



February 4, 2019

Reference No. 11176979

Kiley Patrick
General Manager Assistant – Unity Inn & Spa
BPE Development
141 Hickson Avenue
Kingston, Ontario K7K 2N7

Dear Ms. Patrick:

**Re: Traffic Impact Studies for Unity Inn & Spa
2285 Battersea Road, Kingston, Ontario**

The Unity Inn & Spa development is located at 2285 Battersea Road at the northwest corner of Battersea Road and Unity Road in the City of Kingston. The project will include a 27 suite boutique inn, thermal spa, massage therapy rooms, restaurant, gift shop, nightly rental cabins, and corporate event spaces.

1. Existing Traffic Conditions

Traffic data was available for the Battersea Road/Kingston Mills intersection from July 2010 and April 2016. The April counts were lower than the summer counts so the summer counts from July 2010 were used to estimate a "worst-case" scenario. However, the traffic volumes from 2010 were increased to account for annual growth in traffic of 1 percent. The predicted 2018 traffic volumes on Battersea Road were therefore:

| Hour ending | Southbound | Northbound |
|-------------|------------|------------|
| 08:00 a.m. | 393 | 121 |
| 13:00 p.m. | 134 | 133 |
| 17:00 p.m. | 191 | 389 |

The peak hours of traffic were between 07:00-08:00 a.m. and between 16:00-17:00 p.m.

The capacity for Battersea Road, according to the Kingston TMP, is 1100 vehicles per hour in each direction. The data table from the table above indicates that there is ample existing capacity available on the roadway.

2. Development Phases

The development consists of three phases. Phase 1 consists of a 27-suite boutique inn with a thermal spa, massage therapy rooms, a gift store, a restaurant, five nightly rental cabins, and a corporate event space. Phase 2 will add 10 cabins. Phase 3 will add 25 cabins.



3. Access Locations

The proposed site has several access locations. The accesses are as follows:

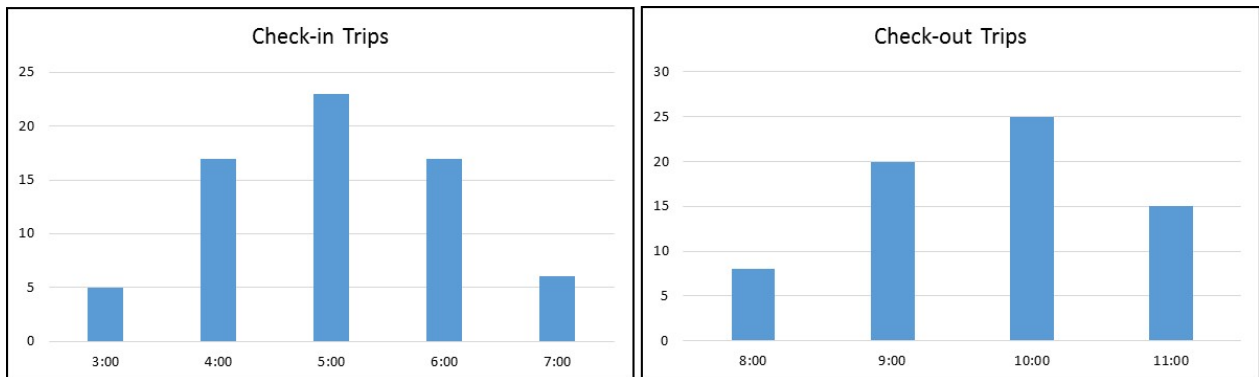
- A new Unity Road entrance, which will be reserved for deliveries and emergency vehicles
- Two existing farm entrances consisting of one northern entrance that will be increased in width and shifted south to be within the existing 60 kilometres per hour (km/h) zone, to be used for a public entrance and exit to the parking area, and one southern entrance that will be increased in width and designated as an emergency access route
- An existing main entrance
- A proposed entrance from Battersea Road using the unopened right-of-way, which will provide access to a remote storage building.

The multiple access locations on Battersea Road will distribute the traffic created by the development and lessen the point impact of any one driveway location. Entrance and exit movements will be facilitated with two accesses to the main parking lot.

4. Trip Generation for Total Development

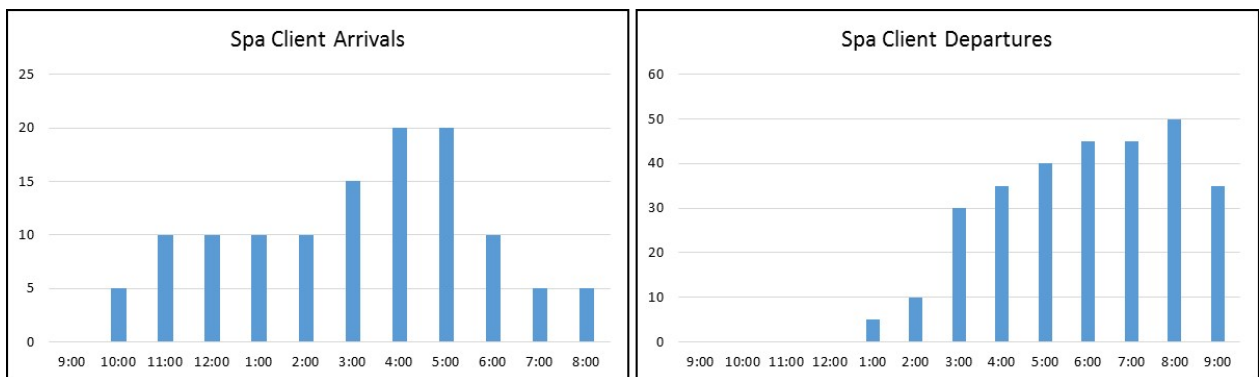
The ITE Trip Generation Manual was consulted for trip generation rates for the accommodation and restaurant components of the development. The corporate event spaces located on the same parcel of land are a related land use but will be treated separately in terms of traffic generation.

The size of this development for both the accommodation and restaurant land uses were far below the data ranges published in the Trip Generation Manual. Furthermore, since the food services part of the development is mainly intended for guests of the spa and inn clients, the number of trips generated specifically by the food services component is expected to be negligible. Due to the size of the development and the overlap between inn guests and spa clients, the spa will generate few primary trips. The spa is mainly intended for inn guests and will accept walk-up visitors to a maximum of 35 people. Once the inn is expanded in Phase 2 and 3, the walk-up clientele maximum will be reduced to 16 people. It is the 27 suites in the inn and the 40 cabins which are expected to generate the majority of the trips. Based on check-in and check-out times and a normal distribution of trips, the accommodation trips are expected to be as shown in the following figure.



The ITE Trip Generation Manual does not have a land use category for thermal spa. A comparable establishment is the "Nordik Spa" in Chelsea, Quebec. It is a similar type of development with a thermal spa, massage treatment suite, restaurant, café, bar, and accommodations. A phone interview was conducted with staff at "Nordik Spa" to determine typical clientele patterns. The opening hours are 09:00 a.m. to 23:00 p.m. with the weekday highest arrival time between 11:00 a.m. and 14:00 p.m. Visitors typically stay for 4 to 5 hours and often incorporate lunch or dinner with their visit to the spa.

The clients for the spa are expected to arrive throughout the day with the peak time between 11:00 a.m. and 14:00 p.m. with a maximum number of walk-up clients of 35 people on site at one time. The pattern of spa client arrivals and departures are shown in the following figure.



The total trip arrivals and departures for the spa, the accommodation, and staff is expected to be as shown in Table 4.1. As previously mentioned, the restaurant clientele is expected to be drawn from the inn guests and spa clientele with negligible walk-up clients.

Table 4.1 Trip Arrivals and Departures

| Time | Arrivals | | | | Departures | | | | Total Trips |
|------------|----------|-----|-------|-------|------------|-----|-------|-------|-------------|
| | Staff | Spa | Suite | Total | Staff | Spa | Suite | Total | |
| 08:00 a.m. | 10 | | | 10 | | | 8 | 8 | 18 |
| 09:00 a.m. | | | | 0 | | | 20 | 20 | 20 |
| 10:00 a.m. | | 5 | | 5 | | | 25 | 25 | 30 |



Table 4.1 Trip Arrivals and Departures

| Time | Arrivals | | | | Departures | | | | Total Trips |
|------------|----------|-----|-------|-------|------------|-----|-------|-------|-------------|
| | Staff | Spa | Suite | Total | Staff | Spa | Suite | Total | |
| 11:00 a.m. | 5 | 5 | | 10 | | | 15 | 15 | 25 |
| 12:00 p.m. | | 5 | | 5 | | | | 0 | 5 |
| 13:00 p.m. | | 5 | | 5 | | 5 | | 5 | 10 |
| 14:00 p.m. | | 5 | | 5 | | 10 | | 10 | 15 |
| 15:00 p.m. | 5 | 20 | 5 | 25 | | 30 | | 30 | 55 |
| 16:00 p.m. | | 15 | 17 | 37 | 5 | 35 | | 40 | 82 |
| 17:00 p.m. | 10 | 10 | 23 | 43 | 10 | 40 | | 50 | 103 |
| 18:00 p.m. | | 10 | 17 | 27 | | 45 | | 45 | 72 |
| 19:00 p.m. | | 5 | 6 | 11 | | 45 | | 45 | 56 |
| 20:00 p.m. | | 0 | | 0 | | 40 | | 40 | 40 |
| 21:00 p.m. | | 0 | | 0 | 15 | 35 | | 50 | 50 |

During the peak travel times of 07:00-08:00 a.m. and 16:00-17:00 p.m., the spa and accommodations are expected to add 0 trips during the a.m. peak and 82 trips during the p.m. peak. These additional trips will not impact the road capacity.

For the corporate event venue space, the Phase 1 areas intended for corporate events are expected to have a combined capacity of 130 people and will be available to clientele during the weekdays. If the corporate event space is fully occupied on a weekday, it may be possible that an additional 130 departing trips would be added to the roadway during the p.m. peak hour. These additional trips would result in approximately 50 percent capacity utilization of Battersea Road and will not require any change to traffic controls or roadway geometry. With the available capacity of the road additional development on the site or in the area could be accommodated.

5. Left-turn Lane Warrants

The requirement for a northbound left-turn lane was verified using the MTO design supplement Appendix 9A to the TAC Geometric Design Guide, June 2017. A design speed of 80 km/h was assumed despite the posted speed of 60 km/h. During the p.m. peak hour, there is an expected arrival of 37 vehicles. These vehicles can use two access points to the parking lot. If, in a worst-case scenario, all vehicles use the main entrance, with the existing traffic volumes and a design speed of 80 km/h, a left-turn lane is just warranted. Since the development is located in a 60 km/h posted speed zone and it is more likely that vehicles will access the parking lot using multiple access driveways, a left-turn lane is not needed.

6. Phase 1 and Phase 2 Impacts

In Phase 1 and Phase 2, the maximum number of trips at 17:00 p.m. is expected to be 35 vehicles arriving and 50 vehicles departing. Because the traffic generated in the first development phases will be less than



the traffic in Phase 3 and there are no potential impacts with the future Phase 3 development, there will be no impacts with the Phase 1 or Phase 2 development.

7. Conclusion

The proposed Unity Inn & Spa development at 2285 Battersea Road will generate vehicular trips throughout the day but will have negligible impact on the road capacity. A northbound left-turn lane is not needed based on the site configuration, the trips generated and the existing traffic volumes.

Sincerely,

GHD

A handwritten signature in blue ink that reads 'Vanessa Skelton'. The signature is fluid and cursive, with a long horizontal stroke extending from the end.

Vanessa Skelton, P. Eng.

VS/al/4