

**HINDU TEMPLE  
4835 BANK STREET  
OTTAWA, ONTARIO**

**TRANSPORTATION BRIEF - ADDENDUM**

July 16, 2020

**D. J. Halpenny & Associates Ltd.**  
CONSULTING TRANSPORTATION ENGINEERS  
P. O. Box 774, MANOTICK, ONTARIO K4M 1A7

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July 16, 2020

Prepared for:

Hindu Temple of Ottawa Carleton Inc.

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**D. J. Halpenny & Associates Ltd.**

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**HINDU TEMPLE  
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OTTAWA, ONTARIO**

**TRANSPORTATION BRIEF - ADDENDUM**

**1. BACKGROUND**

The Hindu Temple of Ottawa-Carleton was constructed approximately 30 years ago on a vacant parcel of land on the east side of Bank Street in the south end of the City of Ottawa. The temple currently provides one Sunday morning service with an average attendance of 125 to 150 parishioners. A new Assembly Hall is being proposed for the site which will be a standalone building located behind the temple at the east portion of the site. The Assembly Hall will not be used as a place of worship.

A Transportation Brief report dated October 27, 2017 was prepared by D. J. Halpenny & Associates Ltd. to support the rezoning of the lands. The report addressed the operation of the site access onto Bank Street and the operation of the intersection of Dun Skipper Drive and Bank Street. The study utilized 2017 Sunday traffic counts and the future road geometry for the Dun Skipper/Bank intersection which was provided by the City of Ottawa. The future geometry of the Dun Skipper/Bank intersection was that of a three approach roundabout. Since the Transportation Brief report was prepared, the geometry of the Dun Skipper/Bank intersection was changed and the intersection constructed as a traffic signal controlled intersection.

This Addendum to the Transportation Brief is in support of the Site Plan Control Application for the Assembly Hall. The Addendum will be addressing the operation of the site access using the geometry and traffic signals of the Dun Skipper/Bank intersection. The requirement for an Addendum to the Transportation Brief was stated in the notes of the June 5, 2019 Pre-consultation Meeting - Transportation Comments which are provided as Exhibit 1 in the Appendix. The scope of the Addendum is stated in the June 16, 2020 email from City staff which is provided as Exhibit 2. The email also mentions that Bank Street is scheduled to be reconstructed and widened in 2023 from Leitrim Road to a point southeast of the site access. Bank Street would be widened to a four lane road including cycle tracks and sidewalks.

**2. EXISTING ROADWAY CONDITIONS**

Dun Skipper/Bank Intersection

The Dun Skipper/Bank intersection is located approximately 80 m north of the access to the Temple site. The intersection has been constructed within the past year with

auxiliary turn lanes and traffic control signals. The intersection has the following lane configuration:

Northbound Bank Street	One through lane One exclusive left turn lane
Southbound Bank Street	One through lane One exclusive right turn lane
Eastbound Dun Skipper Drive	One shared left/right turn lane

Figure 2.1 shows the existing geometry of the intersection with Bank Street as a two lane rural road with an 80 km./h. posted speed limit.

### Temple Access/Bank Intersection

The Temple Access is located south of the Dun Skipper/Bank intersection. The intersection is a “T” intersection providing full turning movements. The Temple Access intersection currently has the following lane configuration which is shown in Figure 2.1:

Northbound Bank Street	One shared through/right lane One exclusive left turn lane *
Southbound Bank Street	One shared left/through lane
Westbound Temple Access	One shared left/right turn lane (Stop Sign)

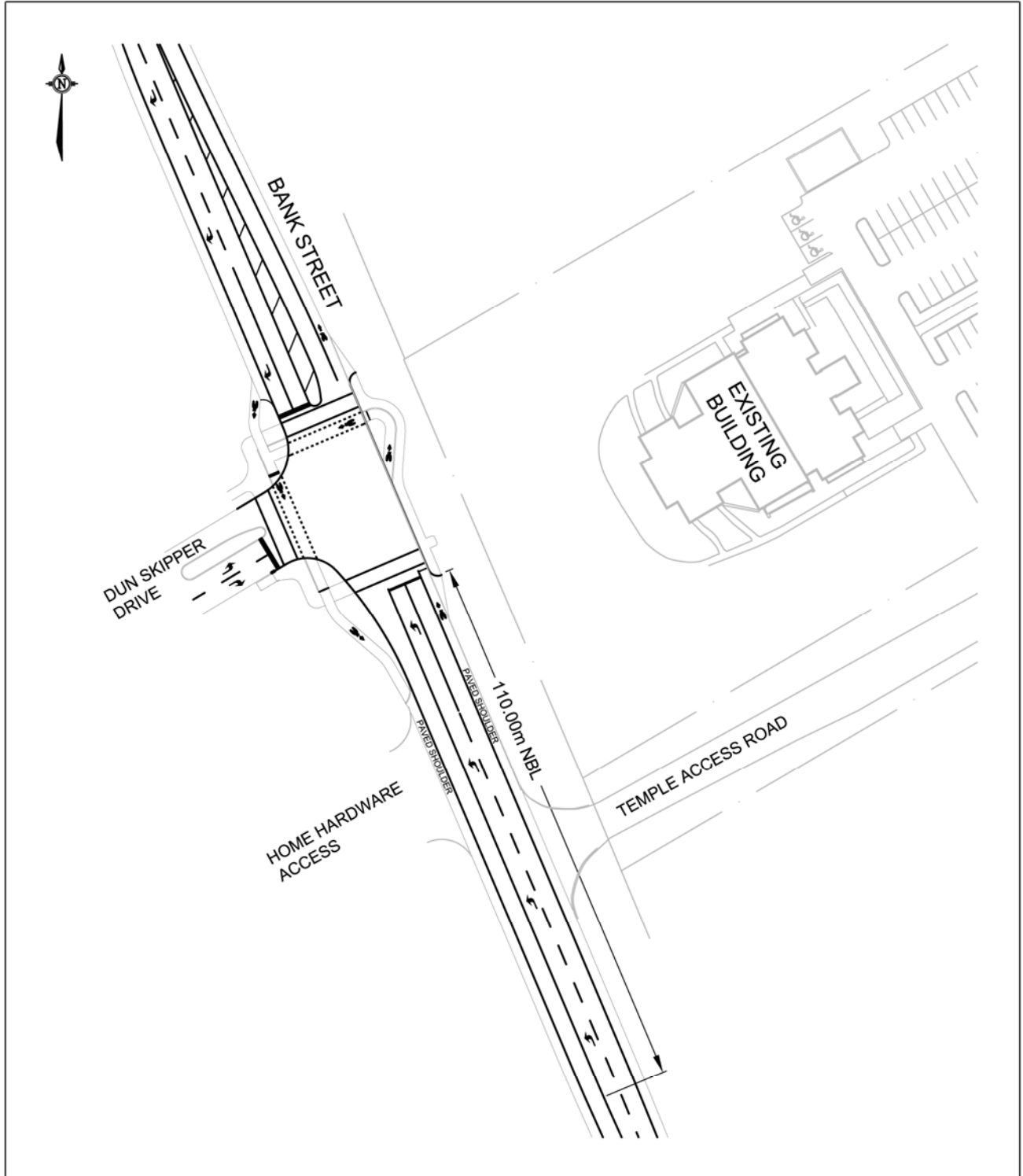
- \* The exclusive northbound left turn lane is the storage and parallel lane for the Dun Skipper/Bank intersection and does not contribute to movements at the Temple Access

When Bank Street is reconstructed and widened to a four lane roadway, Bank Street past the site would have an additional exclusive through lane past the site in both the northbound and southbound direction.

### **3. TEMPLE ACCESS AND BANK STREET INTERSECTION ANALYSIS**

The Temple Access is located 80 m south of the signalized Dun Skipper/Bank intersection. Utilizing the plan of the existing conditions shown in Figure 2.1, the Temple Access has a 55 m throat distance between the north edge of the access and the stop bar and the northbound approach to the Dun Skipper/Bank intersection. The access analysis examined vehicular queuing at the Temple Access for two scenarios. The first scenario is to determine the length of queuing at the southbound Bank Street left turn movement into the site, and to determine that the left turn queue would not extend north and interfere with the operation of the Dun Skipper/Bank intersection. The second scenario was to examine the length of queuing at the northbound left turn movement to the Dun Skipper/Bank intersection. The analysis would determine if the queuing would extend south past the Temple Access and block southbound left turn movements into the site. The analysis discussed below for the two scenarios will utilize the expected 2025 traffic volumes and the existing lane geometry and traffic signals at the Dun Skipper/Bank intersection.

**FIGURE 2.1**  
**EXISTING BANK STREET LANE GEOMETRY**



NOT TO SCALE

### Scenario 1 - Queuing at the Southbound Bank Left Turn Movement into the Temple Site

The queuing at the southbound Bank Street left turn movement into the Temple Access was determined by using the expected 2025 total traffic from the October 27, 2017 Transportation Brief report and calculating the 95<sup>th</sup> percentile queue at the southbound left turn movement. The calculation used the *Highway Capacity Software Version 7.8.5* with the analysis sheet provided as Exhibit 3. The analysis was conducted for the expected Sunday peak hour traffic when parishioners are entering the site. The analysis determined the 95<sup>th</sup> percentile queue to be 0.2 vehicles (7.0 m) which can be accommodated within the 55 m throat distance between intersections.

### Scenario 2 - Queuing at the Northbound Bank Left Turn Movement onto Dun Skipper

The analysis was conducted to calculate the length of queuing at the northbound left turn lane to the Dun Skipper/Bank intersection, and determine if the queuing would extend past the Temple Access which would restrict southbound Bank Street left turning movements into the Temple site. The analysis used the *Remer Lands - 4800 Bank Street Community Transportation Study (CTS) May 2016*. The 2025 traffic at the northbound Bank Street left turn movement was determined to be 41 vehicles which were taken from Exhibit 15 of the report for the weekday peak PM hour. Utilizing a traffic signal timing cycle of 100 seconds, the required storage for the northbound left turn movement would be 12 m as shown below.

$$\begin{aligned} \text{Lane storage} &= \frac{V \times 7.0 \times \text{PF} \times C}{3600} & \text{Where: } V &= 41 \text{ (Traffic)} \\ & & \text{PF} &= 1.5 \text{ (Peaking Factor)} \\ & & C &= 100 \text{ sec. (Signal Cycle)} \\ &= \frac{41 \times 7.0 \times 1.5 \times 100}{3600} \\ &= 11.96 \text{ m or } 12 \text{ m} \end{aligned}$$

A vehicular storage requirement of 12 m can be accommodated within the 55 m throat distance between intersections, with the northbound left turn lane not interfering with the operation of the Temple Access.

## **4. FUTURE BANK STREET ROAD WIDENING**

The widening of Bank Street in the vicinity of the site is identified in the City of Ottawa *Transportation Master Plan (TMP)*. City staff has stated that Bank Street will be reconstructed from Leitrim Road to a point southeast of the site access. The reconstruction will take place in 2023 and would consist of the urbanizing and widening of Bank Street to a four lane road including cycling tracks and sidewalks. The traffic signals at the Dun Skipper/Bank intersection will remain. Figure 4.1 shows a concept plan of the roadway widening. The Temple Access/Bank intersection will have a break in the Bank Street centre median which will allow full turning movements entering and exiting the Temple site. Following the widening of Bank Street, the Temple Access intersection will have the following lane configuration which is shown in Figure 4.1:



Northbound Bank Street	One shared through/right lane One through lane One exclusive left turn lane *
Southbound Bank Street	One shared left/through lane One shared through lane
Westbound Temple Access	One shared left/right turn lane (Stop Sign)

- \* The exclusive northbound left turn lane is the storage and parallel lane for the Dun Skipper/Bank intersection and does not contribute to movements at the Temple Access

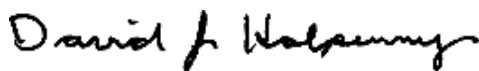
The four lane road would provide exclusive northbound and southbound through lanes along with a lane providing both through and turning movements into the Temple site. The additional through lanes along Bank Street would improve the level of service of the intersection when compared to the existing two lane road geometry.

## 5. SUMMARY

This Addendum to the October 27, 2017 Transportation Brief (TB) has examined the impact that the installation of traffic signals at the Dun Skipper/Bank intersection would have on the operation of the Temple Access/Bank intersection. The traffic signals would replace the original proposal of a roundabout which was assumed in the TB report. The following is a summary of the findings of the Addendum analysis:

1. Using the existing lane configuration and traffic signals, the queuing analysis determined that the southbound left turn lane into the Temple site would not extend to the Dun Skipper/Bank intersection. The Dun Skipper/Bank northbound left turn lane would not extend past the Temple Access. There would be no negative impact between the Temple Access and Dun Skipper/Bank intersection for either the existing road geometry of future Bank Street widening.
2. The 2017 TB report assumed the Assembly Hall to have a gross floor area of 2,000 m<sup>2</sup>. For the Site Plan Control Application the most recent Site Plan proposes a 1,593 m<sup>2</sup> building. The smaller size of the Assembly Hall would reduce the number of expected site generated trips in the traffic impact analysis.

Prepared by:



David J. Halpenny, M. Eng., P. Eng.





## **APPENDIX**

**PRE-CONSULTATION MEETING MINUTES**

**CITY STAFF COMMENTS**

**TRAFFIC ANALYSIS**

## EXHIBIT 1 PRE-CONSULTATION MEETING NOTES - June 5, 2019

# Site Plan Control Pre-consultation

Meeting Date: June 5, 2019

4835 Bank Street

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**Applicant:** Barrett Wagar **Councillor:** George Darouze, Ward 20

**Proposal Summary:** To construct a new 1400 square metre Place of Assembly

**Attendees:** Ken Talwar, Representative for the Hindu temple Board of Trustees  
Jessica Arthurs, Engineer, LRL Associates Ltd.  
Virginia Johnson, Engineer, LRL Associates Ltd.  
Dave Halpenny, Transportation Engineer, DJ Halpenny and associates Ltd.  
Lloyd Philips, Principal, Lloyd Philips and Associates Ltd.  
Barrett Wagar, Senior Planner, Lloyd Philips and Associates Ltd.  
Matthew Hayley, Environmental Planner, PIEDD, City of Ottawa  
Rubina Rasool, Project Manager, PIEDD, City of Ottawa  
Seana Turkington, Planner, PIEDD, City of Ottawa  
Brad Wright, Watershed Planner, South Nation Conservation Authority

### **Meeting Minutes**

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#### Proposal details

- Subject site initially developed in 1985.
- Assembly hall envisioned to be constructed at a later date.
- A transportation brief was prepared in support of the Zoning By-law Amendment application approved in 2018.
- The gfa at the zoning stage was initially 1600 square metres. It has since been reduced to 1400 square metres.
- The proposed building subject to the site plan is smaller than what was considered in the transportation brief done in support of the rezoning.
- There is a current easement over the adjacent property for the purpose of accessing the subject site.

#### Planning (Provided by Seana Turkington)

- Designated General Rural Area and Rural Natural Features Area on Schedule A of the Official Plan. Directly across from the urban boundary and an urban expansion area.
- Re-zoning done in 2018, which established an altered watercourse setback and parking space rate (8.4 spaces per 100 square metres of gfa).
- Please elaborate on what the seniors area is for.
- As the subject site is within 500m of a Bedrock Resource Area, a Mineral Resource Impact Assessment (MRIA) will be required to accompany a formal application.
- Consider moving the proposed gravel path closer to the building to improve pedestrian connectivity on site.
- Please also consider moving the loading spaces closer to the proposed Place of Assembly for ease of access and for better internal site circulation.
- Consider as well aligning the proposed pedestrian path with the entrances of both buildings and including trees or vegetation along the pedestrian path through the parking lot.

#### Environmental Planning Comments (Provided by Matthew Hayley)

- The EIS done previously for the Zoning By-law Amendment application identified building location and heavily examined the proposed reduced setback.
- A Site Plan application will be reviewed against the EIS submitted previously.
- Any new information introduced since the re-zoning will also be considered.
- The pathway proposed should be wood-fiber or some form of previous material. Needs to be at least 1.5 metres in width.
- The septic system needs to be 30 metres from the watercourse.

Prepared by S. Turkington  
Date: June 26, 2019

- Stormwater management was a concern at the Zoning stage.
- Low Impact Development (LID) practices should be implemented on site, where possible.
- A letter from the EIS consultant discussing the proposed site plan application would be beneficial.

Engineering Comments (Provided by Rubina Rasool)

- The servicing report done for the Zoning By-law Amendment will be required (water, fire, stormwater management).
- No surface ponding shall be permitted for minor storm event storage calculations.
- A Geotechnical Report will be required.
- A Phase II ESA will be required, as per the results of the Phase I ESA done for the Zoning By-law Amendment application.

South Nation Conservation Authority Comments (Provided by Brad Wright)

- The SNCA will review any plantings proposed via the Landscape Plan, as well as stormwater management and any LID measures proposed.
- Supportive of including LID measures on the subject site.
- The standard 80% of Total Suspended Solids (TSS) removal will be required for this development. Further, the recommendation is for post-development stormwater runoff to be equivalent to pre-development runoff.

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## ADDITIONAL COMMENTS

### Planning Comments

**Official Plan:** General Rural Area and Rural Natural Features Area

**Secondary Plan and/or Community Design Plan:** N/A

**Zoning By-law:** Rural Institutional Zone, Subzone 5, Exception 865r and 866r (R15[865r] and R15[866r])

**Other:**

- A Place of Assembly is not exempt from the Parkland Dedication By-law. As such, Cash-in-Lieu of Parkland for the portion of the subject lands used for the new Place of Assembly, within Ward 20. The value of the land is to be determined by the City's realty Services Branch. The Owner shall bear any appraisal costs incurred by the City.

### Transportation Comments

*Site Plan*

- Show all details of the road abutting the site up to and including the opposite curb; include such items as pavement markings, centreline of the road and accesses.
- Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access
- Show all curb radii measurements.
- Depressed curb should be provided near the barrier free spaces.
- Encourage pedestrian connectivity on site and to existing sidewalks. Pedestrian connection between the proposed building and existing building should be considered and shown on the plan.

*Intersection of Bank Street and Dun Skipper Drive*

- The intersection of Bank Street and Dun Skipper Drive is to be modified/signalized to accommodate a proposed subdivision on the west side of Bank Street in the suburban community of Leitrim. The RMA for the intersection modifications and signalization has been approved.
- Modifications include a new northbound left-turn and southbound right-turn lane on Bank Street at Dun Skipper Drive, paved shoulder on both sides of Bank Street within the construction limits, and a new traffic control signals at the intersection of Bank Street and Dun Skipper Drive. The intersection is located approximately 80m north of the Hindu Temple site access.
- The roundabout on Bank Street is still incorporated in the Ultimate design of Bank Street widening post 2031.
- In the interim, the modified intersection of Bank Street and Dun Skipper is intended.
- Attached is the approved RMA for the subject intersection.

*Transportation Impact Assessment (TIA)*

- A TIA was submitted and reviewed with the Zoning Application in 2017 (D02-02-17-0103). The TIA discussed the planned roundabout on Bank Street. An update or an addendum to the TIA is required to address the intersection of Bank Street and Dun Skipper Drive.

### **Engineering Comments**

#### Site Servicing

##### Water:

- The Servicing Memo shall be completed by a professional engineer.
- Please provide the following information to the City of Ottawa via email at your engineering consultant's earliest convenience to request water distribution network boundary conditions for the site. Please note that once this information has been received, it may take 5 business days to receive boundary condition results for hydraulic analysis. The boundary condition correspondence should be provided within the servicing report.
  - Type of development
  - Site Address
  - A plan clearly showing the proposed water service connection location
  - **Average Daily Demand (L/s)**
  - **Maximum Daily Demand (L/s)**
  - **Peak Hour Demand (L/s)**
  - **Fire Flow (L/s)**
    - Fire flow demand requirements shall be based on Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection 1999 as per the *Ottawa Design Guidelines – Water Distribution*, First Edition, Document WDG001, July 2010, City of Ottawa Clause 4.2.11. Technical Bulletin ISTB-2018-02.

##### Sanitary:

- The site will be serviced by a septic system. A Groundwater Impact Study will be required for design flows of the total site exceeding 10,000 L/day.
- A detail plan will be required to demonstrate the dimensions of the proposed septic system and runs.
- An approved septic system permit shall be submitted as part of the application.

##### Storm Water Management:

- The consultant should determine a stormwater management regime for the application and, generally, maintain post-development flows to pre-development levels by way of providing storage to offset the increased impervious areas.
- The pre-development conditions will consider the existing development and parking as existing impervious surfaces. All other structures and hard landscaping surfaces shall be considered soft landscaping/grass for the pre-development conditions.
- The stormwater management system should be designed for the 5-year and the 100-year storm events.
- Overland flows should be directed to a legal outlet or watercourse.
- Any existing stormwater runoff from adjacent site(s) that crosses the property must be accommodated by the proposed stormwater management design.
- Water quality design requirements will be determined by the South Nation Conservation Authority.
- Stormwater quality control is required for the site. The site must ensure enhanced TSS removal of 80% is achieved.
- All surface and below ground infrastructure including the septic field shall be setback 30 meters from the watercourse.
- All stormwater management determinations shall have supporting rationale.

##### Fire Protection:

- The applicant should have their consultant contact Ottawa Fire Services to determine if fire protection is required.

##### Contact Information:

Allan Evans  
Engineer, Fire Protection  
City of Ottawa  
613-580-2424 x24119  
[Allan.Evans@ottawa.ca](mailto:Allan.Evans@ottawa.ca)

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**EXHIBIT 2**  
**CITY STAFF COMMENTS - Email June 16, 2020**

From: Paudel, Neeti  
Sent: June 16, 2020 4:13 PM  
To: 'David J Halpenny' <[david@djhalpenny.com](mailto:david@djhalpenny.com)>  
Cc: Jessica D'Aoust <[jessica@lloydphillips.com](mailto:jessica@lloydphillips.com)>; Turkington, Seana  
<[Seana.Turkington@ottawa.ca](mailto:Seana.Turkington@ottawa.ca)>  
Subject: RE: Hindu Temple - 4835 Bank Street

Hi David,

Amira had requested an addendum to the Transportation Brief since there are no plans of a roundabout at the intersection of Bank and Dun Skipper. This is going to remain signalized for now.

I have also received new information that Bank Street from Leirim to east of the access is going to be reconstructed in 2023. This includes urbanization of Bank (including cycle tracks and sidewalk). Bank Street at this location will have 4 lanes - so a right turn lane at the access is not going to be supported.

Considering the Bank Street reconstruction and the low site generated volumes, a one page letter referencing the recommendations and stating any changes (change from roundabout to signal, assembly hall size etc.) from the October 2017 Brief is acceptable. No further analysis will be required.

Please let me know if you would discuss this further over phone. I can give you a call.

Regards,

Neeti Paudel, P.Eng.  
Transportation Project Manager, Infrastructure Approvals Development Review|Planning,  
Infrastructure and Economic Development City of Ottawa | Ville d'Ottawa  
110 Laurier Avenue West, Ottawa, ON  
1 [neeti.paudel@ottawa.ca](mailto:neeti.paudel@ottawa.ca)  
n (613.580.2424) ext./poste 22284

### EXHIBIT 3 2025 PEAK PERIOD TRIPS ENTERING - TEMPLE ACCESS/BANK

HCS7 Two-Way Stop-Control Report																
General Information								Site Information								
Analyst								Intersection	Site Access/Bank							
Agency/Co.								Jurisdiction								
Date Performed	9/20/2017							East/West Street	Site Access							
Analysis Year	2025							North/South Street	Bank Street							
Time Analyzed	Peak Trips Entering							Peak Hour Factor	0.92							
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25							
Project Description	4835 Bank Street															
Lanes																
<p>Major Street: North-South</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						1		7			428	9		50	553	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type   Storage						Undivided										
Critical and Follow-up Headways																
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						9								54		
Capacity, c (veh/h)						476								1098		
v/c Ratio						0.02								0.05		
95% Queue Length, Q <sub>95</sub> (veh)						0.1								0.2		
Control Delay (s/veh)						12.7								8.5		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)						12.7								1.3		
Approach LOS						B										