5.2.5 The walking isochrones demonstrate that Newton Street (and the bus stops located here) are within approximately 10 minute walking distance of the proposed development. Figure 13 demonstrates that a number of services and residential areas are within approximately 20 minute walking distance of the proposed development, including (but not limited to):

- Town Centre;
- Bus Station;
- Ferry Terminal; and
- Tesco Superstore.

5.2.6 This demonstrates that there are adequate services and amenities within reasonable walking distance of the proposed development.

5.2.7 The Scottish Government's document, TAG[2] considers cycle journey times of up to 30 – 40 minutes appropriate for cycling (based on a cycling speed of 16km/h). Figure 15 indicates cycling isochrones for cycle distances of 10 and 20 minutes from the proposed development, therefore comfortably within the recommend guidelines

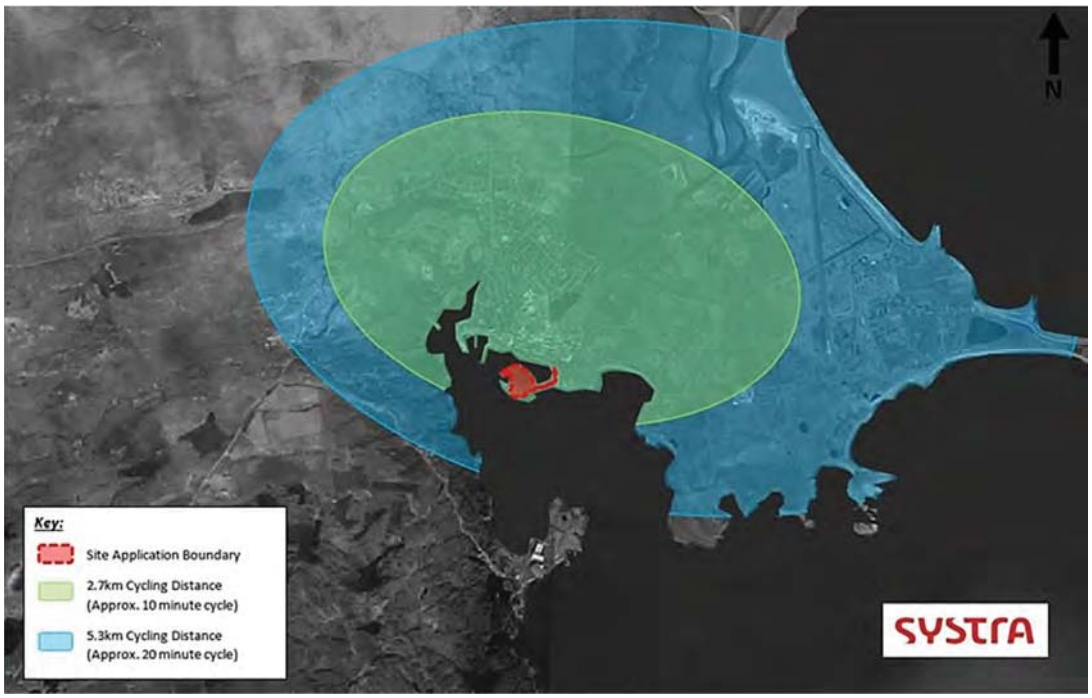

Figure 15. Cycling Isochrones

5.2.8 The isochrones demonstrate that Stornoway Town Centre and all inner-town residential areas of Stornoway are within approximately a 10 minute cycle of the proposed development, whilst many other residential areas in the wider Stornoway area (e.g. Marybank, Melbost, and Newmarket) are within an approximate 20 minute cycle of the proposed development.

[2] Transport Assessment Guidance (2012)

5.2.9 Whist it is not anticipated that the proposed development will generate many cycling trips, the isochrones demonstrate that the proposed development is well located to provide the opportunity for staff / visitors within the wider Stornoway area to cycle to and from the proposed development with regard to appropriate / convenient journey times.

Cycle Parking

5.2.10 Cycle parking will be provided on-site for staff / visitor use to support and encourage cycling trips to and from the proposed development. Whilst guidance on the number of cycle parking spaces required for land uses such as the proposed development is not provided specifically within the Outer Hebrides LDP 2 or the NRDG, Policy 26 of the LDP states:

> *"Provision for bicycle storage facilities will be required in new public buildings; schools; housing development consisting of flatted dwellings; and commercial and community premises where a minimum of five parking spaces is required."*

5.2.11 Considering this, is it proposed that three 'Sheffield-style' cycle parking stands are provided at the proposed development able to accommodate up to six bicycles. The final decision on cycle parking provision will be made in agreement with CnES.

5.3 Public Transport

5.3.1 PAN 75 document 'Planning for Transport' recommends that developments are within 400m walking distance of bus services and 800m walking distance of rail services. It is noted that there are no rail services available on the Isle of Lewis and that the bus stops on Newton Street are located approximately 600m walking distance away from the proposed development and therefore outwith the 400m recommended threshold.

5.3.2 Nevertheless, it is considered that the existing public transport provision is sufficient to serve the proposed development given that, despite the remoteness of Lewis, bus services are accessible within a reasonable walking distance (approximately 7 minutes) of the proposed development. Furthermore, given the nature of the proposed development, it is not anticipated that it will generate many additional bus trips, therefore no amendment / improvement to the existing bus provision is considered necessary.

5.4 Vehicle Access

5.4.1 Access to the proposed development will be taken from the existing causeway between Newton Street and Goat Island which is single lane with a mid-point passing place adjacent to the Coastguard Station.

5.4.2 Capacity analysis of the causeway / Newton Street priority junction has been undertaken to ensure that there is sufficient residual capacity to accommodate additional vehicles associated with the proposed development. The results are demonstrated in the traffic impact assessment contained within Chapter 6 of this TA.

5.4.3 Traffic flow data for the causeway (from a 3-day commissioned Automatic Traffic Counter (ATC) survey) indicates that, on average, the peak traffic flow occurs between

12:00 – 13:00 with 33 two-way vehicle trips (16 arrivals and 18 departures) along the causeway. The estimated trip generation for the proposed development during this hour period is:

- 6 arrivals and 4 departures associated with the marina element; and
- 1 arrival and 1 departure associated with the boat workshop element.

5.4.4 In total (baseline flow plus development traffic), this would equate to 46 two-way vehicle trips (23 arrivals and 23 departures) along the causeway during the peak hour for the road link. If spread evenly over the course of the hour this would equate to one vehicle trip every 1.3 minutes (78 seconds). Assuming that the causeway is 400m in length and a vehicle is travelling at the speed limit (15mph), this would suggest that it takes one minute to travel between Goat Island and Newton Street. Therefore, in theory, this allows sufficient time for a vehicle to travel the length of the causeway without meeting an oncoming vehicle.

5.4.5 It is acknowledged that this represents a theoretical scenario as, in reality, the vehicle trips along the causeway will not necessarily be evenly spread out. Nevertheless, it is noted that there is currently a mid-point passing place available and good visibility between the passing place and Goat Island and Newton Street respectively to facilitate two-way movements along the causeway. In addition, at the junction between the causeway and Newton Street there is space to allow one vehicle to wait to travel along the causeway without blocking the two-way flow of traffic along Newton Street.

5.4.6 An additional passing opportunity at Goat Island is incorporated into the development layout so that there is an additional place for a vehicle to wait if there is an oncoming vehicle on the section of road between the Coastguard and Goat Island. It is noted that this passing opportunity is situated at the egress to the slipway, however, this will not be the main egress from the proposed development and will not be in frequent use throughout the day. Considering the low baseline traffic levels per hour and the low number of vehicle trips the proposed development is expected to generate, it is concluded that the existing provision of passing opportunities with a passing opportunity provided at the proposed development will be sufficient to accommodate additional vehicle trips associated with the development proposals.

Car Parking

5.4.7 CnES provide guidance on car parking standards through Supplementary Guidance of the Outer Hebrides LDP 2. These guidelines state that for marina developments, 1 space per berth plus 1 space per 3 staff should be provided. Disabled parking spaces should be provided on a basis of 6% of total (car park size of up to 200 spaces) or 4 spaces plus 4% of the total number (car park size of over 200 spaces), with a minimum of 3 disabled spaces provided.

5.4.8 It is noted that the SPA's existing marina at Cromwell Street Quay provides 80 berths and has approximately 25 car parking spaces. SPA has consulted with CnES regarding parking at the proposed development and a total of 40 parking spaces are proposed, including 3 disabled spaces, to serve the marina, boat storage and slipway facilities.

5.4.9 The parking provision for the proposed development takes into consideration the parking provision at the existing marina and fundamentally, seeks to provide a balance between accommodating the car whilst not detracting from sustainable and active travel.

6. TRAFFIC IMPACT ASSESSMENT

6.1 Base Traffic Data

6.1.1 The purpose of this section of the TA is to analyse the impact that the traffic generated by the proposed development will have on the local transport network. Following discussions with CnES regarding the area of influence for the traffic impact assessment, the following junctions were identified (Figure 16):

1. Goat Island Causeway / Newton Street Priority Junction; and
2. Newton Street / Island Road Priority Junction.

Figure 16. Proposed Junctions to be Surveyed

6.1.2 In agreement with CnES, junction turning count (JTC) data was collected for the AM (07:00 – 09:00), afternoon (11:00 – 13:00) and PM (16:30 – 18:30) periods on 24th April 2018. These traffic surveys identified the AM and PM network peak hour periods to be 08:00 – 19:00 and 16:30 – 17:30 respectively.

6.2 Opening Year of Development

6.2.1 If consent is granted, the opening year of the proposed development is anticipated to be 2020. It is acknowledged that SPA are also seeking consent for the Stornoway Deep Water Port (Phase 1) development located adjacent to Arnish Point relatively nearby the proposed development. As a result, the traffic impact of the Stornoway Deep Water Port (Phase 1) development at junctions identified has been considered in this assessment.

6.2.2 Given that the Stornoway Deep Water Port development would have an opening year of 2021, the projected scenario for this assessment has been based on the later year to allow the assessment to consider the potential cumulative impact at the two junctions.

6.2.3 After review of historical traffic count data available from the Department for Transport (DfT) in and around Stornoway (data contained within Appendix D), it was established that the National Roads Traffic Forecast (NRTF) low growth factor was acceptable to apply to the base traffic flows to obtain the projected base flows for the year of opening. The growth factor that has been applied is as follows:

- NRTF Low Growth from 2018 to 2021: Factor – **1.024**

6.2.4 The network diagrams provided in Appendix E demonstrate the traffic flows in the identified area of influence for both the AM and PM peak periods in the base scenario of 2018 and then factored to the year of opening 2021.

6.3 Committed Development

6.3.1 CnES requested that the traffic impact assessment for the proposed development take account of the nearby Stornoway Deep Water Port development which is also at planning application stage and is expected for to come forward at similar timescales to the proposed development.

6.3.2 The Stornoway Deep Water Port (Phase 1) development (which will be subject to its own planning application) would comprise a new multi-purpose deep water port on the west shore of Glumaig Bay, a few kilometres south of Stornoway Harbour. The proposed site is across the bay from Arnish Fabrication Yard and load out quay.

6.3.3 The proposals are designed to provide the following:

- Alongside berthing for cruise liners of all sizes;
- Ferry berth, linkspan and marshalling area (freeing up the current car ferry to provide an additional daily sailing);
- Extensive laydown and storage area with 50m square heavy lift area – to service renewables and decommissioning projects; and
- Berthing and unloading gantries for oil delivery vessels, with pipelines to new storage tanks nearby (moving oil storage out of Stornoway town).

6.3.4 The expected trip generation for the Stornoway Deep Water Port (Phase 1) development has been extracted from the corresponding TA and the potential cumulative impact considered at the Causeway / Newton Street and Newton Street / Island Road priority junctions assessed within this TA.

6.4 Junction Assessment Methodology & Reporting

6.4.1 The industry standard PICADY 5 transport planning software tool has been used to undertake the traffic impact analysis for both priority controlled junctions.

6.4.2 The PICADY analysis will report the Ratio of Flow Capacity (RFC) and maximum forecast queue for each movement within the junction. The RFC of a junction is one of the principle

factors in influencing queues and delays. General engineering design principles as set out in the DMRB are that when assessing a priority junction or roundabout, RFC levels should not exceed 0.85 in order for the junction to operate within 'practical' capacity. Should the RFC level exceed 1.0 then the junction is operating above 'theoretical' capacity. The following paragraphs detail the results from the junction assessment exercise.

Goat Island Causeway / Newton Street Priority Junction

6.4.3 The results of the PICADY assessment for the Goat Island Causeway / Newton Street Priority Junction are indicated by Table 3 below for the AM and PM peak hours in the 2021 projected base plus committed and base plus committed plus development scenarios.

Table 3. Goat Island Causeway / Newton Street – AM and PM Peak Hour Analysis

MOVEMENT	2021 AM BASE + COM	2021 AM + COM + DEV	2021 PM BASE + COM	2021 PM BASE + COM + DEV
	RFC (Q)	RFC (Q)	RFC (Q)	RFC (Q)
B – C	0.025 (0)	0.026 (0)	0.042 (0)	0.064 (0)
B – A	0.002 (0)	0.002 (0)	0.0 (0)	0.010 (0)
C – AB	0.026 (0)	0.044 (0)	0.026 (0)	0.031 (0)

Note: Arm A – Seaview Terrace; Arm B – Causeway; Arm C – Newton Street

6.4.4 The results indicate that during the projected 2021 base plus committed and 2021 base plus committed plus development scenarios for both the AM and PM peak hour periods, the causeway / Newton Street junction would operate well within its practical capacity with no queueing anticipated on any arm.

Newton Street / Island Road Priority Junction

6.4.5 The results of the PICADY assessment for the Newton Street / Island Road Priority Junction are indicated by Table 4 below for the AM and PM peak hours in the 2021 projected base plus committed and base plus committed plus development scenarios.

Table 4. Newton Street / Island Road – AM and PM Peak Hour Analysis

MOVEMENT	2021 AM BASE + COM	2021 AM + COM + DEV	2021 PM BASE + COM	2021 PM BASE + COM+ DEV
	RFC (Q)	RFC (Q)	RFC (Q)	RFC (Q)
B – AC	0.146 (0)	0.155 (0)	0.193 (0)	0.197 (0)
C – AB	0.025 (0)	0.025 (0)	0.040 (0)	0.052 (0)

Note: Arm A – Newton Street E; Arm B – Island Road; Arm C – Newton Street W

6.4.6 The results indicate that during the projected 2021 base plus committed and 2021 base plus committed plus development scenarios for both the AM and PM peak hour periods, the Newton Street / Island Road junction would operate well within its practical capacity with no queueing anticipated on any arm.

7. SUMMARY & CONCLUSIONS

7.1 Overview

7.1.1 SYSTRA has been appointed by EnviroCentre on behalf of Stornoway Port Authority to prepare a Transport Assessment in support of a planning application for the proposed development at Goat Island in Stornoway, Isle of Lewis. It is envisaged that the proposed development would comprise a marina of approximately 75 berths, associated marina services including a slipway and boat storage area.

7.1.2 The boat workshop will be subject to a separate application at a later stage, however, to provide a robust and worst-case assessment of the end-use scenario for the development site as a whole, the TA has included consideration of the trip generation associated with the boat workshop element.

7.2 Sustainable Travel

7.2.1 The existing level of pedestrian and cyclists accessibility to the site will be maintained as part of the proposed development to facilitate travel by sustainable modes. To further encourage active travel, cycle parking will be provided on-site.

7.2.2 It is considered that the existing level of public transport, in the form of the bus stops located on Newton Street and the bus station within reasonable walking distance, is adequate in providing the opportunity for staff / visitors to travel to and from the proposed development by public transport if desired.

7.3 Vehicle Trips

7.3.1 While a choice of travel modes are available in the vicinity of the site (i.e. walking, cycling and bus) if travelling from in and around Stornoway, this assessment considers that 100% of staff and visitors to the proposed development and boat workshop will travel by private car to ensure a robust assessment.

7.3.2 It is anticipated that during the network AM and PM peak hour periods, the proposed development's estimated traffic generation (marina element plus boat workshop element) would be the following:

- AM: 14 two-way vehicle trips (13 arrivals and 1 departure); and
- PM: 22 two-way vehicle trips (4 arrivals and 18 departures).

7.3.3 This level of additional traffic is unlikely to have a significant impact on the surrounding local road network. The traffic impact assessment has demonstrates that this would have a negligible impact on key junctions to be affected by the proposed development.

Vehicular Access

7.3.4 Access to the proposed development will be taken from the existing causeway between Newton Street and Goat Island. Considering the low baseline traffic levels per hour and the low number of vehicle trips the proposed development is expected to generate, it is concluded that the existing provision of passing opportunities with a passing place

provided at the proposed development will be sufficient to accommodate additional vehicle trips associated with the development proposals.

Car Parking

7.3.5 SPA has consulted CnES regarding parking at the proposed development and a total of 58 parking spaces are proposed, including provision for 5 disabled spaces, which is considered to be sufficient to accommodate the development proposals.

7.4 Overall Conclusion

7.4.1 The development proposals are broadly in accordance with the relevant national and local planning policies. In accordance with SPP, the proposed marina would support growth in the marine leisure sector, in an appropriate location which optimises the resources available and which is accessible by a range of transport modes. While the proposed development is not situated within 400m of a bus service as recommended within PAN 75, a distance of 600m is walkable for the able-bodied and considered to be appropriate in this case. With regard to the Cycling Action Plan for Scotland vision to achieve 10% of all commuter trips by bicycle by 2020, the proposed development will support / encourage staff to cycle to and from the proposed development by providing bicycle storage on-site. In accordance with the Outer Hebrides LDP 2, the proposed development fits in with the character of the area, will provide bicycle storage in line with the guidelines and an appropriate level of car parking.

7.4.2 The TA concludes that the proposed development can integrate well into the existing transport network and would be accessible by a range of modes. The development is of a proportionate scale and it is anticipated that the vehicle trips generated by the development will not have a significant impact to the local and wider road network.

SYSTRA provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.

A diverse group of results-oriented people, we are part of a strong team of professionals worldwide. Through client business planning, customer research and strategy development we create solutions that work for real people in the real world.

For more information visit www.systra.co.uk

Birmingham – Newhall Street
5th Floor, Lancaster House, Newhall St,
Birmingham, B3 1NQ
T: +44 (0)121 233 7680 F: +44 (0)121 233 7681

Birmingham – Innovation Court
Innovation Court, 121 Edmund Street, Birmingham B3 2HJ
T: +44 (0)121 230 6010

Bristol
10 Victoria Street, Bristol, BS1 6BN
T: +44 (0)117 922 9040

Dublin
2nd Floor, Riverview House, 21-23 City Quay
Dublin 2,Ireland
T: +353 (0) 1 905 3961

Edinburgh – Thistle Street
Prospect House, 5 Thistle Street, Edinburgh EH2 1DF
United Kingdom
T: +44 (0)131 220 6966

Edinburgh – Manor Place
37 Manor Place, Edinburgh, EH3 7EB
Telephone +44 (0)131 225 7900 Fax: +44 (0)131 225 9229

Glasgow – St Vincent St
Seventh Floor, 124 St Vincent Street
Glasgow G2 5HF United Kingdom
T: +44 (0)141 225 4400

Glasgow – West George St
250 West George Street, Glasgow, G2 4QY
T: +44 (0)141 221 4030 F: +44 (0)800 066 4367

Leeds
100 Wellington Street, Leeds, LS1 1BA
T: +44 (0)113 397 9740 F: +44 (0)113 397 9741

Liverpool
Cotton Exchange, Bixteth Street, Liverpool, L3 9LQ
T: +44 (0)151 230 1930

London
3rd Floor, 5 Old Bailey, London EC4M 7BA United Kingdom
T: +44 (0)203 714 4400

Manchester – 16th Floor, City Tower
16th Floor, City Tower, Piccadilly Plaza
Manchester M1 4BT United Kingdom
T: +44 (0)161 831 5600

Newcastle
Floor B, South Corridor, Milburn House, Dean Street, Newcastle,
NE1 1LE
United Kingdom
T: +44 (0)191 260 0135

Perth
13 Rose Terrace, Perth PH1 5HA
T: +44 (0)1738 621 377 F: +44 (0)1738 632 887

Reading
Soane Point, 6-8 Market Place, Reading,
Berkshire, RG1 2EG
T: +44 (0)118 334 5510

Woking
Dukes Court, Duke Street
Woking, Surrey GU21 5BH United Kingdom
T: +44 (0)1483 728051 F: +44 (0)1483 755207

Other locations:

France:
Bordeaux, Lille, Lyon, Marseille, Paris

Northern Europe:
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SYSTRA

Appendix A

Scoping Letter

[Redacted]
Comhairle Nan Eilean Siar Offices,
Sandwick Rd,
Stornoway,
HS1 2BW

Our Ref: GB01T17O43/10708512
Client Ref: 169265

Proposed Newton Marina Development
Goat Island, Stornoway, Isle of Lewis
Transport Assessment Scoping

09/04/2018

Dear [Re

SYSTRA Ltd (SYSTRA) has been appointed by EnviroCentre to prepare a Transport Assessment (TA) and Traffic and Transport Environmental Impact Assessment (EIA) Report Chapter. These reports will accompany the full EIA report, which is being prepared in support of a planning application by Stornoway Port Authority (SPA) for the redevelopment of Goat Island in Stornoway, Isle of Lewis, referred to as the 'Newton Marina development'.

This letter is intended to form the Scoping Study that sets out the methodology and parameters that will be adopted in the emerging TA for agreement with Comhairle nan Eilean Siar (CnES). A site visit was undertaken by SYSTRA on 16th January 2018 to inform this Scoping Study and the emerging TA.

EnviroCentre submitted the EIA Screening and Scoping Report for the proposed development to CnES on 12th September 2017, which included details of the methodology to be applied and potentially significant effects during the construction phase and post-completion. A response from CnES was received on 3rd November 2017 which agreed to the methodology set out for the Traffic and Transport EIA Report Chapter. In the response, CnES noted that appropriate access will need to be maintained for personnel of the MCA Coastguard Station and its emergency response team and that opportunity should be taken to improve road safety, promote green transport, active travel, provide bicycle storage, and address access issues, particularly at stress points. These aspects will be covered within the TA for the proposed marina.

The following paragraphs detail the proposed scope of the TA for the Newton Marina development.

Methodology & Policy Guidance

The Transport Assessment will be completed in accordance with appropriate local, regional and national policy and guidance. Specifically, reference will be made to the following:

250 West George Street, Glasgow, G2 4QY, United Kingdom
Telephone +44 (0)141 221 4030 Fax: +44 (0)800 066 4367 www.systra.co.uk
Registered Office SYSTRA Ltd, Dukes Court, Duke Street, Woking, Surrey, GU21 5BH.
Registered Number 3383212

- Transport Scotland – "Transport Assessment Guidance" (TAG) (2012);
- Planning Advice Note (PAN) 75 – "Planning for Transport";
- Scottish Planning Policy (2014);
- Outer Hebrides Local Development Plan (LDP) 2 – "Working Towards A New Plan" (2012) and "Supplementary Guidance: Standards for Car Parking & Roads Layout" (2012); and
- HITRANS – "The Transport Strategy for the Highlands and Islands" (2008 – 2021).

The Site

Goat Island is bound to the north, west and south by Stornoway Harbour, whilst being joined to the rest of Stornoway by the 240m long and 4.5m wide 'Battery Point' causeway. Beyond the causeway to the east, the Coastguard and SSE's Battery Point power station are situated approximately 395m from the closest point of Goat Island. The nearest residential dwellings are located on Newton Street (approx. 160m to the north), with other dwellings on Seaview Terrace (approx. 320m to the north-east), Island Road (approx. 250m to the north) and Inaclete Road (approx. 265m to the north).

Development Proposal

The existing marina (Stornoway Inner Harbour Marina) has operated exceptionally well and been virtually at capacity since it opened 3 years ago with 83 berths being occupied all year. The proposed development of the new marina is aimed to support growth in the marine leisure sector. The proposed development includes:

- Land reclamation along the north side of Goat Island and the causeway;
- Breakwater and marina with approximately 75 berths;
- Slipway and yacht lift;
- Boat storage (on land);
- Marina services (club house, toilets, showers, etc.);
- Parking; and
- Replacement of the existing marine engineering workshop with a new workshop on the reclaimed area.

It is proposed to build a sheltering breakwater and to reclaim land using material excavated in forming the entrance channel and the marina basin. A boat lift structure and mobile boat lift will be provided to lift yachts in and out of the water overwintering on the reclaimed area. Access to the reclaimed area will be from the end of the existing causeway and will be used for the following functions:

- Overwintering of yachts
- Facilities building for marina users (toilet, showers, laundry);
- Car parking;
- Public slipway for launching and recovering of boats;
- Replacement for the two existing boat storage sheds;
- Large boat repair/boat building workshop building for use by marine engineering company;
- A water sports clubhouse and associated boat storage*;
- Additional boat repair workshops*; and
- Food and drink café/restaurant*.

(*Items would be developed following completion of the marina and boat workshop, subject to demand and funding availability, therefore are not considered within the emerging TA.)

It is estimated that construction would commence in 2018 and create around 13 full-time equivalent (FTE) jobs once operational – 11 associated with the proposed boat workshop and 2 associated with the proposed marina.

Vehicular Access

It is proposed that the existing road network will be used to access the proposed Newton Marina. The principal road accessible to the proposed marina would be Newton Street. There are various vehicular routeing options between the site and the main road network. Vehicles can travel through Stornoway town to access the A857 and A858 or travel north along Island Road to link with the A866.

The site visit determined that these roads are good standard single carriageways of approximately 6.5m wide. It is noted that some on-street parking takes place along the A857 within the town centre (on single yellow lines) which narrows the road width in sections, however, in general parking is provided in off-street car parks or designated parking bays set back from the carriageway to maintain two-way flows along the A857.

Traffic calming measures are in place along many of the roads which would be used by the proposed development traffic. Such as, along Newton Street there are speed tables and build-out, and along the A857 to the north of the town centre there are speed tables incorporated into pedestrian crossings.

The TA will provide detailed consideration of the existing conditions of the road network proposed for use by the Newton Marina development. Nevertheless, from SYSTRA's site visit and desk top study we would suggest that existing roads are suitable to accommodate additional vehicle movements associated with the proposed development.

Swept path analysis will be undertaken at the junction between the causeway and Newton Street for the largest vehicle expected during the construction phase to ensure that HGVs can manoeuvre appropriately through this junction when routeing to and from the site, and the results will be detailed in the TA. It should be noted that there are regular delivery and uplift HGVs to the existing site, including large articulated trailers.

Pedestrian, Cycle & Public Transport Access

As discussed, CnES expressed in their response to the EIA Scoping Report that opportunity should be taken to promote green transport and active travel. The TA will identify the existing provision for pedestrians and cyclists in the vicinity of the proposed development and consider appropriate measures to encourage walking, cycling and public transport use.

In brief, the site visit established that there is a footway present along the length of the causeway on the south-eastern side which serves as the primary pedestrian access to both the Coastguard Station and Goat Island. This connects to Newton Street and a network of footways which lead into the town centre and surrounding areas of Stornoway town.

There are no formal pedestrian crossing opportunities along Newton Street as the road is residential in nature. Dropped kerbs and pedestrian refuge islands are provided at the A866 / Shell Street / James Street Roundabout to the north-west of the proposed development. Furthermore, signalised pedestrian crossings are provided within the town centre along the A857. Walking isochrones for up to a 20 – 30 minute walk catchment (as stated within TAG as appropriate walking journey times), taking account of local topography and ground conditions, will be included within the TA to demonstrate the walkability of the site.

It is noted that no formal provision for cyclists is currently in place and so, cyclists are expected to practice on-road cycling. The TA will consider appropriate on-road route options for cyclists between the proposed development and the nearby local facilities / amenities. Cycle isochrones will be produced in accordance with national policy.

The full extent of cycle provision included in the development proposals will be outlined within the TA including the number of cycle parking spaces, which will be in line with guidance given in Supplementary Guidance of the Outer Hebrides LDP (2012).

A detailed breakdown of the existing public bus services which may be used by employees / visitors to the proposed development will also be included within the TA. It is noted that there are bus stops serving both eastbound and westbound directions situation on Newton Street.

Parking

CnES provides guidance on car parking standards through Supplementary Guidance of the Outer Hebrides LDP. These guidelines state that for marina developments, 1 space per berth plus 1 space per 3 staff should be provided. Disabled parking spaces should be provided on a basis of 6% of total (car park size of up to 200 spaces) or 4 spaces plus 4% of total number (car park size of over 200 spaces), with a minimum of 3 disabled spaces provided.

It is noted that the Port Authority's existing marina at Cromwell Street Quay provides 80 berths and has approximately 25 car parking spaces. Initial consultation has been had with CnES regarding parking at the proposed development and a total of 67 parking spaces are proposed (excluding parking provision associated with the fish processing factory which is covered by a separate planning application), broken down as follows:

- 44 parking bays (including 3 disabled bays) associated with the marina and boat storage facilities; and
- 23 parking bays (including 2 disabled bays) associated with the boat repair workshop.

Parking numbers for the proposed development will be confirmed within the TA. The parking provision for the proposed development takes into consideration the parking provision at the existing marina and fundamentally, seeks to provide a balance between accommodating the car whilst promoting sustainable and active travel.

Baseline Traffic Conditions (Surveys)

The Department for Transport holds annual average daily flow (AADF) traffic data from automatic traffic counters on the A859, A857 and A858 and in the vicinity of the site, recorded during 2015 and 2016 (the most recent information available). This data will be used for assessing the percentage increase in total traffic levels and HGV levels along these road links as part of the Traffic and Transport EIA Report Chapter for the proposed development.

To inform the traffic impact assessment within the TA, SYSTRA proposes to commission turning count and queue length surveys at the following junctions (Figure 1) during the periods of 07:00-09:00 in the AM 11:00-13:00 in mid-morning/afternoon and 16:30-18:30 in the PM:

1. Causeway / Newton Street priority junction;
2. Newton Street / Island Road priority junction.

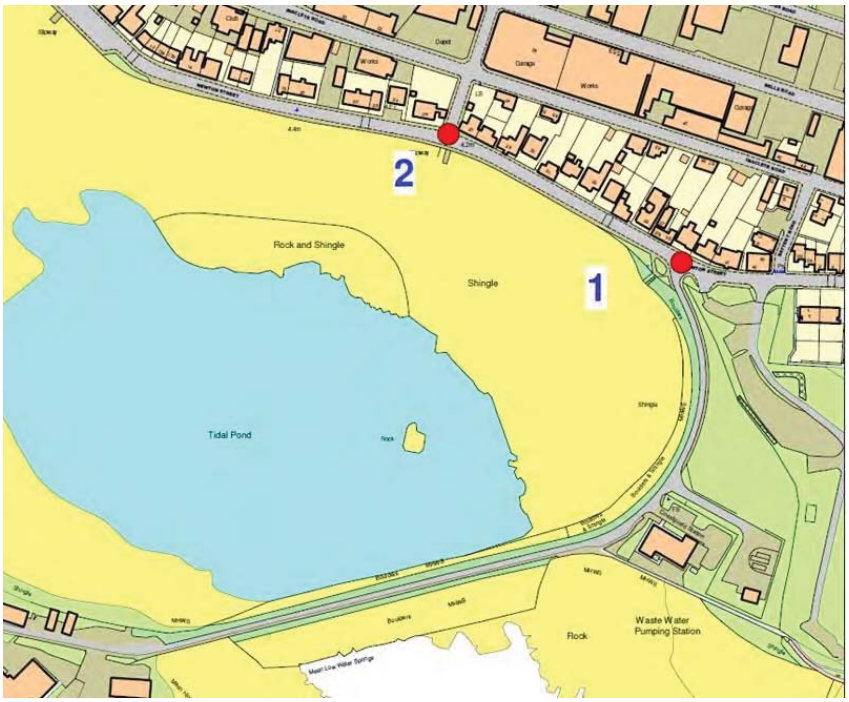


Figure 1. Proposed Junctions to be Surveyed

These junctions are anticipated to be the most affected by traffic associated with the proposed development.

Two local automatic traffic counter (ATC) surveys are also proposed in order to factor peak hour traffic flows up to 24 hour flows – along the causeway between the junction with Newton Street and the Coastguard Station; and on Matheson Road.

Development Trip Generation

Given the nature of the development, the expected trip generation will be calculated from a first principles (and for a worst-case scenario) approach, however, the TRICS database has been consulted to provide an indication of vehicle trip generation for similar marina developments.

Of the 75 berths proposed at the Newton Marina development, SPA estimates that 40 berths will be used by locals who currently utilise a berth at the existing town centre marina, as a key aspect of the proposed development is to "free up" berths at the existing marina for visitors' use. As visitors using berths at the Newton Marina development will not manifest as a vehicle trip to / from the proposed development, it is considered that the use of 35 berths at the proposed development can effectively be "discounted" from the trip generation assessment. Therefore, the trip generation assessment can be based vehicle movements associated with the 40 berths used by locals. To provide a robust and worst-case scenario, the TRICS vehicle trip generation assessment has been based on 50 berths.

The TRICS database provides weekend vehicle trip rates only for marina developments (incorporating marina service facilities and boat storage yard). The daily profile (07:00 – 22:00) of vehicle trip rates and resultant trip generation for 50 berths is indicated by Table 1 below.

Table 1. TRICS Weekend Daily Vehicle Trip Rate and Trip Generation

PERIOD	TRIP RATE (PER BERTH)			TRIP GENERATION (FOR 50 BERTHS)		
	Arrive	Depart	Total	Arrive	Depart	Total
07:00-08:00	0.017	0.015	0.032	1	1	2
08:00-09:00	0.04	0.022	0.062	2	1	3
09:00-10:00	0.084	0.042	0.126	4	2	6
10:00-11:00	0.074	0.039	0.113	4	2	6
11:00-12:00	0.11	0.063	0.173	5	3	9
12:00-13:00	0.121	0.086	0.207	6	4	10
13:00-14:00	0.108	0.085	0.193	5	4	10
14:00-15:00	0.095	0.12	0.215	5	6	11
15:00-16:00	0.096	0.117	0.213	5	6	11
16:00-17:00	0.076	0.146	0.222	4	7	11
17:00-18:00	0.059	0.103	0.162	3	5	8
18:00-19:00	0.04	0.074	0.114	2	4	6
19:00-20:00	0.028	0.039	0.067	1	2	3
20:00-21:00	0.021	0.029	0.05	1	1	3
21:00-22:00	0.011	0	0.011	1	0	1
Total	**0.98**	**0.98**	**1.96**	**49**	**48**	**98**

Note: Variances due to rounding

Table 1 indicates that peak period for vehicle trips associated with marina developments is between 14:00-17:00 with **11** two-way vehicle trips per hour respectively. Over the course of the day (07:00-22:00) the TRICS assessment and Table 1 indicate that 50 berths would result in **49** arrivals and **48** departures associated with vehicle trips, equating to **98** two-way movements. This is considered to be a minimal amount over the course of the day and when distributed across the local road network.

Regarding the boat workshop element of the proposed development, TRICS does not provide a trip rate for this type of development. However, it is estimated that the boat workshop will have 11 employees in total, that staff and visitors will arrive outwith the peak periods, and that a proportion of visitor trips will be "linked" trips with the marina element of the proposed development whereby users of the boat repair workshop also store their boat at the marina on Goat Island.

The distribution and assignment of the vehicle trips associated with the proposed development will be derived from a first principles approach. It is anticipated that trips associated with visitor travel movements will predominantly be to / from the town centre and that visitor will travel by walking, cycling or public transport modes only considering they will arrive by boat without a vehicle.

The expected number of vehicle trips that the proposed development will generate will be detailed within the TA.

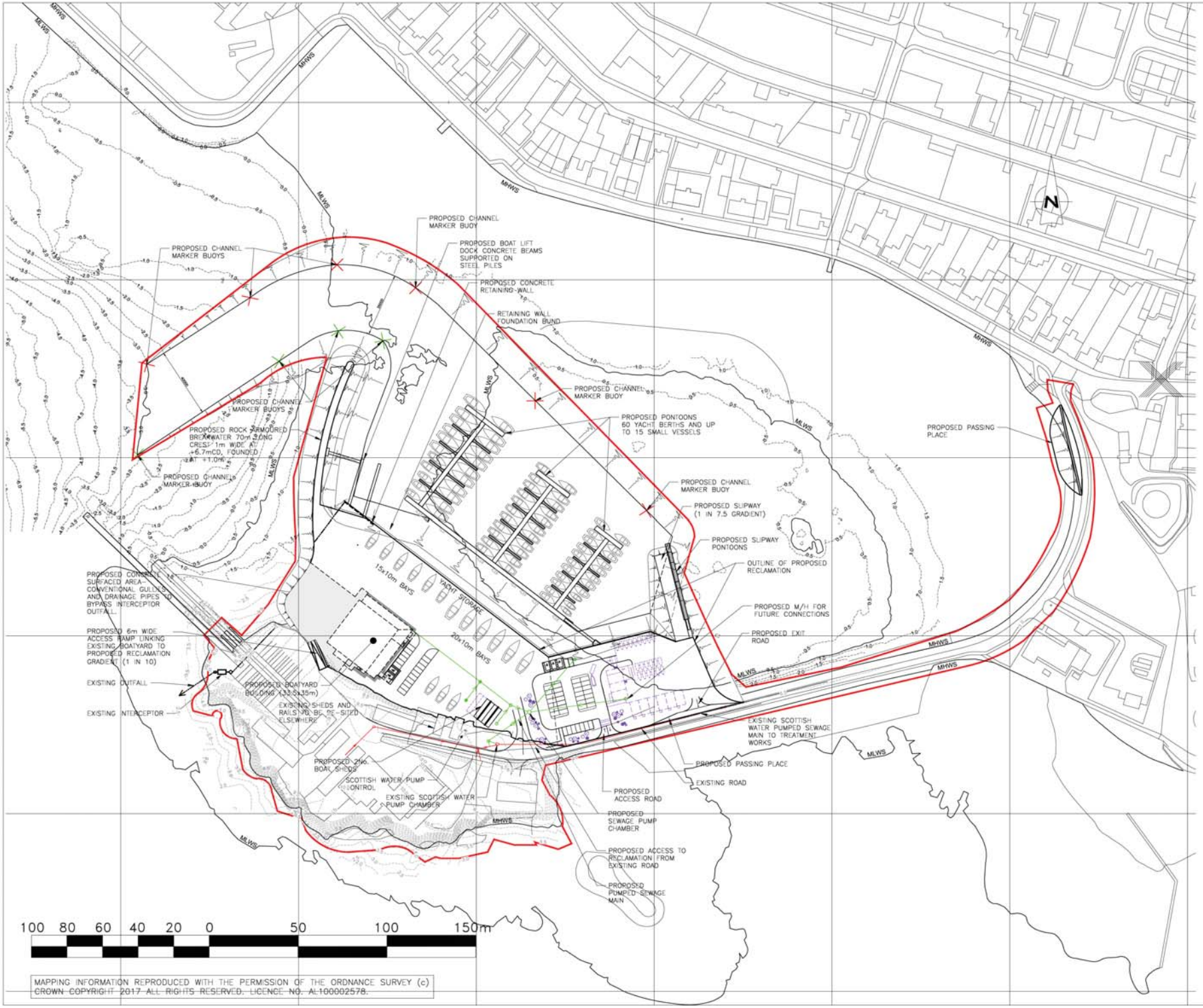
Committed Development
SYSTRA would ask that CnES confirm whether there are any committed developments or proposed transport infrastructure schemes which will impact on the identified study network.

Yours sincerely

[Redacted]
Consultant

Appendix B

Indicative Development Layout



GENERAL NOTES

EIA BOUNDARY

POTENTIAL FUTURE WORKS (WATER SPORTS CLUBHOUSE, BOAT STORAGE, MARINE BUSINESS UNITS)

REV	DETAILS	BY	DATE
C	DREDGE/SHED LAYOUT & TITLE UPDATED	JM	06.08.18
B	MINOR REVISIONS	AB	11.07.18
A	MINOR REVISIONS	AB	19.06.18

AMENDMENTS

CLIENT
STORNOWAY PORT AUTHORITY

PROJECT
STORNOWAY NEWTON MARINA

Wallace Stone
CONSULTING CIVIL ENGINEERS
GLASGOW 0141 554 8233 glasgow@wallacestone.co.uk
DINGWALL 01349 866775 dingwall@wallacestone.co.uk
HEBRIDES 01851 612454 hebrides@wallacestone.co.uk

DRAWING TITLE
EIA
FIGURE 2.1:
SITE LAYOUT PLAN

DRAWN	CHECKED	APPROVED
AN		
DATE 01.06.18	DATE	DATE

SCALE (A1) 1:1000
STAGE CONSENTS
REVISION A B C

PROJECT No. 1874
DRAWING No. 2002

Appendix C

Development Distribution and Assignment

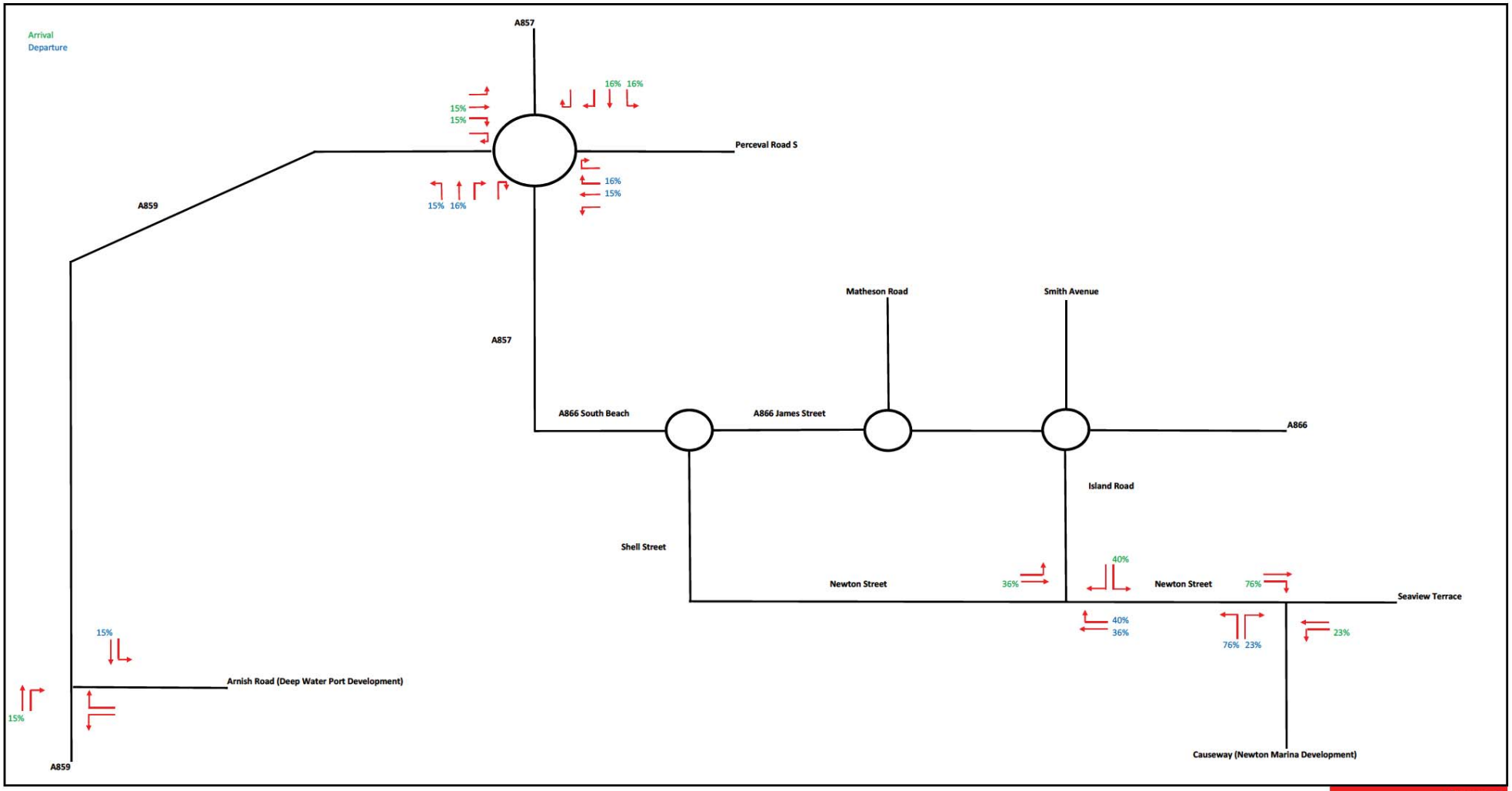


Figure C

Newton Distribution

Appendix D

DfT Historical AADF Traffic Data

A857 Cromwell Street

AADFYear	AllMotorVehicles	Growth
2000	8473	
2001	8801	1.039
2002	9047	1.028
2003	9300	1.028
2004	9377	1.008
2005	9474	1.010
2006	9608	1.014
2007	9360	0.974
2008	9168	0.979
2009	9139	0.997
2010	9080	0.994
2011	9076	1.000
2012	9066	0.999
2013	8070	0.890
2014	8096	1.003
2015	8118	1.003
2016	8270	1.019
2017	8308	1.005

A857 Macauley Road

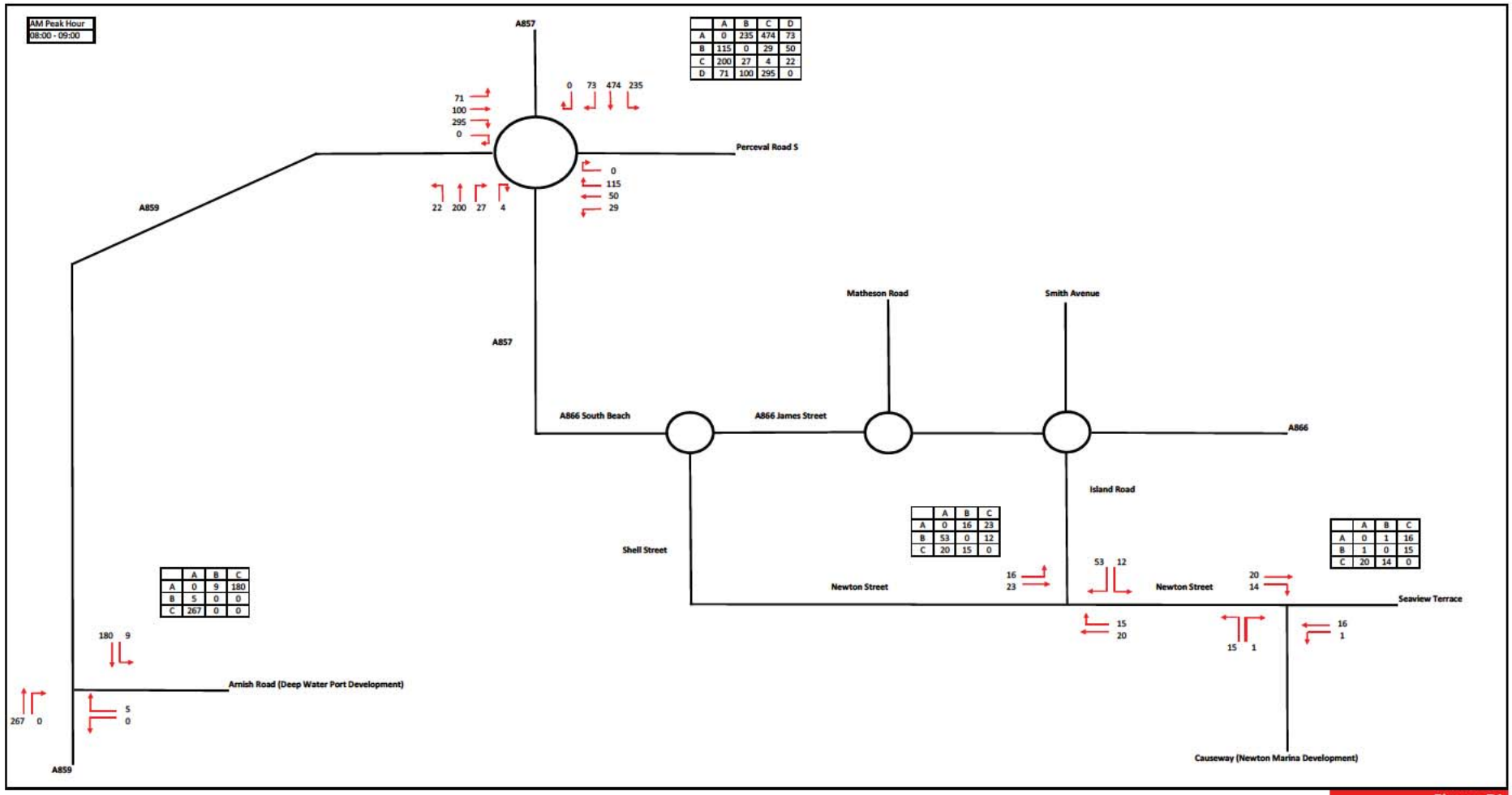
AADFYear	AllMotorVehicles	Growth
2000	13287	
2001	13765	1.036
2002	14203	1.032
2003	14772	1.040
2004	15001	1.016
2005	15197	1.013
2006	15546	1.023
2007	16323	1.050
2008	14476	0.887
2009	14425	0.996
2010	14328	0.993
2011	14317	0.999
2012	17479	1.221
2013	17501	1.001
2014	17549	1.003
2015	17614	1.004
2016	17956	1.019
2017	18056	1.006

A866

AADFYear	AllMotorVehicles	Growth
2000	2381	
2001	2430	1.021
2002	2054	0.845
2003	2142	1.043
2004	2157	1.007
2005	2155	0.999
2006	2191	1.017
2007	2165	0.988
2008	2155	0.995
2009	2200	1.021
2010	2162	0.983
2011	2174	1.006
2012	2135	0.982
2013	2038	0.955
2014	2078	1.020
2015	2123	1.022
2016	2162	1.018
2017	2173	1.005

Appendix E

Network Diagrams



	A	B	C	D
A	0	235	474	73
B	115	0	29	50
C	200	27	4	22
D	71	100	295	0

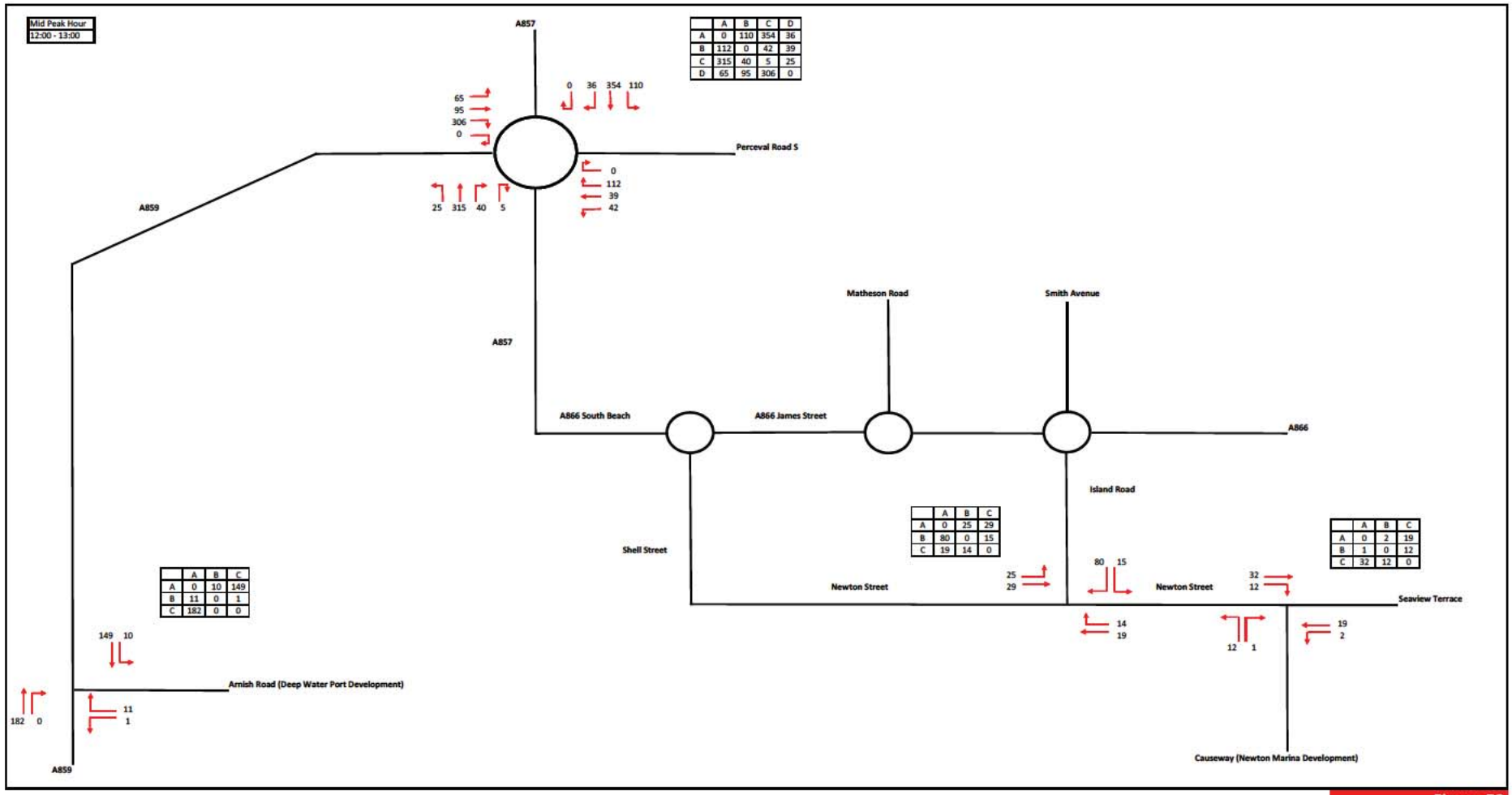
	A	B	C
A	0	9	180
B	5	0	0
C	267	0	0

	A	B	C
A	0	16	23
B	53	0	12
C	20	15	0

	A	B	C
A	0	1	16
B	1	0	15
C	20	14	0

Figure E1

2018 Base AM



	A	B	C	D
A	0	110	354	36
B	112	0	42	39
C	315	40	5	25
D	65	95	306	0

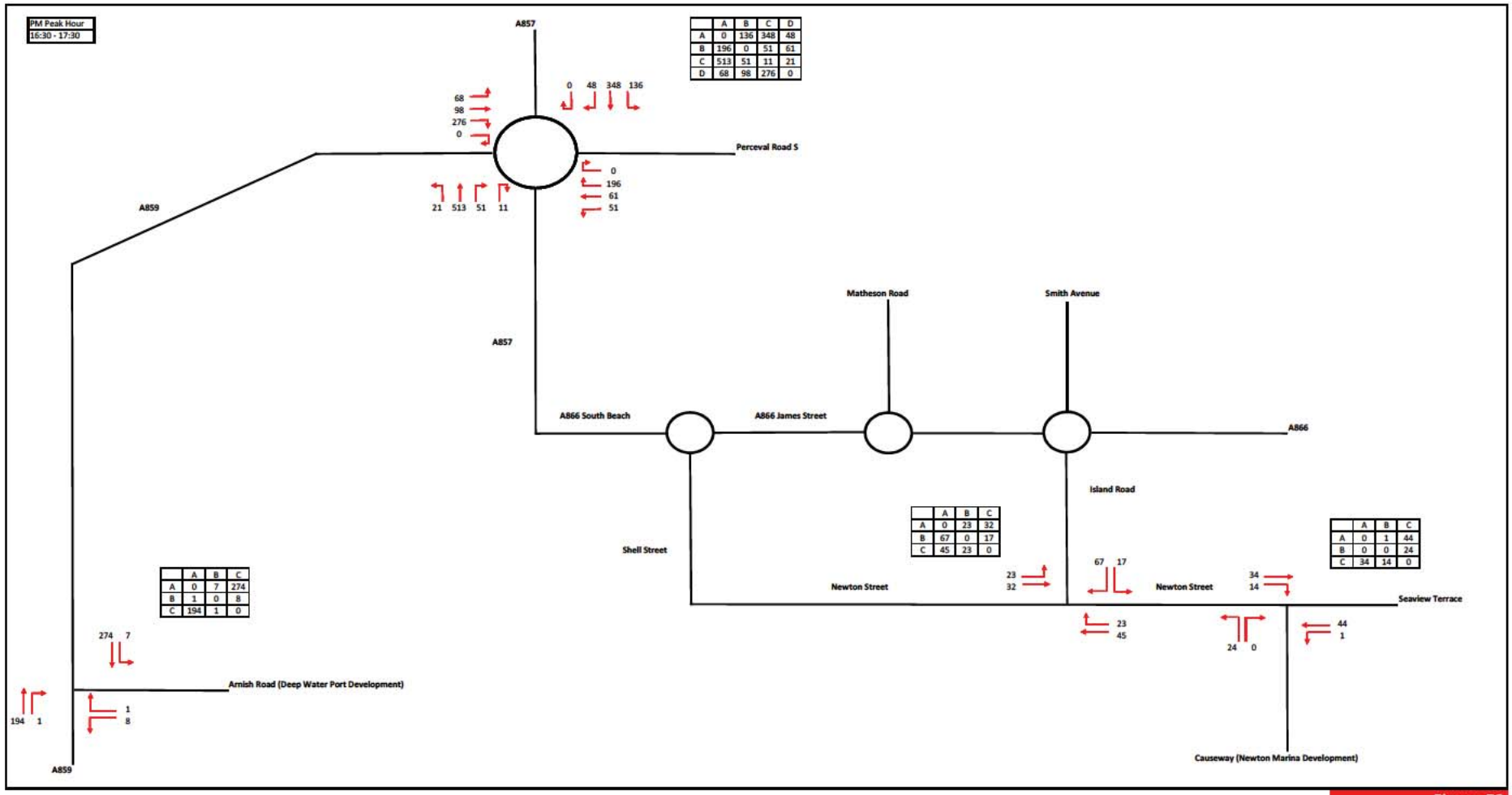
	A	B	C
A	0	10	149
B	11	0	1
C	182	0	0

	A	B	C
A	0	25	29
B	80	0	15
C	19	14	0

	A	B	C
A	0	2	19
B	1	0	12
C	32	12	0

Figure E2

2018 Base Mid



	A	B	C	D
A	0	136	348	48
B	196	0	51	61
C	513	51	11	21
D	68	98	276	0

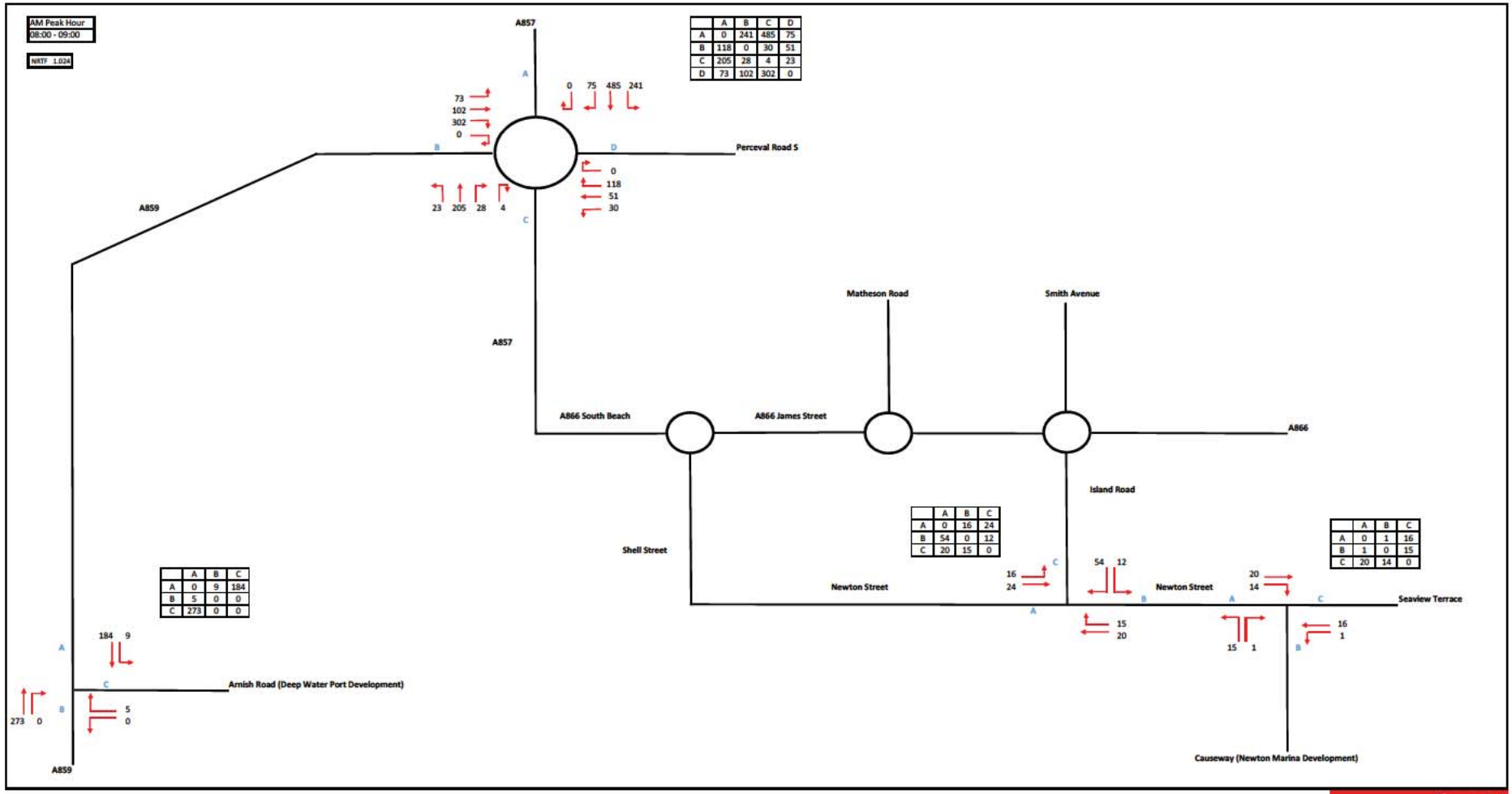
	A	B	C
A	0	7	274
B	1	0	8
C	194	1	0

	A	B	C
A	0	23	32
B	67	0	17
C	45	23	0

	A	B	C
A	0	1	44
B	0	0	24
C	34	14	0

Figure E3

2018 Base PM



	A	B	C	D
A	0	241	485	75
B	118	0	30	51
C	205	28	4	23
D	73	102	302	0

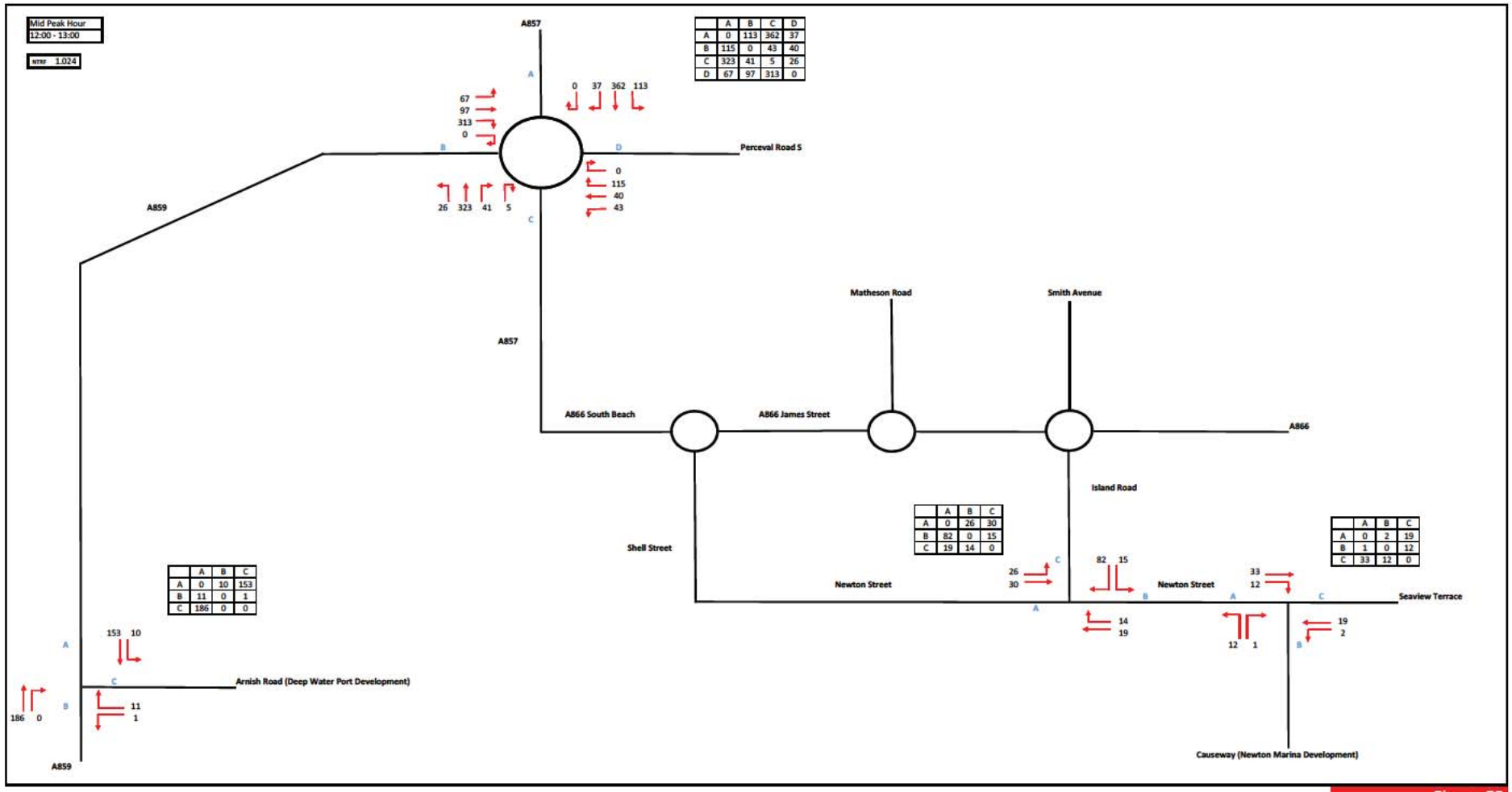
	A	B	C
A	0	9	184
B	5	0	0
C	273	0	0

	A	B	C
A	0	16	24
B	54	0	12
C	20	15	0

	A	B	C
A	0	1	16
B	1	0	15
C	20	14	0

Figure E4

2021 Base AM



	A	B	C	D
A	0	113	362	37
B	115	0	43	40
C	323	41	5	26
D	67	97	313	0

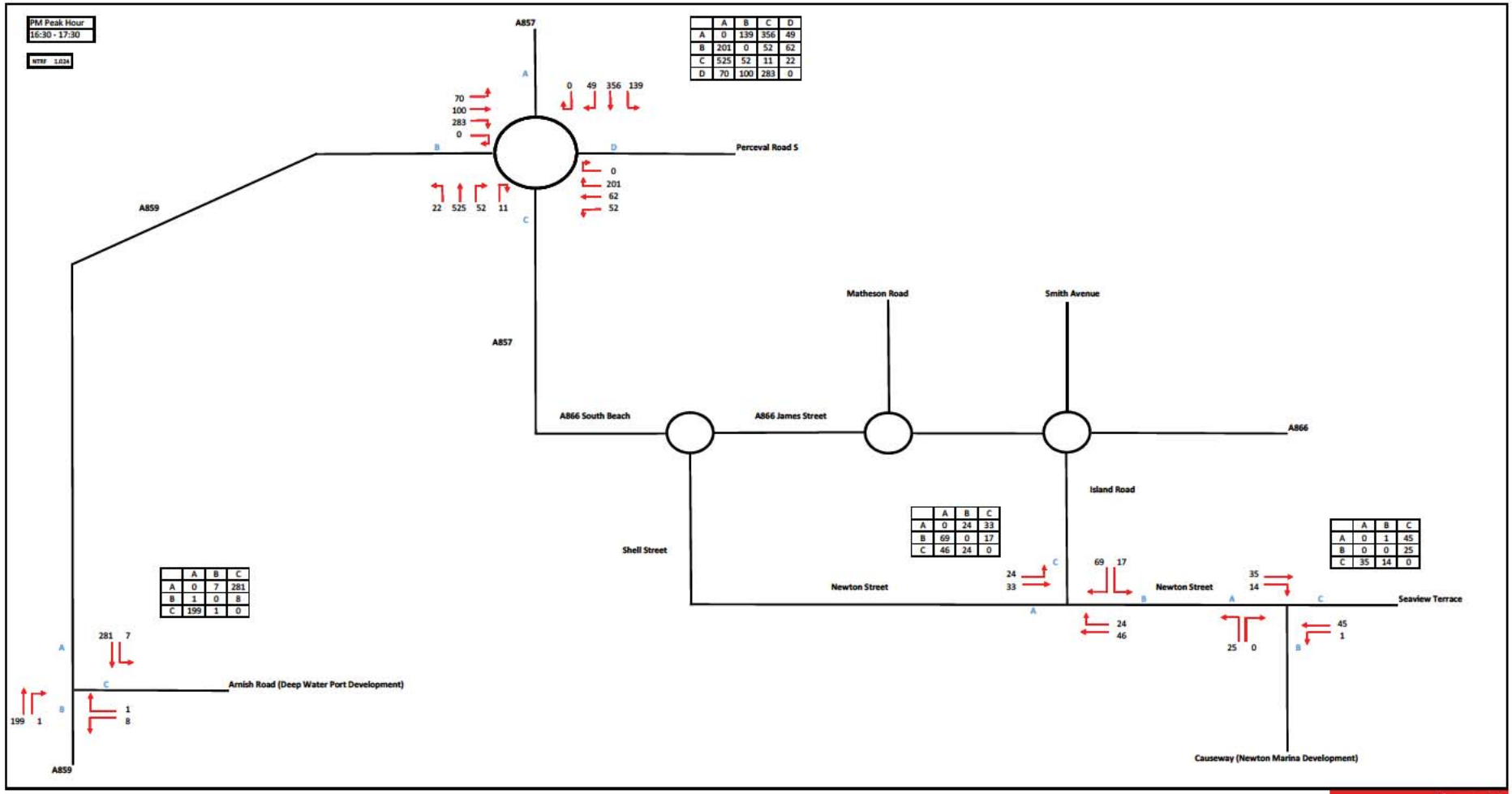
	A	B	C
A	0	10	153
B	11	0	1
C	186	0	0

	A	B	C
A	0	26	30
B	82	0	15
C	19	14	0

	A	B	C
A	0	2	19
B	1	0	12
C	33	12	0

Figure E5

2021 Base Mid



	A	B	C	D
A	0	139	356	49
B	201	0	52	62
C	525	52	11	22
D	70	100	283	0

	A	B	C
A	0	7	281
B	1	0	8
C	199	1	0

	A	B	C
A	0	24	33
B	69	0	17
C	46	24	0

	A	B	C
A	0	1	45
B	0	0	25
C	35	14	0

Figure E6

2021 Base PM

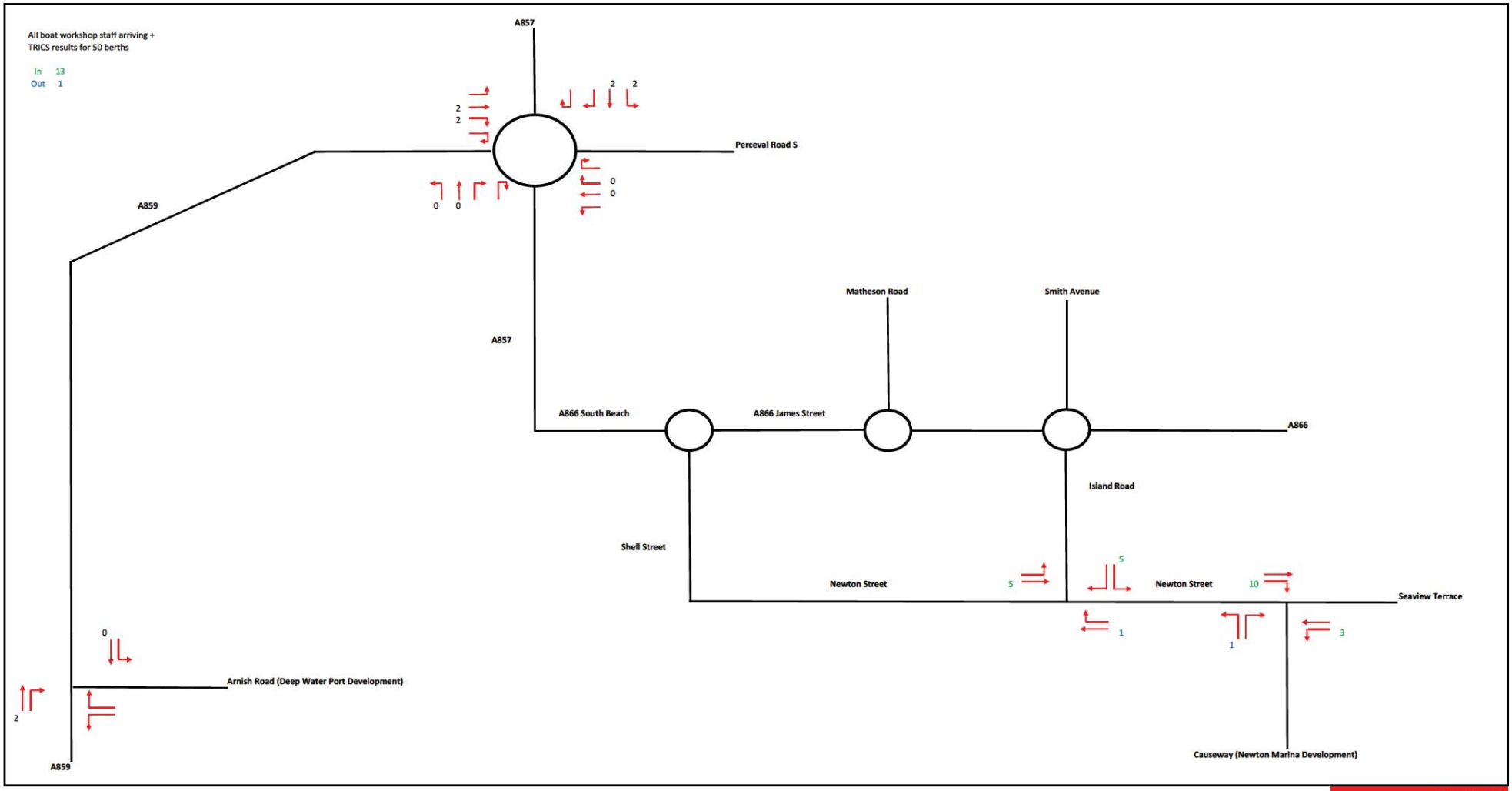


Figure E7

Newton Operational AM

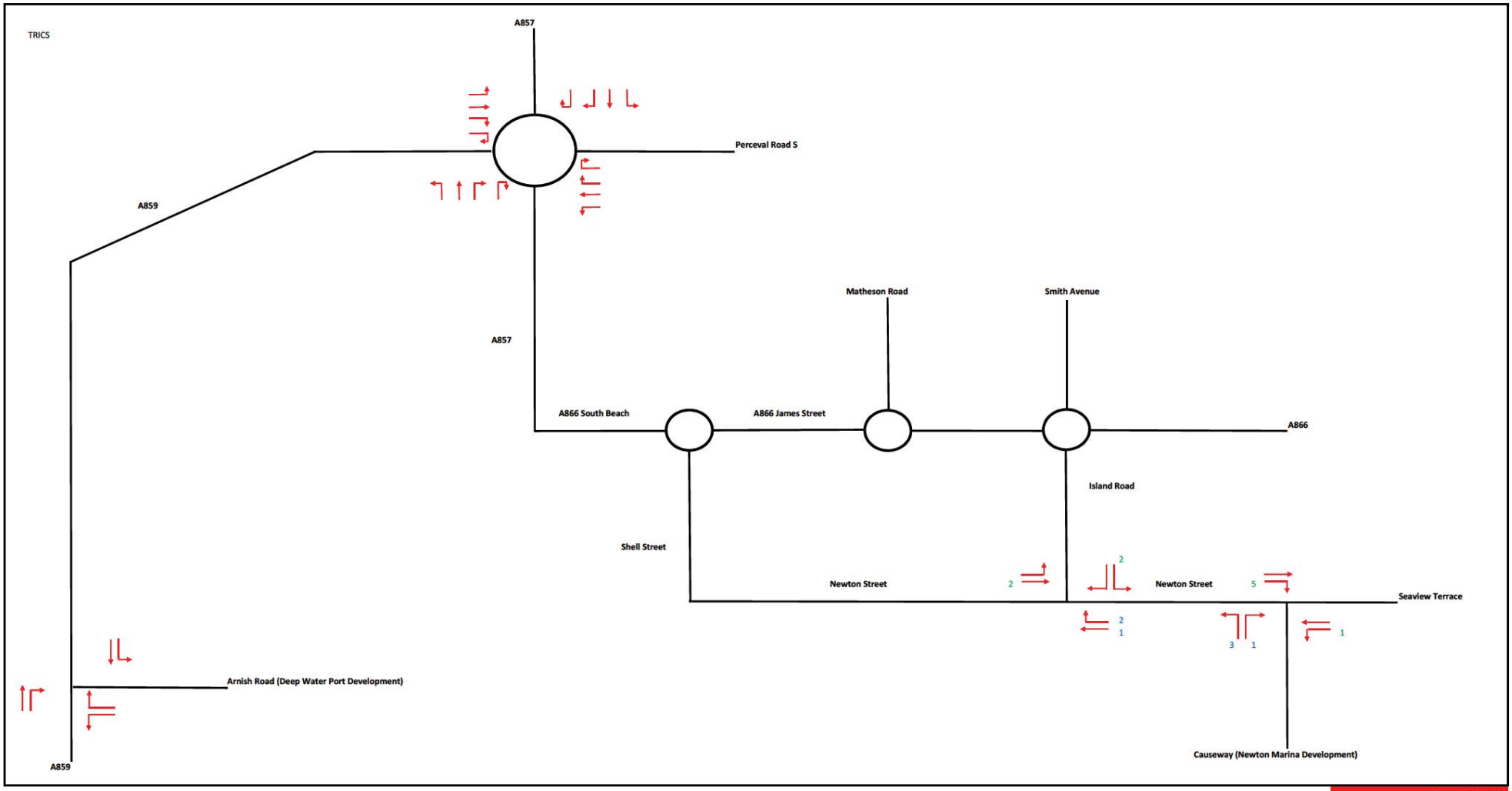


Figure E8

Newton Operational Mid

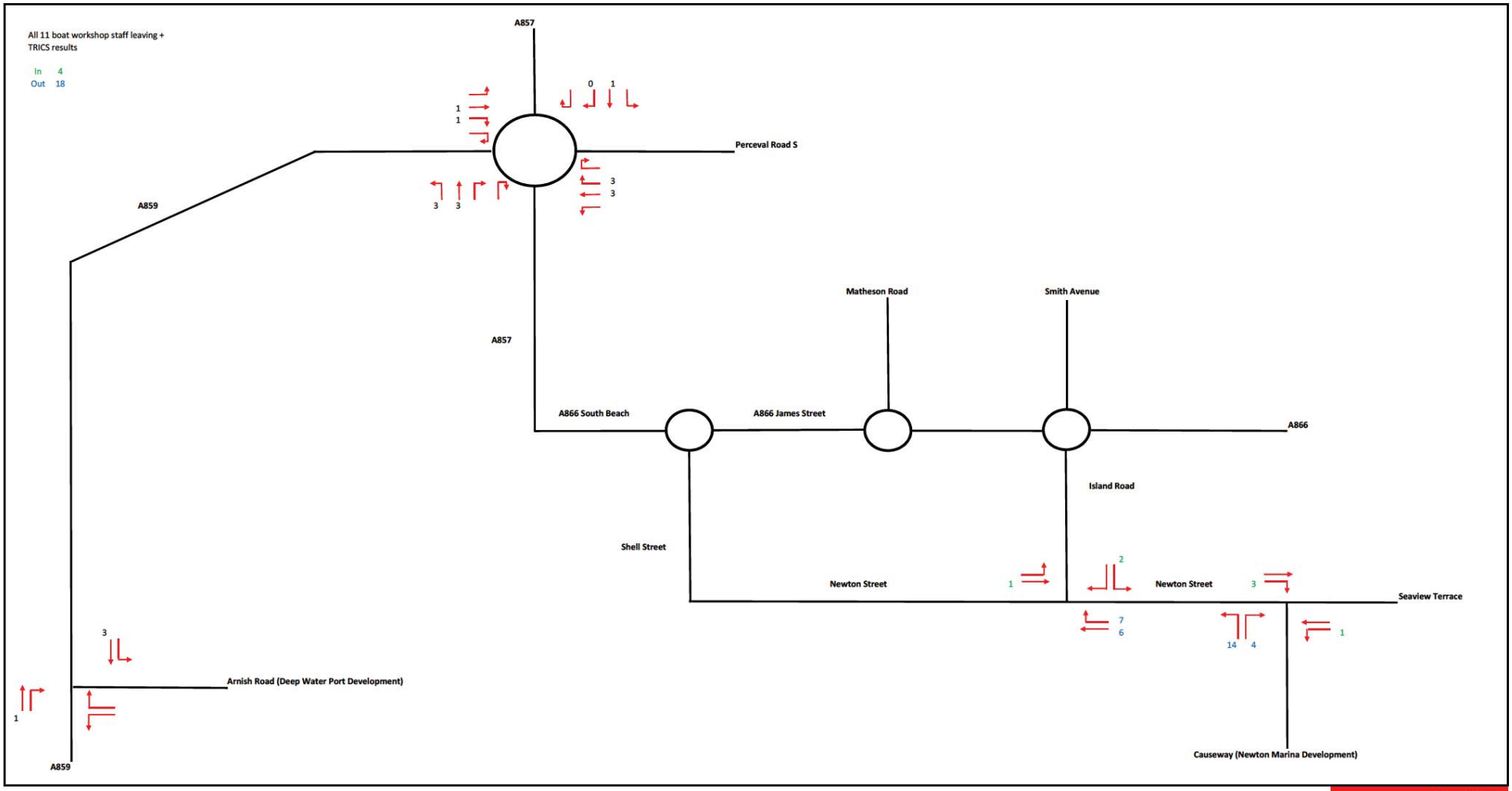
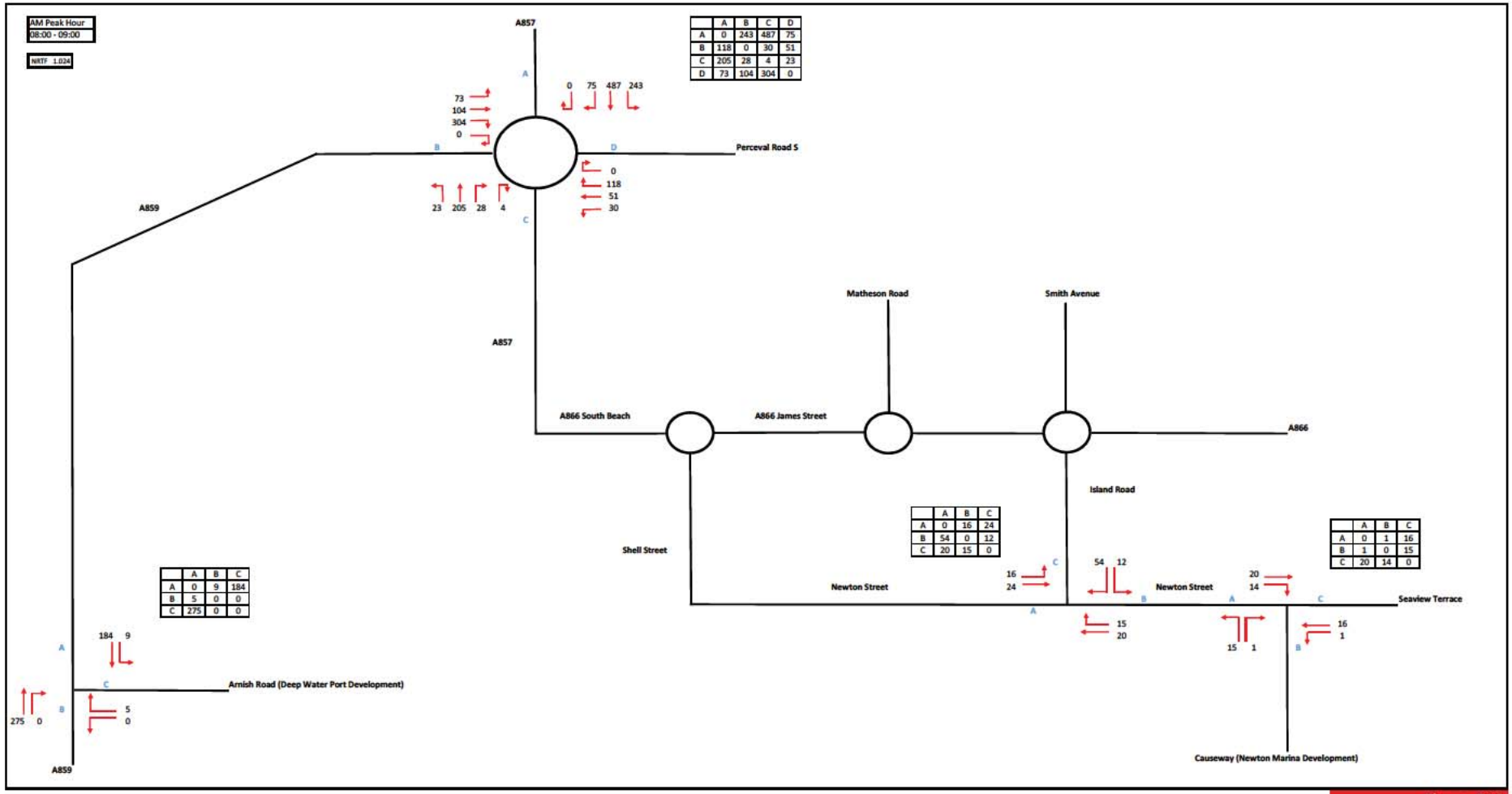


Figure E9

Newton Operational PM



	A	B	C	D
A	0	243	487	75
B	118	0	30	51
C	205	28	4	23
D	73	104	304	0

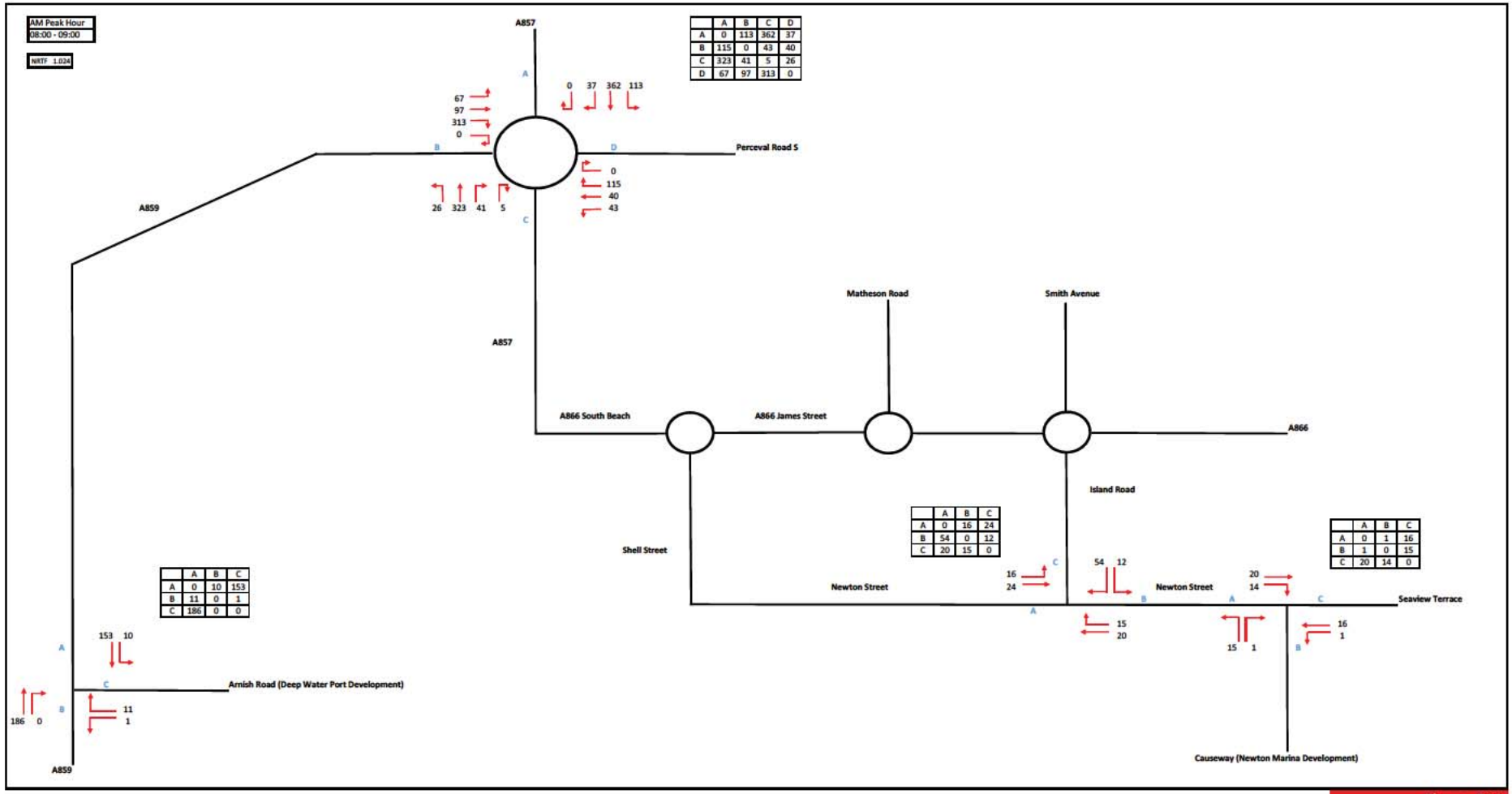
	A	B	C
A	0	9	184
B	5	0	0
C	275	0	0

	A	B	C
A	0	16	24
B	54	0	12
C	20	15	0

	A	B	C
A	0	1	16
B	1	0	15
C	20	14	0

Figure E10

2021 Base AM + Com



	A	B	C	D
A	0	113	362	37
B	115	0	43	40
C	323	41	5	26
D	67	97	313	0

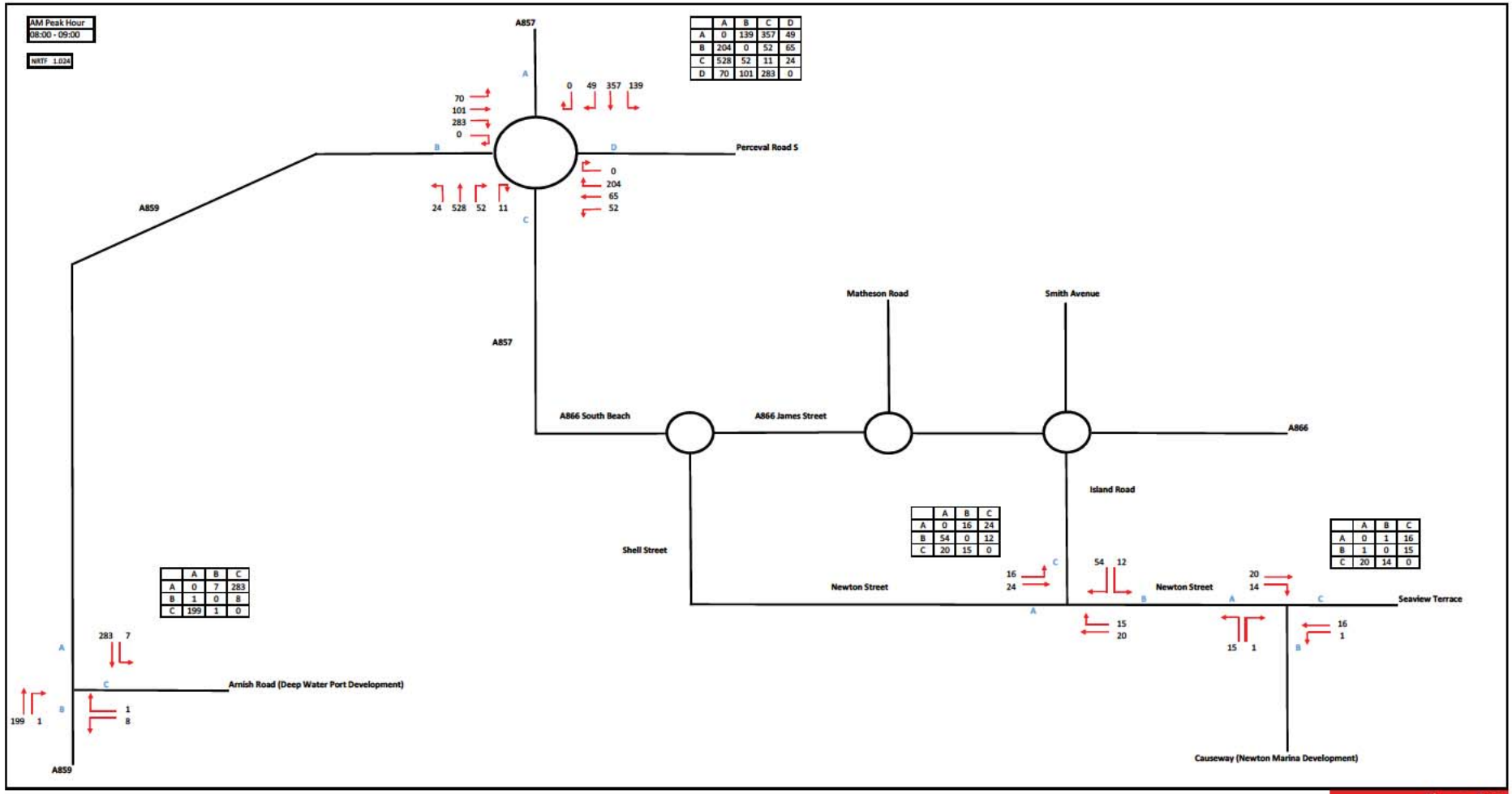
	A	B	C
A	0	10	153
B	11	0	1
C	186	0	0

	A	B	C
A	0	16	24
B	54	0	12
C	20	15	0

	A	B	C
A	0	1	16
B	1	0	15
C	20	14	0

Figure E11

2021 Base Mid + Com



	A	B	C	D
A	0	139	357	49
B	204	0	52	65
C	528	52	11	24
D	70	101	283	0

	A	B	C
A	0	7	283
B	1	0	8
C	199	1	0

	A	B	C
A	0	16	24
B	54	0	12
C	20	15	0

	A	B	C
A	0	1	16
B	1	0	15
C	20	14	0

Figure E12

2021 Base PM + Com

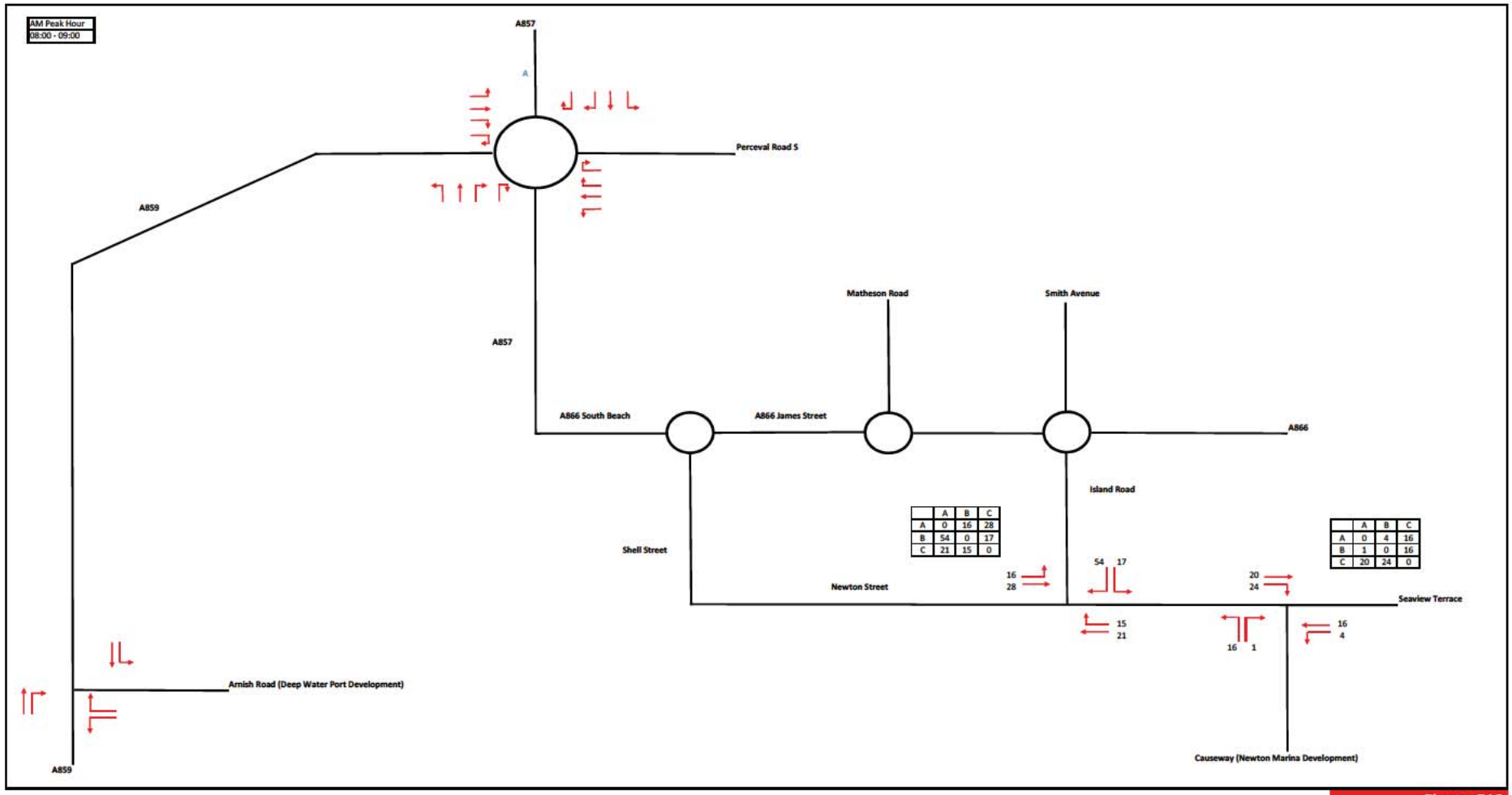
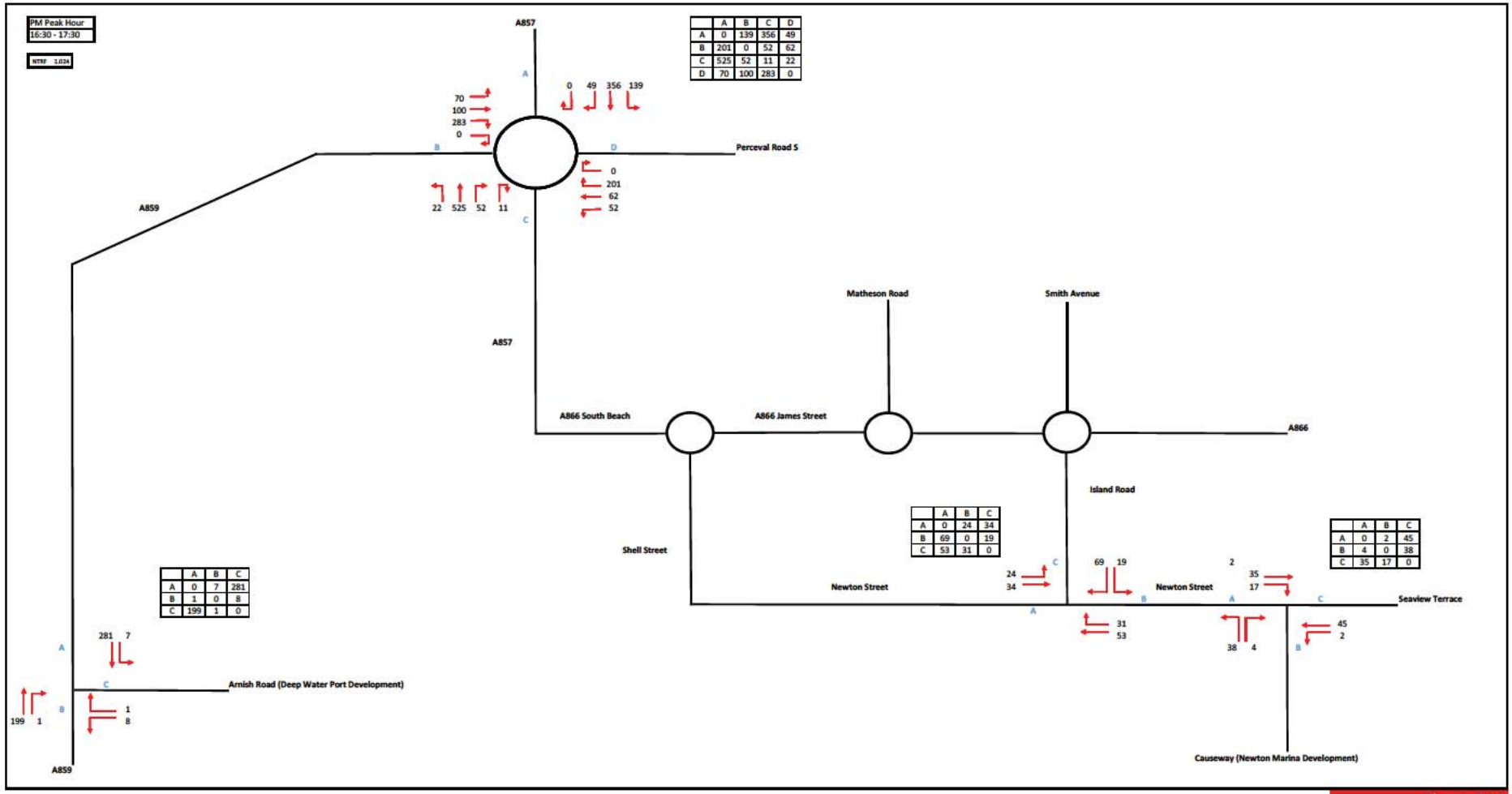


Figure E13

2021 AM Base + Com + Newton Dev



	A	B	C	D
A	0	139	356	49
B	201	0	52	62
C	525	52	11	22
D	70	100	283	0

	A	B	C
A	0	7	281
B	1	0	8
C	199	1	0

	A	B	C
A	0	24	34
B	69	0	19
C	53	31	0

	A	B	C
A	0	2	45
B	4	0	38
C	35	17	0

Figure E14

2021 Base PM + Com + Newton Dev

Appendix F

TRICS Output Files

Calculation Reference: AUDIT-700706-180227-0239

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 08 - MARINAS
Category : A - MARINAS

VEHICLES

Selected regions and areas:

07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	WY	WEST YORKSHIRE	1 days
08	**NORTH WEST**		
	LC	LANCASHIRE	2 days
10	**WALES**		
	CO	CONWY	1 days
11	**SCOTLAND**		
	EB	CITY OF EDINBURGH	1 days
	NA	NORTH AYRSHIRE	1 days
15	**GREATER DUBLIN**		
	DL	DUBLIN	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of berths
Actual Range: 27 to 350 (units:)
Range Selected by User: 10 to 500 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 28/06/14

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Saturday	2 days
Sunday	5 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	2
Edge of Town	3

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Commercial Zone	1
Development Zone	1
No Sub Category	5

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

D2	6 days
Sui Generis	1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

5,001 to 10,000	4 days
10,001 to 15,000	1 days
20,001 to 25,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	1 days
125,001 to 250,000	1 days
250,001 to 500,000	1 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	5 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	7 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 **CO-08-A-01** **MARINA** **CONWY**
DEGANWY QUAY

DEGANWY
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of berths: 153
Survey date: SUNDAY *16/10/11* *Survey Type: MANUAL*

2 **DL-08-A-01** **MARINA** **DUBLIN**
MARINA CENTRE

MALAHIDE
Edge of Town Centre
Development Zone
Total Number of berths: 350
Survey date: SUNDAY *25/04/10* *Survey Type: MANUAL*

3 **EB-08-A-01** **MARINA** **CITY OF EDINBURGH**
SHORE ROAD

SOUTH QUEENSFERRY
Edge of Town
Commercial Zone
Total Number of berths: 280
Survey date: SUNDAY *02/06/13* *Survey Type: MANUAL*

4 **LC-08-A-04** **MARINA** **LANCASHIRE**
PARK ROAD
ADLINGTON
CHORLEY
Edge of Town Centre
No Sub Category
Total Number of berths: 105
Survey date: SUNDAY *13/05/12* *Survey Type: MANUAL*

5 **LC-08-A-05** **MARINA** **LANCASHIRE**
KELBROOK ROAD

BARNOLDSWICK
Edge of Town
No Sub Category
Total Number of berths: 50
Survey date: SUNDAY *16/06/13* *Survey Type: MANUAL*

6 **NA-08-A-02** **MARINA** **NORTH AYRSHIRE**
THE HARBOUR

ARDROSSAN
Edge of Town
No Sub Category
Total Number of berths: 285
Survey date: SATURDAY *28/06/14* *Survey Type: MANUAL*

7 **WY-08-A-01** **MARINA** **WEST YORKSHIRE**
REDCOTE LANE
BURLEY
LEEDS
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of berths: 27
Survey date: SATURDAY *12/06/10* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 08 - MARINAS/A - MARINAS

VEHICLES

Calculation factor: 1 BERTHS

Estimated TRIP rate value per 50 BERTHS shown in shaded columns
BOLD print indicates peak (busiest) period

	ARRIVALS				DEPARTURES				TOTALS			
Time Range	No. Days	Ave. BERTHS	Trip Rate	Estimated Trip Rate	No. Days	Ave. BERTHS	Trip Rate	Estimated Trip Rate	No. Days	Ave. BERTHS	Trip Rate	Estimated Trip Rate
00:00 - 01:00												
01:00 - 02:00												
02:00 - 03:00												
03:00 - 04:00												
04:00 - 05:00												
05:00 - 06:00												
06:00 - 07:00												
07:00 - 08:00	6	200	0.017	0.833	6	200	0.015	0.750	6	200	0.032	1.583
08:00 - 09:00	7	179	0.040	2.000	7	179	0.022	1.080	7	179	0.062	3.080
09:00 - 10:00	7	179	0.084	4.200	7	179	0.042	2.080	7	179	0.126	6.280
10:00 - 11:00	7	179	0.074	3.720	7	179	0.039	1.960	7	179	0.113	5.680
11:00 - 12:00	7	179	0.110	5.480	7	179	0.063	3.160	7	179	0.173	8.640
12:00 - 13:00	**7**	**179**	**0.121**	**6.040**	7	179	0.086	4.280	7	179	0.207	10.320
13:00 - 14:00	7	179	0.108	5.400	7	179	0.085	4.240	7	179	0.193	9.640
14:00 - 15:00	7	179	0.095	4.760	7	179	0.120	6.000	7	179	0.215	10.760
15:00 - 16:00	7	179	0.096	4.800	7	179	0.117	5.840	7	179	0.213	10.640
16:00 - 17:00	7	179	0.076	3.800	**7**	**179**	**0.146**	**7.320**	**7**	**179**	**0.222**	**11.120**
17:00 - 18:00	7	179	0.059	2.960	7	179	0.103	5.160	7	179	0.162	8.120
18:00 - 19:00	6	200	0.040	2.000	6	200	0.074	3.708	6	200	0.114	5.708
19:00 - 20:00	5	219	0.028	1.416	5	219	0.039	1.963	5	219	0.067	3.379
20:00 - 21:00	5	219	0.021	1.050	5	219	0.029	1.461	5	219	0.050	2.511
21:00 - 22:00	2	90	0.011	0.556	2	90	0.000	0.000	2	90	0.011	0.556
22:00 - 23:00												
23:00 - 24:00												
Total Rates:			0.980	49.015			0.980	49.002			1.960	98.017

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	27 - 350 (units:)
Survey date date range:	01/01/09 - 28/06/14
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	2
Number of Sundays:	5
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.