Garneau 86 Avenue DC2
Rezoning – Transportation and Parking Impact Assessment

May 24, 2019

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1.0 INTRODUCTION

1.1 BACKGROUND

Westrich Management Ltd. ("Westrich") is proposing to redevelop the site located at 11023-11045 86 Avenue in the Garneau neighbourhood of Edmonton. The location of the site is illustrated in Figure 1.1.

The site contains five single family lots and is currently zoned RF6, which limits development to a maximum density of 80 du/ha. The proposed DC2 zoning will allow for reduced setbacks and greater density than the current zoning. The proposed development concept includes 295 residential units. Underground parking will be provided with access via the alley to the south. The alley is also proposed to provide access to a limited number of surface visitor parking stalls.
The objectives of this assessment include:

- Complete a site observation to assess the existing transportation conditions at the 111 Street and 110 Street alley intersections and complete a descriptive analysis to identify any existing issues in the study area.

- Estimate multi-modal trip generation (walking, cycling, transit, and driving) for the proposed development during the AM and PM peak hours, based on the City's rates, industry best practices, and tailored considerations based on the context of the redevelopment and its location.

- Review active modes transportation opportunities and identify any existing safety concerns on the adjacent roadways.

- Assess the proposed parking supply for the development, comparing it to the parking requirements based on Edmonton zoning bylaw standards.

- Review the existing alley operations and conditions and discuss potential issues, improvements, and treatments to be considered in conjunction with the development.

Based on scoping discussions with the City of Edmonton, intersection capacity analysis is not required for this project due to the context of the site and the size of the development.
2.0 EXISTING CONDITIONS

2.1 ROAD NETWORK

The site is located on the south side of 86 Avenue, between 110 Street and 111 Street, with access to be provided via the east-west alley located to the south. Further information about the study roadways follows:

86 Avenue ("Oliver Avenue") is a one-way westbound local road with on-street parking on the north side of the road (limited to residents until 6 PM on weekdays)

110 Street is a one-way northbound local road with on-street parking on the east side of the road (limited to residents until 6 PM on weekdays)

111 Street is a one-way southbound local road with on-street parking on the west side of the road (limited to residents until 6 PM on weekdays)

The E/W Alley is a two-way paved alley which is approximately 5 m wide.

2.2 EXISTING TRAFFIC OPERATIONS

2.2.1 Traffic Volumes

Recent traffic data in the project area is available from the City of Edmonton’s website. Based on this information, the current traffic volumes on 86 Avenue are approximately 1,000 vehicles per day (vpd). Specific data is not available for 110 and 111 Street; however, based on the context of the site, it is expected that volumes are in the same range as 86 Avenue. The traffic data also shows an existing heavy vehicle percentage of less than 1% for the study area. The area has fairly high pedestrian volumes due to the proximity to the University of Alberta as well as Garneau School, and the nearby Whyte Avenue Commercial District.

Intersection traffic counts were conducted at the alley intersections during the morning and evening peak hours. The resulting estimated peak hour vehicle and pedestrian traffic volumes are shown in Figure 2.1.

The AADT traffic volumes from 2011 to 2016 show fairly stagnant traffic growth ranging from -2% to 2% annually at different points along 109 Street. As the study area is relatively saturated, it is expected that minimal traffic growth will be encountered in the area. Increased opportunities for alternative travel modes in the area (e.g. bike lanes, transit service) may continue to decrease the vehicular traffic demand.
2.2.2 Site Observations

Site visits were performed in the study area during the weekday morning and afternoon peak periods. The observations made during these visits is outlined below.

Traffic Capacity and Operations

Traffic volumes on the local roads adjacent to the site are very low, and no capacity issues were observed. The adjacent intersections of 86 Avenue & 110 Street and 86 Avenue & 111 Street are both 3-way stop controlled. Since the adjacent roadways are all one-way operation, road width and passing maneuvers are not a concern.

Parking

Parking is currently allowed on the north side of 86 Avenue, the east side of 110 Street, and the west side of 111 Street. All three streets are limited to resident only parking (with parking pass) from 8 AM to 6 PM on weekdays.
These parking areas were observed to have capacity available during the peak hours. Private parking is available off the alley for most of the residences.

**Alley Conditions**

The east-west oriented alley provides access to private driveways and parking spots to both the north and south. A power line runs along the south side of the alley; based on the site observation, the pole locations do not impede traffic movements. The effective width of the alley is approximately 5 m wide, which is wider than the standard 4 m for a residential alley. It is expected that two vehicles traveling in opposing directions should be able to pass each other by pulling over into the adjacent parking areas, although this movement was not observed. The alley is currently paved.

Parking is prohibited on the west side of 110 Street and the east side of 111 Street (adjacent to the alley entrances) due to the painted bike lanes. This allows for clear sightlines for vehicles exiting the alley. The one-way traffic control is well-signed, and no wrong-way or illegal movements were observed.

Overall the traffic volumes in the alley are extremely low and capacity or operational issues were not observed and are not expected.

**Active Modes Facilities**

Sidewalks are available on both sides of 86 Avenue, 110 Street, and 111 Street with marked crosswalks at all corners. Pedestrians were observed to use these facilities; in particular, high pedestrian volumes were observed along the east side of 110 Street in the morning peak hour (leading to Garneau School) and along the west side of 111 Street in both peak hours (leading to/from the University). Both heavy pedestrian paths are located on the opposite side of the street of the alley entrances and do not impede vehicle movements.

There are painted bike lanes provided on both 110 Street and 111 Street which are one-way in the opposing direction as the one-way vehicular traffic; cyclists were observed using these facilities as marked. There is some risk that vehicles exiting the alley will fail to look left for bikes using this contra-flow bike lane as they are conditioned to look right only for vehicle traffic. This behavior was not observed but is noted as a potential safety issue.

**School Site Observations**

The Garneau School is an elementary school located on the northeast quadrant of 86 Avenue and 110 Street, diagonal to the project site. Several safety features are included at this site, including the following:

- At the intersection of 86 Avenue and 110 Street, the 3-way stop signs have high-visibility poles.
- Adjacent to the school site, 110 Street, 86 Avenue, and 87 Avenue are all designated Playground Zones with 30 km/h speed limits. These signs are also marked with high-visibility poles.
- Marked crosswalks are provided on all four legs of the intersection of 86 Avenue and 110 Street.
- Marked crosswalks with pedestrian-actuated signals are provided on both the east and west sides of the intersection of 87 Avenue and 110 Street.
- Sidewalks are provided on all sides of the school site.

Overall, vehicle and pedestrian safety accessing the school appears to be sufficient and no existing safety concerns were noted.
3.0 PROPOSED DEVELOPMENT AND TRIP GENERATION

3.1 PROPOSED DEVELOPMENT

The proposed development will consist of 295 apartment-style residential units with an underground parkade accessed via the alley to the south. Figure 3.1 illustrates the site plan for the development.

The breakdown of the dwelling unit types will be determined prior to the development permit stage based on market demand. Based on initial considerations and similar developments, the breakdown is assumed to be as follows:

- 1 Bedroom / Studio – 177 Dwelling Units
- 2 Bedroom – 100 Dwelling Units
- 3+ Bedroom – 18 Dwelling Units
3.2 TRIP GENERATION

Trip generation for the site was calculated for the AM and PM peak hours as well as daily. The trips were calculated using the City of Edmonton 2013 Trip Generation Rates for “RA7 & RA8 – Apartment Housing” Table 3.1 shows the traffic generated for the AM and PM peak periods of the sites.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Units</th>
<th>Trip Rate</th>
<th>% IN</th>
<th>% OUT</th>
<th>Total Trips</th>
<th>Trips IN</th>
<th>Trips OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Peak Hour</td>
<td>295</td>
<td>0.34 / DU</td>
<td>17%</td>
<td>83%</td>
<td>100</td>
<td>17</td>
<td>83</td>
</tr>
<tr>
<td>PM Peak Hour</td>
<td>295</td>
<td>0.40 / DU</td>
<td>63%</td>
<td>37%</td>
<td>118</td>
<td>74</td>
<td>44</td>
</tr>
<tr>
<td>Daily</td>
<td>295</td>
<td>5.81 / DU</td>
<td>50%</td>
<td>50%</td>
<td>1714</td>
<td>857</td>
<td>857</td>
</tr>
</tbody>
</table>

3.3 TRIP REDUCTIONS

3.3.1 Multi-Modal Split

The proposed development is located within 600 m of the University LRT Station and Transit Centre, and close to 109 Street which is a designated Transit Avenue. These factors suggest that the vehicular trip generation by the development is likely significantly less than the typical trip generation rates, with travel modes such as walking, biking, and transit as popular alternatives.

Edmonton’s 2016 Municipal Census provides data on the primary mode of transportation from home to work with results organized by neighbourhood. The mode split for City-wide trips and Garneau neighbourhood trips are shown in Figure 3.2.

Figure 3.2 – Edmonton 2016 Municipal Census: Travel Mode from Home to Work
The overall City of Edmonton mode split shows that 72% of respondents drove a vehicle as their primary mode of transportation from home to work. Comparatively, in the Garneau neighbourhood, only 40% of respondents drove a vehicle as their primary mode of transportation, a 44% decrease from the City-wide results. Based on the location of the site in close proximity to the University and the development type, it is expected that the student population in this development will be high, and the mode split may be even greater than the Garneau neighbourhood overall. Based on these factors, it can reasonably be assumed that vehicle trips for this development will be approximately 50% lower than the standard Edmonton-wide trip generation rates would suggest. This 50% reduction in vehicle trips would be reallocated to other travel mode choices, such as walking and cycling. The revised vehicle trip generation is summarized in Table 3.2.

<table>
<thead>
<tr>
<th></th>
<th>Total Trips</th>
<th>Trips IN</th>
<th>Trips OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AM Peak Hour</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original Generated</td>
<td>100</td>
<td>17</td>
<td>83</td>
</tr>
<tr>
<td>50% reduction</td>
<td>-50</td>
<td>-9</td>
<td>-42</td>
</tr>
<tr>
<td>Revised Vehicle Trips</td>
<td>50</td>
<td>8</td>
<td>41</td>
</tr>
<tr>
<td><strong>PM Peak Hour</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original Generated</td>
<td>118</td>
<td>74</td>
<td>44</td>
</tr>
<tr>
<td>50% reduction</td>
<td>-59</td>
<td>-37</td>
<td>-22</td>
</tr>
<tr>
<td>Revised Vehicle Trips</td>
<td>59</td>
<td>37</td>
<td>22</td>
</tr>
<tr>
<td><strong>DAILY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original Generated</td>
<td>1714</td>
<td>857</td>
<td>857</td>
</tr>
<tr>
<td>50% reduction</td>
<td>-857</td>
<td>-429</td>
<td>-429</td>
</tr>
<tr>
<td>Revised Vehicle Trips</td>
<td>857</td>
<td>428</td>
<td>428</td>
</tr>
</tbody>
</table>

As shown, the resulting projected vehicular trips are in the order of 50 to 60 vehicles in the peak hours entering and exiting the site.

### 3.4 TRIP DISTRIBUTION AND ASSIGNMENT

It is expected that site-generated traffic will follow the existing travel patterns in the area, with more vehicles using the 111 Street intersection than the 110 Street intersection. Most of those trips will be accessing the parkade or surface stalls via the alley, although a small number of visitor trips may choose to access the site via 86 Avenue to park on the street. The estimated site-generated traffic at the study intersections is shown in Figure 3.3.
Figure 3.3 – Estimated Site-Generated Traffic Volumes [AM Peak Hour (PM Peak Hour)]
4.0 MULTI-MODAL TRANSPORTATION ASSESSMENT

4.1 VEHICLE OPERATIONS

The intersections of 86 Avenue and 110/111 Street are three-way stop-controlled. Based on the low traffic volumes on 110 and 111 Street, traffic capacity issues are not expected at this location. This is consistent with the site observation, which found traffic volumes to be in the order of 100-200 vehicles in the peak hour on each street.

4.2 BICYCLE AND PEDESTRIAN FACILITIES

The site is located in an urban area and therefore sidewalks are available on both sides of the streets adjacent to the site with marked crosswalks on all legs of the adjacent local intersections. Bike facilities adjacent to the development site and in the surrounding area include the following:

- Painted one-way bike lanes on 110 and 111 Street immediately adjacent to the development site (with shared traffic paint markings for the opposing direction of travel).
- Shared roadways with lower traffic volumes on 84 and 85 Avenue, south of the site.
- Protected bike lanes are provided on 83 Avenue east of 106 Street; planned to be extended to 111 Street in the future.

The existing bicycle facilities are also illustrated in Figure 4.1.

Figure 4.1 – Study Area Bike Facilities
It is expected that most cyclists from this area who intend to bike to the University of Alberta or Downtown will be able to do so using existing or proposed facilities for the majority of their journey.

### 4.3 TRANSIT SERVICES

The site is currently well serviced by transit with several routes running along 109 Street, 112 Street, and 82 Avenue. The site is also located approximately 600 m from the University LRT Station and Transit Centre.

The City of Edmonton Transit System Map in the project vicinity is illustrated in Figure 4.2.

**Figure 4.2 – City of Edmonton Transit System Map**

A Bus Network Redesign is underway as part of the City of Edmonton Transit Strategy. The new network is expected to provide routes along the same corridors in the study area; however, frequencies may change. The latest plans (released in October 2018) show 109 Street and 82 Avenue providing Frequent Routes, which are intended to provide a frequency of 15 minutes or better during weekdays and 20 minutes or better on evenings and weekends.

The closest transit stops to the site are on 109 Street southbound (300 m walking distance) and 112 Street northbound (350 m walking distance). However, it is expected that most users will walk to the University Transit Centre for the greater variety of routes and higher frequency buses available.
5.0 PARKING ASSESSMENT

As discussed in Section 3.3.1, the proposed development is located within 600 m of an LRT Station and Transit Centre. Therefore, the parking requirements for the site should be calculated using Edmonton Zoning Bylaw Schedule 1(C), TOD and Main Streets Guidelines for Core and Mature Neighbourhoods. Table 5.1 summarizes the parking requirements as per this zoning.

Table 5.1 – Parking Requirements (Schedule 1C)

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Units</th>
<th>Rate</th>
<th>Stalls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>1 Bedroom / Studio</td>
<td>177</td>
<td>0.5/DU</td>
<td>1.0/DU</td>
</tr>
<tr>
<td>2 Bedroom Dwelling</td>
<td>100</td>
<td>0.75/DU</td>
<td>1.5/DU</td>
</tr>
<tr>
<td>3 Bedroom Dwelling</td>
<td>18</td>
<td>1.0/DU</td>
<td>1.75/DU</td>
</tr>
<tr>
<td>Visitor Parking*</td>
<td>295</td>
<td>1.0/10 DU (after first 10)</td>
<td>1.0/7 DU (after first 7)</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>211</td>
<td>400</td>
</tr>
<tr>
<td>Bicycle Parking</td>
<td></td>
<td>84</td>
<td>160</td>
</tr>
</tbody>
</table>

*Schedule 1C requires the shown maximum rate for visitor stalls (1 per 7 stalls); however, a lower rate of 1 per 10 dwelling units has been approved in similar contexts due to the alternative travel mode options available in the area.

As shown, the site will require between 211 and 400 total parking stalls based on the zoning requirements. In addition, at least 84 bicycle parking stalls will be required.
6.0 ALLEY SAFETY AND OPERATIONS

As per Section 2.2.2, no current operational issues were observed in the alley. Traffic volumes are very low, so vehicle conflicts are not expected; however, in the case of two vehicles travelling in opposite directions in the alley, there are opportunities for vehicles to allow others to pass. Due to the parking restrictions on the adjacent streets, sightlines are clear for vehicles exiting the alley.

Vehicles exiting the alley may fail to look left to check for bike traffic in the contra-flow bike lanes on 110 and 111 Street, as the streets are marked as one-way for vehicular traffic. To mitigate this risk, it is recommended to add green paint to indicate the conflict area at the crossing point and add additional signage cautioning drivers to look left for bikes. For example, the Manual on Uniform Traffic Control Devices (MUTCD) signs R3-17 and R15-8 may be used in combination to alert vehicles to look both ways before exiting the alley. These are illustrated in Figures 6.1 and 6.2.

Figure 6.1 – MUTCD Sign R3-17

Figure 6.2 – MUTCD Sign R15-8
Conclusions and Recommendations
May 17, 2019

7.0 CONCLUSIONS AND RECOMMENDATIONS

Westrich is proposing to redevelop the site located at 11023-11045 86 Avenue in the Garneau neighbourhood of Edmonton. The site currently contains five single family lots and is zoned RF6. The proposed development concept includes 295 residential units; this concept requires a DC2 rezoning. Parking will be provided with an underground parkade accessed via the alley to the south.

A multi-modal transportation analysis was completed for the site and indicated that minimal transportation impacts are expected for the development. Traffic volumes on 110 and 111 Street are currently quite low and projected to remain low with the buildout of this development. As a core neighbourhood, there are several multi-modal transportation facilities serving the area, including sidewalks, bike lanes, and transit routes.

The parking requirements for the development were calculated based on the Transit Oriented Developments Overlay in the Edmonton Zoning Bylaw. Based on the current development concept, the parking requirement for the site is a minimum of 211 stalls to a maximum of 400 stalls, with a minimum of 84 bicycle parking spaces.

No current alley operational issues were observed; however, due to the protected bike lanes running in the opposing direction as vehicular traffic on the one-way 110 and 111 Street, it is recommended to add additional signage and paint markings at the alley entrances to warn drivers exiting the alley to look both ways for bike traffic.