

APPENDIX K: TRAFFIC ASSESSMENT REPORT

**CONTRACT NUMBER:
TNPA/2024/01/0002/53232**

**PROVISION OF PROFESSIONAL SERVICE
FOR THE FEASIBILITY AND DETAILED
DESIGN INCLUDING PROCUREMENT
SUPPORT AND SUPERVISION FOR
BAYHEAD AND LANGEBERG ROAD
UPGRADE, AT THE PORT OF DURBAN**

TRAFFIC IMPACT ASSESSMENT

Version 4
5 August 2025





PROJECT NAME:	FOR THE FEASIBILITY AND DETAILED DESIGN INCLUDING PROCUREMENT SUPPORT AND SUPERVISION FOR BAYHEAD AND LANGEERG ROAD UPGRADE, AT THE PORT OF DURBAN			
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PRELIMINARY GAP ANALYSIS REVIEW REPORT

For: TASK ORDER No. 1 - 3

Project Name: PROVISION OF PROFESSIONAL SERVICE FOR
THE FEASIBILITY AND DETAILED DESIGN
INCLUDING PROCUREMENT SUPPORT AND
SUPERVISION FOR BAYHEAD AND LANGEERG
ROAD UPGRADE, AT THE PORT OF DURBAN

Project Number: TNPA/2024/01/0002/53232/RFP

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1. BACKGROUND



Fulcrum Development Consultants (Pty) Ltd has been appointed by LA Eng on behalf of Transnet to undertake a Traffic Impact Assessment in support of the Bayhead Road Widening Project.

The following is an extract taken from the Transnet's Terms of Reference for the project:

The Port of Durban handles the greatest volume of sea-going traffic on any port in southern Africa. Containers handled at Durban represent approximately 60% of the total number of containers handled at South African ports. The significant role of the Port of Durban in the South African economy makes it very important to ensure that the Port maintains high levels of operational efficiency and nominal disturbances in the value chain.

Transnet's internal studies over the past few years have indicated that the Durban Port area currently experiences a significant amount of congestion throughout the day consisting of mainly truck traffic. This congestion is thought to be occurring due to the operations of the Durban Container Terminal (DCT) and its staging areas. The existing truck traffic travels along Bayhead Road, with the traffic going to Pier 2 container terminal exiting onto Langeberg Road. Surface failures have also been noted on the road. It is assumed to be as a result of heavy traffic on the roads (mainly due to container trucks)

The purpose of this project is to mitigate this congestion through the upgrade of Bayhead and Langeberg Road. The project will also look into assessing and upgrading of the aging infrastructure in conjunction with alleviating congestion on Bayhead Road leading to Langeberg road. Traffic studies will have to be carried out to determine the best viable option in addressing these two key issues on Bayhead and Langeberg road, namely, the congestion and upgrading of infrastructure.

Transnet is embarking on an expansion plan for Durban. The vision for the Port of Durban is to see it becoming the main Container Hub for South Africa.

The current proposal is to increase the throughput of containers at the Durban Container Terminal (DCT) from 2.5 million TEUs/annum to 6,8 million TEUs/

annum by 2050.

In addition, there are plans to convert the Point terminal to a container terminal.

To assist in the evacuation of the 6,8 million TEUs/ annum from DCT, Transnet are considering the following road upgrades plans:

1. Project 1 - Adding an additional lane along Bayhead Rd, from South Coast Rd to Langeberg Rd
2. Project 2 - The construction of the 2nd Port Access via Ambrose Park

This TIA will focus on the Project 1, the construction of an additional lane on Bayhead Rd.

2. EXTENTS OF STUDY

A meeting was held with eThekweni Municipality Transport Authority (ETA) on the 7th November 2024 to confirm the extents of the study area.

The current tender from Transnet is for the upgrade of Bayhead Rd from South Coast Rd to Langeberg Rd. However, in engagement with the ETA, it was agreed that a slightly larger study area should be assessed to understand the impacts of Transnet's Container Hub expansion plans on key roads leading to the port.

The study area will extend from the Umbilo Road in the west, to Iran Road to the East and from Rick Turner Road to the north and south along South Coast Road to the Bridge Port Access road.

Key Roads included in this study area are

- Bayhead Road
- Sydney Road
- Umbilo Road
- Langeberg Road
- South Coast Road
- Rick Turner
- Maydon Rd
- Belfast Rd
- Rotterdam Rd
- Iran Road
- Bypass Rd

A copy of the study area extents is shown in the adjacent image.



3. TRANSNET EXPANSION PLANS

TEU Forecast

The current plan for the Port of Durban will see it becoming the main Container Hub for South Africa. The plan is to increase the throughput of containers from 2.5 million TEUs/annum (2020) to 9.5 million TEUs/ annum over the next 30 years.

At the Point Terminal, the containers are expected to increase from 200 000 TEUs to 1.5 million TEUs. The intention at Point is for the terminal to operate primarily for transshipment.

At DCT, the containers are expected to increase from **2.3 million TEUs** to 6.8 million TEUs.

There is also a plan to accommodate 1.2 million TEUs at Maydon Wharf in 2051.

Landside TEU Movements

As part of the planning for Transnet, Arup (Pty) Ltd was appointed to develop a mode share model for the evacuation of containers from Durban's Harbour. In this study the following Scenarios regarding the landside movement of TEUs to and from the port were considered:

- Scenario 1 - The increase in demand is captured by the rail capacity increase. Slight increase in road demand.
- Scenario 2 - Creation of an inland terminal to decongest port. The road volumes are transferred to the inland terminal via a shuttle service.
- Scenario 3 - Creation of an inland terminal to decongest the port. The road volumes plus ALL pack/unpack operations are transferred to the inland terminal via a shuttle service.
- Scenario 4 - Creation of an inland terminal to decongest port. The road volumes moved to inland port. Pack/unpack operations by short haul rail to local depots.

A spreadsheet model was developed to determine the number of TEUs per mode and on the various legs of a container's movement. Assumptions were made regarding the rail modal split, the number of containers going out to the extended gates, long haul, the modal split for local unpack and pack etc.

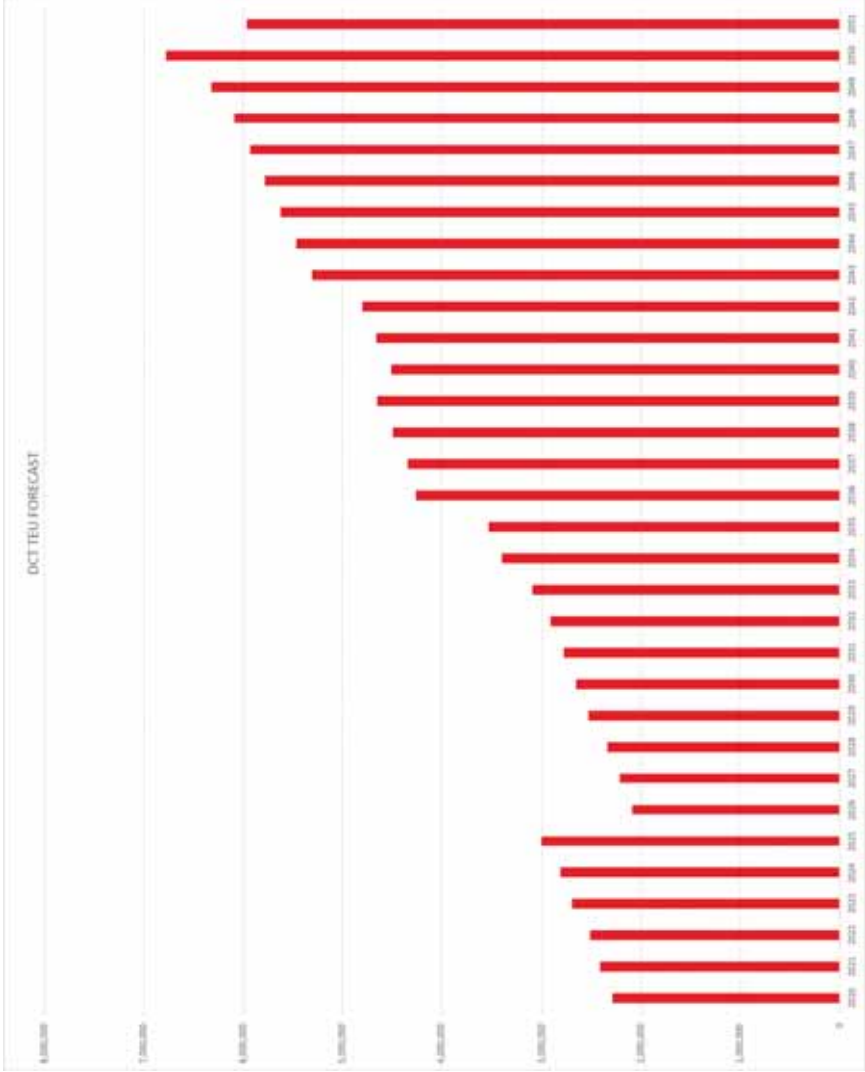
Of these four scenarios, Scenario 1 will have the highest impact on the port road network as this scenario does not consider an Inland Port. Therefore, this traffic study has been based on Scenario 1 as this will reflect the worst-case scenario.



Table 1: TEU Volumes at each terminal

Terminal	2020 TEU Demand	2050 TEU Demand
Point	200 000	1 500 000
DCT	2 300 000*	6 800 000
Maydon Wharf	0	1 200 000
TOTAL	2 500 000	9 500 000

* This value was used as the base 2025 value in the traffic analysis to test a worst case scenario



4. PREVIOUS STUDIES

There has been several traffic studies undertaken for the Port of Durban. The following three studies were considered most relevant to this study:

- eThekweni Transnet Integrated Freight Transport Systems Plan – The Design, modelling and route location workstream, 2016, ETA and Transnet (also known as the 2nd Port Access Road)
- Transnet Entrance Plazas - Technical Note 1 – Gate Capacity Assessment v2, 2024, Fulcrum Development Consultants
- Maydon Wharf Deproclamation TIA, 2020, Gibb Engineering and Architecture
- South Coast Road Upgrade, Conceptual Design, eThekweni Transport Authority (ETA)

- lane on Khangela Bridge eastbound.
- South Coast Rd – additional lane in each direction (excluding turn lanes) over sections that are presently single lane in each direction
- Bayhead Rd and South Coast Rd intersection – localised widening including a new left turn slip lane from Bayhead Rd into South Coast Rd. (see adjacent image)
- Bayhead Rd and Langeberg Rd intersection - localised widening including a double left turn slip lane from Bayhead Rd into Langeberg Rd. (see adjacent image)

eThekweni Transnet Integrated Freight Transport Systems Plan – The Design, modelling and route location workstream, 2016, ETA and Transnet (also known as the 2nd Port Access Road)

The primary purpose of this study was to assess the impacts of the 2nd Port Access and inform its alignment. The study looked at a Phase 1 which focused on the upgrade of the existing route to DCT. In phase 1, the following pertinent upgrades were proposed:

- Additional lane on Solomon Mahlangu M7 between N2 and Titren Rd.
- Sydney Rd – in addition to a remote truck stop, an additional slip lane is proposed from Sydney Rd into Bayhead Rd with an additional



Figure 39 Bayhead / South Coast Road Intersection (TNPA, 2015)



Figure 40 Bayhead & Langeberg Roads Intersection Upgrade (TNPA, 2015)

4. PREVIOUS STUDIES

Transnet Entrance Plazas - Technical Note 1 – Gate Capacity Assessment v2, 2024, Fulcrum Development Consultants

This study was done to assess the capacity and configuration of the seven new Entrance Plaza Gates to the Port of Durban. Three of these gates will be constructed to manage access to DCT:

- Gate 5 - located on Bayhead Rd just west of Belfast Rd,
- Gate 6 - located on the Bypass Rd
- Gate 7 - located at the eastern end of Iran Rd

The study set down the maximum processing time for vehicles (**Table 2**) and lane configuration at each gate (**Table 3**)

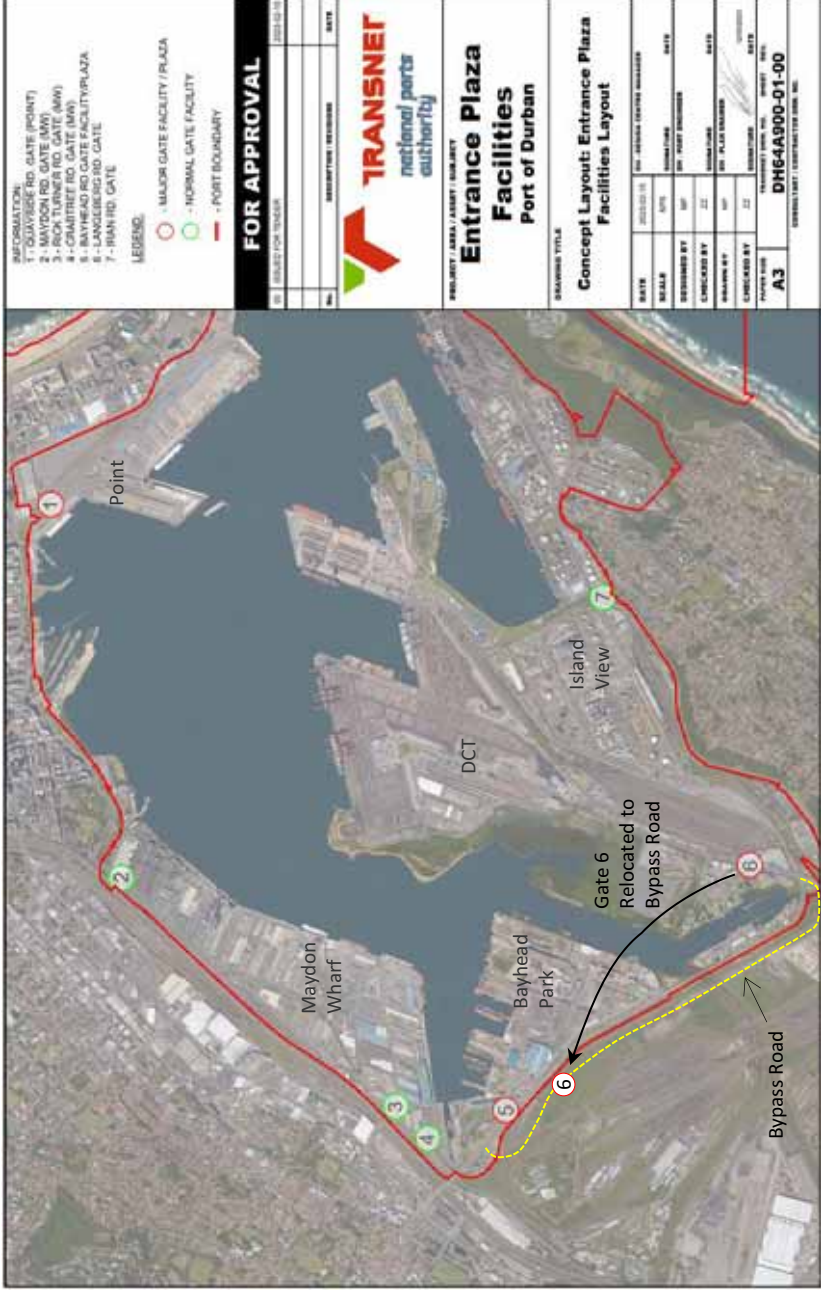
The study further estimated that by 2039 (4,6m TEUs at DCT), the second port entrance will be required as the Bayhead Rd/Bypass Rd intersection will not be able to accommodate the anticipated traffic demand.

Table 2: Summary of service rates used in Study

Vehicle Type	Service Rate(s)	Standard Deviation (s)
Trucks	40	10
Staff	8-10	2
Visitors/PT	20	5

Table 3: inbound and outbound gate lanes

Gate Number	Inbound	Outbound
5	4	4
6	4	0



4. PREVIOUS STUDIES

Maydon Wharf Deproclamation TIA, 2020, Gibb Engineering and Architecture

This study looked at the impact of closing Maydon Rd to public traffic and reserving it for Port related traffic only.

The study identified that to support this closure, upgrades would be required at the Umbilo Rd and Farimond Rd intersection as shown in the adjacent image.



5. PLANNED ROAD UPGRADES

ETA has completed the conceptual design for proposed upgrade of South Coast Road between M7 and Bayhead Road. These designs will be considered in the analysis.

The upgrade will see South Coast Road being upgraded to a four lane dual carriageway road (2+2) between Bayhead Road and Edwin Swales Drive.

According to the information received from ETA, this upgrade is planned for the 2026/2027 financial year.



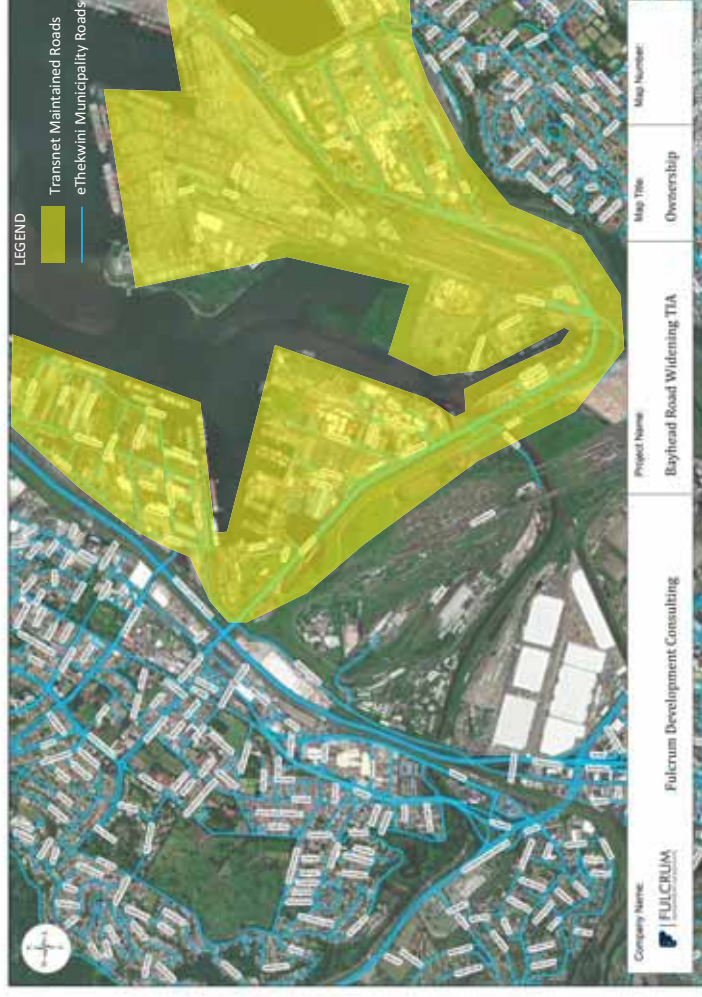
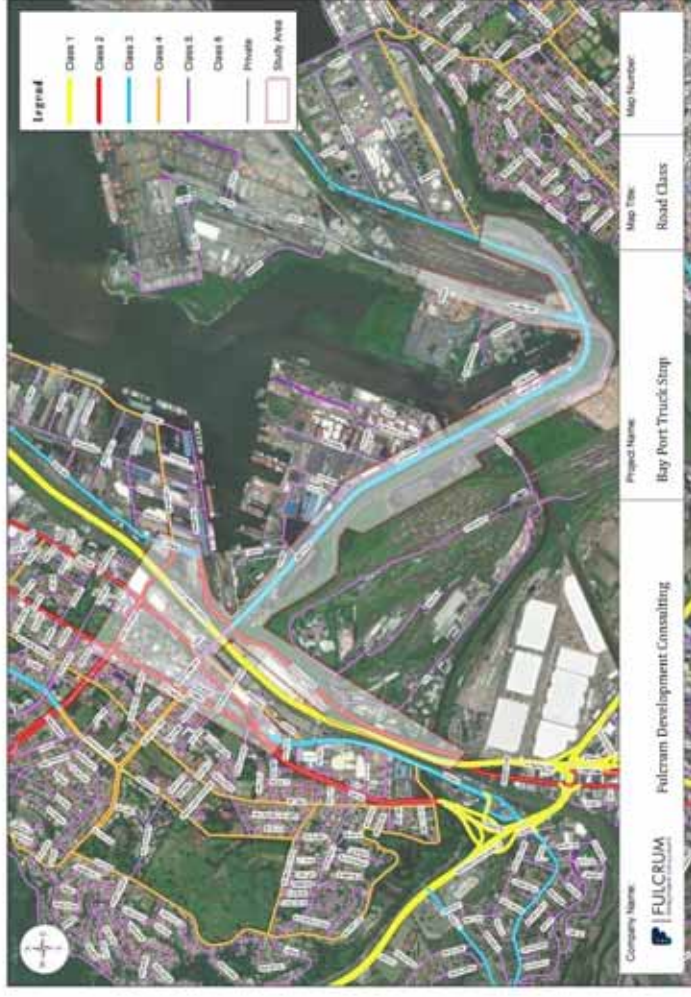
6. BACKGROUND INFORMATION

Road Classification

The classification of roads surrounding the Port of Durban was determined using the eThekweni Municipal online GIS.

Road Ownership

The roads within the yellow hatched area in the ownership map are Transnet maintained roads. The remaining roads belong to the eThekweni Municipality.



7. 2025 BASE YEAR VOLUMES

Twelve hour classified traffic counts were undertaken at all 17 intersections within the study area on the 19th November 2024, apart from intersections 13 Bayhead Rd and Belfast Rd and intersection 14 Bayhead Rd and Rotterdam Rd. Counts undertaken earlier in 2024 were used at these two intersections.

The traffic counts were analysed and the AM, Midday and PM classified peak hour volumes were extracted and presented in **Figures 1 to 3**.

The respective peak hours are as follows:

- AM Peak hour 06:45 to 07:45
- Midday Peak hour 11:45 to 12:45
- PM Peak Hour 16:45 to 17:45

The classified traffic count data was converted to Passenger Car Unit (PCU) volumes by applying a PCU factor of 3 for trucks and PCU Factor of 2 for buses.

The traffic volumes along Bayhead Rd and Glastonbury Rd were balanced in both directions between Umbilo Rd and Langeberg Rd.



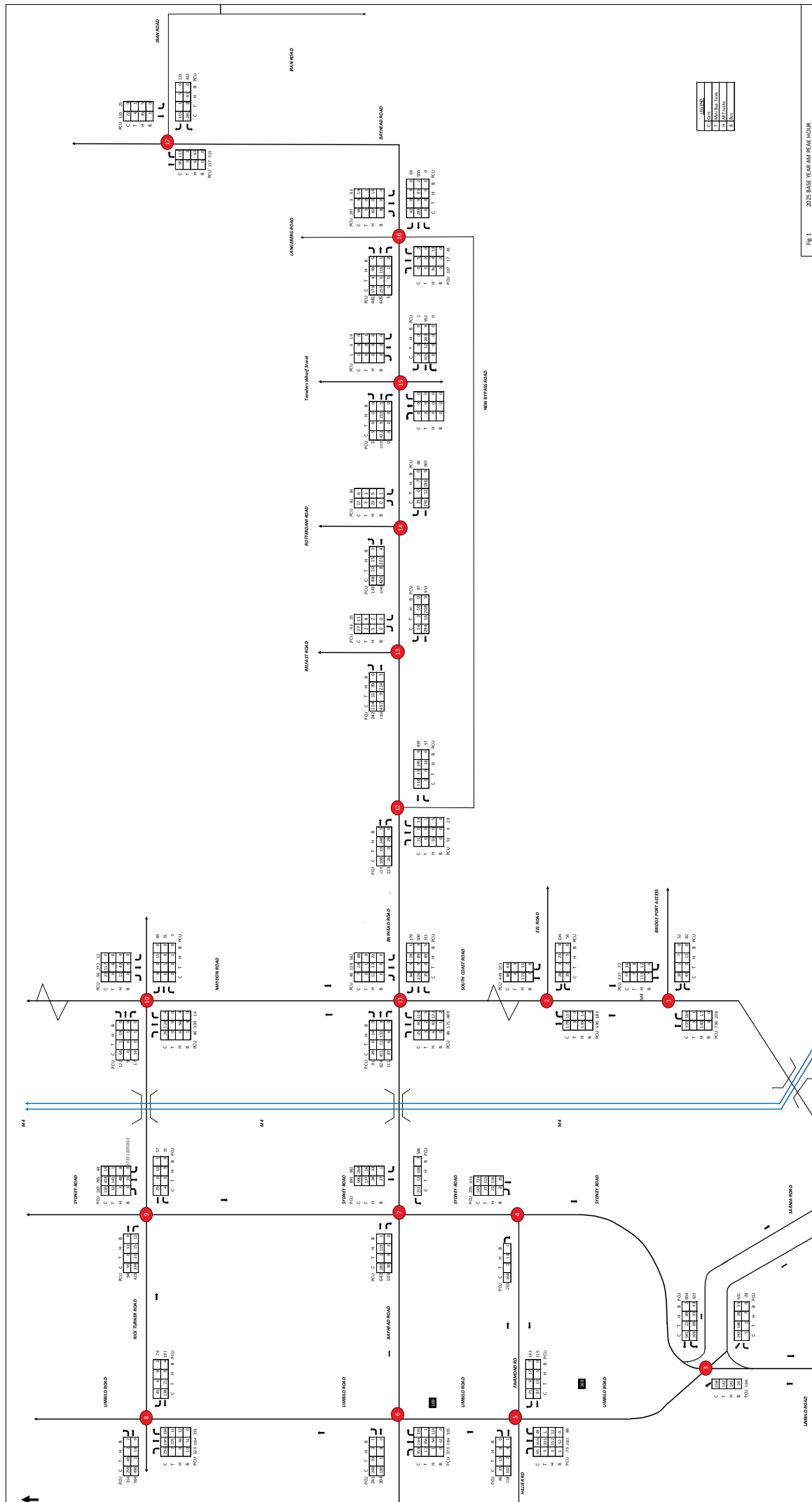


Fig 1 2025 BASE YEAR AM PEAK HOUR

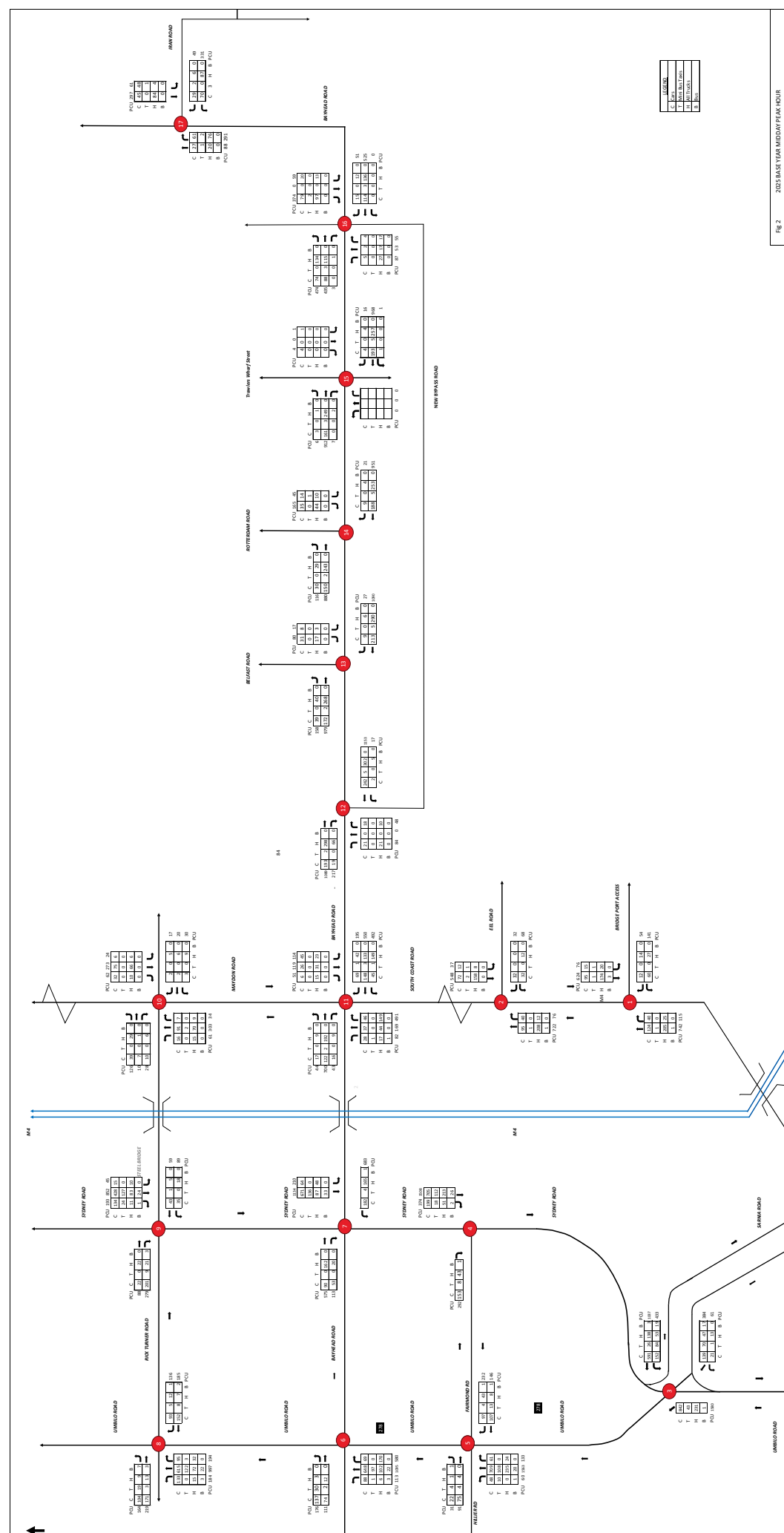


Fig 2 2025 BASE YEAR MIDDAY PEAK HOUR

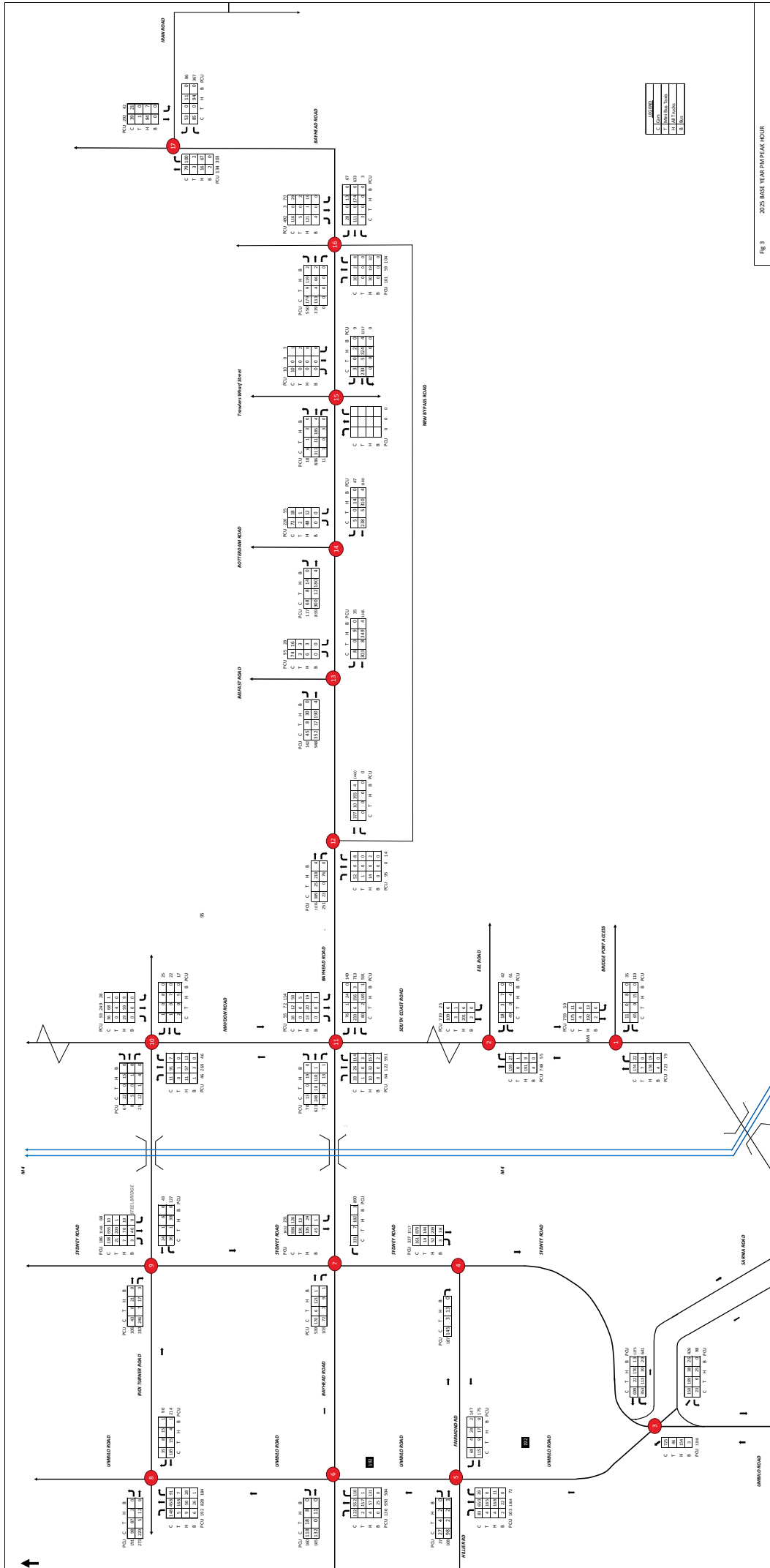


Fig 3 2025 BASE YEAR PM PEAK HOUR

8. DEMAND FORECAST

As discussed in Section 3, a total of 4 scenarios were developed by Transnet in the Container Forecast Model. For this TIA, only Scenario 1 was considered as this is the closest representation of the existing.

- Scenario 1 - The increase in demand is captured by the rail capacity increase. Slight increase in road demand.

In Scenario 1, for the horizon years, a higher-than-normal rail modal split was considered in the Arup Model to understand the requirements and impacts on the rail network. The rail modal split was grown incrementally over the 30-year period.

As shown in **Table 4**, the 2020 rail modal share was 14%. By 2032 the rail modal share increases to 23% and by 2036 the rail modal share increases to 30%.

However, for this TIA, a more conservative approach was taken. It assumed that the rail mode share in 2032 and 2036 will remain at 14% and is referred to as the Low Rail Scenario.

Growth Factor

In order to estimate the future demand, a growth factor was applied to the 2025 base year traffic volumes.

To calculate the growth factors, the following approach was taken (see **Table 5**):

- The car, bus and minibus taxi traffic was calculated by applying a 2% growth factor per annum.
- Truck traffic - the horizon year rail modal split was replaced with the current modal split in the Transnet model (scenario 1) to calculate the growth factor for trucks for the Low Rail scenario (14%). It is estimated that in 2032 (3,0m TEUs at DCT) the existing truck traffic will increase by a net 21% (of a **2,3m TEU base**). By 2036 (4,2m TEUs at DCT), the truck volumes will increase by a net 64% (of a **2,3m TEU base**). **These net growth factors were applied to all trucks in the study area (DCT and Island View)**. Refer to **Appendix A** for further details on growth factor calculations.

Inbound and Outbound Volumes at DCT

The inbound and outbound peak hour truck volumes into and out of DCT in 2032 and 2036 are shown in **Tables 6 and 7**, respectively. The tables also include the volumes to and from Island View.



Table 4: Comparison of Rail Modal Share from Transnet Scenario 1 and this TIA

Scenario	2020 Rail Modal Share	2032 Rail Modal Share	2036 Rail Modal Share
Transnet's Scenario 1	14%	23%	30%
Bayhead Rd Widening TIA – Low Rail Share	14%	14%	14%

Table 5: Growth Factors

Mode/ Area	Scenario 1 – 2032 LR with Gates	Scenario 2 – 2032 LR without Gates	Scenario 2 – 2036 LR with Gates
Cars, bus, MBTs	2% per annum	2% per annum	2% per annum
Trucks	21%	21%	64%

Table 6: 2032 Inbound and Outbound Volumes at DCT and Island View

Peak Hour	Direction	Pier 1	Pier 2	DCT TOTAL	Island View
AM	Inbound	97	133	230	81
	Outbound	64	118	182	50
MID	Inbound	109	171	279	92
	Outbound	74	134	207	105
PM	Inbound	95	140	235	81
	Outbound	113	162	275	114
* The peak hour truck demand using the Arup conversion factor is 290 trucks/hour for a 24 hour operation					

Table 7: 2036 Inbound and Outbound Volumes at DCT and Island View

Peak Hour	Direction	Pier 1	Pier 2	DCT TOTAL	Island View
AM	Inbound	131	181	312	110
	Outbound	87	160	247	67
MID	Inbound	147	232	379	125
	Outbound	100	181	281	143
PM	Inbound	129	189	318	110
	Outbound	153	220	373	154
* The peak hour truck demand using the Arup conversion factor is 393 trucks/hour for a 24 hour operation					



9. SCENARIOS ASSESSED

The scenarios assessed in this TIA were based on the Transnet container demand model, the rail mode share, the Bayhead Rd widening project, the South Coast Road Widening project and the new Transnet Entrance Plaza Gates. In light of this, the following scenarios were assessed:

- Base year 2025 (2,3m TEUs at DCT – the lower estimate enables the testing of more challenging scenarios)
- Scenario 1 – 2032 Low Rail Share with Transnet’s Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades
- Scenario 2 – 2032 Low Rail Share without Transnet’s Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades
- Scenario 3 – 2036 Low Rail Share with Transnet’s Entrance Gates (4,2m TEUs at DCT) with Bayhead Rd or South Coast Rd Upgrades

Table 8 contains a summary of the scenarios analysed

Table 8: Summary of Scenarios

Scenario	Year	TEUs at DCT	Transnet Entrance Gates	Rail Share	Bayhead Rd Upgrades	South Coast Rd Upgrades
Base year	2025	2,3m	No	14%	No	No
Scenario 1	2032	3,0m	Yes			
Scenario 2	2032		No			
Scenario 3	2036	4,2m	Yes		Yes	Yes

10. HORIZON YEAR VOLUMES

Scenario 1 – 2032 Low Rail Share with Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades

The Scenario 1 traffic volumes are presented in **Figures 4 to 6**.

The car, bus and minibus taxi traffic was calculated by applying a 2% growth factor per annum. The truck traffic was increased by a net 21%.

To account for the new Entrance Gates, 50% of the traffic traveling to Langeberg Rd and eastwards (inbound traffic only) were reassigned to the new Bypass Road. This is based on the analysis undertaken for the Transnet Entrance Plaza Gates Project.

The percentage trip assignment and the additional traffic volumes ("development traffic") can be found in **Appendix D**.

Scenario 2 – 2032 Low Rail Share without Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades

The Scenario 2 traffic volumes are presented in **Figures 7 to 9**.

The car, bus and minibus taxi traffic was calculated by applying a 2% growth factor per annum. The truck traffic was increased by a net 21%.

In this scenario there are no Entrance gates in place. Therefore, no reassignment was done.

The percentage trip assignment and the additional traffic volumes ("development traffic") can be found in **Appendix D**.

Scenario 3 – 2036 Low Rail Share with Transnet's Entrance Gates (4,2m TEUs at DCT) with Bayhead Rd or South Coast Rd Upgrades

The Scenario 1 traffic volumes are presented in **Figures 10 to 12**.

The car, bus and minibus taxi traffic was calculated by applying a 2% growth factor per annum. The truck traffic was increased by a net 64%.

To account for the new Entrance Gates, 50% of the traffic traveling to Langeberg Rd and eastwards (inbound traffic only) were reassigned to the new Bypass Road. This is based on the analysis undertaken for the Transnet Entrance Plaza Gates Project.

The indicative percentage trip assignment and the additional traffic volumes ("development traffic") can be found in **Appendix D**.



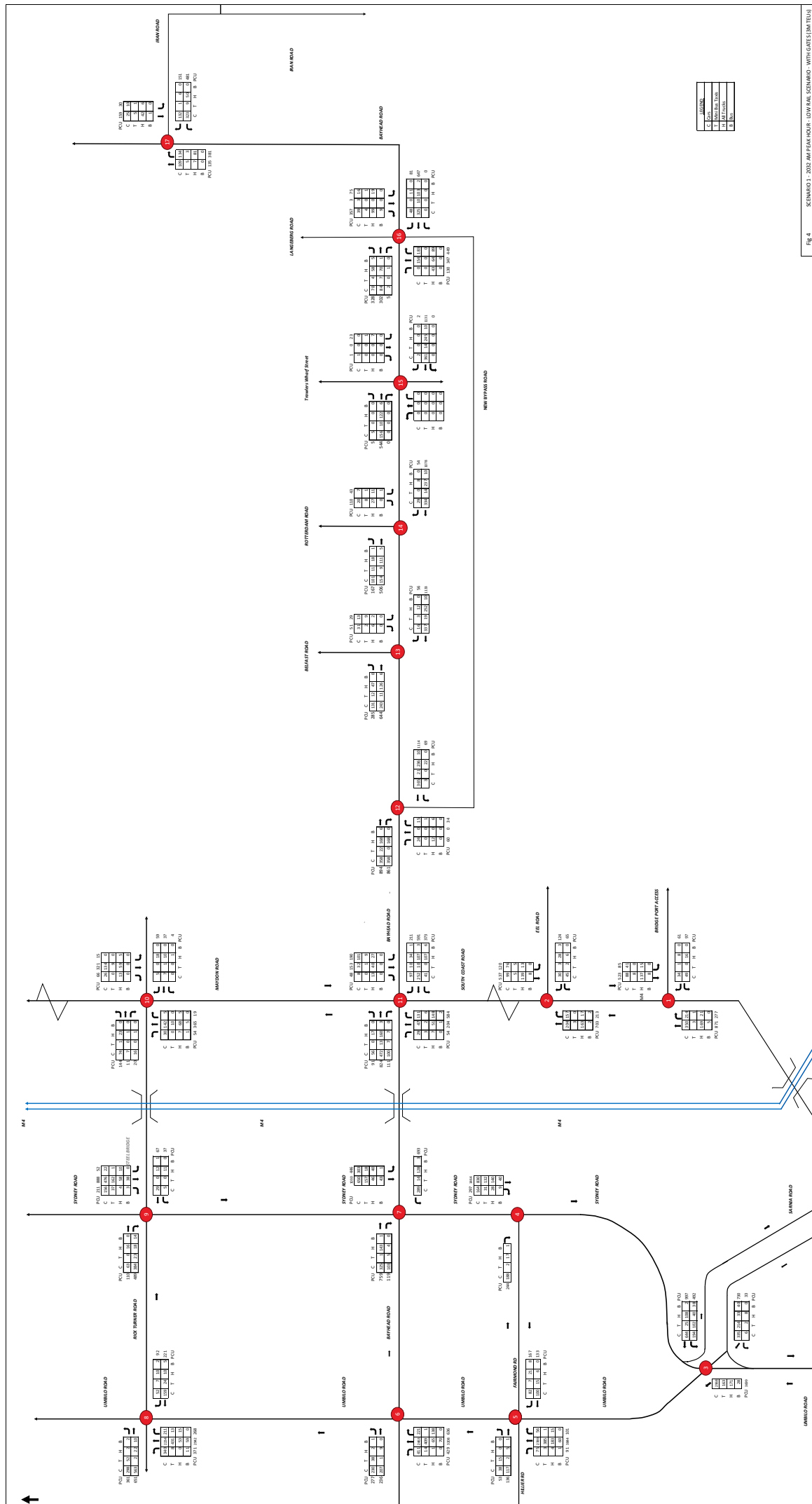


Fig 4 SCENARIO 1 - 2032 AM PEAK HOUR - LOW RAIL SCENARIO - WITH GATES (3M TEUs)

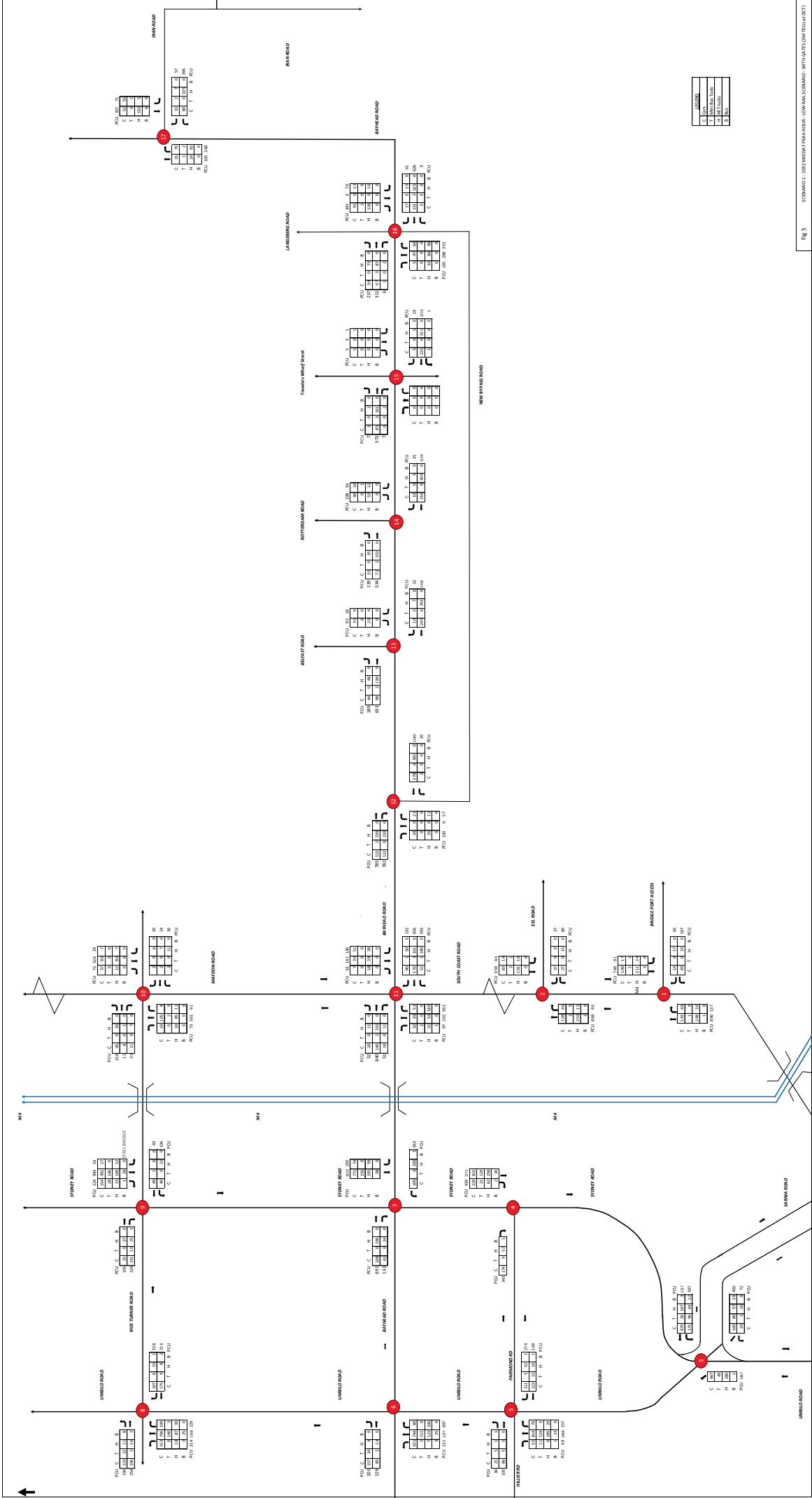


Fig 5 SCENARIO 1 - 2023 MIDWAY PAVEMENT - LOW RAIL SCENARIO - WITH GATES (M11 to A10)

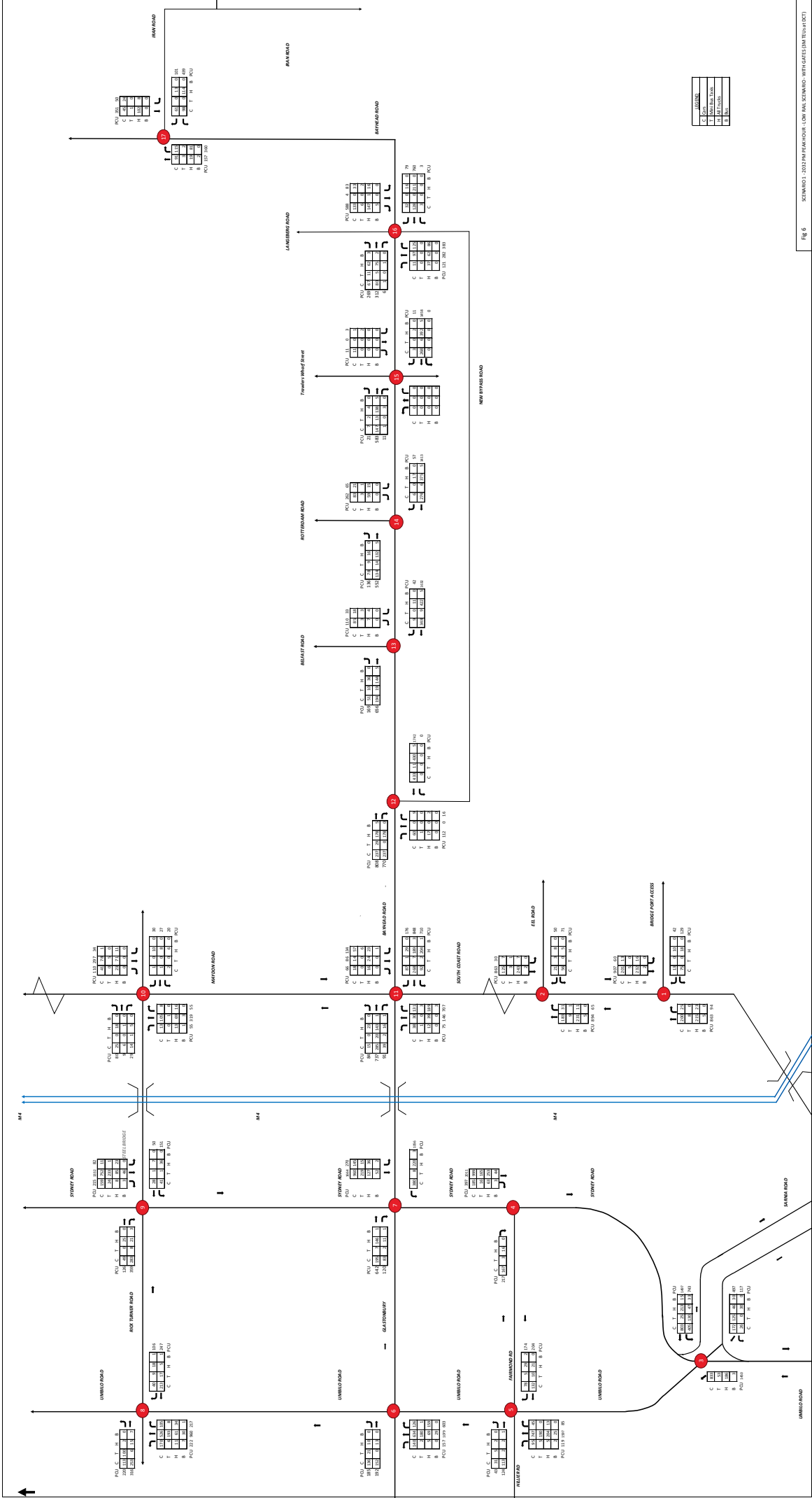


Fig 6 SCENARIO 1 - 2022 PM PEAK HOUR - LOW ARIAL SCENARIO - WITH GATES (SW TURN LEFT)

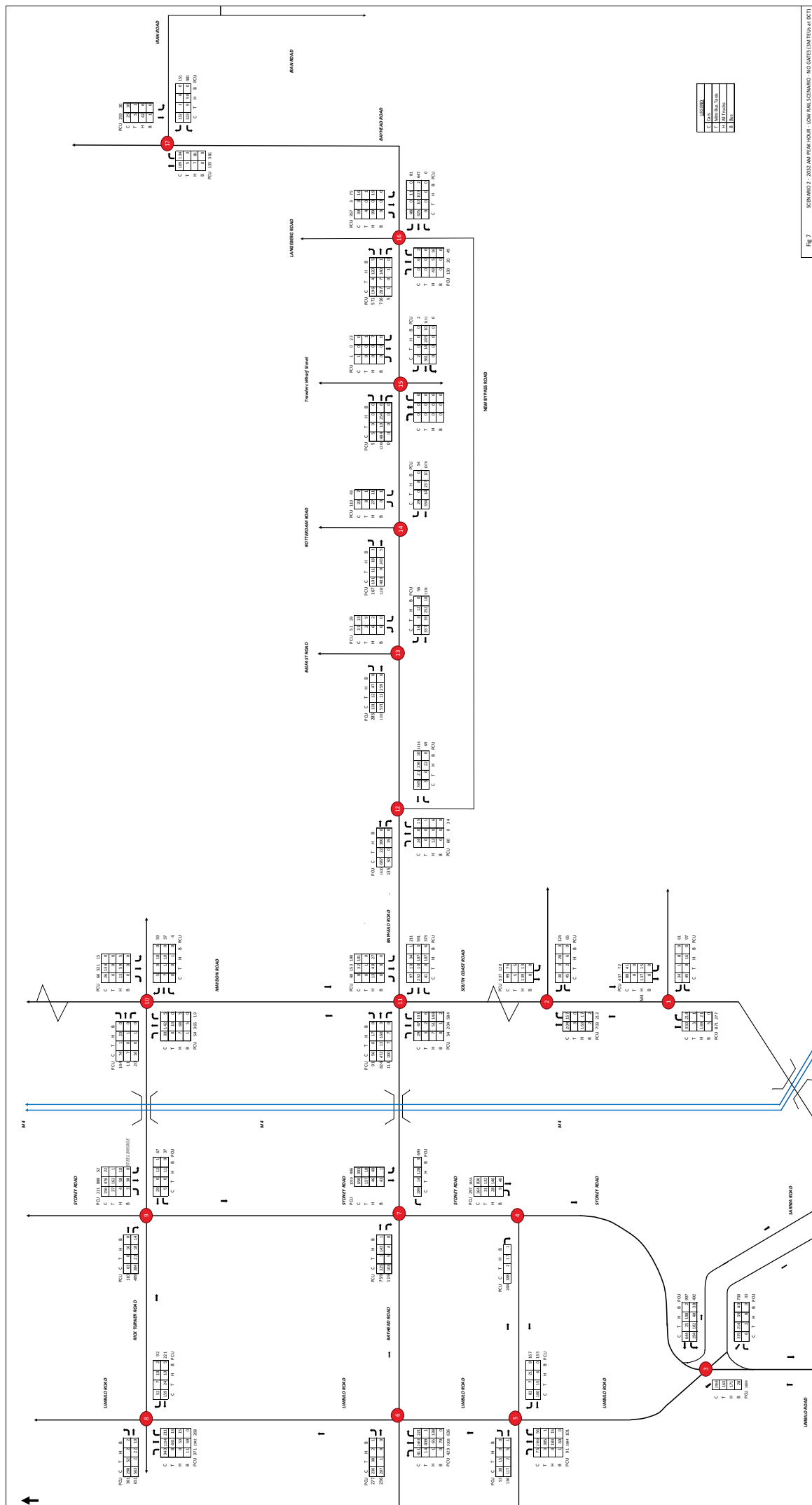
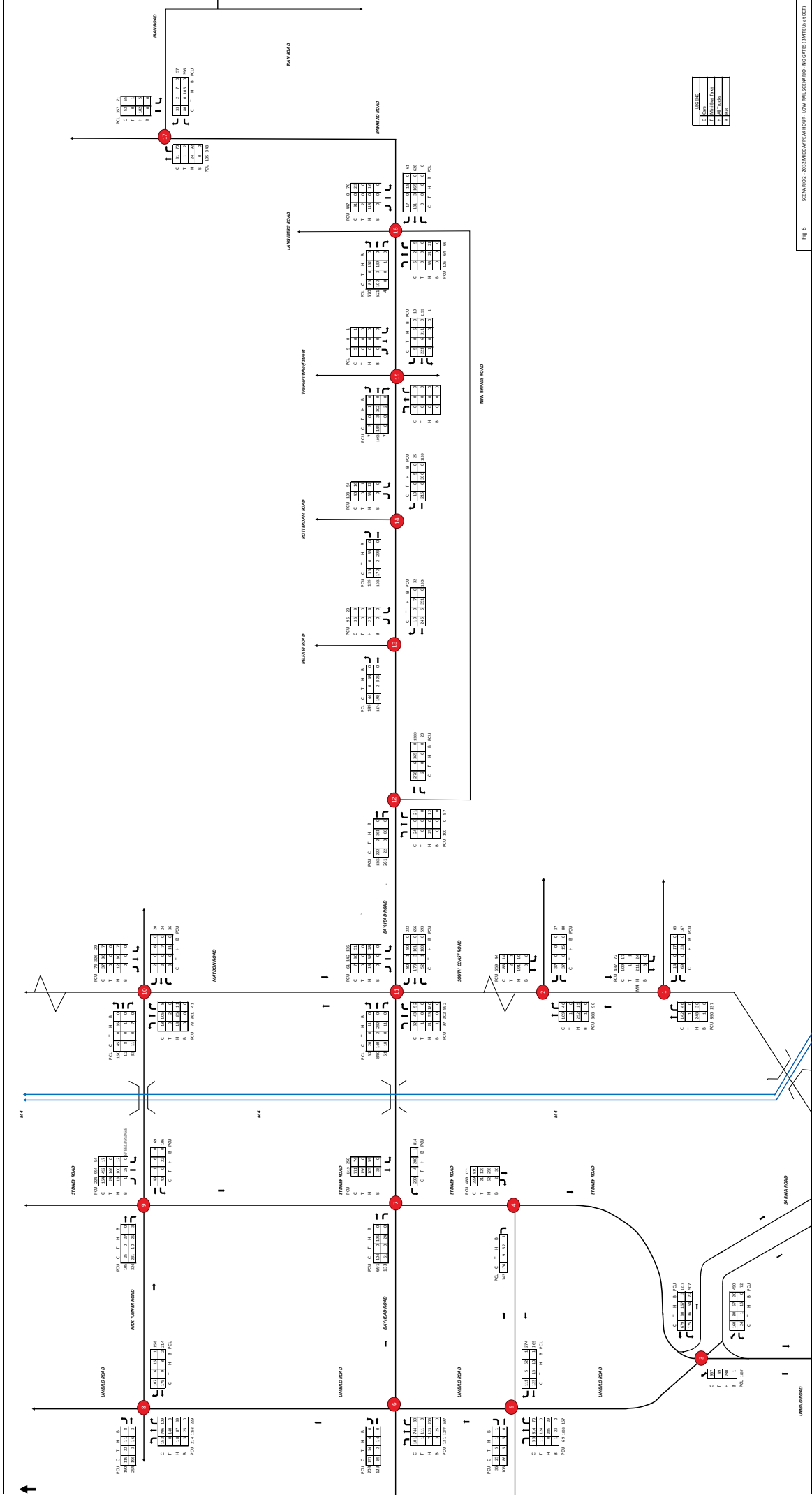


Fig 7

SCENARIO 2 - 2032 AM PEAK HOUR - LOW RAIL SCENARIO - NO GATES (3M TFLs at DCT)



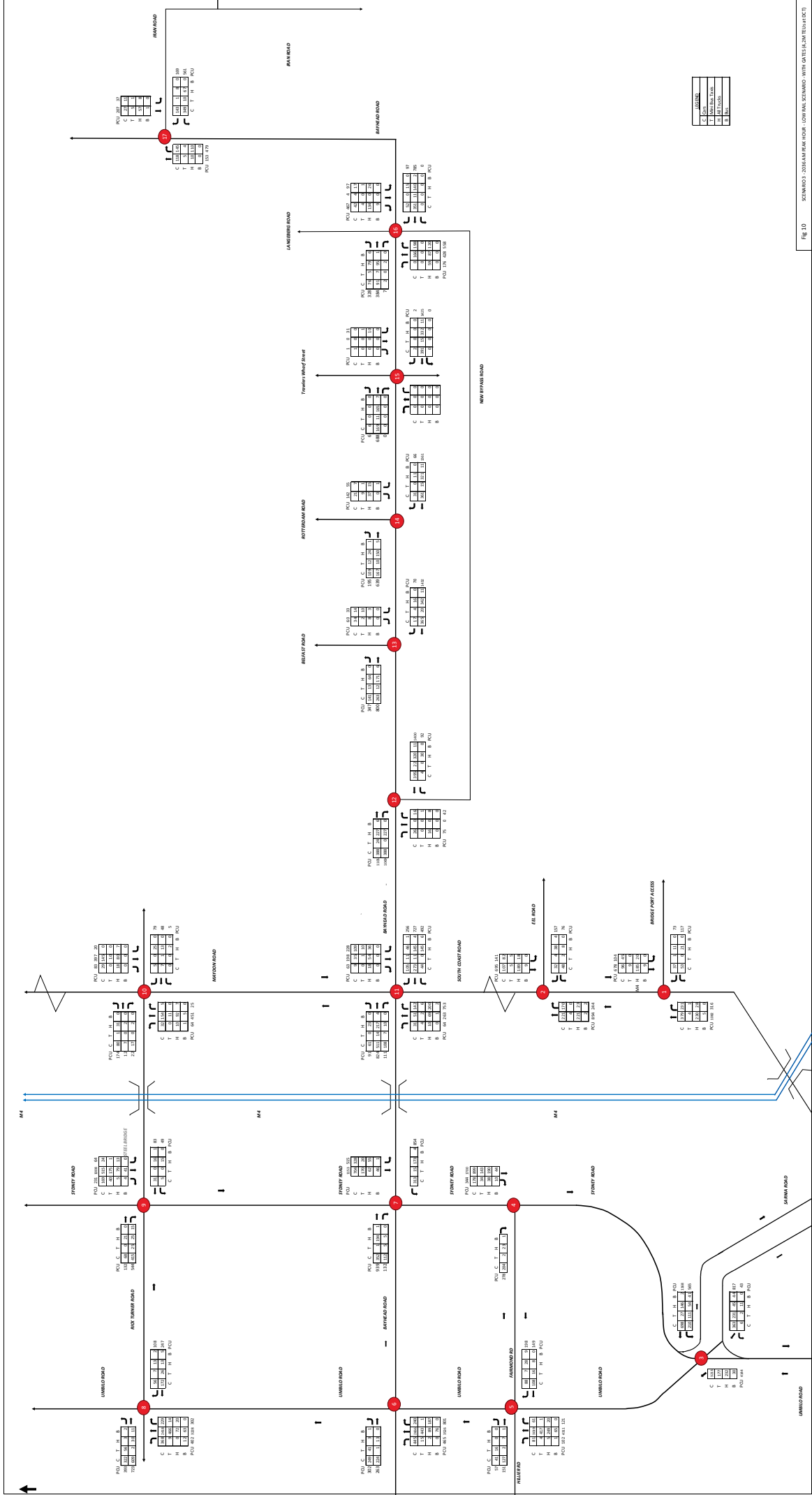


Fig 10 SCENARIO 1 - 2025 AN FRA HOUR - LOW RAIL SCENARIO - WITH GATES (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z)

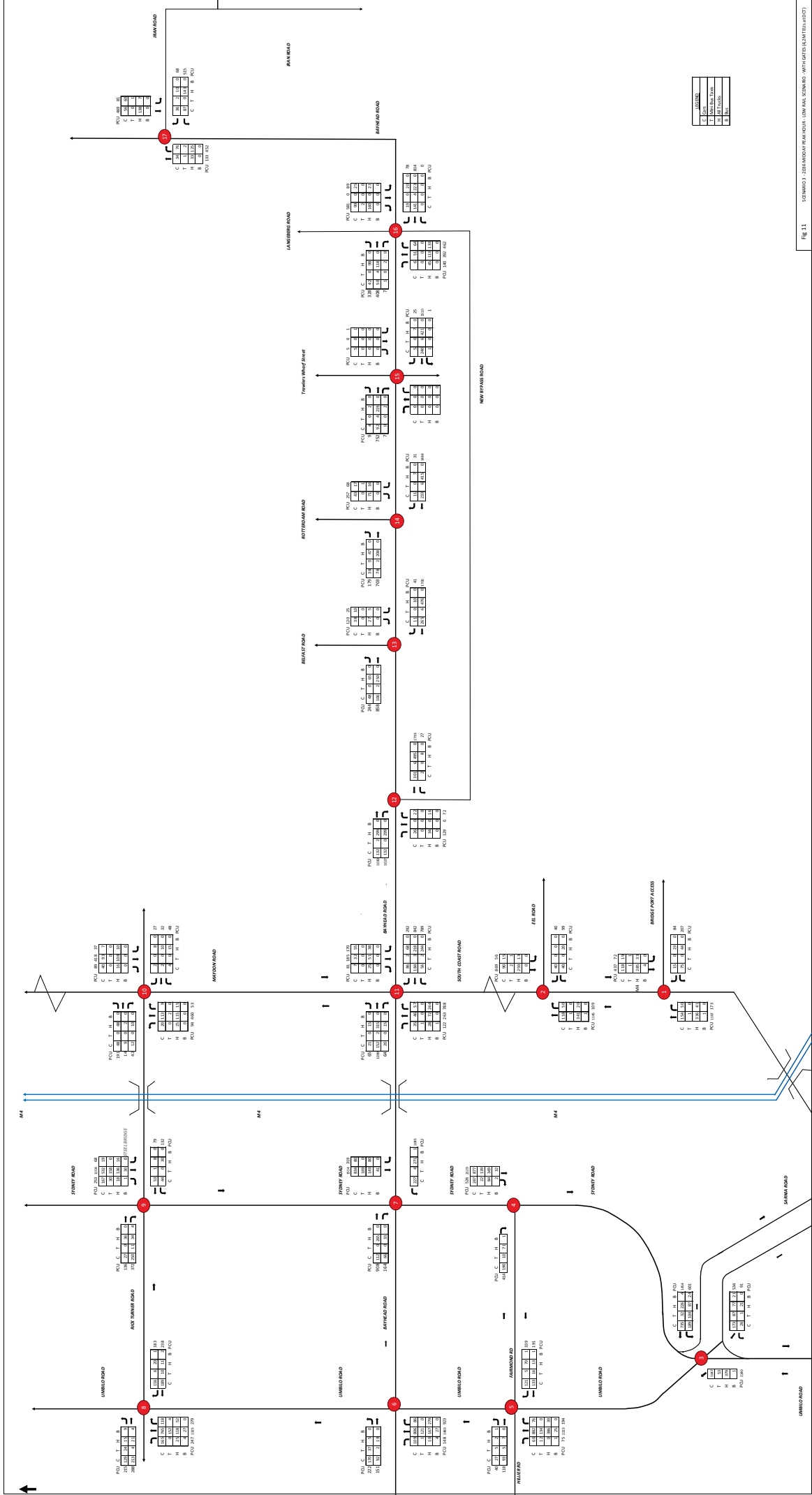


Fig 11 SCENARIO 3 - 2036 AMTOWN ROAD - LOW RAIL SCENARIO - WITH GATES (LANTERN JUNCTION)

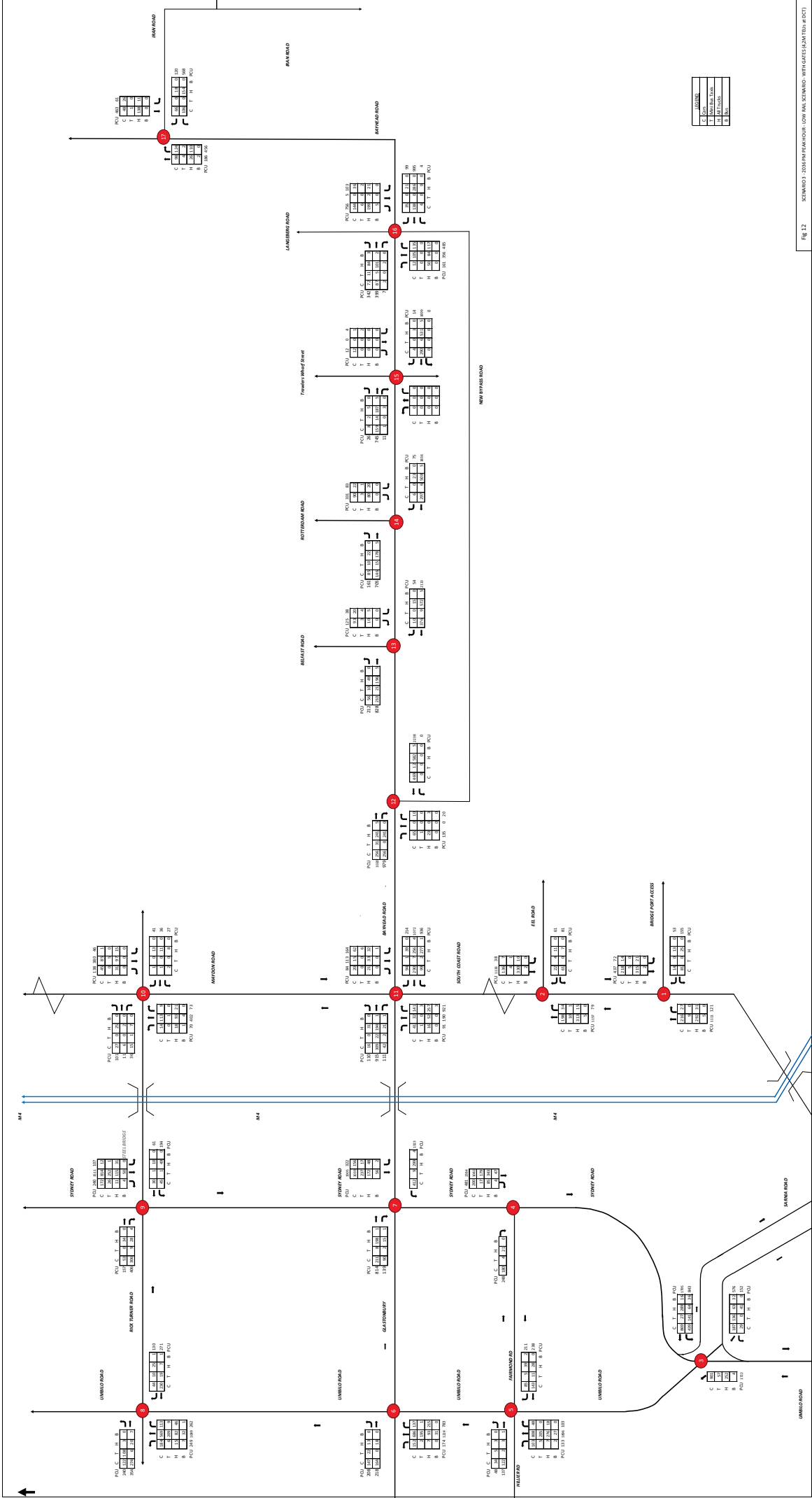


Fig 12 SCENARIO 3 - 2025 PM PEAK HOUR - LOW RISE SCENARIO - WITH GATES (A21 TO A100)

11. RESULTS

Three sets of analysis was undertaken for the study area. Intersection analysis was undertaken using Sidra v9. A V/C analysis was undertaken for the main links in the area. For this study, the single lane capacity used was 1320pcus/lane for 60km/h road.

A segment analysis was also undertaken for Bayhead Rd, South Coast Rd, Umbilo Rd and Sydney Rd.

The following sections provide a summary of the key findings.

11.1 2025 Base Year (2.3 TEUs at DCT)

Intersection Analysis

The base year analysis shows that all the intersections in the study area operate at an acceptable LOS during the AM, Midday and PM peak hours apart from the following four intersections:

- Intersection 1 – South Coast Rd and Bridge Port Access Road. -

The delays are experienced on the north approach during the PM Peak hour.

- Intersection 11 – Bayhead Rd, South Coast Rd and Maydon Rd intersection. The delays are experienced on the west approach during all three analysis periods.
- Intersection 12 – Bayhead Rd and Bypass Rd intersection. The delays are experienced on the east and south approaches.
- Intersection 16 – Bayhead Rd and Langeberg Rd. Delays experienced during the AM and PM peak hours

The detailed sidra results can be found in **Appendix B**.

V/C Analysis

The V/C analysis for the study area indicates that all links operate within the respective capacity. The highest V/C ratio for Bayhead Road is between South Coast Rd and the Bypass Rd intersection. In the eastbound direction the v/c is 56% in the AM peak hour and in the westbound direction the v/c ratio is 59% in the PM peak hour. South Coast Rd experiences a high northbound v/c of 74% in the AM Peak hour and a high southbound v/c of 66% in the PM peak

hour. The detailed v/c analysis and segment analysis can be found in **Appendix C1 and C2**.



Figure 1: Summary of intersection results

11. RESULTS

11.2 Scenario 1 – 2032 Low Rail Share with Transnet's Entrance Gates (3.0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades

Intersection Analysis

By 2032, the delays at Intersections 1 and 11 will continue.

In addition, minor delays will be experienced at the following intersections:

- Intersection 6 – Umbilo Rd and Glastonbury Rd during the AM peak hour. This issue can be resolved with minor signal timing adjustments.
- Intersection 8 – Umbilo Rd and Rick Turner Rd during the AM peak hour. This issue can be resolved with minor signal timing adjustments
- Intersection 9 – Sydney Rd and Rick Turner Rd during the AM and PM peak hour. This can be addressed by converting the existing through lane on the west approach to a shared through and right.

Larger delays will be experienced at the following intersections:

- Intersection 12 – Bayhead Rd and Bypass Rd. To address the previously identified road safety issue at this intersection, the intersection will need to be signalised. An additional 100m right turn lane will be needed on the west approach and an additional lane on the south departure lane.
- Intersection 16 – Bayhead Rd and Langeberg Rd. Delays will be experienced during the AM and PM peak hours. This issue was addressed by adjusting the signal timings as shown in the results in **Appendix B**.
- Intersection 17 – Bayhead Rd and Iran Rd. Delays are experienced during the AM and PM peak hours. This issue can be addressed by signalising the intersection.

Whilst localized road widening proposals may be considered for Intersection 11 – Bayhead Rd, South Coast Rd and Maydon Rd intersection it is recommended that these be deferred in favor of the Bayhead Rd widening project and South Coast Rd upgrades as this will address the issues as shown in Scenario 3.

V/C Analysis

The V/C analysis for the study area indicates that all links operate within the respective capacity. The highest V/C ratio for Bayhead Road is between South Coast Rd and the Bypass Rd intersection. In the eastbound direction the v/c is 67% in the AM peak hour and in the westbound direction the v/c ratio is 70% in the PM peak hour. The v/c ratio on the bypass road increases from less than 10% to 35% in the AM peak hour. South Coast Rd

experiences a high northbound v/c of 87% in the AM Peak hour and a high southbound v/c of 79% in the PM peak hour. The detailed v/c analysis and segment analysis can be found in **Appendix C1 and C2**.

Segment Analysis

The results of the segment analysis shows that all links within the study area operate at acceptable LOS apart from the following two:

- Eastbound movement on Bayhead Road, between Sydney Rd and South Coast Rd.
- Southbound movement on South Coast Rd, between Eel Rd and Bridge Port Access.



Figure 2: Summary of intersection results and interventions

11. RESULTS

11.3 Scenario 2 – 2032 Low Rail Share without Transnet's Entrance Gates (3.0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades

Intersection Analysis

For this scenario, only Intersections 12 to 16 will be different from Scenario 1.

- Intersection 12 – Bayhead Rd and Bypass Rd. To address the previously identified road safety issue at this intersection, the intersection will need to be signalised.
- Intersection 16 – Bayhead Rd and Langeberg Rd. Delays will be experienced during the AM and PM peak hours. This issue was addressed by adjusting the signal timings as shown in the results in **Appendix B**.

The remaining upgrades identified in *Scenario 1 – 2032 Low Rail Share with Transnet's Entrance Gates (3.0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades* should be implemented.

V/C Analysis

The V/C analysis for the study area indicates that all links operate within the respective capacity.

The highest V/C ratio for Bayhead Road is between South Coast Rd and the Bypass Rd intersection. In the eastbound direction the v/c is 67% in the AM peak hour and in the westbound direction the v/c ratio is 70% in the PM peak hour. In this scenario, the v/c ratio on Bayhead Rd east of the Bypass road is higher than Scenario 1 whilst the v/c ratio on the bypass road reduces and is not more than 12%.

The v/c ratio on South Coast Rd is the same as Scenario 1. The detailed v/c analysis and segment analysis can be found in **Appendix C1 and C2**.

Segment Analysis

The results of the segment analysis shows that all links within the study area operate at acceptable LOS apart from the following two:

- Eastbound movement on Bayhead Road, between Sydney Rd and South Coast Rd.
- Southbound movement on South Coast Rd, between Eel Rd and Bridge Port Access.

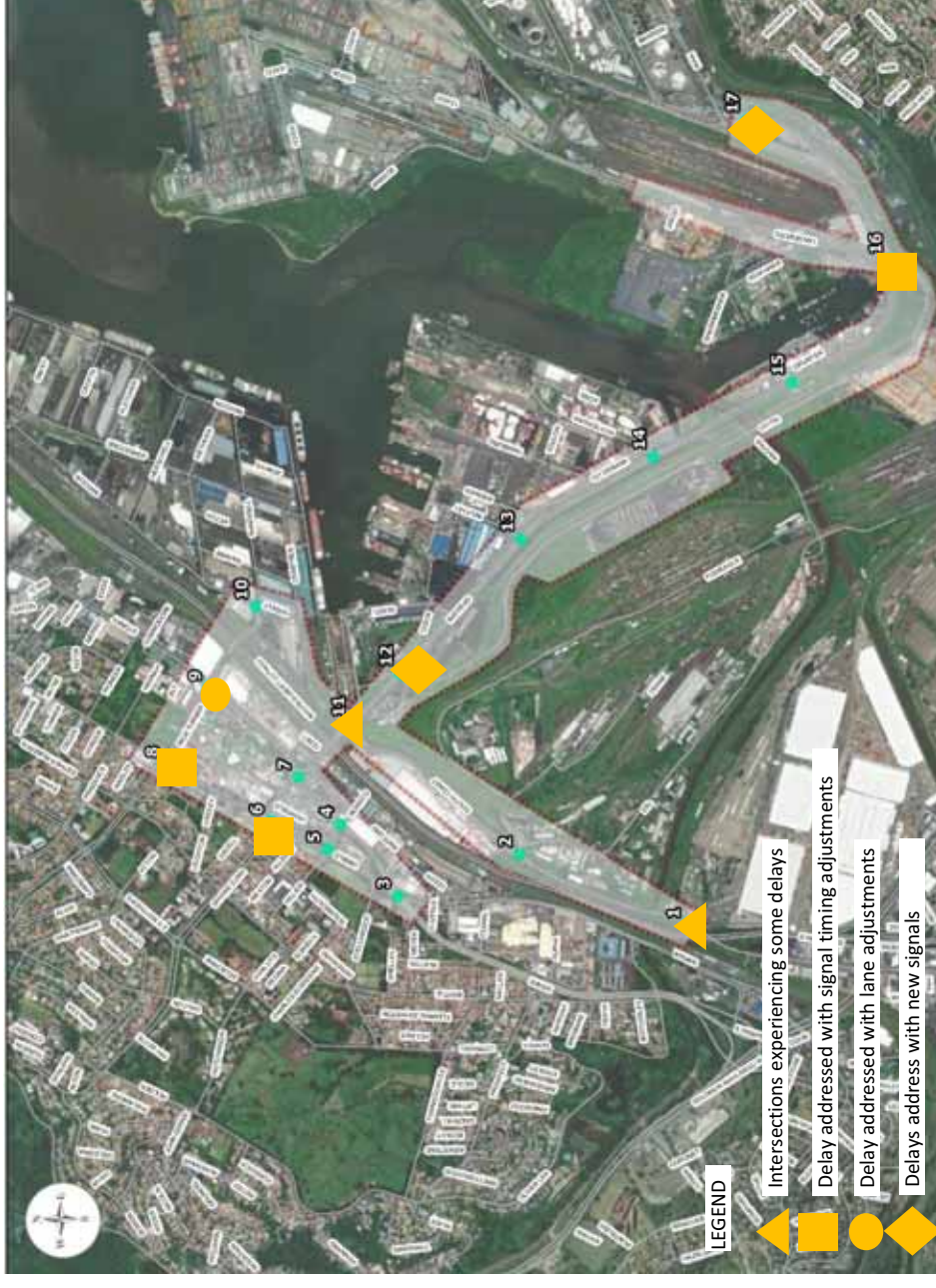


Figure 3: Summary of intersection results and interventions

11. RESULTS

11.4 Scenario 3 – 2036 Low Rail Share with Transnet's Entrance Gates (4,2m TEUs at DCT) with Bayhead Rd or South Coast Rd Upgrades

Intersection Analysis

The construction of an additional lane on Bayhead Road, between South Coast Road and Langeberg Rd, to create a 3+3 cross section and the upgrade of South Coast to a 2+2 cross-section between Bayhead Rd and Edwin Swales Drive will accommodate the 2036 (4,2m TEUs at DCT) traffic demand. The prevailing delays at Intersection 1 – South Coast Rd and Bridge Port Access Road and Intersection 11 – Bayhead Rd, South Coast Rd and Maydon Rd intersection will be addressed.

Intersection 12 – Bayhead Rd and Bypass Rd, which requires signalization, will also require an additional 100m right turn lane on the west approach and an additional lane on the south departure lane.

Intersection 16 – Bayhead Rd and Langeberg Rd will require a 300m departure lane on the north, two dedicated right turn lanes from the north plus a 100m shared through and left turn lane, a 75m short through lane from the east and the conversion of a through lane from the west to a through and left.

Some localized widening is required at Intersection 5 – Umbilo Rd/Farimond Rd intersection as per the Gibb Maydon Wharf Study. In addition, traffic signal adjustments and lane marking adjustments are needed along selected intersections on Umbilo Rd and Sydney Road as summarized in the respective tables in **Appendix B**.

Beyond 2036 (4,2m TEUs at DCT), it is recommended that the 2nd Port Access is implemented as Intersection 11 - Bayhead Rd, South Coast Rd and Maydon Rd and Intersections 12 - Bayhead Rd and Bypass Rd will be operating close to capacity.

V/C Analysis

The V/C analysis for the study area indicates that all links operate within the respective capacity. The highest V/C ratio for Bayhead Road is between South Coast Rd and the Bypass

Rd intersection. In the eastbound direction the v/c is 50% in the AM peak hour and in the westbound direction the v/c ratio is 60% in the PM peak hour.

South Coast Rd does not experience a v/c ratio of higher than 55% in any direction. The detailed v/c analysis and segment analysis can be found in **Appendix C1 and C2**.

Segment Analysis

The results of the segment analysis show that with the additional lane on Bayhead Rd and South Coast Rd, all links within the study area operate at acceptable LOS.

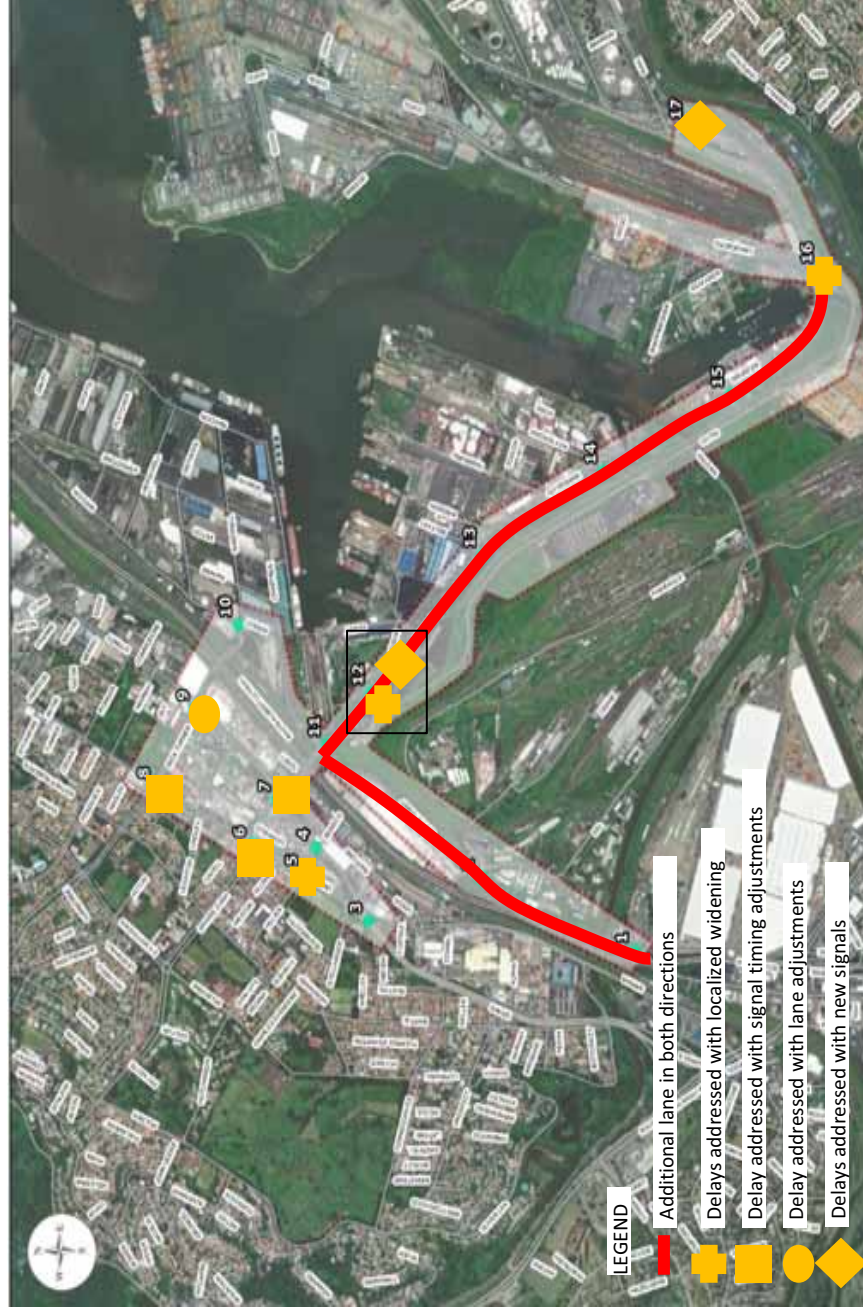


Figure 4: Summary of intersection results and interventions

12. COST CONTRIBUTION – PORT AND CITY TRAFFIC

The 2025 traffic counts were assessed to determine the percentage of city traffic and port traffic on Umbilo Road, Sydney Road and South Coast Road. For this assessment the AM, PM and Midday peak hour PCU traffic volumes were used.

For Umbilo Rd, selected turn movements at the Glastonbury Rd intersection were considered. The through movement from the south was assumed as port traffic and the right turn was considered as port traffic as shown in **Figure 5**.

For Sydney Rd, selected turn movements at the Glastonbury Rd intersection were considered. The through movement from the north and right turn from west were assumed as City Traffic and the left turn from east was considered as port traffic as shown in **Figure 6**.

For South Coast Road, selected turn movements at the Bayhead Rd intersection were considered. The left turn from the south and the right turn from the west were assumed as City Traffic and the left turn from east, the through movements in both directions along South Coast Rd and the right turn from the south were all considered as port traffic as shown in **Figure 7**.

The traffic volumes were extracted and the sum of the three periods was used to calculate the splits as shown in **Table 9**.

The analysis shows that 77% of Umbilo Rd traffic may be considered as City Traffic, 64% of Sydney Rd traffic may be considered as City Traffic and 10% of South Coast Rd traffic may be considered as City Traffic.

This breakdown provided may serve as a foundation for collaboration between eThekwin Municipality and Transnet in establishing the final contributions for the upgrades to South Coast Road, Umbilo Road, and Sydney Road.

*Please note, this proposal excludes any previous agreements signed between the eThekwin Municipality and Transnet, such as the Maydon Road Deproclamation Memorandum of Agreement (MOA). This MOA, amongst other items, confirms that Intersection 5 – Umbilo Rd/Farimond Rd intersection is to be upgraded at Transnet’s cost. A copy of this MOA can be found in **Appendix E**.*

Table 9: Traffic Splits

Road	AM		Midday		PM		TOTAL		% Split	
	City Traffic	Port Traffic	City Traffic	Port Traffic	City Traffic	Port Traffic	City Traffic	Port Traffic	City Traffic	Port Traffic
Umbilo Road	3157	535	1208	580	1066	504	5431	1619	77%	23%
Sydney Road	994	586	1247	683	1535	890	3776	2159	64%	36%
South Coast Road	157	1099	125	1272	141	1376	423	3746	10%	90%



Figure 5: Umbilo Road Movements



Figure 6: Sydney Road Movements

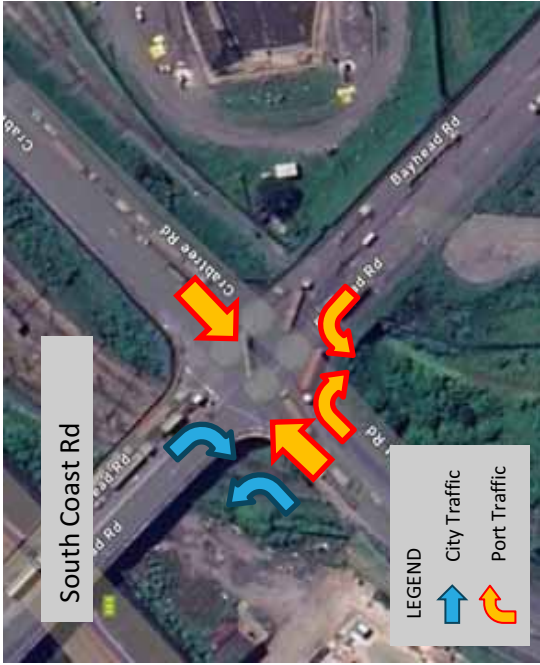


Figure 7: South Coast Road Movements



13. IMPACTS OF A HIGH RAIL MODAL SHARE

The analysis undertaken in this traffic impact study assumed a “business as usual” rail modal share of 14%.

This allowed the team to assess a worst case scenario.

Notwithstanding the above, a qualitative assessment was undertaken to assess the impact of higher rail modal share for the 2036 scenario. In this regard, two scenarios were considered:

1. Rail Modal Share – 22%
2. Rail Modal Share – 30%

It is generally observed that an increase in rail modal share correlates with a reduction in truck traffic. Consequently, a higher rail modal share is expected to enhance the traffic capacity of Bayhead Road beyond 2036, particularly at Intersection 11 - Bayhead Road, South Coast Road, and Maydon Road, as well as at Intersection 12 - Bayhead Road and Bypass Road.

Rail Modal Share - 22%

A high-level assessment was undertaken using the TEU and truck growth data. It is estimated that with a rail modal share of 22% the capacity on Bayhead Rd could be extended by another 4 years beyond 2036.

Rail Modal Share - 30%

A high-level assessment was undertaken using the TEU and truck growth data. It is estimated that with a rail modal share of 30% the capacity on Bayhead Rd could be extended by another 7 years beyond 2036.

14. PRELIMINARY CONCLUSION AND RECOMMENDATIONS

Base Year

The base year 2025 analysis shows that presently delays are experienced at Intersection 1 – South Coast Rd and Bridge Port Access Road, Intersection 11 – Bayhead Rd, South Coast Rd and Maydon Rd intersection, Intersection 12 – Bayhead Rd and Bypass Rd intersection and Intersection 16 – Bayhead Rd and Langeberg Rd.

Scenario 1 – 2032 Low Rail Share with Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd

To accommodate for *Scenario 1 – 2032 Low Rail Share with Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades*, traffic signal adjustments and lane marking adjustments are needed along selected intersections on Umbilo Rd and Sydney Road.

Intersection 12 – Bayhead Rd and Bypass Rd will require signalization and other localized road widenings.

The signal timings at Intersection 16 – Bayhead Rd and Langeberg Rd will need to be adjusted and Intersection 17 – Bayhead Rd and Iran Rd will need to be signalled.

Whilst localized road widening proposals may be considered for Intersection 11 – Bayhead Rd, South Coast Rd and Maydon Rd intersection it is recommended that these be deferred in favor of the Bayhead Rd widening project and South Coast Rd upgrades as this will address the issues as shown in Scenario 3.

Scenario 2 – 2032 Low Rail Share without Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd

The upgrades required to support *Scenario 2 – 2032 Low Rail Share without Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades* are the same as *Scenario 1 – 2032 Low Rail Share with Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades*. The only difference is Intersection 12 – Bayhead Rd and Bypass Rd will require signalization only and no localized road widening.

Scenario 3 – 2036 Low Rail Share with Transnet's Entrance Gates (4,2m TEUs at DCT) with Bayhead Rd or South Coast Rd Upgrades

The construction of an additional lane on Bayhead Road, between South Coast Road and Langeberg Rd, to create a 3+3 cross section and the upgrade of South Coast to a 2+2 cross-section between Bayhead Rd and Edwin Swales Drive will accommodate the *Scenario 3 – 2036 Low Rail Share with Transnet's Entrance Gates (4,2m TEUs at DCT) with Bayhead Rd or South Coast Rd Upgrades* traffic demand volumes. Additional localized road widenings will be required at Intersections 12 and intersection 16.

Some localized widening is required at Intersection 5 – Umbilo Rd/Farimond Rd intersection as per the Gibb Maydon Wharf Study. In addition, traffic signal adjustments and lane marking adjustments are needed along selected intersections on Umbilo Rd and Sydney Road.

Beyond 2036 (4,2m TEUs at DCT) it is recommended that the 2nd Port Access is implemented as

Intersection 11 – Bayhead Rd, South Coast Rd and Maydon Rd and Intersections 12 – Bayhead Rd and Bypass Rd will be operating close to capacity.

Cost Contribution

The 2025 peak hour traffic count data was assessed to establish an estimate of the percentage of city and port traffic on Umbilo Rd, Sydney Rd and South Coast Rd.

The analysis shows that 77% of Umbilo Rd traffic may be considered as City Traffic, 64% of Sydney Rd traffic may be considered as City Traffic and 10% of South Coast Rd traffic may be considered as City Traffic.

This breakdown provided may serve as a foundation for collaboration between eThekweni Municipality and Transnet in establishing the final contributions for the upgrades to South Coast Road, Umbilo Road, and Sydney Road.

Impacts of a High Rail Modal Share

In general, it is noted that an increase in rail modal share will imply a decrease in truck traffic. This therefore implies that a higher rail modal share will extend the Bayhead Road traffic capacity beyond 2036 especially at Intersection 11 – Bayhead Rd, South Coast Rd and Maydon Rd and Intersections 12 – Bayhead Rd and Bypass Rd

It is estimated that a 22% rail modal share could extend the capacity of Bayhead Rd by another 4 years whilst a 30% rail modal share could extend it by 7 years.

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Appendix A – Growth Factor Calculations

The TEU Forecast at DCT over the next 30 years and the anticipated modal splits for the various scenarios are shown overleaf. For this exercise the Scenario 1 rail modal split was set at 14% as shown in the yellow highlights overleaf.

A low rail modal share implies a higher truck volume. The TEUs being transported by road was converted to a peak hour truck volume by applying the factors and formula shown in **Table A**.

For the 2020 scenario when there were 2.4m TEUs being processed at DCT. A base year peak hour demand was calculated. The Peak hour for the 2032 horizon was estimated to be 21% higher than the base 2020 year whilst the peak hour for the 2036 horizon year was estimated to be 64% higher than the 2020 base year.

In this regard, the 21% and the 64% net increase in truck traffic was applied to both trucks traveling to DCT as well as to Island View.

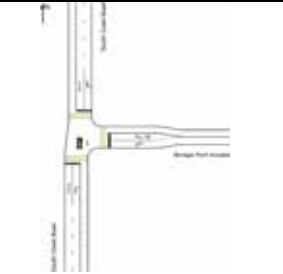
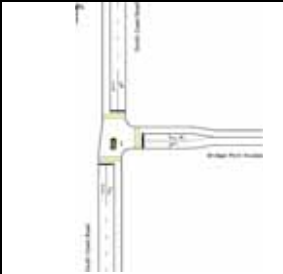
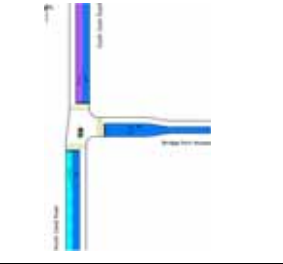
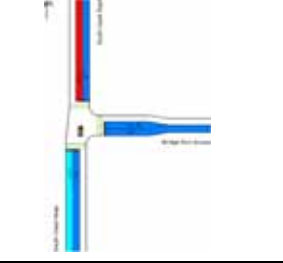
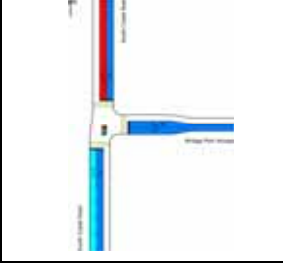
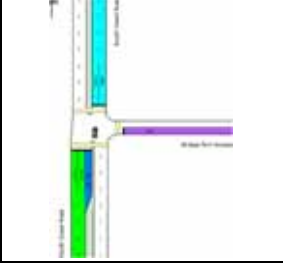
Table A: Factors used to convert Annual TEU volumes to peak hour truck volumes (Source: Arup)

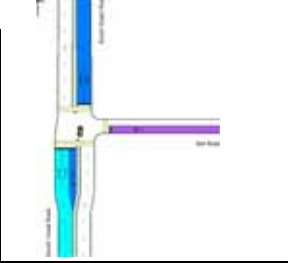
TEU to Average Monthly	12
Monthly Seasonal Correction Factor	1,29
Monthly TEU to Weekly TEU	4,33
TEU Weekly to Peak Day TEUs	0,16
Peak Day TEU to Peak Hour TEU – 16 hour operation	0,0625
Peak Day TEU to Peak Hour TEU – 24 hour operation	0,042
TEU per Truck Factor	1,2

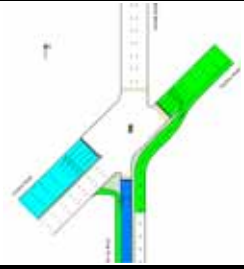
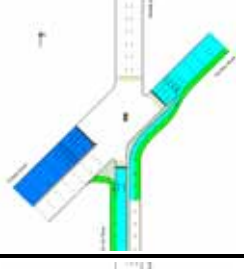
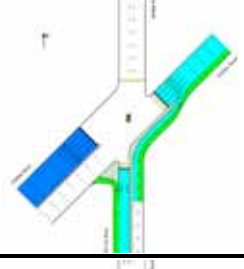
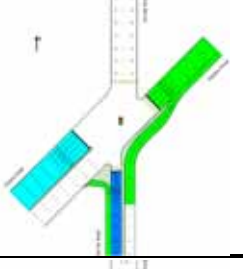
Peak hour truck demand = (((Monthly TEUs*Monthly Seasonal Correction Factors)/Month TEU to Weekly TEU Factor)*TEU Weekly to Peak Day TEU Factor* Peak Day TEU to Peak Hour TEU)/TEU per Truck Factor

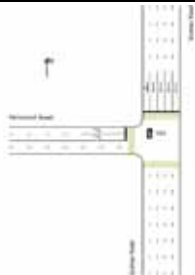
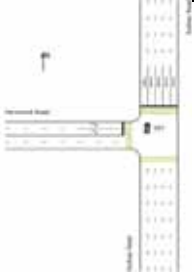
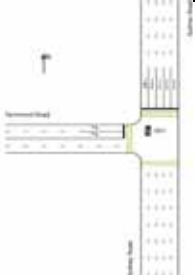
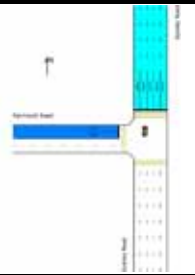
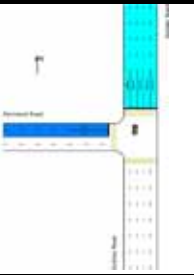
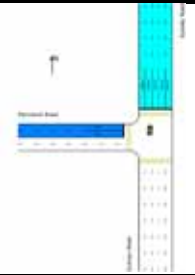
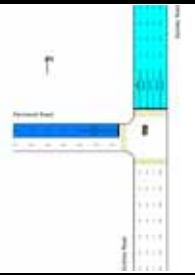
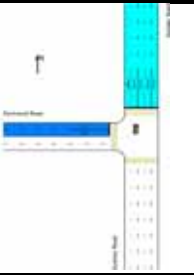
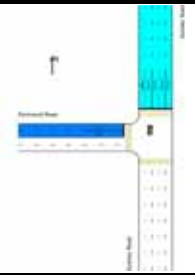
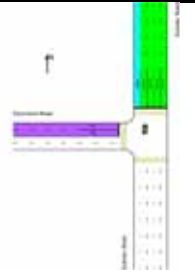
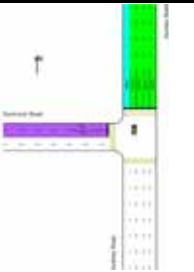
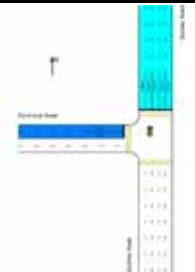
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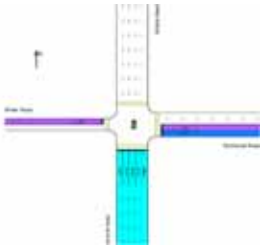
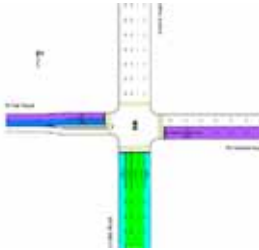
Appendix B – Summarized Sidra Results and Road Upgrade Summary

Intersection 1				
SOUTH COAST ROAD / BRIDGE PORT ACCESS				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades		2036 upgrades required by 2032		60m right turn lane added on the additional lane added to north and south
Results AM				
Results MID				
Results PM				

Intersection 2				
SOUTH COAST ROAD / EEL RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades		2036 signal timing adjustments required in 2032 during the AM peak		Signal timing adjustments during AM Peak Hour
Results AM				
Results MID				
Results PM				

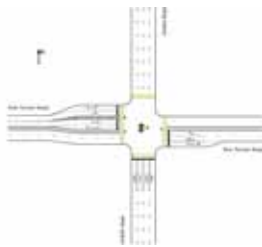
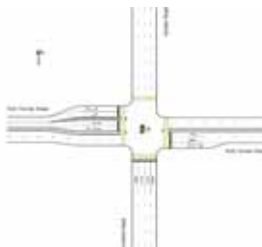
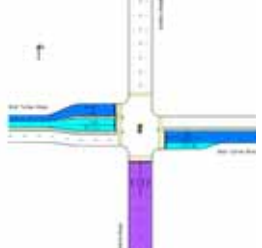
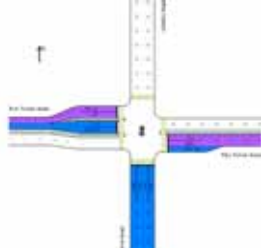
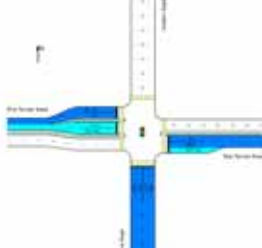
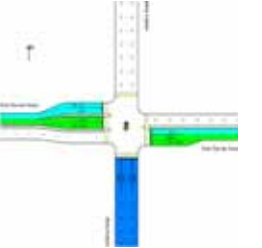
Intersection 3				
UMBILO RD/SARNIA RD/SYDNEY RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades				
Results AM				
Results MID				
Results PM				

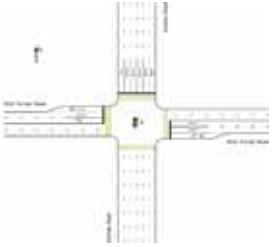
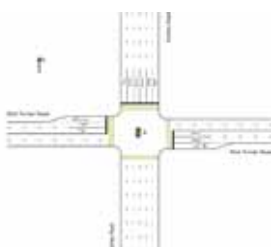
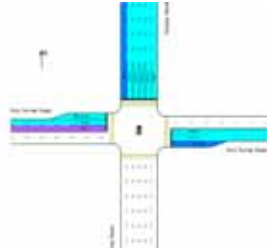
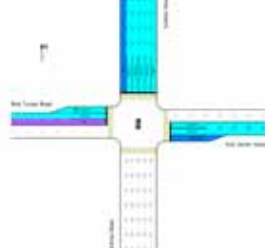
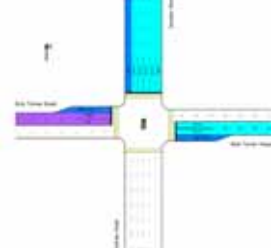
Intersection 4				
SYDNEY RD/FAIRMOND RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades				
Results AM				
Results MID				
Results PM				

Intersection 5				
UMBILO RD/FAIRMOND RD/HILIER RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades				30m left turn lane added on West West Through movement converted to left turn and through movement East Through movement converted to right turn and through movement
Results AM				
Results MID				
Results PM				

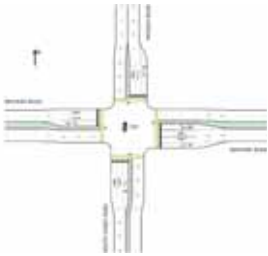
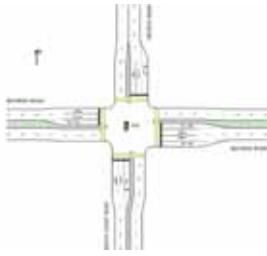
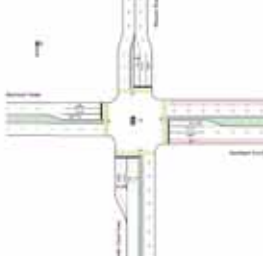
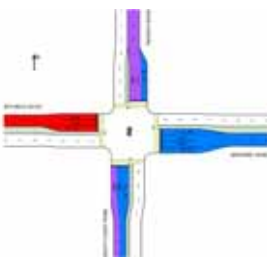
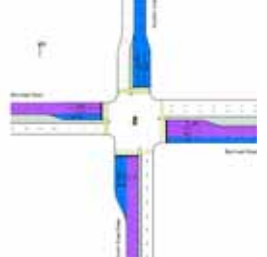
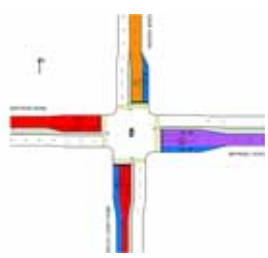
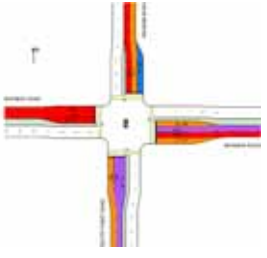
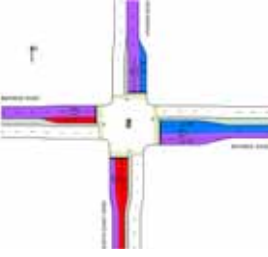
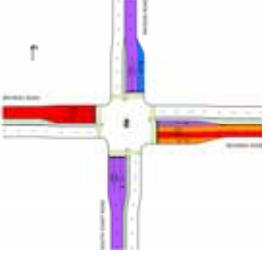
Intersection 6				
UMBILO RD/GLASTONBURY RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades		2036 signal timing adjustments required in 2032 during the AM peak		Signal timing adjusted in AM peak
Results AM				
Results MID				
Results PM				

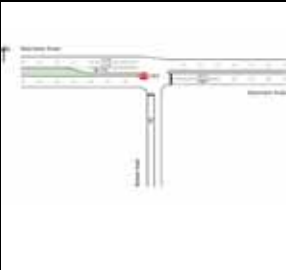
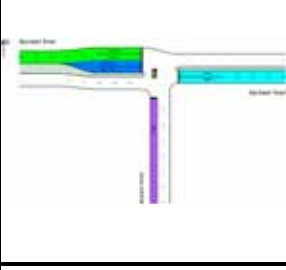
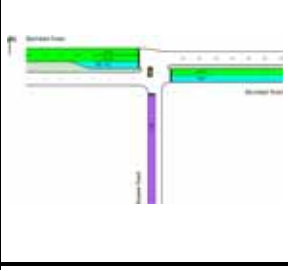
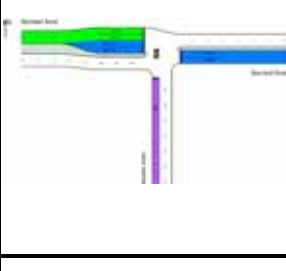
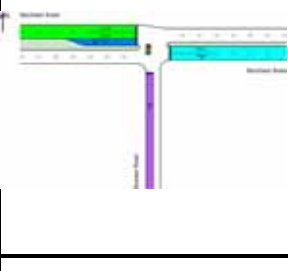
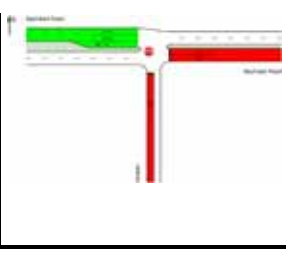
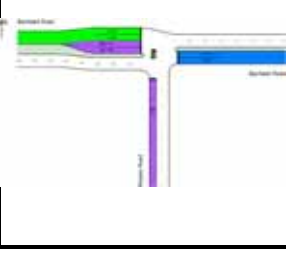
Intersection 7				
SYDNEY RD/GLASTONBURY RD/BAYHEAD RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades		2036 signal timing adjustments required in 2032 during the PM peak		Adjust signal timing during PM peak
Results AM				
Results MID				
Results PM				

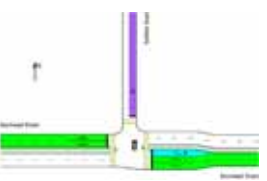
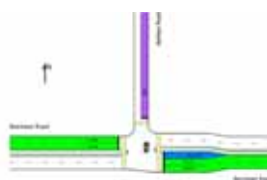
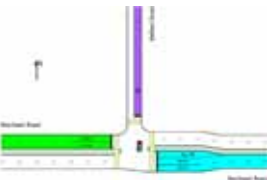
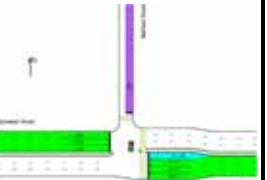
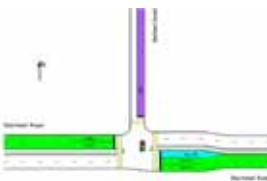
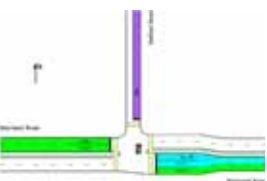
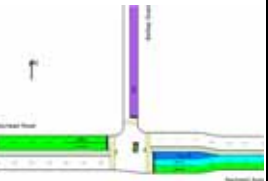
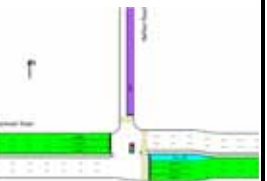
Intersection 8				
UMBILO RD/RICK TURNER RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades		2036 signal timing upgrades required in 2032 during AM peak hour		Signal timing adjusted for AM peak
Results AM				
Results MID				
Results PM				

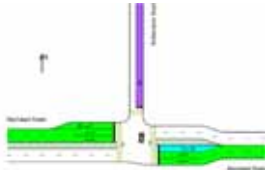
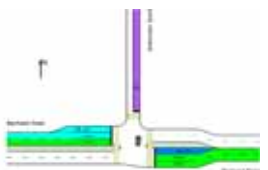
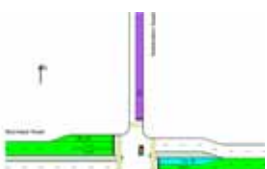
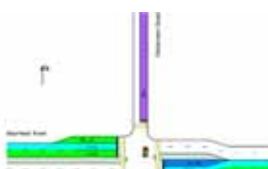
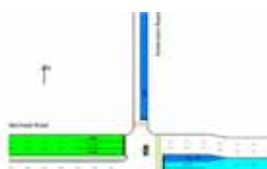
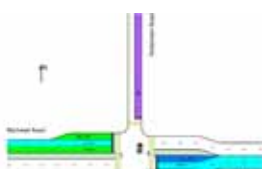
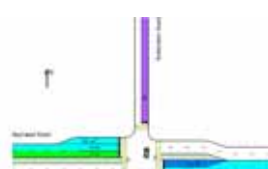
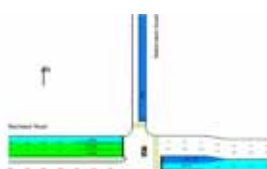
Intersection 9				
SYDNEY RD/RICK TURNER RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades		2036 upgrades required in 2032		West approach through movement converted to right turn and through movement
Results AM				
Results MID				
Results PM				

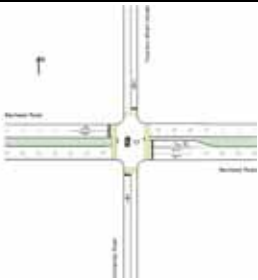
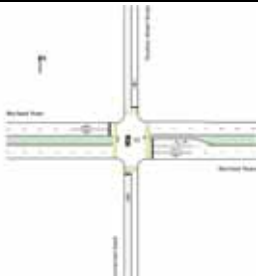
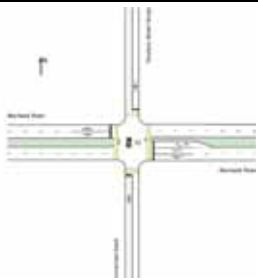
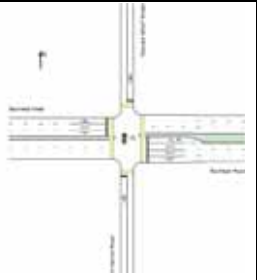
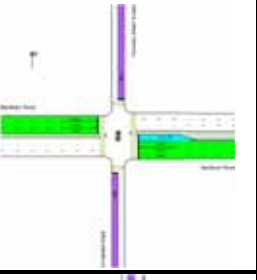
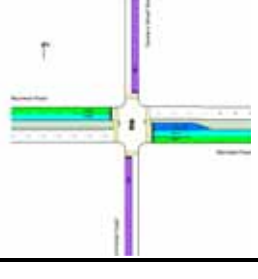
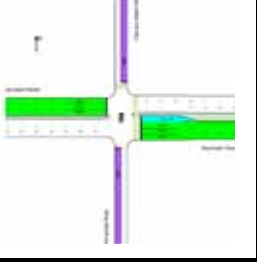
Intersection 10				
MAYDON RD/RICK TURNER RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades				
Results AM				
Results MID				
Results PM				

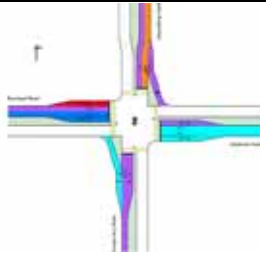
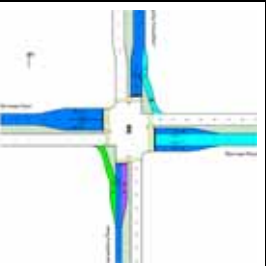
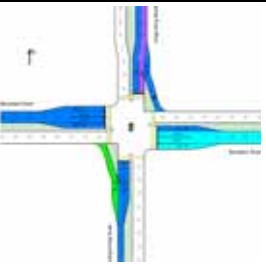
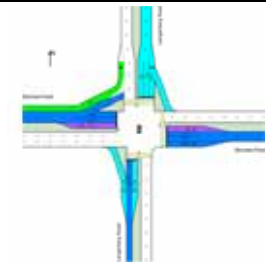
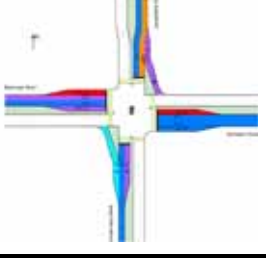
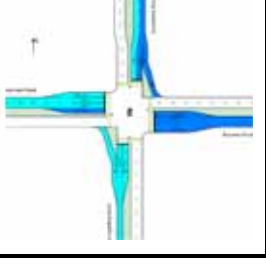
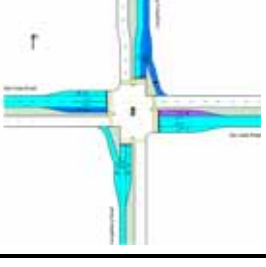
Intersection 11				
BAYHEAD RD/SOUTH COAST RD/MAYDON RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades				Additional lane added on Bayhead Rd, east of South Coast Road South Approach reconfigured to have two full right turn lanes and two short North approach reconfigured to accommodate two through lanes and
Results AM				
Results MID				
Results PM				

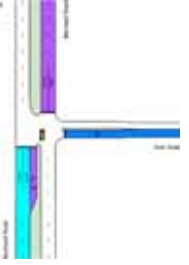
Intersection 12				
BAYHEAD RD/BYPASS RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades		Based on road safety audit, this intersection requires signalisation. additional departure lane on south departure additional 100m right turn lane needed on east approach	Based on road safety audit, this intersection requires signalisation.	Additional lane added along Bayhead Rd in both directions Two right turn lanes needed from west into bypass road, one is a 70m short lane
Results AM				
Results MID				
Results PM				

Intersection 13				
BAYHEAD RD/BELFAST RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades				Additional lane added along Bayhead Rd in both directions
Results AM				
Results MID				
Results PM				

Intersection 14				
BAYHEAD RD/ROTTERDAM RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades				Additional lane added along Bayhead Rd in both directions
Results AM				
Results MID				
Results PM				

Intersection 15				
BAYHEAD RD/TRAWLERS WHARF RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades				Additional lane added along Bayhead Rd in both directions
Results AM				
Results MID				
Results PM				

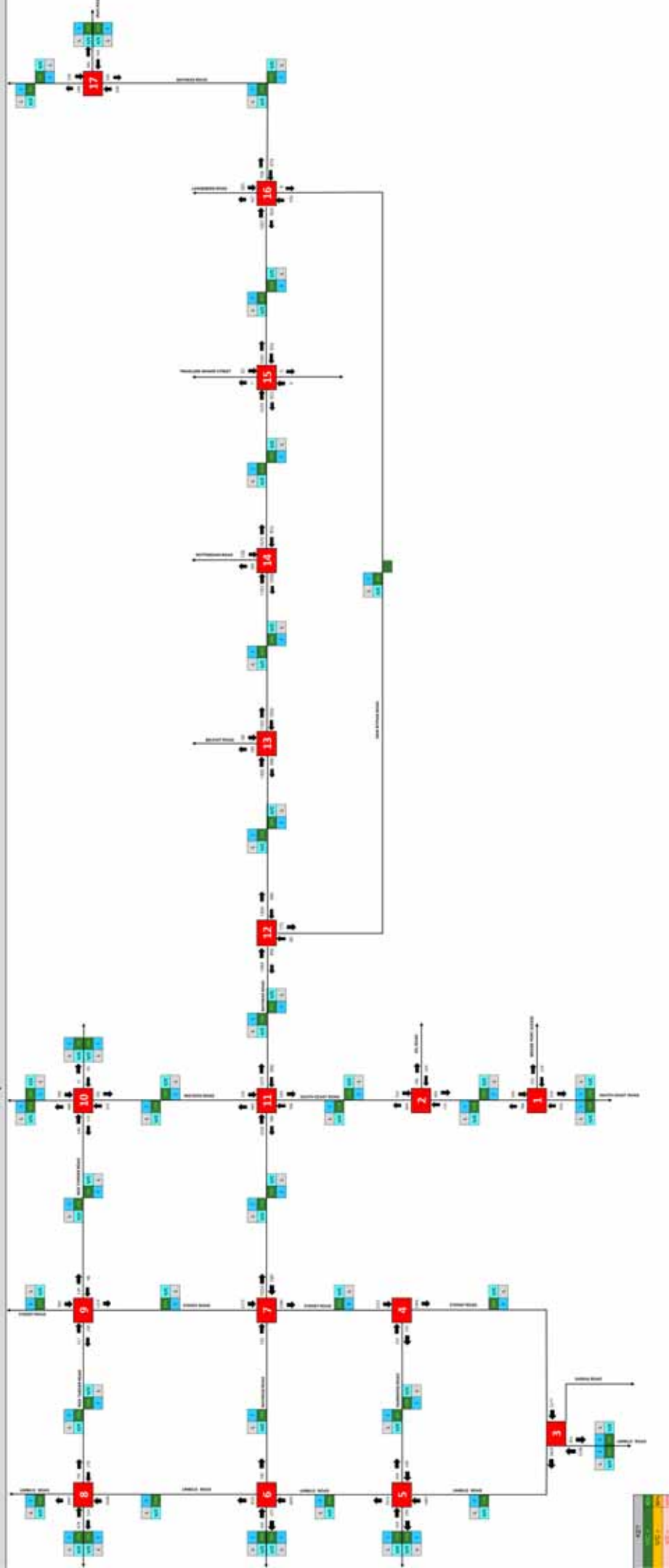
Intersection 16				
BAYHEAD RD/LANGERBERG RD/BYPASS RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades		This scenario was tested with signal timing adjustments	This scenario was tested with signal timing adjustments	Additional lane added along Bayhead Rd, west of Langeberg Rd in both directions A full length left slip lane will be provided from West into Langeberg Rd which will be received by a dedicated 300m departure lane One through lane from west and east to be shared through and left The north approach is reconfigured to accommodate for two dedicated right turn lanes and a 100m shared through and left turn lane
Results AM				
Results MID				
Results PM				

Intersection 17				
BAYHEAD RD/IRAN RD				
Scenario	2025 Base Year (2.3m TEUs)	Sc 1 - 2032 Low Rail Scenario with Gates (3m TEU at DCT)	Sc 2 - 2032 Low Rail Scenario with No Gates (3m TEU at DCT)	Scenario 3 - 2036 Low Rail Scenario with Gates (4.2m TEU at DCT)
Layout				
Upgrades				The intersection is signalised
Results AM				
Results MID				
Results PM				

Appendix C1 – V/C Analysis

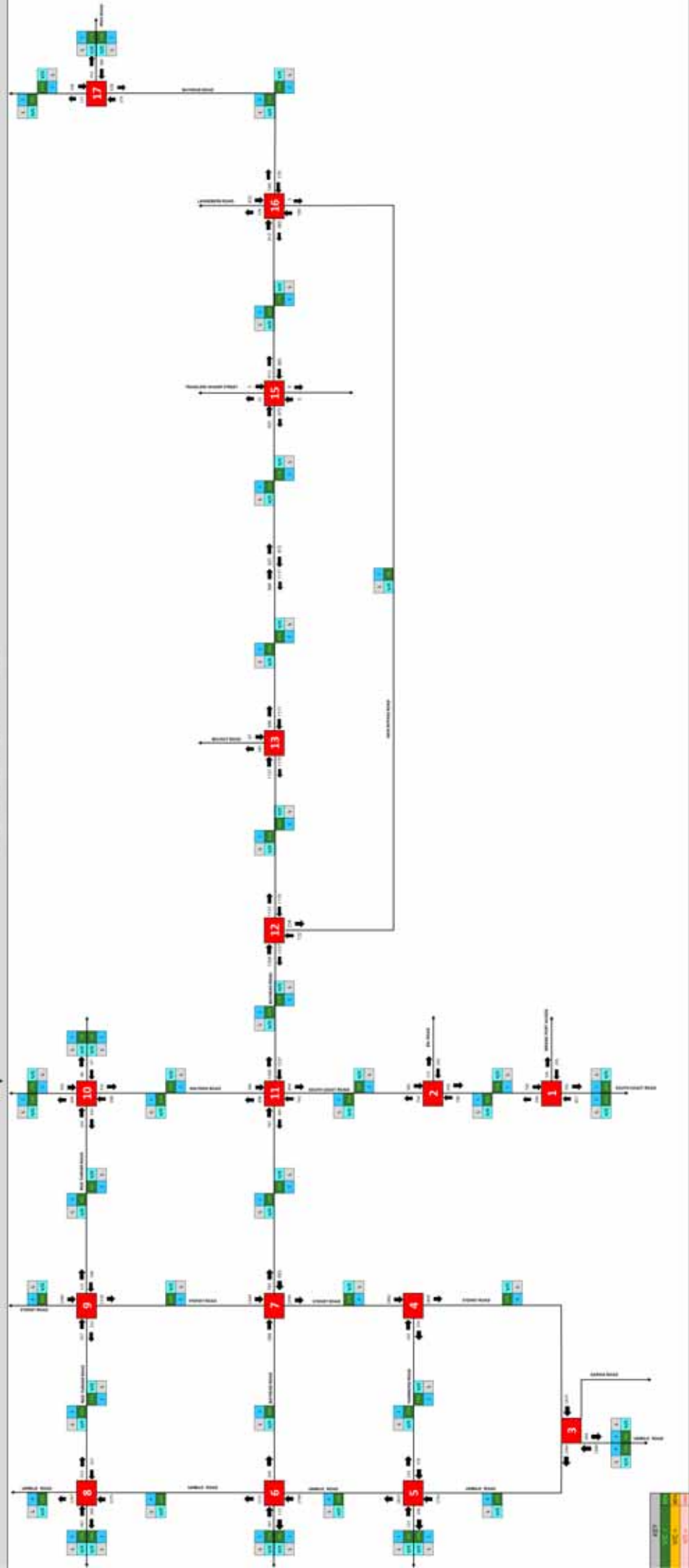
2025 AM

VOLUME TO CAPACITY ANALYSIS



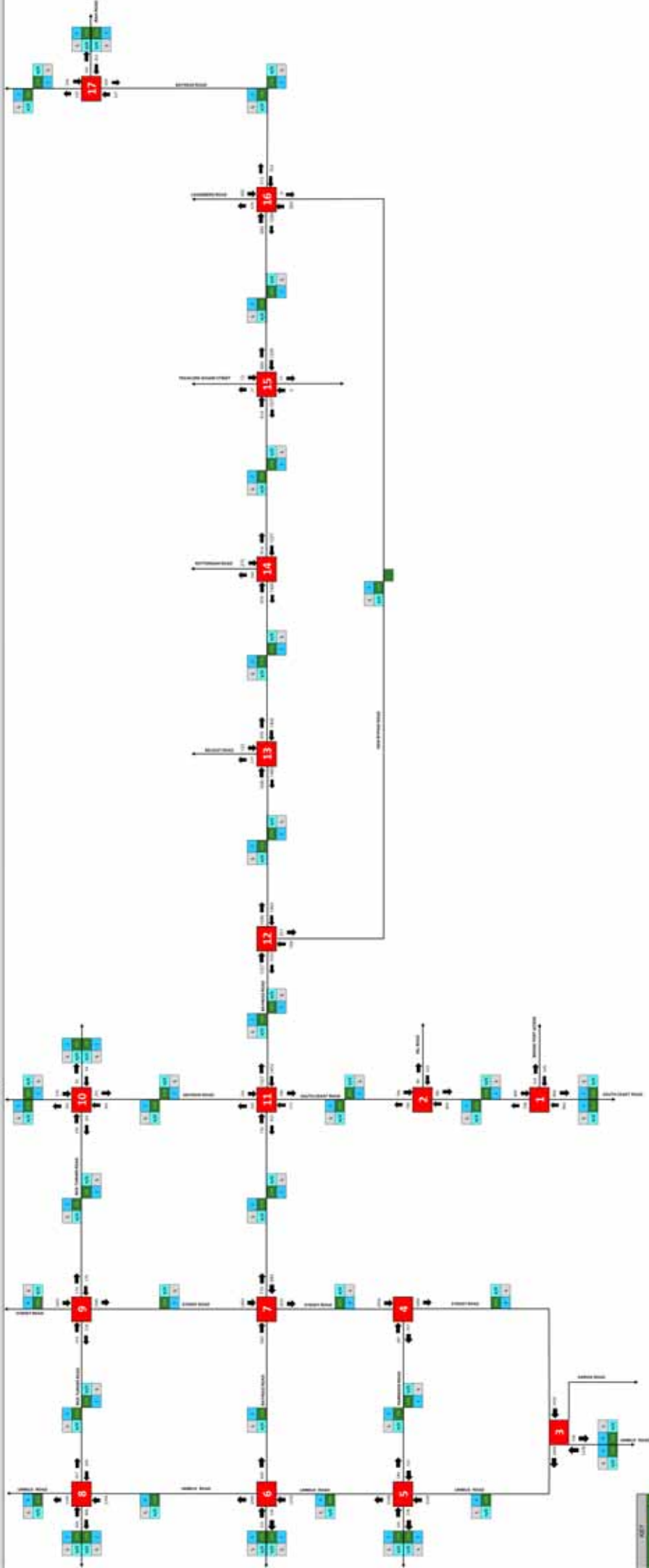
2025 MIDDAY

VOLUME TO CAPACITY ANALYSIS

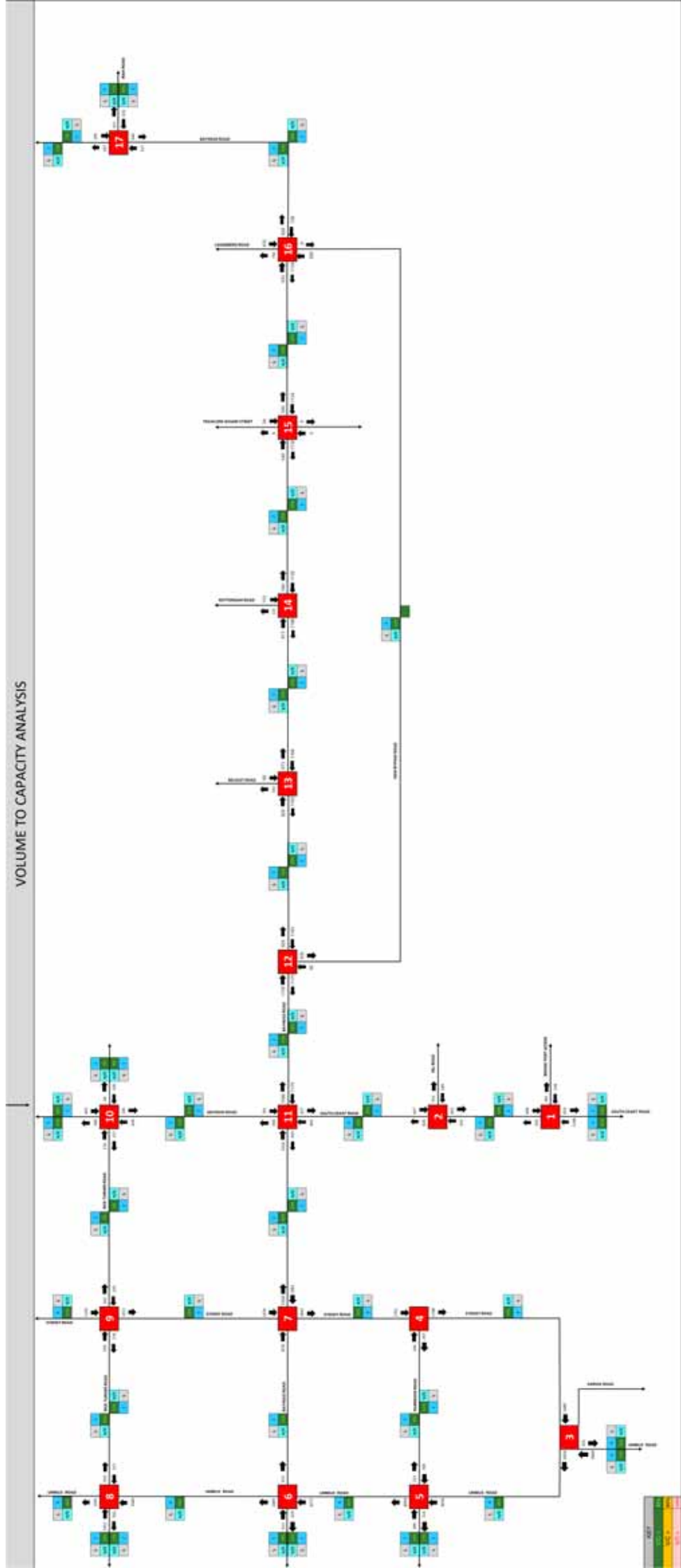


2025 PM

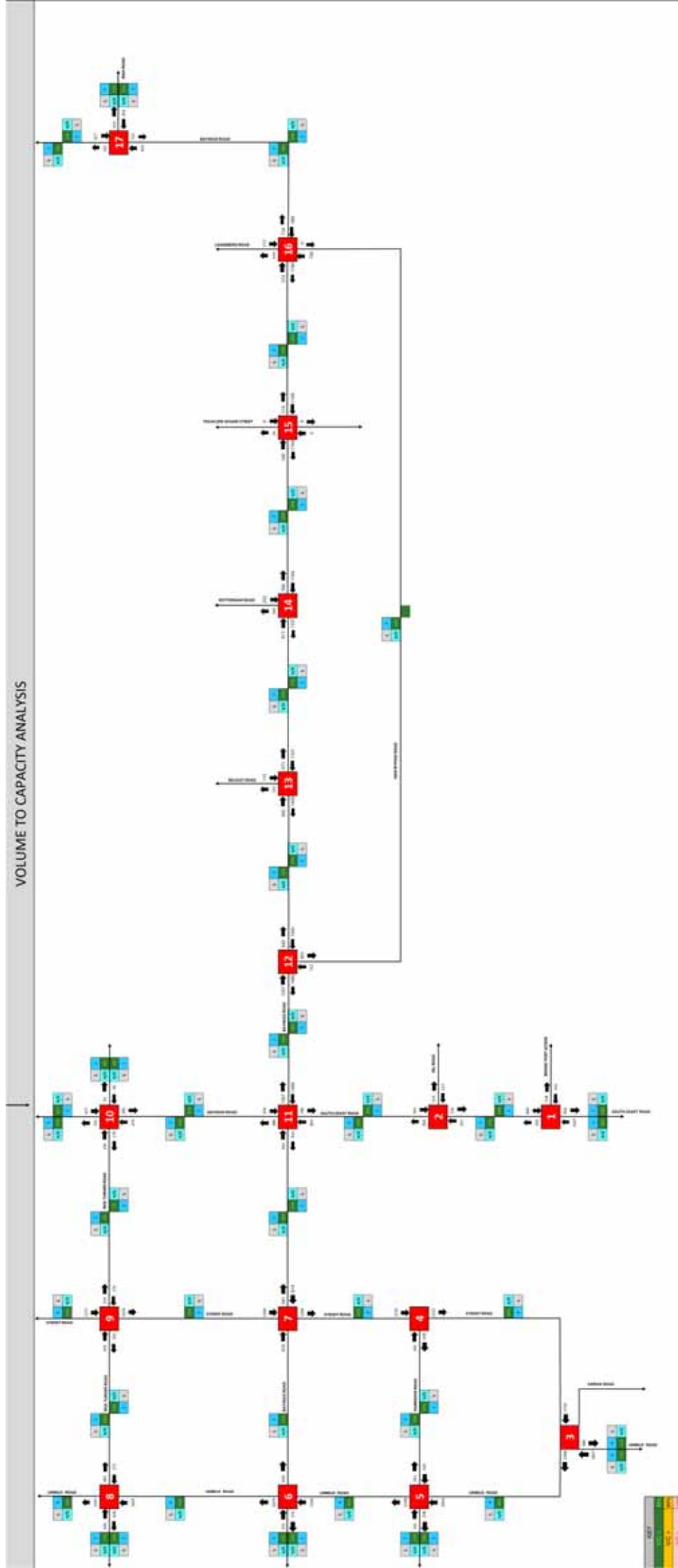
VOLUME TO CAPACITY ANALYSIS



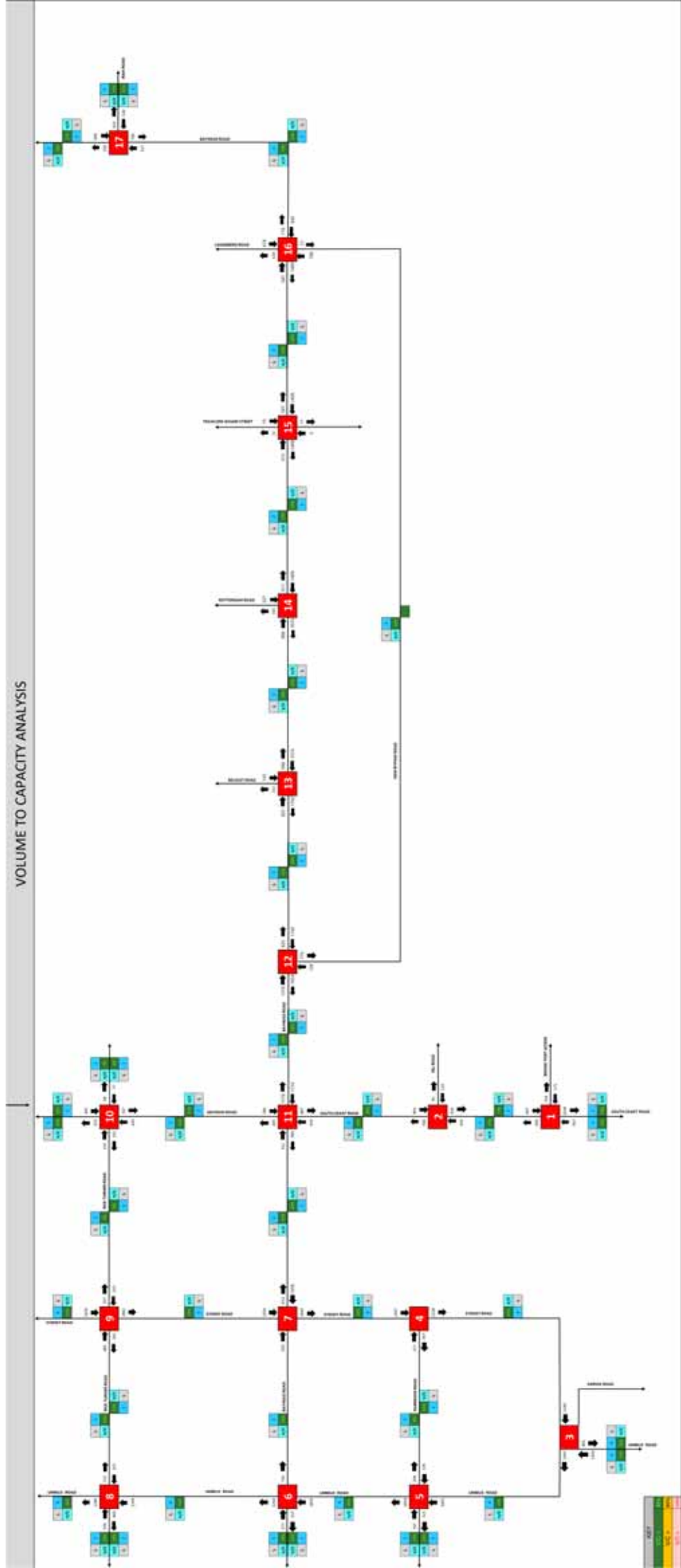
Scenario 1 – 2032 Low Rail Share with Transnet’s Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd
Upgrades – AM PEAK HOUR



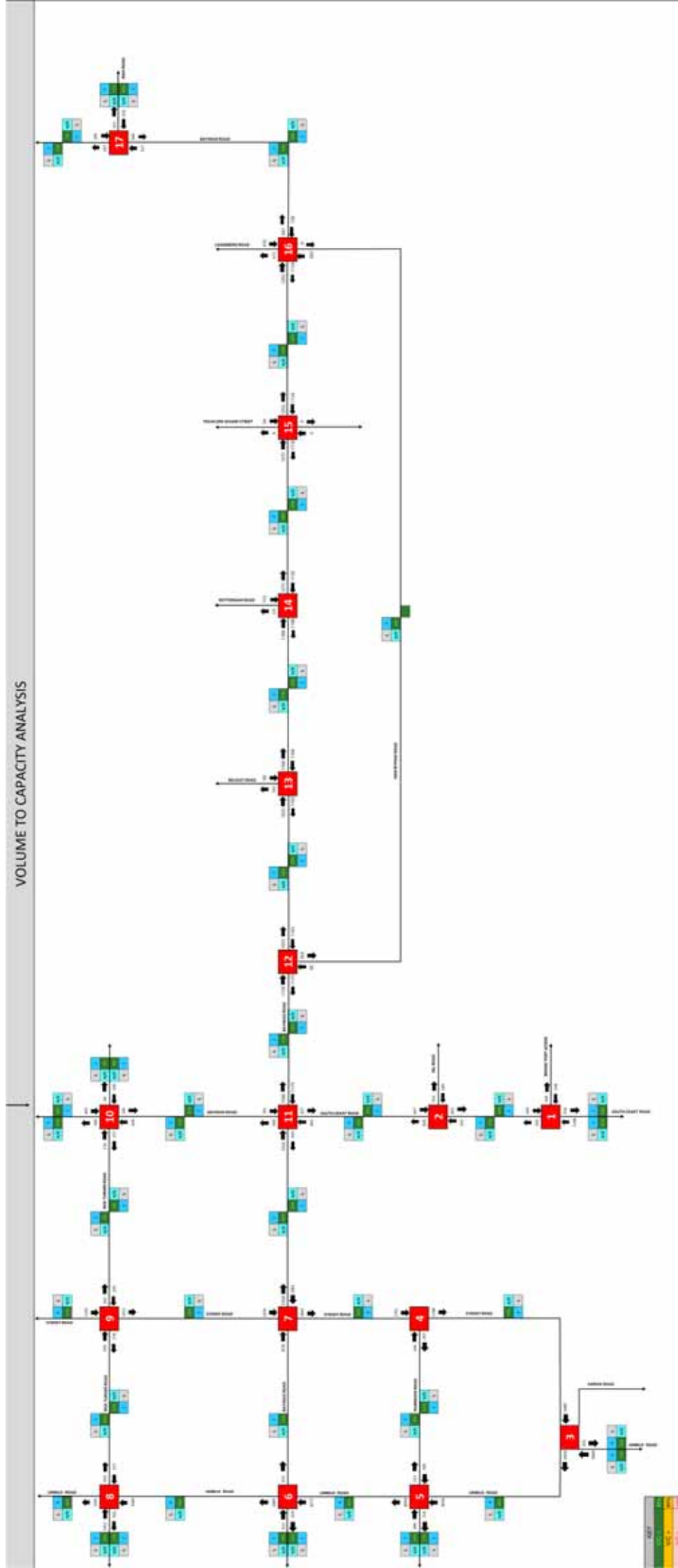
Scenario 1 – 2032 Low Rail Share with Transnet’s Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd
Upgrades – MIDDAY PEAK HOUR



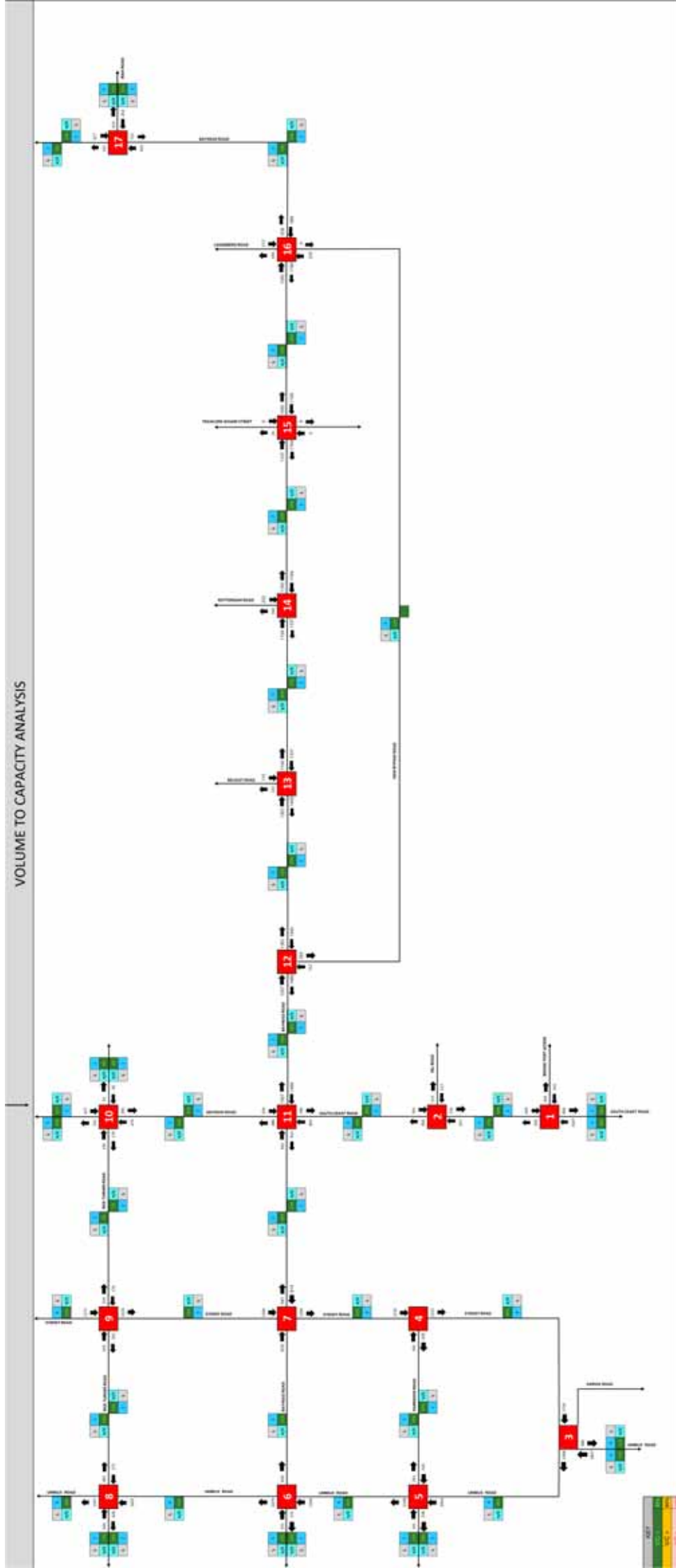
Scenario 1 – 2032 Low Rail Share with Transnet’s Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd
Upgrades – PM PEAK HOUR



Scenario 2 – 2032 Low Rail Share without Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd
Upgrades – AM PEAK HOUR

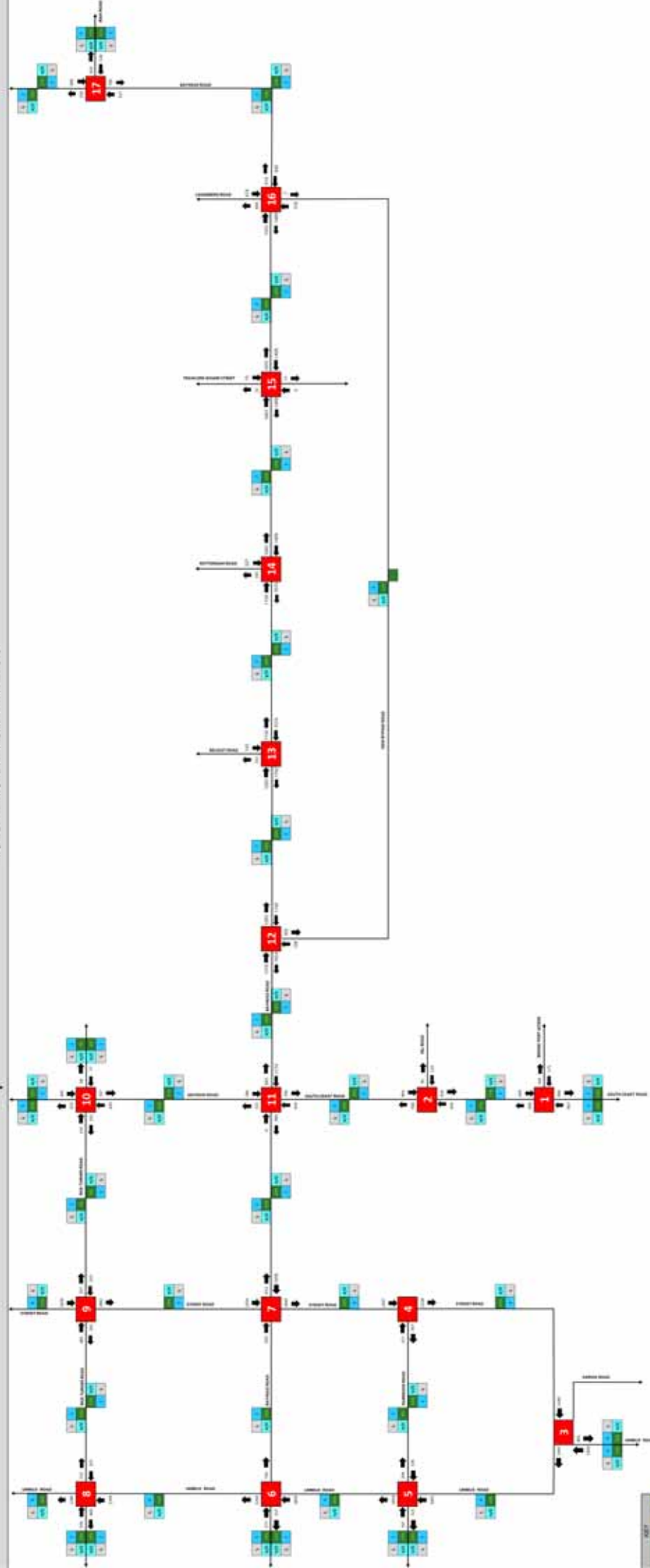


Scenario 2 – 2032 Low Rail Share without Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades – MIDDAY PEAK HOUR

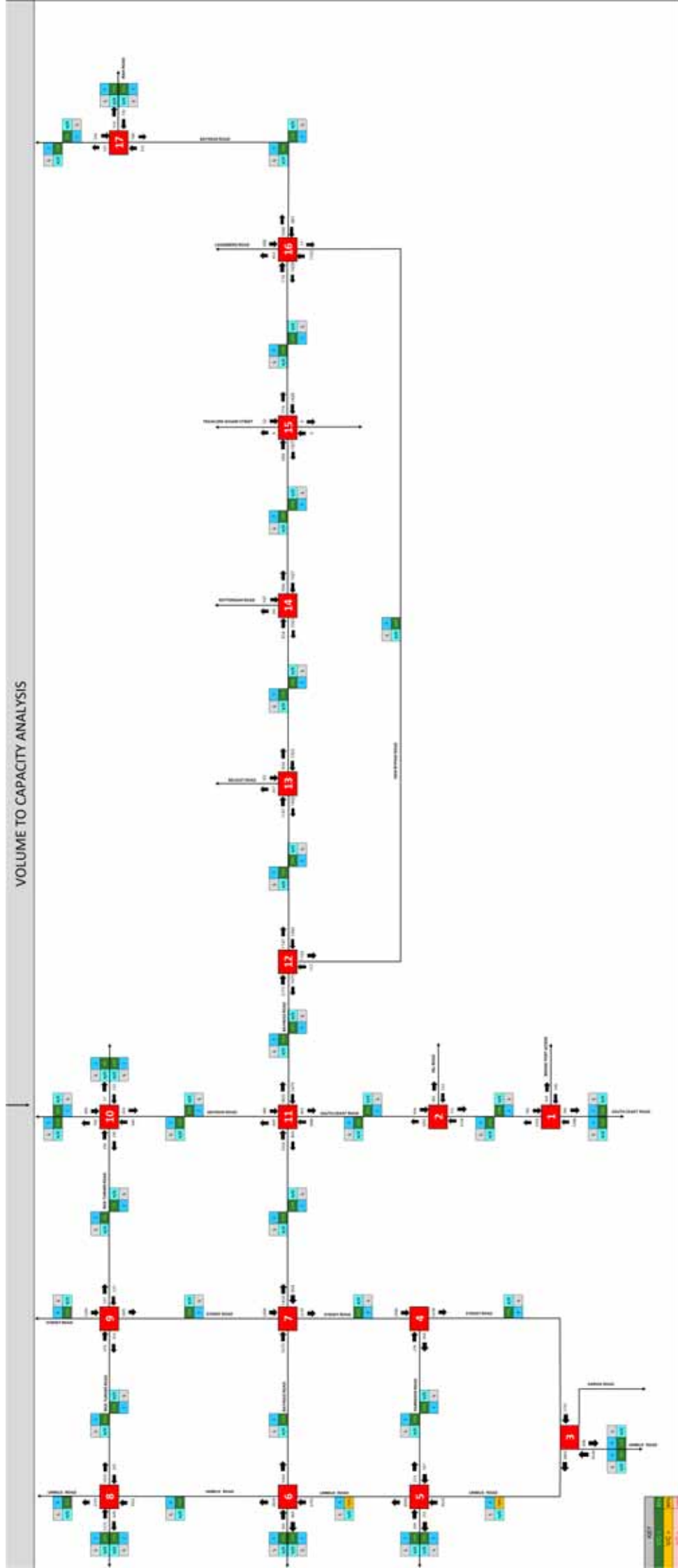


Scenario 2 – 2032 Low Rail Share without Transnet’s Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd
Upgrades – PM PEAK HOUR

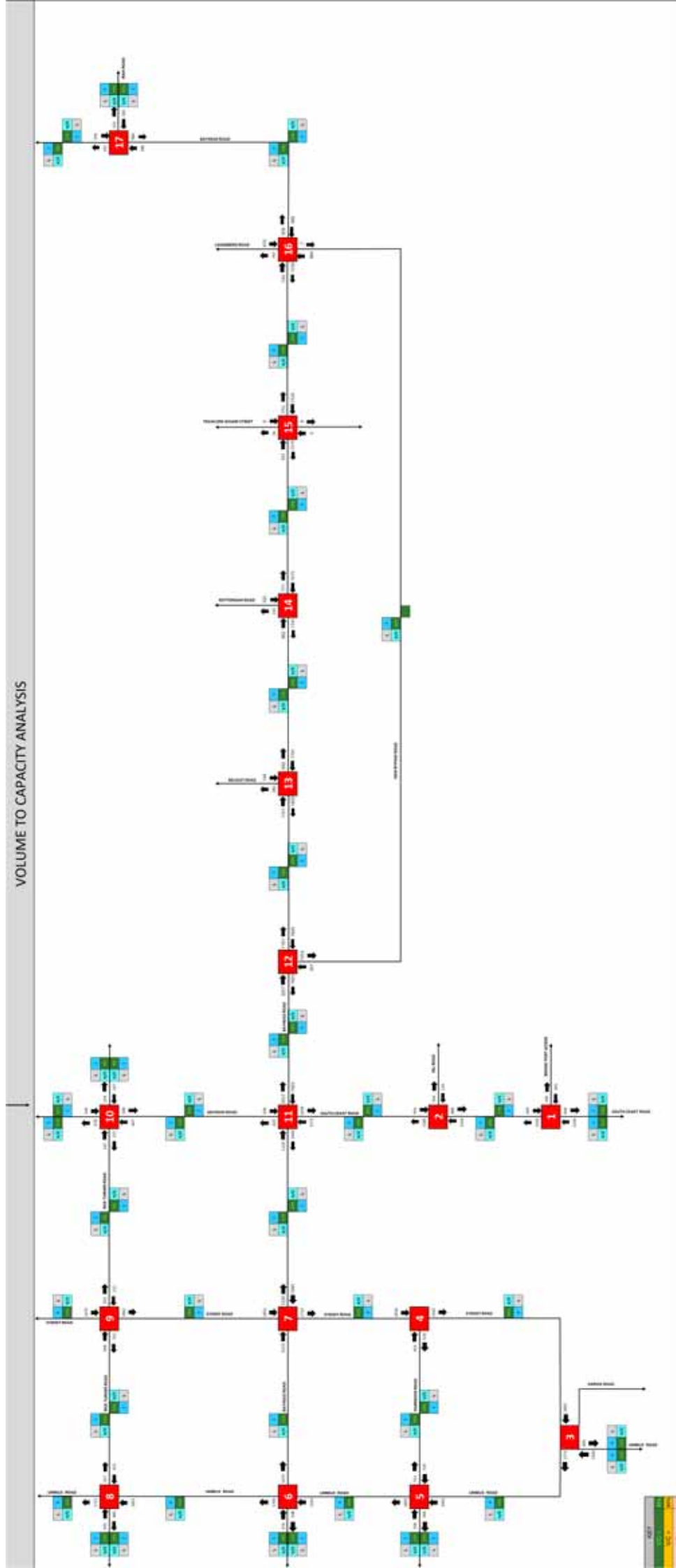
VOLUME TO CAPACITY ANALYSIS



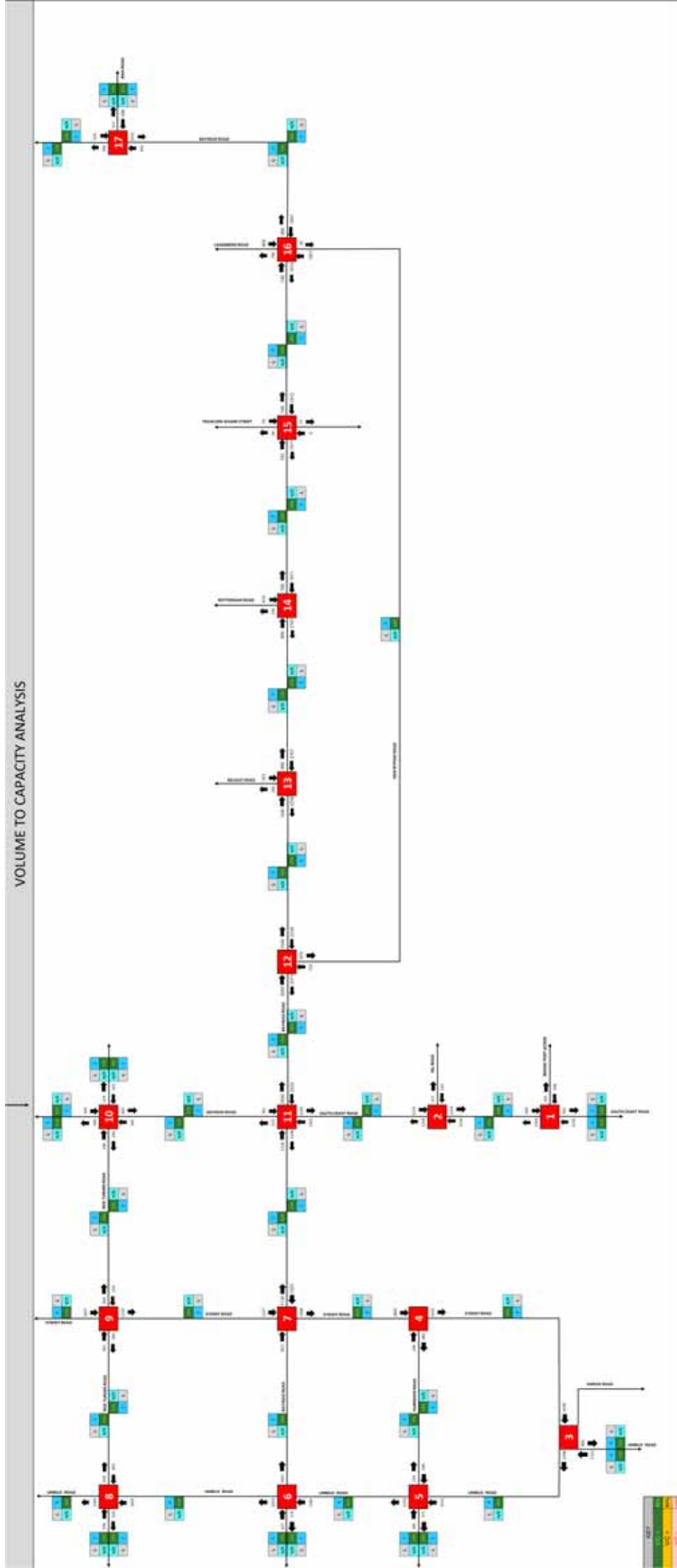
Scenario 3 – 2036 Low Rail Share with Transnet’s Entrance Gates (3,0m TEUs at DCT) with Bayhead Rd or South Coast Rd
Upgrades – AM PEAK HOUR



Scenario 3 – 2036 Low Rail Share with Transnet's Entrance Gates (3,0m TEUs at DCT) with Bayhead Rd or South Coast Rd Upgrades – MIDDAY PEAK HOUR



Scenario 3 – 2036 Low Rail Share with Transnet's Entrance Gates (3,0m TEUs at DCT) with Bayhead Rd or South Coast Rd
Upgrades – PM PEAK HOUR



Appendix C2 – Segment Analysis

Scenario 1 – 2032 Low Rail Share with Transnet's Entrance Gates (3,0m TEUs at DCT) without Bayhead Rd or South Coast Rd Upgrades – AM PEAK HOUR

Scenario 3 – 2036 Low Rail Share with Transnet's Entrance Gates (3,0m TEUs at DCT) with Bayhead Rd or South Coast Rd Upgrades – PM PEAK HOUR

Appendix D – Trip Assignment % and “Development Traffic Volumes

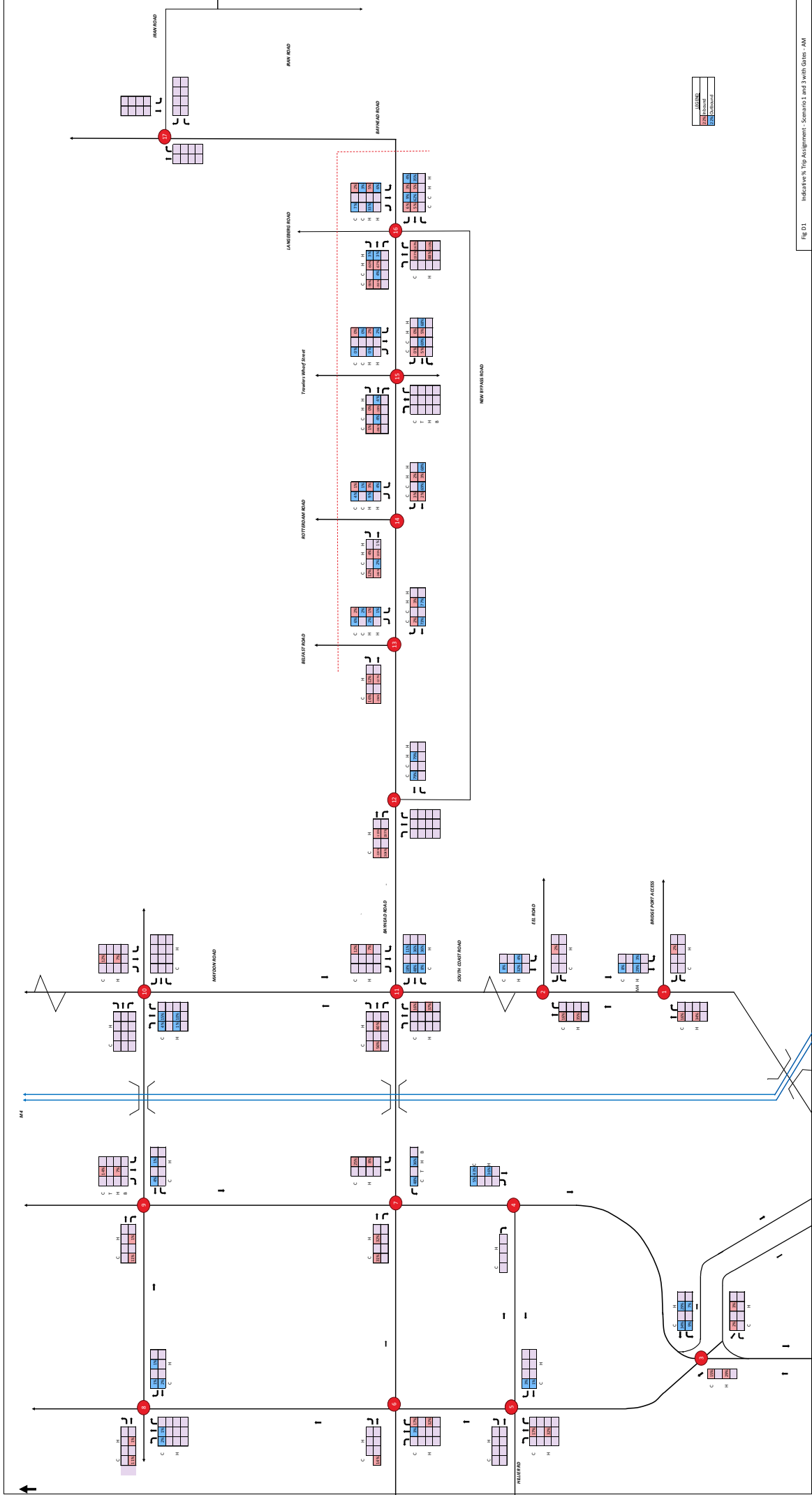


Fig D1. Indicative Trip Assignment - Scenario 1 and 3 with Gates - AM

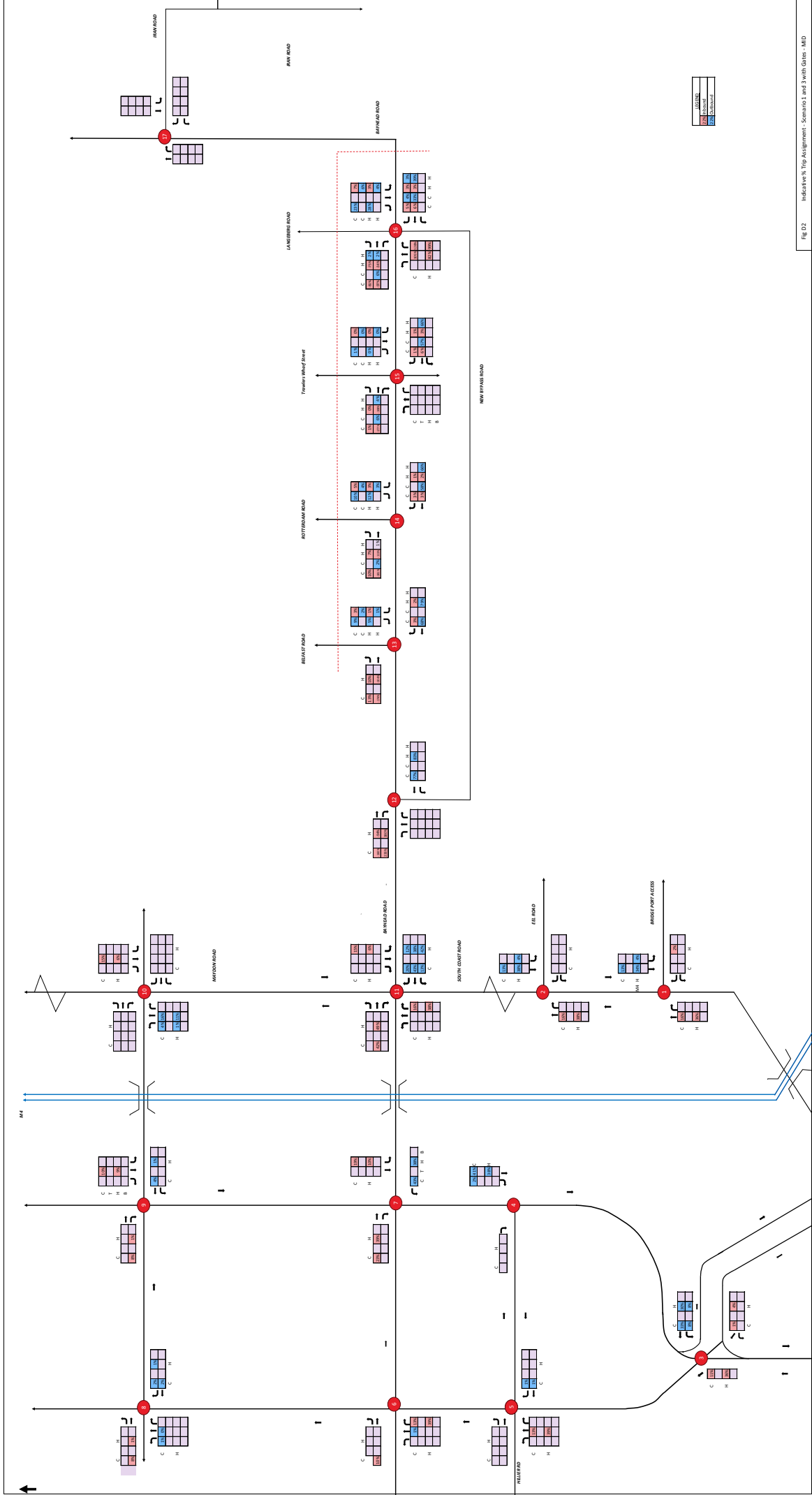
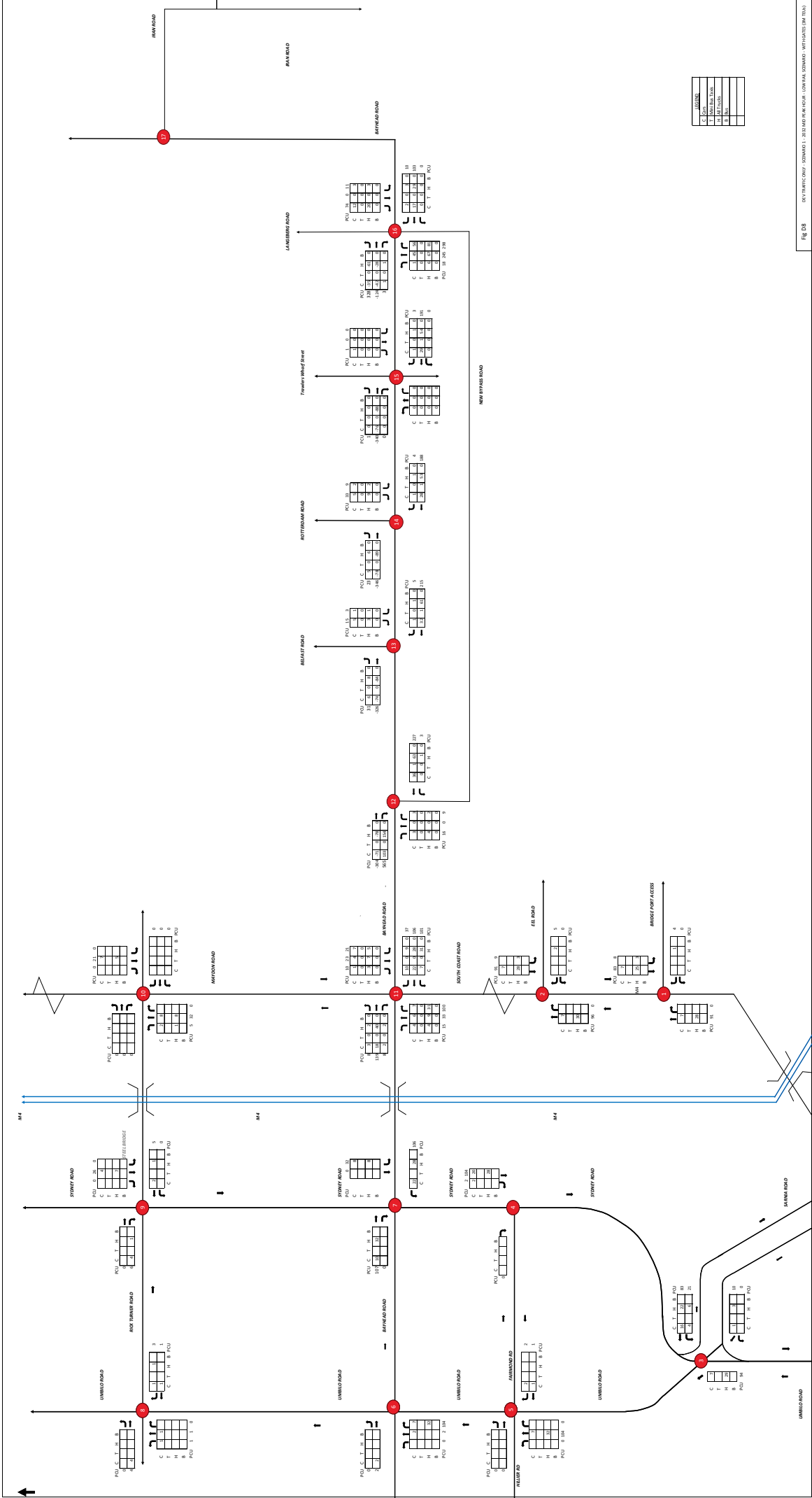


Fig D2 Indicative Trip Assignment - Scenario 1 and 3 with Gates - MID



LEGEND	
C	Car
T	Truck
H	Heavy Truck
B	Bicycle
P	Pedestrian

Fig D8

DEVELOPMENT ONLY - SCENARIO 1 - 2032 AND 2040 IN PROGRESS - CONCEPTUAL - NOT TO SCALE (MAY VARY)





Fig D.10 DEV TRAFFIC ONLY - SCENARIO 2 - 2032 AM PEAK HOUR - LOW RAIL SCENARIO - NO GATES (JMT-TEL)

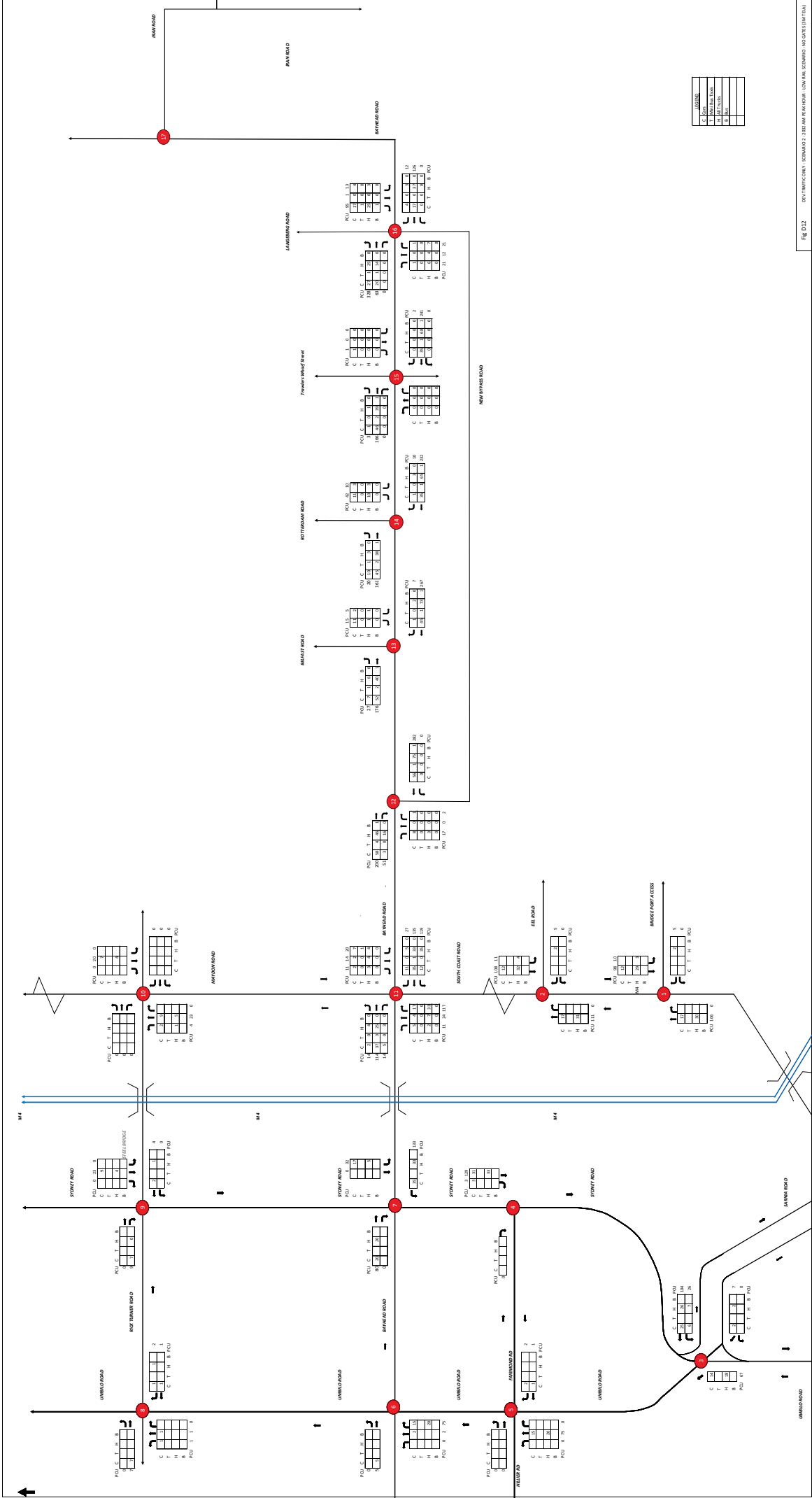


Fig D12 DEV TRAFFIC CNF - SCENARIO 2 - 2025 AM PM PEAK HOUR - LOW A.M. SCENARIO - NO GATES (START ROAD)



Fig. D13

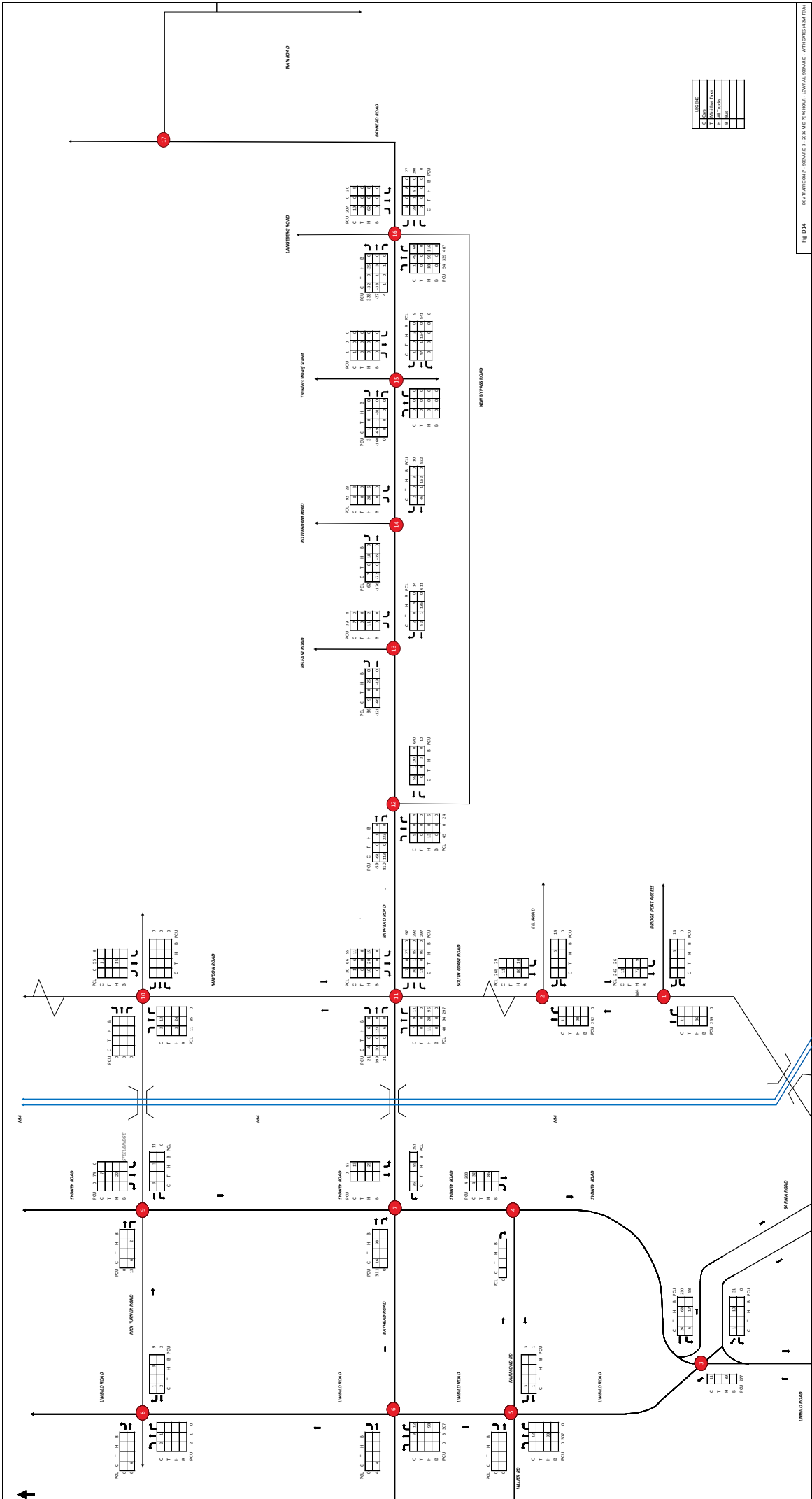


Fig D14

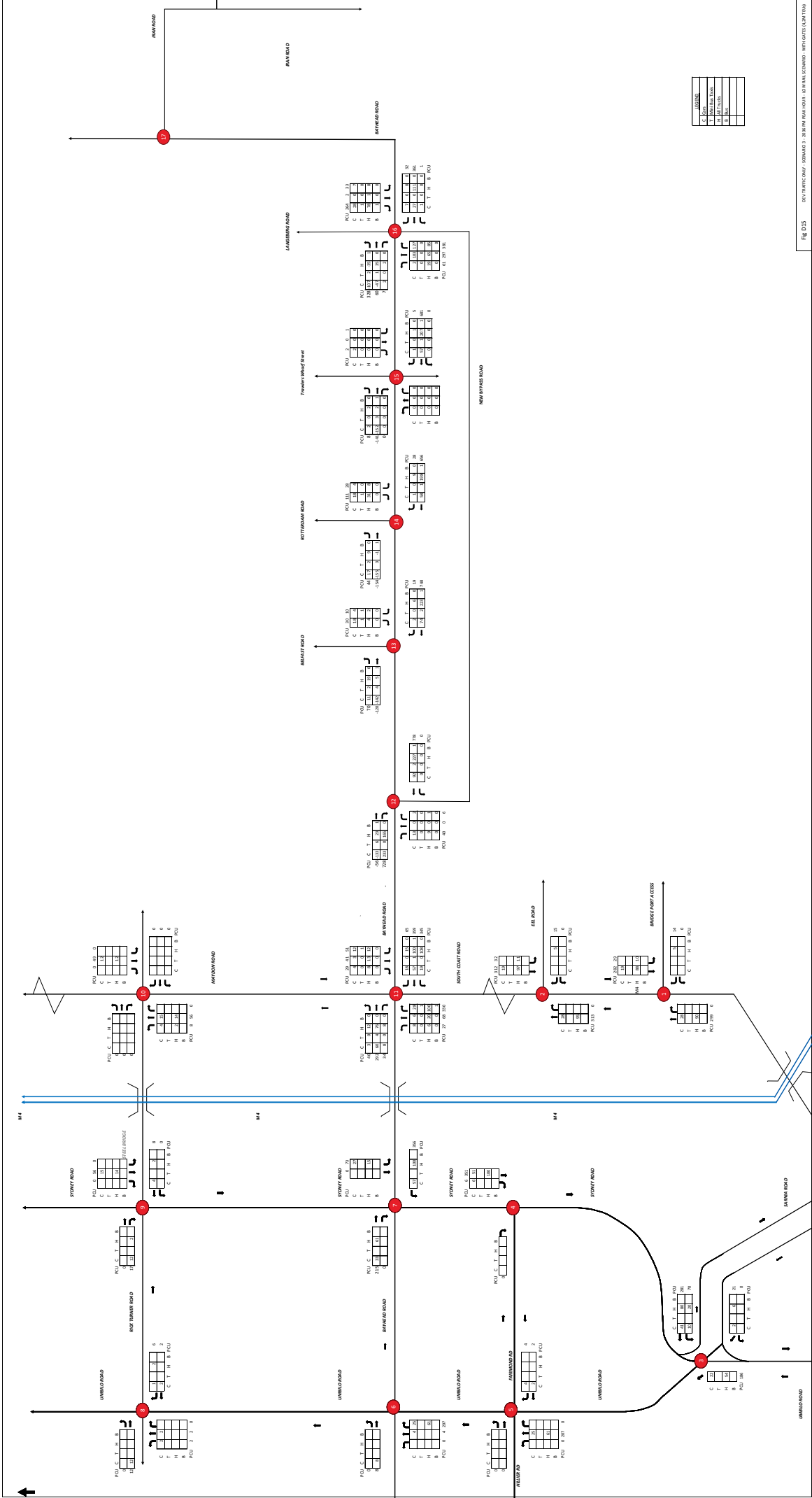


Fig D15

DEV TRAFFIC ONLY - SCENARIO 3 - 2035 PM PEAK HOUR - OFF-Peak SCENARIO - WITH LATEL (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ

SPECIALIST DECLARATION



forestry, fisheries & the environment

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Forestry, Fisheries and the Environment
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SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

PROVISION OF PROFESSIONAL SERVICE FOR THE FEASIBILITY AND DETAILED DESIGN INCLUDING PROCUREMENT SUPPORT AND SUPERVISION FOR BAYHEAD AND LANGEBOEG ROAD UPGRADE, AT THE PORT OF DURBAN

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.dffe.gov.za/documents/forms>.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with 'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020', where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Traffic Impact Assessment
Specialist Company Name	Fulcrum Development Consultants (Pty) Ltd
Specialist Name	Mohamed Kajee
Specialist Identity Number	831220 5125 082
Specialist Qualifications:	BSc Eng (civil) – Traffic Engineer
Professional affiliation/registration:	ECSA - 20170283
Physical address:	167 Florida Rd, Morningside, Durban. 4001
Postal address:	As above
Postal address	4001
Telephone	031 328 8700
Cell phone	083 639 9933
E-mail	mohamed@fulcrumdc.co.za

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Mohamed Kajee declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. “the Protocols”) and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
 - any decision to be taken with respect to the application by the competent authority; and;
 - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.



Signature of the Specialist

Fulcrum Development Consultants

Name of Company:

28 Jan 2026

Date

SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, _ Mohamed Kajee _____, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

Fulcrum Development Consultants (Pty) Ltd

Name of Company

28 January 2026

Date



COMMISSIONER OF OATHS
JUNAID BHAYAT CA (SA), MBA

MEMBERSHIP NO. 04910421

SUITE 320, 91 PROBLEM MKHIZE ROAD

MORNINGSIDE, DURBAN

Signature of the Commissioner of Oaths

29 Jan 2026

Date