

# Parkland Burnaby Refinery via McElhanney Traffic Report Summary

## PURPOSE:

In 2019, Parkland Refining (B.C.) Ltd. (Parkland) commissioned a “Traffic Management Study” that was carried out by McElhanney, an independent third-party engineering firm. The purpose of this technical report was to review traffic operations generally within the Capitol Hill neighborhood in Burnaby, B.C. from North Willingdon Avenue to Gamma Avenue, and from Penzance Drive to East Hastings Street.

This study evaluates street light data from mid-2017 to 2019, and also the AM and PM weekday peak hour conditions in years 2019 (existing conditions) and 2024 (5-year horizon year). Information from this study will inform what measures could be taken to address traffic concerns within our neighbourhood – this includes the impact to our local residents and the Parkland workforce travelling to and from the facility.

## WHAT WAS STUDIED:

Parkland Burnaby Refinery is located at 5201 Penzance Drive in Burnaby, British Columbia, which is the main location of interest and is also known as Refinery Area 2. The other secondary location, known as Refinery Area 1 is located on 355 North Willingdon Avenue. The primary focus of the McElhanney study was Refinery Area 2 on Penzance Drive. With a rise in traffic volumes on the surrounding road network accompanied by increased refinery traffic, the roads in the area are experiencing congestion and delays, frustrating the residents in the neighbourhood. To consider further mitigations that may be required for existing and potential future challenges, traffic conditions at ten (10) study intersections were reviewed, which are presented in Table 1.

In addition, origin-destination traffic patterns to and from the Parkland Burnaby Refinery were reviewed to determine traffic patterns around the Refinery and through the Capitol Hill neighbourhood.



**TABLE 1: STUDY INTERSECTIONS**

Study Intersections	Control Type
Eton Street / North Rosser Avenue	Side-Street Stop-Controlled
Penzance Drive / North Willingdon Avenue	Side-Street Stop-Controlled
Albert Street / North Willingdon Avenue	All-Way Stop-Controlled
East Hastings Street / North Willingdon Avenue	Signalized
Penzance Drive / North Beta Avenue	Side-Street Stop-Controlled
Penzance Drive / North Gamma Avenue	Side-Street Stop-Controlled
Cambridge Street / North Gamma Avenue / Empire Drive	All-Way Stop-Controlled
Albert Street / North Gamma Avenue	All-Way Stop-Controlled
East Hastings Street / North Gamma Avenue	Signalized
East Hastings Street / Holdom Avenue	Signalized

**KEY ISSUES ADDRESSED BY STUDY:**

To inform the study, several meetings and site visits were conducted by McElhanney to review local concerns and issues that have been raised by the City of Burnaby, neighbourhood residents, and Parkland:

- Residents have expressed frustration regarding workers originating from the Parkland Burnaby Refinery making left turns from westbound Penzance Dr. to North Gamma Ave. and North Beta Ave.
- Peak rush hour (5:00PM-6:00PM) Parkland shift change traffic along North Willingdon Ave., with a queue of cars backing up along Penzance Dr. beyond Confederation Park’s north parking lot access. Some drivers have been observed using the Confederation Park parking lot to make U-turns to access North Beta Avenue and North Gamma Avenue.
- To avoid congestion on East Hastings Street, some regular commuters often travel through the Burnaby Heights and Capitol Hill neighbourhoods.
- Congestion at the intersection of East Hastings Street and North Willingdon Avenue also creates southbound traffic queuing along North Willingdon Avenue and often extends beyond the North Willingdon Avenue / Albert Street four-way stop controlled intersection, which is only 100 m away. This situation leads to increased congestion at the North Willingdon Avenue / Albert Street intersection causing it to operate at or above capacity during peak hour conditions.

## MCELHANNEY RESULTS/OBSERVATIONS:

Data generated by software (including data from mid-2017-2019) in addition to manual traffic counts indicated that there was an increase in traffic in the Capitol Hill neighborhood between 5:00PM and 6:00PM in September 2019 (date analyzed).

**Please see Figures 1 and 2 at the end of this summary.**

### Key Findings for Traffic Originating from East End of Penzance:

- Data indicates that of all the traffic passing through Capitol Hill, the **largest** portion of trips are made by regular commuters
- In general, out of all trips in and out of Capitol Hill, McElhanney estimates that **Parkland-related traffic accounts for approximately 2% of total traffic** (Figure 2)
- In September 2017, before the "No Left-Turn" signs were implemented, it is estimated that approximately 50% of refinery workers were making a westbound left-turn from Penzance Drive to enter the Capitol Hill neighbourhood.
- During planned maintenance in 2018-2019, the City of Burnaby implemented left-turn restrictions, and Parkland implemented additional temporary traffic control measures to help reduce traffic. This resulted in a further reduction of ~70% of Parkland traffic through Capitol Hill.
- Compared to the 2019 conditions, background traffic operations in 2024 are expected to degrade slightly at the study intersections.
- With the addition of additional traffic during planned maintenance events at the refinery, traffic operations along Penzance Drive, North Willingdon Avenue, and North Gamma Avenue would be expected to degrade significantly compared to the 2024 background traffic operations. This is due to the additional Parkland-related traffic that is expected to use these roads.

## PARKLAND MITIGATIONS:

Parkland has made efforts to reduce the number of refinery workers driving through the Capitol Hill neighbourhood over the past year.

### Efforts to reduce this traffic have included:

- During periods of higher traffic (e.g. planned maintenance), westbound left-turning traffic from Penzance Drive onto North Gamma Avenue and North Beta Avenue has been restricted from 5:00 AM to 7:00 AM and 5:00 PM to 7:00 PM.
  - To further enforce this restriction, Parkland has temporarily deployed traffic control personnel during high-volume periods to guide westbound traffic to stay on Penzance Drive and pass through these intersections. Parkland management is also educating its workforce not to make illegal left turns from Penzance Drive onto North Gamma Avenue and North Beta Avenue.
- Installing median delineator posts and signs to restrict westbound left-turn movements at the Penzance Drive / North Gamma Avenue and Penzance Drive / North Beta Avenue intersections.

Through these efforts, traffic attributable to Parkland Burnaby Refinery through Capitol Hill has been reduced significantly. In September 2017 (when "No Left-Turn" signs were not in place), it is estimated that approximately 50% of commuter traffic from the east end of Penzance was making a westbound left turn from Penzance Drive to enter the Capitol Hill neighbourhood. With the implementation of left-turn restrictions, temporary traffic control personnel, and other measures, it is estimated that only about 12% of Parkland-related vehicles are now cutting through the Capitol Hill neighbourhood.



## OTHER PROPOSED MITIGATIONS:

The report made several suggestions that could be considered by the City of Burnaby to improve general traffic flow.

### **Reduce Parkland-Related Traffic Through Capitol Hill:**

- Continue to restrict westbound left turn at North Gamma Avenue.
- Construct a cul-de-sac on the north end of the existing North Beta Avenue to close the existing access to Penzance Drive.
- Convert North Beta Avenue and Cambridge Street to local road and retain the existing speed humps.

### **Debottleneck Access to North Willingdon Avenue:**

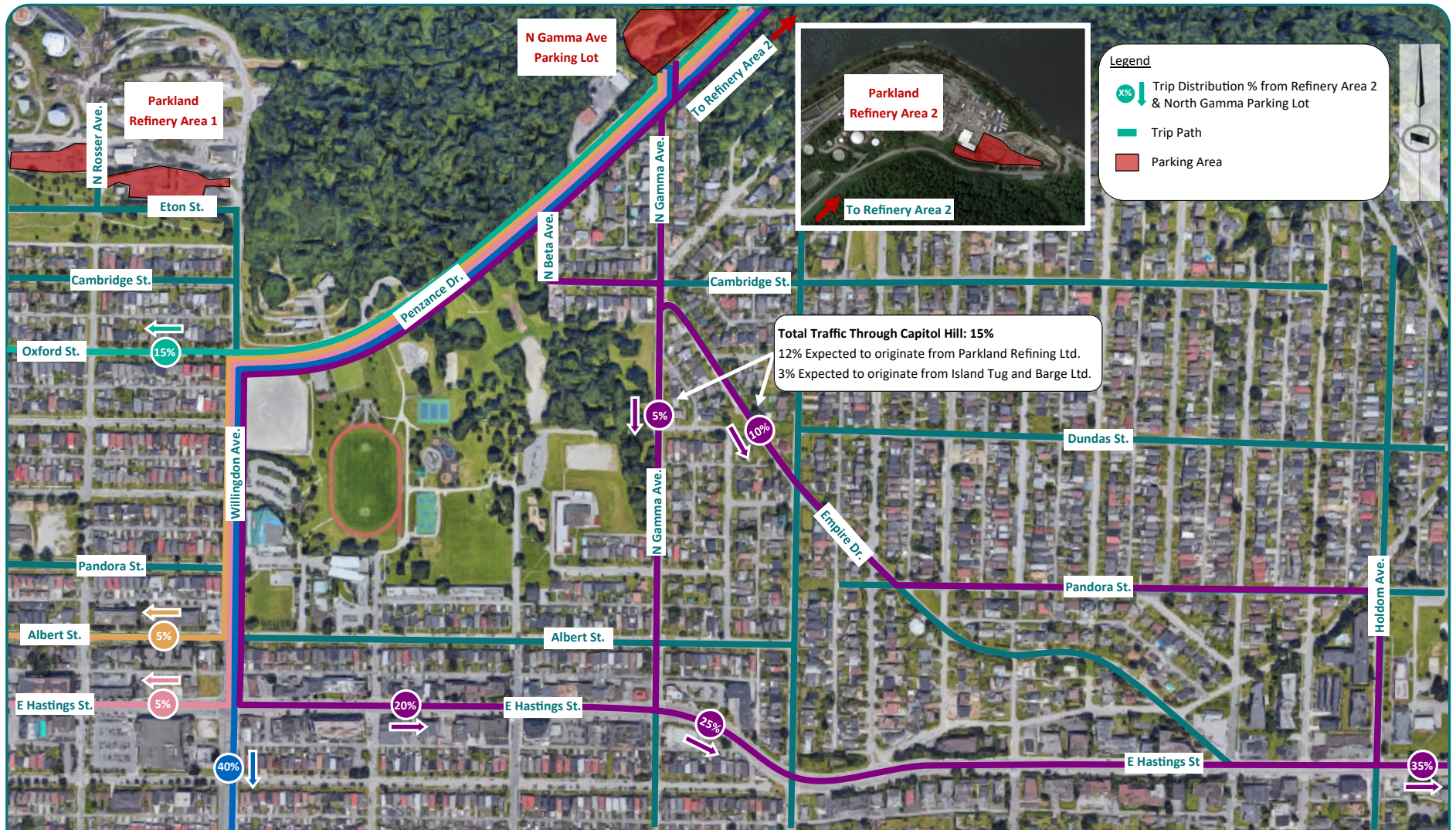
- Convert existing two-way stop-controlled at North Willingdon Ave and Penzance Drive to a signalized intersection.
- Install northbound and eastbound right-turn lanes at the North Willingdon Avenue / Albert Street intersection to improve overall operations.

- Optimize the signal timing plan at the East Hasting Street / North Willingdon Avenue intersection to provide the southbound approach with additional green time.
- Review and update signal timing plans and coordination along East Hastings Street as traffic pattern or traffic volumes evolve in the area over time.

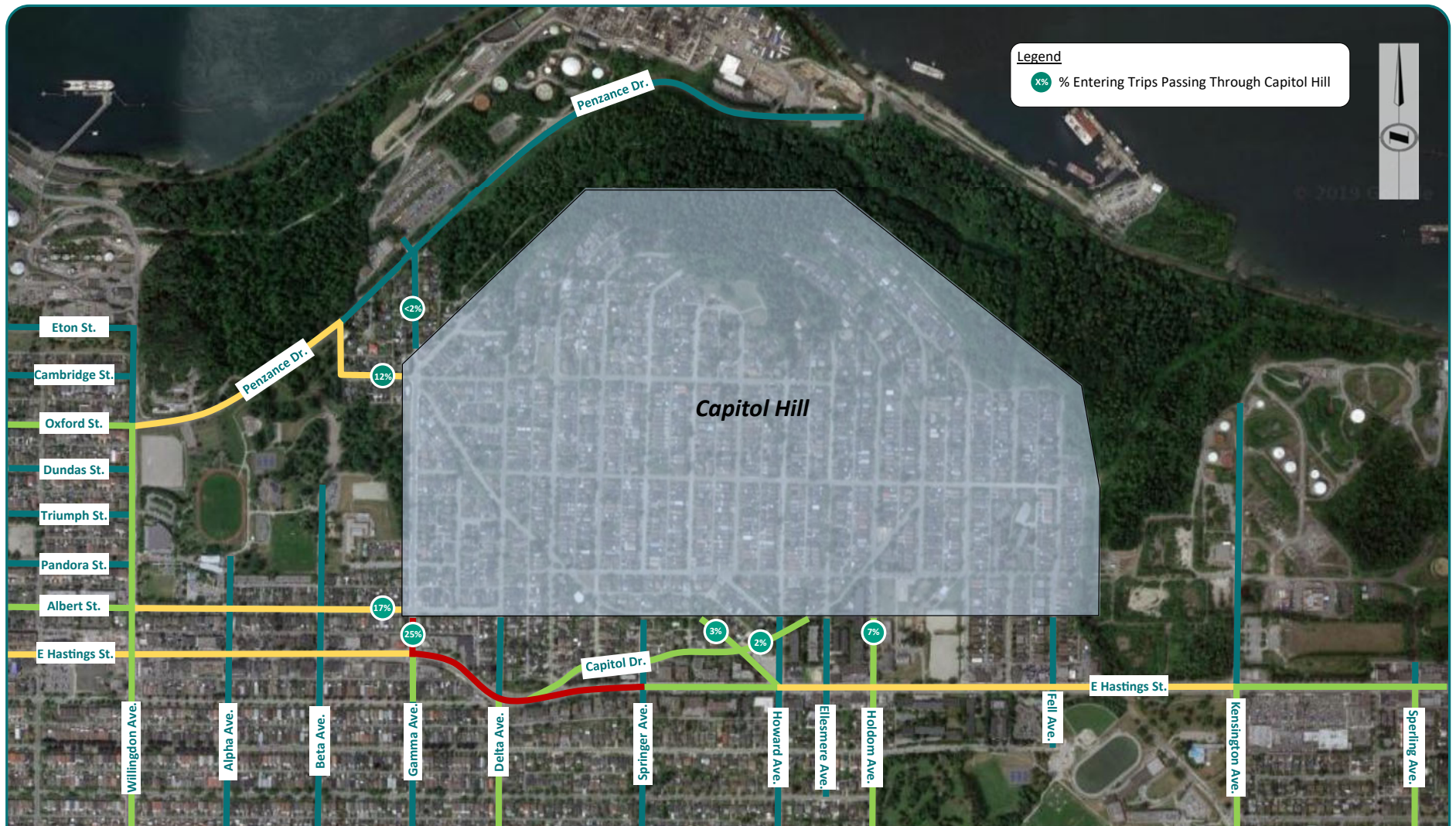
### **Build New Infrastructure to Go Around Communities:**

- Extend Penzance Drive to Cliff Avenue to provide regional traffic currently cutting through

**Appendix Figures:**



**Figure 1:** Parkland Burnaby Refinery – Traffic Management Study: Trip Distribution From Refinery Area 2 & North Gamma Parking Lot, PM Period. Trip distribution for traffic generated was estimated using the StreetLight InSight® software.



**Figure 2:** Parkland Burnaby Refinery – Traffic Management Study: Top Routes Passing Through Capitol Hill (Weekday PM Peak Hour: 5:00 – 6:00 PM). Please note: interpretation of this chart is challenging as trips in/out of Capitol hill are anonymous and cannot be assigned to any specific trip. For example, at the Gamma / Albert intersection, commuters traveling north on Gamma might turn left onto Albert and not actually enter Capitol Hill. Map generated from Streetlight analysis software.

## CONTACT US

We welcome your questions.  
Please don't hesitate to call or e-mail our Community Contact Line:



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For more information about the Parkland Burnaby Refinery, visit [burnabyrefinery.ca](http://burnabyrefinery.ca)



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