

MEMO

TO: Eric Farrell, Owiso Makuku, Charlie Pughe
Copy: Laura Wheelock, BTV DPW
FROM: Mark Smith, PE.
DATE: December 28, 2016
SUBJECT: Cambrian Rise – Development Changes

Several changes to the mix of land use are proposed since the Transportation Impact Assessment (TIA), dated 12/21/16 for the Cambrian Rise development project on North Avenue in Burlington, Vermont.

This memorandum is provided as a supplement to the TIA, documenting these changes and their effects on the traffic analysis presented in the original Assessment cited above.

1.0 PROPOSED CHANGES

The development has been revised to include the following additional components:

- 2 hotel rooms
- 6 apartment units
- 2,950 s.f. of technical college space
- 250 s.f. of restaurant space

Vehicle trip generation, as determined by the methods used in the TIA, now includes the following:

Primary trips, as determined by the Institute of Transportation Engineers *Trip Generation Manual*, are summarized by land use code (ITE LUC) in Table 1.

TABLE 1. PRIMARY TRIPS

ITE LUC	Description	Units/size		AM Peak		PM Peak	
				enter	exit	enter	exit
223	Mid-Rise Apartment	673	d.u.	90	199	194	140
311	All-Suites Hotel	42	room	9	7	8	9
540	Junior/Community College	16,550	s.f.	37	13	24	18
565	Daycare Center	4,025	s.f.	26	23	23	26
710	General Office Building	22,541	s.f.	31	4	6	28
826	Specialty Retail Center	2,675	s.f.	0	0	3	4
932	High-Turnover (Sit-Down) Restaurant	2,650	s.f.	16	13	9	6
		sub-total		208	260	267	231
		total		467		498	

Pass-by trips are not expected to change from the original assessment.

Trips that are associated with each land use, but are expected to take advantage of other uses within the development, are shown in Table 2.

TABLE 2. INTERNAL CAPTURE TRIPS

ITE LUC	Description	Units/size	d.u.	AM Peak		PM Peak	
				enter	exit	enter	exit
223	Mid-Rise Apartment	673	d.u.	1	4	3	5
311	All-Suites Hotel	42	room	0	2	1	0
540	Junior/Community College	16,550	s.f.	0	0	0	0
565	Daycare Center	4,025	s.f.	8	8	8	8
710	General Office Building	22,541	s.f.	6	3	3	1
826	Specialty Retail Center	2,675	s.f.	0	0	2	2
932	High-Turnover (Sit-Down) Restaurant	2,650	s.f.	7	5	2	3
	sub-total			22	22	19	19
	total			44		38	

In summary, including a 10% reduction in trips due to the effects of Transportation Demand Management, the total external vehicle trips due to the project are shown in Table 3.

TABLE 3. TOTAL EXTERNAL VEHICLE TRIPS

ITE LUC	Description	Units/size	d.u.	AM Peak		PM Peak	
				enter	exit	enter	exit
223	Mid-Rise Apartment	673	d.u.	80	176	172	122
311	All-Suites Hotel	42	room	8	5	6	8
540	Junior/Community College	16,550	s.f.	33	12	22	16
565	Daycare Center	4,025	s.f.	16	13	14	16
710	General Office Building	22,541	s.f.	22	1	2	24
826	Specialty Retail Center	2,675	s.f.	0	0	1	2
932	High-Turnover (Sit-Down) Restaurant	2,650	s.f.	8	7	13	8
	sub-total			167	214	230	196
	total			381		425	

The net effect of the additional land use is an additional 12 trips in the AM peak hour and 11 trips in the PM peak hour. The total daily trip generation is expected to be 4,620 vehicles per day.

2.0 NET EFFECT OF CHANGES ON TRAFFIC

The net effect of these additional land uses is generally negligible throughout the study area (adding 0.1 seconds of average delay or 1% of capacity utilization (v/c)). Minor exceptions include:

- 1 sec. / 2 sec. average delay added to the Berry St. approach to North Avenue (2022 PM / 2027 PM)
- 4 sec. average delay added to the eastbound approach at Maple and Pine St. (without the planned Champlain Parkway improvements)

Maximum vehicle queue increases were generally negligible as well. Small increases (3-7 ft.) are noted from North St/North Ave. to Battery/Pearl St.

END OF MEMO

