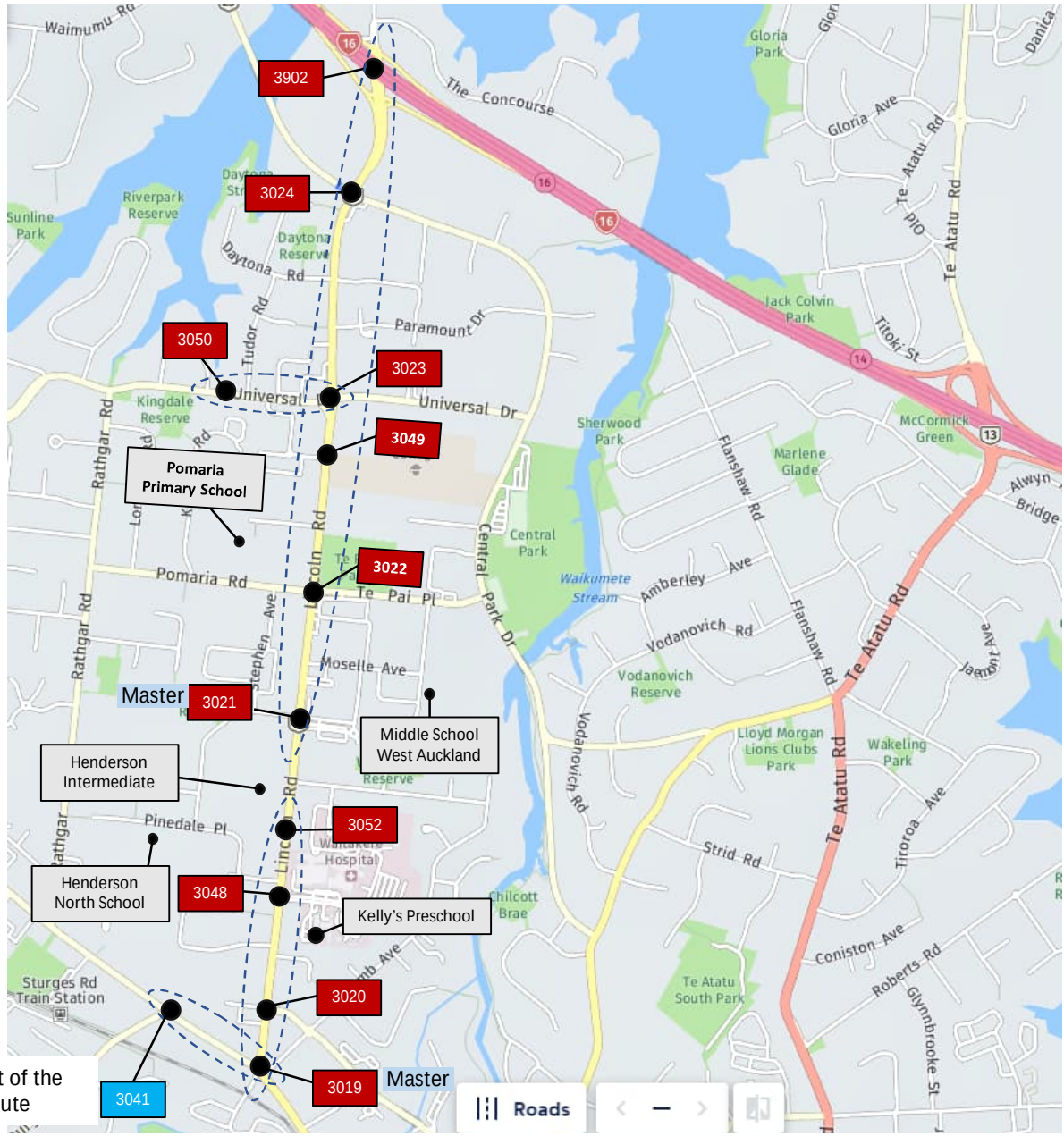
Route Optimisation

Q3 2022/23 Route Optimisation

Corridor Information

Site	Main Road	Side Road
3902 – Lincoln Interchange/SH16/Selwood	Lincoln Rd	-
3024 – Lincoln / Central Park / Triangle	Lincoln Rd	Central Park
3023 – Lincoln / Universal	Lincoln Rd	Universal Dr
3049 – Lincoln / Boulevard / Bible College	Lincoln Rd	Boulevard
3050 – Universal Dr PedX	Universal Dr	-
3022 – Lincoln / Te Pai / Pomaria	Lincoln Rd	Te Pai / Pomaria
3021 – Lincoln / The Warehouse / Fairdene	Lincoln Rd	The Warehouse
3052 – Lincoln / Henderson Intermediate School	Lincoln Rd	-
3048 - Lincoln / Norval / Waitakere Hospital	Lincoln Rd	-
3020 - Lincoln / Sel Peacock	Lincoln Rd	Sel Peacock
3019 – GNR / Lincoln / Buscomb / Swason	Lincoln Rd	-

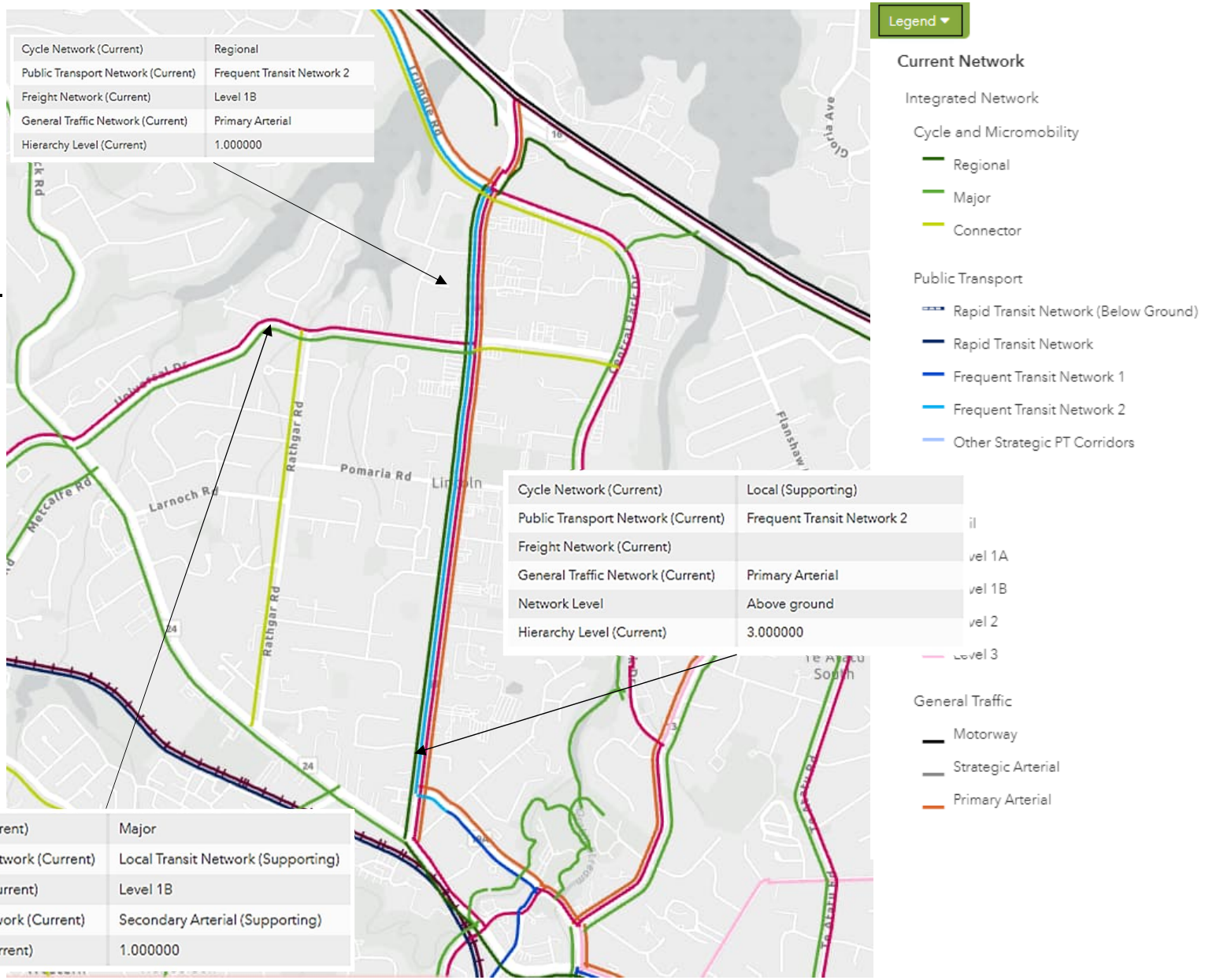
Signal Coordination Group



3041 is not part of the optimisation route

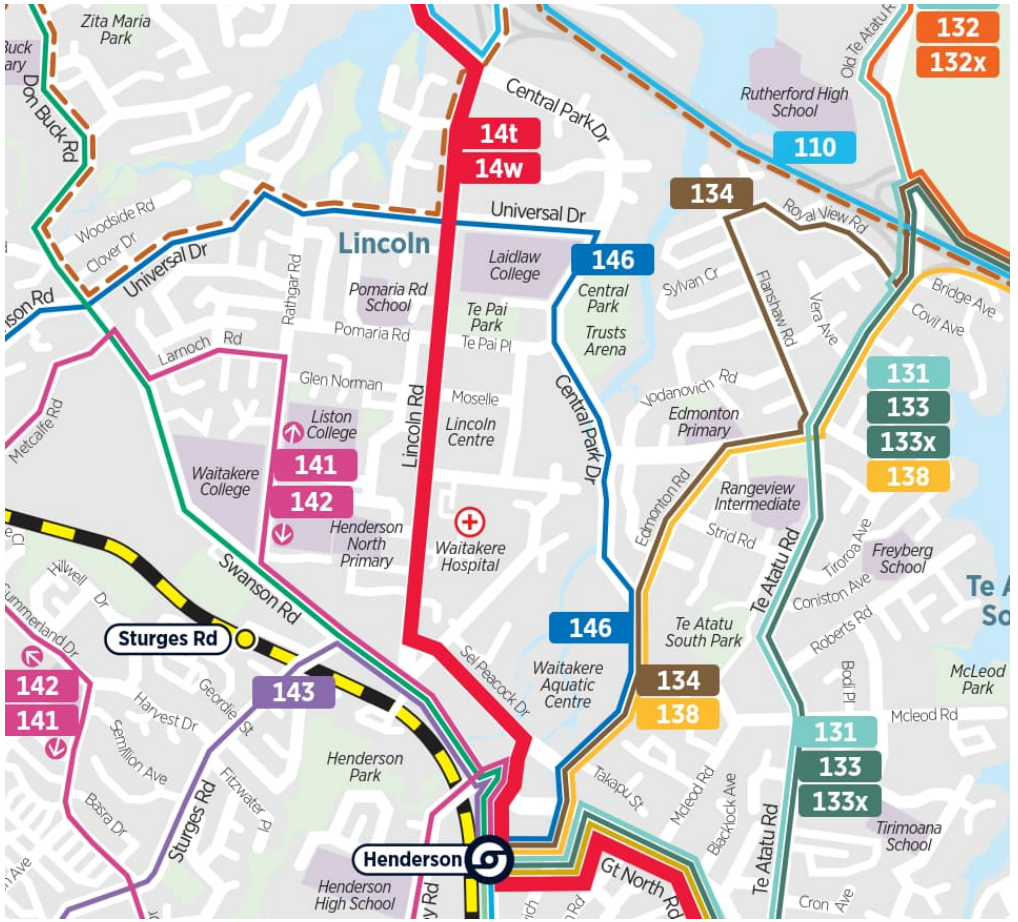
Future Connect

- High Freight (1B) services across the route.
- Bus frequencies are low – high priority on Lincoln Road – next slide
- No major cycle network through the route.
- It has a high priority on Future Connect
  - Regional on Lincoln Road
  - Major on Universal Road
- Interchange Upgrade for NWBI project.

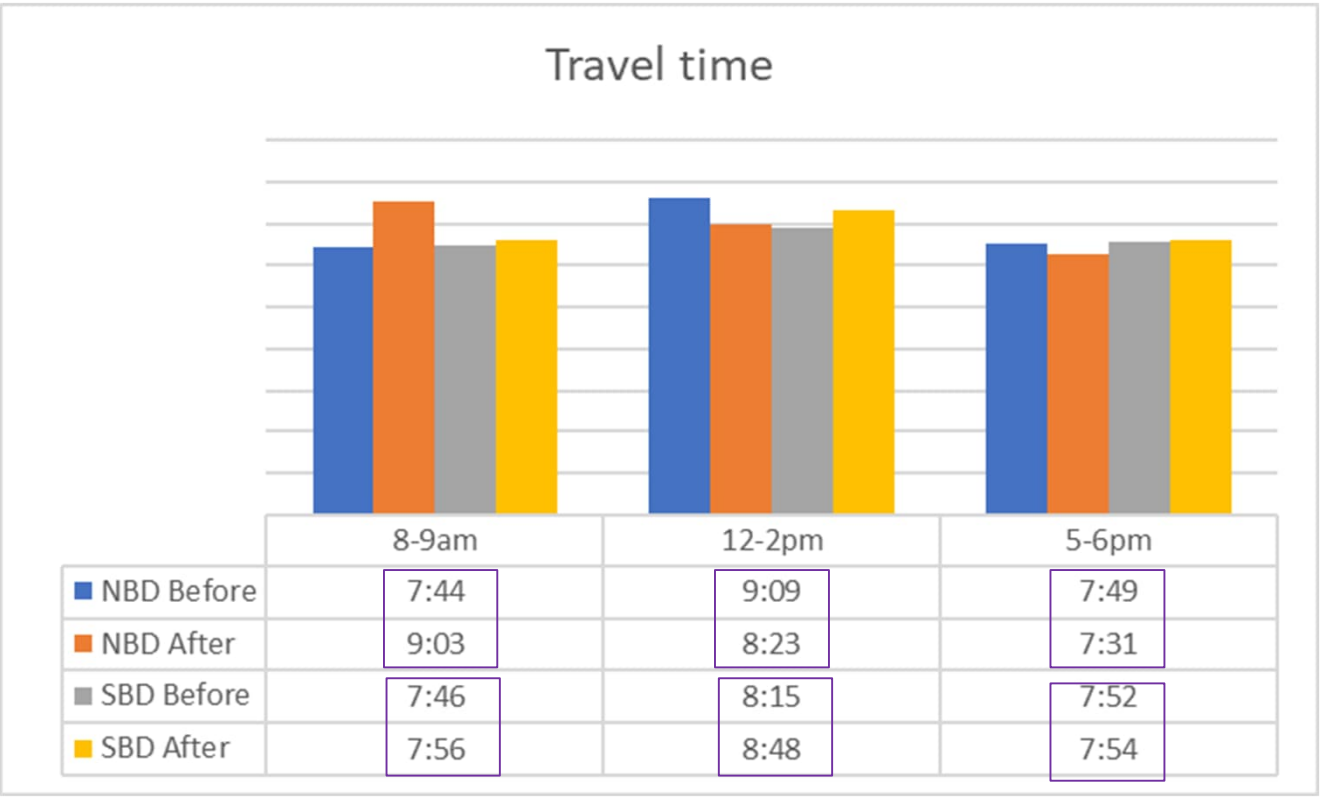


Bus Route

- 14t,14w travels through Lincoln road every 15 mins but with lower frequency in morning and evening.
- 146 passes through one intersection but it is an hourly service.
- The bus services will change with NWBI



Travel Time Comparison



	8-9am	12-2pm	5-6pm
NBD Before	7:44	9:09	7:49
NBD After	9:03	8:23	7:31
SBD Before	7:46	8:15	7:52
SBD After	7:56	8:48	7:54

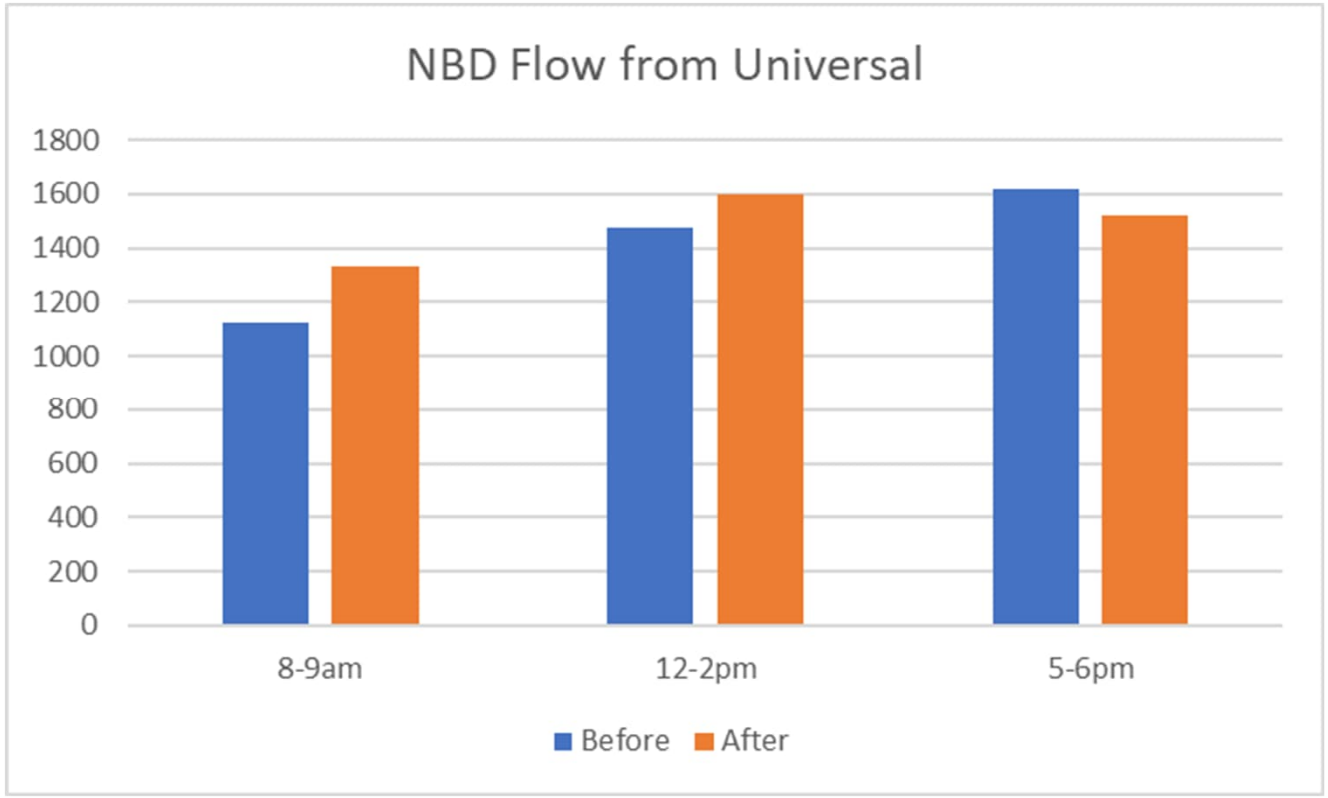
Northbound

- AM peak shows an increase in travel time due to higher traffic in June. (Next slide)
- IP reduces by 30 second improvements
- PM shows marginal improvements. It is almost as efficient as it can get, 7 minutes-ish travel time

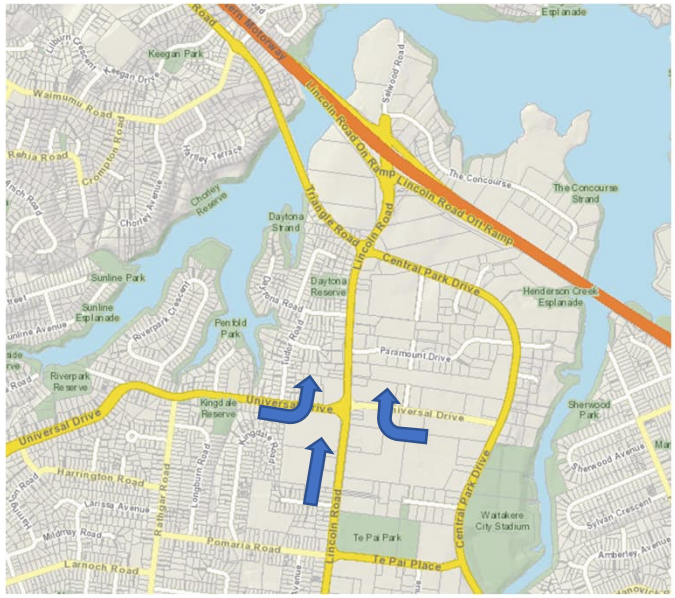
Southbound

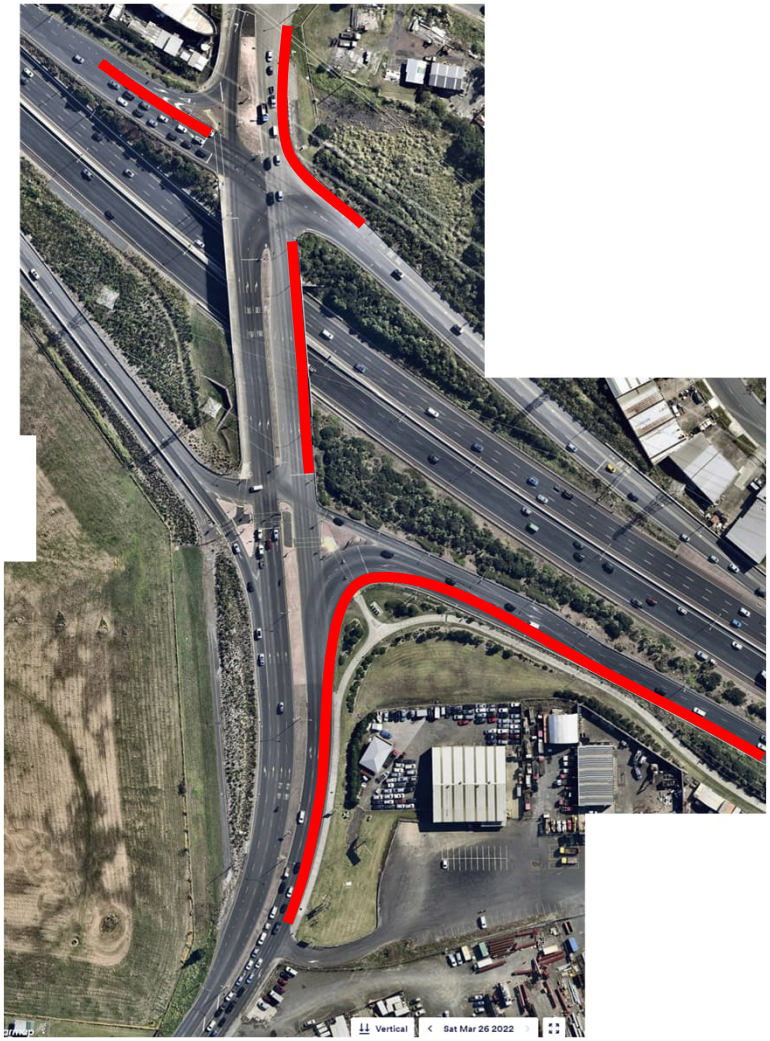
- Southbound so minor changes, it is as efficient as possible.
- IP has slightly higher delay due to MI
- All loop faults at 3022

Northbound traffic



- AM / Inter peak shows an increase in traffic flow.
- Apr vs Jun 2023





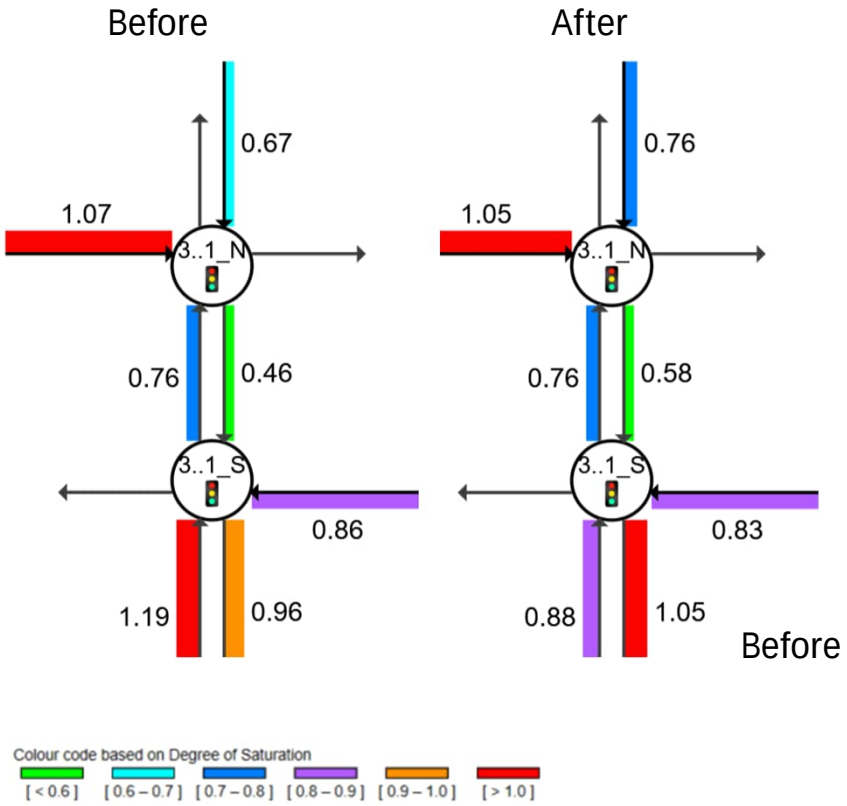
3902 Lincoln Road Interchange

The NWBI is expected to finish the Lincoln Road interchange on April 23 but is delayed (up to 9 months due to Covid19). This means it will be completed end of the year 2023. The new interchange will be split into two T-s, meaning the flow between the T's will be challenging to configure.

The off-ramps (both directions) have 1 lane closed for construction – thus the capacity is reduced and causes regular queues back to the motorway.

Plan LOCKS are scheduled for different peaks with Sidra outputs. The flow reduced at the interchange when the work started. Due to detector faults, no up-to-date flow is available.

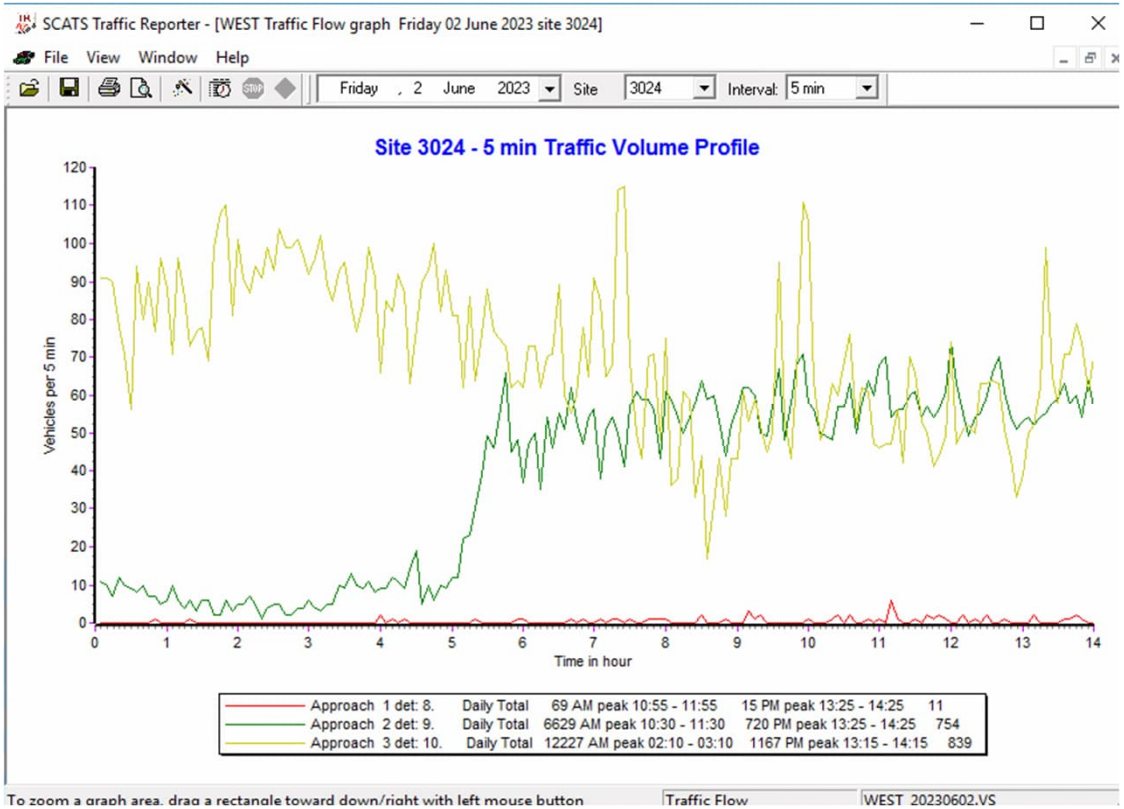
Interchange Changes



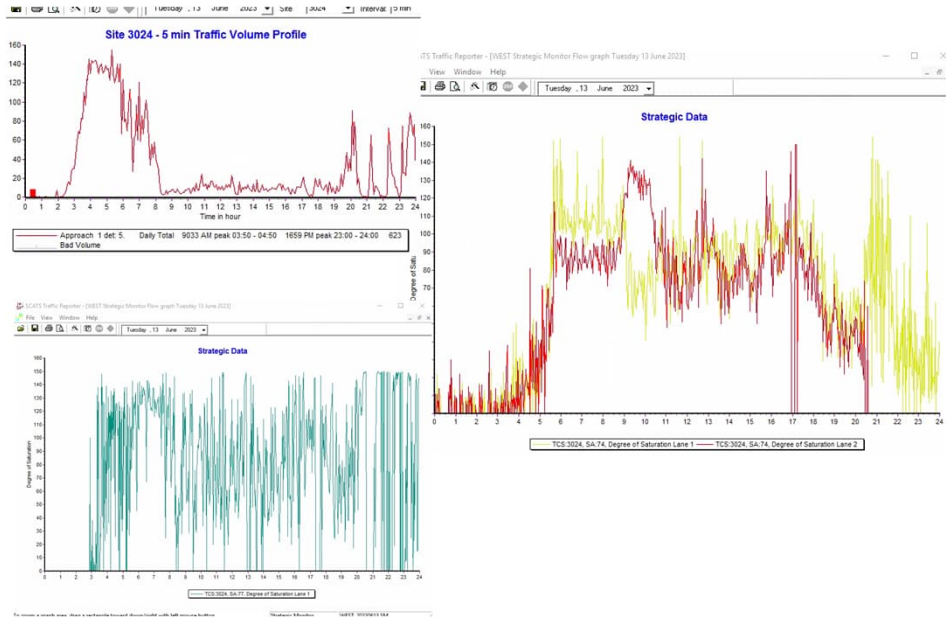
- New splits and cycle time to account for the decrease of interchange capacity (lane lost)
- Increase capacity with cycle time
- Adjust the balance between off-ramps and NBD Lincoln Road traffic
- Move priority to NBD traffic
- The delay is slightly decreased on the westbound offramp.

3024 – Lincoln / Central Park / Triangle
Wrong spacing / length

Multiple Loop Fault (3024)



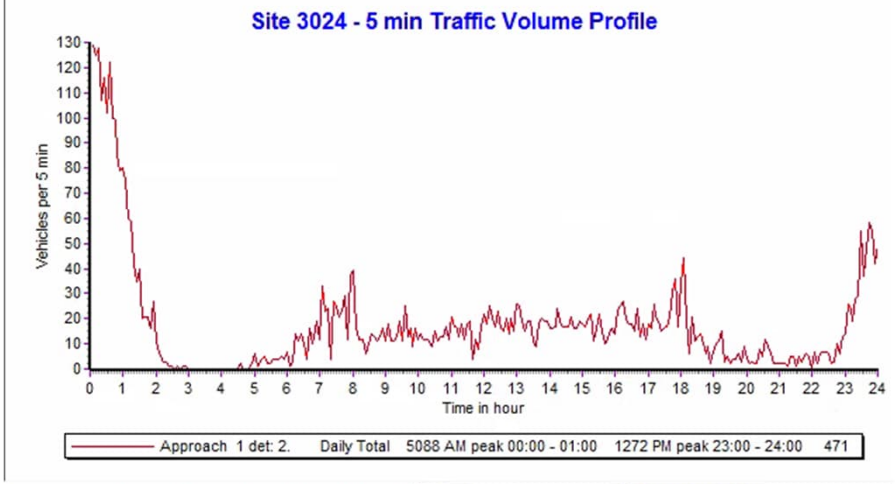
- Logged early but still not working during the optimization
- Ask TMC to log with graphs.



SCATS Traffic Reporter - [WEST Traffic Flow graph Monday 12 June 2023 site 3024]

File View Window Help

Monday , 12 June 2023 Site 3024 Interval: 5 min

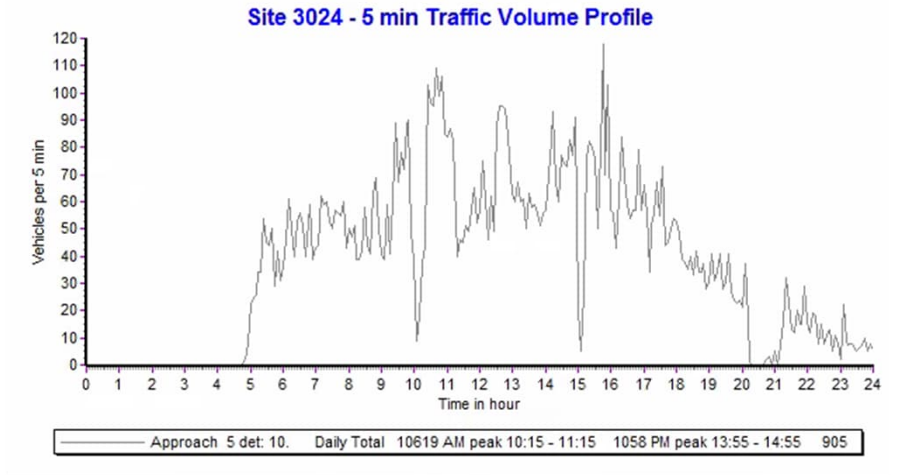


To zoom a graph area, drag a rectangle toward down/r Traffic Flow WEST_20230612.VS

SCATS Traffic Reporter - [WEST Traffic Flow graph Monday 12 June 2023 site 3024]

File View Window Help

Monday , 12 June 2023 Site 3024 Interval: 5 min

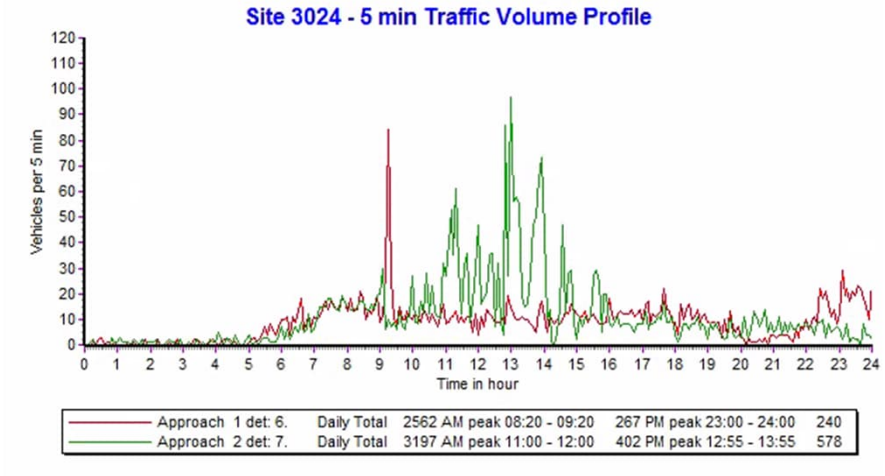


To zoom a graph area, drag a rectangle toward down/r Traffic Flow WEST_20230612.VS

SCATS Traffic Reporter - [WEST Traffic Flow graph Monday 12 June 2023 site 3024]

File View Window Help

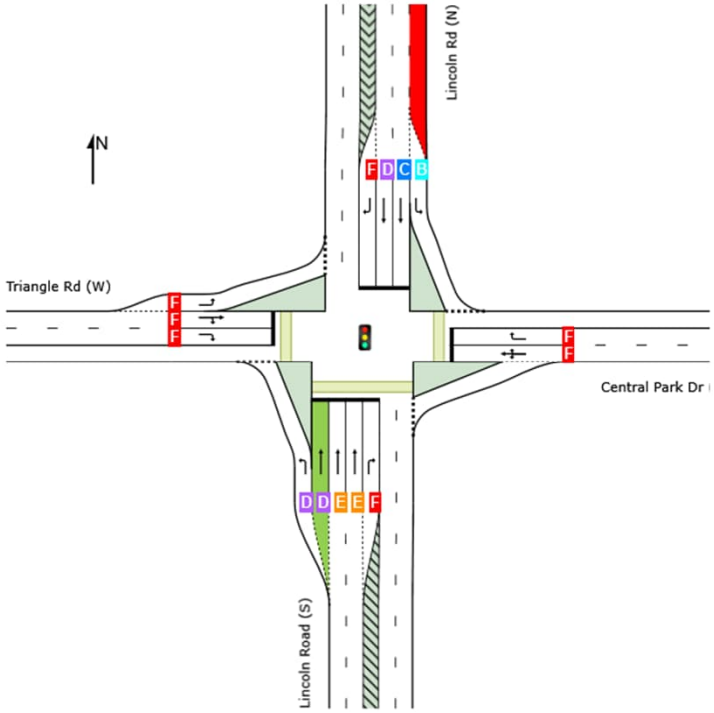
Monday , 12 June 2023 Site 3024 Interval: 5 min



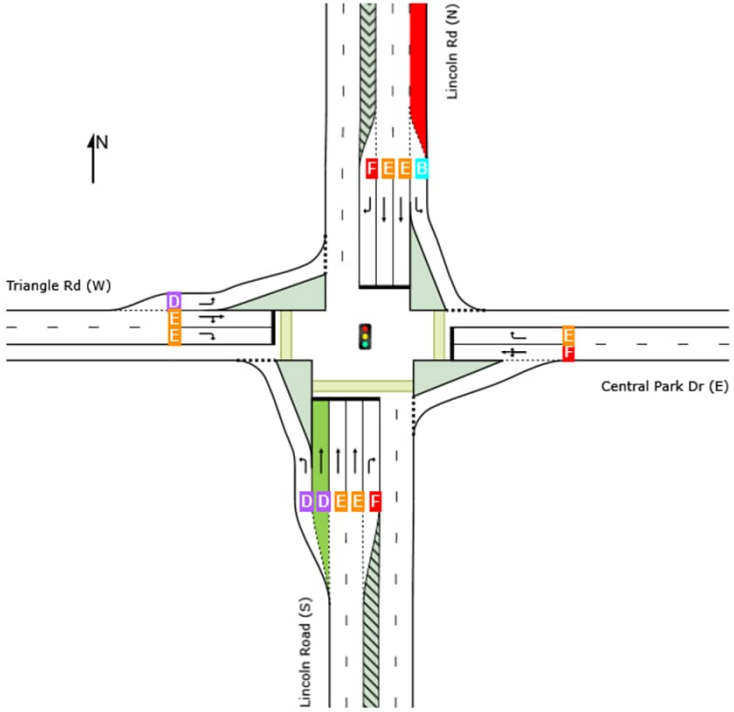
To zoom a graph area, drag a rectangle toward down/r Traffic Flow WEST_20230612.VS

Lincoln Road / Triangle Drive

Before



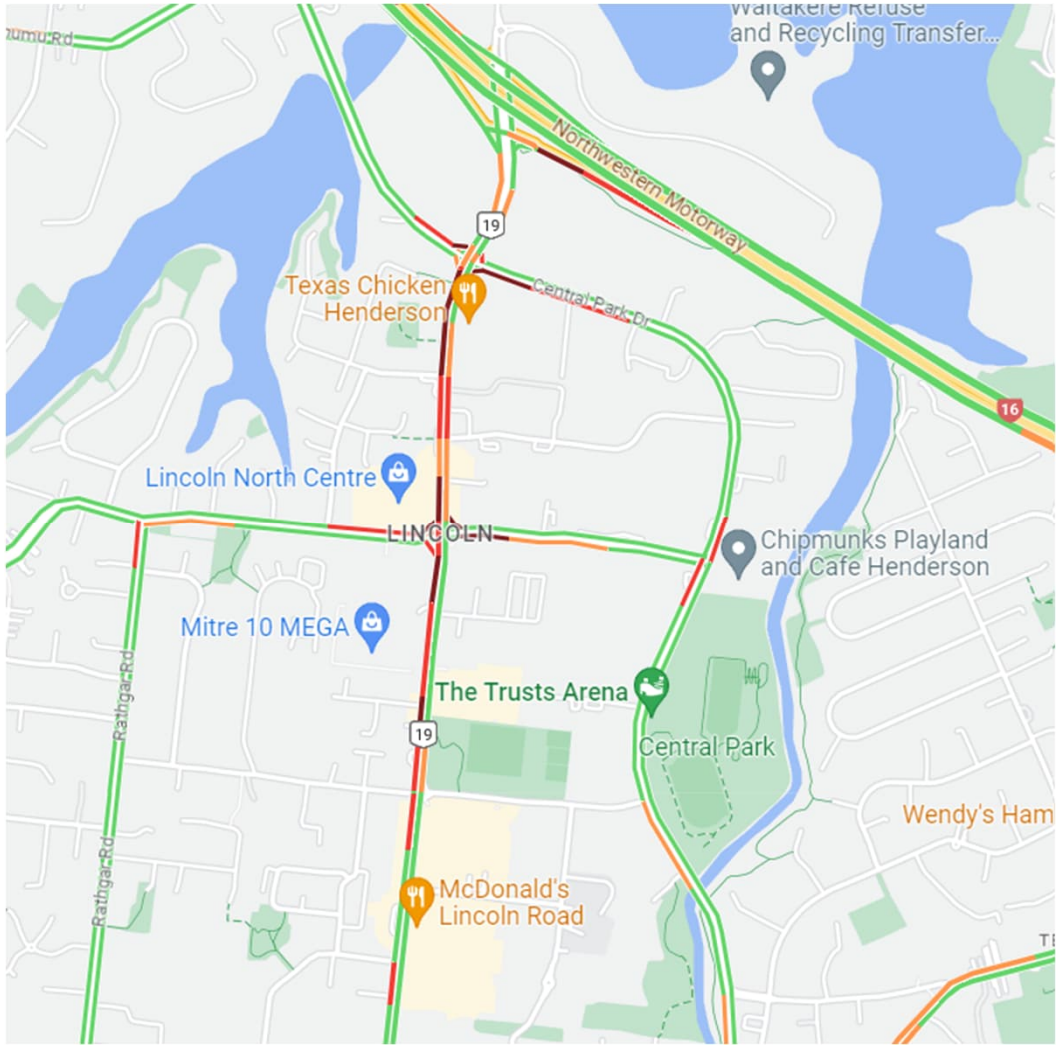
After



- Wasted green time NBD in the AM peak due to the blockage at the interchange (with the roadwork)
- Triangle Drive (west approach) doesn't add traffic to the NBD corridor
- It can receive more time to reduce the delay

Universal Drive (3023)

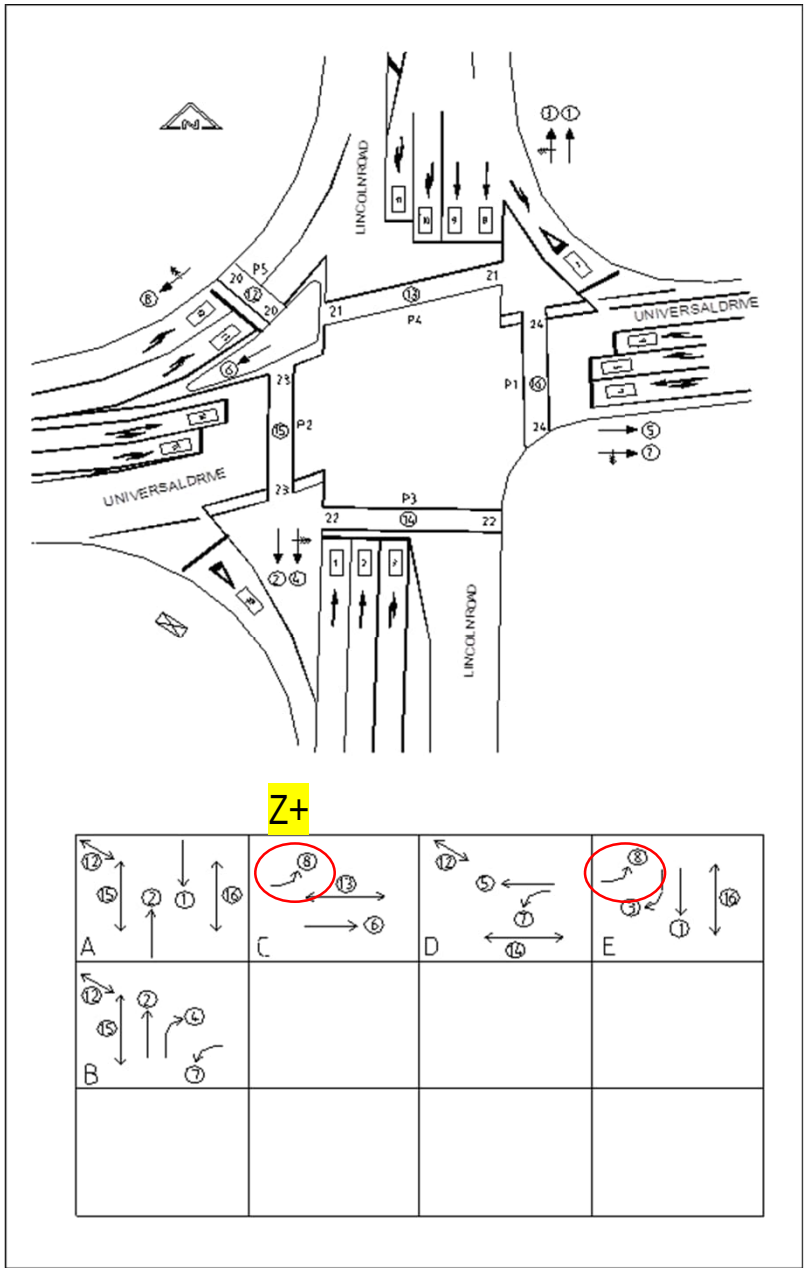
- Potential reduce west approach LT via Z+ flag to improve northbound flow



Universal Drive (3023)

- Use Z+ flag to disable SG8 in C phase. To control the LT out into Lincoln Road. This shifts the priority back to Lincoln Road NBD.
- Sidra doesn't show the result with NBD travel time. Perhaps micro sim is required to simulate how the space between Universal and Triangle Drive can be beneficial with the logic

- Signal
- Z+



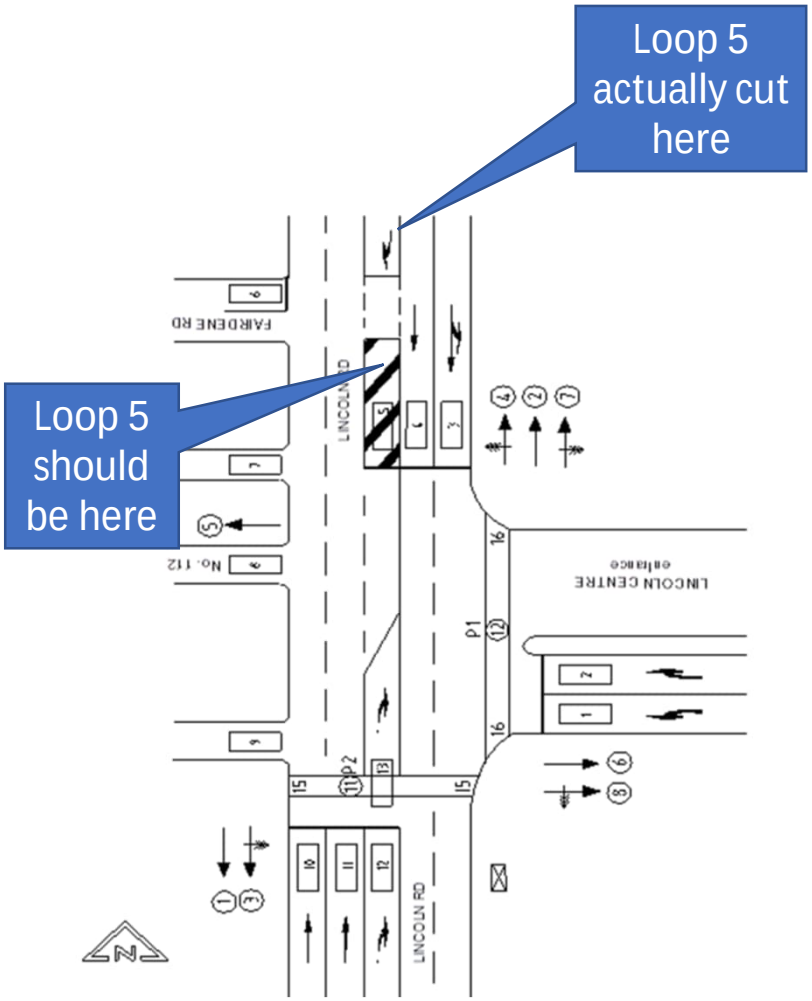
3023 Universal Drive
Traffic entering the shop block short turn bay
- check for solution/idea

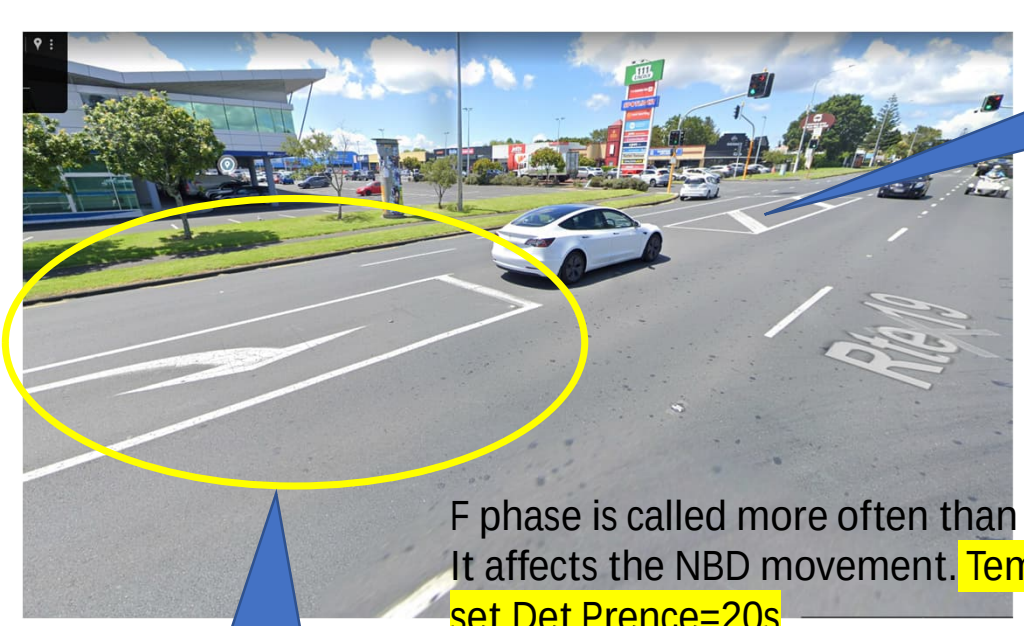
3022 – Lincoln / Te Pai / Pomaria

Works on Slip lane during the project

- Southbound slip lane closed
- Westbound slip lane
- Loop faults – perhaps the ducts were damaged

3021 – Lincoln / The Warehouse / Fairdene

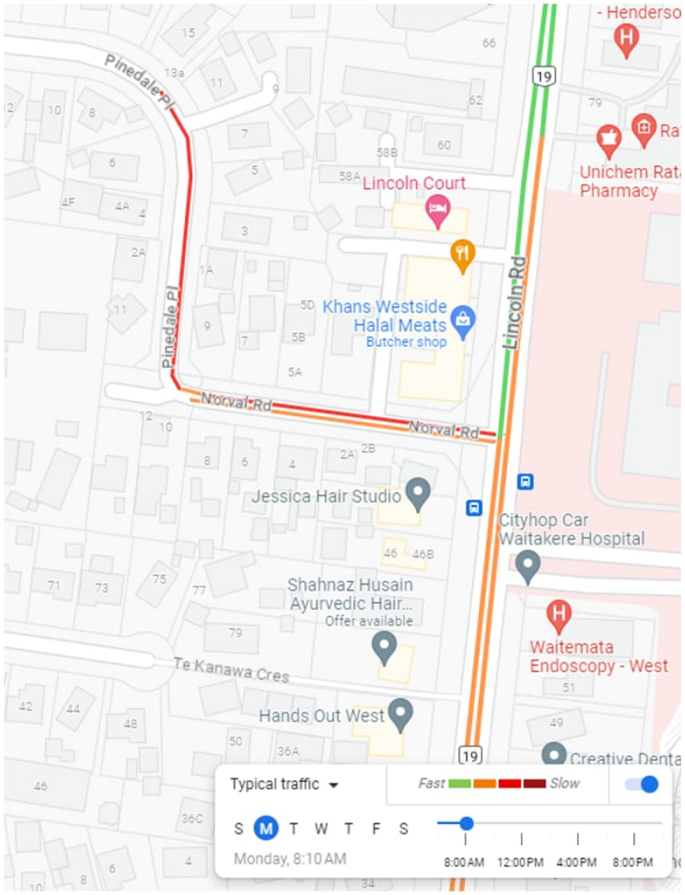




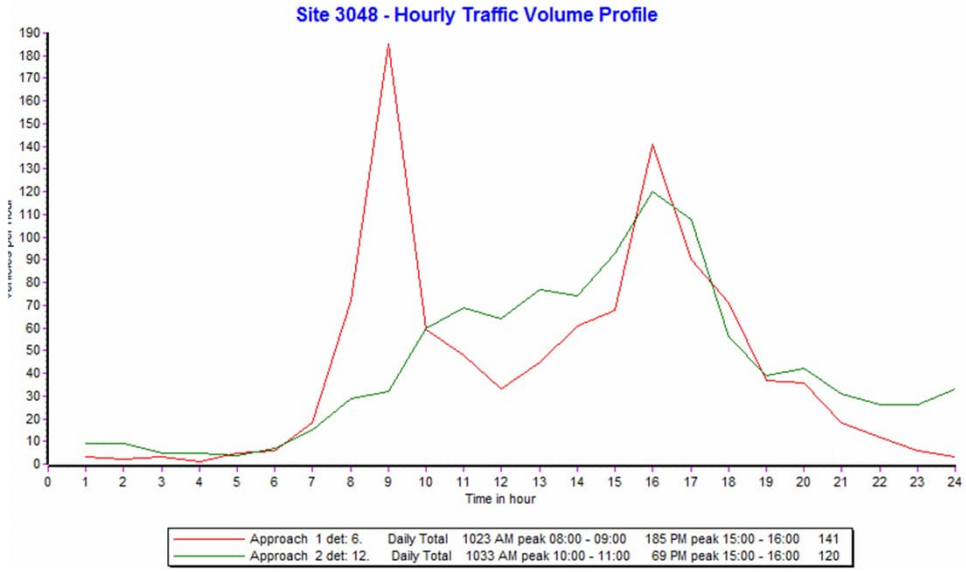
F phase is called more often than intended. It affects the NBD movement. Temporarily set Det Prence=20s

<u>Proposed</u>
Recut or
make Loop 5 non-locking – CIS needs to be updated – probably ok solution

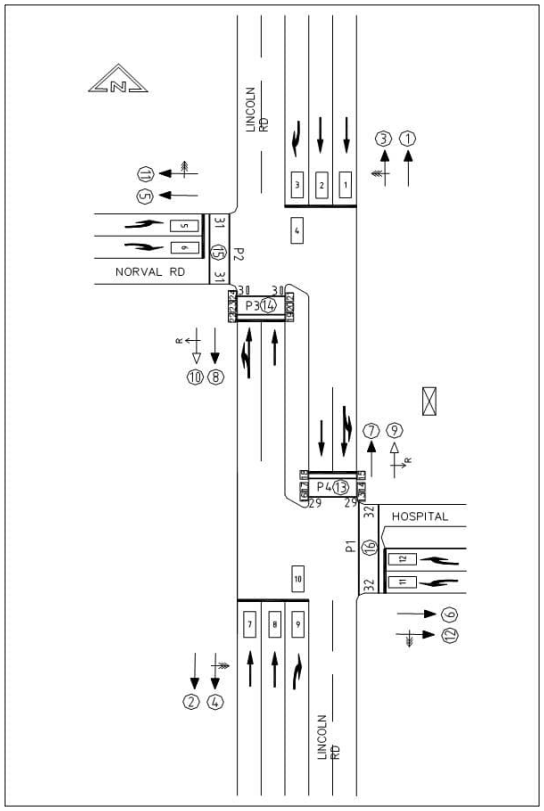
3048 - Lincoln / Norval / Waitakere Hospital

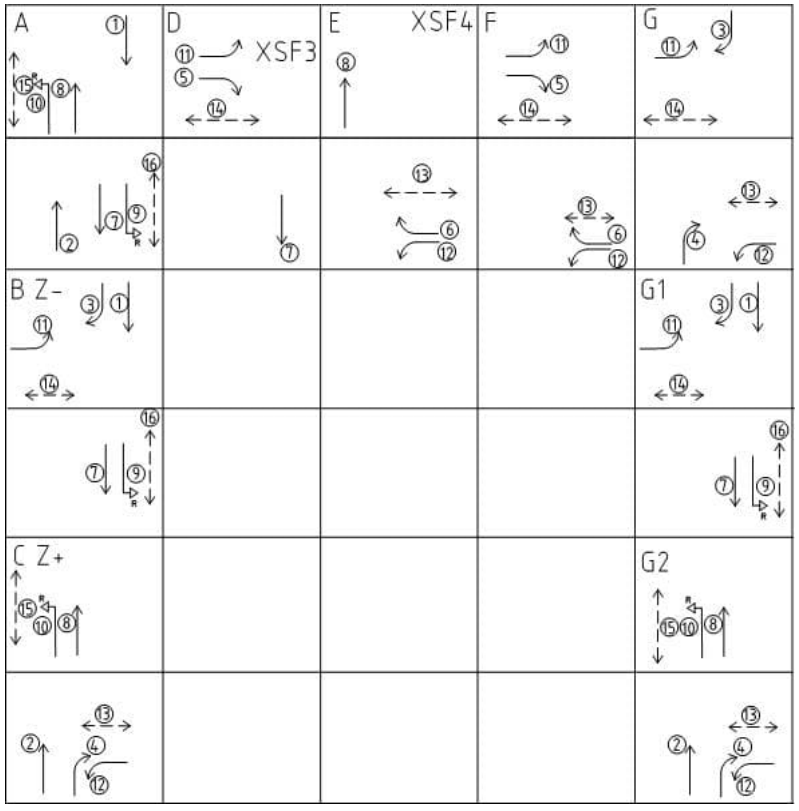


- High queue on Norval Road AM peak, there is no voting for this SA, SG5
- High traffic demand due to Henderson North School
- Previously a fix phase time, rely on gapping out
- Added SI/SA that actuated with the demand



Software Logic

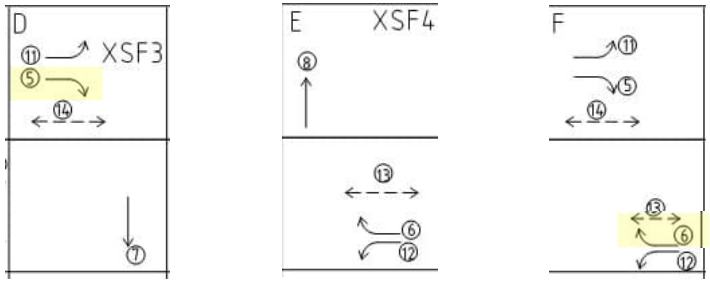




Software Logic

SG5+6

Skip

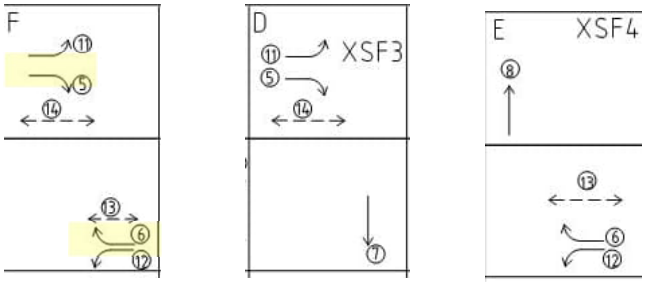


Runs

Current logic will run D and then E or F.

- If SG 5 and 6 are both on, it should skip D and run F.
- Current logic will run D and then F.
- Still have a problem with D demand doesn't removed after F ☹
- Final decision – runs F only until logic is fixed, otherwise it will run DF all the time.

Runs

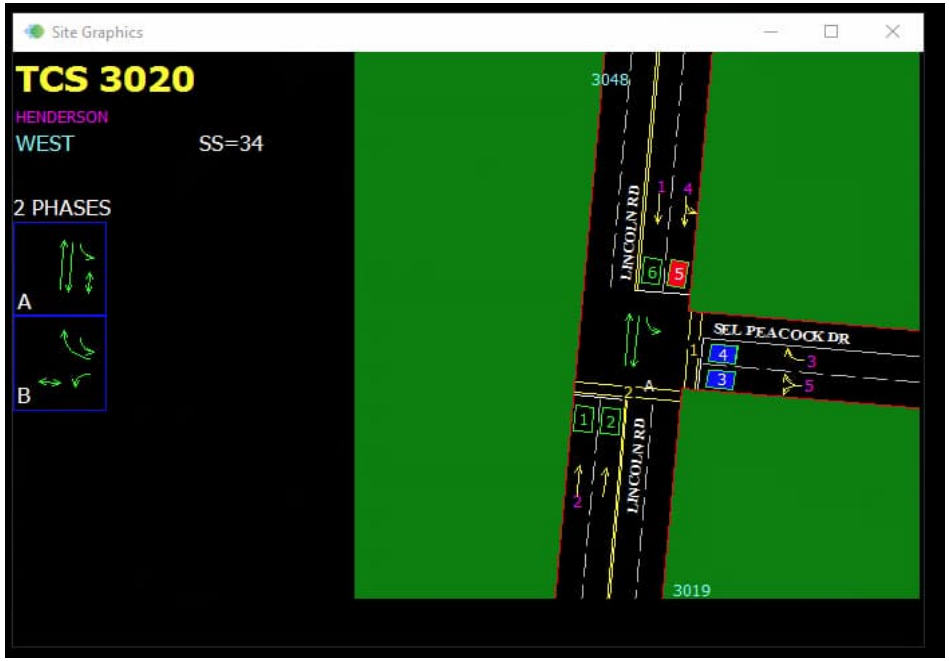


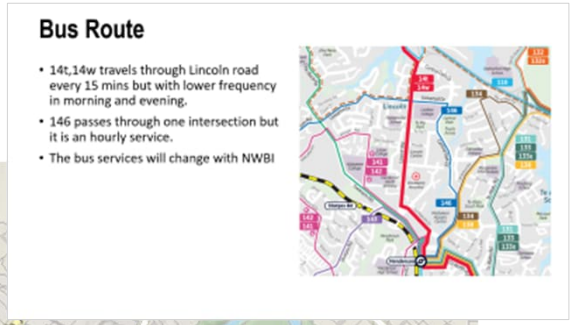
Current logic will run F and then D.
SG5 demand doesn't uplifted in F

Proposal

- DEF to be a diamond-like operation.
- D or E demand should be removed after F.
- If Det 6 and 12 are both on, it should skip D and run F.

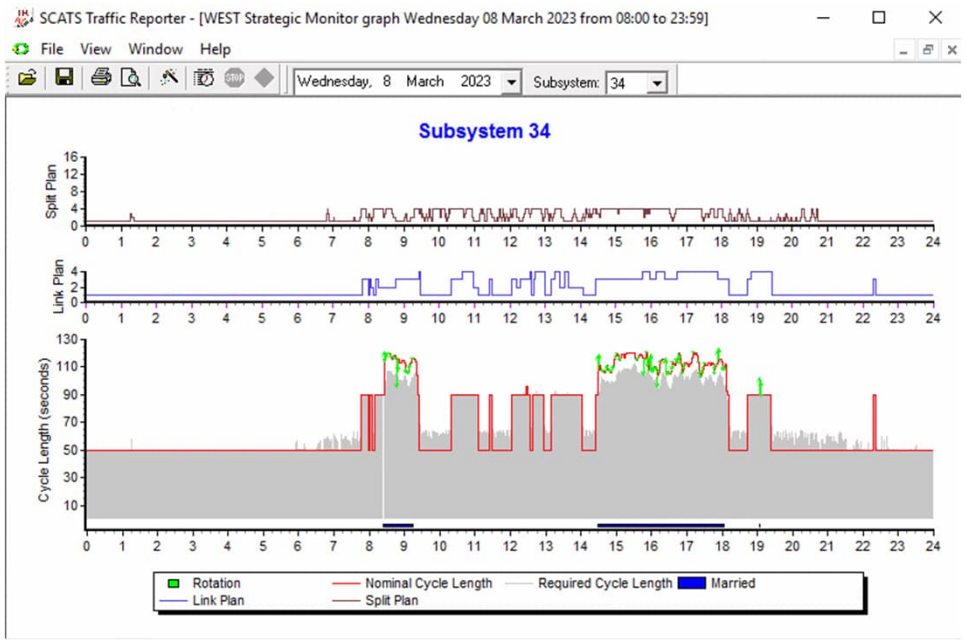
PM 3020 Linking to 3019



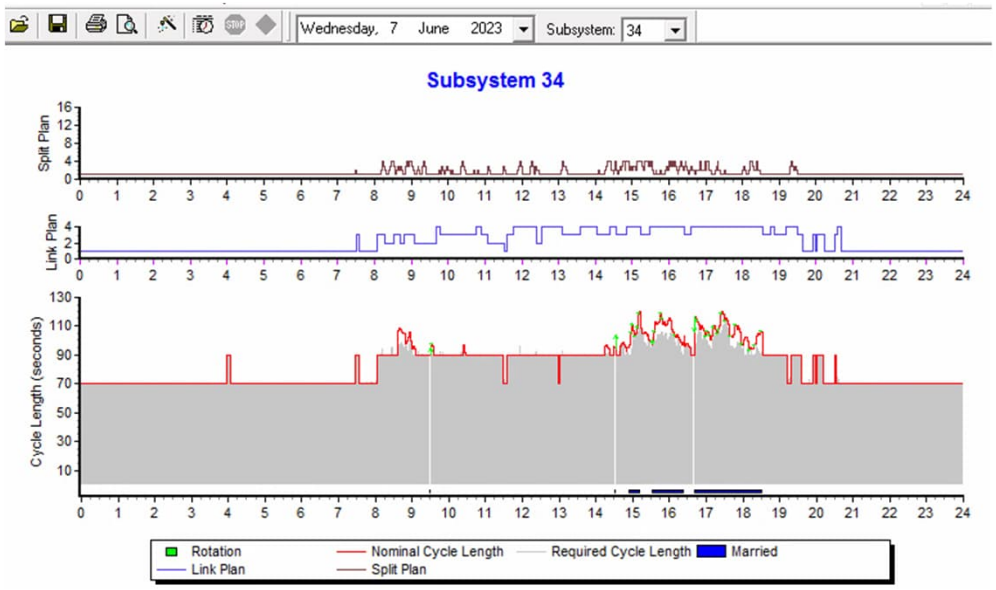


- High traffic volume LT (Orange route) at 3020 thus linking doesn't justify. (loop 5, 75%, 45 % LT)
- Linking to 3019 only LP2 and LP4. LP3 no linking to enable both intersections to run MI

3020 - 3019



Before

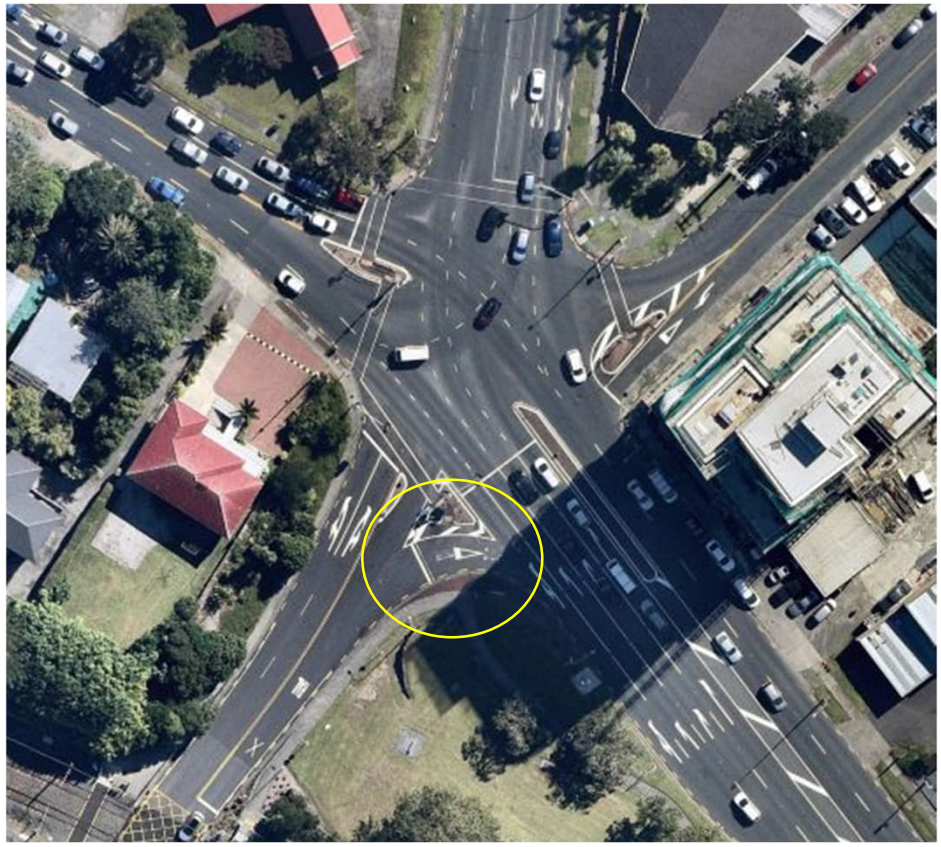


After

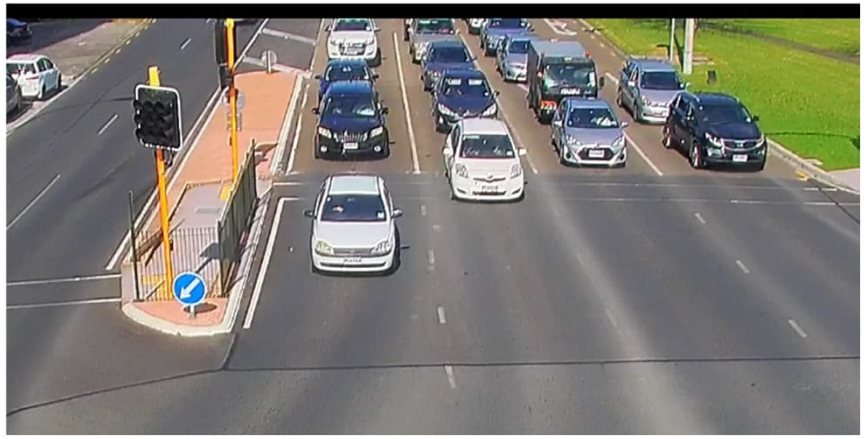
- AM drop from 120s to 90s
- IP drops from 100 to 90s
- PM probably similar due to linking

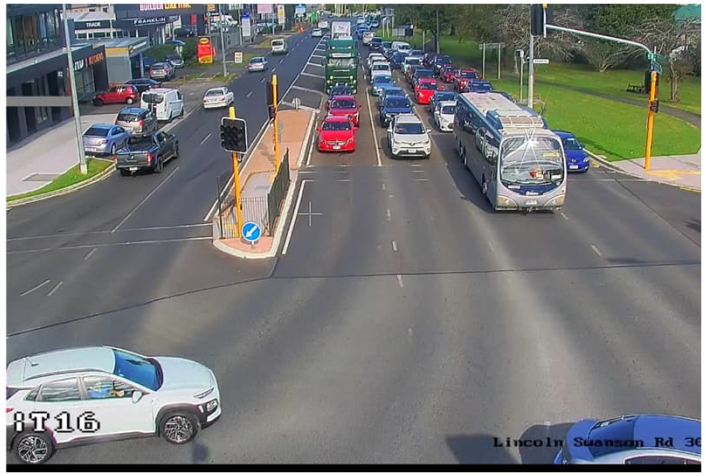
3019 – GNR / Lincoln / Buscomb / Swason

Left turn on GSR (S) is a slip lane – removed around March23

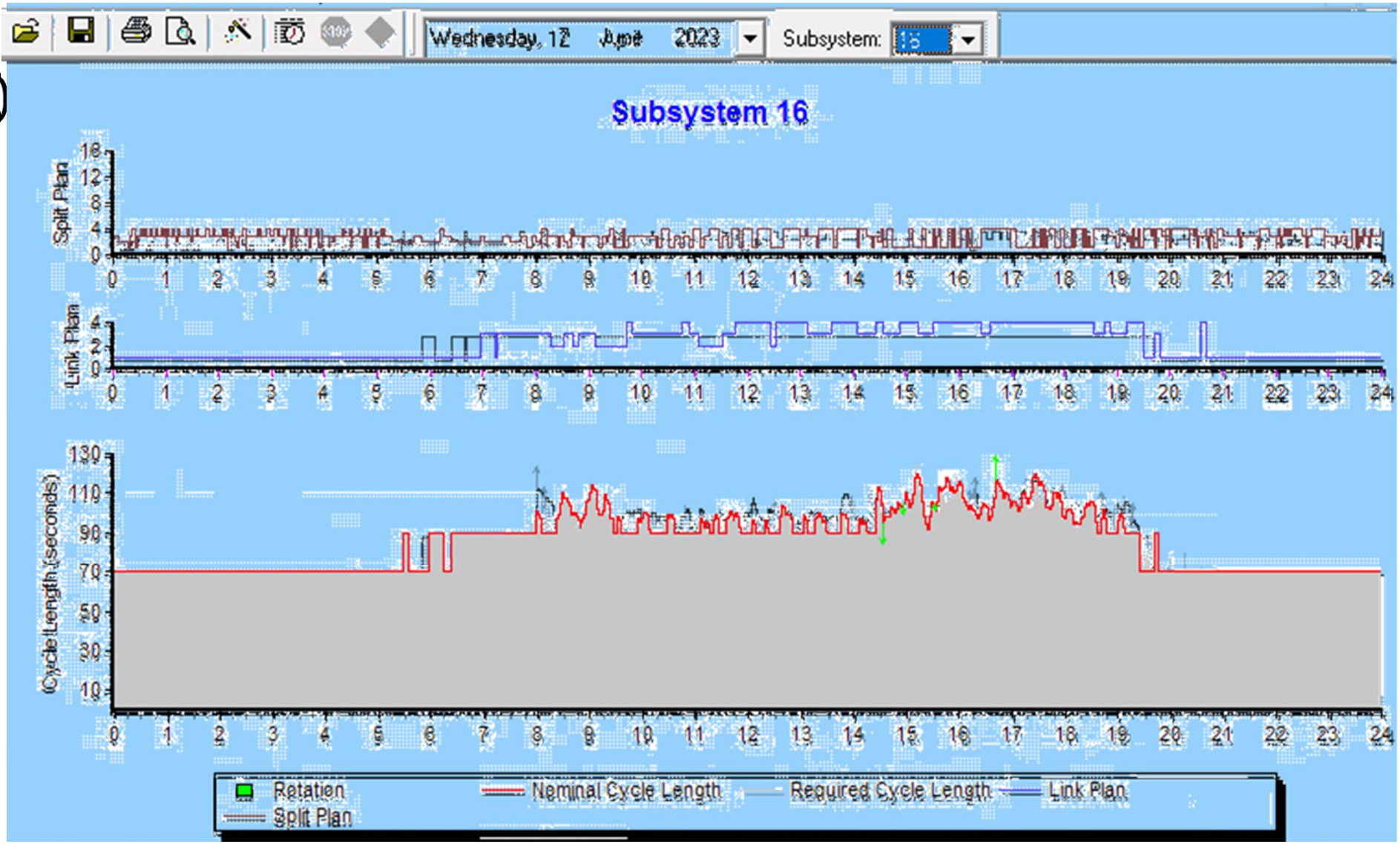


Stop at wrong location

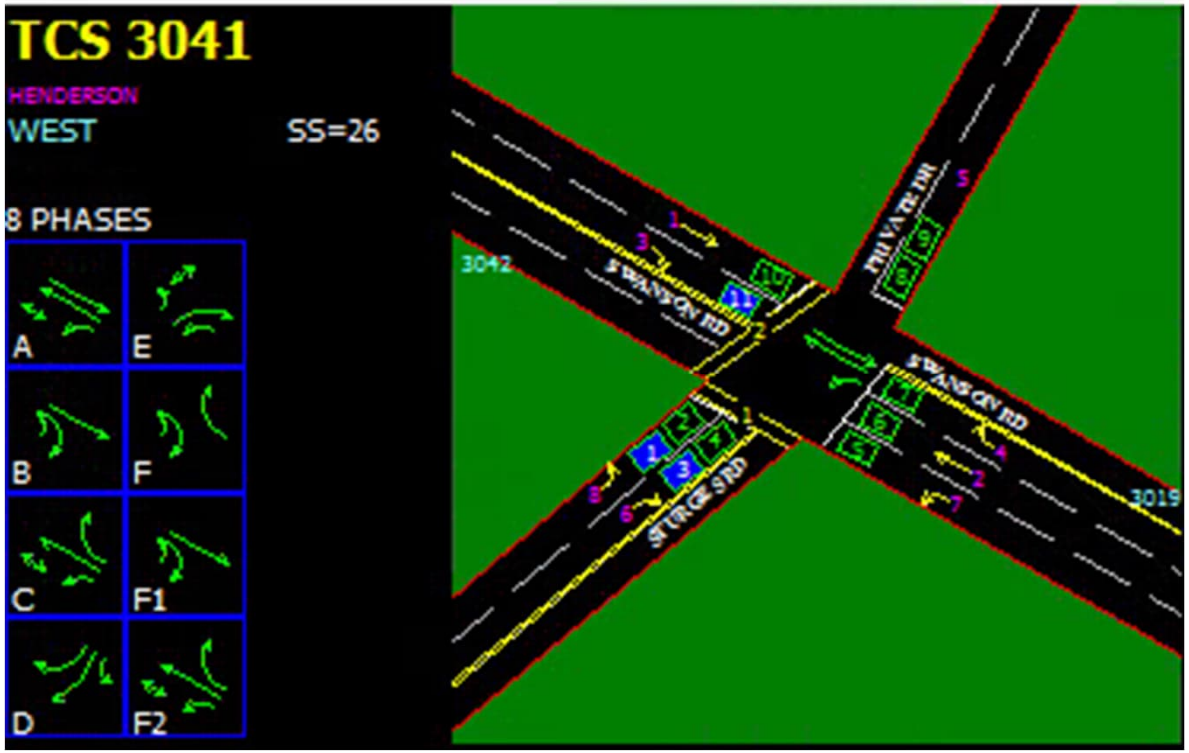




- Most likely due to the faded limit line and the colour of the new surface.
- Repaint fainted road marking
- Consider red painting on the pedestrian crossings.

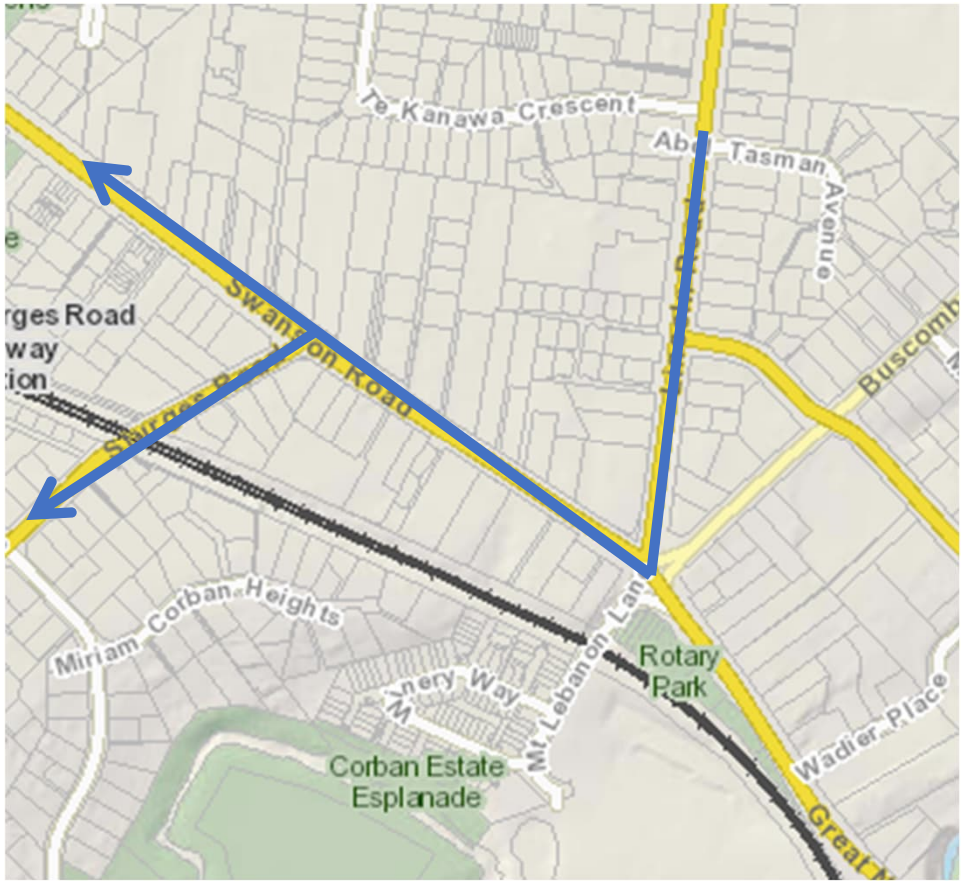

Wednesday, 12 June 2023
Subsystem:
Subsystem 16
Split Plan
Link Plan
Cycle Length (seconds)
Rotation
Split Plan
Nominal Cycle Length
Required Cycle Length
Link Plan

3041 – Swanson Road / Sturges Road



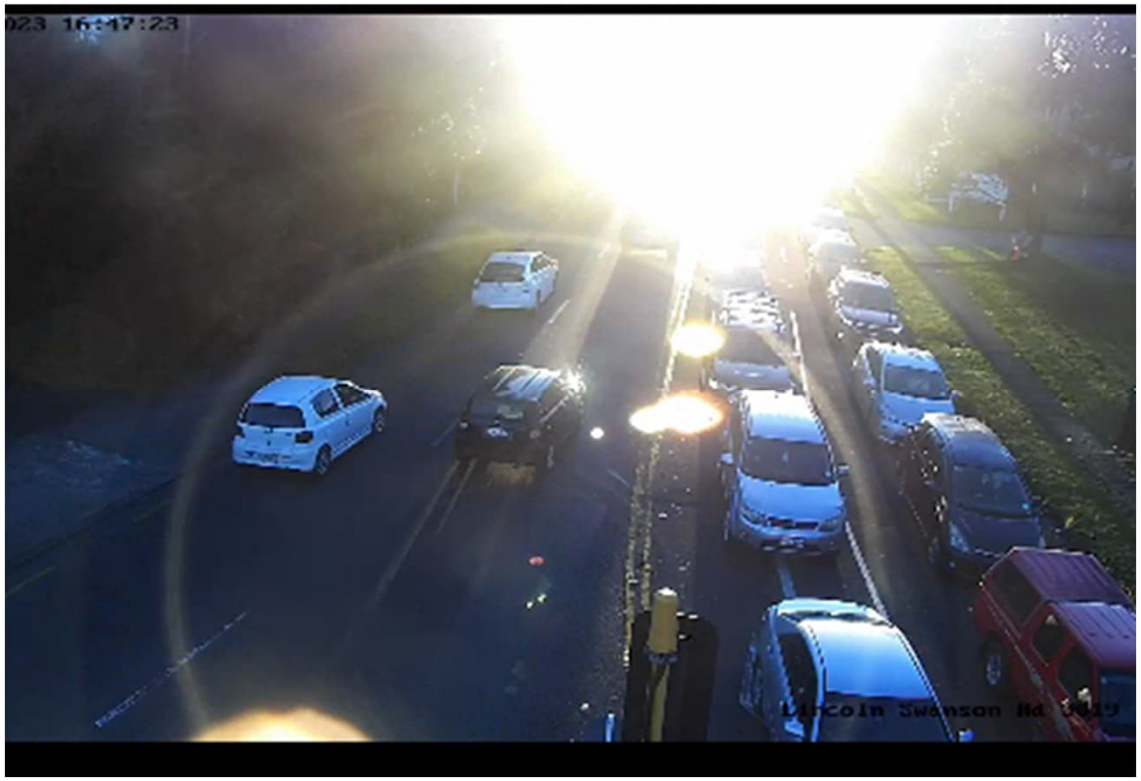
PM Linking to 3019

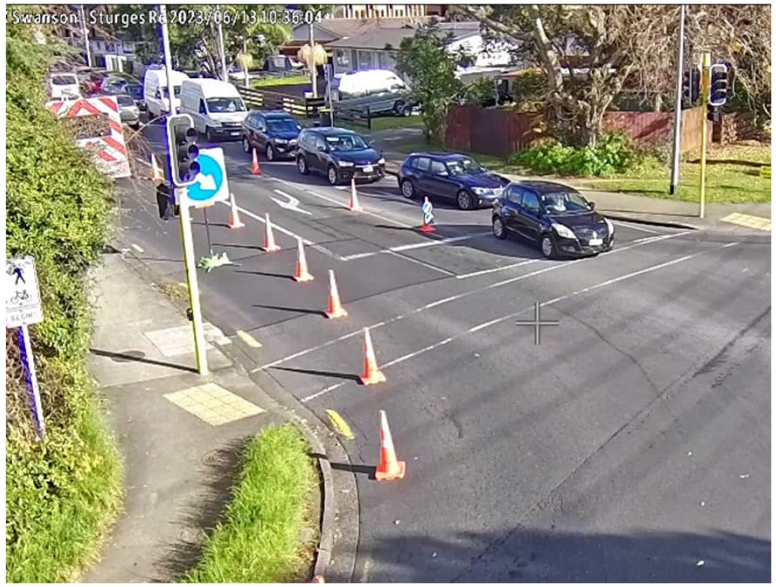
- Linking 3041 – PM peak 3041 can operate a lot lower cycle time thus it makes sense not to link. There is no clear traffic flow to linking.
- Both to Sturges Road and Swanson Road (west) has same demand and road hierarchy



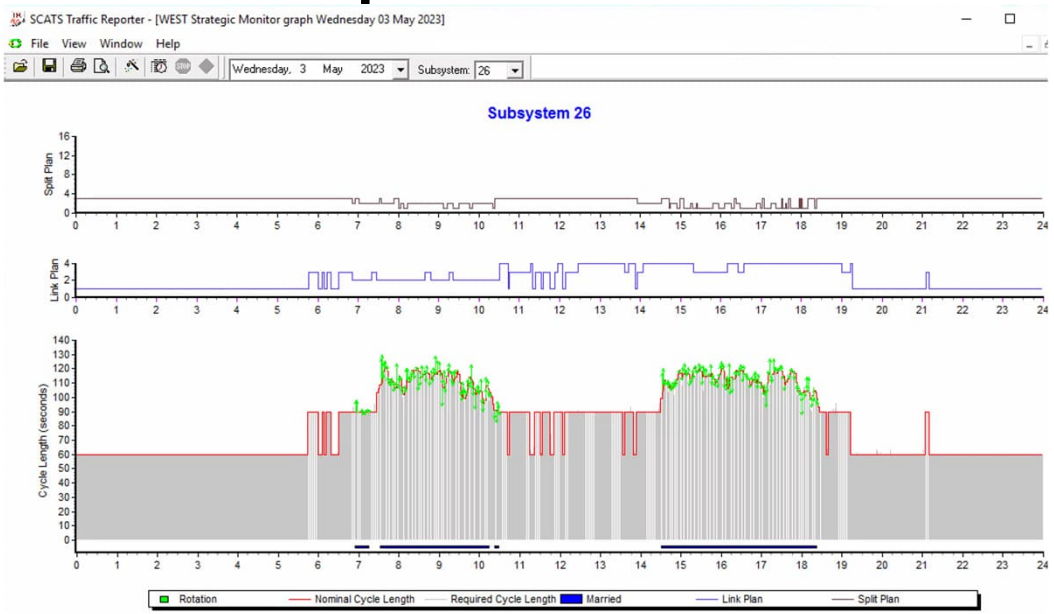
Capacity reduction

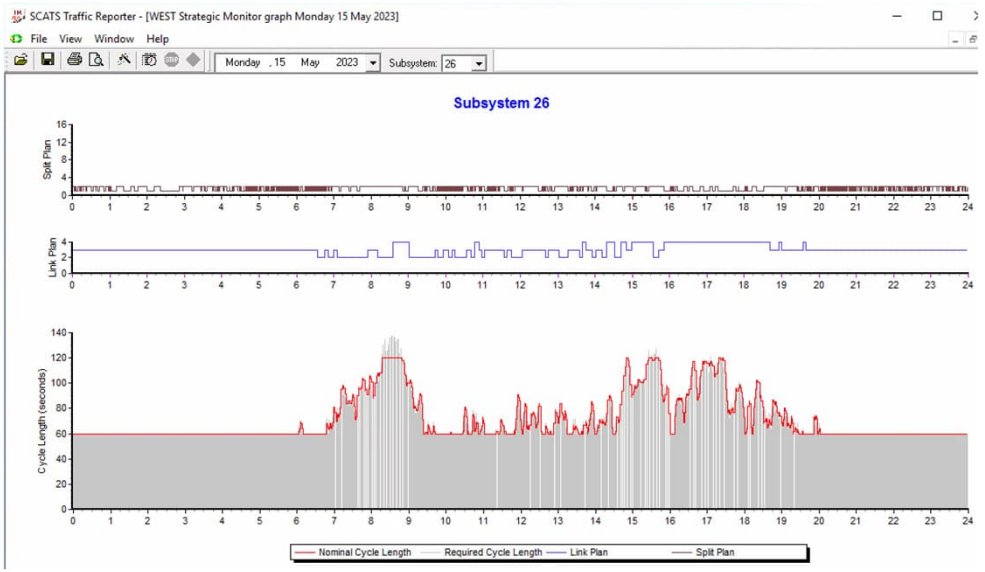
- Very severe sun strike





SM Graph after unlinked / Optimised





- Shorter maximum cycle operation during peaks
- AM peak duration from 7-10 am shortened to 8-9 am; PM peak duration from 14:30-18:30 to two hourly peaks (15-16:00, 17-18:00)
- The site was also affected by westbound traffic – outside the optimisation scope. To be carried out with Swanson Road optimisation