

**File N°:** 5016236-001

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**Subject:** River Road Trucks (DRAFT)  
13201 River Road – Richmond, BC

## INTRODUCTION

Spire Construction Inc. is planning to build a distribution warehouse facility on River Road in Richmond. River Road will be the only access route to the site. Running east from No. 5 Road, River Road currently ends just east of the site.

The current width of River Road, which is located on top of a dyke, varies from approximately 4.5 m to 5.5 m along its route. Stopping is prohibited on the south side of River Road at all times and on the north side from 6 p.m. to midnight Friday, Saturday, Sunday and statutory holidays. This width is narrower than a typical two lane road. As a result, two large vehicles may have difficulty passing each other.

## POSSIBLE CONFLICTS

To assess possible conflicts, the needed widths were examined for three types of vehicles: bicycles, cars and trucks. Bicycles have an operating width of 1.2 m. Cars and trucks have design widths of 2.0 m and 2.6 m, respectively. Adding a 0.5 m buffer between directions gives the total width necessary for two vehicles to pass. These are summarized in **Table 1** below.

The second component of conflicts is the probability of a conflict occurring. The site is expected to generate 20 trips each way per day over an eight hour period. This equates to 3 truck trips per hour per direction. Cars are currently and will be the most common vehicle on the road, while trucks are less common and bicycles are rare. As a result, the most frequent type of conflict is car-to-car. Bike-to-bike, bike-to-truck, and truck-to-truck are the least common.

**Table 1 – River Road Traffic Conflicts**

Potential Conflict	Desired Width <sup>1</sup>	Frequency <sup>2</sup>	Spare Clearance	OK?
Bike – Bike	$1.2+0.5+1.2 = 2.9$ m	1	1.6 to 2.6 m	YES
Bike – Car	$1.2+0.5+2.0 = 3.7$ m	4	0.8 to 1.8 m	YES
Bike – Truck	$1.2+0.5+2.6 = 4.3$ m	1	0.2 to 1.2 m	YES
Car – Car	$2.0+0.5+2.0 = 4.5$ m	5	0.0 to 1.0 m	YES
Car – Truck	$2.0+0.5+2.6 = 5.1$ m	4	-0.6 to +0.4 m	POSSIBLY
Truck – Truck	$2.6+0.5+2.6 = 5.7$ m	1	-1.2 to -0.2 m	NO

Note: 1. Available Road Width = 4.5 – 5.5 m. Calculation shows effective vehicle widths plus clearance.

2. Frequency: 1 – Low; 5 – High

Of these various types of conflicts, bike-to-bike, bike-to-car, bike-to-truck, and car-to-car can easily pass each other within the available road width. Car-to-truck could be restricted at narrow locations,

while truck-to-truck will be difficult where there is not a widening for parking that occurs periodically along the north side of the road.

Given that 4 trucks per hour are projected to use this road in the peak hour, the probability of any one truck meeting another in the peak hour is about 10%. With cars being more frequent than trucks, the probability of any single truck meeting a car is about 90%.

## **SOLUTIONS TO MINIMIZE CONFLICTS**

While the frequency of the key truck-to-truck conflicts is not anticipated to be high, it is something that should be minimized. A list of options to mitigate such conflicts is given below ranked in general order of effectiveness.

- **Prohibition:** In this option, trucks would be prohibited from using River Road. Given that the site only frontages River Road, this would be impractical unless access through an adjacent lot is provided that could give access to Vulcan Way to the south.
- **One-way:** Since the road is narrow, converting it to one way would be a possibility but for the fact that it is a cul-de-sac. As a result, there is no other way in or out, nor another parallel road that could provide traffic in the other direction.
- **Road widening:** Widening River Road would allow for two way traffic. A local road standard would be reasonable since River Road is essentially a cul-de-sac. The difficulty with this is that River Road is on top of a dyke and it is anticipated that widening would be costly.
- **Single lane alternating traffic:** This option would involve installing traffic control signals that allow for one way alternating traffic. Given the number of driveways and potential pullouts along this route, this option is not considered feasible as these would all need to be controlled.
- **Minor Road widening:** As an alternative to widening the road to a full two lane standard, the road could be widened to provide a consistent width of at least 5.1 metres to eliminate all but the truck-to-truck conflict. This would require spot widening at selected locations.
- **Pull-out bay(s):** This option would allow a truck to pull into the pull out bay to allow another truck or car to pass. There are widenings along the north side of River Road that are currently available for parking. It was observed that they are used for such but with many free spaces. Consequently, some of these could be designated for use as pull outs by westbound trucks.
- **Radio for trucks:** This option would have trucks traveling to and from the site use radios to communicate with each other. Trucks entering the site (traveling east) would have priority over trucks leaving the site (traveling west). This is possible, but there is also the possibility that such procedures may be ignored.

## **CONCLUSIONS**

Given the relatively rare occurrence of a truck-to-truck conflict but the more likely car-to-car conflict, it is recommended that pull-out bays be designated at locations along River Road for westbound trucks to pull in so as to give way to eastbound trucks.