



Exhibit 3.1 Renewal Site Plan

Britannia Community Services Centre Renewal
04-18-0167 May 2018



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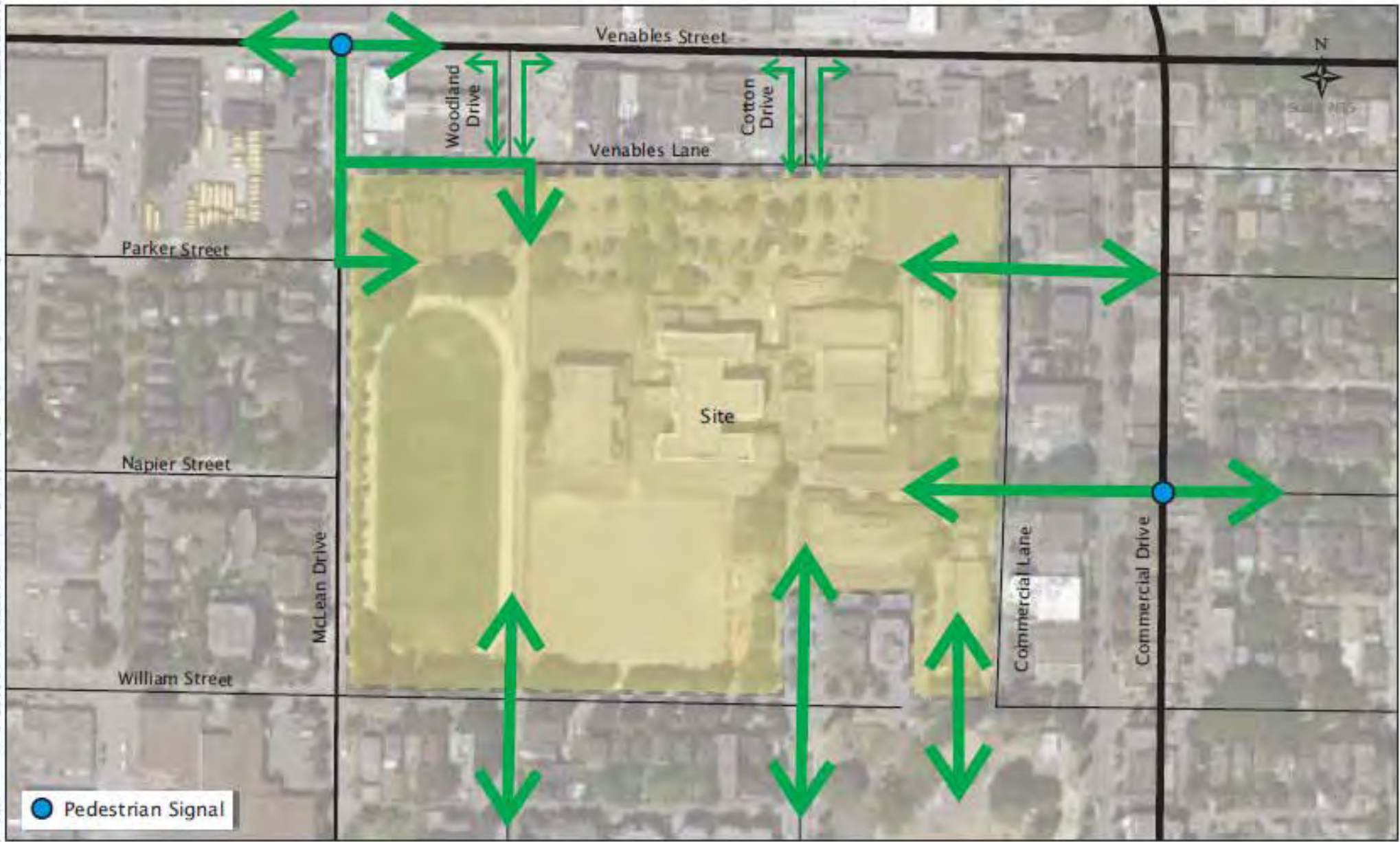


Exhibit 3.2
Proposed Pedestrian Connections

Britannia Community Services Centre Renewal
04-18-0167
May 2018



4. FUTURE TRAFFIC CONDITIONS

4.1 Traffic Forecasts

For report brevity, operation exhibits are presented within the body of this report; volume exhibits are not presented within the report body but can be viewed in **Appendix A**. The traffic analysis was based on the vehicle access and circulation plan as provided within the Master Plan (shown below in **Figure 4.1**).

Figure 1: Vehicular Access + Circulation



4.1.1 Background Traffic Growth

Background traffic represents the traffic that would be present on the road network if the site did not redevelop. Future background scenarios are forecasted by adding a growth factor to existing traffic volumes.

Background traffic growth was calculated in consultation with historical City of Vancouver volumes from 1500 block Venables Street and 1100 block Commercial Drive as well as intersection counts at the Venables Street and Commercial Drive intersection.

From 2005 to 2013 Commercial Drive traffic volumes appear to have grown by approximately 1.5 to 2% per year. For the purposes of calculating 2030 background volumes a 1.5% annual linear growth rate was applied.

From 2006 to 2013 Venables Street traffic volumes have decreased by approximately 15%. As such a 0% growth rate was applied to Venables Street traffic.

The resulting 2030 Background weekday PM and Saturday traffic operations are shown in **Exhibits 4.1** and **4.2** respectively.

These background operations can be compared with total (with development) operations to determine the net impact of the proposed BCSC renewal.

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Exhibit 4.1 Background 2030 Weekday PM Peak Hour Operations

Britannia Community Services Centre Renewal
04-18-0167
May 2018

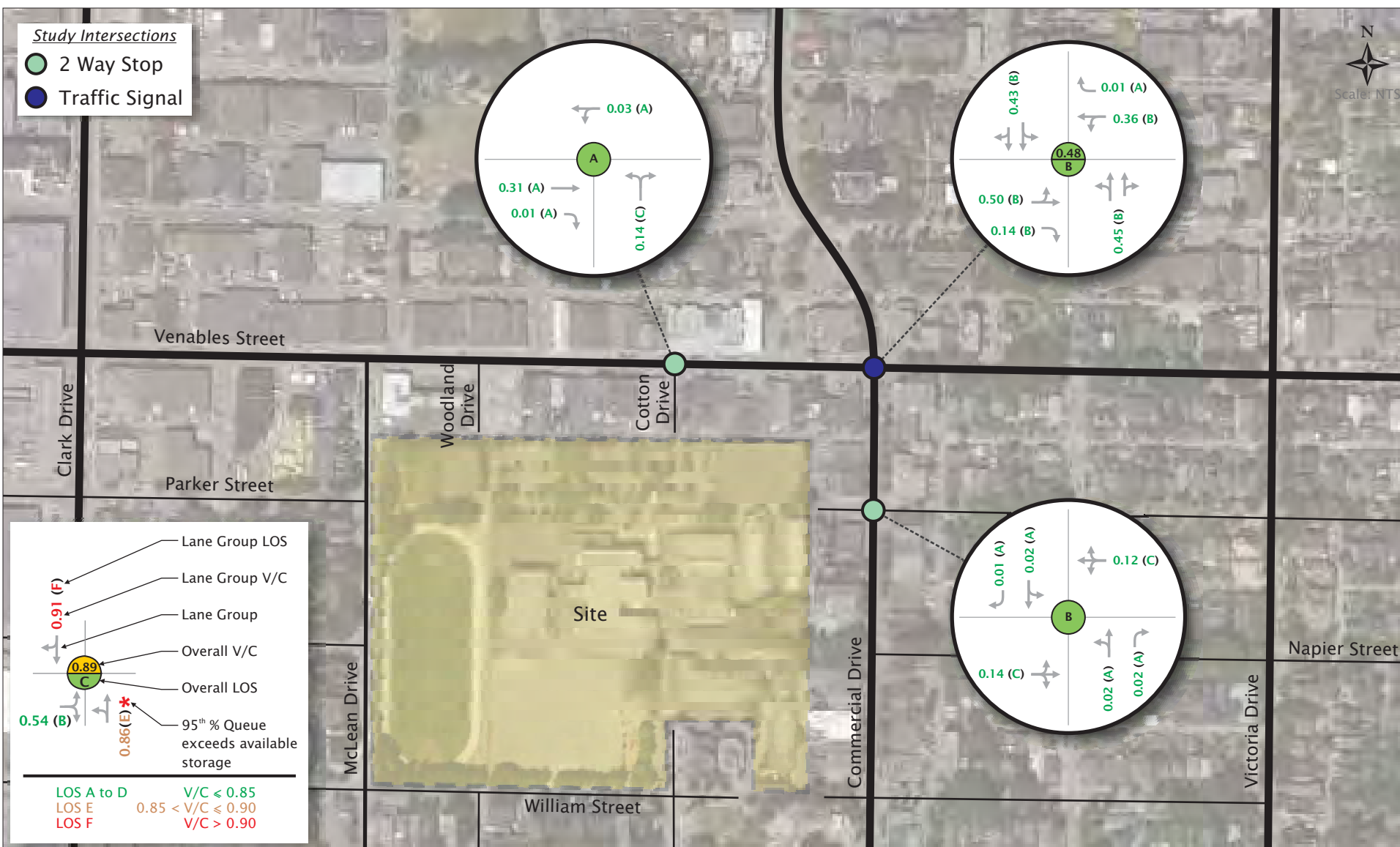


Exhibit 4.2 Background 2030 Saturday Peak Hour Operations

4.1.2 Site Traffic

Trip Generation

As an assumption for the purpose of this analysis, the anticipated traffic increase to the site is tied to the proposed parking increase from the existing 175 parking spaces to the proposed 410 parking spaces. The 175 parking spaces to 410 parking spaces change was based on the proposed increase of community facility space (from 9,848 m² to 27,470 m²). This approach for determining the future parking supply is however considered to be very conservative as many BCSC entities are not growing at a similar rate and in fact some entities such as the schools are not anticipated to grow at all. While the new pool will likely generate more visitors, visitation is not anticipated to growth threefold.

The post-renewal BCSC site trips (based on the 9,848 m² to 27,470 m² change in community facility area, or a 2.8 factor) are 431 two way trips (213 inbound, 218 outbound) in the weekday PM peak hour, and 518 (247 inbound, 271 outbound) in the Saturday mid-day peak hour.

A detailed parking demand analysis will follow which may result in a lower recommended parking supply and corresponding lower trip generation estimates. To counter this potential factor, the renewal program may also in the future include up to 300 residential housing units.

Trip Distribution & Assignment

Trips generated by the proposed renewal were assigned to the study area using present distributions. The distributed site generated vehicle trips are illustrated in **Exhibit 4.3**. These volumes assume the same access and road configuration as the existing condition. The Master Plan however indicates the closure of Parker Street (east of BCSC); the impact of closing Parker Street (between BCSC and Commercial Drive) is discussed in Section 4.1.3.

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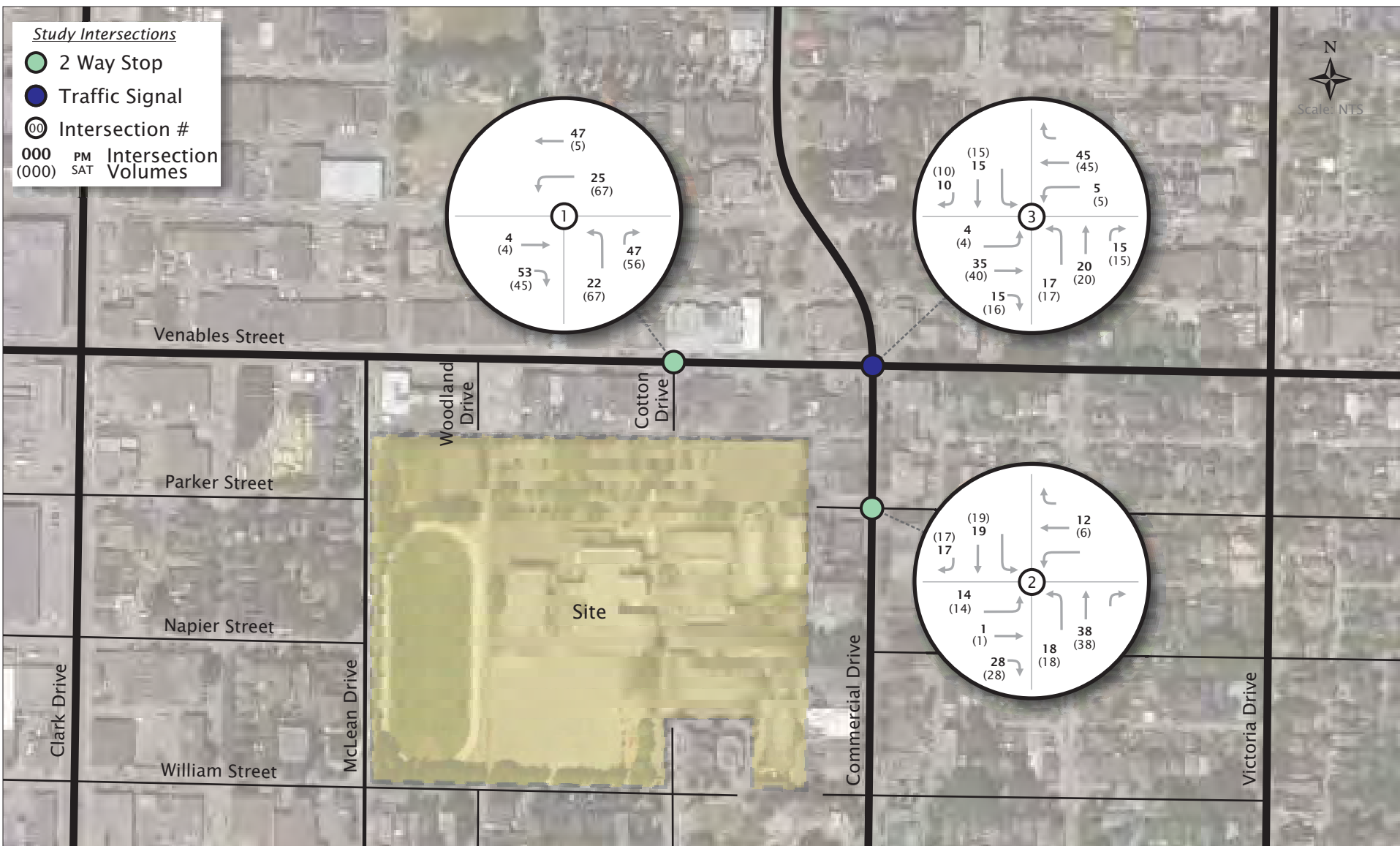


Exhibit 4.3 Renewal Site Traffic Volumes

Britannia Community Services Centre Renewal
04-18-0167
May 2018

4.1.3 Future Total Traffic Operations

Future total traffic operations examine the background future volumes with the addition of the proposed renewal's site trips. **Exhibits 4.4 and 4.5** illustrate the forecasted Total Weekday PM and Saturday peak hour traffic operations for the 2030 horizon year, respectively. The Total 2030 scenario can be compared with the Background 2030 operations (i.e. without the proposed renewal) to understand the net impact of the proposed renewal.

Exhibits 4.4 and 4.5 also present the future 2030 total traffic operations with Parker Street open as is the current condition and with Parker Street closed (between Commercial Drive and BCSC) as is proposed in the Master Plan.

The traffic model with Parker Street closed to vehicle traffic scenario assumes the reassignment of Parker Street volumes at approximately:

- 30% to the Venables Street & Cotton Drive access;
- 30% to William Street; and,
- 40% to the retained connection from Commercial Drive to the Venables Lane which is located north of the Parker Street alignment. Operations at this lane are not discussed in previous traffic model scenarios due to its observed low volumes.

As illustrated in Exhibits 4.4 and 4.5, all intersections in the Total 2030 scenarios operate within described operational thresholds in both the weekday PM and Saturday peak hour periods.

Exhibit 4.4 and 4.5 illustrate that the proposed closure of Parker Street (between Commercial Drive and BCSC) does not have significant impact to area traffic operations.

Exhibit 4.4

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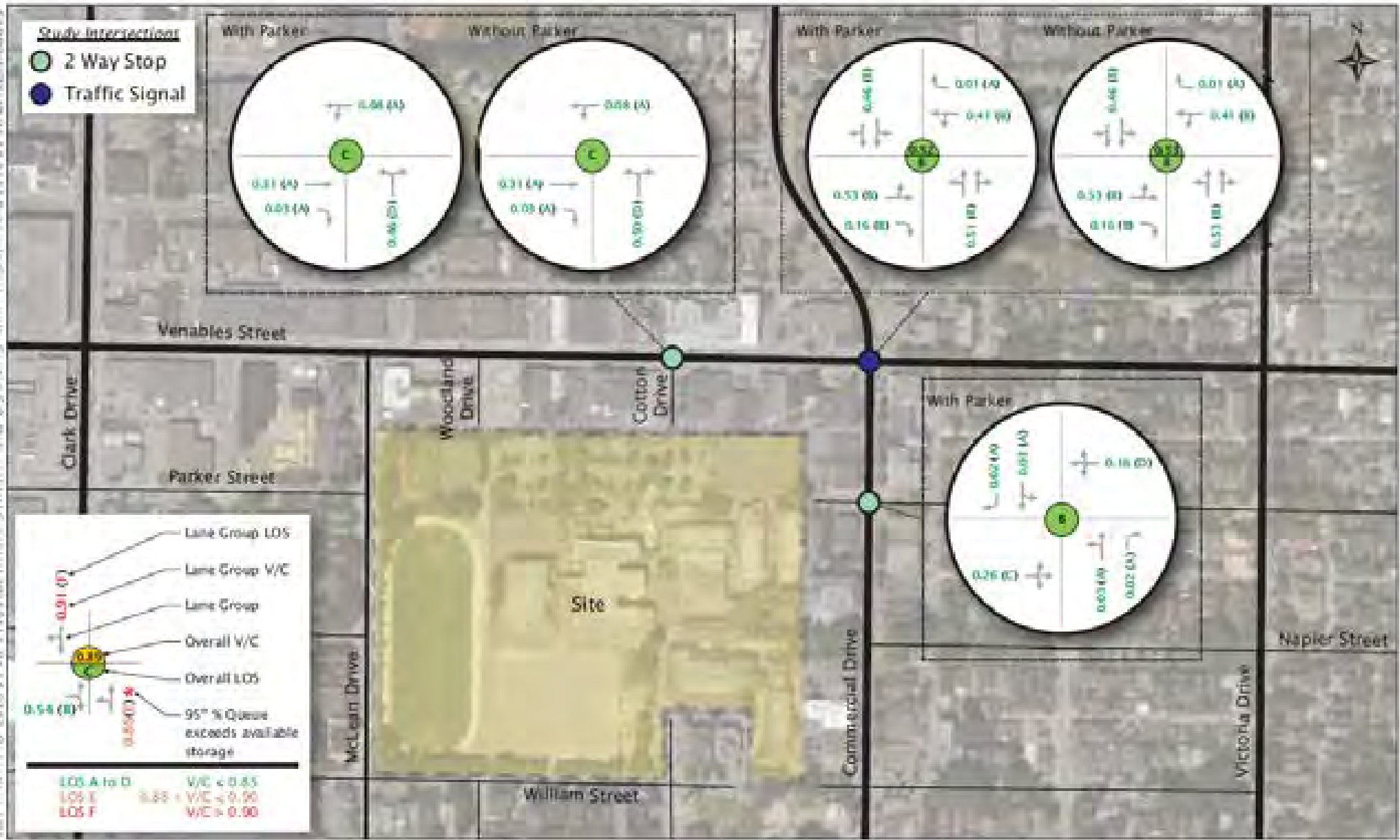


Exhibit 4.5 Total 2030 Saturday Peak Hour Operations

4.1.4 Summary of Traffic Impacts & Recommended Mitigations

No traffic operational issues are anticipated from the proposed Master Plan BCSC renewal.

The Master Plan's proposed Parker Street closure is anticipated to have negligible traffic impacts and is therefore supported due to its pedestrian realm improvements. Specifically, the closure of Parker Street is supported due to the following considerations:

- Venables Lane will retain a northern site Commercial Drive connection;
- Cotton Drive and Venables Street intersection has capacity for future build out, with reassigned Parker trips;
- Higher pedestrian volumes on Commercial Drive crossing the Commercial Drive & Parker Street intersection's west leg over the Venables Street & Cotton Drive intersection's south leg; and,
- Proximity to new community centre entry locations.

The traffic increase was tied to proposed parking increase where parking may be oversupplied, Bunt recommends Urban Arts explore options to reduce on-site vehicle parking supplies including the adoption of a robust Transportation Demand Management (TDM) plan.

Consideration may be given to converting the time periods of Venables Street's north curb adjacent to Cotton Drive from its current 9 AM to 6 PM two hour parking regulation to 9:30 AM to 5 PM. Although the eastbound traffic is not shown to have significant delays, allowing westbound vehicles on Venables Street to pass a vehicle waiting to turn left onto Cotton Drive across substantial eastbound Venables Street traffic will assist westbound vehicles on Venables Street.

5. SITE PLAN DESIGN REVIEW

5.1 Site Access Design

The site access design mirrors the site's present access with the exception of converting Parker Street east of Commercial Drive into a no vehicle access pedestrian plaza. As discussed in Section 4, Bunt's analysis indicates the removal of vehicle access on Parker Street will not have significant impact to traffic operations.

5.2 Student Pick-up Drop-off

The Master Plan includes formalized pick-up / drop-off spaces along Commercial Lane.

5.3 Loading

Commercial Lane & Venables Lane intersection will be designed to accommodate applicable loading vehicles.

The Master Plan will improve the pedestrian realm along Commercial Lane with the addition of a sidewalk or pedestrian area that is segregated from vehicles and loading activity.

The proposed Master Plan achieves or exceeds recommended set-backs along Commercial Lane. The Master Plan indicates space to accommodate a 2.5 m short-term parking lane and a minimum of 2.5 m wide sidewalk along its Commercial Lane frontage. This proposed width allows for various cross section opportunities that can increase pedestrian safety while retaining lane width for through traffic and eastside lane loading activity.

5.4 Parking Supply

The current vehicle parking supply is equivalent to the community facilities square meter area increase of 9,848 m² to 27,470 m².

This growth is likely excessive when applied to the full BCSC site due to the following factors:

- Existing parking appears to also be used by external vehicles;
- Various BCSC components are not growing by the same factor (280%) such as the ice rink, the pool and the three schools;
- The community facilities are anticipated to draw from a more local demographic compared to the other uses such as the ice rink and the pool. The more local user demographic is anticipated to have a lower vehicle mode split.

A more substantive parking demand analysis should be undertaken to better understand the anticipated vehicle parking demand of the renewed BCSC Master Plan.

6. CONCLUSIONS & RECOMMENDATIONS

6.1 Conclusions

During the weekday PM peak hour 53 two-way trips (28 inbound and 25 outbound) were observed exiting or entering Cotton Drive to/ from Venables Street and 84 trips (40 inbound and 44 outbound) were observed during the Saturday peak hour.

Substantially higher pedestrian volumes were observed on Commercial Drive (at Parker Street) over Venables Street (at Cotton Drive).

The resulting existing total site vehicle trip generation is estimated to be approximately 155 total two-way trips during the weekday PM peak hour (77 inbound and 78 outbound), and 186 total two way trips during the Saturday peak hour of adjacent street traffic (89 inbound and 97 outbound).

The post-renewal BCSC site trips (based on the 9,848 m² to 27,470 m² change in community facility area, or a 2.8 factor) are 431 two way trips (213 inbound, 218 outbound) in the weekday PM peak hour, and 518 (247 inbound, 271 outbound) in the Saturday mid-day peak hour.

No traffic operational issues are anticipated from the proposed Master Plan BCSC renewal.

The Master Plan's proposed Parker Street closure is anticipated to have negligible traffic impacts and is therefore supported due to its pedestrian realm improvements. Specifically, Bunt supports the Master Plan's closure of Parker Street (between Commercial Drive and Commercial Lane) due to the following considerations:

- Venables Lane will retain a northern site Commercial Drive connection;
- The Cotton Drive and Venables Street intersection has capacity for future build out, with reassigned Parker trips; and,
- Higher pedestrian volumes crossing Commercial Drive & Parker Street intersection's west leg over Venables Street & Cotton Drive intersection's south leg.

Key findings of the school pick-up / drop-off and commercial loading activity are:

- Substantial school drop-off and pick-up activity was observed south of the site with motorists using the publically available spaces along Cotton Drive (south of the site) and William Street (west of the site). Motorists were observed using these parking areas then walking their children to school or meeting them at the adjacent playground;
- Overall, the two school's pick-up and drop-off activity appeared dispersed. No traffic operational impacts or traffic blockages were observed; and,
- Commercial Lane appeared to be the most congested area as it is used for accessing the elementary school as well as the secondary school. To compound the activity in this location a high number of pedestrians were also observed in the lane as well as commercial loading activity.

The Commercial Lane & Venables Lane intersection will be designed to accommodate applicable loading vehicles.

The Master Plan will improve the pedestrian realm along Commercial Lane with the addition of a sidewalk or pedestrian area that is segregated from vehicles and loading activity.

The proposed parking supply, which was determined by using the growth factor of the community facilities is likely excessive due to the following factors:

- Existing parking appears to also be used by external vehicles;
- Various BCSC components are not growing by the same factor (280%) such as the ice rink, the pool and the three schools; and,
- The community facilities are anticipated to draw from a more local demographic compared to the other uses such as the ice rink and the pool. The more local user demographic is anticipated to have a lower vehicle mode split.

The proposed Master Plan achieves or exceeds recommended set-backs along Commercial Lane. The Master Plan indicates space to accommodate a 2.5 m short-term parking lane and a minimum of 2.5 m wide sidewalk along its Commercial Lane frontage. This configuration is considered appropriate as it retains existing lane width for through traffic and eastside lane loading activity.

6.2 Recommendations

Consideration may be given to converting the time periods of Venables Street's north curb adjacent to Cotton Drive from its current 9 AM to 6 PM two hour parking regulation to 9:30 AM to 5 PM. Although the eastbound traffic is not shown to have significant delays, allowing westbound vehicles on Venables Street to pass a vehicle waiting to turn left onto Cotton Drive across substantial eastbound Venables Street traffic will assist westbound vehicles on Venables Street.

To protect against external parking, the Master Plan may consider adding parking time restrictions to parking spaces in main parking lot. Other speciality spaces should also be considered such as high vehicle occupancy spaces, or family / parents with children spaces.

A more substantive parking demand analysis should be undertaken to better understand the anticipated vehicle parking demand of the renewed BCSC Master Plan. Bunt recommends Urban Arts Architecture explore options to reduce on-site vehicle parking supplies including the adoption of a robust Transportation Demand Management (TDM) plan.

APPENDIX A

Traffic Forecast Volumes

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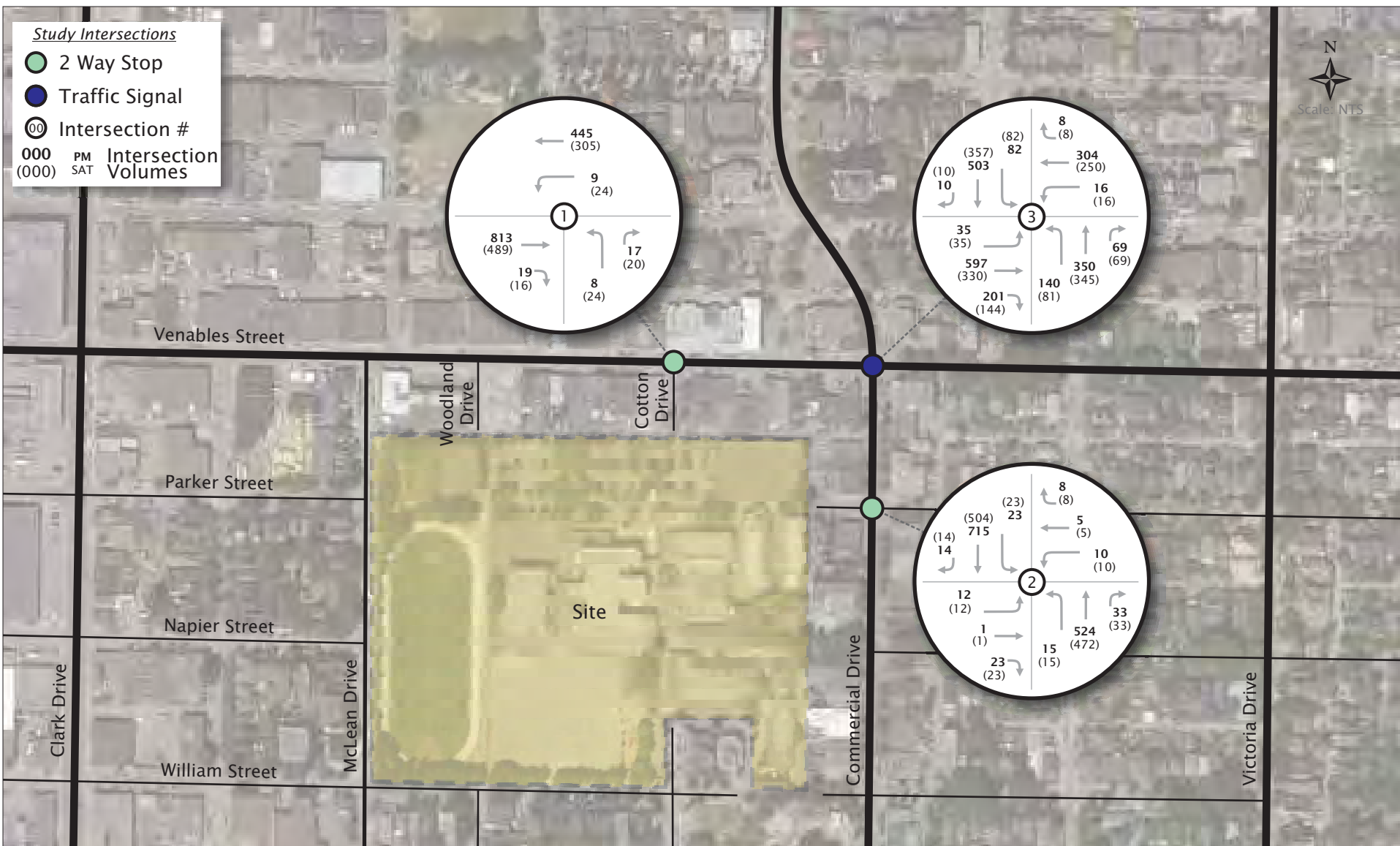


Exhibit A.1 Background 2030 Traffic Forecasts

Britannia Community Services Centre Renewal
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May 2018

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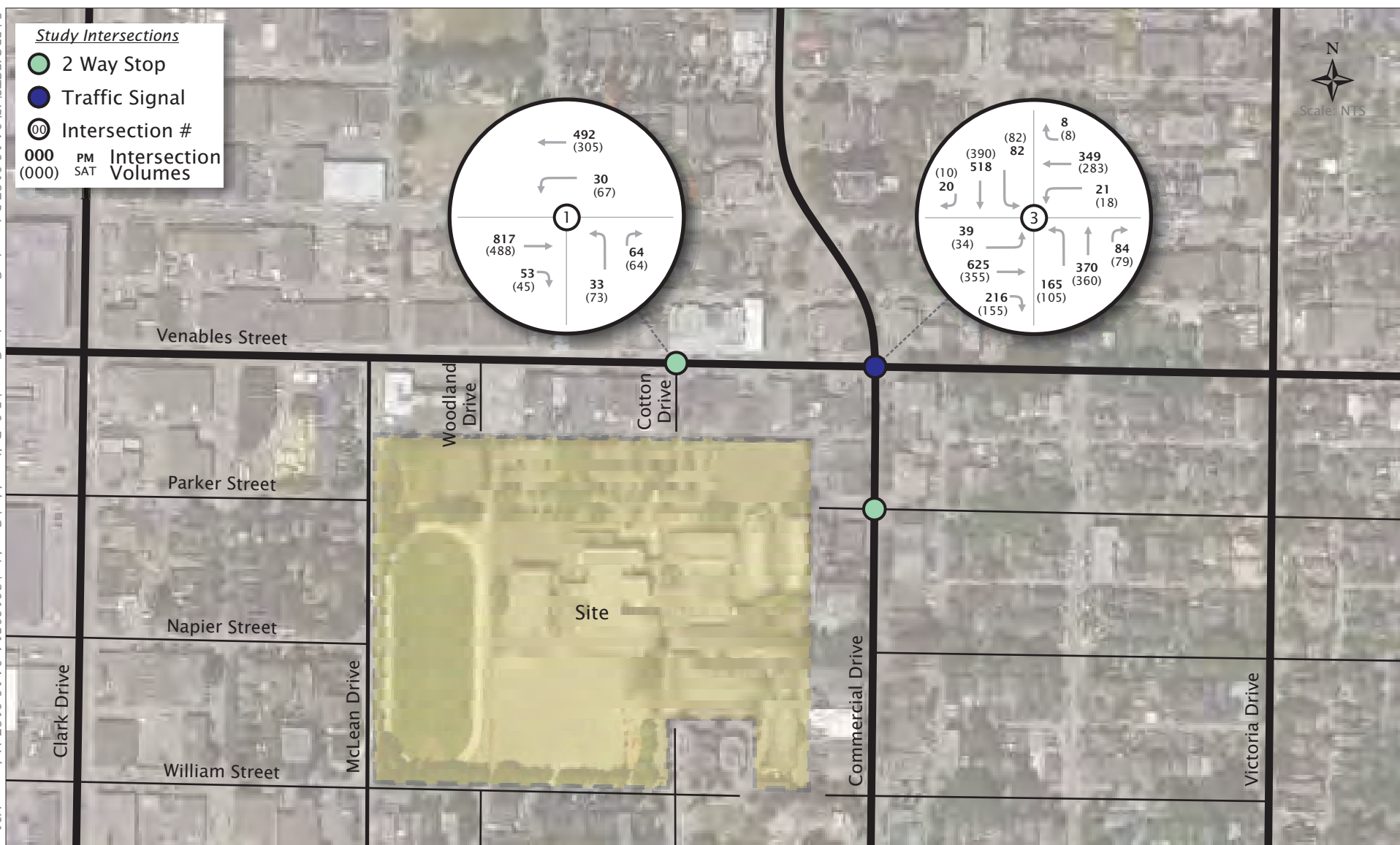


Exhibit A.3 Total 2030 Traffic Forecasts Without Parker

Britannia Community Services Centre Renewal
04-18-0167
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