



# Memorandum

**TO: RYAN MOUNSEY, MCIP, RPP, CITY OF WATERLOO**

**FROM: JAMES MALLET, M.A.Sc., P.Eng., PTOE**

**DATE: MARCH 26, 2009**

**RE: INCC COMMENTS**

Transportation  
Planning

Transit  
Planning

Traffic  
Engineering

Parking  
Planning

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Further to our meeting of February 26, 2009 we have reviewed the detailed comments provided at the meeting and offer the following in response:

## **Comment 1**

*Need to update report to reflect current land use statistics (area calculations for land use designations and zoning).*

The report has been prepared based on the most recent information for the area provided by RMOW and peer-reviewed by MHBC and the City of Kitchener along with your office. I have been advised that you have met with MHBC on March 6, 2009 and are now satisfied with respect to the employment and residential population for the traffic zones within the study area.

## **Comment 2**

*Greater elaboration on:*

- *Impact of Westvale District Plan*
- *Impact of landfill traffic*
- *Internal transit implications*
- *Bike linkages and access*
- *Local street intersections and LOS analysis*

The Westhill District Plan has always contemplated there would be a north/south connection extending through our client's lands, running northerly and intersecting with Thorndale Drive. The intent of the District Plan has been carried forward in the overall design concept.

The "Central spine" has been planned together with the overall design concept, the provision of transit, pedestrian circulation and access to the site. The central spine is intended to encourage movements within the site, including lands within the City of Kitchener and lands to the north. The result is that many of the traffic movements that would otherwise use Ira Needles Boulevard will be internalized given that the central spine runs parallel to Ira Needles Boulevard.



The design brief includes specific recommendations with respect to amendments to the Westhill District Plan. I refer you to Appendix A from the Urban Design Guidelines prepared by MHBC.

In addition, the collector network will facilitate public transit, cycling and pedestrian flows along the west side of Ira Needles Boulevard.

With regard to landfill traffic, this has been reviewed with the City of Kitchener and Region of Waterloo with respect to the design of the intersection of Glasgow Street and Ira Needles Boulevard. The functional concept has been approved.

The site will be served by GRT initially via University Avenue. As such a transfer station is contemplated south of the main entrance on the collector spine. In the long term it is anticipated that GRT will make use of the west side collect to travel to the properties to the north. This function will be determined in the future with GRT. Initial discussions with GRT have indicated that the provision of on-street bus stops on the west collector will meet their needs for the northern portion of the site. The design guidelines prepared for the site provide more detail in this regard.

Bike linkages and access are also discussed in detail in the design guidelines. With respect to Ira Needles Boulevard, the two planned roundabouts will facilitate pedestrian and cyclist crossings. Our report suggests that a pedestrian/cyclist refuge be considered north of Entrance 2.

With regard to local streets, the operation of Thorndale Drive at Ira Needles Boulevard was reviewed in detail in the study. It is anticipated the traffic within the Westvale neighbourhood will redistribute to Thorndale once it is open. Through traffic on Thorndale Drive is not anticipated to occur to any large degree as it provides little network connectivity outside of connecting Fischer-Hallman Road to Ira Needles Boulevard. It is important to note that this will occur regardless of whether the INCC site develops.

Baker Street, Portsmouth Gate and Westvale Gate will experience decreased levels of service with increasing traffic volumes on University Avenue. The Region of Waterloo is considering widening University Avenue to a 4-lane cross-section, to reduce delays and provide high-quality arterial level-of-service on the arterial grid surrounding the Westvale neighbourhood. This would also reduce the attractiveness of Thorndale Drive as a short-cut route.

### **Comment 3**

*More discussion on employment densities. City indicates that higher employment densities will be provided in zone 272 and 288. City supports. May have implications in Ira Needles future volumes, intersection LOS.*

The forecast information was provided by RMOW and peer reviewed by MHBC. MHBC agrees the forecast information provided by RMOW understate the employment potential of Zones 272 and 288. Revised employment forecasts have been developed by MHBC for these traffic zones and have been considered in our assessment.



It is understood that you met with MHBC on March 6, 2009 to review employment densities for these traffic zones and you find them to be generally acceptable. It is also understood this information can be further reviewed and updated (if necessary) as specific development proposals for these traffic zones are advanced in the future.

#### **Comment 4**

*What is impact if office is not building (sic) within 5 year horizon (approx 160,000) sf. How does this affect trip generation and internal capture? Substantial information supporting mixed use concept resulting in 25% peak condition reduction...would a 25% increase affect LOS and widening? Need more discussion on implication if office not built.*

There are two parts to this answer. Firstly, removal of the office development component is not the intent of the clients and it simply could not be replaced with other uses without a comprehensive transportation analysis. It is understood that the clients propose this portion of the site will have more restrictive zoning with offices confirmed to be the primary permitted use. Our clients intend to work with the City of Waterloo in actively marketing and developing the property for office purposes. The issue to be addressed is staging of development and the assumption that the retail, service, entertainment and other uses will proceed in advance of the office development.

To respond to the impact on internal site capture, we first refer you to the work completed in support of the previous application (Lacewood, Waterloo and Sandberry Kitchener, Traffic Impact Study Update – January 2006) which reviewed the on-site internal capture at Sunrise Shopping Centre which is a large scale commercial development with no significant office component. The study found that the internal capture rate was about 12% during the PM peak hour. It should further be noted that Sunrise Centre is primarily commercial with a small amount of restaurant space. This is an important conclusion as it demonstrates that even with a development that is predominantly commercial, internal site capture still occurs.

In the case of the Ira Needles Mixed Use application, the development plan calls for significant increase of entertainment-based uses (cinema, more restaurants as a percentage of the total GFA, and a fitness centre) which are amenable to on-site capture. Knowing that the Sunrise Centre experiences about 12% internal capture, it is reasonable to assume that with the increased amount of entertainment-based uses there would be an increase of the internal site capture to 15%. This is less than what was assumed in the TIS.

Based on the above, if no office development occurred, the PM peak hour trip generation is estimated to be 2,139 trips. With full development of the site and further increases in internal site capture, to predicted PM peak hour trip generation trip generation documented in the report 2,162 trips. Therefore, should the office component not materialize, the PM peak hour trip generation would be slightly less than what has been analysed in the report and the overall impacts would be similar as has been analysed in the report.

Finally, the report has reviewed the operations of the site driveways under the condition of full buildout and no internal site capture. This information is provided in detail in the report.



### **Comment 5**

*Given changes, more traffic from north, more within 5 km trade area, is scope of study intersections appropriate? Does Columbia Street intersection need to be reviewed?*

- The intersection currently experiences 2,105 vehicles during the PM peak hour;
- Assuming that the rate of increase that is projected in background traffic for Ira Needles Boulevard north of Erb Street applies, the projected 2021 volume for the PM peak hour would be in the order of 2,820 vehicles per hour;
- According to the trip distribution memorandum and the trip generation memorandum provided to City Staff in September and October last year, the estimated traffic volume during the PM peak hour reaching this intersection would be in the order of 108 trips (5% of the total PM peak demand);
- The contribution of traffic to this intersection would then be in the order of 3.6% of the total volume, which is less than the required threshold for consideration.

Based on the above, the contribution of the INCC site traffic to the intersection of Columbia Street and Erbsville Road is below the threshold for detailed consideration. Therefore it is our opinion that the study does not require an update for this location.

### **Comment 6**

*City questions land use assumption about existing zoning permissions. Studies indicate that proposed development similar to existing zoning permissions. City questions this. May have an impact on recommendations. Question 'scale' between permitted uses and proposed uses.*

You have additionally listed several bullets related to this matter. As discussed at the meeting this is an essentially planning discussion, not necessarily a transportation discussion. It should be noted however that a Traffic Impact Study was prepared in support of the previous application and it contains details on trips generation related to existing permissions. We understand that this report was reviewed and approved by City staff.

The information regarding land use options in the "as of right" versus proposed was provided to us by MHBC and the owner. It is recommended that this information be reviewed with MHBC to see if this can be resolved. We understand the MHBC is preparing a separate response regarding the land use assumption comparisons.

The transportation analysis contained in the report shows that the proposal can be accommodated by the adjacent road network. The purpose of this discussion was to place the application in context with regard to previous work undertaken in the corridor given the existing permissions.



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### **Comment 7**

*What is impact to the Westvale District Implementation plan street network and access? Need more analysis and information of longer term impacts to intersection LOS. This is planned to accommodate a future transit route. This may improve LOS along Ira Needles.*

See response to comment 2. In addition, ongoing monitoring can be completed as part of the Region's Transportation Master Plan Review and related updates.

### **Comment 8**

*Roundabout intersections seem to function. What about mid-block capacity? Seems to be problem area even through (sic) report does not require Ira Needles Boulevard widening? More discussion recommended. Long term, Erb Street and Victoria Street challenges.*

Mid-block capacity on main arterial roads is always higher than at intersections. According to theoretical models, it can be as much as 50% higher than at intersections. Intersections control throughput in the corridor. Sidestreet capacity however, decreases as volumes on the mainline increases.

According to the OTM Book 12 Warrant 7 procedures, a traffic signal will not be warranted at the intersection of Thorndale Drive and Ira Needles Boulevard. As you are aware, the Ira Needles Boulevard ESR, the approved Westhill District Plan and the subdivision approval for the residential development on the east side of Ira needles Boulevard do not contemplate either a traffic signal or a modern roundabout at this intersection as part of the future conditions.

### **Comment 9**

*Question analysis and assumptions for Thorndale intersection. Greater traffic from east. Only major street connection to Ira Needles. More analysis or review on peak volumes. Understand local access impacts resulting from new development. Related, report indicates increased delays at University Avenue intersection, any remediation?*

Analysis of the Thorndale intersection was carried out using standard City and Region accepted methods. These have been reviewed by staff and no issues were identified. Ira Needles connects to the east via Erb Street, University Avenue, Victoria Street and Highland Road which are all major roads. Thorndale is a neighbourhood collector road not a major road. It is our opinion that given its location in the network, Thorndale Drive will primarily serve traffic to/from the Westvale neighbourhood. Projected traffic volumes on Thorndale Drive fall well below the acceptable upper threshold for collector roads.

It is agreed that during peak periods left-turning traffic will experience delays accessing Ira Needles Boulevard in the long term. This condition exists primarily as a result of the physical connection to Ira Needles Boulevard. This condition will exist without development of the INCC site. It is anticipated that the traffic study prepared for the development application which is extending Thorndale would have reviewed this intersection. It is noted that the Ira Needles ESR document and subsequent roundabout review did not consider improvements at this location.



Notwithstanding that a traffic signal is not warranted within the planning horizon, the City and the Region could protect this location for a future modern roundabout to facilitate crossings to the future west side collector road. This protection could be achieved through the consideration of the development of the lands to the west (Westhill Meadow Golf Course) and through negotiations with the subdivider to the east.

No remediation is required at the University Avenue roundabout. In the long term, the projected volumes on Ira Needles Boulevard with a full 4-lane solution will provide excellent level of service on Ira Needles Boulevard.

### **Comment 10**

*Question pedestrian accessibility across Ira Needles. No gaps (3 seconds). How does this work? Safe pedestrian access important to address.*

As identified in the approved design guidelines for the site pedestrian access will be facilitated through the two modern roundabouts (University Avenue, Entrance 5) and major pedestrian corridors reaching to the rear of the site. The TIS has identified that a pedestrian refuge be considered north of Entrance 2 to facilitate two-stage pedestrian crossings and link to the northern pedestrian corridor. North of the site, the connection of Thorndale Drive to the west side collector will provide another opportunity to create a safe pedestrian crossing of Ira Needles Boulevard and facilitate movements along the west side collector.

It should be noted that there currently exists a multi-use walkway that connect Grange Crescent to Ira Needles Boulevard as well as a community trail that runs parallel to the CNR rail line.

The Urban Design Guidelines identify priority and secondary pedestrian routes. There are strong north/south pedestrian linkages parallel to the western property boundary (future community trail) and the eastern property boundary (Ira Needles Boulevard). The central corridor also provides for strong pedestrian movement. Details of the internal sidewalks will be finessed as part of the site plan approval process and will be coordinated with landscaping. The north/south pedestrian links are connected by sidewalks proposed at each end of the main access connections to the property. Bicycle racks are proposed to be coordinated together with buildings, internal transit stops and the community trail network.

### **Comment 11**

*More elaboration on internal movement patterns, accessibility and delays. Good information provided but recommend more information for internal site function. Relate (sic) Access 2: a) Question warrant for Access 2 northbound exit...only access for movie theatre, fitness centre and restaurants. Review warrant analysis to be sure. Delays increase with time. b) How is bike access provided internal to the site?*

This level of detail is typically dealt with at Site Plan approval. However, the Design Guidelines prepared for the site have articulated the intent to serve pedestrian, transit and cyclists within the site. Major intersection are planned to be controlled by compact modern roundabouts which have substantially more capacity than all-way stop controlled intersections and are much safer for



pedestrians and cyclists. With this type of intersection control, all internal roadways can remain on a two-lane cross-section.

It is recognized that Entrance 2 will experience delays for outbound left-turn movements. The signal warrant calculations have been reviewed by Regional staff. It is felt that in the short to medium term, some traffic will utilize the roundabout at University Avenue to facilitate this turn. In the long term, it is expected that some traffic will make use of the west side collector road to divert to the new intersection at Thorndale Drive and Ira Needles Boulevard. Queuing will be internal to the site. The Design Guidelines, placement of buildings and internal driveways give direction such that on-site circulation will not be compromised.

The design guidelines provide sufficient detail with respect to the provision of cycling facilities and routes within the site.

### **Comment 12**

*What is the impact of landfill truck traffic on volumes and LOS?*

According to Regional staff 200 trucks per day will access the regional landfill on Glasgow Street south of the site. This matter has been reviewed with RMOW and COK staff to their satisfaction.

### **Comment 13**

*What is the impact of mid and long-term transit improvements? Impact on internal boulevard, internal roundabouts, queuing etc.?*

The design guidelines prepared for the site were completed in conjunction with GRT staff. They have identified that the 4-bay on-street layover station will meet their long-term needs for the site. The level of transit activity (i.e. 4 buses every 15 minutes) is not anticipated to affect the traffic operations within the site. At the site plan design stage, the geometric requirements for the transit vehicles will be required to be met. GRT staff has indicated support for the use of modern roundabouts within the site.

The project team is preparing a preliminary functional design for the main internal roads/driveways in order to coordinate turning movement requirements, the design of internal roundabouts as well as landscape elements. This level of review will be complete in consultation with the two cities as well as the Regional Municipality of Waterloo.

### **Comment 14**

*Possible need for monitoring. Some recommendation/conclusions close to maximum guideline recommendations...entrance 5 warrants, 1,200 vph requirements, LOS operations, etc...many close to guidelines. Conservative and proactive approach recommended.*

The broader components of our study assume complete development within the study area. As you know, this may, or may not occur within the time horizon of the study and accordingly ongoing Regional monitoring should also consider the rate of consumption and development within the corridor. The ongoing monitoring can be completed as part of the Region's Transportation Master Plan and related updates.



I trust that this adequately responds to your concerns. We would be pleased to review the above findings with you, at your convenience.

Yours very truly,

**PARADIGM TRANSPORTATION SOLUTIONS LIMITED**

A handwritten signature in black ink, appearing to read 'James J.L. Mallett', with a large, stylized initial 'J'.

**James J.L. Mallett**  
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