

# Follow the signs for a smoother commute

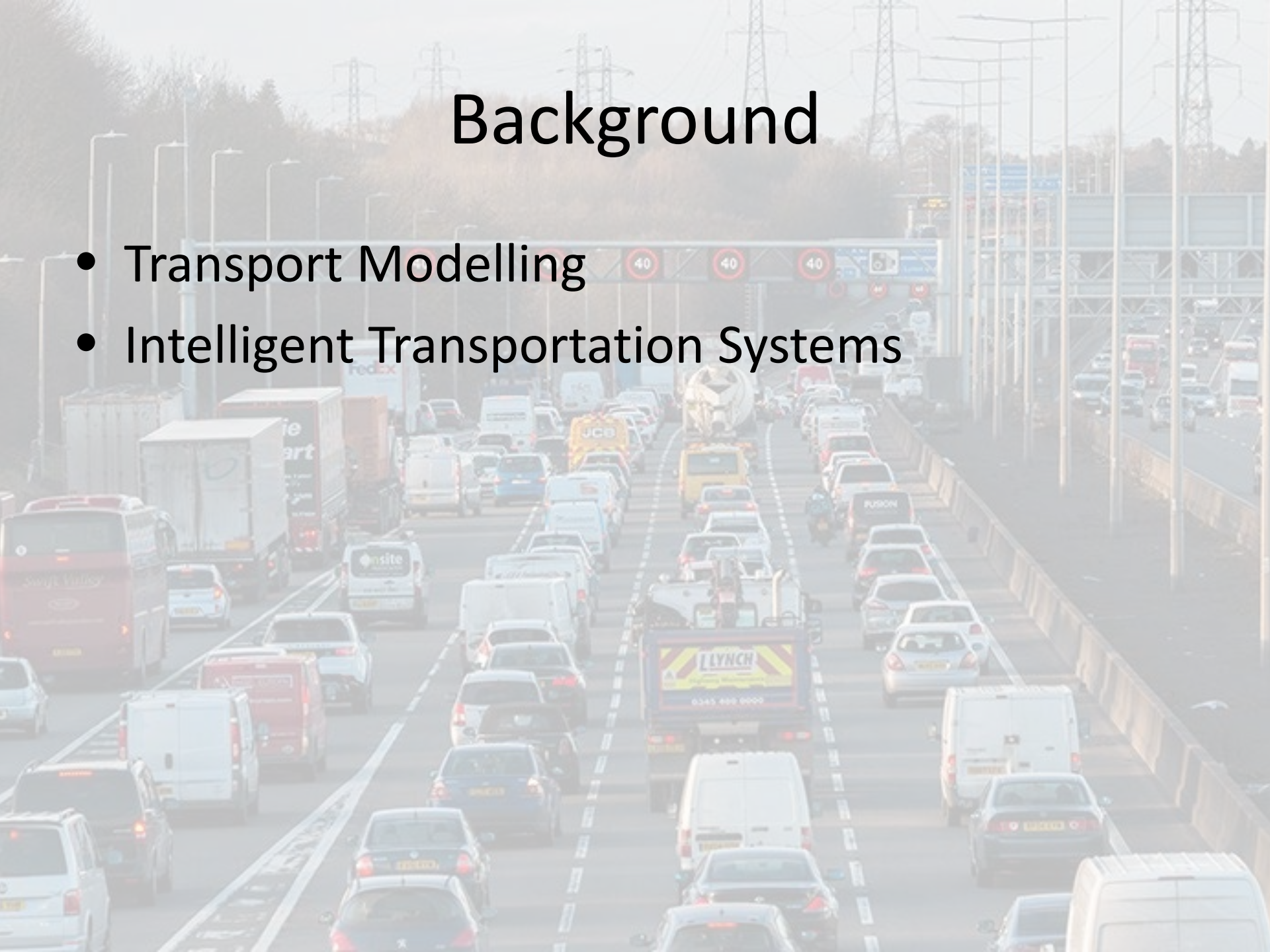
**SMART**  
MOTORWAY



Neha Sharma  
Intermediate Transport Engineer  
Wellington City Council

# Background

- Transport Modelling
- Intelligent Transportation Systems



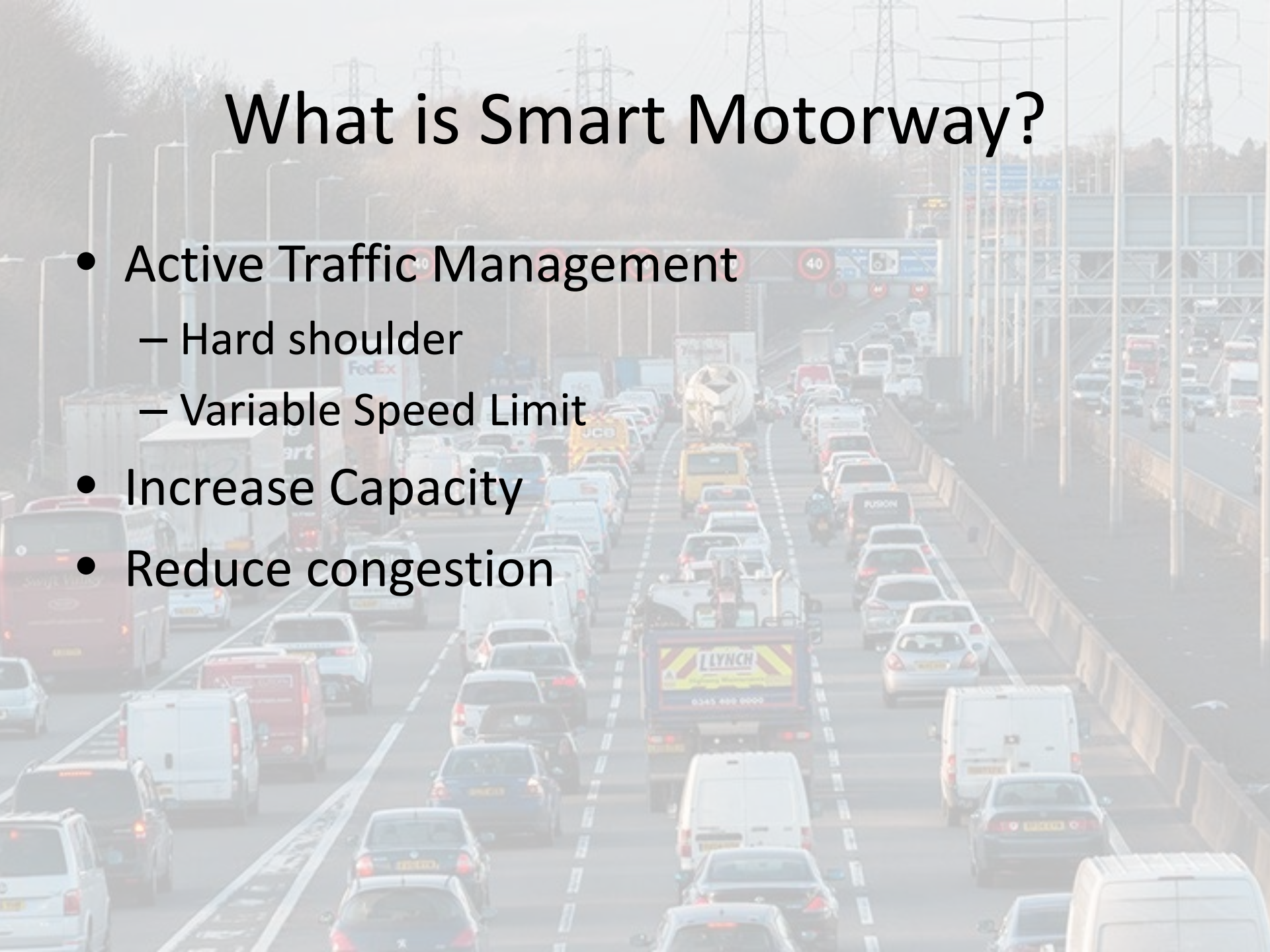
# SMART MOTORWAY

Johnsonville to Terrace Tunnel  
Opens early 2016

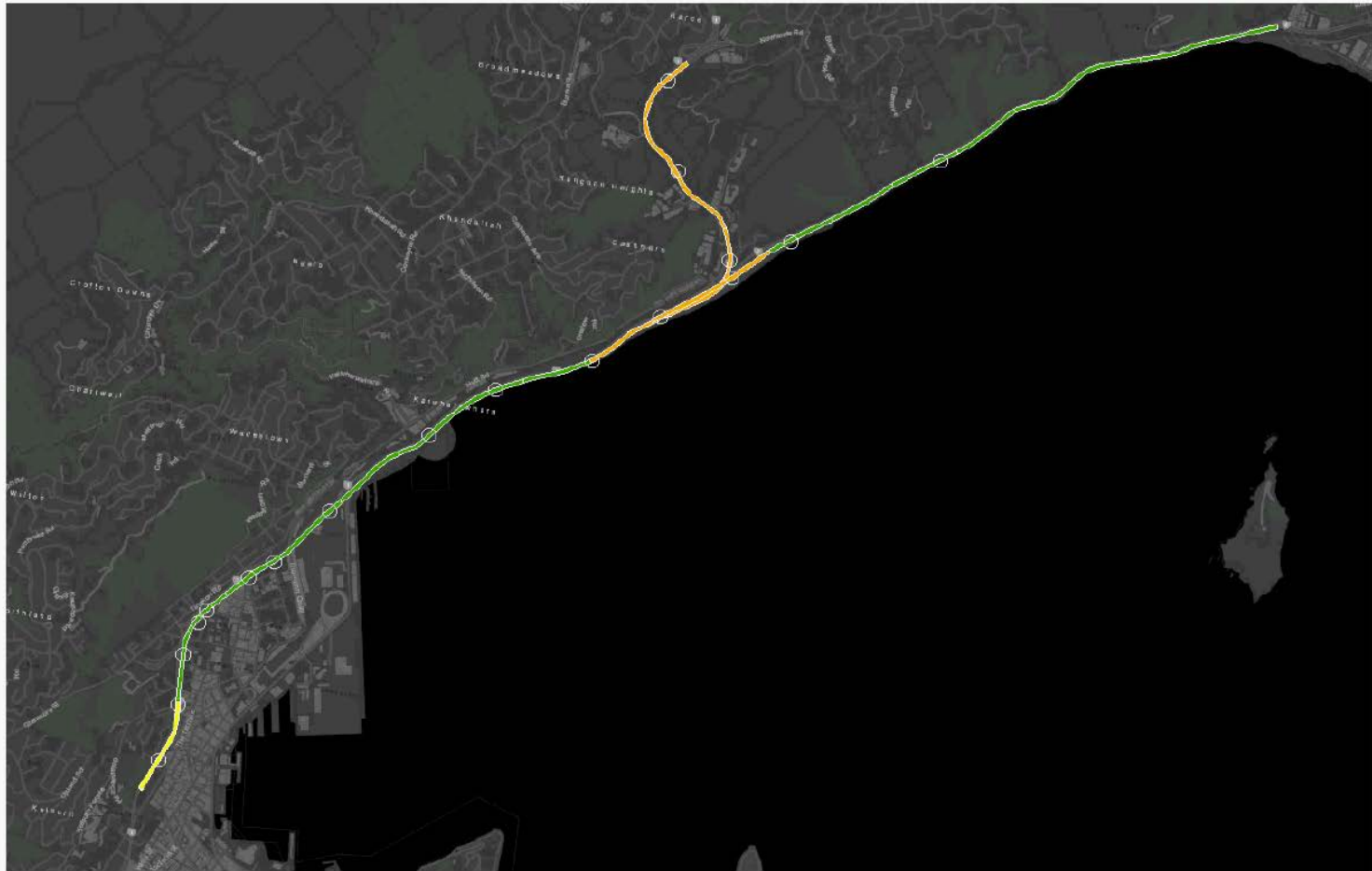


# What is Smart Motorway?

- Active Traffic Management
  - Hard shoulder
  - Variable Speed Limit
- Increase Capacity
- Reduce congestion



# Wellington SMART Motorway



# Systems and Software

## System and Software

### Automated VMSL System

Sensors



Control



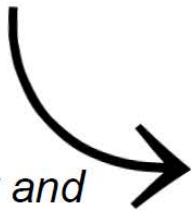
*Operating Plans*



Algorithm



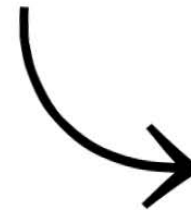
*Flow and Speed Data*



Optimised Flow



*Variable Speed Limit*



# My role

## System and Software

### Automated VMSL System

#### Sensors



#### Control



*Operating Plans*

#### Algorithm



*Flow and Speed Data*

#### Optimised Flow



*Variable Speed Limit*

# System and Software

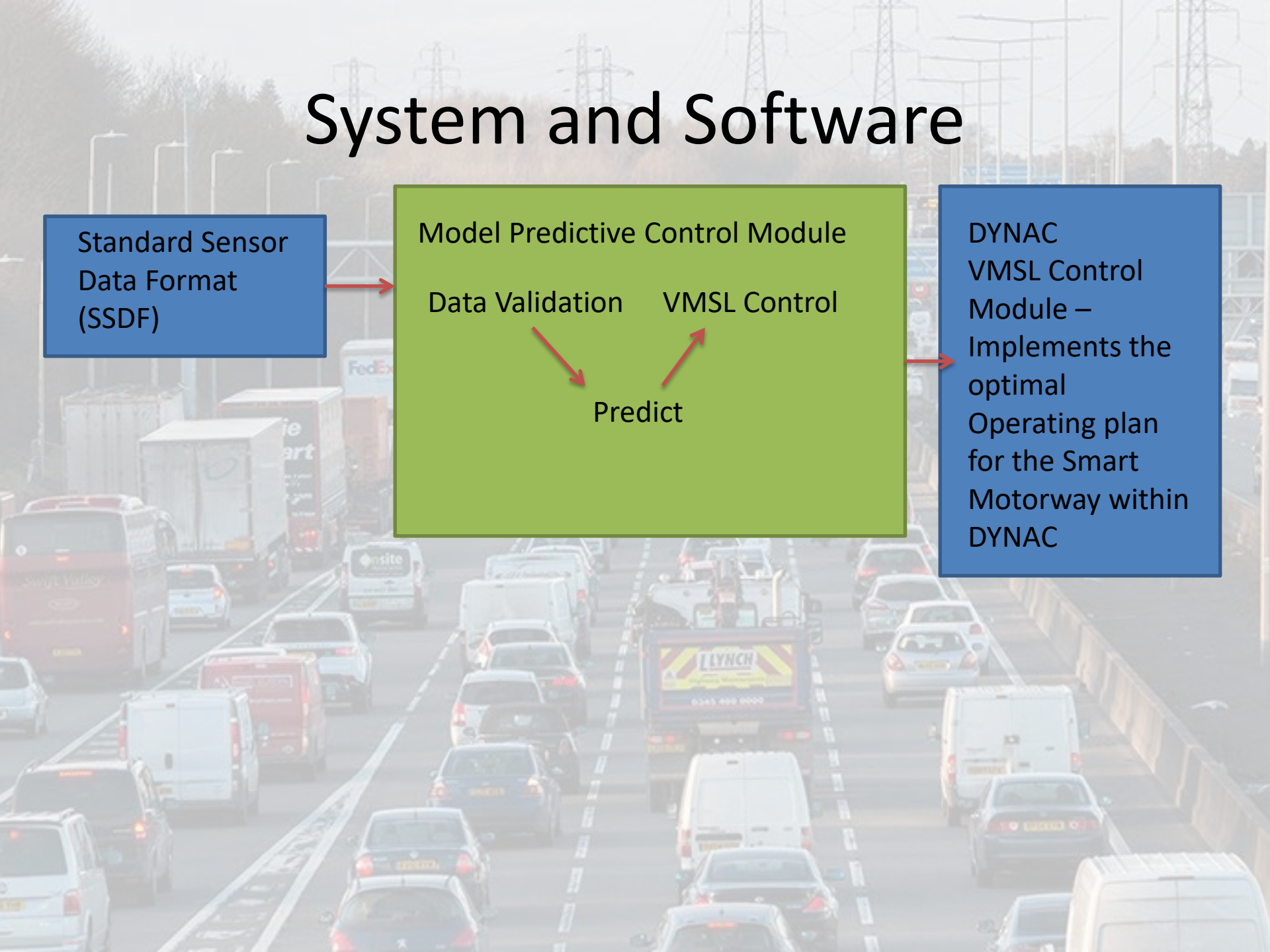
Standard Sensor  
Data Format  
(SSDF)

Model Predictive Control Module

Data Validation    VMSL Control

Predict

DYNAC  
VMSL Control  
Module –  
Implements the  
optimal  
Operating plan  
for the Smart  
Motorway within  
DYNAC

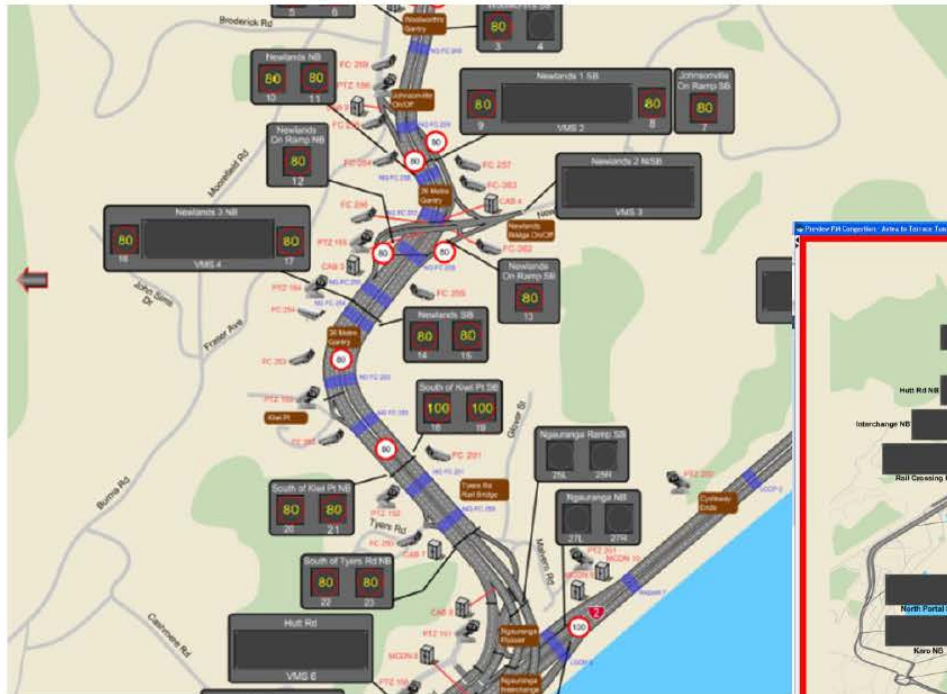




# Dynac – Operator Interface

## System and Software

### Dyna – Operator Interface

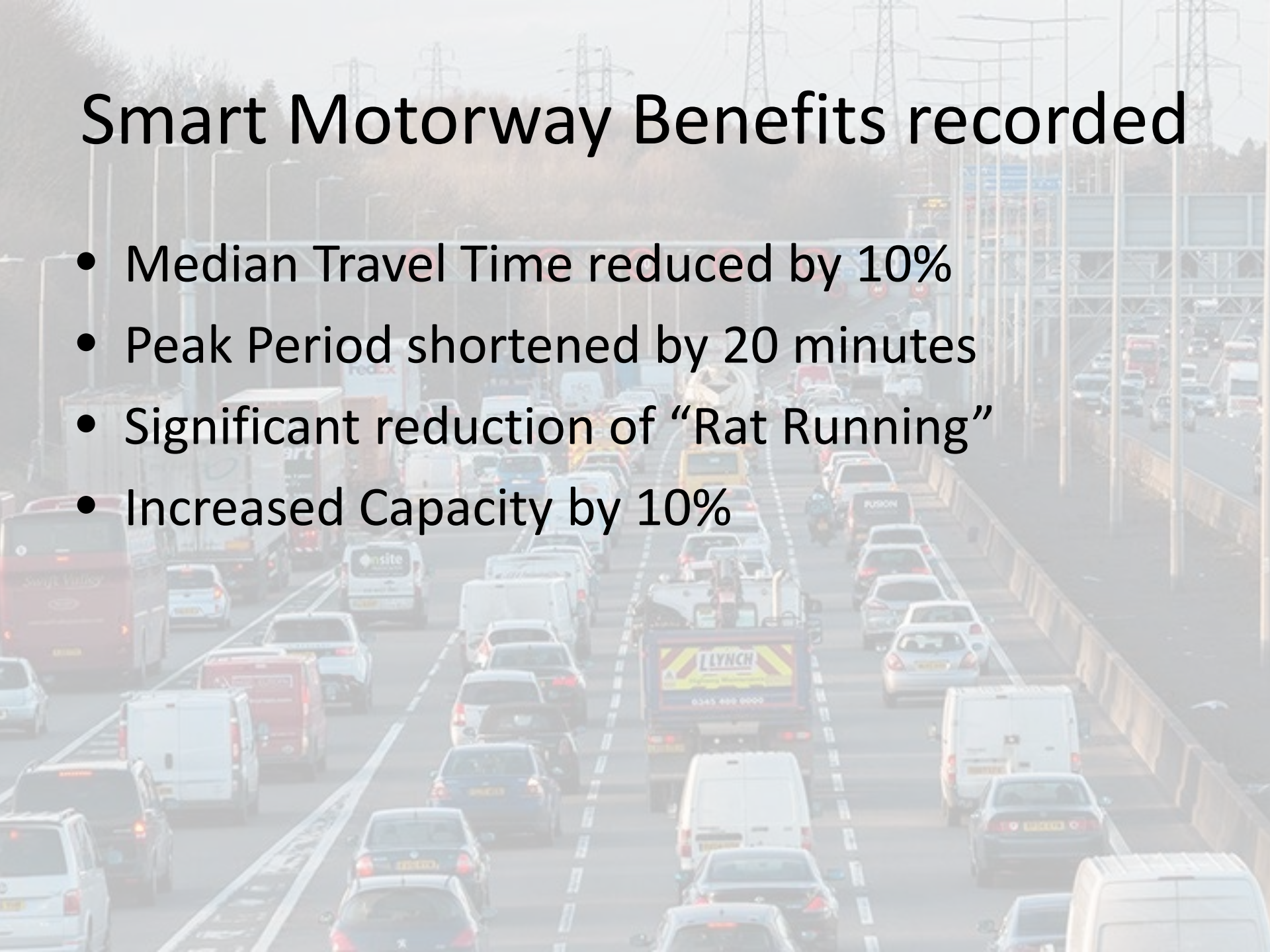


# Modelling Output



# Smart Motorway Benefits recorded

- Median Travel Time reduced by 10%
- Peak Period shortened by 20 minutes
- Significant reduction of “Rat Running”
- Increased Capacity by 10%



# Public Opinion



**Goodtui**

dumb motorway smart drivers.....

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**wastemaster**

It will never work. What an absolute waste of money.

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**kiwialliance**

They waste \$55M on a project with saves 1 minute sometimes and they call us drivers dumb???

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**neiljamison**

I try to follow the "optimal speed limits" but when they read 60 and the traffic is flowing at 20, it's impossible.

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It's not smart, it's unnecessary and costly.



**mcgim**

Complete waste of money. Probably designed by someone who doesn't drive.

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**Bharold**

I agree, probably middle aged males who cycle from Brooklyn or Ngaio

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# Public Opinion



If we really want to control Wellington traffic, we need to control commuter parking, but I do not think that anyone has the bottle to do this.

\$100 million plus – (I love how NZTA lists an open-ended amount) – seems like an incredible amount for what are improvements to an existing road. We could have built a light rail system from Wellington Railway station to the airport for that amount. Being a new piece of much needed infrastructure as opposed to tarding up something we already have.

I think we should see some sort of relationship between the bad driving habits of Wellingtonians (New Zealanders) and the uproar in Island Bay. In Island Bay what we see is a response to the fact that the cycleway challenges, or appears to challenge, the total dominance of the motor car in transport planning; finally something has actually been built, rather than just talk. In terms of current, local politics, the motor car can be seen as a fundamental ingredient in the psyche of the country. No future in that, so the future is viewed with suspicion.

# Public Opinion

Let me tell you why the smart motorway doesn't work. e.g When the speed limit says 60 km/h and the smart driver observes that there are no vehicles in front of him, he then decides to speed up. Soon, he hits the tail off the traffic, and that tail keeps getting bigger and bigger, until all the smart drivers have no choice but to slow down to 20 km/h. If you stay within the speed limit, chances of causing slow crawling traffic, are way lower. Smooth sailing for everyone. And you can probably maintain the recommended speed limit too.



**Aaron F**

902 days ago

I love the apparent logic that people driving too fast makes everyone go slow...!?

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**JohnNation**

902 days ago

fact

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**Adam the Pom**

902 days ago

YOU've just unintentionally nailed the single biggest problem with the kiwi attitude to driving. If everyone drives with the mindset "i want to get home as fast as possible" everyone goes slower. If you drive with the mindset of EVERYONE gets home faster, everyone - on average - gets home faster. The constant mememe / thou shalt not pass / get in front of me that is prevalent on (especially AUckland) motorways is laughably counterproductive.

Driving. The only place where communism works.

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**CarlBradshaw**

902 days ago

Aaron. There are heaps of videos on youtube related to traffic theory. Many people have actually devoted their lives to studying this phenomenon. If more of us understood it and the best way to deal with it we would have significantly less congestion.

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# Thank you!

Drive smart and safe!

