

MEMORANDUM

Date:	April 22 nd , 2015	Project #: 13865.0
To: cc:	Wes Heigh, City of Camas Randy Printz, Landerholm Law Firm John O'Neil, Green Mountain Land, LLC	OPHER LYNN OFWASHINGTON H
From: Project: Subject:	Chris Brehmer, P.E. and Kelly Laustsen Green Mountain Master Plan Development Phase 1 Access Assessment	Christian Stence Top Story Teles Sience 4-22-15

This memorandum presents a supplement to the June 2014 transportation impact analysis (TIA) for the Green Mountain Master Plan development to be located at the northeast corner of NE Ingle Road and NE Goodwin Road in Camas, Washington. Specifically, it assesses the implication of providing one access for the Phase 1 development, as opposed to the two access locations assumed in the TIA. Figure 1 provides a preliminary site plan for the Phase 1 development, showing the single access on NE Ingle Road.

The TIA assumed two access points for the Phase 1 development with exclusive southbound left-turn lanes at each access, as shown in Figure 2. Operations were re-assessed under 2018 total traffic conditions assuming a single site access, with an exclusive southbound left-turn lane. The access is subject to the City of Camas operating standards, which require LOS "D" or better and a volume-to-capacity (v/c) ratio of 0.90 or better for all intersections. As shown in Figure 2, the proposed access operates acceptably during the weekday AM and PM peak hours, with the stop-controlled westbound approach operating at LOS "B". Operational worksheets are provided in *Attachment A*. Therefore, based on this assessment, a single access to the Phase 1 development area with a southbound left-turn lane on Ingle Road satisfies City operating standards and no additional improvements are needed.

We trust this memorandum adequately addresses the traffic impacts associated with providing a single access at the Phase 1 development of the Green Mountain Master Plan development. Please contact us if you have any questions or comments regarding the contents of this memorandum or the analysis performed.



plan

1_upd site



KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING/PLANNING Attachment A: Synchro Output Sheets

	4	•	Ť	۲	1	Ļ
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		4Î		5	†
Volume (veh/h)	96	24	165	32	8	194
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	113	28	194	38	9	228
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	460	213			232	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	460	213			232	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	97			99	
cM capacity (veh/h)	559	832			1348	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	141	232	9	228		
Volume Left	113	0	9	0		
Volume Right	28	38	0	0		
cSH	598	1700	1348	1700		
Volume to Capacity	0.24	0.14	0.01	0.13		
Queue Length 95th (ft)	23	0	1	0		
Control Delay (s)	12.9	0.0	7.7	0.0		
Lane LOS	В		А			
Approach Delay (s)	12.9	0.0	0.3			
Approach LOS	В					
Intersection Summary						
Average Delay			3.1			
Intersection Capacity Utilization	on		24.1%	IC	U Level o	of Service
Analysis Period (min)			15			

	4	•	Ť	1	5	ţ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	- M		4Î		ሻ	•	
Volume (veh/h)	64	16	149	108	27	158	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	
Hourly flow rate (vph)	75	19	175	127	32	186	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	488	239			302		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	488	239			302		
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	86	98			97		
cM capacity (veh/h)	529	805			1270		
Direction, Lane #	WB 1	NB 1	SB 1	SB 2			
Volume Total	94	302	32	186			
Volume Left	75	0	32	0			
Volume Right	19	127	0	0			
cSH	568	1700	1270	1700			
Volume to Capacity	0.17	0.18	0.03	0.11			
Queue Length 95th (ft)	15	0	2	0			
Control Delay (s)	12.6	0.0	7.9	0.0			
Lane LOS	В		А				
Approach Delay (s)	12.6	0.0	1.2				
Approach LOS	В						
Intersection Summary							
Average Delay			2.3				
Intersection Capacity Utilization	on		32.3%	IC	U Level o	of Service	
Analysis Period (min)			15				