1	2019		111	99	210

Scenario - 1		
Scenario Name: Daily	User Group: Horizon Year: 2018	
Dev. phase: 1	Horizon Year: 2018	
Scenario Name: Daily Dev. phase: 1 Analyst Note:		
Warning:		

Land Use & Data Source	Location	Location IV 5	Size	Time Period	Method	Entry	Exit	- Total
	Location		3120	Tillie Fellou	Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	General	Dwelling Units	92	Weekday	Best Fit (LOG)	481	481	962
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dweiling Offics	92		Ln(T) =0.92Ln(X) + 2.71	50%	50%	
820 - Shopping Center	General	1000 Sa. Ft. GLA	39.7	Weekday	Best Fit (LOG)	1604	1604	3208
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	1000 Sq. Ft. GLA	39.7	weekuay	Ln(T) =0.68Ln(X) + 5.57	50%	50%	3200

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
Land OSC	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	50	50
820 - Shopping Center	100	100	1	1	50	50

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
Land OSE	Entry	Exit	Entry	Exit	Entry	Exit
140. Cinala Farsily Datashad Hayaina	481	481	0	0	481	481
210 - Single-Family Detached Housing	962		0		962	
820 - Shopping Center	1604	1604	0	0	1604	1604
1020 - Shopping Center	3208		0		3208	

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
210 - Single-Family Detached Housing	Residential
820 - Shopping Center	Retail

BALANCED PERSON TRIPS:

210 - Single-Family Detach	ed Housing							820 - Shopping Center
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
482	1	0	0	0	0	0	1	1604
Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
482	1	0	0	0	0	0	1	1604

2

INTERNAL PERSON TRIPS:

210 - Single-Family Detached Housing

Internal Person Trips From	Entr	/	Exit	Total
820 - Shopping Center	0		0	0
Total Internal Person Trips	0		0	0
820 - Shopping Center				
Internal Person Trips From	Entr	/	Exit	Total
	0		0	0
210 - Single-Family Detached Housing	U		U	

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	=
Vehicle Occupancy	1.00	1.00	=
Total Vehicle Internal Trips	0	0	0
Total External Vehicle Trips	481	481	962
Internal Vehicle Trip Capture	0%	0%	0%

820 - Shopping Center

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	=
Vehicle Occupancy	1.00	1.00	=
Total Vehicle Internal Trips	0	0	0
Total External Vehicle Trips	1604	1604	3208
Internal Vehicle Trip Capture	0%	0%	0%

PASS-BY VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	481	481	0.00%	0.00%	0	0
820 - Shopping Center	1604	1604	0.00%	0.00%	0	0

DIVERTED VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Diverted Vehicle Trip %		Diverted Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	481	481	0.00%	0.00%	0	0
820 - Shopping Center	1604	1604	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Trip Reduction %		Extra Reduced Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	481	481	0.00%	0.00%	0	0
820 - Shopping Center	1604	1604	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

Land Hea		New Vehicle Trips	
Land Use	Entry	Exit	Total
210 - Single-Family Detached Housing	481	481	962

820 - Shopping Center	_	1604	1604	3208
		1004	1004	3200
RESULTS				
Site Totals		Entry	Exit	Total
Vehicle Trips Before Reduction		2085	2085	4170
Internal Vehicle Trips		0	0	0
External Vehicle Trips		2085	2085	4170
Internal Vehicle Trip Capture		0%	0%	0%
Pass-by Vehicle Trips		0	0	0
Diverted Vehicle Trips		0	0	0
Extra Reduced Vehicle Trips		0	0	0
New Vehicle Trips		2085	2085	4170

Scenario - 2		
Scenario Name: AM Peak	User Group: Horizon Year: 2019	
Dev. phase: 1 Analyst Note:	Horizon Year: 2019	
Analyst Note:		
Warning:		

Land Use & Data Source Location	Location	Location IV Siz	Size	Time Period	Method	Entry	Exit	Total
	Location		3126		Rate/Equation	Split%	Split%	Total
210 - Single-Family Detached Housing	General	Dwelling Units	Dwelling Units 92	Weekday, Peak Hour of	Best Fit (LIN)	18	53	71
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban		Dweiling Offics	92	Adjacent Street Traffic,	T = 0.71(X) + 4.80	25%	75%
820 - Shopping Center	General	1000 Ca Et CLA	1000 Sq. Ft. GLA 39.7	Weekday, Peak Hour of	Best Fit (LIN)	106	65	171
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	1000 3q. Ft. GLA		Adjacent Street Traffic,	T = 0.50(X) + 151.78	62%	38%	1/1

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
Land OSC	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	25	75
820 - Shopping Center	100	100	1	1	62	38

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
Land OSE	Entry	Exit	Entry	Exit	Entry	Exit
240. Single Family Detected Haveing	18	53	0	0	18	53
210 - Single-Family Detached Housing	71		0		71	
020 Channing Conton	106	65	0	0	106	65
820 - Shopping Center	1	171	0		Entry 18	/1

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
210 - Single-Family Detached Housing	Residential
820 - Shopping Center	Retail

BALANCED PERSON TRIPS:

210 - Single-Family Detache	ed Housing							820 - Shopping Center
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
53	1	12	6	6	18	17	1	106
Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
18	1	2	0	0	9	14	1	65

INTERNAL PERSON TRIPS:

210 - Single-Family Detached Housing

820 - Shopping Center						
Internal Person Trips From				Entry	Exit	Total
210 - Single-Family Detached Housing				6	0	7
Total Internal Person Trips				6	0	6
INTERNAL VEHICLE TRIPS AND CAPTURE:						
210 - Single-Family Detached Housing						
Total Internal Person Trips				0	6	6
Vehicle Mode Share				100%	100%	-
Vehicle Occupancy				1.00	1.00	-
Total Vehicle Internal Trips				0	6	6
Total External Vehicle Trips				18	47	65
Internal Vehicle Trip Capture				0%	11%	0%
Vehicle Mode Share				100%	100%	-
Vehicle Occupancy				1.00	1.00	-
Total Vehicle Internal Trips				6	0	6
Total External Vehicle Trips				100	65	165
Internal Vehicle Trip Capture				6%	0%	0%
internal vehicle 171p Capture						
PASS-BY VEHICLE TRIP REDUCTION		Vehicle Trips	Pass-by Veh		Pass-by Ve	
PASS-BY VEHICLE TRIP REDUCTION Land Use	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing	Entry 18	Exit 47	Entry (%) 0.00%	Exit (%) 0.00%	Entry 0	Exit 0
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center	Entry 18	Exit 47	Entry (%) 0.00%	Exit (%) 0.00%	Entry 0	Exit 0
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION	Entry 18 100	Exit 47	Entry (%) 0.00%	Exit (%) 0.00% 0.00%	Entry 0	Exit 0 0
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION Land Use	Entry 18 100 External Entry	Exit 47 65 Vehicle Trips Exit	Entry (%) 0.00% 0.00% Diverted Vel Entry (%)	Exit (%) 0.00% 0.00% nicle Trip % Exit (%)	Entry 0 0	Exit 0 0
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION	Entry 18 100	Exit 47 65	Entry (%) 0.00% 0.00% Diverted Vel	Exit (%) 0.00% 0.00%	Entry 0 0 Diverted Ve	Exit 0 0 ehicle Trips

Land lies	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Trip Reduction %		Extra Reduced Vehicle Trips	
Land Use	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	18	47	0.00%	0.00%	0	0
820 - Shopping Center	100	65	0.00%	0.00%	0	0

land tra	New Vehicle Trips				
Land Use	Entry	Exit	Total		
210 - Single-Family Detached Housing	18	47	65		

EXTRA VEHICLE TRIP REDUCTION

NEW VEHICLE TRIPS

820 - Shopping Center	100	65	165

RESULTS			
Site Totals	Forting	5.0	Total
	Entry	Exit	Total
Vehicle Trips Before Reduction	124	118	242
Internal Vehicle Trips	6	6	12
External Vehicle Trips	118	112	230
Internal Vehicle Trip Capture	5%	5%	5%
Pass-by Vehicle Trips	0	0	0
Diverted Vehicle Trips	0	0	0
Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	118	112	230

Scenario - 3	
Scenario Name: PM Peak	User Group: Horizon Year: 2019
Dev. phase: 1 Analyst Note:	Horizon Year: 2019
Analyst Note:	
	l de la companya de
Warning:	

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
Land Ose & Data Source	Location	١٧	3126	Tillie Fellou	Rate/Equation	Split%	Split%	IOtal
210 - Single-Family Detached Housing	General	Dwelling Units	92	Weekday, Peak Hour of	Best Fit (LOG)	59	35	04
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dwelling Units	92	Adjacent Street Traffic,	Ln(T) =0.96Ln(X) + 0.20	63%	37%	94
820 - Shopping Center	General	1000 Sg. Ft. GLA	39.7	Weekday, Peak Hour of	Best Fit (LOG)	132	143	275
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	1000 Sq. Ft. GLA	39.7	Adjacent Street Traffic,	Ln(T) =0.74Ln(X) + 2.89	48%	52%	2/3

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
Land USE	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37
820 - Shopping Center	100	100	1	1	48	52

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
Land OSC	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	59	35	0	0	59	35
	94				94	
210 Single Family Detaction floating	!	94	0		9	4
820 - Shopping Center	132	143	0	0	132	143

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
210 - Single-Family Detached Housing	Residential
820 - Shopping Center	Retail

BALANCED PERSON TRIPS:

210 - Single-Family Detache	ed Housing							820 - Shopping Center
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
35	1	42	15	13	13	10	1	132
Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
59	1	46	27	27	37	26	1	143

INTERNAL PERSON TRIPS:

210 - Single-Family Detached Housing

Internal Person Trips From				Entry	Exit	Total
820 - Shopping Center				27	13	40
Total Internal Person Trips				27	13	40
820 - Shopping Center						
Internal Person Trips From				Entry	Exit	Total
210 - Single-Family Detached Housing				13	27	40
Total Internal Person Trips				13	27	40
Total Internal Croon Trips				13		
INTERNAL VEHICLE TRIPS AND CAPTURE: 210 - Single-Family Detached Housing						
Total Internal Person Trips				27	13	40
Vehicle Mode Share				100%	100%	_
Vehicle Occupancy				1.00	1.00	=
Total Vehicle Internal Trips				27	13	40
Total External Vehicle Trips				32	22	54
Internal Vehicle Trip Capture				46%	37%	0%
820 - Shopping Center						
Fotal Internal Person Trips				13	27	40
Vehicle Mode Share			·	100%	100%	-
/ehicle Occupancy				1.00	1.00	-
Total Vehicle Internal Trips				13	27	40
•						
Total External Vehicle Trips				119	116	235
•						
internal Vehicle Trip Capture				119 10%	116 19%	235 0 %
nternal Vehicle Trip Capture PASS-BY VEHICLE TRIP REDUCTION	External Vehic		Pass-by Vehi	119 10% cle Trip %	116 19% Pass-by Ve	235 0% hicle Trips
PASS-BY VEHICLE TRIP REDUCTION and Use	Entry	Exit	Entry (%)	119 10% cle Trip % Exit (%)	116 19% Pass-by Ve Entry	235 0% hicle Trips Exit
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing	Entry 32	Exit 22	Entry (%) 0.00%	119 10% cle Trip % Exit (%) 0.00%	116 19% Pass-by Ve Entry 0	235 0% hicle Trips Exit 0
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing	Entry	Exit	Entry (%)	119 10% cle Trip % Exit (%)	116 19% Pass-by Ve Entry	235 0% hicle Trips Exit
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center	Entry 32	Exit 22	Entry (%) 0.00%	119 10% cle Trip % Exit (%) 0.00%	116 19% Pass-by Ve Entry 0	235 0% hicle Trips Exit 0
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center	Entry 32 119	Exit 22 116	Entry (%) 0.00% 34.00%	119 10% cle Trip % Exit (%) 0.00% 34.00%	116 19% Pass-by Ve Entry 0 40	235 0% hicle Trips Exit 0 39
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION	Entry 32 119 External Vehic	Exit 22 116	Entry (%) 0.00% 34.00% Diverted Veh	119 10% cle Trip % Exit (%) 0.00% 34.00%	116 19% Pass-by Ve Entry 0 40 Diverted Ve	235 0% hicle Trips Exit 0 39
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION	Entry 32 119	Exit 22 116 cle Trips Exit	Entry (%) 0.00% 34.00% Diverted Veh Entry (%)	119 10% cle Trip % Exit (%) 0.00% 34.00% icle Trip % Exit (%)	116 19% Pass-by Ve Entry 0 40	235 0% hicle Trips Exit 0 39
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing	Entry 32 119 External Vehic Entry 32	Exit 22 116 cle Trips Exit 22	Entry (%) 0.00% 34.00% Diverted Veh Entry (%) 0.00%	119 10% cle Trip % Exit (%) 0.00% 34.00% icle Trip % Exit (%) 0.00%	Pass-by Ve Entry 0 40 Diverted Ve Entry 0	235 0% hicle Trips Exit 0 39 ehicle Trips Exit 0 0
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing	Entry 32 119 External Vehic Entry	Exit 22 116 cle Trips Exit	Entry (%) 0.00% 34.00% Diverted Veh Entry (%)	119 10% cle Trip % Exit (%) 0.00% 34.00% icle Trip % Exit (%)	116 19% Pass-by Ve Entry 0 40 Diverted Ve	235 0% hicle Trips Exit 0 39 ehicle Trips Exit
Internal Vehicle Trip Capture PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center	Entry 32 119 External Vehic Entry 32	Exit 22 116 cle Trips Exit 22	Entry (%) 0.00% 34.00% Diverted Veh Entry (%) 0.00%	119 10% cle Trip % Exit (%) 0.00% 34.00% icle Trip % Exit (%) 0.00%	Pass-by Ve Entry 0 40 Diverted Ve Entry 0	235 0% hicle Trips Exit 0 39 ehicle Trips Exit 0 0
Total External Vehicle Trips Internal Vehicle Trip Capture PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center EXTRA VEHICLE TRIP REDUCTION	Entry 32 119 External Vehic Entry 32 119	Exit 22 116 116 12	Entry (%) 0.00% 34.00% Diverted Veh Entry (%) 0.00% 0.00%	119 10% cle Trip % Exit (%) 0.00% 34.00% icle Trip % Exit (%) 0.00% 0.00%	Pass-by Ve Entry 0 40 Diverted Ve Entry 0	235 0% hicle Trips Exit 0 39 chicle Trips Exit 0 0 0
Internal Vehicle Trip Capture PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center	Entry 32 119 External Vehic Entry 32 119 (External - (Pass-by + Dive	Exit 22 116 cle Trips Exit 22 116 116 erted)) Vehicle Trips	Entry (%) 0.00% 34.00% Diverted Veh Entry (%) 0.00% 0.00%	119 10% cle Trip % Exit (%) 0.00% 34.00% icle Trip % Exit (%) 0.00% 0.00%	Pass-by Ve Entry 0 40 Diverted Ve Entry 0 c	235 0% hicle Trips Exit 0 39 chicle Trips Exit 0 O Vehicle Trips
PASS-BY VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION Land Use 210 - Single-Family Detached Housing 820 - Shopping Center EXTRA VEHICLE TRIP REDUCTION	Entry 32 119 External Vehic Entry 32 119 (External - (Pass-by + Dive Entry	Exit 22 116 cle Trips Exit 22 116 116 erted)) Vehicle Trips Exit	Entry (%) 0.00% 34.00% Diverted Veh Entry (%) 0.00% 0.00% Extra Vehicle Tris	119 10% cle Trip % Exit (%) 0.00% 34.00% icle Trip % Exit (%) 0.00% 0.00% 0.00%	Pass-by Ve Entry 0 40 Diverted Ve Entry 0 c Entry 0 c Entry	235 0% hicle Trips Exit 0 39 ehicle Trips Exit 0 0 Vehicle Trips Exit
PASS-BY VEHICLE TRIP REDUCTION and Use 2.10 - Single-Family Detached Housing 3.20 - Shopping Center DIVERTED VEHICLE TRIP REDUCTION and Use 2.10 - Single-Family Detached Housing 3.20 - Shopping Center 2.210 - Single-Family Detached Housing 3.20 - Shopping Center	Entry 32 119 External Vehic Entry 32 119 (External - (Pass-by + Dive	Exit 22 116 cle Trips Exit 22 116 116 erted)) Vehicle Trips	Entry (%) 0.00% 34.00% Diverted Veh Entry (%) 0.00% 0.00%	119 10% cle Trip % Exit (%) 0.00% 34.00% icle Trip % Exit (%) 0.00% 0.00%	Pass-by Ve Entry 0 40 Diverted Ve Entry 0 c	235 0% hicle Trips Exit 0 39 chicle Trips Exit 0 0 Vehicle Trips

210 - Single-Family Detached Housing

Land Use

New Vehicle Trips

Entry

820 - Shopping Center	79	77	156
RESULTS			
Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	191	178	369
Internal Vehicle Trips	40	40	80
External Vehicle Trips	151	138	289
Internal Vehicle Trip Capture	21%	22%	22%
Pass-by Vehicle Trips	40	39	79
Diverted Vehicle Trips	0	0	0
Extra Reduced Vehicle Trips	0	0	0

111

99

210

New Vehicle Trips

PROJECT DETAILS

Project Name: Oak Park- Initial zoning Type of Project:
Project No: 20190713 City:
Country: Built-up Area(Sq.ft):
Analyst Name: Charles Wu Clients Name:
Date: 7/20/2019 ZIP/Postal Code:
State/Province: No. of Scenarios: 3

SCENARIO SUMMARY

Scenarios	Name	No. of Land Uses	Phases of	Horizon Year	User Group	Estimated New Vehicle Trips		
	Name	No. of Land Uses	Development		Oser Group	Entry	Exit	Total
Scenario - 1	Daily	3	1	2018		2104	2104	4208
Scenario - 2	AM Peak	3	1	2019		121	117	238
Scenario - 3	PM Peak	3	1	2019		130	113	243

Analysis Region:

Scenario - 1		
Scenario Name: Daily Dev. phase: 1 Analyst Note:	User Group: Horizon Year: 2018	
Dev. phase: 1	Horizon Year: 2018	
Analyst Note:		
Warning:		

Land Use & Data Source	Location IV	Size	Time Period	Method	Entry	Exit	Total	
Land Ose & Data Source		ıv.	3126	Tillie Fellou	Rate/Equation	Split%	Split%	Total
210 - Single-Family Detached Housing	General	Dwelling Units	72	Weekday	Best Fit (LOG)	384	384	768
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dwelling Offics	/2	vveekuay	Ln(T) =0.92Ln(X) + 2.71	50%	50%	700
220 - Multifamily Housing (Low-Rise)	General	Dwelling Units	36	Weekday	Best Fit (LIN)	116	116	232
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dwelling Offics	30	weekuay	T = 7.56(X) + -40.86	50%	50%	232
820 - Shopping Center	General	1000 Sq. Ft. GLA	39.7	Weekday	Best Fit (LOG)	1604	1604	3208
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	1000 3q. Ft. GLA	39.7	weekday	Ln(T) =0.68Ln(X) + 5.57	50%	50%	3206

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
Lailu USE	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	50	50
220 - Multifamily Housing (Low-Rise)	100	100	1	1	50	50
820 - Shopping Center	100	100	1	1	50	50

ESTIMATED BASELINE SITE PERSON TRIPS:

ind Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips		
Latin Ose	Entry	Exit	Entry	Exit	Entry	Exit	
210 - Single-Family Detached Housing	384	384	0	0	384	384	
210 - Single-Family Detached Housing	768		0		768		
220 - Multifamily Housing (Low-Rise)	116	116	0	0	116	116	
220 - Multifalliny Flousing (Low-rase)	2	232		0		232	
820 - Shopping Center	1604 1604		0 0		1604 1604		
620 - Shopping Center	3208		0		3208		

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
210 - Single-Family Detached Housing	Residential
220 - Multifamily Housing (Low-Rise)	Residential
820 - Shopping Center	Retail

BALANCED PERSON TRIPS:

210 - Single-Family Detached Housing					220 - Multifamily Housing (Low-Rise)			
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
384	1	0	0	0	0	0	1	116

Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
384	1	0	0	0	0	0	1	116
			_					
210 - Single-Family Detach	ed Housing							820 - Shopping Center
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
384	1	0	0	0	0	0	1	1604
Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
384	1	0	0	0	0	0	1	1604
				-	_		_	
220 - Multifamily Housing ((Low-Rise)							820 - Shopping Center
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
116	1	0	0	0	0	0	1	1604
Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
116	1	0	0	0	0	0	1	1604
110	1	0	U	•	U	U	1	1004
INTERNAL PERSON TRIPS: 210 - Single-Family Detach	and Housing							
Internal Person Trips From						Entry	Exit	Total
220 - Multifamily Housing (0	0	0
820 - Shopping Center	(2011 11150)					0	0	0
Total Internal Person Trips	•					0	0	0
Total Internal 1 Cloth Trips	,							
220 - Multifamily Housing								
Internal Person Trips From						Entry	Exit	Total
210 - Single-Family Detach	ed Housing					0	0	0
820 - Shopping Center						0	0	0
Total Internal Person Trips	S					0	0	0
820 - Shopping Center								
Internal Person Trips From						Entry	Exit	Total
210 - Single-Family Detache						0	0	0
220 - Multifamily Housing (0	0	0
Total Internal Person Trips						0	0	0
								<u> </u>
INTERNAL VEHICLE TRIPS A								
210 - Single-Family Detach	ned Housing							
Total Internal Person Trips						0	0	0
Vehicle Mode Share						100%	100%	-
Vehicle Occupancy						1.00	1.00	-
Total Vehicle Internal Trip	•					0	0	0
Total External Vehicle Trips						384	384	768
Internal Vehicle Trip Captu						0%	0%	0%
220 - Multifamily Housing	(Low-Rise)							
Total Internal Person Trips						0	0	0
Vehicle Mode Share						100%	100%	-
Vehicle Occupancy						1.00	1.00	_
occupancy						1.00	1.00	

Total Vehicle Internal Trips	0	0	0
Total External Vehicle Trips	116	116	232
Internal Vehicle Trip Capture	0%	0%	0%

820 - Shopping Center

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	=
Vehicle Occupancy	1.00	1.00	-
Total Vehicle Internal Trips	0	0	0
Total External Vehicle Trips	1604	1604	3208
Internal Vehicle Trip Capture	0%	0%	0%

PASS-BY VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
Lailu USE	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	384	384	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	116	116	0.00%	0.00%	0	0
820 - Shopping Center	1604	1604	0.00%	0.00%	0	0

DIVERTED VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Diverted Vehicle Trip %		Diverted Vehicle Trips	
Lanu ose	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	384	384	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	116	116	0.00%	0.00%	0	0
820 - Shopping Center	1604	1604	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Trip Reduction %		Extra Reduced Vehicle Trips	
Land Ose	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	384	384	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	116	116	0.00%	0.00%	0	0
820 - Shopping Center	1604	1604	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

Land Use		New Vehicle Trips				
niu ose	Entry	Exit	Total			
210 - Single-Family Detached Housing	384	384	768			
220 - Multifamily Housing (Low-Rise)	116	116	232			
820 - Shopping Center	1604	1604	3208			

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	2104	2104	4208
Internal Vehicle Trips	0	0	0
External Vehicle Trips	2104	2104	4208
Internal Vehicle Trip Capture	0%	0%	0%
Pass-by Vehicle Trips	0	0	0
Diverted Vehicle Trips	0	0	0

Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	2104	2104	4208

Scenario - 2	
Scenario Name: A	
Dev. phase: 1	Horizon Year: 2019
Analyst Note:	
Warning:	

Land Use & Data Source	Location IV	Size Tim	Time Period	Method	Entry	Exit	Total	
Lailu Ose & Data Jouice	Location	١٧	3126	Tillie Fellou	Rate/Equation	Split%	Split%	Total
210 - Single-Family Detached Housing	General	Dwelling Units	72	Weekday, Peak Hour of	Best Fit (LIN)	14	42	56
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dwelling Offics	72	Adjacent Street Traffic,	T = 0.71(X) + 4.80	25%	75%	30
220 - Multifamily Housing (Low-Rise)	General	Dwelling Units	36	Weekday, Peak Hour of	Best Fit (LOG)	4	14	18
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dwelling Units	30	Adjacent Street Traffic,	Ln(T) =0.95Ln(X) + -0.51	23%	77%	10
820 - Shopping Center	General	1000 Sa. Ft. GLA	39.7	Weekday, Peak Hour of	Best Fit (LIN)	106	65	171
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	1000 Sq. Ft. GLA	39.7	Adjacent Street Traffic,	T = 0.50(X) + 151.78	62%	38%	1/1

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
Lanu Ose	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	25	75
220 - Multifamily Housing (Low-Rise)	100	100	1	1	23	77
820 - Shopping Center	100	100	1	1	62	38

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
Land USE	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	14	42	0	0	14	42
210 - Single-1 annly betached flousing	56		0		56	
220 - Multifamily Housing (Low-Rise)	4	14	0	0	4	14
220 - Multilannily Housing (Low-Rise)	18		0		18	
820 - Shopping Center	106	65	0	0	106	65
820 - Shopping Center	171		0		171	

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
210 - Single-Family Detached Housing	Residential
220 - Multifamily Housing (Low-Rise)	Residential
820 - Shopping Center	Retail

BALANCED PERSON TRIPS:

210 - Single-Family Detached Housing						220 - Multifamily Housing (Low-Rise)			
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry	
42	1	0	0	0	0	0	1	4	

14	Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
Persons Exit	14	1	0	0	0	0	0	1	14
Persons Exit	210 - Single-Family Detach	ed Housing							820 - Shopping Center
A		-	LUDTC	Unconstrained Domand	==>>> BALANCED ==>>>	Unconstrained Demand	LUDTC	DAE	
Persons Entry									·
14	42	1	6	3	3	9	8.5	1	106
Persons Exit PAF UIPTC Unconstrained Demand September Persons Exit PAF UIPTC	Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
Persons Esit PAF UIPTC Unconstrained Demand ###>> BALANCED ###>> BALANC	14	1	1	0	0	5	7	1	65
14	220 - Multifamily Housing	(Low-Rise)							820 - Shopping Center
14	Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
Persons Entry					1				
A									
NETRINAL PERSON TRIPS: 210 - Single-Family Detached Housing	Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
210 - Single-Family Detached Housing Service Servi	4	1	1	0	0	5	7	1	65
210 - Single-Family Detached Housing Service Servi									
Internal Person Trips From	INTERNAL PERSON TRIPS:								
220 - Multifamily Housing (tow-Rise)									
820 - Shopping Center 0	Internal Person Trips From						Entry	Exit	Total
Total Internal Person Trips Comment Comm	220 - Multifamily Housing	(Low-Rise)					0	0	0
220 - Multifamily Housing (Low-Rise)	820 - Shopping Center						0	3	3
Internal Person Trips From	Total Internal Person Trips	s					0	3	3
Internal Person Trips From		(r. 5:)							
210 - Single-Family Detached Housing 0						1	Entry	Evit	Total
S20 - Shopping Center 0									
Total Internal Person Trips		eu riousing							
Sea - Shopping Center Internal Person Trips From		•							
Internal Person Trips From	Total internal reison imp	•					<u> </u>		1
210 - Single-Family Detached Housing 3	820 - Shopping Center								
220 - Multifamily Housing (Low-Rise)	Internal Person Trips From						Entry	Exit	Total
Total Internal Person Trips	210 - Single-Family Detach	ed Housing					3	0	3
Internal Vehicle Trips AND CAPTURE: 210 - Single-Family Detached Housing	220 - Multifamily Housing	(Low-Rise)					1	0	1
Total Internal Person Trips 0 3 3 3 3 Vehicle Mode Share 100% 100% 100% - Vehicle Occupancy 1.00 1.00 1.00	Total Internal Person Trips	s					4	0	4
Total Internal Person Trips 0 3 3 3 3 Vehicle Mode Share 100% 100% 100% - Vehicle Occupancy 1.00 1.00 1.00									
Total Internal Person Trips 0 3 3 Vehicle Mode Share 100% 100% - Vehicle Occupancy 1.00 1.00 - Total Vehicle Internal Trips 0 3 3 Total External Vehicle Trips 14 39 53 Internal Vehicle Trip Capture 0% 7% 0% 220 - Multifamily Housing (Low-Rise) 0 1 1 Total Internal Person Trips 0 1 1 Vehicle Mode Share 100% 100% -									
Vehicle Mode Share	210 - Single-Family Detach	ned Housing							
Vehicle Mode Share	Total Internal Person Trips					-1	0	3	3
Vehicle Occupancy									
Total Vehicle Internal Trips 0 3 3 Total External Vehicle Trips 14 39 53 Internal Vehicle Trip Capture 0% 7% 0% 220 - Multifamily Housing (Low-Rise) Total Internal Person Trips 0 1 1 Vehicle Mode Share 100% 100% -									
Total External Vehicle Trips 14 39 53 Internal Vehicle Trip Capture 0% 7% 0% 220 - Multifamily Housing (Low-Rise) 0 1 1 Total Internal Person Trips 0 1 1 Vehicle Mode Share 100% 100% -		ıs							
Internal Vehicle Trip Capture 0% 7% 0% 220 - Multifamily Housing (Low-Rise) 0 1 1 Total Internal Person Trips 0 1 1 Vehicle Mode Share 100% 100% -									
220 - Multifamily Housing (Low-Rise) Total Internal Person Trips 0 1 1 Vehicle Mode Share 100% 100% -	·								
Total Internal Person Trips 0 1 1 Vehicle Mode Share 100% 100% -						1	***		***
Vehicle Mode Share 100% 100% -	220 - Multifamily Housing	(Low-Rise)							
	Total Internal Person Trips						0	1	1
Vehicle Occupancy 1.00 1.00 -	Vehicle Mode Share						100%	100%	=
	Vehicle Occupancy						1.00	1.00	-

Total Vehicle Internal Trips	0	1	1
Total External Vehicle Trips	4	13	17
Internal Vehicle Trip Capture	0%	7%	0%

820 - Shopping Center

Total Internal Person Trips	4	0	4
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	-
Total Vehicle Internal Trips	3	0	3
Total External Vehicle Trips	103	65	168
Internal Vehicle Trip Capture	3%	0%	0%

PASS-BY VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
Land USE	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	14	39	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	4	13	0.00%	0.00%	0	0
820 - Shopping Center	103	65	0.00%	0.00%	0	0

DIVERTED VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Diverted Vehicle Trip %		Diverted Vehicle Trips	
Land USE	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	14	39	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	4	13	0.00%	0.00%	0	0
820 - Shopping Center	103	65	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Trip Reduction %		Extra Reduced Vehicle Trips	
Land USE	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	14	39	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	4	13	0.00%	0.00%	0	0
820 - Shopping Center	103	65	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips			
Land Use	Entry	Exit	Total	
210 - Single-Family Detached Housing	14	39	53	
220 - Multifamily Housing (Low-Rise)	4	13	17	
820 - Shopping Center	103	65	168	

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	124	121	245
Internal Vehicle Trips	3	4	7
External Vehicle Trips	121	117	238
Internal Vehicle Trip Capture	2%	3%	3%
Pass-by Vehicle Trips	0	0	0
Diverted Vehicle Trips	0	0	0

Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	121	117	238

Scenario - 3		
Scenario Name: PM Peak	User Group: Horizon Year: 2019	
Dev. phase: 1 Analyst Note:	Horizon Year: 2019	
Analyst Note:		
Warning:		

Land Use & Data Source	Location IV	IV	IV Size	Time Period	Method	Entry	Exit	Total
Land Ose & Data Source	Location	١٠		Tillie Fellou	Rate/Equation	Split%	Split%	IOtal
210 - Single-Family Detached Housing	General	Dwelling Units	72	Weekday, Peak Hour of	Best Fit (LOG)	47	27	7/
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dwelling Units		Adjacent Street Traffic,	Ln(T) =0.96Ln(X) + 0.20	63%	37%	'4
220 - Multifamily Housing (Low-Rise)	General	Dwelling Units	36	Weekday, Peak Hour of	Best Fit (LOG)	15	9	24
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	Dwelling Offics	30	Adjacent Street Traffic,	Ln(T) =0.89Ln(X) + -0.02	63%	37%	24
820 - Shopping Center	General	1000 Sg. Ft. GLA	39.7	Weekday, Peak Hour of	Best Fit (LOG)	132	143	275
Data Source: Trip Generation Manual, 10th Ed	Urban/Suburban	1000 3q. Ft. GLA	39.7	Adjacent Street Traffic,	Ln(T) =0.74Ln(X) + 2.89	48%	52%	2/3

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
Lanu Ose	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37
220 - Multifamily Housing (Low-Rise)	100	100	1	1	63	37
820 - Shopping Center	100	100	1	1	48	52

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
Land Ose	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	47	27	0	0	47	27
210 - Single-Family Detactied housing		74	0		74	
220 Multifamily Housing (Low Rice)	15	9	0	0	15	9
220 - Multifamily Housing (Low-Rise)		24	0		2	4
030 Changing Control	132	143	0	0	132	143
820 - Shopping Center	275		0		275	

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
210 - Single-Family Detached Housing	Residential
220 - Multifamily Housing (Low-Rise)	Residential
820 - Shopping Center	Retail

BALANCED PERSON TRIPS:

210 - Single-Family Detach	ed Housing						220 - Multi	family Housing (Low-Rise)
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
27	1	0	0	0	0	0	1	15

Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
47	1	0	0	0	0	0	1	9
210 - Single-Family Detache	d Housing							820 - Shopping Center
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
				6				•
27	1	21	6		7	5	1	132
Persons Entry	PAF	UIPTC	Unconstrained Demand	<<== BALANCED <<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
47	1	23	11	11	19	13	1	143
220 - Multifamily Housing (L	Low-Rise)							820 - Shopping Center
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
9	1	21	2	2	7	5	1	132
				- <<== BALANCED <<<==				
Persons Entry	PAF	UIPTC	Unconstrained Demand		Unconstrained Demand	UIPTC	PAF	Persons Exit
15	1	23	3	3	19	13	1	143
INTERNAL PERSON TRIPS: 210 - Single-Family Detache Internal Person Trips From	ed Housing				ı	Fahra	T = 20	Total
220 - Multifamily Housing (L	Low-Rise)					Entry 0	Exit 0	Total 0
820 - Shopping Center	LOW-INISE/					11	6	17
Total Internal Person Trips						11	6	17
					•		•	<u> </u>
220 - Multifamily Housing ((Low-Rise)				1		T	T
Internal Person Trips From	d Harriag					Entry	Exit	Total
210 - Single-Family Detache 820 - Shopping Center	a Housing					<u> </u>	0 2	0 5
Total Internal Person Trips						3	2	5
					L	<u>_</u>		
820 - Shopping Center								
Internal Person Trips From						Entry	Exit	Total
210 - Single-Family Detache						6	11	17
220 - Multifamily Housing (L Total Internal Person Trips						2 8	3 14	5 22
Total Internal Person Trips						8	14	22
INTERNAL VEHICLE TRIPS A 210 - Single-Family Detache								
Total Internal Person Trips	•					11	6	17
Vehicle Mode Share						100%	100%	-
Vehicle Occupancy						1.00	1.00	-
Total Vehicle Internal Trips						11	6	17
Total External Vehicle Trips Internal Vehicle Trip Captu						36 24%	21 22%	57 0 %
						24%	22%	0%
220 - Multifamily Housing ((Low-Rise)							
Total Internal Person Trips						3	2	5
Vehicle Mode Share						100%	100%	-
Vehicle Occupancy						1.00	1.00	-

Total Vehicle Internal Trips	3	2	5
Total External Vehicle Trips	12	7	19
Internal Vehicle Trip Capture	20%	23%	0%

820 - Shopping Center

Total Internal Person Trips	8	14	22
Vehicle Mode Share	100%	100%	=
Vehicle Occupancy	1.00	1.00	-
Total Vehicle Internal Trips	8	14	22
Total External Vehicle Trips	124	129	253
Internal Vehicle Trip Capture	6%	10%	0%

PASS-BY VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
Land Ose	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	36	21	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	12	7	0.00%	0.00%	0	0
820 - Shopping Center	124	129	34.00%	34.00%	42	44

DIVERTED VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Diverted Vehicle Trip %		Diverted Vehicle Trips	
Land OSE	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	36	21	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	12	7	0.00%	0.00%	0	0
820 - Shopping Center	124	129	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Tri	p Reduction %	Extra Reduced Vehicle Trips	
Land Ose	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
210 - Single-Family Detached Housing	36	21	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	12	7	0.00%	0.00%	0	0
820 - Shopping Center	82	85	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

Land Use		New Vehicle Trips					
Lailu Ose	Entry	Exit	Total				
210 - Single-Family Detached Housing	36	21	57				
220 - Multifamily Housing (Low-Rise)	12	7	19				
820 - Shopping Center	82	85	167				

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	194	179	373
Internal Vehicle Trips	22	22	44
External Vehicle Trips	172	157	329
Internal Vehicle Trip Capture	11%	12%	12%
Pass-by Vehicle Trips	42	44	86
Diverted Vehicle Trips	0	0	0

Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	130	113	243