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# MEMORANDUM

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| DATE: | March 21, 2022 |
| TO: | Transportation and Mobility Commission (TMC) |
| FROM: | Ryan Farncomb & Nadine Appenbrink, Parametrix |
| SUBJECT: | Fourth Plain Safety and Mobility Project Update – Reconfiguration Alternatives |
| CC: | Jennifer Campos, Principal Planner; Rebecca Kennedy, Deputy Director; Community Development Department, City of Vancouver |

## Introduction

The Fourth Plain Safety and Mobility Project is looking at ways to make Fourth Plain between Main Street and NE Andresen Road safer for everyone, including for people who drive, walk, ride a bike, use a mobility device, or ride the bus. This project will look at how to use the existing road space to make this corridor safer, which could include changing the number of lanes for driving to make more room for people walking, biking, or using the bus.

Since the last time we discussed this project with the TMC in December of 2021, the project team has been testing different "lane reconfiguration" ideas to understand how changing the number of driving lanes might affect congestion and safety in the corridor.

### What is a "lane reconfiguration"?

A lane reconfiguration re-allocates roadway space, usually by removing travel lanes for cars and repurposing the lane space for people walking, riding bikes, buses, or trucks. They have been used by many cities including Vancouver to create more space for other roadway users. They are proven through research to increase safety for everyone who uses the road by slowing traffic and reducing conflict points between cars and other road users. Lane reconfigurations are very cost-effective compared to other actions that address safety and mobility.

## Overview of the Reconfiguration Analysis

The team is using modeling tools to evaluate how traffic might change on Fourth Plain, as well as how traffic might change on nearby roads and highways if a travel lane was repurposed along a portion or all of Fourth Plain between F Street and Andresen Road. Overall, our modeling shows that a majority of drivers would continue driving on Fourth Plain in the same way they did before a travel lane was repurposed. However, there would be less overall driving in the corridor under the lane reconfiguration scenarios the team looked at. This is because people change their behavior in one of five ways when a travel lane is repurposed. They may:

- Change the route they drive on. For example, they may use SR-500 instead of Fourth Plain.
- Change the time of day they travel.
- Change the *way* they travel – such as using the bus or riding a bike instead of driving.
- Change their destination. For example, they may go to a different grocery store.
- Choose not to make the trip at all (although this is the least likely).

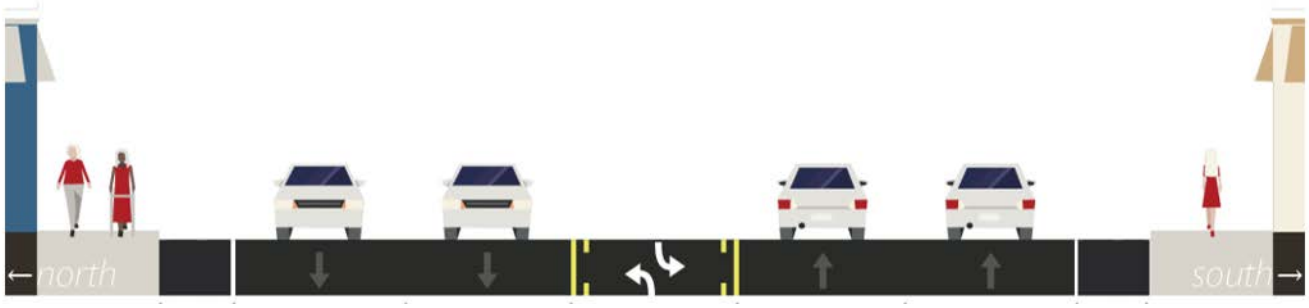
The project team looked at modeled traffic in the year 2040 to understand how traffic is likely to be if there are no roadway changes in the corridor between now and 2040 (called a "No Build" scenario) and compared that to traffic if a travel lane was repurposed, testing several different alternatives. The project team wanted to answer the following questions:

- What would traffic look like in 2040 if we repurposed a travel a lane in both directions and if different extents were considered?
- Would the amount of traffic meet City standards for keeping drivers moving on Fourth Plain?
- How does traffic with a travel lane repurposed compare to keeping Fourth Plain the same as it is today?

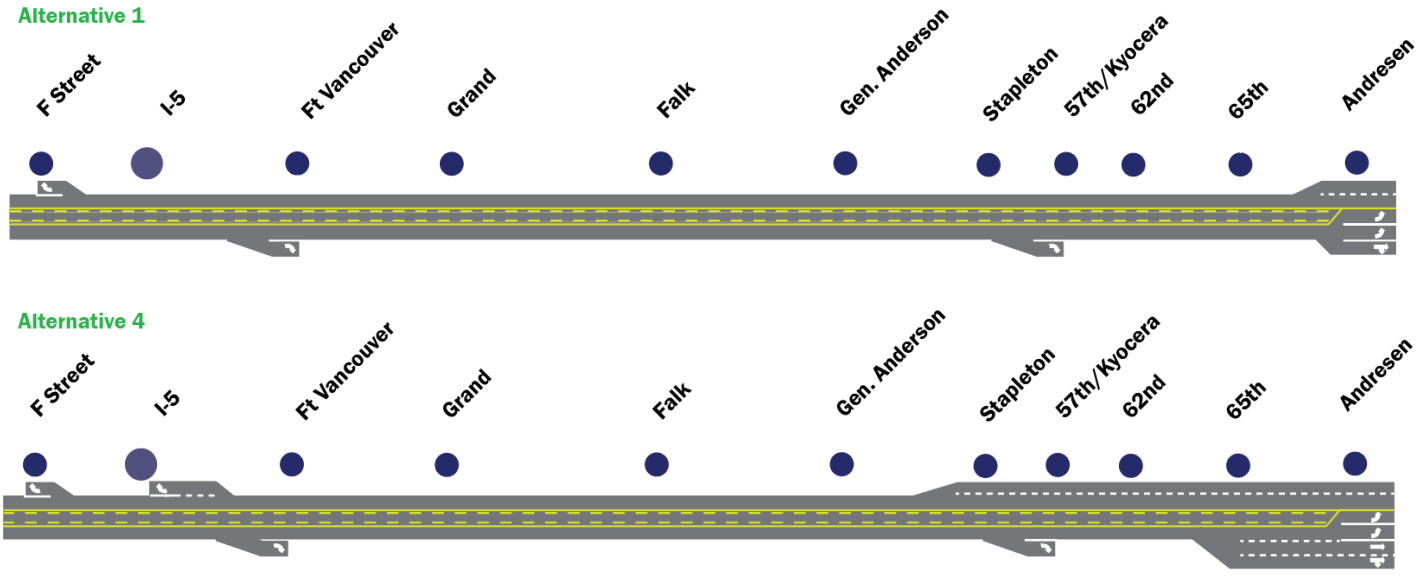
The answers to these questions help us understand whether a lane reconfiguration would affect drivers in a major way. This information will also help us discuss lane reconfiguration tradeoffs with the public and stakeholders: whether potential impacts to drivers are worth the benefits of increased safety and mobility for all roadway users.

## What lane reconfiguration ideas were tested?

Fourth Plain today in the study area generally has two travel lanes in each direction and a center turn lane. The figure below shows a typical section of Fourth Plain.




The project team analyzed several lane reconfiguration ideas, two of which are shown below. Alternative 1 would repurpose a travel lane in each direction between F Street and Andresen in most of the corridor. Alternative 4 repurposes a travel lane in each direction for most of the corridor but keeps both travel lanes westbound between Andresen and Stapleton and eastbound between 65th and Andresen. This addresses potential traffic issues shown in the modeling under Alternative 1. Both alternatives would maintain left turn lanes throughout the Fourth Plain corridor.




It's important to note that models aren't perfect. For that reason, the project team tested several higher and lower traffic assumptions to get a range of likely traffic outcomes for each lane reconfiguration alternative.

## Key findings

The City looks at several criteria to understand how well drivers travel. The table below shows how each alternative would perform in the year 2040 based on the modeling. We also provide info about the existing conditions and "No Build" driving conditions for 2040 as a point of comparison (the No Build assumes that the corridor stays the same as it is today). Intersection delay is measured by Level of Service (LOS). LOS considers how long people driving have to wait at intersections on a scale from "A" (free flow) to "F" (gridlock). LOS D or E is usually considered acceptable amounts of delay during peak travel times (morning and evening rush hour). Additionally, the City has standards for how quickly people driving should be able to travel through the corridor. Generally, an average speed (both eastbound and westbound) of about 12 MPH is the minimum standard.

**Overall, a lane reconfiguration that repurposes a travel lane in each direction is likely to work well from a traffic standpoint.**

Table 1. Corridor Traffic Performance

| | **Existing Conditions** | **2040 "No Build"** | **2040 Alternative 1** | **2040 Alternative 4** |
|---|---|---|---|---|
| *Description* | The corridor today without any changes | Future traffic performance assuming the corridor stays the same as today | Repurpose one travel lane each direction from F Street to Andresen | Repurpose one travel lane EASTBOUND between F Street and 65th and WESTBOUND between Stapleton and F Street |
| *Intersection Delay* | Performs acceptably for the most part (most intersections between LOS "A" and "D") | Performs acceptably and fairly similar to Existing Conditions | Lots of delay at the I-5 northbound on-ramp, as well as a couple of unsignalized side streets | Very similar to "No Build" |
| *Corridor average speed during MORNING peak hour (7:30 – 8:30 AM)* | Eastbound: 24 MPH<br>Westbound: 24 MPH | Eastbound: 23 MPH<br>Westbound: 23 MPH | Eastbound: 23 MPH<br>Westbound: 22 MPH | Eastbound: 24 MPH<br>Westbound: 23 MPH |
| *Corridor average speed during EVENING peak hour (4:00 – 5:00 PM)* | Eastbound: 23 MPH<br>Westbound: 22 MPH | Eastbound: 22 MPH<br>Westbound: 21 MPH | Eastbound: 17 MPH<br>Westbound: 16 MPH | Eastbound: 22 MPH<br>Westbound: 21 MPH |
| *Average time to drive through the corridor in the EVENING peak hour* | Eastbound: ~10 minutes<br>Westbound: ~9.5 minutes | Eastbound: ~9.5 minutes<br>Westbound: ~10 minutes | Eastbound: ~12 minutes<br>Westbound: ~13 minutes | Eastbound: ~9.5 minutes<br>Westbound: ~10 minutes |

### *Diversion*

Another potential impact we looked at is *diversion*. Diversion occurs when drivers choose alternative routes on nearby streets to travel to avoid traffic, and this rerouted traffic can impact neighborhood road traffic and safety. With a travel lane repurposed from Fourth Plain, some drivers would likely choose a different route like 18th Street, Mill Plain, or SR-500. The project team looked at likely diversions for each of the alternatives. For the most part, changes in traffic on other roads and highways near Fourth Plain were fairly minor. If diversion were to occur on nearby streets, the City could implement changes to traffic signal timing or other traffic calming to address diversion.

## Next steps

From a technical standpoint, repurposing travel lanes from Fourth Plain would likely result in acceptable changes in traffic: Alternative 4 results in delay that is similar to No Build conditions, and average driver speeds and driving time

are also very similar to No Build. This opens up the possibility of using that extra roadway space for people walking, riding bikes, or for dedicated space for buses, and to increase safety for all users in the corridor. The project team and City are working to coordinate the next phase of this project, which will include further conversation with the TMC, the public, and the corridor community about goals for these potential changes. The project team will talk about the pros and cons of the lane reconfiguration with the community to understand how Fourth Plain can best serve everyone who lives, works, shops, recreates, goes to school, or otherwise uses the corridor.