

# Strategic Transport Modelling of Bristol City Centre Schemes

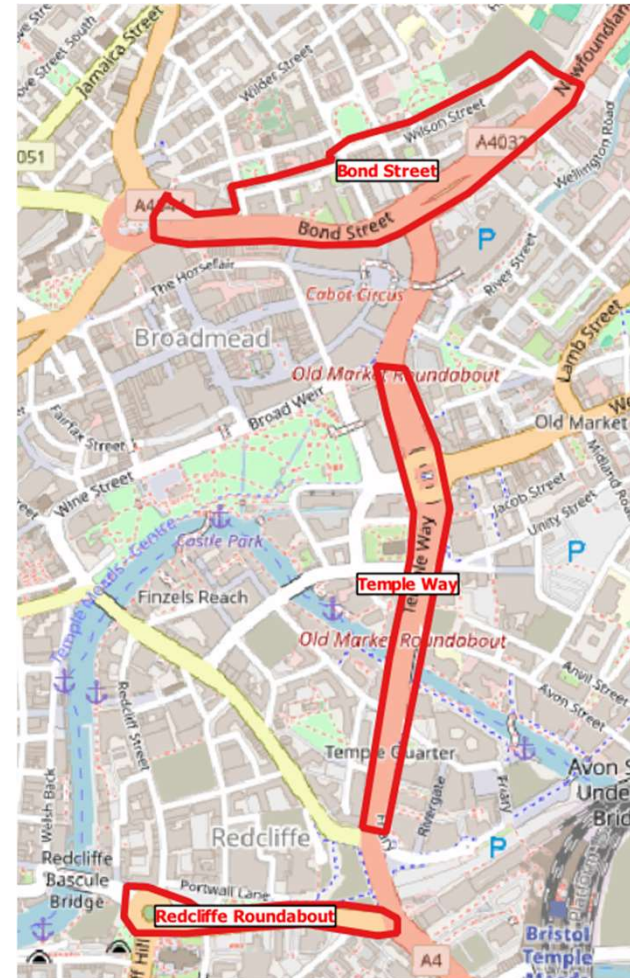
Summary of the strategic modelling undertaken using WERTM to assess Bond Street, Redcliffe Roundabout and Temple Way schemes.

01

# Introduction

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- The Highway Assignment Model (HAM) element of the West of England Regional Transport Model (WERTM) was used to account for strategic rerouting impacts as a result of the full city centre package of improvements (excluding the Union St/Broadmead schemes), which are anticipated to reduce the volume of traffic experienced within the city centre as a whole and at the individual scheme locations.
- Results from the HAM were used as inputs to local VISSIM and LinSIG models to provide a more realistic estimate of likely traffic levels in these areas in the future to inform the assessment of localised bus journey time benefits and traffic impacts.
- This assessment was undertaken for Bond St, Temple Way and Redcliffe Roundabout (a separate WERTM assessment was undertaken for Bedminster Bridges appraisal)

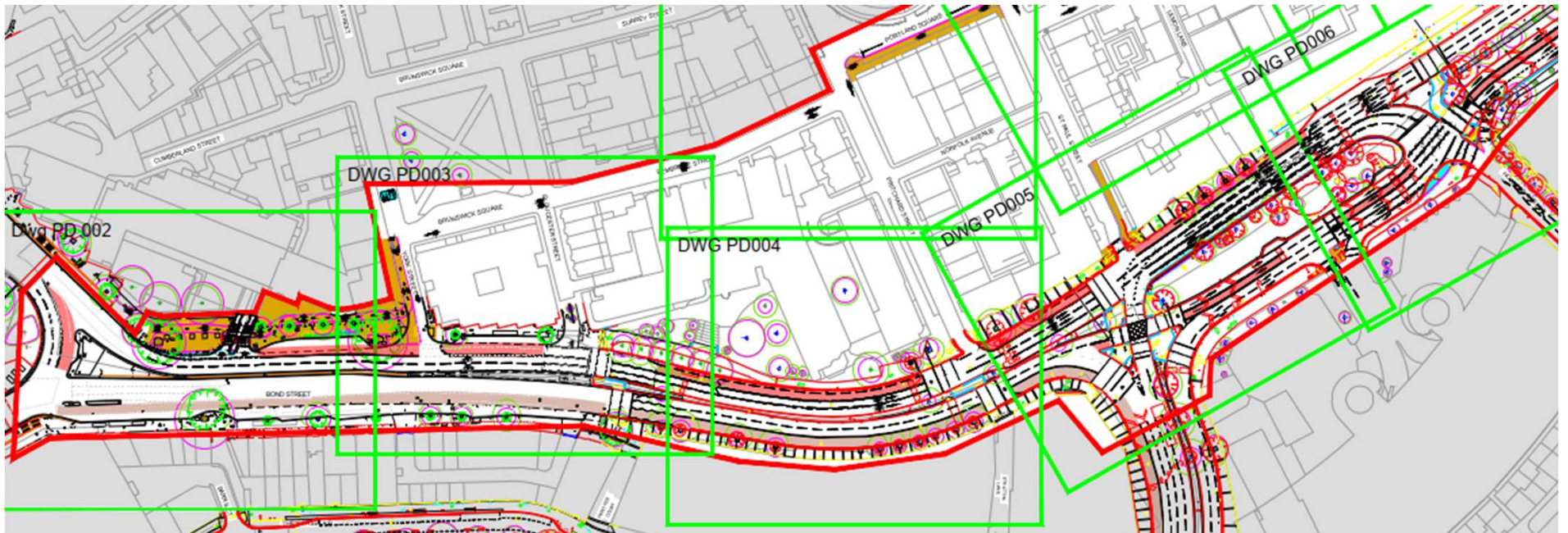


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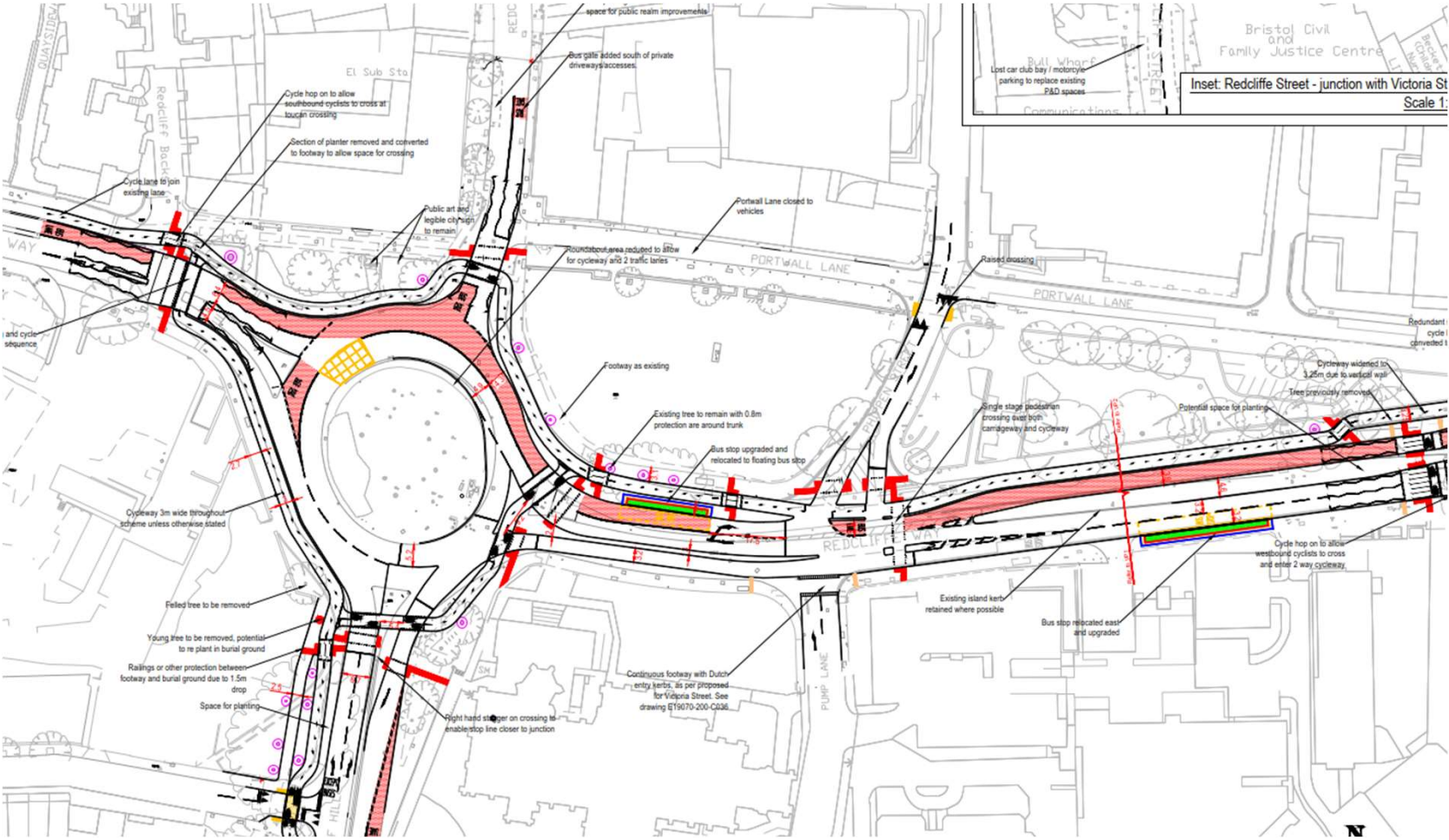
# Scheme Designs

- A. Bond Street
- B. Redcliffe Roundabout
- C. Temple Way
- D. Bedminster Bridges

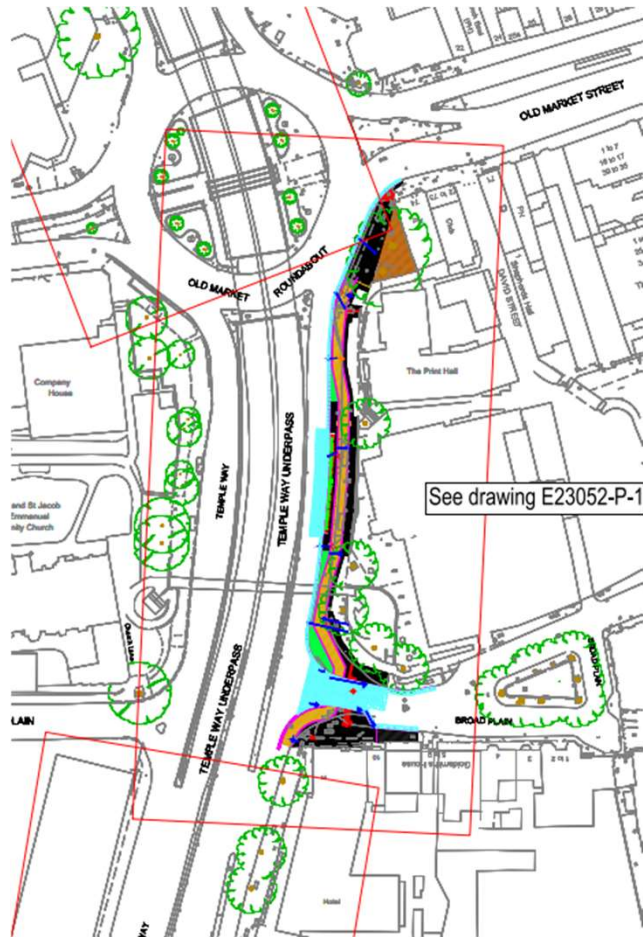
# A - Bond Street Scheme Design



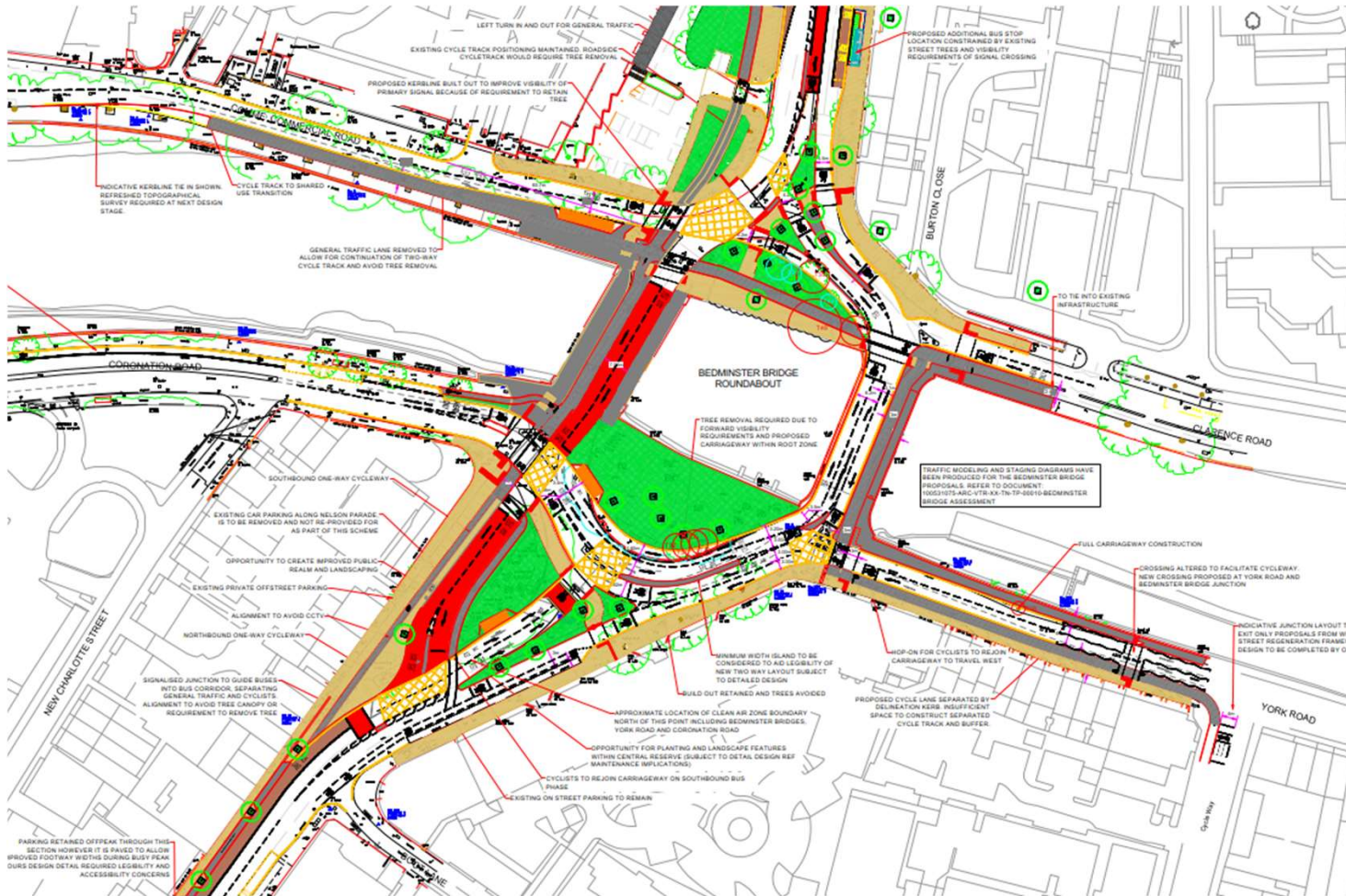
# B – Redcliffe Roundabout Scheme Design



# C – Temple Way Scheme Design



# D – Bedminster Bridges Scheme Design



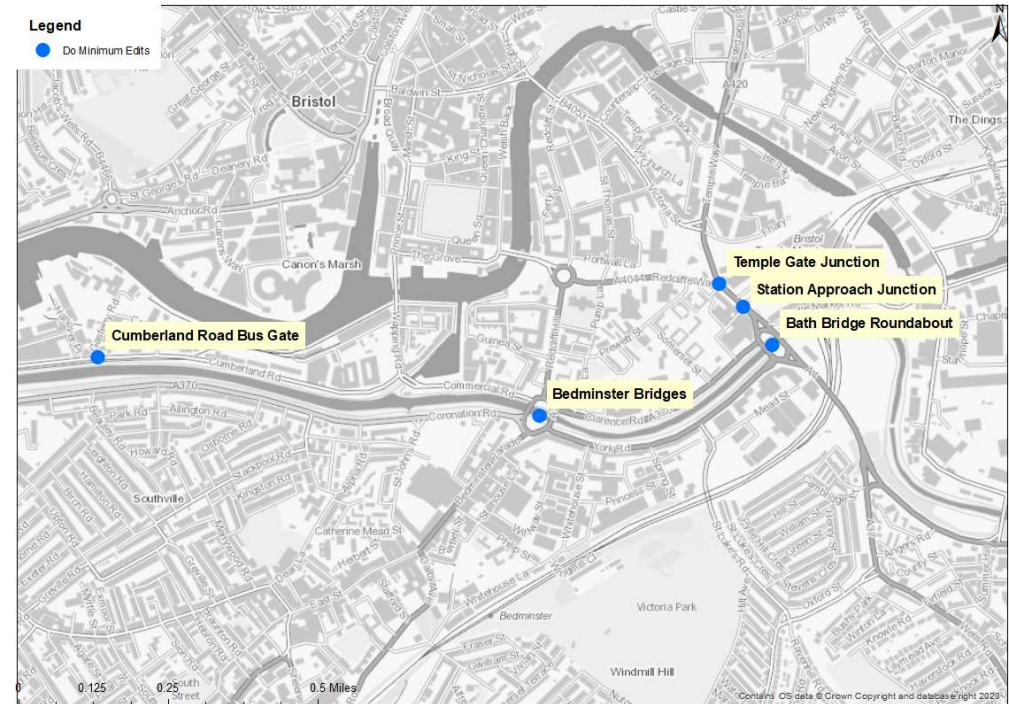


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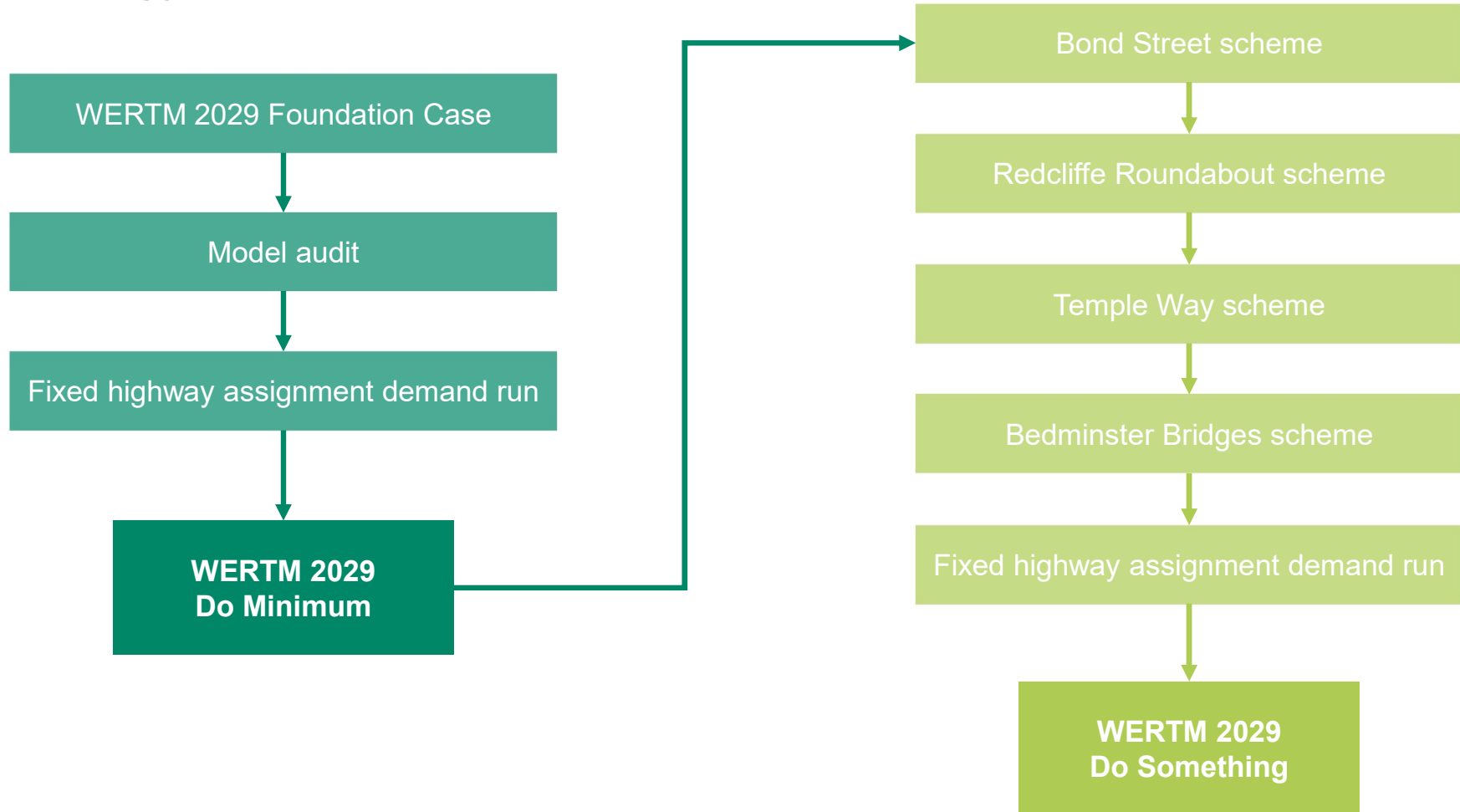
# Methodology

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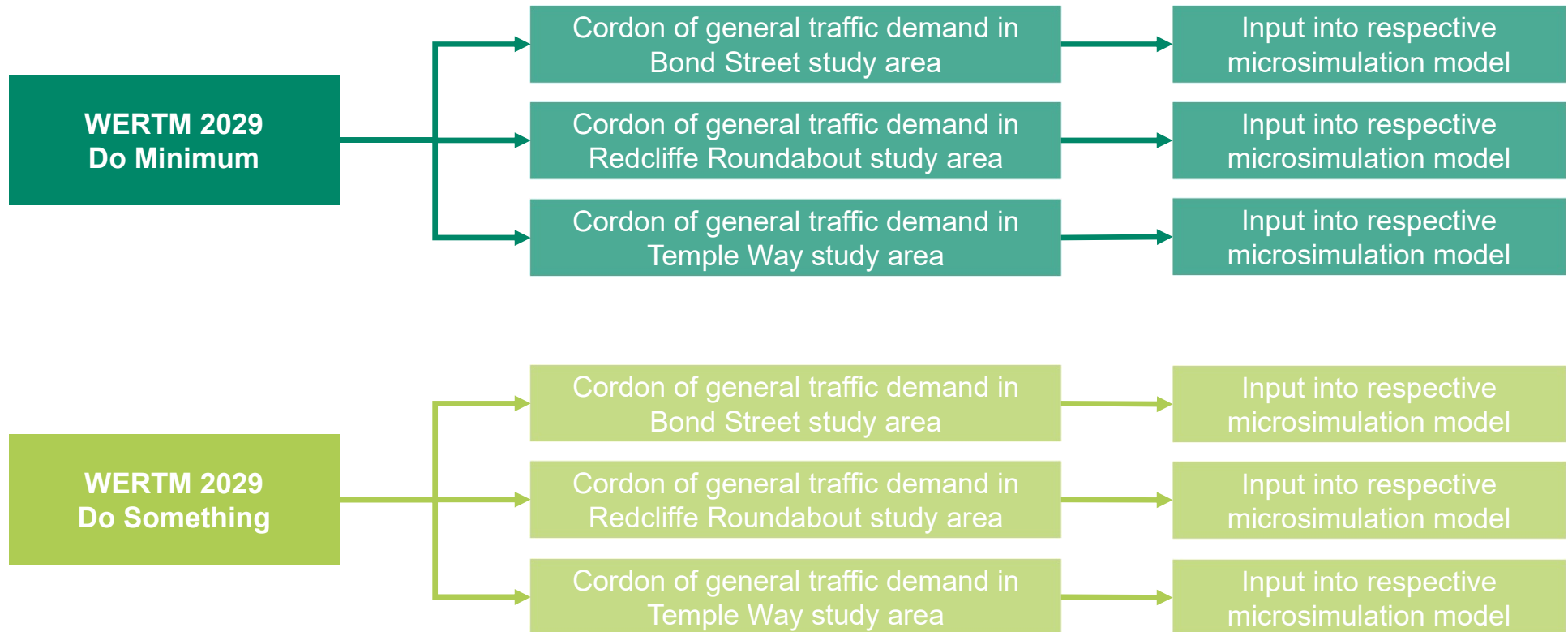
- The West of England (WERTM) Highway Assignment Model was used to model the strategic rerouting impacts of the city centre proposals
- Local cordons from the WERTM assignment were then used as input into local microsimulation modelling to assess the localised impacts on traffic delay and bus journey times of each individual scheme.
- The modelling was undertaken in the WERTM 2029 Foundation Case, with minor modifications identified to the Do Minimum (shown to the right)



# Methodology



## Methodology



*A cordon of the Bedminster Bridges study area was not extracted and used in the respective microsimulation model as this scheme had already been assessed.*

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# Model Convergence

# Convergence

Scenario	Time Period	Number of iterations	%GAP	%Flow
Do Minimum	Morning Peak	100	0.021	98.6
	Inter Peak	39	0.0091	99.5
	Evening Peak	92	0.021	99.1
Do Something	Morning Peak	100	0.041	97.9
	Inter Peak	52	0.0047	99.2
	Evening Peak	100	0.021	98.4

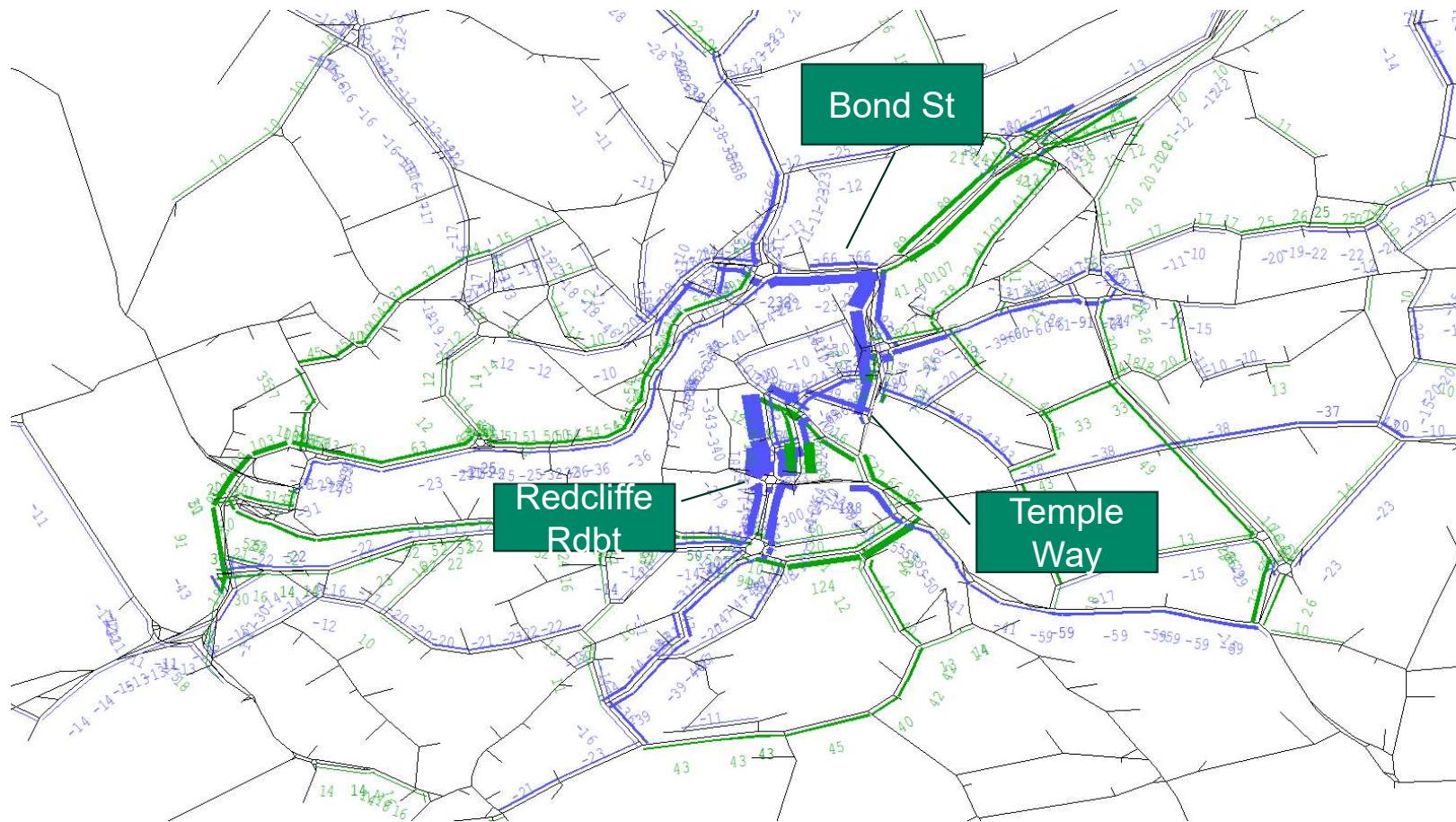
The number of links passing the flow criteria in the Do Something Morning / Evening Peak is 97.9% and 98.4% respectively, just below the set criteria, hence the assignments have been considered acceptable.

05

# Outputs – Difference Plots

## 2029 Do Something vs. 2029 Do Minimum: AM Peak Hour 0800-0900

Actual flow change (pcus), with blue representing a reduction in general traffic, and green representing an increase

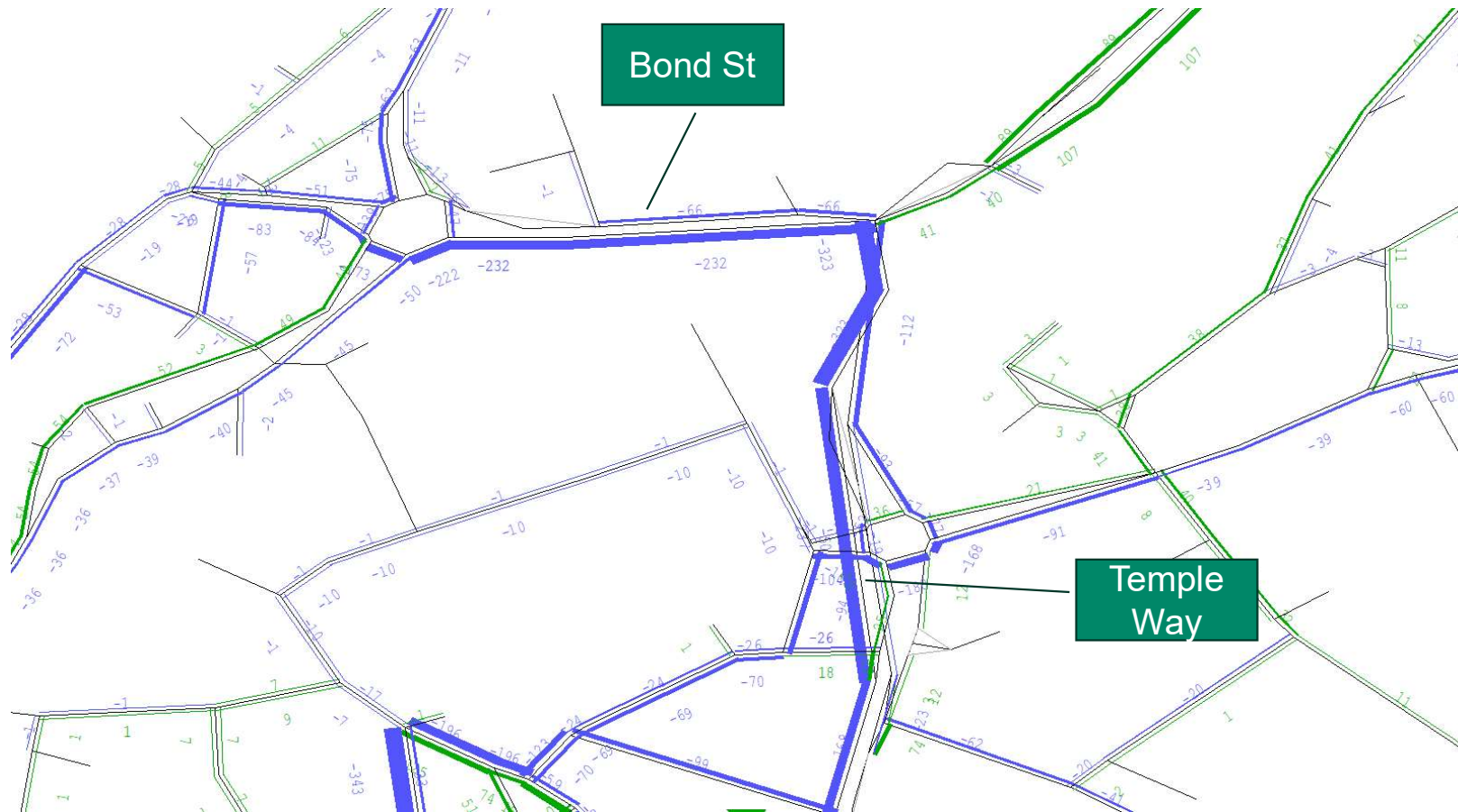


- General traffic trips travelling northbound through the City Centre are forecast to reroute to use the A4320 and A4 Hotwells Rd
- Wider rerouting across the strategic network leading to an increase in trips on the M32 in both directions



## 2029 Do Something vs. 2029 Do Minimum: AM Peak Hour 0800-0900

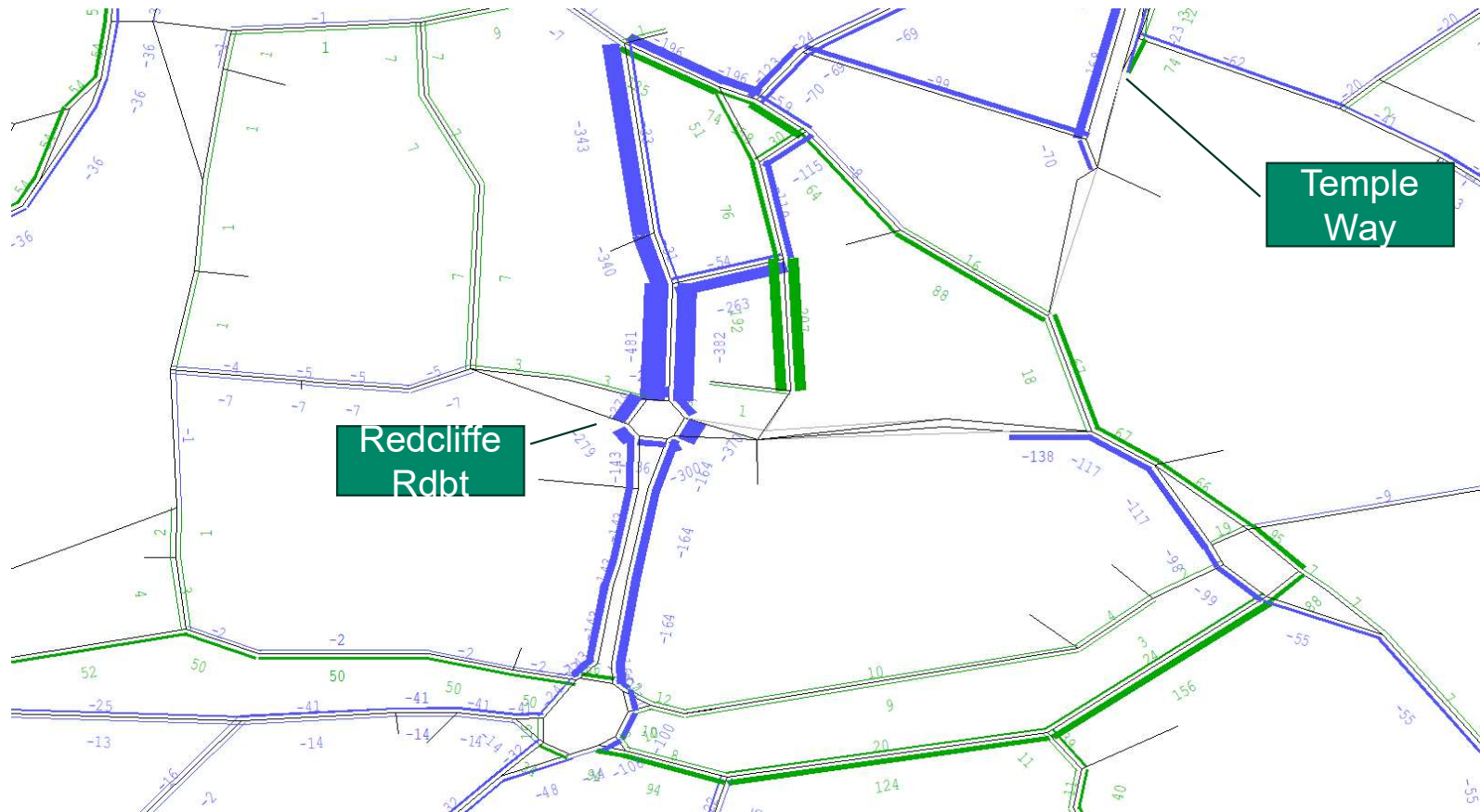
Actual flow change (pcus), with blue representing a reduction in general traffic, and green representing an increase



- Reduction of general traffic (of ~200 pcus) forecast for trips travelling northbound on Temple Way to Gloucester Road and Marlborough Street

## 2029 Do Something vs. 2029 Do Minimum: AM Peak Hour 0800-0900

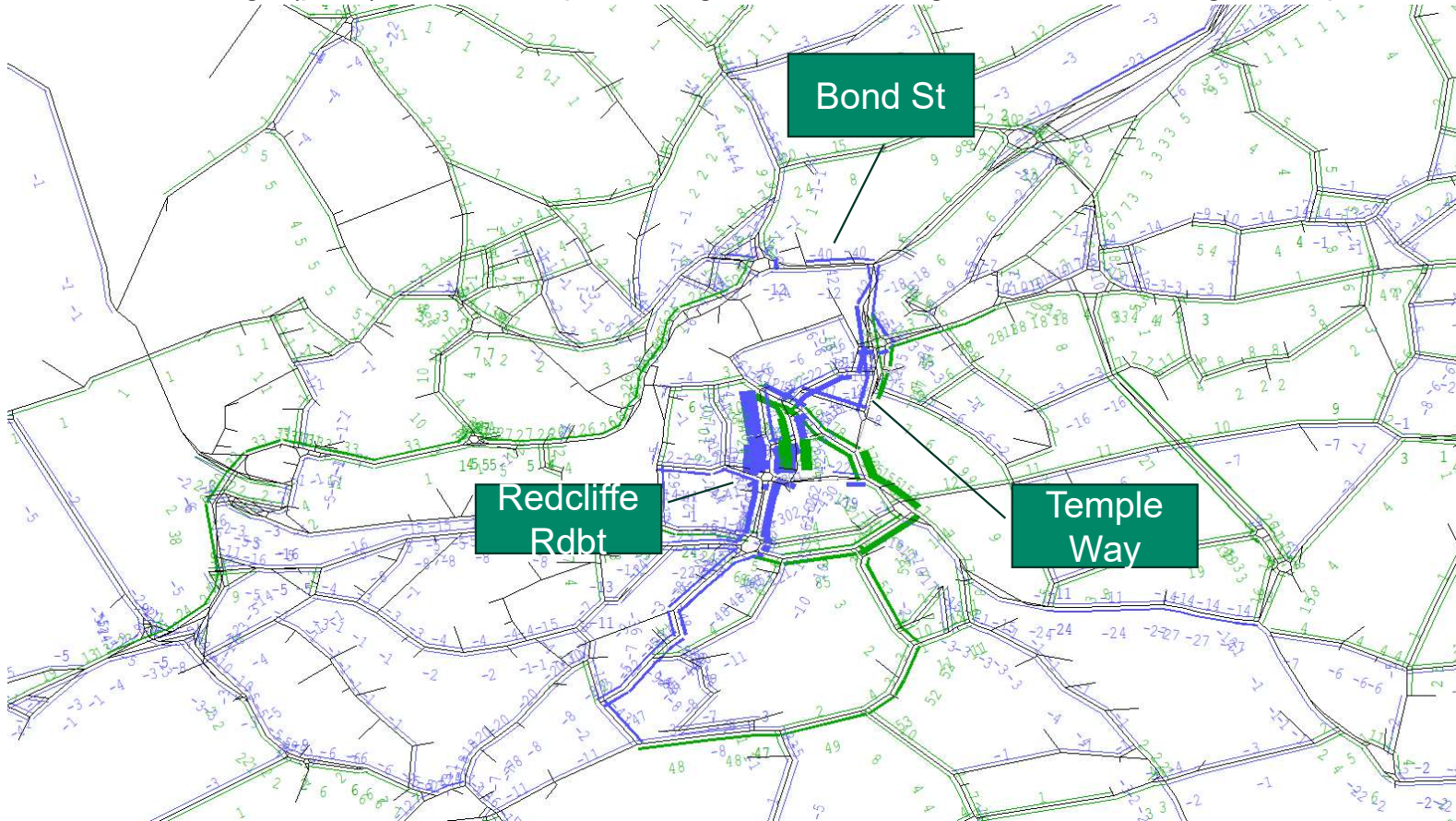
Actual flow change (pcus), with blue representing a reduction in general traffic, and green representing an increase



- Portwall Lane kept open in the model as it represents the access / egress point of a strategic zone

## 2029 Do Something vs. 2029 Do Minimum: IP Average Hour 1000-1600

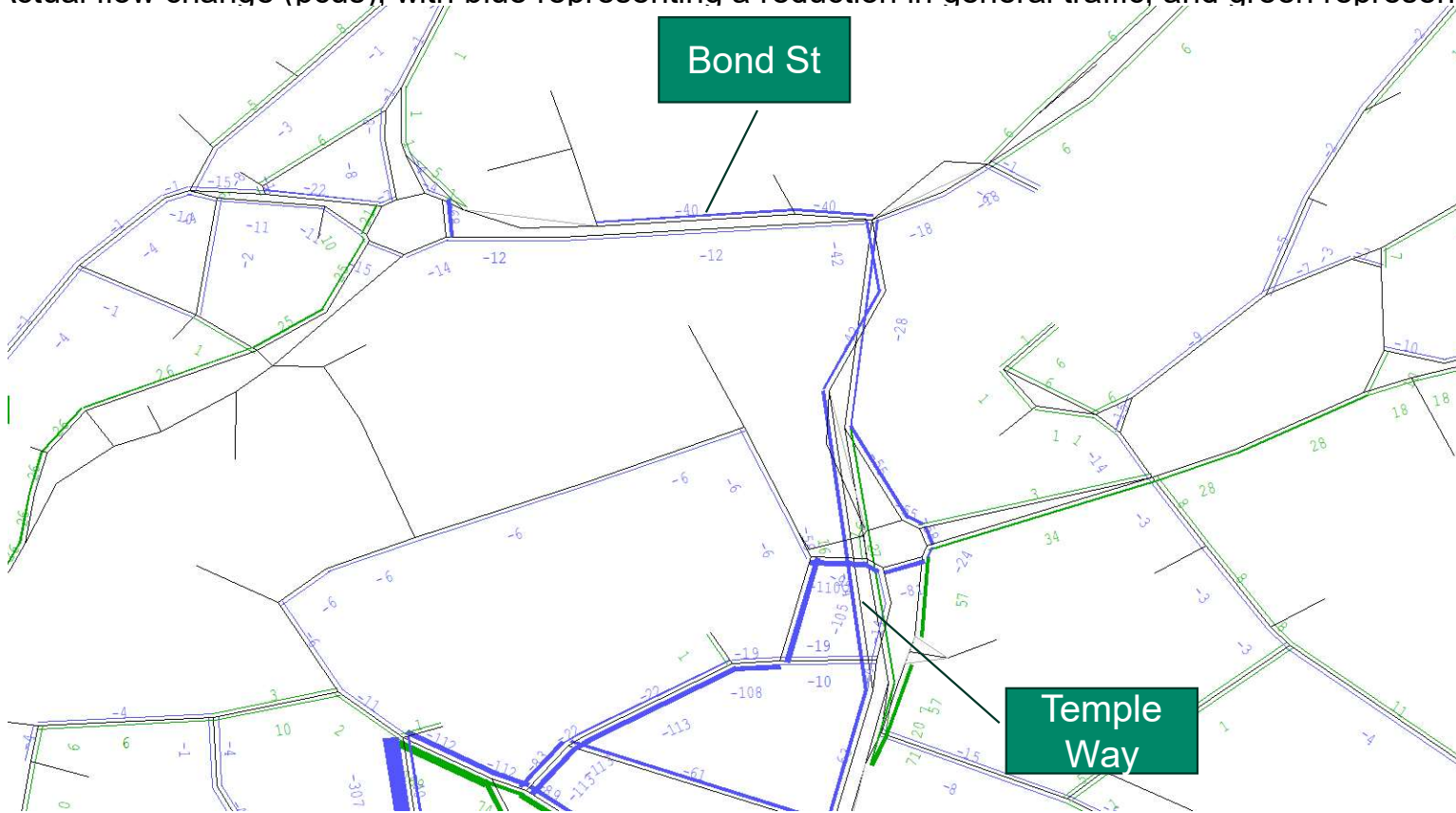
Actual flow change (pcus), with blue representing a reduction in general traffic, and green representing an increase



- General traffic trips travelling northbound through the City Centre are forecast to reroute to use the A4320 and A4 Hotwells Rd
- Wider rerouting across the strategic network leading to an increase in trips on Temple Gate (outside Temple Meads)

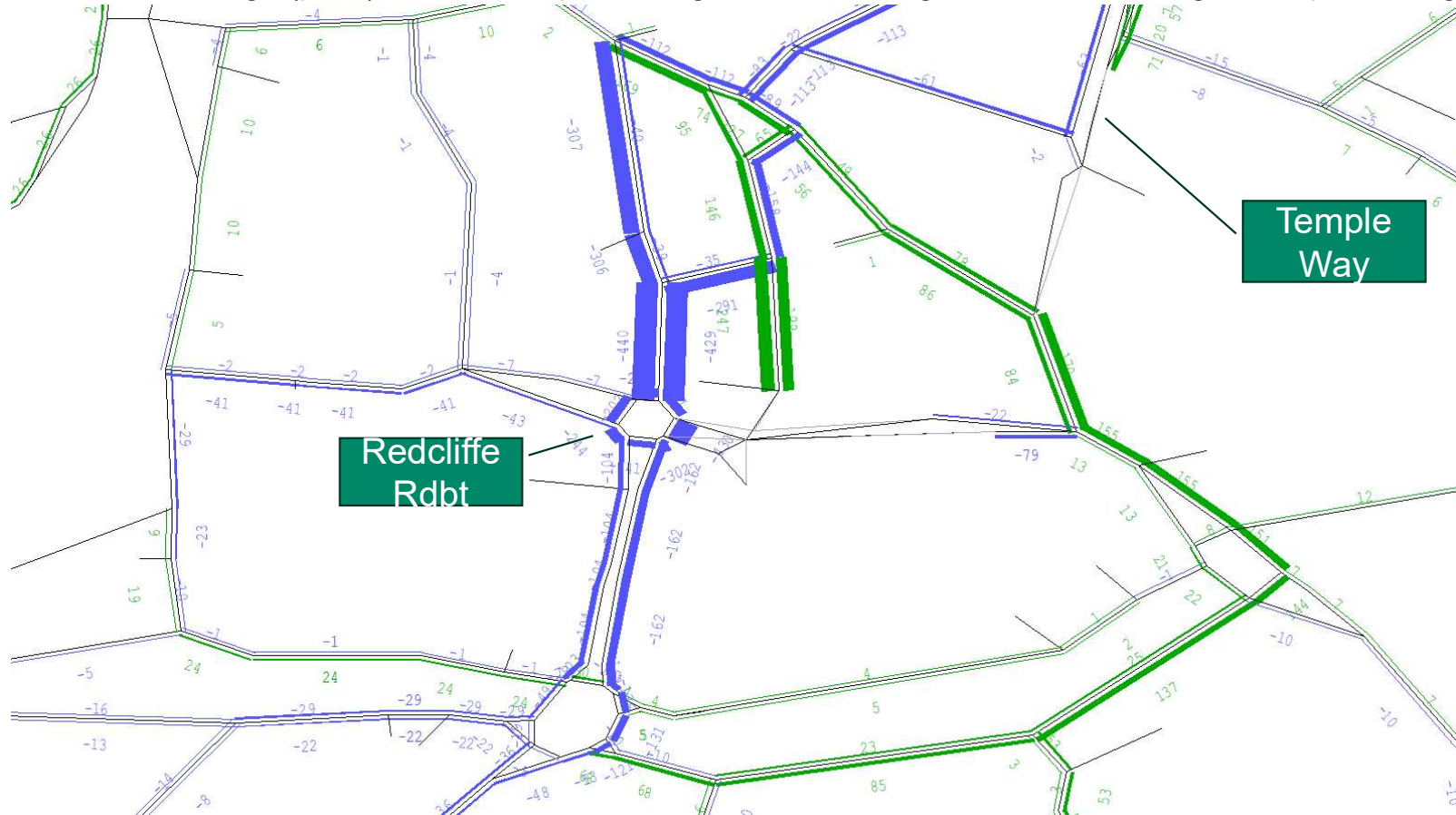
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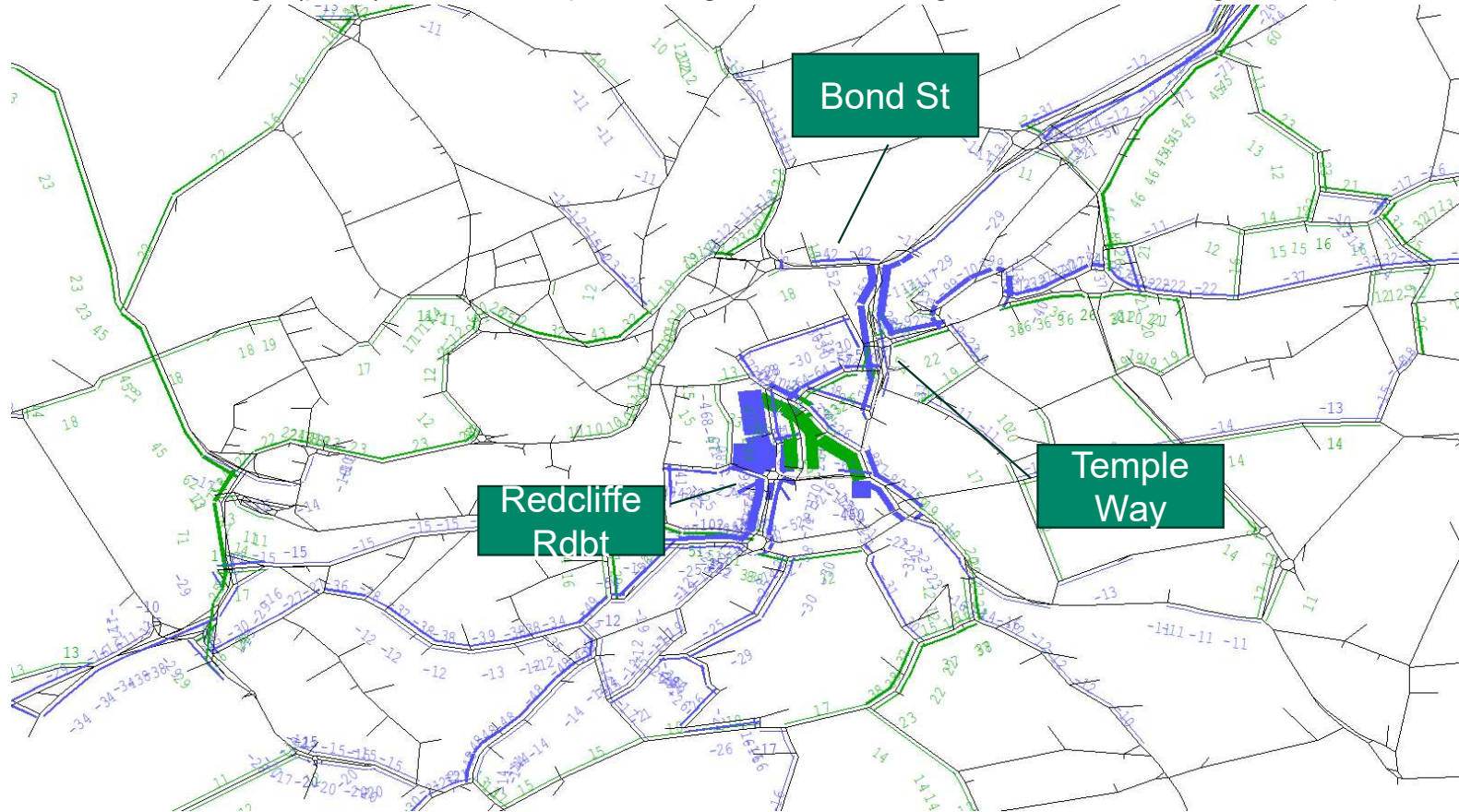
Actual flow change (pcus), with blue representing a reduction in general traffic, and green representing an increase



- Portwall Lane kept open in the model as it represents the access / egress point of a strategic zone
- Trips travelling from Bedminster Bridge roundabout to Victoria Street reroute from Redcliffe Hill / Redcliffe Street to York Road / Temple Gate / Victoria Street

## 2029 Do Something vs. 2029 Do Minimum: PM Peak Hour 1700-1800

Actual flow change (pcus), with blue representing a reduction in general traffic, and green representing an increase



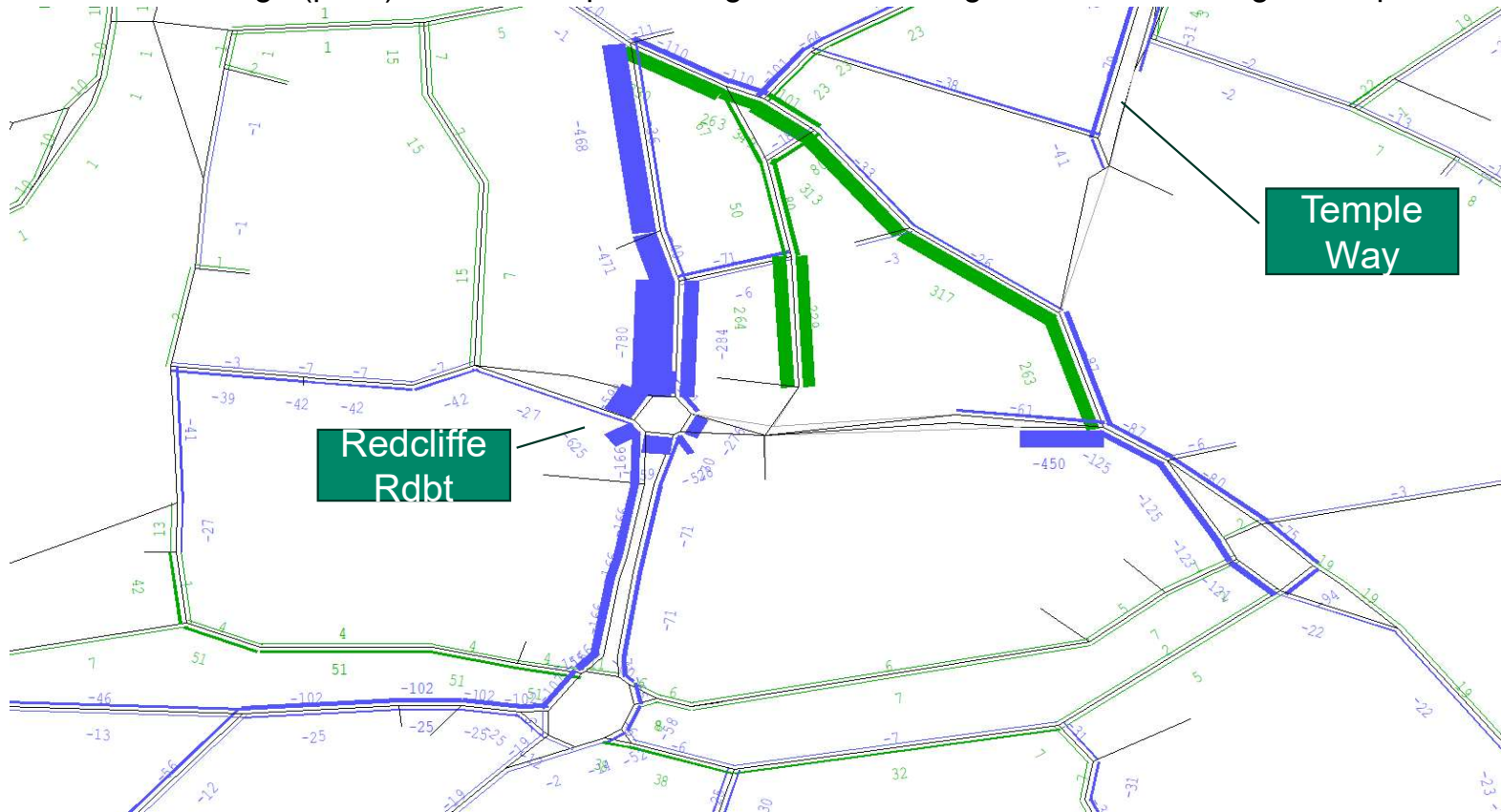
- General traffic trips travelling northbound through the City Centre are forecast to reroute to use the A4



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## 2029 Do Something vs. 2029 Do Minimum: PM Peak Hour 1700-1800

Actual flow change (pcus), with blue representing a reduction in general traffic, and green representing an increase



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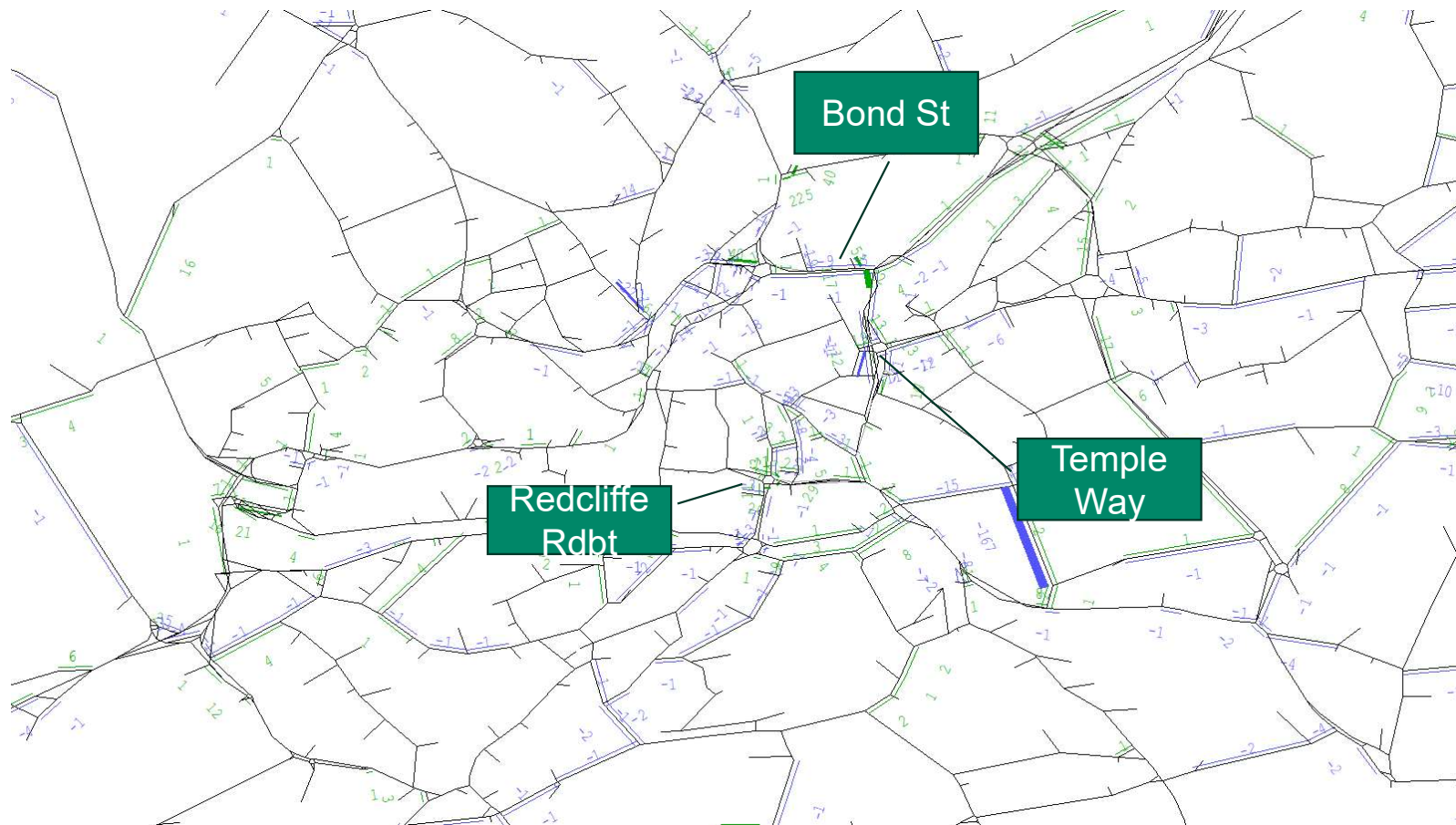
06

# Outputs – Delays

- A. Bond Street
- B. Redcliffe Roundabout*
- C. Temple Way*
- D. Bedminster Bridges*

# 2029 Do Something vs. 2029 Do Minimum: AM Peak Hour 0800-0900

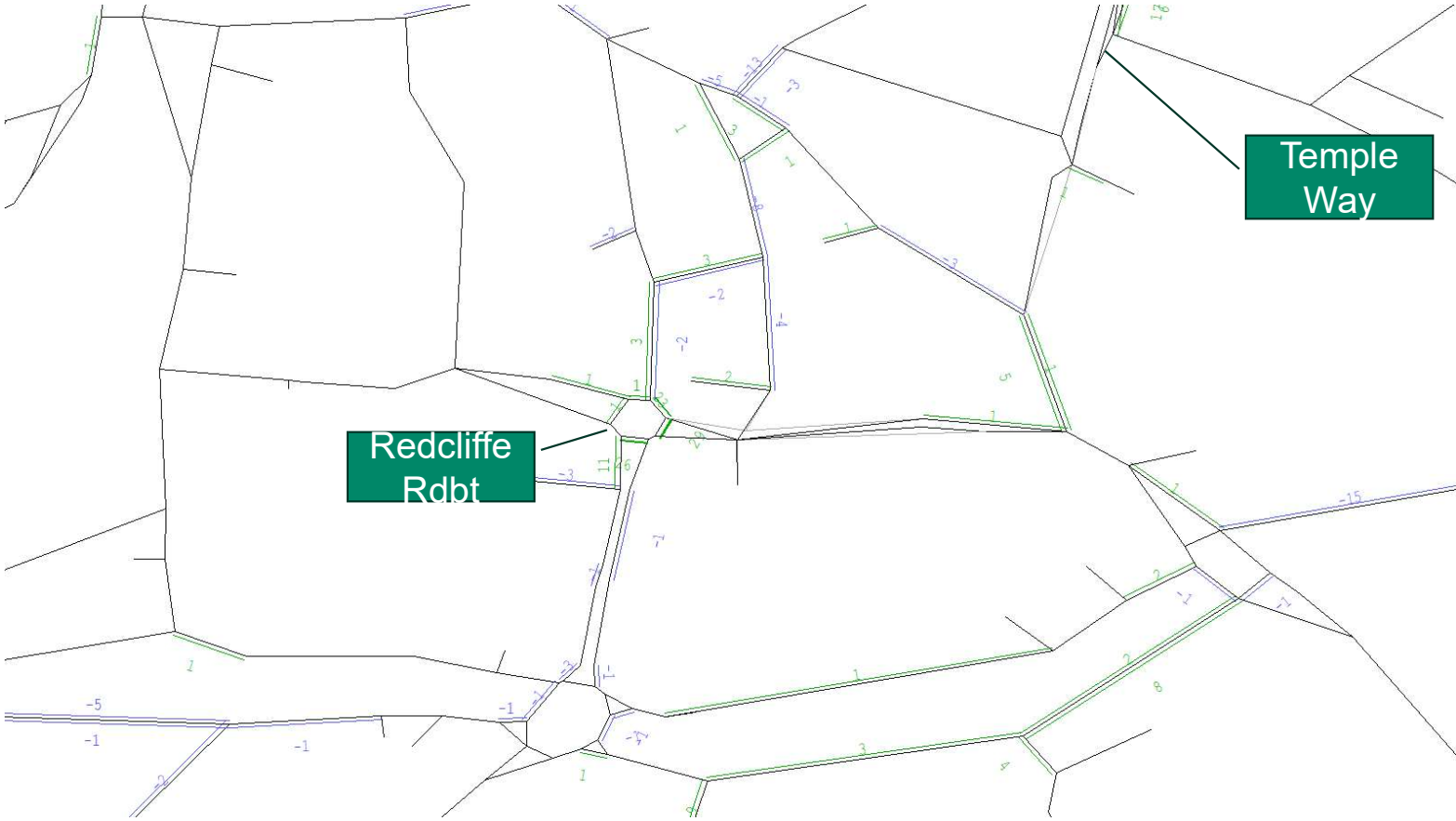
Delay change (seconds), with blue representing a reduction in general traffic, and green representing an increase





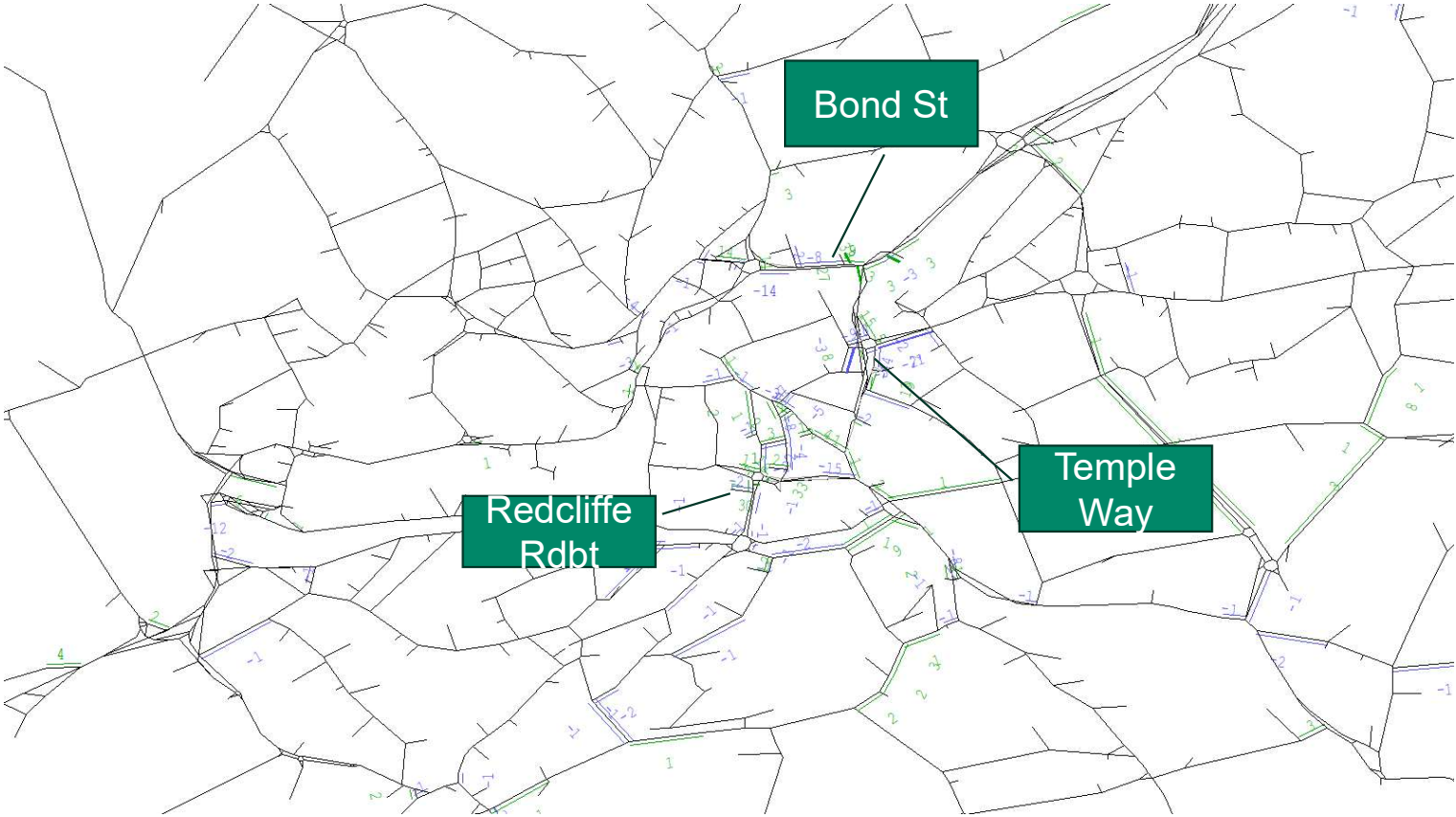
# 2029 Do Something vs. 2029 Do Minimum: AM Peak Hour 0800-0900

Delay change (seconds), with blue representing a reduction in general traffic, and green representing an increase



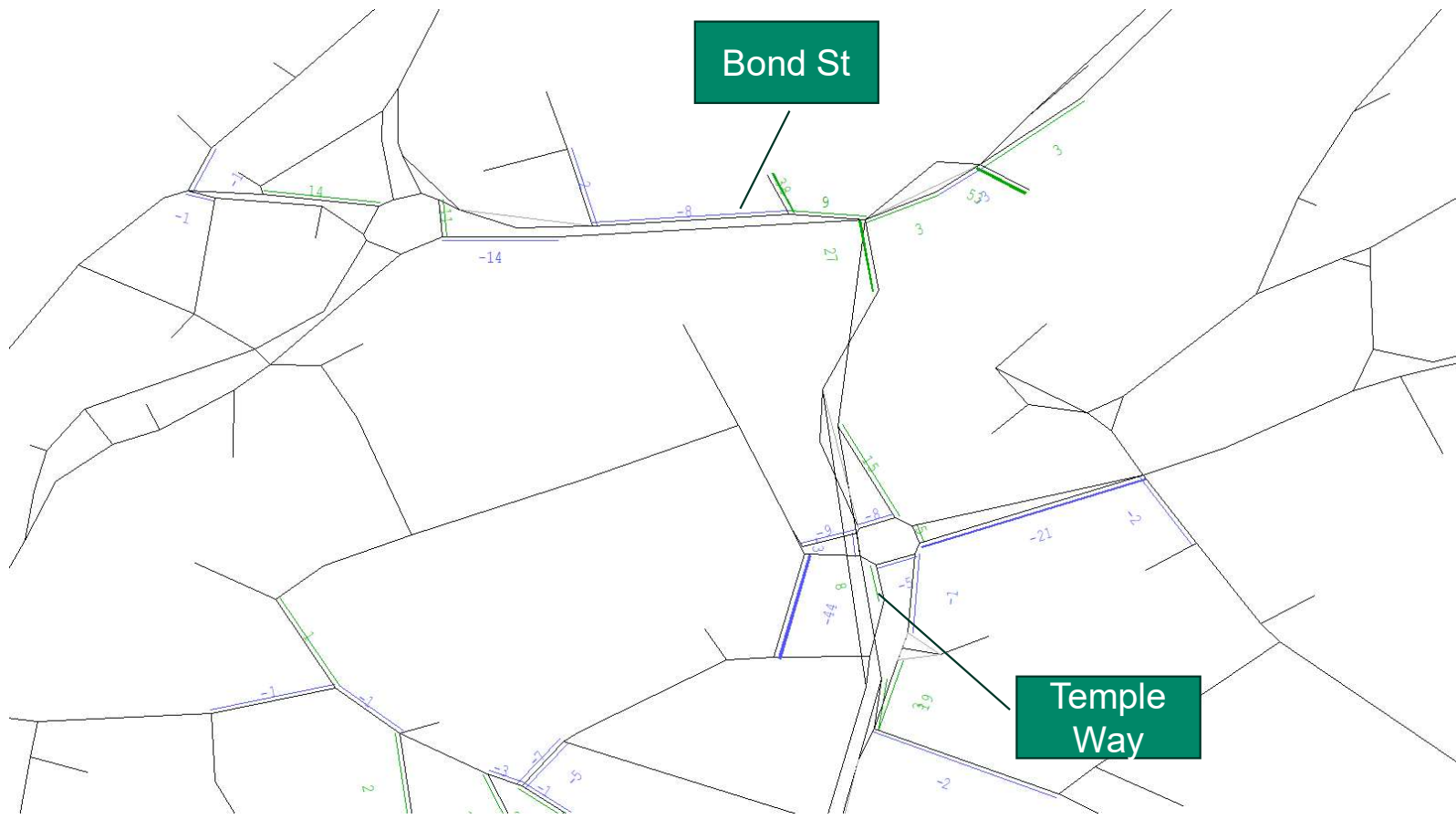
# 2029 Do Something vs. 2029 Do Minimum: IP Average Hour 1000-1600

Delay change (seconds), with blue representing a reduction in general traffic, and green representing an increase



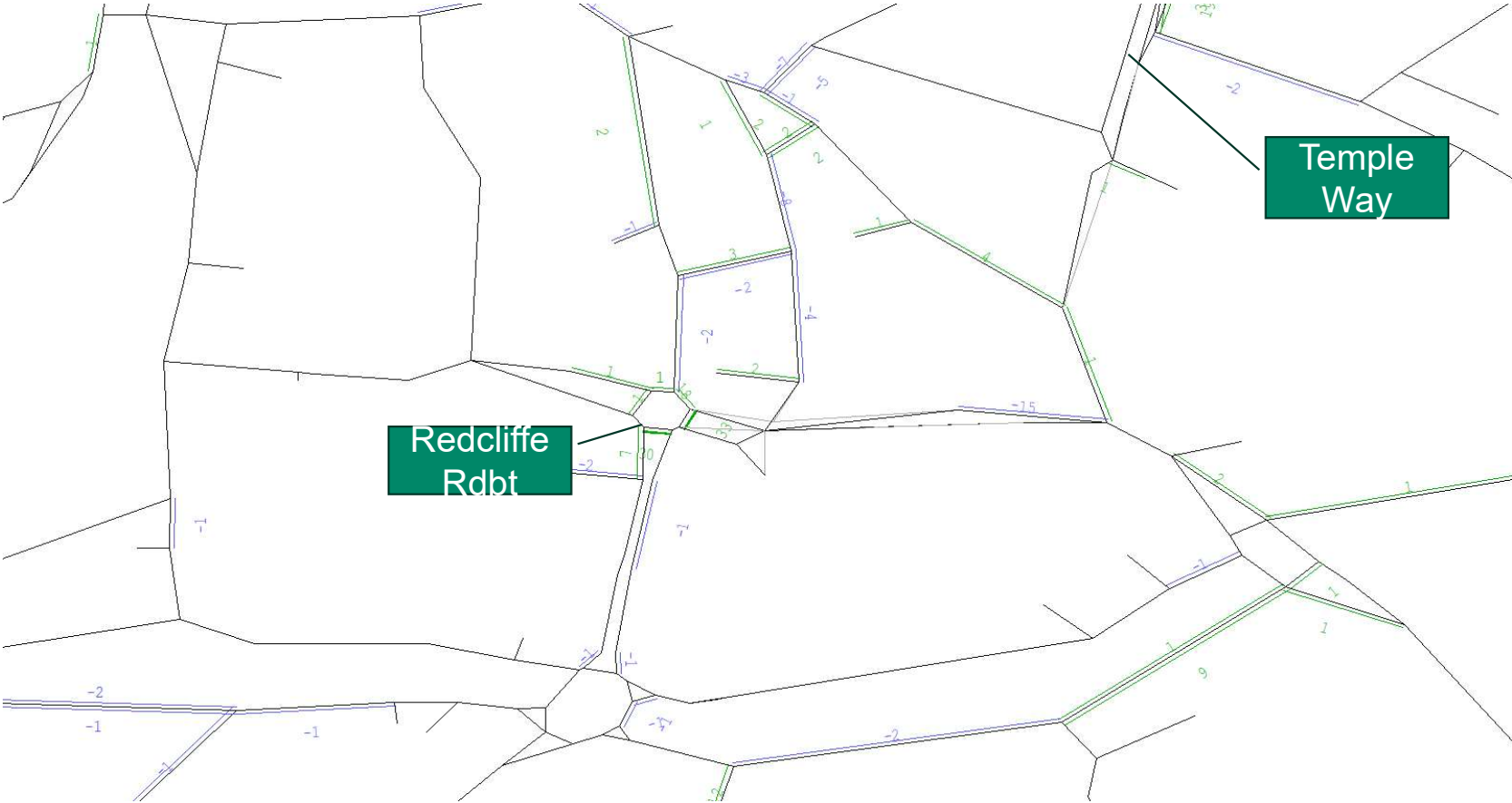
# 2029 Do Something vs. 2029 Do Minimum: IP Average Hour 1000-1600

Delay change (seconds), with blue representing a reduction in general traffic, and green representing an increase



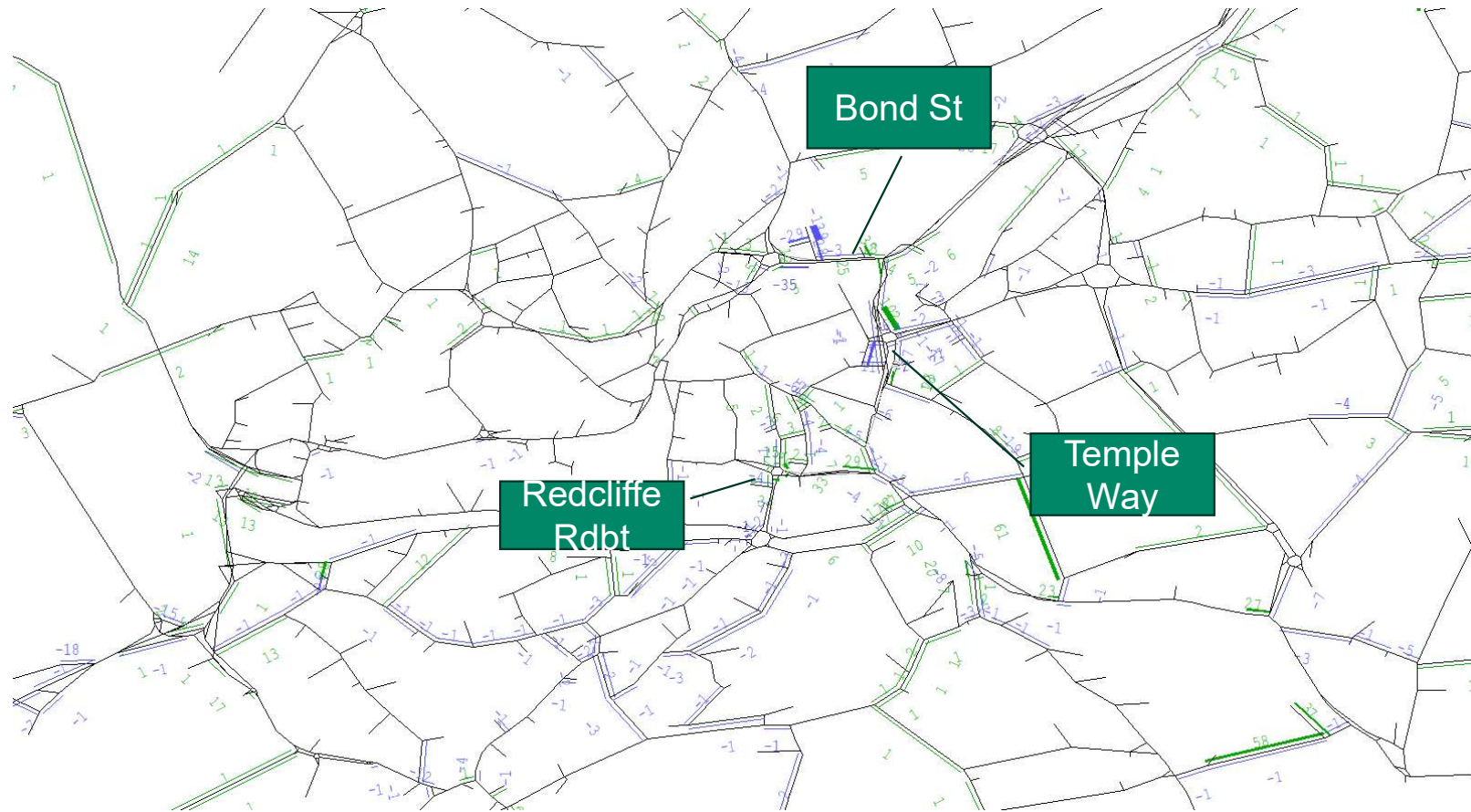
# 2029 Do Something vs. 2029 Do Minimum: IP Average Hour 1000-1600

Delay change (seconds), with blue representing a reduction in general traffic, and green representing an increase



# 2029 Do Something vs. 2029 Do Minimum: PM Peak Hour 1700-1800

Delay change (seconds), with blue representing a reduction in general traffic, and green representing an increase





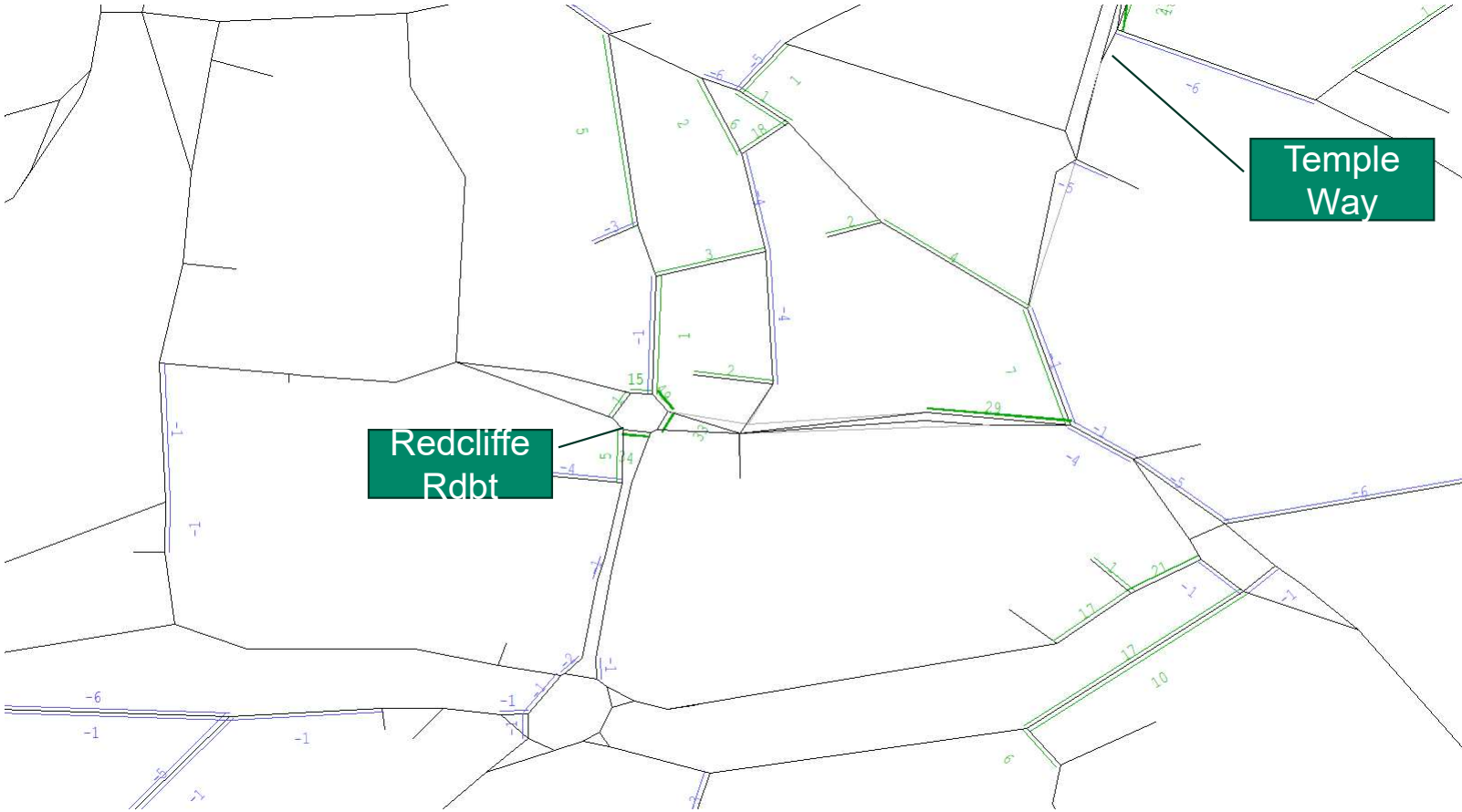
# 2029 Do Something vs. 2029 Do Minimum: PM Peak Hour 1700-1800

Delay change (seconds), with blue representing a reduction in general traffic, and green representing an increase



# 2029 Do Something vs. 2029 Do Minimum: PM Peak Hour 1700-1800

Delay change (seconds), with blue representing a reduction in general traffic, and green representing an increase



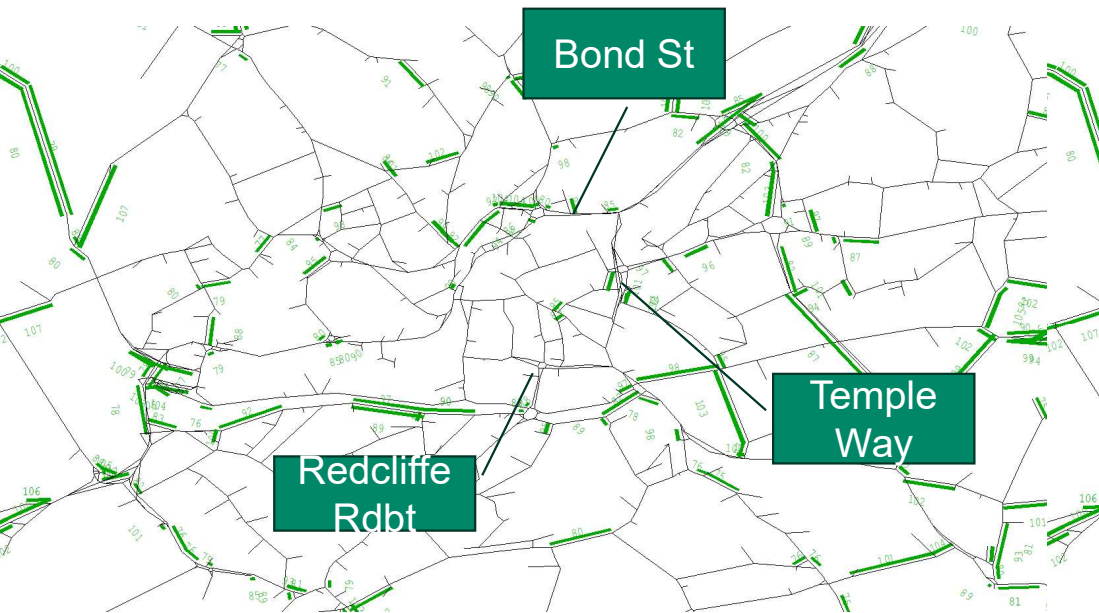
07

# Outputs – Volume over Capacity Ratio (V/C)

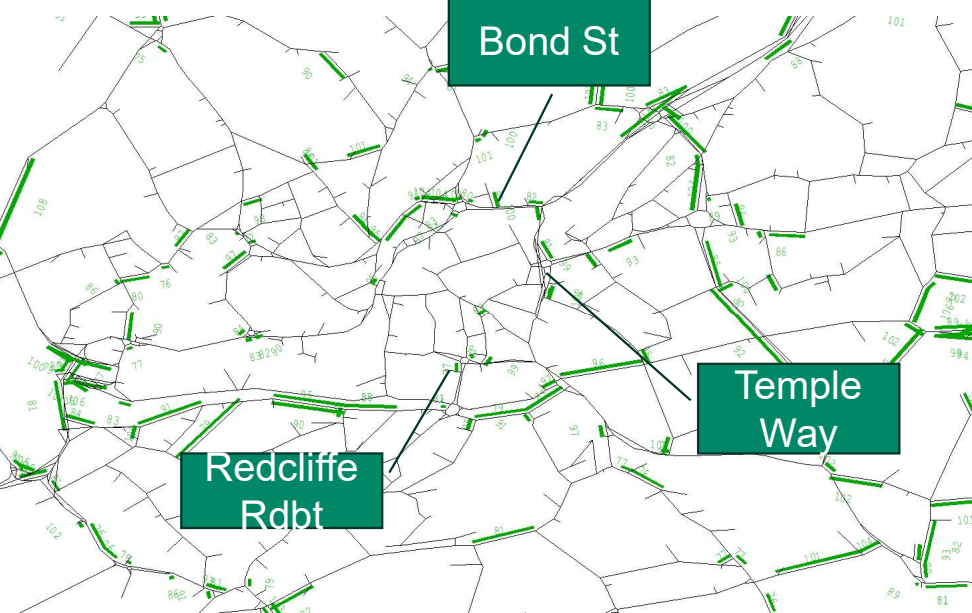
# 2029 Do Something vs. 2029 Do Minimum: AM Peak Hour 0800-0900

Highway volume over capacity (V/C) ratio – thicker lines indicate bigger delays

## Morning peak hour – Do Minimum



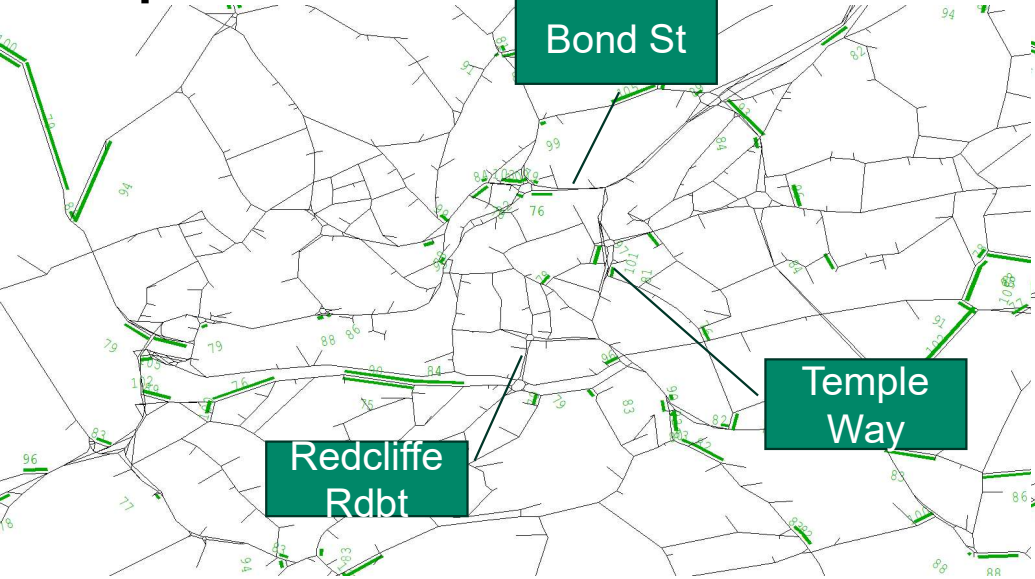
## Morning peak hour – Do Something



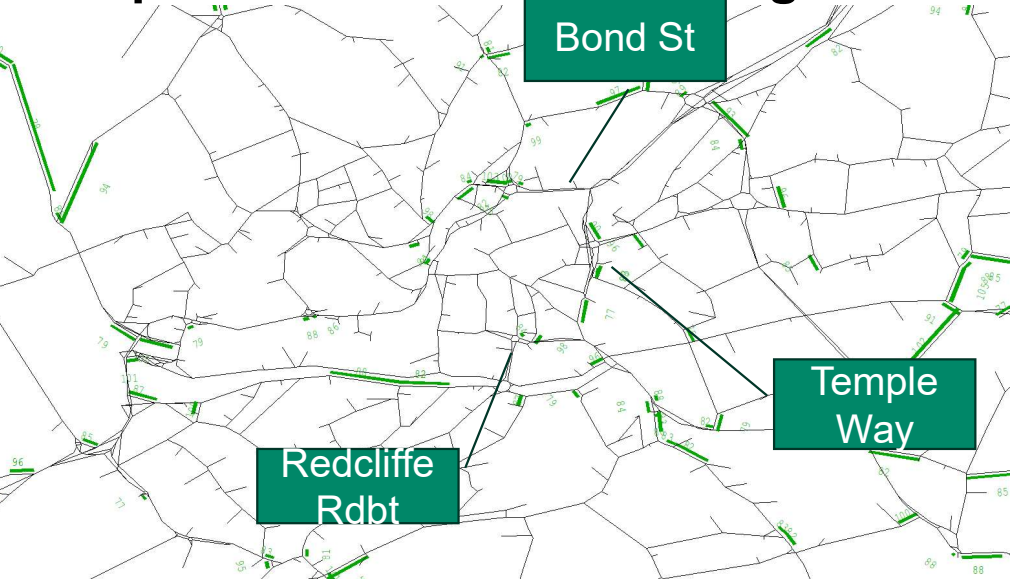
# 2029 Do Something vs. 2029 Do Minimum: IP Average Hour 1000-1600

Highway volume over capacity (V/C) ratio – thicker lines indicate bigger delays

## Inter peak hour – Do Minimum



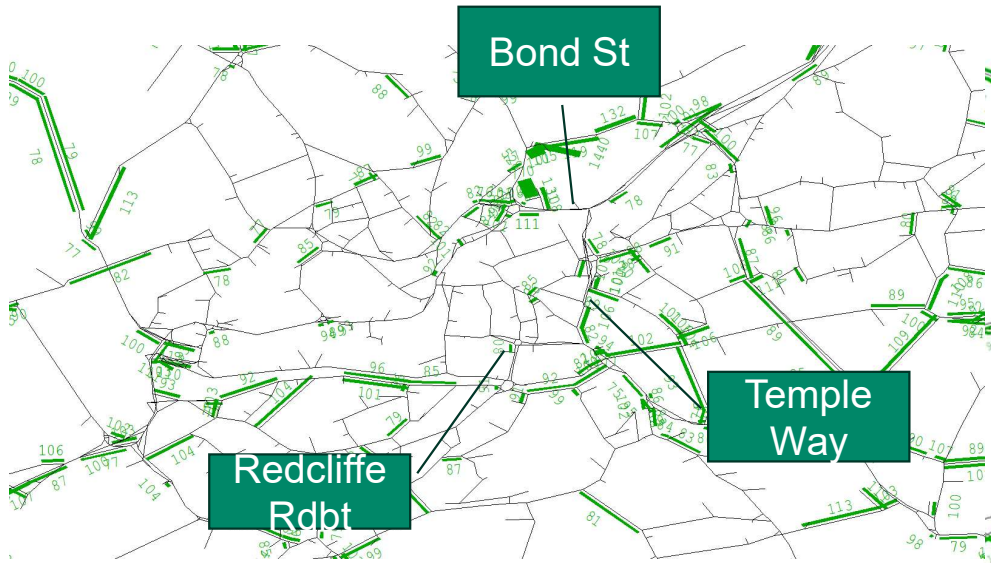
## Inter peak hour – Do Something



# 2029 Do Something vs. 2029 Do Minimum: PM Peak Hour 1700-1800

Highway volume over capacity (V/C) ratio – thicker lines indicate bigger delays

## Evening peak hour – Do Minimum



## Evening peak hour – Do Something

