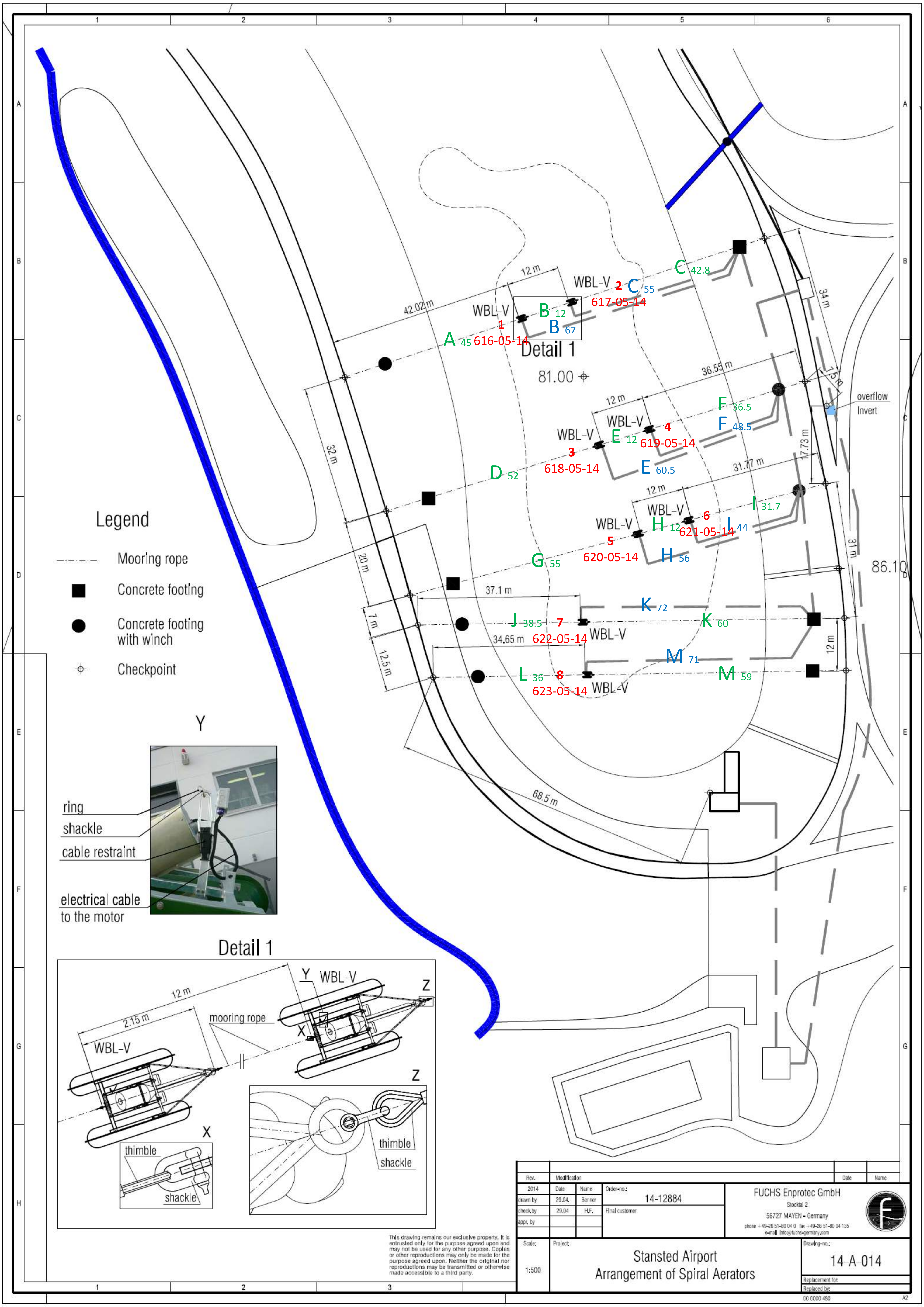
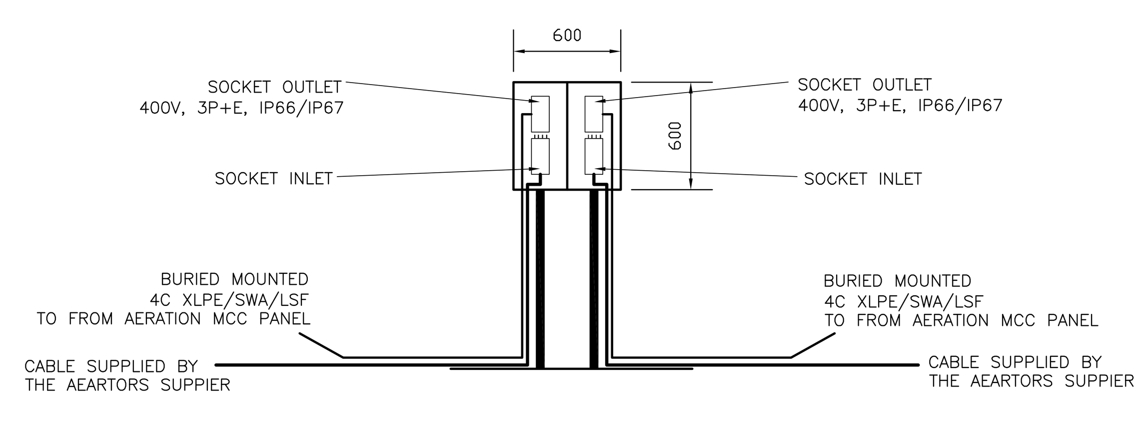


Legend
Mooring rope
Concrete footing
Concrete footing with winch
Checkpoint
WBL-V
1 616-05-14
2 617-05-14
3 618-05-14
4 619-05-14
5 620-05-14
6 621-05-14
7 622-05-14
8 623-05-14
A 45
B 12
B 67
C 55
C 42.8
D 52
E 12
E 60.5
F 36.5
F 48.5
G 55
H 12
H 56
I 31.7
I 44
J 38.5
K 72
K 60
L 36
M 71
M 59
Detail 1
81.00
86.10
42.02 m
12 m
34 m
36.55 m
1.5 m
31.77 m
7.73 m
32 m
20 m
7 m
12.5 m
37.1 m
34.65 m
31 m
68.5 m
overflow
Invert
Y
ring
shackle
cable restraint
electrical cable
to the motor
2.15 m
mooring rope
X
Z
thimble
This drawing remains our exclusive property. It is entrusted only for the purpose agreed upon and may not be used for any other purpose. Copies or other reproductions may only be made for the purpose agreed upon. Neither the original nor reproductions may be transmitted or otherwise made accessible to a third party.
Rev.
Modification
Date
Name
2014
drawn by 29.04. Benner
check.by 29.04 H.F.
appr. by
Order-no.: 14-12884
Final customer:
FUCHS Enprotec GmbH
Stocktal 2
56727 MAYEN - Germany
Scale: 1:500
Project:
Stansted Airport
Arrangement of Spiral Aerators
Drawing-no.: 14-A-014
Replacement for:
Replaced by:
A2



DETAIL DESIGN No. 1

Model File References List - Name, Version & Status:

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following :

CONSTRUCTION
Buried Cables

MAINTENANCE/CLEANING
Buried Cables

DECOMMISSIONING/DEMOLITION
Buried Cables

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

NOTES:

1. ALL LIGHTING AND POWER BY MCC AND CUBICLE SUPPLIER TO STAL STANDARDS
2. ANTI–CONDENSATION TUBULAR HEATER PROVIDED BY MCC AND CUBICLE SUPPLIER
3. REFER TO SCHEMATIC FOR CABLE SIZES

Ver	Date	Description Of Change	Drn	Rvw	App
AB	07/09/2015	As Built	RG	JH	MJ
C1	01/04/2015	CONSTRUCTION ISSUE	RG	JH	MJ
P2	30/09/2014	Cable size omitted, notes added and title revised	AB	RG	MJ
P1	07/04/2014	PRELIMINARY ISSUE	AB	RG	MJ

Key Plan

london stansted airport
PART OF M.A.G

Project Name
Stansted Airport Pond C Aeration

Title
Aerators Electrical General Arrangement

Drawing Originator: E+M Tecnica		Project No.: XXXXX	Originator's Job No.: 2970
Reviewer: R Gates	Review Date: 07/04/2014	Drawn By: A Bujor	Drawn Date: 07/04/2014
Approver: M Jones	Approval Date: 07/04/2014	Scale: 1:750 @ A0	Status:
Location-Level-Sub Series/System-Identifier: STAL-EMT-E-XXXXX-03			Version: AB

Appendix D – Inspection, Operation and Management Regime

Method Statement

London Stansted Go discover

TITLE – COLLECTION OF WATER QUALITY COMPLIANCE SAMPLES FROM BALANCING PONDS

Version	**2**	**Reference**	**STALENVP01**
Created by	**Andrew Doggart**	**Date created**	**08/11/11**
Approved by	**Andy Jefferson**	**Date last reviewed**	**02/12/11**

1. INTRODUCTION

This document describes how to collect surface water and trade effluent quality samples from the Balancing Pond System.

The water quality samples collected are submitted to an external laboratory for analysis. The results from sample analysis are used to assess compliance with the water pollution prevention legislation. The applicable legislation is the Water Resources Act, 1991 (for surface water quality) and the Water Industry Act, 1991 (for trade effluent quality).

2. PROCEDURE

2.1 SAMPLE POINTS

Surface water is water discharged to local streams from the Balancing Ponds outlets. Surface water samples are collected from the outlets of Ponds A, B, C (Clean Pond outlet only) and D.

Trade effluent is water discharged to sewer. Trade effluent samples are collected from the Pond C, Dirty Pond outlet only.

All Balancing Pond sites are accessed with a Submaster A key.

2.2 SAMPLING FREQUENCY

Winter Period (October – April)	Summer Period (May – September)
Surface water – sample weekly	Surface water – sample monthly
Trade effluent – sample fortnightly	Trade effluent – sample monthly
Deicer applied, residues exist **High risk**	Deicer not applied, no residues **Low risk**

Andrew Doggart will instruct sampling frequency changes – weather and deicer use dependent.

2.3 SAMPLING METHOD

1) Wear PPE – high visibility jacket, safety boots and water proof gloves (wellington boots and wet weather gear as required). <u>Leptospirosis risk – see Reference 4.1 for further information</u>.

2) To control lone working risks, call your manager / colleague when you arrive and leave each balancing pond site and confirm which site you will travel to next.

3) Only take samples at the outlets and only from behind safety handrails.

4) Collect samples only when water is being discharged (flowing) at the sample point (prevents un-representative samples).

5) Only sample when there is enough flow to fill the sample collection container (beaker / bucket) without scraping it against the concrete outfalls or outlet pipes (prevents sample contamination).

6) Use telescopic lance / bucket to collect samples and pour into sample bottles to fill completely unless label states fill to top of label.

7) If sample is contaminated by objects such as insects, leaves or reeds, empty the bottle, check it is clean and refill.

8) Close sample bottle tightly and attach labels provided for that sample point.

9) Complete outlet status, weather conditions, sample appearance and odour on the sample log sheet.

10) Go to next outlet, wash out beaker / bucket and pour away twice, then sample and fill new bottles.

11) Any unusual water appearance, odour, colour, oil on water should be reported immediately to the Environment Projects Manager, Andrew Doggart on (07917) 598261.

12) Drop the sample bottles to the MT building rear entrance by 11:30 for courier collection.

2.4 PORTABLE WATER QUALITY INSTRUMENTS

Parameter	**Purpose**
Dissolved oxygen	Indicator of pavement and aircraft deicer
Turbidity	Measures amount of solid particles
Conductivity	General indicator of pollution
pH	General indicator of pollution

13) Calibrate the portable instruments once at the start of each sampling day (See Appendix 1) and record the results on sample log sheet.

14) Rinse probes with de-ionised water before each sample and after last sample (for storage).

15) Measure each sample for dissolved oxygen, turbidity, conductivity and pH.

16) Record results on the sample log sheet. Return log sheet to the HSE Standards Manager, John Thain on the day of sampling.

3. ROLES AND CONTACT DETAILS

<u>Terminal Facilities Team</u>

Collect water quality samples	Collect samples on Wednesdays
Calibrate, use portable instruments	Order and maintain stock of reagents
Drop samples, liaise with Central Stores / courier	Carmichael Components (0208) 573 7555
Request sample bottles, labels, boxes	Eurofins Environmental Services Mon to Wed, Louise Durrell (01962) 716 207 Thu to Fri, Stephen May (01962) 716 014

<u>HSE Standards Manager, John Thain</u>

Repair and service portable instruments	Manufacturer HACH Lange
Oversee and provide general advice	(07824) 475 488

<u>Environment Projects Manager, Andrew Doggart</u>

Provide technical advice	(07917) 598 261

4. REFERENCES

4.1 Leptospirosis: Are you at risk? Health and Safety Executive, 2009.

4.2 Working alone: Health and safety guidance on the risks of lone working. Health and Safety Executive, 2009.

5. TRAINING

I understand the instructions and have received sufficient training and information to conduct this task.

Name	**Signature**	**Date**

APPENDIX 1 – CALIBRATION PROCEDURE – PORTABLE WATER QUALITY INSTRUMENTS

Turbidity Meter Calibration

- Turn meter on
- Press "Cal" — Instrument displays "S0 000.1 NTU CAL"
- Put in the <0.1 NTU standard (S0)
- Line up the index mark ▼ on the standard with the mark on the meter
- Close the lid
- Press "Read" to calibrate
- Wait 60 seconds — Instrument displays "S1 020.0 NTU CAL"
- Insert 20 NTU standard
- Line up index mark, close lid, press "Read" and wait 60 seconds
- Repeat process with 100 NTU standard (S2)
- Repeat process with 800 NTU standard (S3)
- Turn power off after entering 800 NTU standard (calibration complete) to leave CAL mode, or press the MODE button

There are no turbidity calibration readings to write on the log sheet.

Measurement of Turbidity

- Rinse out sample cell with DI water and discard
- Pour the sample into the sample cell
- Line up the index mark ▼ on the standard with the mark on the meter
- Press "Read" and record value on log sheet
- Discard sample, rinse out sample cell with DI water and discard

Calibration of Conductivity Meter

- Turn meter on
- Rinse metal bar at end of probe with DI water and dry with tissue
- Press "Cal"
- Put probe into conductivity standard sachet (1,000 $\mu S/cm^2$)
- Press "Read" to calibrate
- Meter will beep and stop reading once calibrated
- Record the displayed calibration reading on the log sheet
- Rinse metal bar at end of probe with DI water and dry with tissue
- Turn power off

Measurement of Conductivity

- Rinse metal bar at end of probe with DI water and dry with tissue
- Put probe in sample
- Press "Read" to measure
- Meter will beep and stop reading once reading has stabilised
- Record the displayed calibration reading on the log sheet
- Rinse metal bar at end of probe with DI water and dry with tissue
- Turn power off

(Note – pH and DO required once meter received)

Stansted Airport Health & Safety and Environmental (HSE) Risk Assessment

Form Number – STAL F01

Subjects of Risk Assessment: 1) Inspection, operation and maintenance of Balancing Ponds, and 2) Water quality sampling and testing on Balancing Ponds	**Work Activities:** Activity 1) Inspection, operation and maintenance of surface water Balancing Ponds A, B, C, D by Civils Maintenance Operatives, and Activity 2) Water quality sampling and testing on Balancing Ponds and receiving streams
Risk Assessment Reference Number: CIVILS RA 201	
Department / Section: Civils Operations Team	**RA Team Members:** Andrew Doggart (Water), Aaran Hayward (Civils), Fred Morley (Civils), Darren Forster (Civils), Tom Edwards (Civils), Phil Sparham (H&S)

Authorised by: Andrew Doggart – Water Assets & Compliance Manager	**Date**: Oct 2016	**Next Review Date:** Oct 2017

Who might be affected?	*Stansted Staff*	*Subcontractors*	*Visitors*	*Members of the Public / ~~Passengers~~*

Hazards	**Current Risk** (Likelihood x Consequences)			**Control Measures**	**Residual Risk** (Likelihood x Consequences)		
	L (1-5)	**C** (1-5)	**H** / **M** / **L**		**L** (1-5)	**C** (1-5)	**H** / **M** / **L**
Chemical Exposure Activity 1) Chemical reagents used in TOC water quality monitors Activity 2) Reagents in laboratory water quality sample bottles	**4**	**3**	**12** **Medium**	Activity 1) COSHH Safety Data Sheets are available for the TOC monitor reagents. Chemical hazard classification 'Harmful – Irritant'. Staff to wear the following PPE: waterproof gloves, eye protection, overalls. Use drum trolley for moving 25l chemical drums (move with lids on). Do not pour new reagents into old / existing 25l drums.	**2**	**2**	**4** **Low**

				COD monitor reagent containers **must not** be touched, opened or handled in any way – these chemicals are hazardous and are excluded from the work activity. These chemicals are handled only by the instrument servicing contractor. Activity 2) COSHH Safety Data Sheets are available for the laboratory sample bottles reagents. Chemical hazard classification for all 3 reagents is 'Harmful – Irritant', 1) Potassium bromate-bromide (0.1N) in hydrochloric acid (33% v/v), 2) Zinc Acetate 0.5M, and 3) Sodium Carbonate 0.75M.			
Manual Handling Lifting / moving 25l chemical drums Removing used oil booms Lifting manhole / chamber covers Lifting sample pumps	**4**	**3**	**12** **Medium**	Chemical reagent drums are to be moved using drum trolley. Only use drum trolley on hard surfaces, not on soft ground. Complete Pristine Conditions manual handling training. Keep manual handling to a minimum and use mechanical aids where possible. For all tasks, check and remove any obstructions in lifting area and plan route before starting. Use two people to remove saturated oil booms (heavier than new booms). Manholes / chamber covers are only to be lifted with two people. Only use compatible lifting keys. Agree direction of lift before lifting and countdown to start lift. Use davit arms and manual winches to lift sample pumps. Latching manual winches hold load and allow pump to be brought into / onto wall / ground surface for cleaning.	**2**	**3**	**6** **Low**

Working at Height Inspecting / sampling water from raised structures and platforms	4	5	**20 High**	Fixed safety rails are installed at locations frequently accessed for inspection and sampling. Only sample water from behind safety rails at designated locations. **Action:** Assess requirement for infill mesh and kick boards on lower sections of existing safety rails at frequently visited points.	1	5	**5 Medium**
Drowning / Incapacitated Working at Water's Edge – ponds, streams and mud Inspection or sampling near or of running and deep water or mud.	4	5	**20 High**	**No working at water's edge of ponds or watercourses (even with two people)** No access on embankments leading down to or level surfaces within 3 metres of water's edge at any Balancing Pond. No access near or on unguarded banks leading down to streams, watercourses or open channels without safety rails. No lone working on the aerator pontoons or bar screen at the outlet of Clean Pond C. Sampling of Pincey Brook using telescopic lance (two people) from footbridge behind safety rails.	2	5	**10 Medium**
Lone Working General inspection work on Balancing Ponds Remote site locations	3	5	**15 Medium**	Two people are required for work in these areas of Pond C – Clean, Dirty and Overflow ponds / reservoirs themselves, including the Clean, Dirty and Overflow Pond embankments, inlet and outlet bar screen structures. These are the areas outside the fenced compounds. No single person working in these areas.	1	5	**5 Medium**

Contractors Exposed to Hazards Confined space entries Work on electrical systems Automatic operation of equipment including penstocks and pumps	4	5	**20** **High**	**Contractors must be supervised, inducted and assets placed in a safe state to enable contractors to work** Brief contractors on STAL Emergency Contact Procedure. Operatives to ensure all contractors have relevant LOA. Any electrical or mechanical equipment isolations must be done in accordance with Electrical Safety Rules. Any actions required to ensure site is in a safe state for contractor access must be discussed with Water Assets and Compliance Manager before any work proceeds. If you are unsure about controls in place, stop contractor working and seek advice.	2	5	**10** **Medium**
Disease Causing Organisms Leptospirosis (Weil's Disease) Legionella Bacteria and other organisms	3	4	**12** **Medium**	Wear disposable gloves for all general inspection tasks, even if not coming into contact with water. Wear waterproof gloves for sample pump cleaning. Follow good personal hygiene. Wash cuts and scratches as soon as possible with soap and running water. Before work, cover any cuts and broken skin with waterproof plasters and then wear disposable waterproof gloves. No eating or drinking anywhere on Balancing Ponds. Wash hands after work before eating or drinking. Do not wipe hands, gloves on face. Deploy and maintain pest control measures in fenced compounds. Report any illness to your GP and notify them of work with raw water.	1	4	**4** **Low**

Slips Trips and Falls Sloping and uneven ground animal burrows Areas overgrown with vegetation, ground and water's edge or not visible Raised edges of chambers and structure edges	**4**	**4**	**16** **Medium**	Wear suitable safety footwear and use established access routes. Assess site conditions, plan access to use safest / least steep route. Report and fill in any holes found. Do not enter or work in overgrown areas. Raise Maximo fault for cutting and removal of vegetation before proceeding. Good housekeeping – remove all rubbish and obstructions on sites.	**2**	**4**	**8** **Medium**
Weather Exposure Wet and freezing conditions, lack of shelter, duration of outside working Hot and sunny conditions, duration of outside working	**4**	**3**	**12** **Medium**	Wear clothing suitable for the weather conditions, including sun cream when necessary. Wear waterproof and warm clothing for wet and cold conditions. Minimise time spent outside in poor weather to minimum possible. Ensure regular breaks from bad weather.	**1**	**3**	**3** **Low**
Electrocution Contact with live electrical conductors	**4**	**5**	**20** **High**	**No entry to or working on electrical panels, no opening of housings to expose electrical components.** Work on electrical components is only to be done by AGL Technicians or contractors trained on Electrical Safety Rules.	**1**	**5**	**5** **Low**

Confined Spaces Asphyxiation Drowning Crushing / entrapment	**4**	**5**	**20** **High**	**No confined space working is permitted anywhere on the Balancing Ponds under this Risk Assessment and associated Method Statement.** Confined space working on Balancing Ponds would require separate and specific RAMS.	**1**	**5**	**5** **Low**
Pollution Spillage of monitor reagents Disposal of chemical reagents into ponds Release of spillages during recovery from the ponds Incorrect hazardous waste segregation	**4**	**2**	**8** **Medium**	Place water quality monitor reagents on bunds / trays. Do not overload bunds. Check and remove unwanted / out of date reagents as liquid waste. Liquid reagent wastes must not be poured into any point on any Balancing Pond, to do so could cause significant pollution. Recovered spillages of hydrocarbons could cause serious pollution if spilt in or at Balancing Ponds. Recovered spillages must be stored in bunded IBCs / containers. Saturated absorbent materials are classified as hazardous waste and must be disposed of in red bins. Dispose recyclable waste in suitable containers. Dispose non-recyclable waste in general waste (blue) bins.	**2**	**2**	**4** **Low**
Noise High noise levels from Dirty Pond blower units. Blowers operate for significant duration	**3**	**4**	**12** **Medium**	Wear ear plugs on entering Dirty Pond C blower building. Ear plug dispenser is fitted on wall inside blower building wall. Wear ear plugs even if blowers are not operating on entry – they start automatically without warning.	**1**	**4**	**4** **Low**

Trespass, Vandalism Drowning Entrapment Slips, trips, falls	**3**	**5**	**15** **Medium**	Signage erected at main entrance points and secondary signage erected. Multiple lifebuoys fitted, inspected and maintained and results recorded in the Balancing Pond Check Sheet. Provide safety rails at all attractants – structures and features. Lock all buildings, enclosures and kiosks after work to reduce risk of vandalism. Close all access gates before compounds after driving through. All site compounds must be locked on leaving. Brief contractors working on ponds that they must do the same. Report any signs of unauthorised entry, vandalism so site access and security can be reviewed.	**2**	**5**	**10** **Medium**

L x C = Risk Level

L = Ranking the Likelihood

1 Improbable
2 Unlikely
3 Possible
4 Likely
5 Probable

C = Ranking the HSE Consequence

1 Minor injury / Short term local damage
2 Moderate injury / Short term regional damage
3 Significant injury / Long term local damage
4 Major / Long term regional damage
5 Fatality / Widespread permanent damage

L \ C	1	2	3	4	5
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5

Green = Low Risk (1-4) **Amber = Medium Risk (5-15)** **Red = High Risk (16-25)**

Risk Level	Action to be Taken
Low Risk (1-4)	No additional controls are required. Monitoring is required to ensure that the controls are implemented and maintained.
Medium Risk (5-15)	Efforts should be made to reduce the risk, but the cost of prevention should be carefully measured. Risk reduction measures should be implemented if reasonably practicable.
High Risk (16-25)	Work should not be started or continued until the risk has been reduced. If it is not possible to reduce the risk a detailed task specific Risk Assessment must be undertaken.

APPENDIX A: Further guidance for assessing Health & Safety consequences.

This appendix provides further guidance for assessing the consequence of Health & Safety risks.

Matrix Consequence	Guidance
Minor Injury	Minor injury or illness with no significant lost time, such as slight cut or bruise (not requiring hospital treatment). Individual able to perform a full range of duties.
Moderate Injury	Hazard can cause illness, injury or equipment damage but the result would not be expected to be serious. May result in temporary / adjusted duties.
Significant Injury	Lost Time - More serious injury causing short-term incapacity from work or illness causing short-term ill-health. Results in adjusted duties, unable to perform all aspects of role.
Major Injury	Hazard can result in a severe injury, serious illness or damage to property and equipment. Severe injuries includes:- • fracture, other than to fingers, thumbs and toes; • amputation; • dislocation of the shoulder, hip, knee or spine; • loss of sight (temporary or permanent); • chemical or hot metal burn to the eye or any penetrating injury to the eye; • injury resulting from an electric shock or electrical burn leading to unconsciousness, or requiring resuscitation or admittance to hospital for more than 24 hours; • any other injury leading to hypothermia, heat-induced illness or unconsciousness, or requiring resuscitation, or requiring admittance to hospital for more than 24 hours; • unconsciousness caused by asphyxia or exposure to a harmful substance or biological agent; • acute illness requiring medical treatment, or loss of consciousness arising from absorption of any substance by inhalation, ingestion or through the skin; • acute illness requiring medical treatment where there is reason to believe that this resulted from exposure to a biological agent or its oxins or infected material.
Fatality	Imminent danger exists, hazard capable of causing death or illness on a wide scale.

APPENDIX B: Further guidance for assessing Environmental consequences.

This appendix provides further guidance for assessing the consequence of environmental risks. A series of technical environmental risk assessments have been developed and are available from the HSE team to help you identify the environmental risks and controls that are pertinent to your role.

Matrix Consequence	Guidance
Short Term Local Damage	Minor local impact with no long-lasting effects and which is contained within the site boundary e.g. • Elevated noise levels at the site boundary but lower than legally prescribed levels. • Increases in air emissions but not exceeding statutory or self-set limits. • Minor leaks internal to buildings or on hard standing which are easily cleaned up. • Fly-tipping of non-hazardous waste on the airport site.
Short Term Regional Damage	Minor impact beyond airport boundary e.g. • Incident leads to temporary decrease in air quality for example excessive emissions from plant, vehicles or equipment • Failure to recycle leads to increase use of landfill facilities • One-off / limited exceedance of noise levels external to site boundary
Long Term Local Damage	Longer lasting local impacts contained within site boundary or impacts that would be long term without clean up or remediation e.g. • Spills and leaks contained locally on-site but requiring clean up or which have entered the drainage system or ponds. • Uncontained hazardous waste storage on-site (including fly-tipping)
Long Term Regional Damage	Longer lasting damage to off-site environment e.g. • Incorrect disposal of hazardous wastes. • Sustained decrease in regional air quality • Breaches of regulations or discharge consents which may result in action by the enforcing authority. • Killing / damage to / unlicensed removal of endangered species or habitats. • Significant application or fire fighting foam which discharges via drains or to local environment
Widespread Permanent Environmental Damage	Potential for major damage to the environment, which is likely to be long lasting and costly to remediate e.g. • A major spill or leak from a bulk storage facility leading to significant ground contamination or permanent damage to local environment such as significant fish kill • Breach in legislation or consent / license conditions likely to result in prosecution. • Permanent destruction of protected habitats.

Work Method Statement (WMS)

Department / Section:	Asset Management / Civils Operations Team
WMS Reference:	CIVILS WMS 201
Subject of WMS:	Inspection, Operation and Maintenance of Balancing Ponds
Work Activity / Scope:	Inspection, operation and maintenance of surface water Balancing Ponds A, B, C, D by Civils Maintenance Operatives
Task Duration:	As per Maximo scheduled work order
Task Frequency:	Variable – Every weekday morning in winter period (Oct to Apr) 3 visits per week in summer period (May to Sep)
Related Documents:	Risk Assessment Reference Number: CIVILS RA 201 Balancing Pond Inspection Check Sheet COSHH Assessments and COSHH Material Data Sheets Leptospirosis – Are You at Risk?
WMS Team Members:	Andrew Doggart, Aaran Hayward, Philip Sparham, Darren Forster, Tom Edwards
Task Briefing:	Only staff trained and certified competent by the Water Assets and Compliance Manager are permitted to operate the Balancing Ponds. Before commencing work you should have read and understand the Work Method Statement and associated Risk Assessment.

Revision	Authorised By (Department Manager)	Date	H&S Approval	Date
A	Andrew Doggart	Oct 2016	Philip Sparham	Oct 2016
B				

1.0 Airport Safety

1.1 Emergency Procedures & Fault Reporting

1.1.1 Emergency Contacts

IN THE **EVENT OF AN EMERGENCY** YOU SHOULD CALL THE COMBINED CONTROL CENTRE on **222** from an internal phone or **01279 662020** from an external phone.

1.1.2 Fire Process

You need to make yourself aware of the fire safety and evacuation arrangements in your work area and familiarise yourself with emergency escape routes and assembly points.

1.1.3 Fault Reporting

If you see a fault you must report it immediately. The fault reporting line is managed 24 hours a day, 365 days a year on ext. 3131 or 01279 663131 or email engineering_faults@stanstedairport.com. If you identify a near miss regarding faulty equipment you should report the fault as well as completing a near miss report.

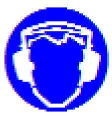
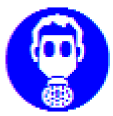
1.2 First Aid

Make sure you know who the first aiders are for your area of work and where the first aid boxes are located. You should call 222 from an internal phone or 999 from an external phone for serious first aid incidents (e.g. heart attack, stroke, breaks/fractures and bad cuts). For minor first aid requests (e.g. minor cuts and bruises) you should call 2020 (option 3) from an internal phone or 01279 662020.

1.3 Accident & Incident Reporting and Near Misses

Incidents that occur on STAL premises must be reported and recorded on Accident Form and reported to First Care as soon as possible after the incident. The incident must be investigated by the operational manager responsible for the area where the incident occurred as soon as possible after the incident has occurred.

1.4 Personal Protective Equipment (PPE)

 Hi-Viz Clothing	 Safety Footwear	 Safety Gloves	 Hearing Protection	 Eye Protection	 Safety Helmet	 Respiratory Protection	 Dust Mask	 Protective Overalls
Yes	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	**Yes**

- Safety wellington boots with steel mid-soles
- Nitrile disposable waterproof gloves for inspection work
- Cut resistant gloves for cutting water sample tubing
- Waterproof safety gloves for sample pump cleaning
- Lifejackets and two person working near stream banks and aerator pontoons

Personal protective equipment is not restricted to the above list and additional equipment will be used appropriate to the risks, e.g. safety harnesses when working at unguarded heights.

1.5 Prohibited Activities

- **No working in water or mud is permitted**
- **No entry to and working in electrical panels**
- **No entry into confined spaces is permitted**
- **No entry to Thames Water pumping station building**

These activities are outside the scope of this Work Method Statement and associated Risk Assessment and would require specific RAMS.

1.6 Lone Working

No lone working is permitted in the prohibited areas stated in the WMS and RA.

1.7 Access and Egress to Plant / Equipment

The Balancing Ponds are located landside on dedicated sites. Access and egress routes are provided and sites contain fenced areas and secure compounds. It is not necessary to arrange access.

1.8 Work Area Hazards

Hazards are outlined in the Risk Assessment that accompanies this Method Statement. The main hazards include:

Slips, trips and falls	Work area can be overgrown, sloping, uneven and wet
Disease	Microorganisms in surface and river water (including Leptospirosis)
Falls from height	Open chambers and manholes
Manual handling	Chemical drums and manhole covers
Drowning / incapacitation	Deep water, mud
Weather exposure	Wet, freezing, hot and sunny conditions

1.9 Hazardous Substances

Health Hazard	Corrosive	Oxidising	Flammable	Explosive	Toxic	Hazardous to the Environment
Yes	**No**	**No**	**No**	**No**	**No**	**No**

COSHH Safety Data Sheets and COSHH Risk Assessments can be found in the individual department COSHH Safety Folders.

List of Hazardous Materials used or present during work:

1. Sodium persulphate 1.5M, 25 litre drums
2. Orthophosphoric acid 10% v/v, 25 litre drums
3. Disease causing microorganisms

2.0 Key Plant and Tools List

- Portable water quality monitors
- Stainless steel bucket and rope for water sampling
- Tsurumi sample pumps
- Sample hoses and pipework
- Absorbent oil booms and materials
- Hand tools

Equipment and tools will be used only by personnel deemed competent to do so. Copies of relevant certificates of competencies and PAT certificates are available upon request. A visual check is to be carried out prior to using any plant or equipment.

3.0 WORK METHOD

3.1 GENERAL

3.1.1 Rota for Pond Inspections

Balancing Ponds are inspected by the two Civils Maintenance Operatives. All inspections in a week are to be conducted by one Operative before handing over to other Operative for the next week and so on.

This will enable staff to develop a good understanding of the recent performance, communicate effectively and have clear ownership actions at the Balancing Ponds.

3.1.2 Review Important Information Before Leaving Office

The information below is to be reviewed before leaving the Civils Office for site. The information is used to assess risks and operate the balancing ponds correctly.

- Met Office weather forecast for Stansted Airport (print and take to site)
- Rain radar information
- Webpage for performance of Balancing Pond C
- Airside Operations Duty Manager daily report (de-icing / spillages)
- Engineering Operations Manager daily report (asset failures)
- Mondays – hand over inspections to the other Operative and discuss performance of ponds during the last week

3.2 BALANCING POND A

3.2.1 Inspect inlet chamber and inflows from two pipes for water appearance, odour and colour. Pay attention to deicer and oil / fuel contamination.

3.2.2 Inspect inlet chamber oil booms for saturation, position and condition. Two booms should always be installed and fastened securely to the safety rails. To replace a boom, install a new downstream boom first, then remove used upstream boom so that oil released is captured by new boom. Replace oil booms when they start to sink down into the water regardless of saturation or condition. Put used boom in heavy duty plastic bag, cable tie top and place in red hazardous waste bin.

3.2.3 Check stock of absorbent materials in silver container next to inlet chamber. When materials are used, update spill kit inventory and order new absorbent materials as required to maintain the minimum stock levels shown.

3.2.4 Inspect positions of Clean and Dirty Pond penstocks in inlet chamber. Check both Rotork actuator 'Local/Remote/Stop' switches are in the Remote (Auto) position.

3.2.5 Check inlet chamber davit arm and manual winch for signs of wear, damage and lifting equipment inspection tags are in date. Lifting equipment must not be used if worn, damaged or tags are out of date.

3.2.6 Check inlet chamber sample pump return pipework is flowing back into inlet chamber. If low / no flow, isolate (padlock off) pump so it cannot be energised. Wear waterproof safety gloves, lift pump with latching winch. Check pump inlet strainer for blockages and brush clean if required. Lower, de-isolate and test operate pump.

3.2.7 Isolate (padlock off) inlet chamber sample pump so it cannot be energised, wear waterproof safety gloves, dismantle 'BIOX' monitor inlet pipework strainer and inspect for blockages, rinse in cold water and brush clean if required, assemble pipework, remove padlock and energise sample pump.

3.2.8 If sample pump is faulty, switch off and attach out of service sign. Raise Maximo Service Request for AGL Technician to collect new Tsurumi LB-480 pump from Central Stores, wire up and test.

3.2.9 Inspect 'BIOX' monitor display for reading and alarm messages. Check inlet chamber penstock positions are consistent with monitor reading and status. Report any faults to Water Assets and Compliance Manager.

BIOX monitor reading / status	Correct penstock positions
<20mg/l or healthy	Clean = Open, Dirty = Closed
>20mg/l or in fault	**Dirty = Open, Clean = Closed**

3.2.10 Inspect Pond A main control panel, indicators and display screen.

3.2.11 Inspect level of salt tablets in saturator and refill if required.

3.2.12 Check eye wash bottles are present and in date, check soap and tissue dispensers and refill if required.

3.2.13 Inspect position and condition of floating retention oil booms across the upstream end of the Clean and Dirty Ponds.

3.2.14 Inspect the Clean and Dirty Pond level, appearance, colour and odour of water in the Clean and Dirty Ponds. Pay attention to evidence of deicer and oil / fuel contamination.

3.2.15 Inspect control panel for Clean and Dirty Pond outlet pumps for pump status and fault indicators. Check that pump operating status is consistent with pond water levels.

3.2.16 Inspect water surface of outlet oil separators for evidence of deicer and oil / fuel contamination. Look through water in oil separators to check amount of sediment and vegetation present under water. Inspect oil booms (see 3.2.2) and replace as required. There should be one boom installed across each half of each oil separator, four booms in total.

3.2.17 Weekly – Winter Period only – inspect Pond A receiving watercourse at the downstream footbridge accessed from Bury Lodge Lane. Pay attention to deicer and oil / fuel contamination and evidence of sewage fungus.

3.2.18 Weekly – inspect all lifebuoys for theft, interference and damage. Inspect the housing and indicator tab, remove and inspect the lifebuoy, grab line and throw rope (attached to lifebuoy). If a lifebuoy / part has been removed / damaged, replace it immediately with a new spare from Central Stores.

3.2.19 Weekly – fully open cold water tap and flush pipework for 30 minutes to prevent water quality deterioration.

3.2.20 Weekly – test operate each Clean and Dirty Pond submersible pump. Run each pump in **Hand** one at a time and check for appearance of pump, noise, vibration and constant current (Amps measured on ammeter). **Ensure all pumps are returned to Auto** after testing. If a pump is faulty, leave the pump switch to the Off position and raise an urgent Maximo fault to AGL.

3.2.21 Weekly – check condition of sign on site entrance gate.

3.2.22 Monthly – **Summer Period only** – manually operate Rotork penstock actuators in 'Local' one at a time. Check for noise, vibration and water tight seal. Rotork actuator switches must be returned to Remote (Auto) position after testing. **Operating penstocks in Winter Period can cause pollution of local watercourse.**

3.3.23 Monthly – check working areas of site where vegetation prevents safe access. Do not enter overgrown areas, especially where structures or edges of banks, mud or streams are covered by vegetation.

3.2.24 Monthly – inspect safety rails are secure around the perimeter of the inlet chamber, Clean and Dirty Pond pumping station floor grating and two outlet oil separators.

3.3 BALANCING POND B

3.3.1 Take Turbidity meter, stainless steel bucket and rope to Pond B for every inspection.

3.3.2 Inspect water quality at inlet structure, pay particular attention to turbidity and colour of the water.

3.3.3 Inspect, secure and replace inlet channel oil booms (see 3.2.2). Two booms should always be installed across the inlet channel.

3.3.4 Check inlet structure bar screen is free from debris and the inflow is not backing up. Rake clean, remove and dispose of debris off-site and not back into the inflow.

3.3.5 Check bar screen at end of overflow channel is free from debris. Rake clean, remove and dispose of debris off-site and not back into the channel.

3.3.6 Check outlet bar screen, steps and low flow sample point are free from debris and water is not backing up. Rake clean, remove and dispose of debris off-site and not back into channel.

Operation of Pond B

3.3.7 Take hand held turbidity meter and water sampling bucket and rope to Pond B on every inspection.

3.3.8 Inspect water quality at three points – inlet channel, oil separator basin (from behind safety rails) and outlet sample point.

3.3.9 If water runs clear (can see through to the bottom of oil separator basin and through water column at outlet steps and sample point) and no moderate / heavy rain is forecast before the next inspection, leave outlet penstock open.

3.3.10 If outlet is open and you are unsure if water is discoloured or not, take water quality sample and measure turbidity. If turbidity is >50 NTU, close outlet and lock off. If turbidity is <50 NTU check weather forecast. If no further moderate / heave rain forecast before next inspection, leave outlet penstock open.

3.3.11 If moderate / heavy rain is forecast after an extended dry period, if water quality is <50 NTU, close outlet, even if water is currently clear.

3.3.12 If water is discoloured (grey, dark grey, light brown, dark brown or black colour) at any location, immediately close outlet penstock and lock off to prevent operation. If penstock is already closed, leave closed, record pond water level and record findings on Balancing Pond Check Sheet.

3.3.13 If oil is present in oil separator basin, use two people to connect several booms together, attached long lengths of rope and position in water at basin outlet. Walk booms up to contact the oil, always remaining 3 metres or more away from edge of water.

3.3.14 Inspect water level, record on Balancing Pond Check Sheet as high (above access track), medium (elevated above oil separator basin) or low (normal water level in oil separator basin).

3.3.15 Weekly – inspect 'scaff tag' on outlet penstock scaffold to confirm weekly inspections are being conducted.

3.3.16 Weekly – test close outlet penstock and inspect downstream at sample point for good seal.

3.3.17 Weekly – inspect Pond B receiving watercourse. Pay attention to turbidity, oil / fuel, deicer and evidence of sewage fungus.

3.2.18 Weekly – inspect all lifebuoys for theft, interference and damage. Inspect the housing and indicator tab, remove and inspect the lifebuoy, grab line and throw rope (attached to lifebuoy). If a lifebuoy / part has been removed / damaged, replace it immediately with a new spare from Central Stores.

3.3.19 Weekly – walk site perimeter fence and inspect for breaches that could allow public access, especially adjacent to the Public Footpath / Bridleway adjacent to outlet channel.

3.3.20 Weekly – check if working areas of site are overgrown by vegetation and if safe working access is prevented. Do not enter overgrown areas of the site where structures are obscured by vegetation or areas adjacent to open water or mud.

3.4 BALANCING POND C

Splitter Chamber

3.4.1 Take Dissolved Oxygen monitor to Pond C for every winter period inspection (nominally October to April).

3.4.2 Close all gates at Pond C after driving through them to the locked fenced compounds.

3.4.3 Check stock of absorbent materials in silver container next to inlet chamber. When materials are used, update spill kit inventory and order new absorbent materials as required to maintain the minimum stock levels shown.

3.4.4 Inspect appearance of all incoming flows into the Splitter Chamber – Urban, Runway/Taxiway and Stands. Pay attention to evidence of deicer, sewage fungus, oil / fuel, turbidity, colour and odour.

3.4.5 Inspect Splitter Chamber oil booms for saturation, position and condition. Inspect, secure and replace inlet channel oil booms (see 3.2.2). Only install booms in Runway / Taxiway and Stands channels. Two booms are to be installed in each channel and fastened securely to the safety rails.

3.4.6 Open drain valve on the 'Airmate' air flush receiver to bleed out any liquid and valve when all liquid has been removed.

3.4.7 Open air scour valve to flush green sample pump delivery hose for Urban, Taxiway / Runway and Stands TOC monitors. Conduct air scour for one flow at a time and wait until the compressor has stopped running before starting the next air scour.

3.4.8 Check Splitter Chamber davit arms and manual winches for signs of wear, damage and lifting equipment inspection tags are in date. Lifting equipment **must not be used** if worn, damaged or tags are out of date.

3.4.9 Check Urban, Runway / Taxiway and Stands sample pump green return pipework is flowing back into each channel. If low / no flow from return pipework, turn off operating pump, switch on standby pump. Isolate the pump just turned off using a personal padlock so it cannot be energised.

3.4.10 Wear waterproof safety gloves, lift pump with latching winch, check pump inlet strainer for blockages and brush clean if required. Lower, de-isolate and test operate pump.

3.4.11 Inspect positions of Urban, Runway/Taxiway and Stands (three) penstocks, in the Splitter Chamber. Check all Rotork actuator 'Local/Remote/Stop' switches are in the Remote (Auto) position.

3.4.12 Check manual penstock is closed and hand wheel is locked off.

3.4.13 Inspect water level in Dirty Section of Splitter Chamber for water flowing back into chamber from overflow pipe above Dirty Pond bar screen. If flowing, check operation and fault status of helical pumps.

3.4.14 Inspect Urban, Runway / Taxiway and Stands TOC monitors and status and fault conditions. Check positions of all penstocks are consistent with TOC monitor readings. Report any faults to Water Assets and Compliance Manager. Record the findings in the Balancing Pond Inspection Check Sheet.

TOC monitor reading / status	Penstock Name	Correct penstock position
<25mg/l or healthy	Urban	Open
	Runway/Taxiway	Closed
	Stands	Closed
>25mg/l or in fault	Urban	Closed
	Runway/Taxiway	Open
	Stands	Open

3.4.15 Log in to penstock control panel and check that all penstocks are in auto. Check all status and alarm screens and investigate any alarm messages.

3.4.16 Check that any closed penstocks seal well and there is no significant leakage. Report any faults to Water Assets and Compliance Manager.

3.4.17 Inspect level of chemicals in drums under TOC monitors. When each reagent level is low, replace the entire drum with a new one. **Do not pour new reagents into existing / old drums.** This increases risk of a chemical accident, causing a spillage and will contaminate monitor reagents.

3.4.18 Put near empty drums in white container and dispose of as liquid waste (see 4.2). Out of date chemical reagents must not be poured into any part of the airport drainage networks or Balancing Ponds.

3.4.19 Every Friday – isolate (padlock off), lift, inspect and needed clean all six sample pumps in the Splitter Chamber before the weekend to minimise blockages over the weekend. Lift, inspect and clean (if needed) all 2 pumps at the Clean Pond outlet oil separator before the weekend.

3.4.20 Weekly – check Splitter Chamber bar screens to Clean and Dirty pond for debris and any backing up of water level before the screens.

3.4.21 Monthly – inspect safety rails, kick boards, floor grilles and access gates are secure around Splitter Chamber.

Clean and Dirty Ponds

3.4.22 Inspect dissolved oxygen level on aerator control screen. If dissolved oxygen reading is <70%, turn on all aerators in hand and leave on until 80%, then turn all aerators off.

3.4.23 Inspect Clean Pond outlet penstock lower and upper bar screens for debris. **It is important to keep this bar screen clear of debris at all times.** Pay particular attention to condition of bar screen after grass cutting at Pond C.

3.4.24 Inspect appearance of output penstock channel downstream of Clean Pond embankment and upstream of outlet oil separator. Pay attention to evidence of deicer, odour and colour of water.

3.4.25 Weekly – inspect Clean and Dirty Pond inlet bar screens for debris.

3.2.26 Weekly – inspect all lifebuoys for theft, interference and damage. Inspect the housing and indicator tab, remove and inspect the lifebuoy, grab line and throw rope (attached to lifebuoy). If a lifebuoy / part has been removed / damaged, replace it immediately with a new spare from Central Stores.

3.4.27 Weekly – **Summer Period only** – manually operate the Clean Pond outlet penstock actuator in ‘Local’ and check for noise, vibration and water tight seal. The Rotork actuator must be returned to Remote (Auto) position after testing. Report any faults to Water Assets and Compliance Manager. **Do not test operate in Winter Period which can cause pollution of local watercourse.**

3.4.28 Weekly – check condition of sign on site entrance gate.

3.4.29 Monthly – check working areas of site where vegetation prevents safe access. Do not enter overgrown areas, especially where structures or edges of banks, mud or streams are covered by vegetation.

3.4.30 Monthly – inspect all safety hand rails around inter-pond penstock apron structures, pond inlet and Clean Pond outlet penstock structures.

3.4.31 After Very Heavy Rain – inspect Dirty Pond bank adjacent to Thames Water pumping station compound for evidence of raw sewage emerging from overflow pipe. If found, fence off both sides of overflow and report to Water Assets and Compliance Manager.

Clean Pond Outlet Compound

3.4.32 Inspect Clean Pond outlet TOC monitor status and fault conditions. Check positions of the outlet penstock is consistent with the TOC monitor reading. Report any faults to Water Assets and Compliance Manager. Record the findings in the Balancing Pond Inspection Check Sheet.

TOC monitor reading / status	Penstock Name	Correct penstock position
<25mg/l or healthy	Clean Pond outlet	Open
>25mg/l or in fault	**Clean Pond outlet**	**Closed**

3.4.33 Inspect level of chemicals in drums under TOC monitors. When each reagent level is low, replace the entire drum with a new one. **Do not pour new reagents into existing / old drums.** This increases risk of an accident handling chemicals, spillage and will contaminate the monitor reagents.

3.4.34 Put near empty drums in the white container and dispose of as liquid waste (see 4.2). Out of date chemical reagents must not be poured into any part of the airport drainage networks or Balancing Ponds.

3.4.35 Every Friday – lift, inspect and if needed clean all six sample pumps in the Splitter Chamber before the weekend to minimise blockages over the weekend. Lift, inspect and clean (if needed) all 2 pumps at the Clean Pond outlet oil separator before the weekend.

3.4.36 Every Friday – isolate (padlock off), lift, inspect and needed clean two sample pumps in the Splitter outlet oil separator to minimise blockages over the weekend.

3.4.37 Weekly – check Splitter Chamber bar screens to Clean and Dirty pond for debris and any backing up of water level before the screens.

3.4.38 Weekly – check Clean Pond outlet discharge flowmeter display for status and alarm messages.

3.4.39 Monthly – inspect safety rails and floor grilles are secure around the Clean Pond outlet oil separator and sample point.

Pincey Brook

3.4.40 Inspect appearance of Pincey Brook upstream and downstream (footbridge) of the Clean Pond C outlet. Pay attention to evidence of deicer, sewage fungus, odour and turbidity.

3.4.41 If there is evidence of deicer, immediately close Clean Pond outlet and report it to the Water Assets and Compliance Manager.

Dirty Pond Outlet Compound

3.4.42 Inspect operation of Dirty Pond C outlet pumps and water level in Dirty Pond oil separator. Low level suggests the pumps have not been operating for a significant period.

3.4.43 Inspect water level in discharge chamber from Dirty Pond oil separator in square receiving well. Ensure that water is not overflowing the weir in this chamber back towards the Splitter Chamber.

3.4.44 Enter Dirty Pond C Blower Building, take ear plugs from wall dispenses inside door and wear. Blowers generate high noise levels especially on start up and can start automatically at any time.

3.4.45 Inspect main Pond C site control panel for status, fault indicators and alarm messages. Reset any faults found and attempt to restart equipment. Report any faults that cannot be reset.

3.4.46 Inspect ammeter for running current of Dirty Pond pumps (if operating). Listen for any evidence of equipment deterioration.

3.4.47 Check Dirty Pond C discharge flowmeter display for status and any alarm messages.

3.4.48 Inspect davit arm and socket basis lifting equipment inspection tags are present and in date.

3.5 BALANCING POND D

3.5.1 Inspect water flowing into and in the pond for appearance, odour and colour. Pay attention to deicer and oil / fuel contamination.

3.5.2 Inspect pond water level (high – near overflow weir, medium or low). If water level is high, estimate and record distance from water level to top of overflow weir near the outlet.

3.5.3 Inspect vegetation on all banks and the bottom of the pond. Check the pumping station inlet bar screen at the end of the pond nearest the green pumping station kiosk, is not obstructed by vegetation or debris, so water can flow freely.

3.5.4 Inspect the pumping station control panel in the green kiosk and check all status and fault indicators. Press reset button if any fault lamps are illuminated.

3.5.5 Inspect mode indicator lamps for correct operation based on inspection date as below.

Seasonal operating mode	Pumping station status
Summer	Disabled
Winter (from 1st October)	**Enabled**

3.5.6 The Water Assets and Compliance Manager will confirm when Pond D can be switched from Winter to Summer mode based on confirmation of satisfactory water quality results after the end of the Winter Period.

3.5.7 Check reading from ultrasonic water level sensor is consistent with pond water level and operating status of pumps.

3.5.8 Check oil separator probe display. If in alarm, lift oil separator covers (two person lift) and inspect for presence of oil / fuel in oil separator.

3.5.9 Move to outlet from green kiosk. Check left hand chamber and inspect, secure and replace oil booms (see 3.2.2). Two booms should always be installed across the left hand chamber. Pay attention to evidence of deicer and oil / fuel.

3.5.10 Inspect water present in both left and right hand outlet chambers. In the Winter Period water must **not** be flowing into the stream out of the two 150mm brown outlet pipes in the outlet headwall. Water must be flowing back into main pond from the left hand chamber. The right hand chamber should not have any flow into it (blanking plate and headwall are not leaking).

3.5.11 In the Summer Period water should be flowing out of these 150mm pipes. Inspect the appearance of the stream for deicer, sewage fungus, odour and colour. Inspect appearance of stream bed downstream of outlet.

3.5.12 Weekly – operate each pump in manual by switching the pump duty selector switch to the Run position. Check pump running lamp illuminates, water level on ultrasonic level sensor display reduces. Check for noise, vibration and no faults occur. Run pump for 1 minute by holding switch in Run position. When operating pumps in manual, check Pond D telemetry system sends a text message to Operatives mobile phone, stating that pump number x is unavailable. If a pump is faulty, leave the pump switch in the Off position and raise an urgent Maximo fault to AGL.

3.5.13 After testing each pump, ensure the duty selector is switched back to the Auto position. In the winter period this is critical to ensure that pumps are available and prevent the discharge of deicer to the receiving watercourse.

3.5.14 Weekly – inspect black newt fence around whole perimeter of pond and check for condition and gaps that could allow Great Crested Newts into the water.

3.6 NORTH DITCH

3.6.1 North Ditch is the landside ditch that runs parallel to the aviation fuel pumping main (from fuel farm to forward fuel depot) and airside fence. Failure of or leakage from this fuel main could move through the ground and enter North Ditch.

3.6.2 Inspect North Ditch at the road bridge on Belmer Road near Access Point AP6.

3.7 Recording of Findings

3.7.1 During inspections, record the findings in the Balancing Pond Inspection Check Sheet. Items that cannot be completed for any reason should be noted and reasons explained.

3.7.2 Any parts used and follow on work needed should be noted on the Balancing Pond Inspection Check Sheet and a Maximo fault must be raised.

3.7.3 Scan and email the Balancing Pond Check Sheet to the Water Assets and Compliance Manager after each round of inspections and file the paper copy in the Civils Office.

3.8 Reporting of Failures or Faults Requiring Further Work

3.8.1 Immediately report any critical asset faults, significant pollution incidents, pond overflows or any issues observed on the receiving watercourses of the Balancing Ponds to the Water Asset and Compliance Manager.

3.8.2 Immediately report any evidence of incoming pollution observed at the inlets to the Balancing Ponds to the Water Assets and Compliance Manager.

3.8.3 If an asset is out of service or a safety critical fault is found, the unit must be made safe and a fault raised through Maximo. Safety concerns must be highlighted to Engineering Management Team.

4.0 Waste Disposal and Clear Work Area

4.1 Out of date or unwanted chemical reagents must be disposed of as liquid waste by the STAL licensed waste contractor and must not be poured into any part of the airport drainage networks or Balancing Ponds.

4.2 Used absorbent materials are classed as Hazardous Waste and must be disposed of in the red Hazardous Waste bins located at Ponds A and C. Hazardous Waste Consignment Notes must be retained and filed in the Civils Office.

4.3 Contact the STAL Environment Standards Manager on 01279 662987 to request the collection and disposal of general, hazardous and chemical reagent waste.

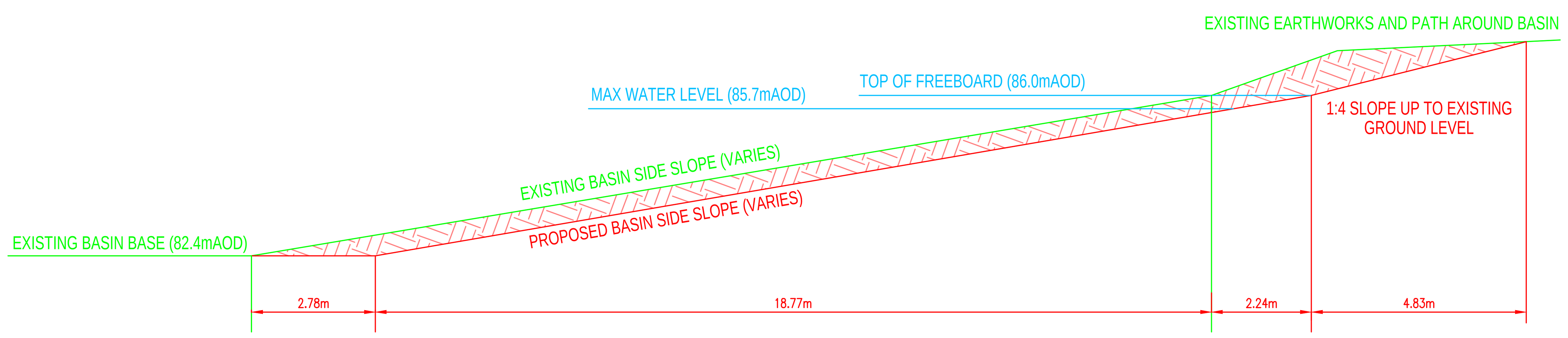
5.0 Close Work Order / Clear Permits to Work

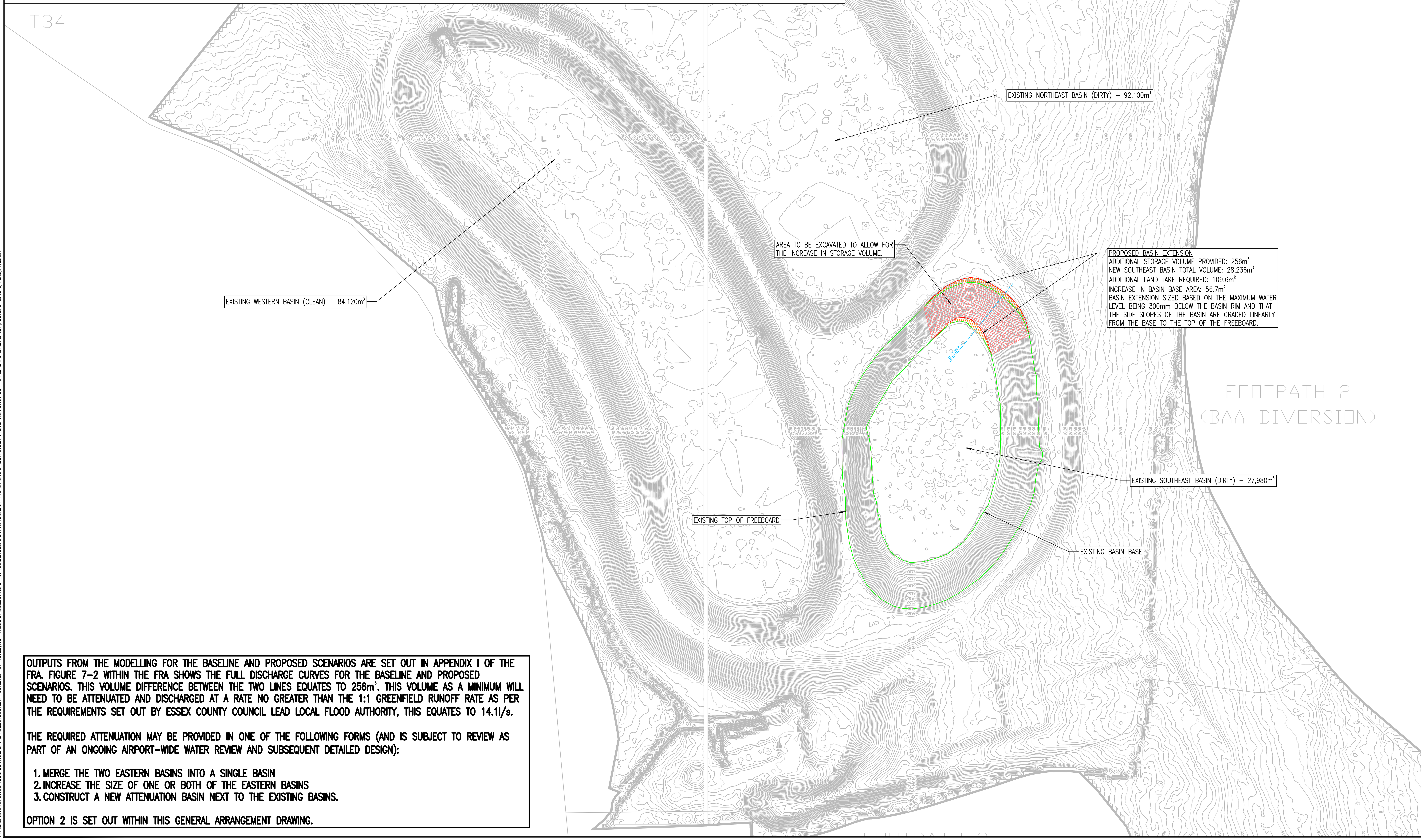
5.1 Closing of a work order is an electronic signature to declare that all work has been fully completed in accordance with the Work Method Statement and Risk Assessment and follow on work orders raised.

Appendix E – General Arrangement Drawing - Pond C Additional Attenuation Strategy for 35+

DO NOT SCALE

SECTION A-A





OUTPUTS FROM THE MODELLING FOR THE BASELINE AND PROPOSED SCENARIOS ARE SET OUT IN APPENDIX I OF THE FRA. FIGURE 7-2 WITHIN THE FRA SHOWS THE FULL DISCHARGE CURVES FOR THE BASELINE AND PROPOSED SCENARIOS. THIS VOLUME DIFFERENCE BETWEEN THE TWO LINES EQUATES TO 256m³. THIS VOLUME AS A MINIMUM WILL NEED TO BE ATTENUATED AND DISCHARGED AT A RATE NO GREATER THAN THE 1:1 GREENFIELD RUNOFF RATE AS PER THE REQUIREMENTS SET OUT BY ESSEX COUNTY COUNCIL LEAD LOCAL FLOOD AUTHORITY, THIS EQUATES TO 14.1l/s.

THE REQUIRED ATTENUATION MAY BE PROVIDED IN ONE OF THE FOLLOWING FORMS (AND IS SUBJECT TO REVIEW AS PART OF AN ONGOING AIRPORT-WIDE WATER REVIEW AND SUBSEQUENT DETAILED DESIGN):

1. MERGE THE TWO EASTERN BASINS INTO A SINGLE BASIN
2. INCREASE THE SIZE OF ONE OR BOTH OF THE EASTERN BASINS
3. CONSTRUCT A NEW ATTENUATION BASIN NEXT TO THE EXISTING BASINS.

OPTION 2 IS SET OUT WITHIN THIS GENERAL ARRANGEMENT DRAWING.

DRAFT

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS: S0 - WORK IN PROGRESS

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CLIENT:

ARCHITECT:

SITE/PROJECT:

TITLE: POND C ADDITIONAL ATTENUATION STRATEGY FOR 35+

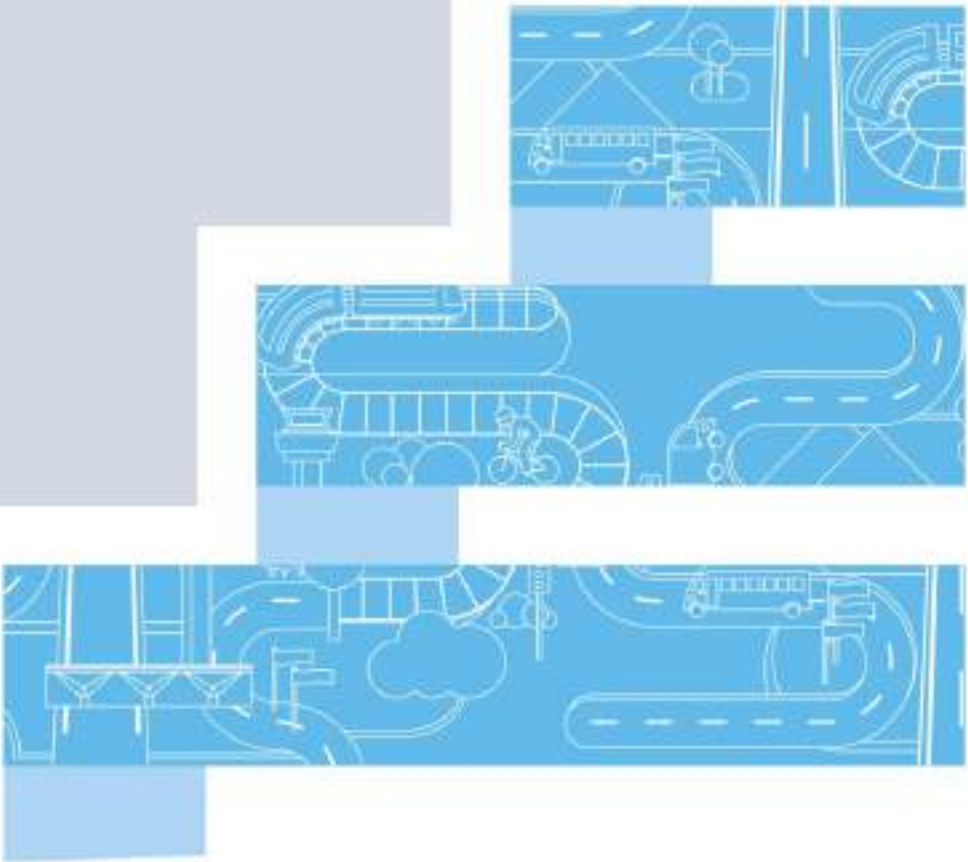
SCALE @ A1: 1:1000	CHECKED: JWB		APPROVED: JWB
PROJECT NO: 70022583	DESIGNED: JAF	DRAWN: JAF	DATE: April 18

DRAWING No: 2835-D-SK-009 | REV: P01

TRANSFORMING LONDON STANSTED AIRPORT

35+ PLANNING APPLICATION

Annex 6: Transport Assessment Addendum



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Surface Access Transport Assessment Addendum
July 2018

Our ref:23003401

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Stansted Airport Limited

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Contents

Figures

Tables

Appendices

1 Introduction

Background

1.1 This report, or Transport Assessment 'Addendum' has been prepared following review of comments raised in respect of the 35+ planning application from statutory consultees including Highways England (HE), Essex County Council (ECC), Hertfordshire County Council (HCC) and Network Rail (NR). The report also provides information and clarification in light of representations received from non-statutory bodies.

Structure of Report

1.2 This report is divided into 6 chapters, of which this chapter forms the Introduction. The structure of the remaining chapters is as follows:

- **Chapter 2**: considers travel demand including internal passenger transfers, daily variation, mode share and car occupancy, and describes the stress test for both higher public transport use and increased traffic;
- **Chapter 3**: provides a summary of the additional analysis presented to Network Rail in response to their comments, including increased rail mode share stress testing;
- **Chapter 4**: describes the additional highway impact analysis and stress testing;
- **Chapter 5**: presents additional analysis for assessing the impact on local roads; and
- **Chapter 6**: provides a number of clarification points and corrections to the original TA where appropriate.

2 Travel Demand

Introduction

2.1 The Transport Assessment (TA) (Environmental Statement Vol 3) submitted with the planning application presented the forecast air passenger and employee surface access travel demand for the future year airport capacity increase scenarios. It provided the forecasts of travel demand by all modes of transport for the 2028 Do Minimum (35mppa) scenario and the 2028 Development Case (43mppa).

2.2 The analysis set out in the TA remains a robust consideration of future travel demand. It was prepared on a 'worst case' basis and hence includes several factors that potentially overestimate travel demand on the external transport networks. Consultees have sought further information on these factors. They include:

Internal Passenger Transfers

2.3 As stated at paragraph 4.6 of the TA, the most recent passenger surveys (2016) have indicated that around 1.6 million passengers make 'self-connecting' internal transfers between arriving and departing flights and therefore do not leave the airport terminal. There is no predictive model of how the proportion of transfer passengers may change in the future and there is no formal airline 'transfer'[1] processing at the airport. Therefore, for the purposes of ensuring a robust assessment, no allowance for internal passenger transfers was included in the future year passenger surface access modelling within the TA. Our analysis is therefore considered robust as it assumes 100% of passengers enter or depart the airport in our assessment scenarios and therefore overestimates the trips on the external transport networks.

Daily Variation

2.4 The TA modelling assessed an average day based on demand spread across the year and a week as set out at 6.15-6.17 in the TA. Mid-weeks are consistently the quietest days of the week. Using an average day figure based on an annual figure divided by 364.66 provides a

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[1] A passenger transfer is generally where a passenger has bought a ticket from A to B but requires to change aircraft and / or airlines at intermediate point C. The transfer is facilitated by the airlines concerned e.g. baggage transfer.

Passengers may also purchase 2 flights A to C and C to B and change aircraft / airlines at airport C.

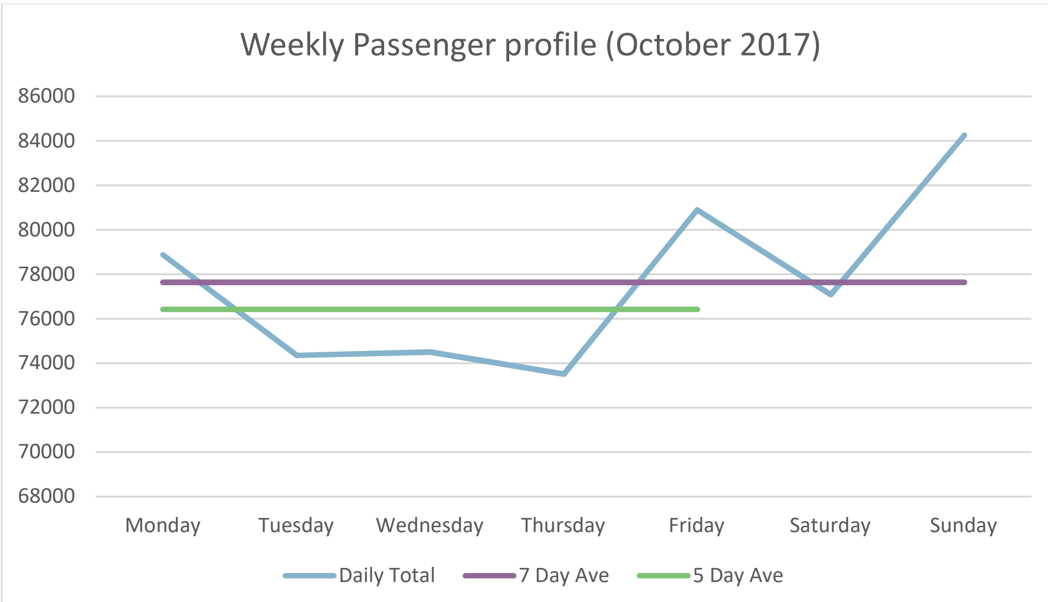
Transfers can be from domestic to international; international to international or domestic to domestic flights.

slightly higher figure than would be generated if a further step with a Monday- Friday correction was incorporated into the analysis. As set out in Table 2.1 and Figure 2.1 below, recorded air passenger movements from October 2017 indicate that a weekday 5-day average is 99% of a 7-day average. i.e. the figure adopted is slightly higher than a 5-day average, adding to robustness of subsequent analysis.

Table 2.1: Typical weekly passenger profile (October 2017)

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Average daily total over 4 weeks	78,855	74,341	74,495	73,503	80,885	77,077	84,253

Figure 2.1: Typical Weekly Passenger profile (October 2017)



Mode Share (Passenger)

2.5 There has been a continuous trend of increasing public transport mode share for passengers and employees over many years. Within the TA, to ensure a robust test of the potential impact on highways, i.e. the most sensitive mode of travel, the current level of passenger mode shares have been maintained for future year forecasts and analysis. In the TA, there was a formatting error with the data table. For clarification purposes, Table 4.2 of the TA should read as shown in Table 2.2 below.

Table 2.2: Mode of Travel to Stansted Airport 2007-2016 (Table 4.2 in TA)

Year	Public Transport	Private
2007	44.6%	55.1%
2008	46.9%	52.7%
2009	47.3%	52.2%
2010	52.4%	47.1%
2011	48.9%	50.9%
2012	50.9%	48.8%
2013	51.5%	48.3%
2014	49.6%	48.5%
2015	50.7%	49.3%
2016	50.9%	49.1%

Source CAA passenger Survey reports 2007-2016

Car Occupancy

2.6 In the TA a car occupancy rate of 1.6 passengers per car has been adopted. This was derived from raw CAA passenger survey data and included the assumption that when a response of group size=0 was recorded, a car occupancy of 1 was applicable. Clarification has since been provided by the CAA regarding the response to group size point. CAA's advice is that a group size = 0 response means the question has been unanswered and therefore such data should be excluded from the response from the car occupancy analysis rather than assume the answer is one person in a car.

2.7 Recalculation of car occupancy on the basis of this CAA advice provides an average figure of 1.8 passengers per vehicle rather than 1.6 as used in the TA. If the new figure was adopted, there would be a reduction in the predicted traffic numbers reported in the TA, and used for all subsequent capacity testing. In order to maintain a robust and 'worst case' analysis the lower car occupancy value is retained.

Passenger and Employee Origins

Passengers

2.8 The surface origins of air passengers for 2016 was derived from the 2016 CAA passenger dataset at district level. All modelling was undertaken at a district level before it was aggregated for output within the TA.

2.9 The passenger origins were used to derive the road assignment for passengers and the traffic impact. All passengers were assigned to the strategic road network as it is likely that passengers would travel by A roads, for faster and familiar routes to the Airport. The local impact has not been ignored, supplementary work included within Chapter 5 of this report has looked at the local roads in more detail and identifies a very small number of trips on local roads in total.

2.10 It is therefore considered that the original 'strategic' network approach was reasonable and the local impact figures do not adjust our conclusions.

Employees

2.11 Employee origins were derived from the 2015 Employee Survey at district level and similar road assignments were made as per the passenger demand. Employees however, were not assigned to the strategic network but on the local road network, due to the local proximity of employees in Hertfordshire and Essex to the Airport.

2.12 Our approach was based on a developed area basis. More detailed GIS analysis has confirmed employee proportions of 7.8% on A1250 immediately east of Hockerill Junction following commentary from HCC regarding the demand from the East Herts district. This is discussed further in Chapter 5 of this report.

Stress Testing Forecast Demand

2.13 Notwithstanding the above, it has been agreed with ECC and HE, and separately with Network Rail (NR), to provide stress tests that examine potentially greater demands on the highway and rail networks than those predicted through the trip modelling set out in the TA.

Higher Rail mode share

2.14 At the request of NR, analysis has been provided to provide comfort as to how rail services could accommodate greater travel demand if the mode share by rail exceeded the predicted proportion adopted within the TA. NR suggested a passenger mode share of 35% should be examined for the purpose of testing. This equates to a 30% increase in the number of airport passengers travelling by rail compared with the latest audited passenger travel survey (2016) and the figures adopted for the TA and for the assessment year, 2028. A summary of the additional information provided to NR is set out in Section 3, in the same format as that set out in the TA.

Increased traffic impact

2.15 In a similar manner, in agreement with ECC and HE, additional analysis has been provided with 10% greater airport related traffic movements through Junction 8 of the M11 in 2028 for the 35mppa and 43mppa scenarios. This 10% stress test is considered a reasonable basis for examining a range of potential variables as set out in Table 2.3 below, whilst also maintaining the lower car occupancy value to provide a robust and 'worst case' analysis.

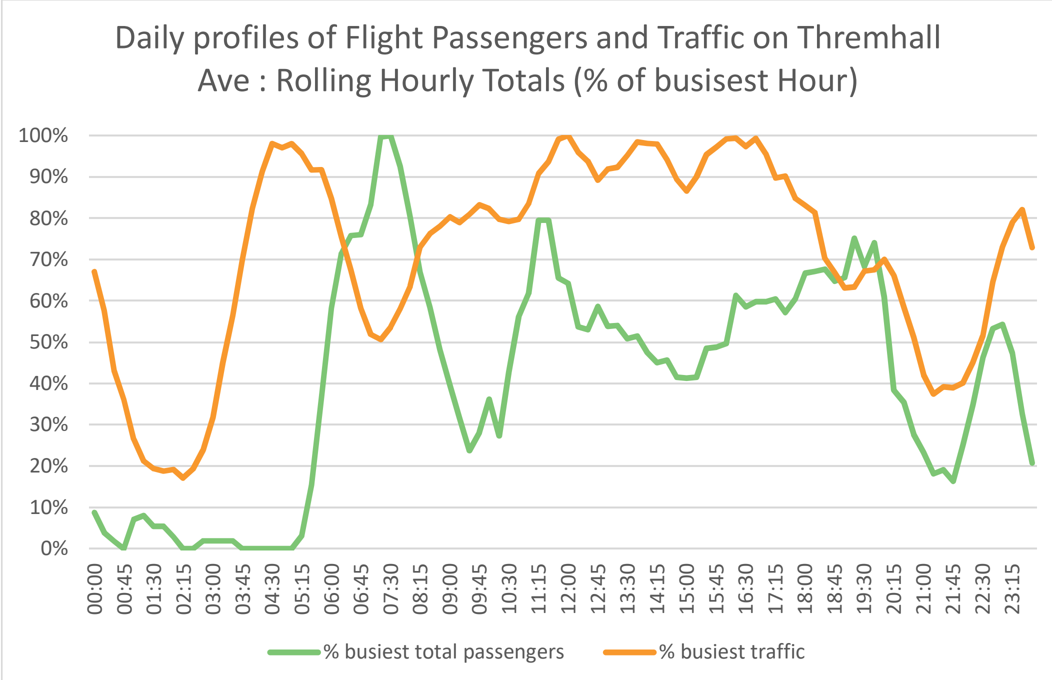
Table 2.3: Factors potentially affecting future traffic demand near Stansted Airport

Potential Variable	Commentary
The TA reports key assumptions around passenger market share projections, daily passenger profiles and sustainable travel mode share from 25mppa to 35mppa and then 35+mppa.	There has been a continuous trend of increasing public transport mode share for passengers and employees. For the TA, to ensure a robust test of the potential impact on highways, i.e. the most sensitive mode of travel, the current level of passenger mode shares has been retained for future analysis.
The trip model and traffic distribution and assignment model assumes existing mode share and travel patterns remain consistent through to 2028. Passenger catchments and employee distributions may not remain constant from 2016 through to 2028	Examining a range of alternative assumption for mode split, time of day, distribution and forecast years for traffic is complex, potentially misleading and not necessarily beneficial as factors often cancel each other out. Accordingly, an examination of a single stress test that provides additional robustness on road traffic impact has been provided.

There is uncertainty around the growth and distribution of the background road traffic levels, particularly in the context of the committed and planned housing provision in Uttlesford, East Herts and further east along the A120 corridor, for example Braintree.	In the absence of committed large scale housing development schemes or a recently adopted Local Plan which provides certainty, the use of TEMPro as set out in the TA has been agreed with ECC/HE as appropriate to examine background growth of traffic.
Cumulative road traffic impacts are a particularly important consideration in relation to the planning application. The 2017 Uttlesford Local Plan (2017) is for the period to 2033 and therefore under DfT Circular 02/2013 "overall forecast demand should be compared…up to 10 years after date of planning application or the end of the relevant Local Plan" The ES and TA should cover the period to 2033 at a minimum.	The assessment year reported in the TA and EA is 2028, the year at which full use of a 43mppa permission is predicted to occur. In addition, the TA reported on the potential operation of Junction 8 of the M11 for 2033 to coincide with the current local plan period. These assessment years have been agreed with both Highways England and Essex County Council, the two relevant highway authorities through the scoping process and confirmed in post application discussions. Sensitivity testing was provided in the TA (Paras. 7.90-7.93) in the form of an assessment of an additional 5 years of background growth after the 2028 assessment year (to 2033).
The TA trip modelling has adopted single sets of future flight patterns to understand daily profile of surface access passenger demands. Alternative profiles could arise if flight patterns varied significantly.	The future year flight profiles have been developed from an in-depth understanding of the current aviation market and Stansted's role in the UK & South East market in the future, trends in aircraft loadings and takes into account the peak and overall capacity of Stansted operations as a single runway airport. Any variation from the adopted schedules is likely to be minor and unlikely to affect peak movements through the airport.
Passenger arrival patterns	Consistent with the airport's terminal planning assumptions, the trip model consistently adopts an offset between flight departure time and a passenger's arrival at the terminal of 2 hours and a 1 hour offset between an arriving passenger and their leaving the airport site on their onward surface journey. The rationale behind this assumption is set out in the TA (Paras. 4.24-4.27) and illustrated in Figure 2.2 below The future operation of the airport will result in a flatter daily profile of flights and hence passenger surface access movements as set out in the TA (Paras. 6.18-6.24). Accordingly, the variation in surface access movements on an hour by hour basis reduces with time, as the airport becomes busier (i.e. Stansted becomes less 'peaky').
The 2008 planning permission (G1) was supported by a TA and traffic demands have not matched those predicted in the 25+ traffic modelling.	The approach adopted to 25+ trip modelling had greater levels of uncertainty than that adopted within this TA. In particular, it adopted a predictive mode share model that looked to examine the effect of changes in transport infrastructure. This model has been shown to have significantly overestimated car usage. The 25+ (G1) central case model estimated public transport mode share of 40% (44% with enhanced transport initiatives). Current public transport mode share is above 50% and has consistently been so for many years. There are no significant changes in transport infrastructure currently planned.
Increased public transport mode share could put additional pressure on existing services	The sensitivity testing provided for NR has examined a significant (30% higher) airport passenger demand sensitivity test scenario. Higher than predicted demand for coach and bus services would have a beneficial impact, as those services are flexible and easily expanded to match demand.

2.16 As described in Table 2.3 above, Figure 2.2 below illustrates the lag between the flight passenger profiles and traffic on the highway network.

Figure 2.2: 2016 Thremhall Avenue Traffic flow compared with Flight Profiles



Modelling Approach

2.17 Whilst considered a 'non-modelling' approach, our approach to passenger and employee routing and origins has been used consistently for the 2028 Do Minimum (35mppa) and 2028 Development Case (43mppa) scenarios, which is the ultimate assessment that this planning application is to be considered against. In practice, it provides a 'worst-case' impact as any reassignment of background traffic would reduce the impact of the proposed scheme. This approach is common to development control TAs as it does not reduce background traffic because of any re-routing. Reassignment is less likely outside of peak periods and the airport is a 24 hour operation with relatively little network peak hour traffic.

3 Rail Demand

Introduction

3.1 Following the submission of the planning application, a discussion was held between NR, Stansted Airport Limited (STAL) and Steer Davies Gleave (SDG) on 22 March 2018. NR had no reason to object to the 35+ planning application based on the briefing material received, but provided a number of comments with regard to the rail analysis provided within the submitted TA, predominantly in relation to Stansted Express services.

3.2 A summary of the comments raised by NR are set out below and addressed in turn within this section:

- **Data** – consider whether a 'busy' day in terms of rail usage would provide a more robust assessment, together with a 'busy' airport day. Provide individual service loading data to NR to allow a comprehensive assessment.
- **Growth and mode share assumptions** – future air passenger rail mode share has been assumed to remain consistent at 26%. Supplementary analysis should consider a scenario where rail mode share increases to 35%, equating to a 30% increase in airport passenger rail demand.
- **Station impacts** – assess the impact of airport passenger growth on stations, in particular Tottenham Hale during the PM peak period.

3.3 ECC's response to the planning application also asked for sensitivity testing for different scenarios. At their request, ECC has been kept informed of the outcomes of the additional information supplied to NR.

3.4 This Addendum summarises the additional analysis provided to NR, which at their request, focusses on Stansted Express rail services and station impacts at Tottenham Hale during the PM peak period.

Data

3.5 As set out within the TA, baseline 2016 rail loading data was sourced in confidence from Abellio Greater Anglia and CrossCountry. Autumn 2016 counts were provided by both operators representing an average autumn weekday from mid-September to mid-December, excluding school holidays and bank holidays.

3.6 It is standard practice for Abellio Greater Anglia to report Autumn loading counts annually (as requested by the DfT) as this tends to be the most consistent busy period in terms of peak travel (i.e. including commuting and business trips). Whilst there is no data available to compare seasonal/monthly variations in rail usage, Autumn is considered to be a reasonable and credible representation of a 'busy' rail period.

3.7 For airport and other [transport] planning purposes, the recognised convention of a 'busy day', in Stansted's case, is the second Friday in the busiest month (August). For the baseline year of 2016 this would have been 12th August 2016. It would not be realistic therefore to model rail loadings for the busy airport day as this would not be representative of busy day loading on the rail network. Being a day in the summer school holidays (and particularly a Friday), it would not accurately capture realistic levels of commuter passengers. It is also noted that Abellio Greater Anglia do not hold loading data for August 2016.

3.8 Due to the commercially sensitive nature of rail passenger data, the TOCs stipulated limitations on the level of information and analysis that could be presented within the TA and ES Chapter. These limitations included the presentation of loading data as a percentage of seats and total capacity (including standing passengers) across three-hour peak periods, from 07:00 – 10:00 and 16:00 – 19:00.

3.9 To provide a robust assessment and allow NR to comprehensively review the impacts of the planned airport growth on the rail network, Abellio Greater Anglia allowed SDG to share more detailed Stansted Express analysis. Whilst this data and our detailed analysis was shared with NR in confidence, it is too commercially sensitive to be shared with other parties or released into the public domain.

3.10 As such, this section provides a summary of the additional analysis, whilst complying with our confidentiality agreement with Abellio Greater Anglia. NR has confirmed that from the additional information provided, the impacts of the proposed increase in air passengers on the rail network with the sensitivity tests, have been fully considered.

Baseline Rail Loadings

3.11 The baseline Autumn 2016 rail loadings for northbound services departing from London Liverpool Street, and southbound services departing from Stansted Airport, were presented in the TA. The results show that the point of critical loading on the route occurs between Tottenham Hale and either Harlow Town or Bishop's Stortford.

3.12 The TA concluded that average line loadings for the 2016 baseline are nearing average seating capacity during the PM peak on services departing from London Liverpool Street (94%). Further interrogation of the results which were presented to NR show that there are five services during this period (16:00 – 19:00) where seating capacity is currently exceeded.

Future Rail Loadings

3.13 As discussed within the TA, the committed introduction of a new fleet of Class 745/1 trains by 2020 will increase train capacity. Further analysis of the future baseline '2028 Do Minimum (35mppa)' and '2028 Development Case (43mppa)' scenarios for individual timetabled services was provided to NR. This analysis concludes that Stansted Express service capacity will continue to be adequate to meet demand following the growth in airport passengers, with all rail passengers expected to have a seat.

Growth and Mode Share

3.14 NR agreed that the growth rate of 1.5% per annum on the West Anglia Main Line (derived from the NR South East Market Study [2013]) is acceptable. However, NR also highlighted that current rail mode share for airport passengers currently exceeds the 26% rail share assumed for future analysis.

3.15 Airport passenger rail mode share is influenced by a number of factors, including marketing, pricing, competition from other modes and the level of service offered. A key factor is how these factors contrast with coach provision, the main competitor, particularly for the central London Market. The 2017 (un-validated) CAA data shows a marked increase in rail mode share for air passengers at the airport than in previous years and is not considered a fair representation of longer term mode share trends. During 2017, coach services at the airport were affected by a reduction to 2 (from 3) operators and there were significant qualitative improvements in improved rail fare advertisement / marketing. It can be reasonably expected that the coach market will respond and 2018 data could change again. 2016 mode share data is consistent with longer term trends and considered to be a robust assessment scenario.

3.16 Nevertheless, it is acknowledged that the comparative use of coach and rail could be expected to fluctuate, and hence a stress test has been prepared which considers a greater proportion of airport passengers travelling by rail.

3.17 At the request of NR, a high rail mode share of 35% has been considered for the purpose of sensitivity testing. This equates to a 30% increase in the number of airport passenger travelling by rail compared with the latest audited passenger travel survey (2016).

3.18 The forecast 2028 Development Case (43mppa) line loadings have been adjusted to reflect an increase in airport passenger rail mode share to 35%. The sensitivity test results, expressed as a percentage of seating capacity and total available capacity (including standing), are presented alongside the 2028 Do Minimum (35mppa) and 2028 Development Case (43mppa) scenarios in Table 3.1 and Table 3.2.

Table 3.1: Forecast Stansted Express Line Loadings (35% Rail Mode Share) – Seating Capacity

	Depart Liverpool Street Stansted Airport			Depart Stansted Airport - Liverpool Street		
	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
2028 (35mppa)	16%	68%	29%	56%	26%	28%
2028 (43mppa)	23%	73%	34%	56%	32%	32%
2028 (43mppa) – Sensitivity Test	29%	86%	41%	66%	43%	41%

Table 3.2: Forecast Stansted Express Line Loadings (35% Rail Mode Share) – Total Capacity (incl. Standing)

	Depart Liverpool Street Stansted Airport			Depart Stansted Airport - Liverpool Street		
	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
2028 (35mppa)	11%	48%	20%	39%	18%	19%
2028 (43mppa)	16%	51%	24%	39%	23%	22%
2028 (43mppa) – Sensitivity Test	20%	60%	29%	46%	30%	29%

3.19 The results of the sensitivity test above indicate that there will be spare seating capacity on peak hour Stansted Express services in both directions by 2028, even when considering a 35% airport passenger rail mode share.

3.20 It should be noted that the provision of rail loadings as an average across 3-hour peak periods dilutes the impact of the airport's increased passenger throughput on train capacity, particularly on the busiest services. The detailed rail loading forecasts presented to NR show that demand may exceed seating availability on four Stansted Express services heading northbound during the PM peak, should airport passenger rail mode share rise to 35% by 2028 with the growth of the airport to 43mppa.

3.21 However, a significant amount of standing capacity will be available on these services and seats will only be unavailable to a minimal number of passengers for a short time along the busiest section of the route, typically between Tottenham Hale and Harlow Town/ Bishops Stortford. NR is therefore satisfied that the stress test demonstrates no forecast capacity issues on Stansted Express services.

3.22 Further, NR has requested additional information to understand the impact of airport passenger growth on stations, in particular Tottenham Hale, during the PM peak period. Given that rail loadings are presented at the point of critical loading both within the TA and this Addendum, and this occurs between Tottenham Hale and either Harlow or Bishop's Stortford, the impacts on the capacity of rolling stock through Tottenham Hale have already been assessed, including the sensitivity test which assumes a 35% airport passenger rail mode share.

3.23 To understand the proportion of rail demand which is related to the airport, Abellio Greater Anglia has provided journey information based on ticket sales. The proportional share in journeys to and from Stansted Airport is presented in Table 3.3.

Table 3.3: Proportional Share of Stansted Airport Rail Journeys

Journey	Proportion of Total Journeys		% Change
	2017	2018	
Liverpool Street to Stansted Airport	24%	26%	2%
	45%	42%	-3%
Tottenham Hale to Stansted Airport	9%	9%	0%
Stansted Airport to Tottenham Hale	9%	9%	0%
Stansted Airport to Stratford	0%	0%	0%
Stratford to Stansted Airport	0%	1%	1%
Other to Stansted Airport	4%	5%	1%
	5%	6%	1%
Bulk Sales	2%	3%	1%
Total	**100%**	**100%**	-

*Errors due to rounding

3.24 The information in Table 3.3 has been used to determine the destination station of outbound Stansted Express trips from the airport and the origin station of inbound trips to the airport as set out in Table 3.4.

Table 3.4: Destination and Origin Stations for Stansted Express Journeys

Stansted Airport to Liverpool Street	42%	74%
Stansted Airport to Stratford	0%	0%
Tottenham Hale to Stansted Airport	9%	22%
Other to Stansted Airport	5%	12%

3.25 The directional trip percentages provided in Table 3.4 have been applied to the Stansted Express rail loading data provided by Abellio Greater Anglia for Tottenham Hale station to assess the impact of airport passenger rail trips on the network.

Station Impact – Tottenham Hale London Underground Interchange Trips

3.26 SDG has not been supplied with sufficient data to carry out an assessment of platform capacity at Tottenham Hale. However, during peak periods, Tottenham Hale is predominantly used as an interchange between national rail services and the London Underground network via the Victoria line, which can serve as a useful barometer to assess the impact of airport passengers at Tottenham Hale.

3.27 Data has been obtained from the latest available TfL Rolling Origin Destination Survey (RODS) data (2016) for London Underground entry and egress at Tottenham Hale by mode of travel. The total AM and PM (one-hour) peak, and daily interchange trips between national rail and London Underground services at Tottenham Hale are compared with the 2016 baseline airport passenger demand in Table 3.5 below.

Table 3.5: Tottenham Hale National Rail/London Underground Interchange Trips (2016 Baseline)

	AM Peak		PM Peak		Daily	
	To Underground	From Underground	To Underground	From Underground	To Underground	From Underground
Total Interchange Trips	5,240	1,125	1,737	4,040	11,503	9,165
(Trips)						
Airport Passenger Demand (%)	**2%**	**8%**	**2%**	**6%**	**14%**	**24%**

3.28 The results in Table 3.5 show that airport passenger trips account for 14% of daily interchange trips to the London Underground and 24% of trips from the London Underground. However, during the busiest periods, airport passenger trips account for a significantly smaller proportion of total national rail/London Underground interchange trips.

3.29 The busiest interchange directional flow occurs during the AM peak with 5,240 national rail trips changing to the London Underground, of which, just 119 (2%) are airport passenger trips.

3.30 The same growth rate assumptions used in the TA have been applied to forecast background rail growth in order to assess future scenarios and the impact of airport passenger growth at Tottenham Hale. The sensitivity test, which incorporates a 35% airport passenger rail mode share, has been used to provide a robust assessment.

3.31 The forecast Tottenham Hale interchange trips during the 2028 Do Minimum (35mppa) scenario are shown in Table 3.6.

Table 3.6: Tottenham Hale National Rail/London Underground Interchange Trips (2028 Do Minimum (35mppa) – Sensitivity Test)

	AM Peak		PM Peak		Daily	
	To Underground	From Underground	To Underground	From Underground	To Underground	From Underground
Total Interchange Trips	6,275	1,369	2,108	4,886	14,277	11,777
Airport Passenger Demand (Trips)						
Airport Passenger Demand (%)	**4%**	**10%**	**9%**	**8%**	**18%**	**30%**

3.32 The results show that airport passengers are likely to account for a slight increase in the proportion of daily interchange trips at Tottenham Hale under the 2028 Do Minimum (35mppa) scenario. During the busiest periods of directional flow, i.e. interchanges to the Underground during the AM Peak and from the underground during the PM Peak, airport passengers account for 4% and 8% of total demand respectively, representing a 2% increase from the 2016 Baseline scenario.

3.33 The forecast Tottenham Hale interchange trips during the 2028 Development Case (43mppa) (sensitivity test) scenario are shown in Table 3.7.

Table 3.7: Tottenham Hale National Rail/London Underground Interchange Trips (2028 Development Case (43mppa) – Sensitivity Test)

	AM Peak		PM Peak		Daily	
	To Underground	From Underground	To Underground	From Underground	To Underground	From Underground
Total Interchange Trips	6,191	1,426	2,101	4,845	14,180	11,654
Airport Passenger Demand (Trips)						
Airport Passenger Demand (%)	**4%**	**16%**	**11%**	**9%**	**22%**	**37%**

3.34 The results presented in Table 3.7 show that during the 2028 Development Case (43mppa) (sensitivity test) scenario, airport passengers may account for 22% of all daily interchange trips from national rail to the London Underground and 37% of trips from the London Underground to national rail. Within the two busiest directional flow periods, i.e. trips to London Underground during the AM peak and trips from the London Underground during the PM peak, airport passenger demand would account for just 4% and 9% of interchange trips respectively, representing a 1% increase from the 2028 Do Minimum (35mppa) (sensitivity test) scenario.

3.35 In terms of total rail passenger throughput at Tottenham Hale, it should be noted that not all non-airport passenger trips interchange with the London Underground. Other access and egress modes such as bus, taxi, cycling and walking are likely to account for a significant proportion of trips. The actual impact of airport passengers on total rail demand at Tottenham Hale is therefore likely to be reduced.

3.36 A comparison of the airport passenger demand on London Underground/national rail interchange trips between the 2028 Do Minimum (35mppa) (sensitivity test) and 2028 Development Case (43mppa) (sensitivity test) scenarios is presented in Table 3.8.

Table 3.8: Airport Passenger Demand – Tottenham Hale Interchange Trips 35mppa vs. 43mppa (Sensitivity Test)

	AM Peak		PM Peak		Daily	
	To Underground	From Underground	To Underground	From Underground	To Underground	From Underground
2028 35mppa	-13	69	32	43	408	590
2028 43mppa		92	43	58	549	794
Difference	**-5**	**23**	**11**	**15**	**141**	**204**

3.37 Table 3.8 shows that the proposed increase in passenger throughput at the airport to 43mppa by 2028 would result in a maximum airport passenger increase of just 15 people interchanging from the Underground to Stansted Express services during the PM peak. This will have a negligible impact on gate line, platform or train capacities.

3.38 In summary, although the proposed development will increase passenger throughput at Tottenham Hale, the airport related usage is relatively limited and future growth in interchange and general use of the station would be largely as a result of increases in non-airport commuter throughput during peak periods. Therefore, no further assessment of station capacity is deemed necessary by NR.

3.39 Stansted Airport rail station is deemed to have sufficient capacity to meet future rail demand. There are three platforms situated on an expansive concourse area. Platforms 1 and 3 run the full length of the station and are used for Stansted Express and Cambridge services, whilst the shorter platform 2 is used for CrossCountry services. Platform 1 can accommodate two trains simultaneously in formations of up to 12 carriages and platform 2 can accommodate four-carriage trains.

3.40 Escalators lead directly from the platform to a mezzanine level and a ramp connects to the main terminal. There are also four lifts from the concourse to the main terminal.

Summary and Conclusions

3.41 Abellio Greater Anglia has allowed SDG, on a confidential basis, to present a more detailed analysis of the rail loading data to NR. The analysis confirms the findings in relation to Stansted Express service capacity, as presented within the TA.

Growth and Mode Share

3.42 A sensitivity test has been carried out to assess the impact of the proposed development should future rail mode share increase to 35% (an increase of 30% in airport passenger rail use compared with 2016).

3.43 The results indicate that seating capacity may be exceeded on four northbound services during the PM peak at the point of critical loading, i.e. between Tottenham Hale and either Harlow or Bishop's Stortford, although a significant amount of standing capacity will always be available. All other Stansted Express services are forecast to operate below seating capacity.

Station Impact

3.44 Additional information regarding the origin/destination of Stansted Express services has been obtained from Abellio Greater Anglia. This information has been used to provide a breakdown of train loadings by purpose (i.e. airport passengers and non-airport passengers) to determine the impact of the proposed development on Tottenham Hale station.

3.45 TfL RODS data (2016) has been used to determine the impact of the proposed development on interchange trips between national rail and London Underground services at Tottenham Hale. The analysis demonstrates that airport passengers currently account for just 2% of trips interchanging from rail to the London Underground during the busiest period (AM peak).

3.46 The rail mode share sensitivity test adjustment has been applied to the 2028 Development Case (43mppa) scenario to determine the impact of future airport passenger demand on Tottenham Hale station. During the busiest period (AM peak) airport passengers are likely to account for just 4% of all interchange trips to London Underground services. During the PM peak period, airport passengers may account for 442 (9%) trips from the London Underground to national rail services.

3.47 Given that future growth in interchange and general use of Tottenham Hale would be largely as a result of increases in commuter throughput during peak periods, no further assessment of station capacity is deemed necessary and no adverse transport impacts are expected as a result of the proposed development.

4 Highway Impact- Additional Tests

4.1 The TA analysis, the scope of which was confirmed during application discussions with HE and ECC, concludes that the unmitigated impact of the additional traffic associated with the 35+ could reasonably be considered to have a severe impact, in consideration of National Planning Policy Framework paragraph 32.

4.2 Additional Junction 8 testing has been carried out on the basis of an increase in traffic of 10% above the predicted future traffic flows, as reported in the TA. The range of total airport daily and peak hourly traffic flows associated with the 35mppa and 43mmpa scenarios used to establish the original predicted flows and those used in the additional tests is set out in Tables 4.1 and 4.2 below:

Table 4.1: TA Traffic Movements- Total Airport Traffic

	2028 Do Minimum (35mppa) Scenario	2028 Development Case (43mppa) Scenario
Daily car movements	57,991	71,323
AM Peak (07:00- 08:00)	2,209	2,671
PM Peak (17:00-18:00)	3,255	4,191

Table 4.2: Additional Test Traffic Movements- Total Airport traffic

	2028 Do Minimum (35mppa) Scenario	2028 Development Case (43mppa) Scenario
Daily car movements	63,790	78,455
AM Peak (07:00- 08:00)	2,430	2,938
PM Peak (17:00-18:00)		4,610

4.3 The TA demonstrated the daily impact of vehicular traffic on the local network and the peak hours of 07:00-08:00 and 17:00-18:00. The AM highway peak period 07:00-08:00 was identified as the network peak period by ECC.

4.4 The 08:00-09:00 period assessment has been included in Chapter 5 to adhere to Hertfordshire County Council's comments.

Junction 8 Modelling

4.5 Subsequent to the submission of the TA, the operation of Junction 8 and the surrounding highway network has been further investigated in collaboration with consultants retained by

HE and ECC, including modelling the predicted future flows both with and without the impending ECC improvement scheme. This modelling has included examining the predicted traffic flows through a Vissim microsimulation model, prepared by Jacobs for the ECC improvement scheme.

4.6 The Vissim modelling confirmed the findings of the TA, identifying over capacity operation of the junction in future years, with or without expansion of operations at the airport beyond the permitted 35mppa and excessive queuing, particularly the westbound entry of the junction from the A120.

4.7 Modelling of the additional 10% airport traffic flows within Vissim showed similar issues, though with longer queues. No additional problems were identified as arising from the additional 10% stress tests.

4.8 The Vissim modelling has helped understand queue distribution as a result of congestion and has led to a modified set of mitigation proposals that have been further assessed, using Vissim and Linsig.

Linsig Modelling

4.9 As utilised and reported in the TA, Linsig modelling provides a useful comparison of alternative schemes and traffic demands. The modelling has hence been repeated with the TA predicted traffic flows and with the 10% higher traffic stress test. Both with the ECC Improvement scheme and with the further modified scheme.

4.10 As reported in the TA, with the TA predicted traffic demands, the impact on the ECC Improvement scheme is as set out in Table 4.3. This table also provides a comparison with the current operation of the junction.

Table 4.3: Maximum Degree of Saturation Results – M11 J8 Improvement Scheme

Signals	AM 07:00-08:00			PM 17:00-18:00		
	2016*	2028 35mppa	2028 43mppa	2016	2028 35mppa	2028 43mppa
M11 NB Offslip	77%	79%	82%	80%	92%	103%
Services	80%	79%	82%	84%	95%	103%
A120 W	78%	102%	114%	85%	94%	103%
M11 SB Offslip	85%	104%	117%	82%	84%	101%
A120E	59%	69%	73%	54%	67%	75%
Dunmow Road	71%	82%	83%	54%	62%	76%
M11 SB Exit/ Internal junction	91%	105%	100%	73%	85%	90%

*Based on the existing junction layout

4.11 Table 4.3 demonstrates that in 2016, the junction was getting close to capacity.

4.12 The results show that with the proposed ECC Improvement, in the 2028 Do Minimum (35mppa) scenario the junction will be operating over capacity on some arms. In the 2028 Development Case (43mppa) the situation is worsened.

4.13 The Degree of Saturation value improves in the 2028 Development Case (43mppa) at M11 SB Exit/Internal Junction signals in the AM peak because the increased congestion at other junctions within the model is preventing the full traffic demand from reaching this location. Therefore, the flows are lower at these points, which leads to a slightly more balanced lane usage and hence nominal higher capacity. In practice the overall junction operation is clearly worse with higher demands.

4.14 The results from the M11 J8 ECC Improvement Scheme LinSig modelling are provided at Appendix A.

M11 J8 Further Improvements

4.15 Further testing, with a set of further modifications to the junction modelling in addition to the ECC Improvement scheme, suggests that the following additional improvements could be made to allow the junction to operate at better than nil-detriment in the 2028 Development Case (43mppa) when compared with the 2028 Do Minimum (35mppa) scenario:

- Services access:
  - Add an extra lane to the service station exit; and
  - change lane allocation to allow three exit lanes from the circulating carriageway.
- A120 West:
  - Extend A120 entry lane flare to 75m and change lane allocation; and
  - Add one additional lane on the M11 On-slip, connected to lane 3 of the circulating carriageway. Add a downstream merge to bring the three lanes down to the existing two.
- M11 SB Off-slip- extend lane 2 of the Off-slip back to the bridge on the approach
- A120 E- Allow the left lane of Thremhall Ave to operate as an ahead and left movement, joining the existing outside lane of the circulating carriageway
- M11 Southbound On-slip- make the left lane of the outer circulating carriageway ahead and left, making the entrance to the M11 overbridge 3 lanes instead of the current 2.

4.16 Indicative plans showing these proposed works - *'M11 J8 Further Improvement Scheme',* are presented in **Appendix B**.

4.17 Table 4.4 shows how the junction performance would improve if these mitigation measures were implemented.

Table 4.4: Maximum Degree of Saturation – M11 J8 Further Improvement Scheme

Signals	AM 07:00 08:00		PM 17:00-18:00	
	35mppa under current M11 J8 Improvement Scheme	43mppa under M11 J8 Further Improvement Scheme	35mppa under current M11 J8 Improvement Scheme	43mppa under M11 J8 Further Improvement Scheme
M11 NB Offslip	79%	65%	92%	89%
Services	79%	78%	95%	89%
A120 W	102%	86%	94%	90%
M11 SB Offslip	104%	95%	84%	83%
A120E	69%	67%	67%	78%
Dunmow Road	82%	68%	62%	61%
M11 SB Exit/Internal junction	105%	95%	85%	78%

4.18 In the M11 J8 Further Improvement Scheme (43mppa) AM model, two sets of signals operate close to capacity. In the PM, although the junction operates within capacity, one set of signals is likely to experience operational issues.

4.19 In both peaks, the M11 J8 Further Improvement Scheme will allow the junction to operate better than is currently predicted for the 2028 Do Minimum (35mppa) scenario.

4.20 The cycle time at the proposed signalised junction between the A120 and the A1250 has been increased to ensure all traffic is able to access the M11 junction in order to allow a fair comparison.

4.21 As a further assessment of the mitigation scheme, queue lengths on the circulating carriage way were measured. Queue lengths at signalised roundabouts are important as they can lead to blocking of exiting traffic which both leads to higher delays and can cause a safety hazard. Queue lengths from the model are provided below.

Table 4.5: Mean Maximum Queue Lengths on the Circulatory Carriageway

Signals	Max Available PCU (Storage)	AM 07:00 08:00		PM 17:00-18:00	
		2028 35mppa	2028 43mppa with mitigation	2028 35mppa	2028 43mppa with mitigation
M11 NB Offslip	21	17	7	22	10
Services	4	15	7	20	11
A120 W	5	11	11	13	13
M11 SB Offslip	19	59	28	9	16
A120E	6	5	4	7	6
Dunmow Road	4	5	5	1	1
M11 SB Exit/Internal junction- circulating traffic	18	51	22	19	9
Cut Through	24	40	21	10	9

4.22 As can be seen, there are no cases where queueing will significantly increase under the mitigation scheme and in some cases, such as the M11 NB Offslip, the scheme will reduce the queueing sufficiently that it will not exceed the maximum storage at the junction.

4.23 The results from the M11 J8 Further Improvement Scheme LinSig modelling are provided at **Appendix C**.

Additional Traffic Demand Tests

4.24 The 2028 future year analysis was repeated with the 10% additional traffic flows passing through Junction 8. The results of this analysis are set out in Table 4.6 and Table 4.7 for the additional airport traffic.

Table 4.6: Maximum Degree of Saturation – M11 J8 Further Improvement Scheme- +10% Airport Traffic Analysis

Signals	AM 07:00-08:00		PM 17:00 18:00	
	35mppa under current M11 J8 Improvement Scheme	43mppa under M11 J8 Further Improvement Scheme	35mppa under current M11 J8 Improvement Scheme	43mppa under M11 J8 Further Improvement Scheme
M11 NB Offslip	82%	68%	102%	91%
A120 W	114%	83%	102%	102%
A120E	68%	67%	73%	76%
M11 SB Exit/Internal junction	105%	96%	96%	83%

Table 4.7: Mean Maximum Queue lengths on the Circulatory Carriageway +10% Airport Traffic Analysis

Signals	Max Available PCU (Storage)	AM 07:00-08:00		PM 17:00 18:00	
		2028 35mppa	2028 43mppa with mitigation	2028 35mppa	2028 43mppa with mitigation
M11 NB Offslip	21	22	12	40	17
Services	4	16	8	35	16
A120 W	5	10	9	27	23
M11 SB Offslip	19	99	27	30	11
A120E	6	5	4	8	7
Dunmow Road	4	9	5	1	2
M11 SB Exit/Internal junction- circulating traffic	18	35	21	31	9
Cut Through	24	35	22	15	9

4.25 The queue results are significantly worse for the 35mppa +10% scenario as several of the junctions were already over capacity before the 10% demand was added, and therefore the extra traffic simply extends the queue. As the mitigation scheme was generally operating with lower degree of saturation before the additional traffic is added, it is better able to cope with the increase in demand.

Summary and Conclusion

4.26 This section summarises the highway stress testing results and considers the impacts on the M11 J8 with a 10% increase in traffic above the predicted future traffic flows. The additional airport traffic flows have been modelled on behalf of HE and ECC by Jacobs within Vissim, and the results show longer queues.

4.27 Further testing has identified additional improvements to the M11 J8 to allow it to operate at better than nil-detriment in the 2028 Development Case (43mppa) when compared with the 2028 Do Minimum (35mppa) scenario. The LinSig outputs and a combination drawing showing the proposed further improvements scheme have also been shared with Jacobs for testing within the Vissim model.

5 Local Roads

TA and EA Analysis

5.1 The potential impact of the proposals on the local roads was assessed within the TA. The key analysis was the passenger and employee trip modelling that was set out in chapter 6 and 7. Additional analysis and commentary of the usage of local roads for access to the airport and further analysis of the scale of impact associated with the application was provided at paragraphs 7.58 - 7.64. The conclusion from this analysis was that the degree of impact on the minor roads was marginal and, in accordance with the criteria of the Environmental Assessment, the impact of the proposals was negligible due to the increase being below the 10% threshold and without observed existing problems.

5.2 The trip modelling set out within the TA was developed based on an understanding of current and future distribution of passengers and employees and their mode of travel to the airport. It assigned traffic to the road network based on the distribution of passengers recorded in 2016 CAA surveys and 2015 employee surveys. On this basis, the main impact on local roads was that associated with employees, with the model assignment as set out below in Table 5.1

Table 5.1: Assignment of Employee Vehicles to Road Network

Road	Proportion of Total Employees
M11 North of J8	7%
Church Road	14%
A120 East of J8	33%
Parsonage Road	2%
A1250	4%
M11 South of J8	19%
A120 West of J8	14%
Bury Lodge Lane	7%
Total	**100%**

5.3 Local air passenger origin and destinations are not significant, with Uttlesford District only accounting for less than 3% of total passengers. The Passenger trip model assumed all trips would be on the strategic road network, though additional consideration of local road traffic was provided in acknowledgement that some local passengers, and other airport associated traffic, use Parsonage Road and Bury Lodge Lane.

Comparison with COMET Results

5.4 HCC has compared the local road impact results presented in the TA against the COMET model and have noted some discrepancies. The results from the COMET model diverge from the results of our spreadsheet modelling due to a number of varying assumptions between the two models. Our analysis is based on two-way traffic flows (necessary for Air Quality Modelling) which compares the difference in trips between a 2028 consented scenario for 35mppa with a 2028 proposed scenario for 43mppa. We are looking at the impact of the additional 8mppa across the strategic and local highway network. This contrasts with the COMET model which compares a 2014 baseline with a 2031 forecast scenario.

5.5 A number of discrepancies are therefore likely to occur, including the impact of background growth between 2014 and 2031 versus 2016 and 2028, underlying airport passenger growth assumptions (which was not explicitly set out in the HCC response) and the employment growth factor (pro rata) where we have alternatively used detailed employment forecasts supplied by Optimal Economics.

5.6 Similarly, comparing a 08:00-09:00 highway network peak against a 07:00-08:00 assessment scenario is not a like-for-like comparison. This report includes an 08:00-09:00 scenario in the following section to allow for further comparative analysis.

Additional Analysis

5.7 Additional analysis has been undertaken of local catchments and routeing of traffic on local roads utilising more detailed assignment techniques. The only minor roads providing access into the airport are Parsonage Road and Bury Lodge Lane. However, ECC and HCC have identified local pressure points where additional traffic demands have the potential to cause concern in the future. The assignment analysis has therefore identified six locations for further examination as follows:

- Mole Hill Green
- Great Dunmow -B1256 Immediately East of A120
- Takeley- Parsonage Road North of B121051
- Elsenham- Hall Road south of B1051
- Stansted Mountfitchet- Church Road immediately east of B1051
- Bishops Stortford- A1250 immediately east of Hockerill Junction

5.8 In addition, analysis of the potential combined local catchments that could be anticipated to access the airport via Parsonage Road and Bury Lodge Lane in combination has been undertaken.

Calculation of catchments and associated traffic

For this more detailed analysis, a five-step analysis has been undertaken as follows:

Step 1

5.9 The first step has been to identify the potential catchment area from which trips that would potentially pass through the identified sections of roads might originate, using historic observed driver behaviour. The identified catchment areas for the six assessment points are provided in **Appendix D**.

Step 2

5.10 GIS analysis has then been undertaken to identify the population falling within the individual identified catchment areas, broken down between local authority districts. The population of each of the local authority districts has also been identified from the same GIS database, allowing the proportion of each of those districts falling within the catchment areas to be calculated. The following local populations were identified for the six locations:

Table 5.2: Local Road Population Catchments

District	Population of Catchment						
	District Total	Mole Hill Green	Great Dunmow B1256 east of A120	Takeley Parsonage Road north of B1256	Elsenham Hall Road south of B1051	Stansted Mountfitchet Church Road east of B1051	Bishop's Stortford A1250 east of Hockerill Junction
Braintree	147,084	2,558	4,843	-	-	-	-
Epping Forest	124,659						
St Edmundsbury	111,008	9,788	-	-	-	-	-
Uttlesford	79,443				1,587		
East Herts	146,300	-	-	-	-	-	35,293

Table 5.3: Proportion of district population within catchments

District	Proportion of Total district in catchment					
		Great Dunmow-B1256 east of A120	Takeley Parsonage Road north of B1256	Elsenham Hall Road south of B1051	Stansted Mountfitchet Church Road east of B1051	Bishop's Stortford A1250 east of Hockerill Junction
Braintree	1.7%	3.3%	-	-	-	-
Epping Forest	-	-	1.7%	-	-	-
St Edmundsbury	8.8%	-	-	-	-	-
Uttlesford	8.8%	9.1%	10.4%	2.0%	6.1%	-
East Herts	-	-	-	-	-	24.1%

Step 3

5.11 The proportion of each district has then been multiplied by the proportion of the total airport car travel predicted for each of the districts for passengers and employees, as set out in Table 5.5 below; the passenger and employee modelling reported in the TA (as shown in Table 5.4 below) being used to provide distribution for each district.

Table 5.4: Local District – Airport Trip Model Proportions

District	Passengers	Employees
Braintree	2.76%	19.77%
Epping Forest	2.62%	2.23%
St Edmundsbury	1.87%	1.68%
Uttlesford	2.97%	21.36%
East Herts	0.95%	14.60%

Table 5.5: Local Road Catchments as Proportion of Total Airport Car Travel

	Mole Hill Green		Great Dunmow B1256 east of A120		Takeley Parsonage Road north of B1256		Elsenham Hall Road south of B1051		Stansted Mountfitchet Church Road east of B1051		Bishop's Stortford A1250 east of Hockerill Junction	
	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees
Braintree	0.05%	0.34%	0.09%	0.65%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.34%
Epping Forest	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.00%	0.00%	0.00%	0.00%	0.16%	0.04%
St Edmundsbury	0.16%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.01%	0.15%
Uttlesford	0.26%	1.88%	0.27%	1.95%	0.31%	2.22%	0.06%	0.43%	0.18%	1.31%	1.01%	7.25%
East Herts	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	0.47%	2.37%	0.36%	2.60%	0.35%	2.26%	0.06%	0.43%	0.18%	1.31%	2.23%	7.78%

Step 4 and Step 5

5.12 The next step of the analysis has been to multiply the proportion of the identified district populations by the proportion of the total passenger and employee car travel for existing, permitted 35mpppa and proposed 43mppa.

5.13 The final step is adding together the calculated passenger and employee car numbers from step 4 to provide a total anticipated traffic movement for the two scenarios.

Table 5.6: Annual Average Daily Total Car Trips on Local Roads

	Mole Hill Green		Great Dunmow B1256 immediately east of A120		Takeley Parsonage Road immediately north of B1256		Elsenham Hall Road immediately south of B1051		Stansted Mountfitchet Church Road immediately east of b1051		Bishop's Stortford A1250 immediately east of Hockerill Junction	
	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees
Current Airport	130	176	99	193	97	168	16	32	50	98	60	247
35mppa											79	286
43mppa	203	238	155	260	151	226	25	43	78	131	93	333
35mppa combined	377		356		324		59		179		365	
35mppa - 43mppa impact	**64**		**59**		**53**		**9**		**30**		**61**	

Impact Analysis

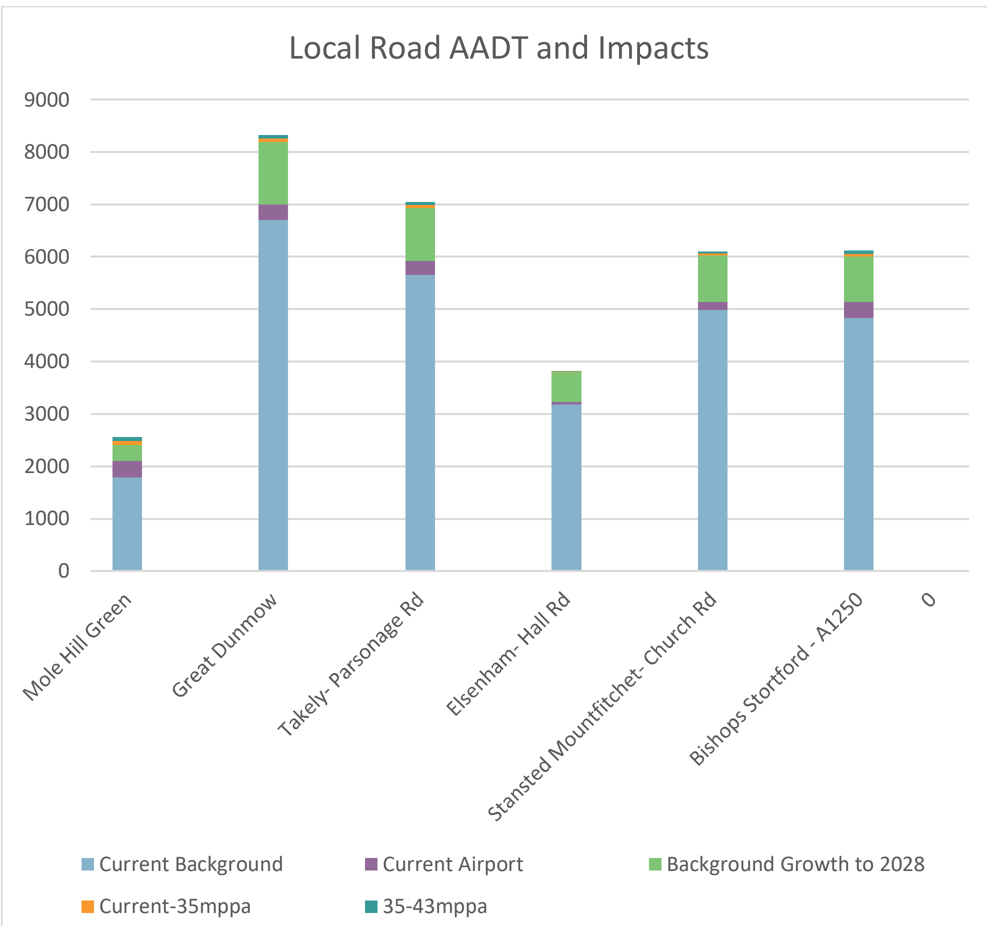
5.14 The calculated daily total impacts have then been considered in the context of current traffic levels on the six assessed roads as set out in Table 5.7 below:

Table 5.7: Local Road AADT and Impacts

	Mole Hill Green	Great Dunmow B1256 immediately east of A120	Takeley Parsonage Road immediately north of B1256	Elsenham Hall Road immediately south of B1051	Stansted Mountfitchet Church Road immediately east of B1051	Bishop's Stortford A1250 immediately east of Hockerill Junction
Current Background	1,790	6,707	5,655	3,186	4,993	4,834
Current Airport	306	292	265	48	148	307
Background Growth to 2028	319	1,195	1,008	568	890	861
Current-35mppa	71	64	59	11	31	58
35-43mppa	64	59	53	9	30	61
35-43mpaa impact	**3.6%**	**0.9%**	**0.9%**	**0.3%**	**0.6%**	**1.3%**

5.15 These results are shown graphically in Figure 5.1 below:

Figure 5.1: Daily Cumulative Increase in Traffic on Local Roads



Morning and Evening Peak Hours

5.16 In addition to the daily total traffic analysis, the same methodology has been used to understand likely additional peak hour traffic. In order to provide an understanding of the largest anticipated change, the analysis reported below is for the hours identified through the analysis as having the greatest predicted change rather than the network peak hour as reported in the TA. This addresses concern that the 17:00-18:00 figures reported in the TA, as agreed through the scoping process, included a small predicted reduction in passenger demand, which came directly from the future predicted flight profiles.

5.17 The AM and PM analysis is shown in Tables 5.8 - 5.11 below. The AM peak has been assumed to be 08:00-09:00 to adhere with Hertfordshire County Council's request.

Table 5.8: AM Busiest Peak Hour Airport Car Trips on Local Roads (08:00-09:00)

	Mole Hill Green		Great Dunmow B1256 immediately east of A120		Takeley Parsonage Road immediately north of B1256		Elsenham Hall Road immediately south of B1051		Stansted Mountfitchet Church Road immediately east of b1051		Bishop's Stortford A1250 immediately east of Hockerill Junction	
	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees
Current Airport	6	14	5	16	4	14	1	3	2	8	3	20
35mppa											3	22
43mppa	14	17	11	19	11	16	2	3	5	10	6	24
35mppa combined	23		22		20		4		12		25	
35mppa - 43mppa impact	**8**		**8**		**7**		**1**		**3**		**5**	

Table 5.9: Local Road AM Busiest Airport Traffic Impacts (08:00-09:00)

	Mole Hill Green	Great Dunmow B1256 immediately east of A120	Takeley Parsonage Road immediately north of B1256	Elsenham Hall Road immediately south of B1051	Stansted Mountfitchet Church Road immediately east of B1051	Bishop's Stortford A1250 immediately east of Hockerill Junction
Current Background						
Current Airport	20	21	18	3	10	23
	20					55
Current-35mppa	3	1	2	1	2	2
35-43mppa	8					5
35-43mpaa impact	**7.0%**	**1.2%**	**2.2%**	**0.5%**	**0.9%**	**1.6%**

Table 5.10: PM Busiest Peak Hour Airport Car Trips on Local Roads (16:00-17:00)

	Mole Hill Green		Great Dunmow B1256 immediately east of A120		Takeley Parsonage Road immediately north of B1256		Elsenham Hall Road immediately south of B1051		Stansted Mountfitchet Church Road immediately east of b1051		Bishop's Stortford A1250 immediately east of Hockerill Junction	
	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees	Passengers	Employees
Current Airport	9	13	7	14	7	13	1	2	3	8	4	20
											5	20
43mppa	14	17	11	19	11	16	2	3	5	10	6	24
35mppa combined	27		25		23		4		13		25	
35mppa - 43mppa impact	**4**		**5**		**4**		**1**		**2**		**5**	

Table 5.11: Local Road PM Busiest Airport Traffic Impacts (17:00-18:00)

	Mole Hill Green	Great Dunmow B1256 immediately east of A120	Takeley Parsonage Road immediately north of B1256	Elsenham Hall Road immediately south of B1051	Stansted Mountfitchet Church Road immediately east of B1051	Bishop's Stortford A1250 immediately east of Hockerill Junction
Current Background	175	679	421	269	452	439
Current Airport	22	21	20	3	11	24
Background Growth to 2028	31	120	75	48	80	78
Current-35mppa	5	4	3	1	2	1
35-43mppa	4	5	4	1	2	5
35-43mpaa impact	**2.3%**	**0.7%**	**1.0%**	**0.4%**	**0.4%**	**1.1%**

Conclusion

5.18 The more detailed analysis for all identified roads indicates the increase in traffic due to the proposals results in small actual and single digit percentage increases for both peak hours and daily total flows. This analysis reconfirms the findings of the TA and EIA, that the impact of the proposals on the minor roads are negligible.

6 Clarifications and Errata

6.1 This section provides a series of clarification points and sets out corrections to the original TA where appropriate.

Airport Passenger Distribution

6.2 For clarification, the future year modelling has been undertaken on the basis that the geographical distribution of passengers remains constant with growth within the four passenger types, as recorded in CAA passenger surveys and adopted for the trip modelling:

- UK Leisure;
- UK business;
- Foreign Leisure; and
- Foreign Business.

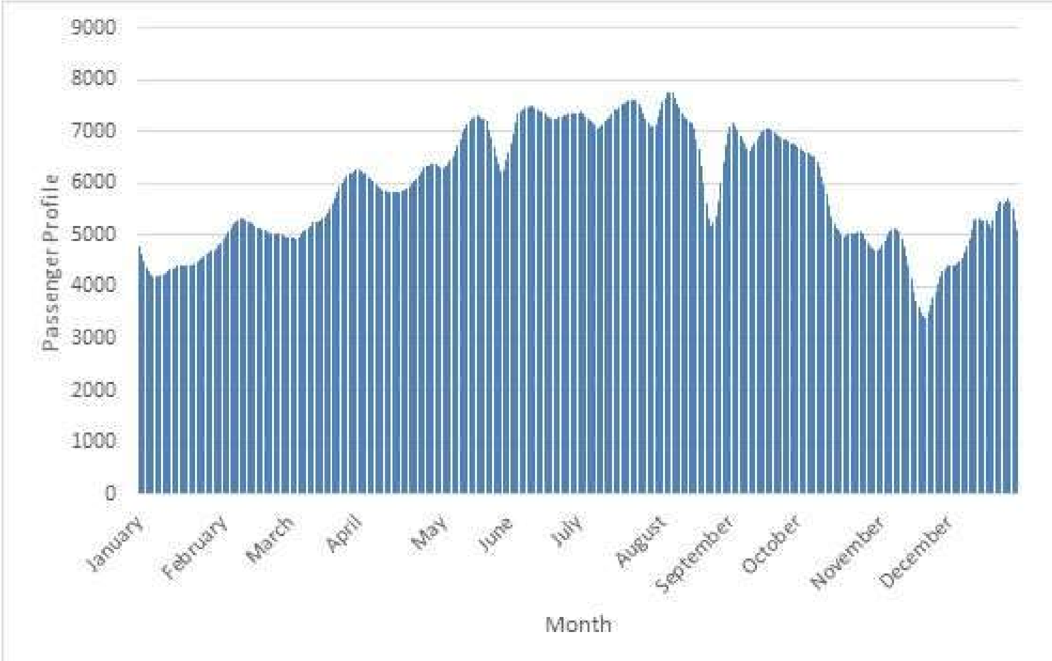
6.3 The UK origination point is a derivative of the ICF forecast modelling (i.e. it is not an input to the model). Whilst the geographic allocation does evolve over time (reflecting, for example, faster-than-average growth from regions with higher economic/population growth prospects), the overall pattern is not expected to change dramatically over time. This is because although Stansted's catchment is expected to grow faster than other regions this is offset by spill from other airports in the London system due to capacity limitations which will result in a broadening of the catchment.

Annual, Weekly and Daily Passenger Profiles

6.4 For clarification, the TA makes reference to summer flight schedules. These are the schedules for flights running between March and October. They therefore provide an appropriate basis of modelling passenger trip profiles for a neutral month as adopted in the TA trip modelling. This is consistent with normal practice for airport assessments.

6.5 The annual profile provided at Figure 4.2 of the TA is based on recent records of passenger movements through the airport. It does not directly relate to numbers reported in the TA. For clarification the figure has been reproduced below with a Y axis added relating the profile to the busiest day of the year, as shown in Figure 6.1 below.

Figure 6.1: Typical Annual Passenger Profile (Figure 4.2 in TA)



6.6 The growth from current operations of around 26mppa to 35mppa and then 43mppa is based on an increase in ATMs from around 180,000 to 270,000. However, the increase in average aircraft size and passenger loadings means that the 43mppa can be accommodated without exceeding the permitted ATMs (274,000) associated with a 35mppa operation at the time of the G1 application. The trip model used in the TA makes allowance for changes in aircraft size and incorporates the associated daily passenger profile utilised for predicting peak hours. There is a general flattening of the daily flight (and hence passenger) profile with time as discussed from Para 6.18 of the TA. There is a predicted modest increase in passenger numbers for the current busiest times at the airport but greater growth at other times- hence the flattening of the profile with increased passenger numbers.

6.7 For ease of comparison Figures 6.2, 6.3 and 6.4 below have been reproduced with a common Y axis scale.

Figure 6.2: 2016 Existing Baseline Air Passenger Surface Access Arrivals and Departures

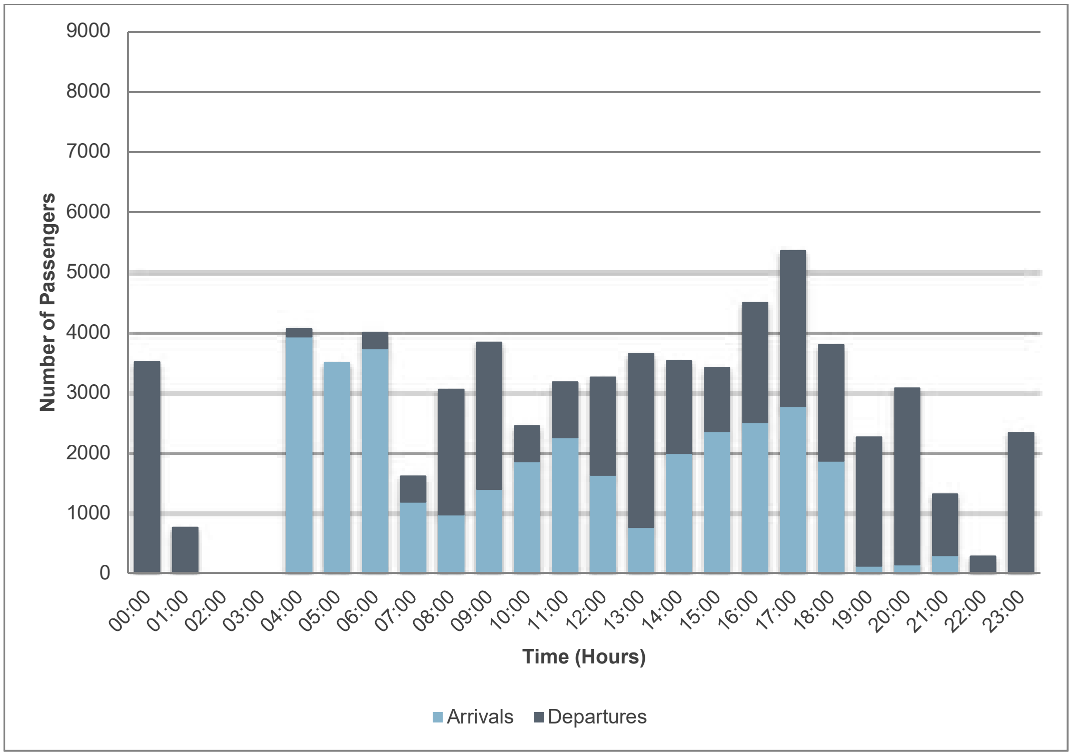


Figure 6.3: 2028 Do Minimum (35mppa) Scenario – Air Passenger Surface Access Arrivals and Departures

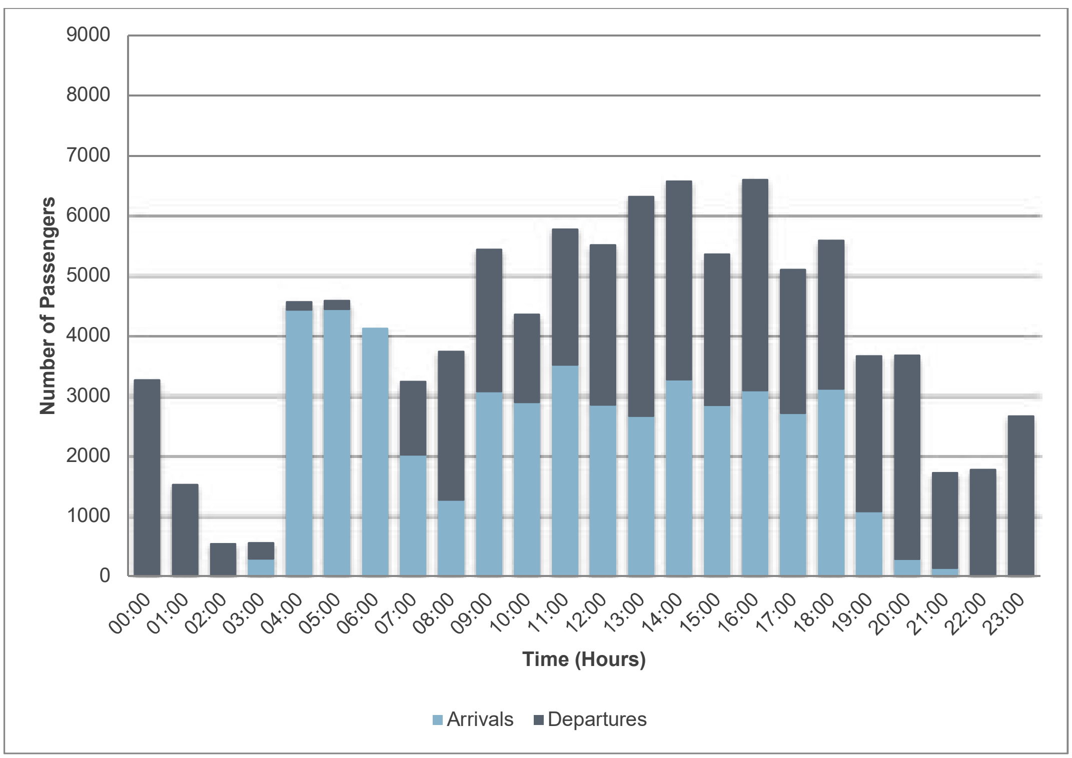
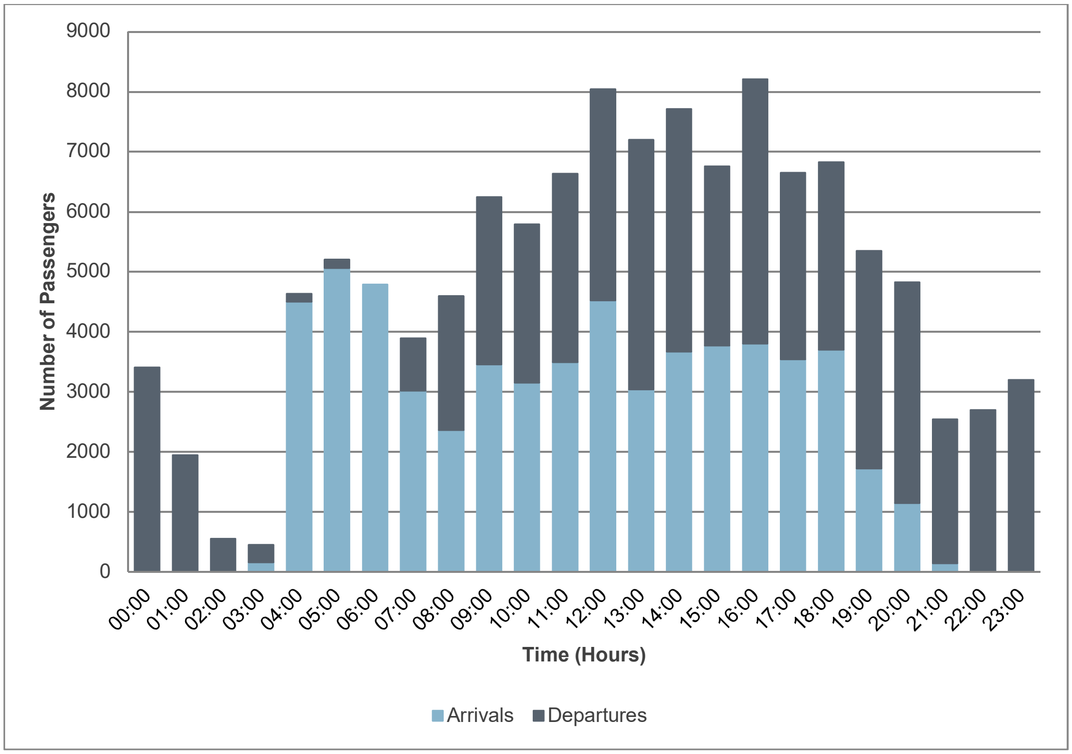


Figure 6.4: 2028 Development Case (43mppa) – Air Passenger Surface Access Arrivals and Departures



Air Passenger Travel Modes

6.8 Table 4.2 of the TA should read:

Table 6.1: Mode of Travel to Stansted Airport 2007-2016

Year	Public Transport	Private
2007	44.6%	55.1%
2008	46.9%	52.7%
2009	47.3%	52.2%
2010	52.4%	47.1%
2011	48.9%	50.9%
2012	50.9%	48.8%
2013	51.5%	48.3%
2014	49.6%	48.5%
2015	50.7%	49.3%
2016	50.9%	49.1%

Source: CAA passenger Survey reports 2007-2016

6.9 As a point of clarification, the term “Car” reported from the CAA survey passenger survey relates to passengers who are in a car that is driven and parked at the airport, including hire cars. “Car Passenger” referrers to passengers who are driven to airport and dropped off, with the car driven away. The data is taken directly from the detailed survey analysis, publicly available from the CAA. Table 4.3 should read:

Table 6.2: 2016 Passenger Mode Share (CAA, 2016)

Mode	2016
Car Driver (car parked at airport)	15%
Car Passenger car (parked at airport or Kiss and Fly)	22%
Taxi/Rental Car	13%
Bus/coach	23%
Rail	27%
Other	0%
Total	**100%**

*Any discrepancies are due to rounding.

CAA Passenger Survey and Vehicle Occupancy

6.10 The [audited] CAA survey data provides a reliable and large database of travel behaviours. It is the standard means of assessing travel behaviours for UK airports and adopted for all surface access analysis.

6.11 Clarification has been sought from CAA regarding the response to group size point raised at 10.3.8. This has been provided in paragraphs 2.6 – 2.7 of this report.

Car Movements for Kiss and Fly and Taxis

6.12 As a matter of clarification, the vehicle movement calculations set out with the TA assume that all taxi and "kiss and fly" passenger arrival and departures result in two vehicle movements each. This is likely to slightly overestimate traffic, as no reduction is made for taxis combining drop off and pick up trips or waiting in the on-site taxi 'pool area'. A reduction in 'kiss and fly' travel, as set out in Stansted's Surface Access Strategy, has been agreed with the Stansted Transport forum as a key target for travel behaviour change and a modest decrease of 10% in this mode has been adopted for future year modelling. It also should be noted that the impact analysis is based on the same mode and 2-way trip assumption for both the future year 35mppa and 43mppa scenarios.

Parking

6.13 The car park numbers reported in the TA are those adopted for the purposes of predicting the likely future distribution of trips between short/mid and long stay car parks. Although additional parking will come forward with the growth of the airport, changes in parking provision do not fall within the scope of the planning application.

Public Transport Infrastructure

6.14 The TA refers to the operation of the bus and coach station and indicates that it will need to improve to accommodate growth. There is no specific scheme identified at this stage, as the current facility accommodates current bus and coach services and the demands anticipated within the next few years. Longer term upgrades of the facilities are however identified in the longer term programmes of investment at the airport. Specific measures will be brought forward as necessary and agreed with the Transport Forum.

TA Appendices G6 to G8

6.15 Appendices G6 to G8 within the TA respectively set out the peak hour traffic flow movements per assessment scenario for the hours of 07:00-08:00, 16:00-17:00 and 17:00-18:00.

Within the TA, the 07:00-08:00 appendix was accidently reproduced in the 16:00-17:00 future year scenarios, and the 16:00-17:00 2028 results were shown in the 17:00-18:00 future year assessments. The correct G7 and G8 appendices have therefore been provided in this addendum to rectify this. However, to clarify, the analysis and the reported results within the TA were provided for the correct hour and traffic demands.

6.16 The correct G7 and G8 Appendices for the future year assessments are provided as Appendix E and F of this Addendum respectively.

A M11 J8 ECC Improvements Scheme LinSig Modelling Outputs

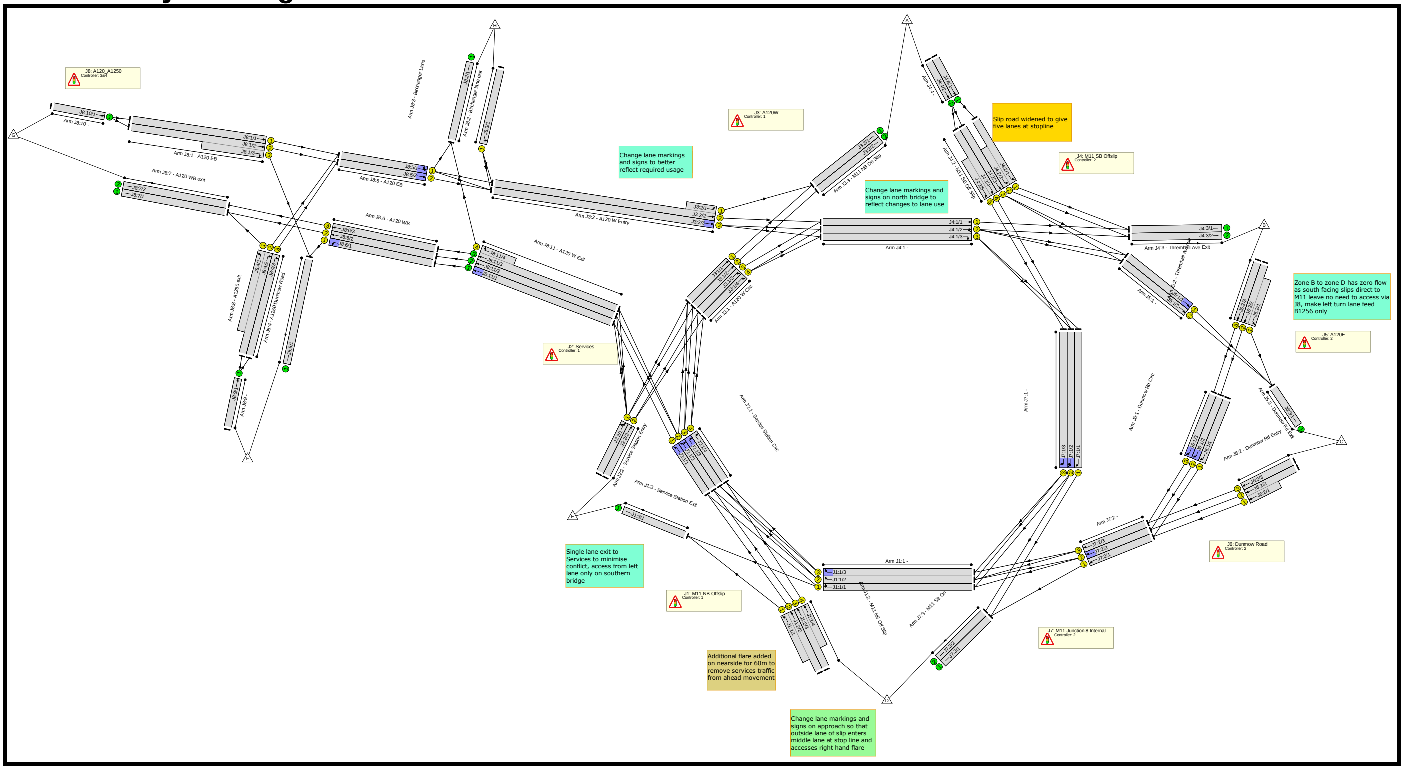
Full Input Data And Results

Full Input Data And Results

User and Project Details

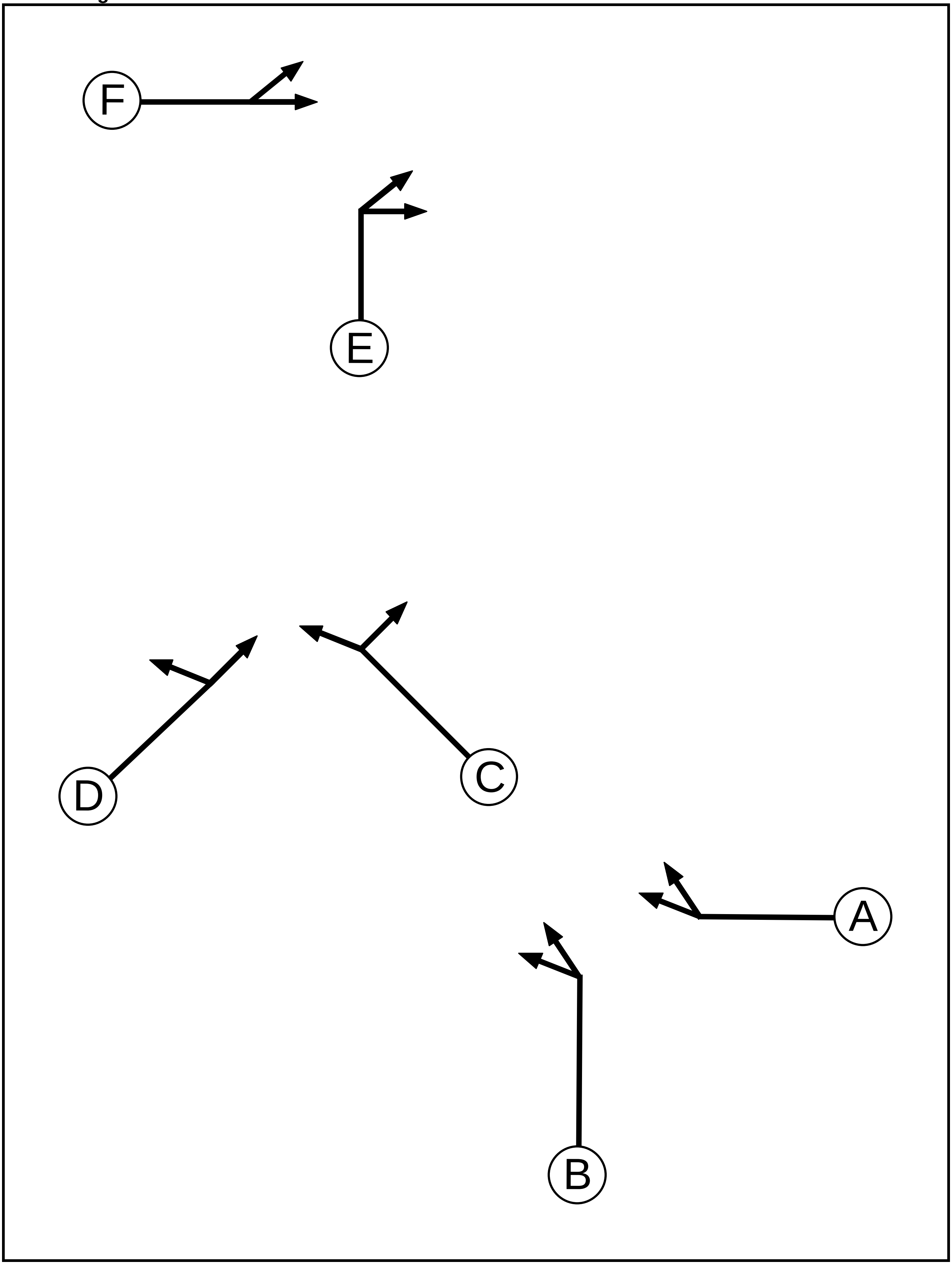
Project:	**M11 Junction 8**
Title:	**Current Interim Scheme Assessment**
Location:	M11 J8 Essex
File name:	M11 J8 Network - Option 3B_combined_SDG7.lsg3x
Author:	
Company:	Steer Davies Gleave
Address:	28-32 Upper Ground, London, UK
Notes:	Based on Model by Andrew Thurston, Jacobs UK Lts, provided by ECC Based on May 2012 surveys.

Network Layout Diagram



C1 - West

Phase Diagram



Full Input Data And Results

Phase Input Data

A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7

Phase Intergreens Matrix

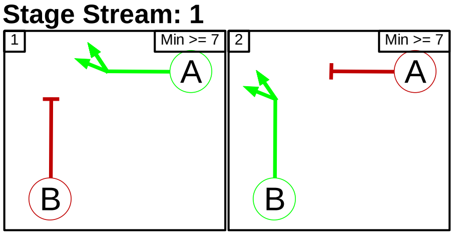
	Starting Phase						
		A	B	C	D	E	F
Terminating Phase	A		5	-	-	-	-
	B	7		-	-	-	-
	C	-	-		5	-	-
	D	-	-	6		-	-
	E	-	-	-	-		5
	F	-	-	-	-	6	

Phases in Stage

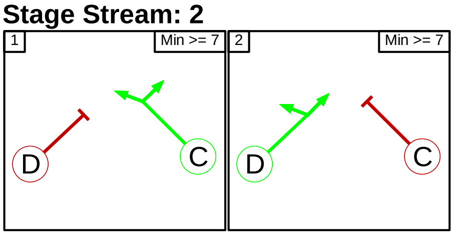
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F

Stage Diagram

Stage Stream: 1

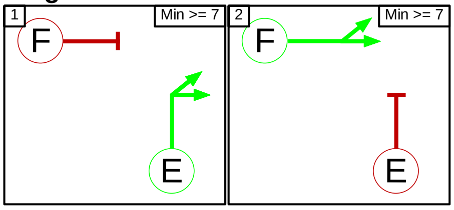


Stage Stream: 2



Full Input Data And Results

Stage Stream: 3



Phase Delays

Stage Stream: 1

There are no Phase Delays defined					

Stage Stream: 2

There are no Phase Delays defined					

Stage Stream: 3

There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

	To Stage		
From Stage			
			5
		7	

Stage Stream: 2

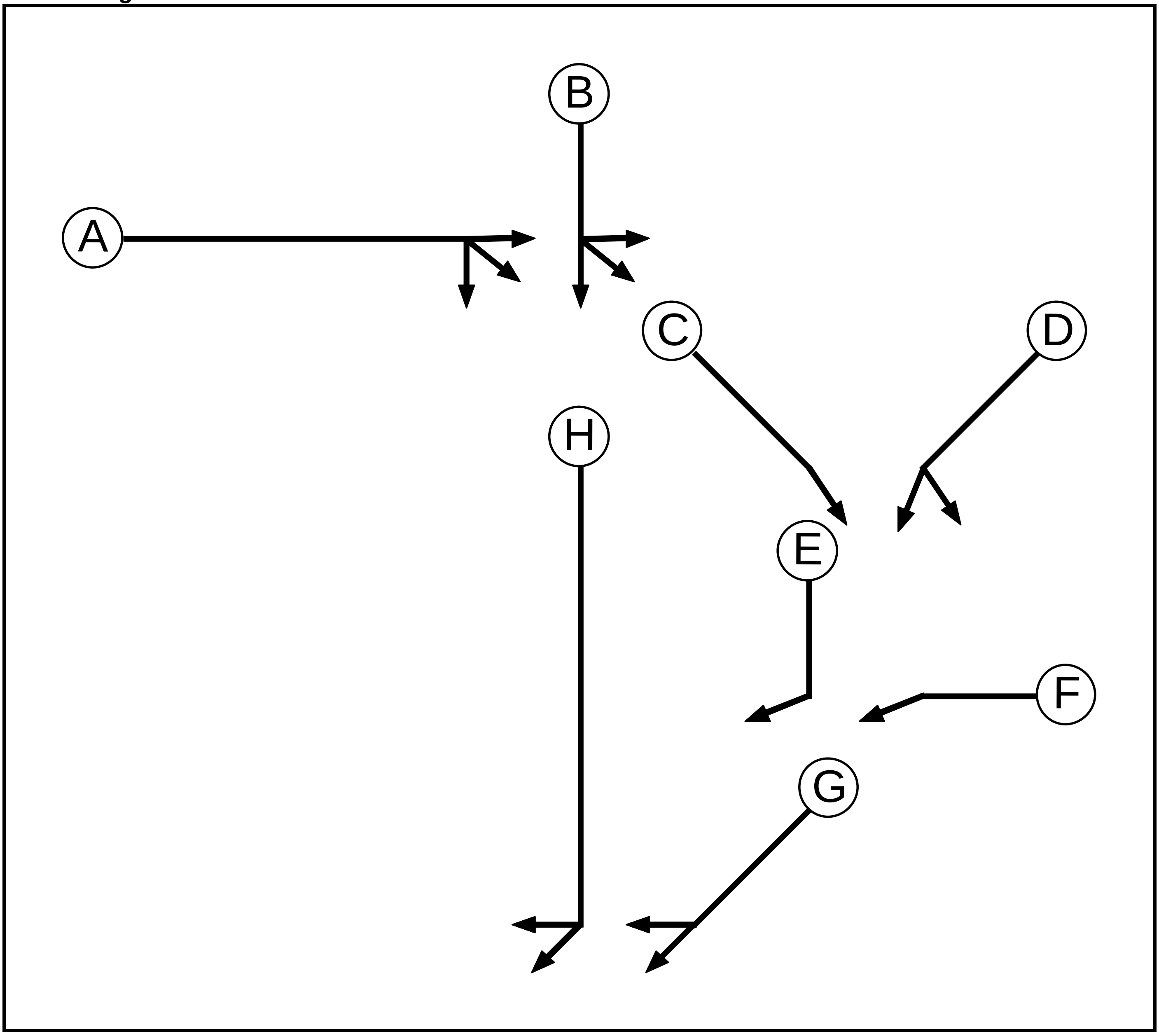
	To Stage		
From Stage			
			5
		6	

Stage Stream: 3

	To Stage		
From Stage		1	2
	1		5
	2	6	

C2 - East

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7
G	Traffic	4		7	7
H	Traffic	4		7	7

Full Input Data And Results

Phase Intergreens Matrix

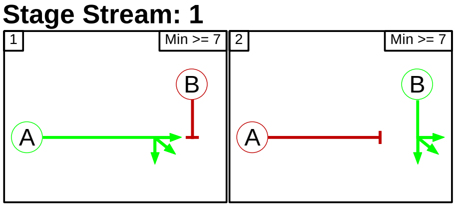
		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	-	-	-	-	-	-
	B	7		-	-	-	-	-	-
	C	-	-		5	-	-	-	-
	D	-	-	6		-	-	-	-
	E	-	-	-	-		5	-	-
	F	-	-	-	-	6		-	-
	G	-	-	-	-	-	-		5
	H	-	-	-	-	-	-	6	

Phases in Stage

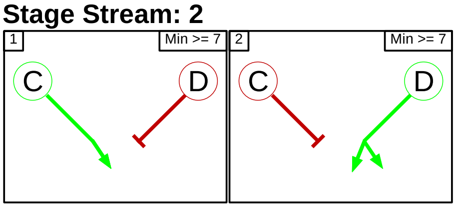
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F
4	1	G
4	2	H

Stage Diagram

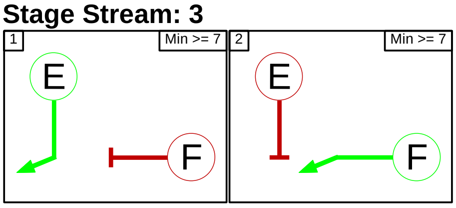
Stage Stream: 1



Stage Stream: 2

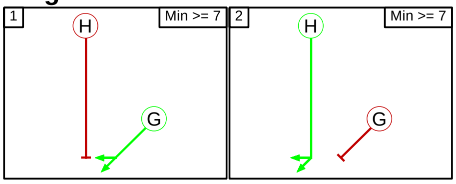


Stage Stream: 3



Full Input Data And Results

Stage Stream: 4



Phase Delays

Stage Stream: 1

There are no Phase Delays defined					

Stage Stream: 2

There are no Phase Delays defined					

Stage Stream: 3

There are no Phase Delays defined					

Stage Stream: 4

There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

	To Stage		
From Stage			
			5
		7	

Stage Stream: 2

	To Stage		
From Stage			
			5
		6	

Stage Stream: 3

	To Stage		
From Stage		1	2
	1		5
	2	6	

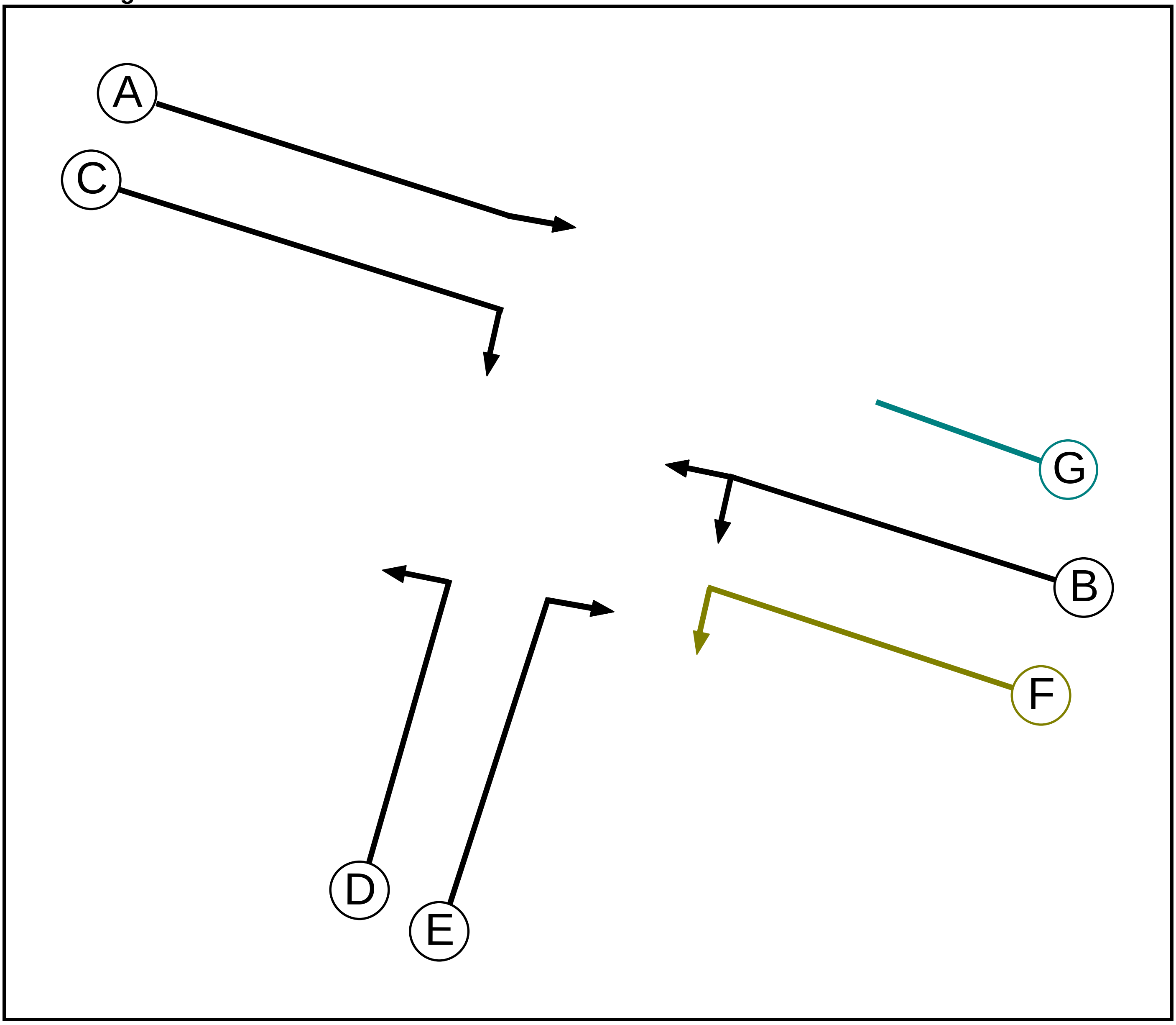
Full Input Data And Results

Stage Stream: 4

	To Stage	
From Stage	1	2
1		5
2	6	

C3

Phase Diagram



Full Input Data And Results

Phase Input Data

A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Filter	B	4	0
G	Dummy		7	7

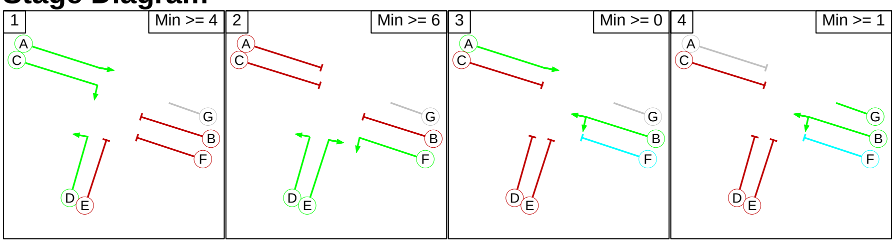
Phase Intergreens Matrix

		Starting Phase						
		A	B	C	D	E	F	G
Terminating Phase	A					5	-	-
	B			5	8	7		
	C		6			5	6	-
	D		5					
	E	7	5	5				
	F	-		5				
	G	-		-	-	-	-	

Phases in Stage

1	A C D
2	D E F
3	A B
4	B G

Stage Diagram



Phase Delays

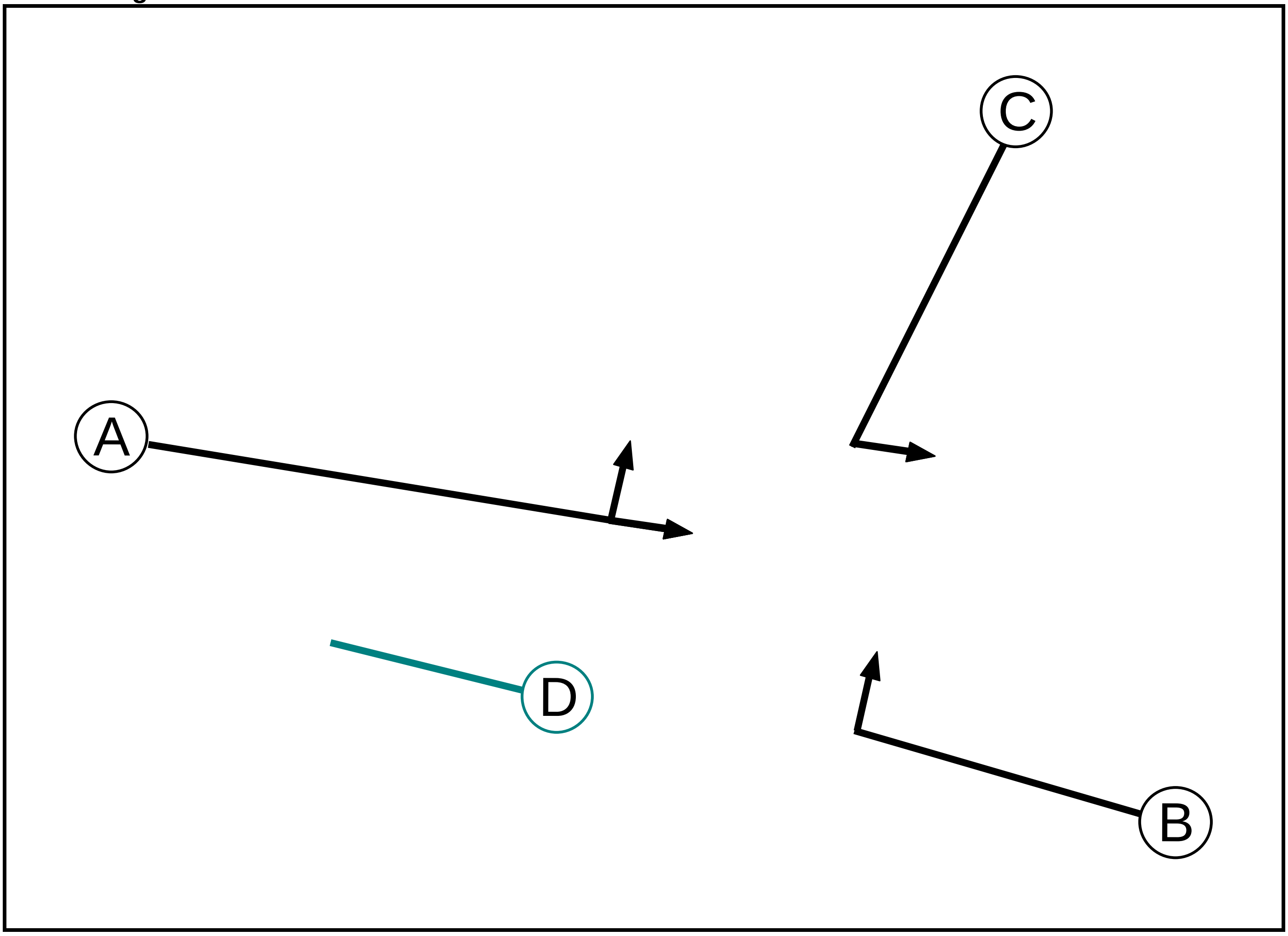
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

	To Stage				
		1	2	3	4
From Stage	1		6	6	6
	2	X		7	5
	3	8	8		0
	4	8	8	2	

C4
Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Dummy		7	7

Full Input Data And Results

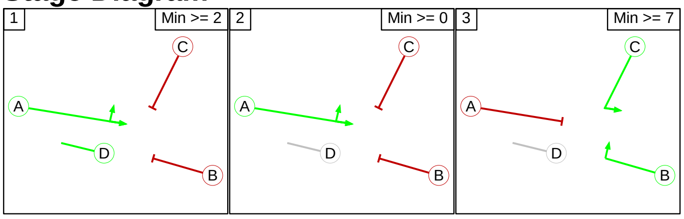
Phase Intergreens Matrix

		Starting Phase			
		A	B	C	D
Terminating Phase	A		5	6	-
	B	5		-	-
	C	5	-		-
	D	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D
2	A
3	B C

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		0	6
	2	0		6
	3	5	5	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: M11 NB Offslip
There are no Opposed Lanes in this Junction

Junction: J2: Services
There are no Opposed Lanes in this Junction

Junction: J3: A120W
There are no Opposed Lanes in this Junction

Junction: J4: M11 SB Offslip
There are no Opposed Lanes in this Junction

Junction: J5: A120E
There are no Opposed Lanes in this Junction

Junction: J6: Dunmow Road
There are no Opposed Lanes in this Junction

Junction: J7: M11 Junction 8 Internal
There are no Opposed Lanes in this Junction

Junction: J8: A120_A1250
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: J1: M11 NB Offslip

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J1:1/1	U	A	2	3	20.7	User	1800	-	-	-	-	-
J1:1/2	U	A	6	3	20.7	Geom	-	3.07	0.00	N	Arm J2:1 Right	75.00
J1:1/3	U	A	2	3	16.5	Geom	-	3.07	0.00	N	Arm J2:1 Right	75.00
J1:2/1 (M11 NB Off Slip)	U	B	2	3	10.4	Geom	-	3.50	0.00	Y	Arm J1:3 Ahead	79.00
J1:2/2 (M11 NB Off Slip)	U	B	2	3	60.0	Geom	-	3.64	0.00	N	Arm J2:1 Ahead	79.00
J1:2/3 (M11 NB Off Slip)	U	B	2	3	60.0	Geom	-	3.64	0.00	N	Arm J2:1 Ahead	79.00
J1:2/4 (M11 NB Off Slip)	U	B	2	3	9.2	Geom	-	3.64	0.00	N	Arm J2:1 Ahead	79.00
J1:3/1 (Service Station Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Junction: J2: Services

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (Service Station Circ)	U	C	2	3	4.5	User	1800	-	-	-	-	-
J2:1/2 (Service Station Circ)	U	C	2	3	5.2	Geom	-	3.30	0.00	N	Arm J3:1 Right Arm J8:11 Ahead	77.00 77.00
J2:1/3 (Service Station Circ)	U	C	2	3	6.1	Geom	-	3.30	0.00	N	Arm J3:1 Right	77.00
J2:1/4 (Service Station Circ)	U	C	2	3	7.0	Geom	-	3.30	0.00	N	Arm J3:1 Right	77.00
J2:2/1 (Service Station Entry)	U	D	2	3	60.0	Geom	-	4.87	0.00	Y	Arm J3:1 Ahead Arm J8:11 Left	50.00 37.00
J2:2/2 (Service Station Entry)	U	D	2	3	60.0	User	1800	-	-	-	-	-

Full Input Data And Results

Junction: J3: A120W												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J3:1/1 (A120 W Circ)	U	E	2	3	6.3	Geom	-	3.54	0.00	N	Arm J3:3 Ahead	79.00
J3:1/2 (A120 W Circ)	U	E	2	3	7.0	Geom	-	3.54	0.00	N	Arm J3:3 Ahead	79.00
J3:1/3 (A120 W Circ)	U	E	2	3	7.7	Geom	-	3.54	0.00	N	Arm J4:1 Right	79.00
J3:1/4 (A120 W Circ)	U	E	2	3	8.5	Geom	-	3.54	0.00	N	Arm J4:1 Right	79.00
J3:2/1 (A120 W Entry)	U	F	2	3	6.1	Geom	-	3.97	0.00	Y	Arm J3:3 Left	74.20
J3:2/2 (A120 W Entry)	U	F	5	3	20.0	User	1800	-	-	-	-	-
J3:2/3 (A120 W Entry)	U	F	2	3	20.0	User	1800	-	-	-	-	-
J3:3/1 (M11 NB On Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:3/2 (M11 NB On Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J4: M11 SB Offslip												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J4:1/1	U	A	2	3	18.6	Geom	-	3.05	0.00	N	Arm J4:3 Ahead	Inf
J4:1/2	U	A	2	3	18.6	Geom	-	3.05	0.00	N	Arm J4:3 Ahead	Inf
											Arm J5:1 Ahead	Inf
J4:1/3	U	A	2	3	20.5	Geom	-	3.05	0.00	N	Arm J7:1 Right	68.00
J4:2/1 (M11 SB Off Slip)	U	B	2	3	60.0	Geom	-	3.30	0.00	Y	Arm J4:3 Left	Inf
J4:2/2 (M11 SB Off Slip)	U	B	2	3	9.0	Geom	-	3.30	0.00	N	Arm J4:3 Left	Inf
J4:2/3 (M11 SB Off Slip)	U	B	2	3	9.0	Geom	-	3.30	0.00	N	Arm J5:1 Ahead	56.00
J4:2/4 (M11 SB Off Slip)	U	B	2	3	60.0	Geom	-	3.30	0.00	N	Arm J7:1 Ahead	Inf
J4:2/5 (M11 SB Off Slip)	U	B	2	3	9.0	Geom	-	3.65	0.00	N	Arm J7:1 Ahead	Inf
J4:3/1 (Thremhall Ave Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J4:3/2 (Thremhall Ave Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J4:4/1	U		2	3	60.0	Geom	-	3.75	0.00	Y	Arm J4:2 Ahead	Inf
J4:4/2	U		2	3	60.0	Geom	-	3.75	0.00	N	Arm J4:2 Ahead	Inf

Full Input Data And Results

Junction: J5: A120E												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J5:1/1	U	C	2	3	6.6	User	1800	-	-	-	-	-
J5:1/2	U	C	2	3	6.6	User	1800	-	-	-	-	-
J5:2/1 (Thremhall Avenue)	U	D	2	3	10.3	Geom	-	3.78	0.00	Y	Arm J5:3 Left	44.00
J5:2/2 (Thremhall Avenue)	U	D	5	3	60.0	Geom	-	3.78	0.00	N	Arm J6:1 Ahead	54.00
J5:2/3 (Thremhall Avenue)	U	D	5	3	60.0	Geom	-	3.78	0.00	N	Arm J6:1 Ahead	54.00
J5:3/1 (Dunmow Rd Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Junction: J6: Dunmow Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J6:1/1 (Dunmow Rd Circ)	U	E	2	3	3.9	Geom	-	3.65	0.00	N	Arm J7:2 Right	67.00
J6:1/2 (Dunmow Rd Circ)	U	E	2	3	4.7	Geom	-	3.65	0.00	N	Arm J7:2 Right	67.00
J6:1/3 (Dunmow Rd Circ)	U	E	2	3	6.1	Geom	-	3.65	0.00	N	Arm J7:2 Right	67.00
J6:2/1 (Dunmow Rd Entry)	U	F	2	3	7.0	Geom	-	3.42	0.00	Y	Arm J7:2 Ahead	22.00
J6:2/2 (Dunmow Rd Entry)	U	F	2	3	60.0	Geom	-	3.42	0.00	N	Arm J7:2 Ahead	28.00
J6:2/3 (Dunmow Rd Entry)	U	F	2	3	7.0	Geom	-	3.42	0.00	N	Arm J7:2 Ahead	28.00

Full Input Data And Results

Junction: J7: M11 Junction 8 Internal												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J7:1/1	U	H	2	3	23.5	User	1800	-	-	-	-	-
J7:1/2	U	H	2	3	23.5	User	1800	-	-	-	-	-
J7:1/3	U	H	2	3	23.5	User	1800	-	-	-	-	-
J7:2/1	U	G	2	3	16.9	Geom	-	4.38	0.00	Y	Arm J7:3 Ahead	80.00
J7:2/2	U	G	2	3	16.9	User	1800	-	-	-	-	-
J7:2/3	U	G	2	3	16.9	User	1800	-	-	-	-	-
J7:3/1 (M11 SB On Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
J7:3/2 (M11 SB On Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J8: A120_A1250												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J8:1/1 (A120 EB)	U	A	2	3	60.0	Geom	-	3.60	0.00	Y	Arm J8:5 Ahead	Inf
J8:1/2 (A120 EB)	U	A	2	3	60.0	Geom	-	3.60	0.00	N	Arm J8:5 Ahead	Inf
J8:1/3 (A120 EB)	U	C	2	3	12.7	Geom	-	3.50	0.00	Y	Arm J8:8 Right	17.00
J8:2/1 (Birchanger lane exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J8:3/1 (Birchanger Lane)	U	C	2	3	60.0	Geom	-	5.00	0.00	Y	Arm J3:2 Left	8.00
J8:4/1 (A1250 Dunmow Road)	U	D	2	3	17.4	Geom	-	3.50	0.00	Y	Arm J8:7 Left	22.30
J8:4/2 (A1250 Dunmow Road)	U	E	2	3	60.0	Geom	-	3.50	0.00	Y	Arm J8:5 Right	12.00
J8:4/3 (A1250 Dunmow Road)	U	E	2	3	60.0	Geom	-	3.50	0.00	N	Arm J8:5 Right	12.00
J8:5/1 (A120 EB)	U	A	2	3	9.7	Geom	-	3.50	0.00	Y	Arm J3:2 Ahead	Inf
											Arm J8:2 Left	12.00
J8:5/2 (A120 EB)	U	A	2	3	9.7	Geom	-	3.50	0.00	N	Arm J3:2 Ahead	Inf
J8:6/1 (A120 WB)	U	B F	2	3	9.2	Geom	-	3.50	0.00	Y	Arm J8:8 Left	10.00
J8:6/2 (A120 WB)	U	B	2	3	9.2	Geom	-	3.50	0.00	N	Arm J8:7 Ahead	Inf
J8:6/3 (A120 WB)	U	B	2	3	9.2	Geom	-	3.50	0.00	N	Arm J8:7 Ahead	Inf
J8:7/1 (A120 WB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J8:7/2 (A120 WB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J8:8/1 (A1250 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

J8:9/1	U		2	3	60.0	User	1800	-	-	-	-	-
J8:10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J8:11/1 (A120 W Exit)	U		2	3	21.7	Geom	-	3.50	0.00	Y	Arm J8:6 Ahead	Inf
J8:11/2 (A120 W Exit)	U		2	3	21.7	Geom	-	3.50	0.00	N	Arm J8:6 Ahead	Inf
J8:11/3 (A120 W Exit)	U		2	3	21.7	Geom	-	3.50	0.00	N	Arm J8:6 Ahead	Inf
J8:11/4 (A120 W Exit)	U	B	2	3	7.3	Geom	-	3.50	0.00	N	Arm J8:2 Right	13.00

Traffic Flow Groups

5: 'AM 2028 With Airport 35 mppa'	07:00	08:00	01:00	
6: 'PM 2028 With Airport 35 mppa'	17:00	18:00	01:00	
7: 'AM 2028 With Airport 43 mppa'	07:00	08:00	01:00	
8: 'PM 2028 With Airport 43 mppa'	17:00	18:00	01:00	
11: 'AM 2033 With Airport 35mppa'	07:00	08:00	01:00	
12: 'AM 2033 With Airport 43mppa'	07:00	08:00	01:00	
13: 'PM 2033 With Airport 35mppa'	17:00	18:00	01:00	
14: 'PM 2033 With Airport 43mppa'	17:00	18:00	01:00	

Scenario 5: 'AM 2028 With Airport 35 mppa' (FG5: 'AM 2028 With Airport 35 mppa', Plan 1: 'AM Existing')

Traffic Flows, Desired

Desired Flow :

	Destination									
		A	B	C	D	E	F	G	H	Tot.
Origin	A	0	878	81	0	180	109	144	16	1408
	B	812	0	84	0	29	350	463	53	1791
	C	96	20	1	420	3	34	45	5	624
	D	0	0	156	0	186	235	311	35	923
	E	59	22	1	299	0	7	10	1	399
	F	190	243	61	347	9	0	2	0	852
	G	263	337	84	480	12	2	0	0	1178
	H	12	15	4	22	1	0	0	0	54
	Tot.	1432	1515	472	1568	420	737	975	110	7229

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: AM 2028 With Airport 35 mppa
Junction: J1: M11 NB Offslip	
J1:1/1	727
J1:1/2	977
J1:1/3	677
J1:2/1 (short)	186
J1:2/2 (with short)	421(In) 235(Out)
J1:2/3 (with short)	502(In) 346(Out)
J1:2/4 (short)	156
J1:3/1	420
Junction: J2: Services	
J2:1/1	728
J2:1/2	1072
J2:1/3	908
J2:1/4	176
J2:2/1	77
J2:2/2	322
Junction: J3: A120W	
J3:1/1	484
J3:1/2	483
J3:1/3	42
J3:1/4	456
J3:2/1 (short)	465
J3:2/2 (with short)	1052(In) 587(Out)
J3:2/3	1028
J3:3/1	949
J3:3/2	483
Junction: J4: M11 SB Offslip	
J4:1/1	629
J4:1/2	314
J4:1/3	1170
J4:2/1 (with short)	878(In) 478(Out)
J4:2/2 (short)	400
J4:2/3	81
J4:2/4 (with short)	449(In) 289(Out)
J4:2/5 (short)	160

Full Input Data And Results

J4:3/1	1107
J4:3/2	408
J4:4/1	878
J4:4/2	530
Junction: J5: A120E	
J5:1/1	187
J5:1/2	200
J5:2/1 (short)	84
J5:2/2 (with short)	991(In) 907(Out)
J5:2/3	800
J5:3/1	471
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	907
J6:1/3	800
J6:2/1 (short)	420
J6:2/2 (with short)	467(In) 47(Out)
J6:2/3	156
Junction: J7: M11 Junction 8 Internal	
J7:1/1	714
J7:1/2	745
J7:1/3	160
J7:2/1	420
J7:2/2	954
J7:2/3	956
J7:3/1	1134
J7:3/2	434
Junction: J8: A120_A1250	
J8:1/1	613
J8:1/2 (with short)	565(In) 563(Out)
J8:1/3 (short)	2
J8:2/1	110
J8:3/1	54
J8:4/1 (short)	2
J8:4/2 (with short)	438(In) 436(Out)
J8:4/3	414
J8:5/1	1049
J8:5/2	977
J8:6/1	735
J8:6/2	547

Full Input Data And Results

J8:6/3	426
J8:7/1	549
J8:7/2	426
J8:8/1	737
J8:9/1	852
J8:10/1	1178
J8:11/1	735
J8:11/2	547
J8:11/3 (with short)	536(In) 426(Out)
J8:11/4 (short)	110

Lane Saturation Flows

Junction: J1: M11 NB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.0 %	2045	2045
				Arm J8:11 Ahead	77.00	100.0 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	76.6 %	2036	2036
				Arm J8:11 Left	37.00	23.4 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J3: A120W								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	2.5 %	2060	2060
				Arm J5:1 Ahead	Inf	97.5 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	100.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Junction: J5: A120E								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J5:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J6: Dunmow Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

Junction: J7: M11 Junction 8 Internal								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J8: A120_A1250								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	100.0 %	1806	1806
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	100.0 %	1841	1841
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
				Arm J8:2 Left	12.00	0.0 %		
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Scenario 6: 'PM 2028 With Airport 35 mpps' (FG6: 'PM 2028 With Airport 35 mppa', Plan 2: 'PM Existing')

Traffic Flows, Desired

Desired Flow :

		Destination								
		A	B	C	D	E	F	G	H	Tot.
Origin	A	1	819	89	0	135	97	213	7	1361
	B	656	0	82	0	71	236	516	16	1577
	C	246	80	3	140	25	78	171	5	748
	D	0	0	143	0	231	230	504	16	1124
	E	184	97	14	117	0	19	42	1	474
	F	134	487	190	238	16	0	5	0	1070
	G	124	449	176	220	15	4	0	0	988
	H	13	48	19	24	2	0	0	0	106
	Tot.	1358	1980	716	739	495	664	1451	45	7448

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: PM 2028 With Airport 35 mpps
Junction: J1: M11 NB Offslip	
J1:1/1	675
J1:1/2	932
J1:1/3	978
J1:2/1 (short)	231
J1:2/2 (with short)	461(In) 230(Out)
J1:2/3 (with short)	663(In) 520(Out)
J1:2/4 (short)	143
J1:3/1	495
Junction: J2: Services	
J2:1/1	641
J2:1/2	1448
J2:1/3	902
J2:1/4	223
J2:2/1	246
J2:2/2	228
Junction: J3: A120W	
J3:1/1	543
J3:1/2	543
J3:1/3	138
J3:1/4	313
J3:2/1 (short)	271
J3:2/2 (with short)	1022(In) 751(Out)
J3:2/3	1133
J3:3/1	814
J3:3/2	543
Junction: J4: M11 SB Offslip	
J4:1/1	889
J4:1/2	814
J4:1/3	632
J4:2/1 (with short)	819(In) 419(Out)
J4:2/2 (short)	400
J4:2/3	89
J4:2/4 (with short)	452(In) 232(Out)
J4:2/5 (short)	220

Full Input Data And Results

J4:3/1	1308
J4:3/2	672
J4:4/1	819
J4:4/2	541
Junction: J5: A120E	
J5:1/1	327
J5:1/2	304
J5:2/1 (short)	82
J5:2/2 (with short)	841(In) 759(Out)
J5:2/3	736
J5:3/1	713
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	759
J6:1/3	736
J6:2/1 (short)	140
J6:2/2 (with short)	406(In) 266(Out)
J6:2/3	339
Junction: J7: M11 Junction 8 Internal	
J7:1/1	418
J7:1/2	446
J7:1/3	220
J7:2/1	140
J7:2/2	1025
J7:2/3	1075
J7:3/1	558
J7:3/2	181
Junction: J8: A120_A1250	
J8:1/1	580
J8:1/2 (with short)	408(In) 404(Out)
J8:1/3 (short)	4
J8:2/1	45
J8:3/1	106
J8:4/1 (short)	5
J8:4/2 (with short)	518(In) 513(Out)
J8:4/3	552
J8:5/1	1093
J8:5/2	956
J8:6/1	660
J8:6/2	722

J8:6/3	724
J8:7/1	727
J8:7/2	724
J8:8/1	664
J8:9/1	1070
J8:10/1	988
J8:11/1	660
J8:11/2	722
J8:11/3 (with short)	769(In) 724(Out)
J8:11/4 (short)	45

Lane Saturation Flows

Junction: J1: M11 NB Offslip

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1	This lane uses a directly entered Saturation Flow						2100	2100
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						2100	2100
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.0 %	2045	2045
				Arm J8:11 Ahead	77.00	100.0 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	74.8 %	2036	2036
				Arm J8:11 Left	37.00	25.2 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						2100	2100

Full Input Data And Results

Junction: J3: A120W								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						2100	2100
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						2100	2100
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	33.4 %	2060	2060
				Arm J5:1 Ahead	Inf	66.6 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	100.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Full Input Data And Results

Junction: J5: A120E

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J5:1/1	This lane uses a directly entered Saturation Flow						2100	2100
J5:1/2	This lane uses a directly entered Saturation Flow						2100	2100
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J6: Dunmow Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

Junction: J7: M11 Junction 8 Internal

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J7:1/1	This lane uses a directly entered Saturation Flow						2100	2100
J7:1/2	This lane uses a directly entered Saturation Flow						2100	2100
J7:1/3	This lane uses a directly entered Saturation Flow						2100	2100
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						2100	2100
J7:2/3	This lane uses a directly entered Saturation Flow						2100	2100
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J8: A120_A1250

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	100.0 %	1806	1806
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	100.0 %	1841	1841
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
				Arm J8:2 Left	12.00	0.0 %		
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Scenario 7: 'AM 2028 With Airport 43 mppa' (FG7: 'AM 2028 With Airport 43 mppa', Plan 1: 'AM Existing')

Traffic Flows, Desired

Desired Flow :

		Destination								
		A	B	C	D	E	F	G	H	Tot.
Origin	A	0	900	83	0	184	112	148	17	1444
	B	803	0	83	0	29	347	458	52	1772
	C	96	20	1	420	3	34	45	5	624
	D	0	0	165	0	196	248	327	37	973
	E	61	23	1	309	0	8	10	1	413
	F	193	247	62	352	9	0	2	0	865
	G	267	342	86	488	13	2	0	0	1198
	H	12	16	4	22	1	0	0	0	55
	Tot.	1432	1548	485	1591	435	751	990	112	7344

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: AM 2028 With Airport 43 mppa
Junction: J1: M11 NB Offslip	
J1:1/1	732
J1:1/2	991
J1:1/3	653
J1:2/1 (short)	196
J1:2/2 (with short)	444(In) 248(Out)
J1:2/3 (with short)	529(In) 364(Out)
J1:2/4 (short)	165
J1:3/1	435
Junction: J2: Services	
J2:1/1	741
J2:1/2	1089
J2:1/3	899
J2:1/4	185
J2:2/1	80
J2:2/2	333
Junction: J3: A120W	
J3:1/1	471
J3:1/2	489
J3:1/3	33
J3:1/4	485
J3:2/1 (short)	472
J3:2/2 (with short)	1077(In) 605(Out)
J3:2/3	1037
J3:3/1	943
J3:3/2	489
Junction: J4: M11 SB Offslip	
J4:1/1	638
J4:1/2	328
J4:1/3	1194
J4:2/1 (with short)	900(In) 900(Out)
J4:2/2 (short)	0
J4:2/3	83
J4:2/4 (with short)	461(In) 296(Out)
J4:2/5 (short)	165

Full Input Data And Results

J4:3/1	1538
J4:3/2	10
J4:4/1	900
J4:4/2	544
Junction: J5: A120E	
J5:1/1	191
J5:1/2	210
J5:2/1 (short)	83
J5:2/2 (with short)	957(In) 874(Out)
J5:2/3	815
J5:3/1	484
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	874
J6:1/3	815
J6:2/1 (short)	420
J6:2/2 (with short)	490(In) 70(Out)
J6:2/3	133
Junction: J7: M11 Junction 8 Internal	
J7:1/1	788
J7:1/2	702
J7:1/3	165
J7:2/1	420
J7:2/2	944
J7:2/3	948
J7:3/1	1208
J7:3/2	383
Junction: J8: A120_A1250	
J8:1/1	632
J8:1/2 (with short)	566(In) 564(Out)
J8:1/3 (short)	2
J8:2/1	112
J8:3/1	55
J8:4/1 (short)	2
J8:4/2 (with short)	455(In) 453(Out)
J8:4/3	410
J8:5/1	1085
J8:5/2	974
J8:6/1	749
J8:6/2	518

J8:6/3	470
J8:7/1	520
J8:7/2	470
J8:8/1	751
J8:9/1	865
J8:10/1	1198
J8:11/1	749
J8:11/2	518
J8:11/3 (with short)	582(In) 470(Out)
J8:11/4 (short)	112

Lane Saturation Flows

Junction: J1: M11 NB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.0 %	2045	2045
				Arm J8:11 Ahead	77.00	100.0 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	76.3 %	2036	2036
				Arm J8:11 Left	37.00	23.8 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J3: A120W								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	3.0 %	2060	2060
				Arm J5:1 Ahead	Inf	97.0 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	0.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Full Input Data And Results

Junction: J5: A120E								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J5:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J6: Dunmow Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

Junction: J7: M11 Junction 8 Internal								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J8: A120_A1250

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	100.0 %	1806	1806
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	100.0 %	1841	1841
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead Arm J8:2 Left	Inf 12.00	100.0 % 0.0 %	1965	1965
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Scenario 8: 'PM 2028 With Airport 43 mppa' (FG8: 'PM 2028 With Airport 43 mppa', Plan 2: 'PM Existing')

Traffic Flows, Desired

Desired Flow :

		Destination								
		A	B	C	D	E	F	G	H	Tot.
Origin	A	1	855	93	0	141	101	222	7	1420
	B	753	0	94	0	81	270	592	18	1808
	C	246	80	3	140	25	78	171	5	748
	D	0	0	158	0	256	255	559	17	1245
	E	200	105	15	127	0	21	45	1	514
	F	136	495	194	242	17	0	5	0	1089
	G	126	457	179	224	15	4	0	0	1005
	H	14	49	19	24	2	0	0	0	108
	Tot.	1476	2041	755	757	537	729	1594	48	7937

Traffic Lane Flows

Lane	Scenario 8: PM 2028 With Airport 43 mppa
Junction: J1: M11 NB Offslip	
J1:1/1	730
J1:1/2	1022
J1:1/3	1072
J1:2/1 (short)	256
J1:2/2 (with short)	511(In) 255(Out)
J1:2/3 (with short)	734(In) 576(Out)
J1:2/4 (short)	158
J1:3/1	537
Junction: J2: Services	
J2:1/1	704
J2:1/2	1591
J2:1/3	999
J2:1/4	238
J2:2/1	267
J2:2/2	247
Junction: J3: A120W	
J3:1/1	599
J3:1/2	600
J3:1/3	49
J3:1/4	436
J3:2/1 (short)	276
J3:2/2 (with short)	1107(In) 831(Out)
J3:2/3	1086
J3:3/1	875
J3:3/2	600
Junction: J4: M11 SB Offslip	
J4:1/1	880
J4:1/2	871
J4:1/3	651
J4:2/1 (with short)	855(In) 855(Out)
J4:2/2 (short)	0
J4:2/3	93
J4:2/4 (with short)	471(In) 242(Out)
J4:2/5 (short)	229

Full Input Data And Results

J4:3/1	1735
J4:3/2	306
J4:4/1	855
J4:4/2	564
Junction: J5: A120E	
J5:1/1	328
J5:1/2	330
J5:2/1 (short)	94
J5:2/2 (with short)	946(In) 852(Out)
J5:2/3	862
J5:3/1	752
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	852
J6:1/3	862
J6:2/1 (short)	140
J6:2/2 (with short)	419(In) 279(Out)
J6:2/3	326
Junction: J7: M11 Junction 8 Internal	
J7:1/1	451
J7:1/2	442
J7:1/3	229
J7:2/1	140
J7:2/2	1131
J7:2/3	1188
J7:3/1	591
J7:3/2	166
Junction: J8: A120_A1250	
J8:1/1	591
J8:1/2 (with short)	414(In) 410(Out)
J8:1/3 (short)	4
J8:2/1	48
J8:3/1	108
J8:4/1 (short)	5
J8:4/2 (with short)	529(In) 524(Out)
J8:4/3	560
J8:5/1	1115
J8:5/2	970
J8:6/1	725
J8:6/2	779

Full Input Data And Results

J8:6/3	810
J8:7/1	784
J8:7/2	810
J8:8/1	729
J8:9/1	1089
J8:10/1	1005
J8:11/1	725
J8:11/2	779
J8:11/3 (with short)	858(In) 810(Out)
J8:11/4 (short)	48

Lane Saturation Flows

Junction: J1: M11 NB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.0 %	2045	2045
				Arm J8:11 Ahead	77.00	100.0 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	74.9 %	2036	2036
				Arm J8:11 Left	37.00	25.1 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J3: A120W								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	35.1 %	2060	2060
				Arm J5:1 Ahead	Inf	64.9 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	0.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Full Input Data And Results

Junction: J5: A120E								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J5:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J6: Dunmow Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

Junction: J7: M11 Junction 8 Internal								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1	This lane uses a directly entered Saturation Flow						2100	2100
J7:1/2	This lane uses a directly entered Saturation Flow						2100	2100
J7:1/3	This lane uses a directly entered Saturation Flow						2100	2100
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						2100	2100
J7:2/3	This lane uses a directly entered Saturation Flow						2100	2100
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J8: A120_A1250								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	100.0 %	1806	1806
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	100.0 %	1841	1841
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
				Arm J8:2 Left	12.00	0.0 %		
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Scenario 11: 'AM 2033 With Airport 35mppa' (FG11: 'AM 2033 With Airport 35mppa', Plan 1: 'AM Existing')

Traffic Flows, Desired

Desired Flow :

	Destination									
Origin		A	B	C	D	E	F	G	H	Tot.
	A	0	908	84	0	186	113	149	17	1457
	B	837	0	87	0	30	361	478	54	1847
	C	99	21	1	435	3	35	46	5	645
	D	0	0	161	0	191	242	320	36	950
	E	62	23	1	314	0	8	10	1	419
	F	196	251	63	359	9	0	2	0	880
	G	272	348	87	496	13	0	2	0	1218
	H	12	16	4	23	1	0	0	0	56
	Tot.	1478	1567	488	1627	433	759	1007	113	7472

Traffic Lane Flows

Lane	Scenario 11: AM 2033 With Airport 35mppa
Junction: J1: M11 NB Offslip	
J1:1/1	751
J1:1/2	1050
J1:1/3	656
J1:2/1 (short)	191
J1:2/2 (with short)	433(In) 242(Out)
J1:2/3 (with short)	517(In) 356(Out)
J1:2/4 (short)	161
J1:3/1	433
Junction: J2: Services	
J2:1/1	751
J2:1/2	1108
J2:1/3	933
J2:1/4	182
J2:2/1	81
J2:2/2	338
Junction: J3: A120W	
J3:1/1	499
J3:1/2	499
J3:1/3	44
J3:1/4	476
J3:2/1 (short)	480
J3:2/2 (with short)	1024(In) 544(Out)
J3:2/3	1126
J3:3/1	979
J3:3/2	499
Junction: J4: M11 SB Offslip	
J4:1/1	588
J4:1/2	387
J4:1/3	1215
J4:2/1 (with short)	908(In) 908(Out)
J4:2/2 (short)	0
J4:2/3	84
J4:2/4 (with short)	465(In) 299(Out)
J4:2/5 (short)	166

Full Input Data And Results

J4:3/1	1496
J4:3/2	71
J4:4/1	908
J4:4/2	549
Junction: J5: A120E	
J5:1/1	188
J5:1/2	212
J5:2/1 (short)	87
J5:2/2 (with short)	988(In) 901(Out)
J5:2/3	859
J5:3/1	487
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	901
J6:1/3	859
J6:2/1 (short)	435
J6:2/2 (with short)	518(In) 83(Out)
J6:2/3	126
Junction: J7: M11 Junction 8 Internal	
J7:1/1	862
J7:1/2	652
J7:1/3	166
J7:2/1	435
J7:2/2	984
J7:2/3	985
J7:3/1	1297
J7:3/2	330
Junction: J8: A120_A1250	
J8:1/1	641
J8:1/2 (with short)	575(In) 575(Out)
J8:1/3 (short)	0
J8:2/1	113
J8:3/1	56
J8:4/1 (short)	2
J8:4/2 (with short)	427(In) 425(Out)
J8:4/3	453
J8:5/1	1066
J8:5/2	1028
J8:6/1	759
J8:6/2	532

J8:6/3	471
J8:7/1	534
J8:7/2	471
J8:8/1	759
J8:9/1	880
J8:10/1	1216
J8:11/1	759
J8:11/2	532
J8:11/3 (with short)	584(In) 471(Out)
J8:11/4 (short)	113

Lane Saturation Flows

Junction: J1: M11 NB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.3 %	2045	2045
				Arm J8:11 Ahead	77.00	99.7 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	76.5 %	2036	2036
				Arm J8:11 Left	37.00	23.5 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800

Junction: J3: A120W								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	18.3 %	2060	2060
				Arm J5:1 Ahead	Inf	81.7 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	0.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Full Input Data And Results

Junction: J5: A120E								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J5:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J6: Dunmow Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

Junction: J7: M11 Junction 8 Internal								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J8: A120_A1250								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	0.0 %	1965	1965
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	100.0 %	1841	1841
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead Arm J8:2 Left	Inf 12.00	100.0 % 0.0 %	1965	1965
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Scenario 12: 'AM 2033 With Airport 43mppa' (FG12: 'AM 2033 With Airport 43mppa', Plan 1: 'AM Existing')

Traffic Flows, Desired

Desired Flow :

	Destination									
Origin		A	B	C	D	E	F	G	H	Tot.
	A	0	929	86	0	190	116	153	17	1491
	B	829	0	86	0	30	358	473	54	1830
	C	99	21	1	435	3	35	46	5	645
	D	0	0	199	0	237	300	397	45	1178
	E	69	26	1	350	0	9	11	1	467
	F	199	255	64	364	9	0	2	0	893
	G	276	353	88	504	13	0	2	0	1236
	H	13	16	4	23	1	0	0	0	57
	Tot.	1485	1600	529	1676	483	818	1084	122	7797

Traffic Lane Flows

Lane	Scenario 12: AM 2033 With Airport 43mppa
Junction: J1: M11 NB Offslip	
J1:1/1	755
J1:1/2	1059
J1:1/3	638
J1:2/1 (short)	237
J1:2/2 (with short)	537(In) 300(Out)
J1:2/3 (with short)	641(In) 442(Out)
J1:2/4 (short)	199
J1:3/1	483
Junction: J2: Services	
J2:1/1	809
J2:1/2	1190
J2:1/3	928
J2:1/4	220
J2:2/1	90
J2:2/2	377
Junction: J3: A120W	
J3:1/1	500
J3:1/2	497
J3:1/3	47
J3:1/4	550
J3:2/1 (short)	488
J3:2/2 (with short)	1112(In) 624(Out)
J3:2/3	1070
J3:3/1	988
J3:3/2	497
Junction: J4: M11 SB Offslip	
J4:1/1	671
J4:1/2	356
J4:1/3	1264
J4:2/1 (with short)	929(In) 929(Out)
J4:2/2 (short)	0
J4:2/3	86
J4:2/4 (with short)	476(In) 306(Out)
J4:2/5 (short)	170

Full Input Data And Results

J4:3/1	1600
J4:3/2	0
J4:4/1	929
J4:4/2	562
Junction: J5: A120E	
J5:1/1	212
J5:1/2	230
J5:2/1 (short)	86
J5:2/2 (with short)	977(In) 891(Out)
J5:2/3	853
J5:3/1	528
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	891
J6:1/3	853
J6:2/1 (short)	435
J6:2/2 (with short)	520(In) 85(Out)
J6:2/3	124
Junction: J7: M11 Junction 8 Internal	
J7:1/1	824
J7:1/2	746
J7:1/3	170
J7:2/1	435
J7:2/2	976
J7:2/3	977
J7:3/1	1259
J7:3/2	417
Junction: J8: A120_A1250	
J8:1/1	639
J8:1/2 (with short)	595(In) 595(Out)
J8:1/3 (short)	0
J8:2/1	122
J8:3/1	57
J8:4/1 (short)	2
J8:4/2 (with short)	464(In) 462(Out)
J8:4/3	429
J8:5/1	1101
J8:5/2	1024
J8:6/1	818
J8:6/2	564

J8:6/3	516
J8:7/1	566
J8:7/2	516
J8:8/1	818
J8:9/1	893
J8:10/1	1234
J8:11/1	818
J8:11/2	564
J8:11/3 (with short)	638(In) 516(Out)
J8:11/4 (short)	122

Lane Saturation Flows

Junction: J1: M11 NB Offslip

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.0 %	2045	2045
				Arm J8:11 Ahead	77.00	100.0 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	76.7 %	2036	2036
				Arm J8:11 Left	37.00	23.3 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J3: A120W								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	0.0 %	2060	2060
				Arm J5:1 Ahead	Inf	100.0 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	0.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Full Input Data And Results

Junction: J5: A120E								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J5:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J6: Dunmow Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

Junction: J7: M11 Junction 8 Internal								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J8: A120_A1250								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	0.0 %	1965	1965
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	100.0 %	1841	1841
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
				Arm J8:2 Left	12.00	0.0 %		
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Full Input Data And Results

Scenario 13: 'PM 2033 With Airport 35mppa' (FG13: 'PM 2033 With Airport 35mppa', Plan 2: 'PM Existing')
Traffic Flows, Desired
Desired Flow :

	Destination									
Origin		A	B	C	D	E	F	G	H	Tot.
	A	1	846	92	0	139	100	220	7	1405
	B	667	0	83	0	72	240	525	16	1603
	C	255	83	3	146	26	81	178	6	778
	D	0	0	147	0	237	236	517	16	1153
	E	193	101	15	122	0	20	43	1	495
	F	138	503	197	247	17	0	5	0	1107
	G	128	465	182	228	16	0	4	0	1023
	H	14	50	20	24	2	0	0	0	110
	Tot.	1396	2048	739	767	509	677	1492	46	7674

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 13: PM 2033 With Airport 35mppa
Junction: J1: M11 NB Offslip	
J1:1/1	693
J1:1/2	1122
J1:1/3	835
J1:2/1 (short)	237
J1:2/2 (with short)	473(In) 236(Out)
J1:2/3 (with short)	680(In) 533(Out)
J1:2/4 (short)	147
J1:3/1	509
Junction: J2: Services	
J2:1/1	657
J2:1/2	1485
J2:1/3	922
J2:1/4	230
J2:2/1	257
J2:2/2	238
Junction: J3: A120W	
J3:1/1	557
J3:1/2	558
J3:1/3	44
J3:1/4	424
J3:2/1 (short)	280
J3:2/2 (with short)	1117(In) 837(Out)
J3:2/3	1114
J3:3/1	837
J3:3/2	558
Junction: J4: M11 SB Offslip	
J4:1/1	881
J4:1/2	882
J4:1/3	656
J4:2/1 (with short)	846(In) 846(Out)
J4:2/2 (short)	0
J4:2/3	92
J4:2/4 (with short)	466(In) 239(Out)
J4:2/5 (short)	227

Full Input Data And Results

J4:3/1	1727
J4:3/2	321
J4:4/1	846
J4:4/2	558
Junction: J5: A120E	
J5:1/1	317
J5:1/2	336
J5:2/1 (short)	83
J5:2/2 (with short)	873(In) 790(Out)
J5:2/3	730
J5:3/1	736
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	790
J6:1/3	730
J6:2/1 (short)	146
J6:2/2 (with short)	431(In) 285(Out)
J6:2/3	344
Junction: J7: M11 Junction 8 Internal	
J7:1/1	443
J7:1/2	452
J7:1/3	227
J7:2/1	146
J7:2/2	1075
J7:2/3	1074
J7:3/1	589
J7:3/2	178
Junction: J8: A120_A1250	
J8:1/1	599
J8:1/2 (with short)	420(In) 420(Out)
J8:1/3 (short)	0
J8:2/1	46
J8:3/1	110
J8:4/1 (short)	5
J8:4/2 (with short)	534(In) 529(Out)
J8:4/3	573
J8:5/1	1128
J8:5/2	993
J8:6/1	677
J8:6/2	737

Full Input Data And Results

J8:6/3	746
J8:7/1	742
J8:7/2	746
J8:8/1	677
J8:9/1	1107
J8:10/1	1019
J8:11/1	677
J8:11/2	737
J8:11/3 (with short)	792(In) 746(Out)
J8:11/4 (short)	46

Lane Saturation Flows

Junction: J1: M11 NB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.0 %	2045	2045
				Arm J8:11 Ahead	77.00	100.0 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	75.1 %	2036	2036
				Arm J8:11 Left	37.00	24.9 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J3: A120W								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	36.4 %	2060	2060
				Arm J5:1 Ahead	Inf	63.6 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	0.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Full Input Data And Results

Junction: J5: A120E								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J5:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J6: Dunmow Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

Junction: J7: M11 Junction 8 Internal								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J8: A120_A1250								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	0.0 %	1965	1965
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	100.0 %	1841	1841
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
				Arm J8:2 Left	12.00	0.0 %		
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Scenario 14: 'PM 2033 With Airport 43mppa' (FG14: 'PM 2033 With Airport 43mppa', Plan 2: 'PM Existing')

Traffic Flows, Desired

Desired Flow :

		Destination								
		A	B	C	D	E	F	G	H	Tot.
Origin	A	1	882	96	0	145	105	229	7	1465
	B	763	0	95	0	83	274	600	19	1834
	C	255	83	3	146	26	81	178	6	778
	D	0	0	162	0	262	261	572	18	1275
	E	209	110	16	132	0	21	47	1	536
	F	141	512	200	251	17	0	5	0	1126
	G	130	472	185	231	16	0	4	0	1038
	H	14	51	20	25	2	0	0	0	112
	Tot.	1513	2110	777	785	551	742	1635	51	8164

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 14: PM 2033 With Airport 43mppa
Junction: J1: M11 NB Offslip	
J1:1/1	749
J1:1/2	1148
J1:1/3	992
J1:2/1 (short)	262
J1:2/2 (with short)	523(In) 261(Out)
J1:2/3 (with short)	752(In) 590(Out)
J1:2/4 (short)	162
J1:3/1	551
Junction: J2: Services	
J2:1/1	721
J2:1/2	1629
J2:1/3	1018
J2:1/4	245
J2:2/1	278
J2:2/2	258
Junction: J3: A120W	
J3:1/1	608
J3:1/2	619
J3:1/3	72
J3:1/4	431
J3:2/1 (short)	285
J3:2/2 (with short)	1122(In) 837(Out)
J3:2/3	1145
J3:3/1	893
J3:3/2	619
Junction: J4: M11 SB Offslip	
J4:1/1	909
J4:1/2	902
J4:1/3	674
J4:2/1 (with short)	882(In) 882(Out)
J4:2/2 (short)	0
J4:2/3	96
J4:2/4 (with short)	486(In) 250(Out)
J4:2/5 (short)	236

Full Input Data And Results

J4:3/1	1791
J4:3/2	319
J4:4/1	882
J4:4/2	582
Junction: J5: A120E	
J5:1/1	346
J5:1/2	333
J5:2/1 (short)	95
J5:2/2 (with short)	1003(In) 908(Out)
J5:2/3	831
J5:3/1	774
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	908
J6:1/3	831
J6:2/1 (short)	146
J6:2/2 (with short)	419(In) 273(Out)
J6:2/3	356
Junction: J7: M11 Junction 8 Internal	
J7:1/1	456
J7:1/2	468
J7:1/3	236
J7:2/1	146
J7:2/2	1181
J7:2/3	1187
J7:3/1	602
J7:3/2	183
Junction: J8: A120_A1250	
J8:1/1	603
J8:1/2 (with short)	431(In) 431(Out)
J8:1/3 (short)	0
J8:2/1	51
J8:3/1	112
J8:4/1 (short)	5
J8:4/2 (with short)	547(In) 542(Out)
J8:4/3	579
J8:5/1	1145
J8:5/2	1010
J8:6/1	742
J8:6/2	809

Full Input Data And Results

J8:6/3	817
J8:7/1	814
J8:7/2	817
J8:8/1	742
J8:9/1	1126
J8:10/1	1034
J8:11/1	742
J8:11/2	809
J8:11/3 (with short)	868(In) 817(Out)
J8:11/4 (short)	51

Lane Saturation Flows

Junction: J1: M11 NB Offslip

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.0 %	2045	2045
				Arm J8:11 Ahead	77.00	100.0 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	75.2 %	2036	2036
				Arm J8:11 Left	37.00	24.8 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J3: A120W								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	35.4 %	2060	2060
				Arm J5:1 Ahead	Inf	64.6 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	0.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Full Input Data And Results

Junction: J5: A120E								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J5:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J6: Dunmow Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

Junction: J7: M11 Junction 8 Internal								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J8: A120_A1250								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	0.0 %	1965	1965
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	100.0 %	1841	1841
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
				Arm J8:2 Left	12.00	0.0 %		
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Full Input Data And Results

Scenario 15: '+10% AM 2028 With Airport 35mppa' (FG15: '+10% AM 2028 With Airport 35mppa', Plan 1: 'AM Existing')

Traffic Flows, Desired

Desired Flow :

		Destination								
		A	B	C	D	E	F	G	H	Tot.
Origin	A	0	886	82	0	181	110	146	17	1422
	B	823	0	85	0	30	355	470	54	1817
	C	96	20	1	420	3	34	45	5	624
	D	0	0	159	0	189	239	317	36	940
	E	60	22	1	302	0	7	10	1	403
	F	192	246	62	351	9	0	0	0	860
	G	266	340	85	485	13	0	4	0	1193
	H	12	15	4	22	1	0	0	0	54
	Tot.	1449	1529	479	1580	426	745	992	113	7313

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 15: +10% AM 2028 With Airport 35mppa
Junction: J1: M11 NB Offslip	
J1:1/1	736
J1:1/2	1000
J1:1/3	676
J1:2/1 (short)	189
J1:2/2 (with short)	428(In) 239(Out)
J1:2/3 (with short)	512(In) 353(Out)
J1:2/4 (short)	159
J1:3/1	426
Junction: J2: Services	
J2:1/1	738
J2:1/2	1094
J2:1/3	915
J2:1/4	179
J2:2/1	78
J2:2/2	325
Junction: J3: A120W	
J3:1/1	496
J3:1/2	483
J3:1/3	42
J3:1/4	462
J3:2/1 (short)	470
J3:2/2 (with short)	1038(In) 568(Out)
J3:2/3	1065
J3:3/1	966
J3:3/2	483
Junction: J4: M11 SB Offslip	
J4:1/1	610
J4:1/2	344
J4:1/3	1183
J4:2/1 (with short)	886(In) 886(Out)
J4:2/2 (short)	0
J4:2/3	82
J4:2/4 (with short)	454(In) 291(Out)
J4:2/5 (short)	163

Full Input Data And Results

J4:3/1	1496
J4:3/2	33
J4:4/1	886
J4:4/2	536
Junction: J5: A120E	
J5:1/1	185
J5:1/2	208
J5:2/1 (short)	85
J5:2/2 (with short)	978(In) 893(Out)
J5:2/3	839
J5:3/1	478
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	893
J6:1/3	839
J6:2/1 (short)	420
J6:2/2 (with short)	487(In) 67(Out)
J6:2/3	136
Junction: J7: M11 Junction 8 Internal	
J7:1/1	760
J7:1/2	714
J7:1/3	163
J7:2/1	420
J7:2/2	960
J7:2/3	975
J7:3/1	1180
J7:3/2	400
Junction: J8: A120_A1250	
J8:1/1	584
J8:1/2 (with short)	605(In) 605(Out)
J8:1/3 (short)	0
J8:2/1	113
J8:3/1	54
J8:4/1 (short)	0
J8:4/2 (with short)	432(In) 432(Out)
J8:4/3	428
J8:5/1	1016
J8:5/2	1033
J8:6/1	745
J8:6/2	483

J8:6/3	505
J8:7/1	483
J8:7/2	505
J8:8/1	745
J8:9/1	860
J8:10/1	1189
J8:11/1	745
J8:11/2	483
J8:11/3 (with short)	618(In) 505(Out)
J8:11/4 (short)	113

Lane Saturation Flows

Junction: J1: M11 NB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.4 %	2045	2045
				Arm J8:11 Ahead	77.00	99.6 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	76.9 %	2036	2036
				Arm J8:11 Left	37.00	23.1 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J3: A120W								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	9.6 %	2060	2060
				Arm J5:1 Ahead	Inf	90.4 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	0.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Full Input Data And Results

Junction: J5: A120E								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J5:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J6: Dunmow Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

Junction: J7: M11 Junction 8 Internal								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J8: A120_A1250								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	0.0 %	1965	1965
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	0.0 %	1965	1965
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
				Arm J8:2 Left	12.00	0.0 %		
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Scenario 16: '+10% PM 2028 With Airport 35mppa' (FG16: '+10% PM 2028 With Airport 35mppa', Plan 1: 'AM Existing')

Traffic Flows, Desired

Desired Flow :

	Destination									
Origin		A	B	C	D	E	F	G	H	Tot.
	A	1	829	90	0	137	98	215	7	1377
	B	689	0	86	0	75	248	542	17	1657
	C	246	80	3	140	25	78	171	5	748
	D	0	0	147	0	238	237	519	16	1157
	E	189	99	14	120	0	19	43	1	485
	F	133	485	190	238	16	0	0	0	1062
	G	125	455	178	223	15	0	9	0	1005
	H	14	49	19	24	2	0	0	0	108
	Tot.	1397	1997	727	745	508	680	1499	46	7599

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 16: +10% PM 2028 With Airport 35mppa
Junction: J1: M11 NB Offslip	
J1:1/1	694
J1:1/2	1107
J1:1/3	865
J1:2/1 (short)	238
J1:2/2 (with short)	475(In) 237(Out)
J1:2/3 (with short)	682(In) 535(Out)
J1:2/4 (short)	147
J1:3/1	508
Junction: J2: Services	
J2:1/1	661
J2:1/2	1492
J2:1/3	935
J2:1/4	227
J2:2/1	252
J2:2/2	233
Junction: J3: A120W	
J3:1/1	564
J3:1/2	560
J3:1/3	87
J3:1/4	373
J3:2/1 (short)	272
J3:2/2 (with short)	1053(In) 781(Out)
J3:2/3	1113
J3:3/1	836
J3:3/2	560
Junction: J4: M11 SB Offslip	
J4:1/1	868
J4:1/2	848
J4:1/3	638
J4:2/1 (with short)	829(In) 829(Out)
J4:2/2 (short)	0
J4:2/3	90
J4:2/4 (with short)	457(In) 235(Out)
J4:2/5 (short)	222

Full Input Data And Results

J4:3/1	1697
J4:3/2	300
J4:4/1	829
J4:4/2	547
Junction: J5: A120E	
J5:1/1	311
J5:1/2	327
J5:2/1 (short)	86
J5:2/2 (with short)	891(In) 805(Out)
J5:2/3	766
J5:3/1	724
Junction: J6: Dunmow Road	
J6:1/1	0
J6:1/2	805
J6:1/3	766
J6:2/1 (short)	140
J6:2/2 (with short)	422(In) 282(Out)
J6:2/3	323
Junction: J7: M11 Junction 8 Internal	
J7:1/1	432
J7:1/2	441
J7:1/3	222
J7:2/1	140
J7:2/2	1087
J7:2/3	1089
J7:3/1	572
J7:3/2	173
Junction: J8: A120_A1250	
J8:1/1	585
J8:1/2 (with short)	411(In) 411(Out)
J8:1/3 (short)	0
J8:2/1	46
J8:3/1	108
J8:4/1 (short)	0
J8:4/2 (with short)	512(In) 512(Out)
J8:4/3	550
J8:5/1	1097
J8:5/2	961
J8:6/1	680
J8:6/2	741

J8:6/3	749
J8:7/1	741
J8:7/2	749
J8:8/1	680
J8:9/1	1062
J8:10/1	996
J8:11/1	680
J8:11/2	741
J8:11/3 (with short)	795(In) 749(Out)
J8:11/4 (short)	46

Lane Saturation Flows

Junction: J1: M11 NB Offslip								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:1/3	3.07	0.00	N	Arm J2:1 Right	75.00	100.0 %	2022	2022
J1:2/1 (M11 NB Off Slip)	3.50	0.00	Y	Arm J1:3 Ahead	79.00	100.0 %	1928	1928
J1:2/2 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/3 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:2/4 (M11 NB Off Slip)	3.64	0.00	N	Arm J2:1 Ahead	79.00	100.0 %	2080	2080
J1:3/1 (Service Station Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Services								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Service Station Circ Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:1/2 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	0.0 %	2045	2045
				Arm J8:11 Ahead	77.00	100.0 %		
J2:1/3 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:1/4 (Service Station Circ)	3.30	0.00	N	Arm J3:1 Right	77.00	100.0 %	2045	2045
J2:2/1 (Service Station Entry)	4.87	0.00	Y	Arm J3:1 Ahead	50.00	75.0 %	2036	2036
				Arm J8:11 Left	37.00	25.0 %		
J2:2/2 (Service Station Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800

Junction: J3: A120W

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/2 (A120 W Circ)	3.54	0.00	N	Arm J3:3 Ahead	79.00	100.0 %	2070	2070
J3:1/3 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:1/4 (A120 W Circ)	3.54	0.00	N	Arm J4:1 Right	79.00	100.0 %	2070	2070
J3:2/1 (A120 W Entry)	3.97	0.00	Y	Arm J3:3 Left	74.20	100.0 %	1972	1972
J3:2/2 (A120 W Entry Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J3:2/3 (A120 W Entry Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J3:3/1 (M11 NB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (M11 NB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J4: M11 SB Offslip

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1	3.05	0.00	N	Arm J4:3 Ahead	Inf	100.0 %	2060	2060
J4:1/2	3.05	0.00	N	Arm J4:3 Ahead	Inf	35.4 %	2060	2060
				Arm J5:1 Ahead	Inf	64.6 %		
J4:1/3	3.05	0.00	N	Arm J7:1 Right	68.00	100.0 %	2016	2016
J4:2/1 (M11 SB Off Slip)	3.30	0.00	Y	Arm J4:3 Left	Inf	100.0 %	1945	1945
J4:2/2 (M11 SB Off Slip)	3.30	0.00	N	Arm J4:3 Left	Inf	0.0 %	2085	2085
J4:2/3 (M11 SB Off Slip)	3.30	0.00	N	Arm J5:1 Ahead	56.00	100.0 %	2031	2031
J4:2/4 (M11 SB Off Slip)	3.30	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2085	2085
J4:2/5 (M11 SB Off Slip)	3.65	0.00	N	Arm J7:1 Ahead	Inf	100.0 %	2120	2120
J4:3/1 (Thremhall Ave Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:3/2 (Thremhall Ave Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:4/1	3.75	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1990	1990
J4:4/2	3.75	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2130	2130

Full Input Data And Results

Junction: J5: A120E								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J5:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J5:2/1 (Thremhall Avenue)	3.78	0.00	Y	Arm J5:3 Left	44.00	100.0 %	1927	1927
J5:2/2 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:2/3 (Thremhall Avenue)	3.78	0.00	N	Arm J6:1 Ahead	54.00	100.0 %	2075	2075
J5:3/1 (Dunmow Rd Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

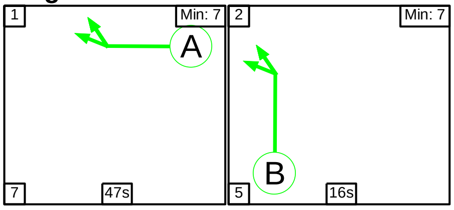
Junction: J6: Dunmow Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	0.0 %	2120	2120
J6:1/2 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:1/3 (Dunmow Rd Circ)	3.65	0.00	N	Arm J7:2 Right	67.00	100.0 %	2074	2074
J6:2/1 (Dunmow Rd Entry)	3.42	0.00	Y	Arm J7:2 Ahead	22.00	100.0 %	1832	1832
J6:2/2 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990
J6:2/3 (Dunmow Rd Entry)	3.42	0.00	N	Arm J7:2 Ahead	28.00	100.0 %	1990	1990

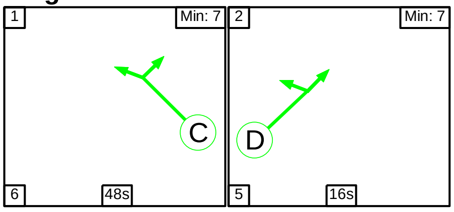
Junction: J7: M11 Junction 8 Internal								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:1/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/1	4.38	0.00	Y	Arm J7:3 Ahead	80.00	100.0 %	2015	2015
J7:2/2	This lane uses a directly entered Saturation Flow						1800	1800
J7:2/3	This lane uses a directly entered Saturation Flow						1800	1800
J7:3/1 (M11 SB On Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
J7:3/2 (M11 SB On Slip Lane 2)	Infinite Saturation Flow						Inf	Inf

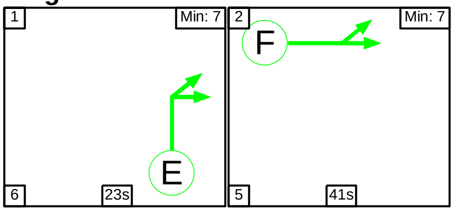
Full Input Data And Results

Junction: J8: A120_A1250								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (A120 EB)	3.60	0.00	Y	Arm J8:5 Ahead	Inf	100.0 %	1975	1975
J8:1/2 (A120 EB)	3.60	0.00	N	Arm J8:5 Ahead	Inf	100.0 %	2115	2115
J8:1/3 (A120 EB)	3.50	0.00	Y	Arm J8:8 Right	17.00	0.0 %	1965	1965
J8:2/1 (Birchanger lane exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:3/1 (Birchanger Lane)	5.00	0.00	Y	Arm J3:2 Left	8.00	100.0 %	1781	1781
J8:4/1 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:7 Left	22.30	0.0 %	1965	1965
J8:4/2 (A1250 Dunmow Road)	3.50	0.00	Y	Arm J8:5 Right	12.00	100.0 %	1747	1747
J8:4/3 (A1250 Dunmow Road)	3.50	0.00	N	Arm J8:5 Right	12.00	100.0 %	1871	1871
J8:5/1 (A120 EB)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
				Arm J8:2 Left	12.00	0.0 %		
J8:5/2 (A120 EB)	3.50	0.00	N	Arm J3:2 Ahead	Inf	100.0 %	2105	2105
J8:6/1 (A120 WB)	3.50	0.00	Y	Arm J8:8 Left	10.00	100.0 %	1709	1709
J8:6/2 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:6/3 (A120 WB)	3.50	0.00	N	Arm J8:7 Ahead	Inf	100.0 %	2105	2105
J8:7/1 (A120 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:7/2 (A120 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J8:8/1 (A1250 exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J8:9/1	This lane uses a directly entered Saturation Flow						1800	1800
J8:10/1	Infinite Saturation Flow						Inf	Inf
J8:11/1 (A120 W Exit)	3.50	0.00	Y	Arm J8:6 Ahead	Inf	100.0 %	1965	1965
J8:11/2 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/3 (A120 W Exit)	3.50	0.00	N	Arm J8:6 Ahead	Inf	100.0 %	2105	2105
J8:11/4 (A120 W Exit)	3.50	0.00	N	Arm J8:2 Right	13.00	100.0 %	1887	1887

Full Input Data And Results

Scenario 5: 'AM 2028 With Airport 35 mppa' (FG5: 'AM 2028 With Airport 35 mppa', Plan 1: 'AM Existing')
C1 - West
Stage Sequence Diagram
Stage Stream: 1


Stage Stream: 2


Stage Stream: 3


Stage Timings
Stage Stream: 1

Stage	1	2
Duration	47	16
Change Point	0	54

Stage Stream: 2

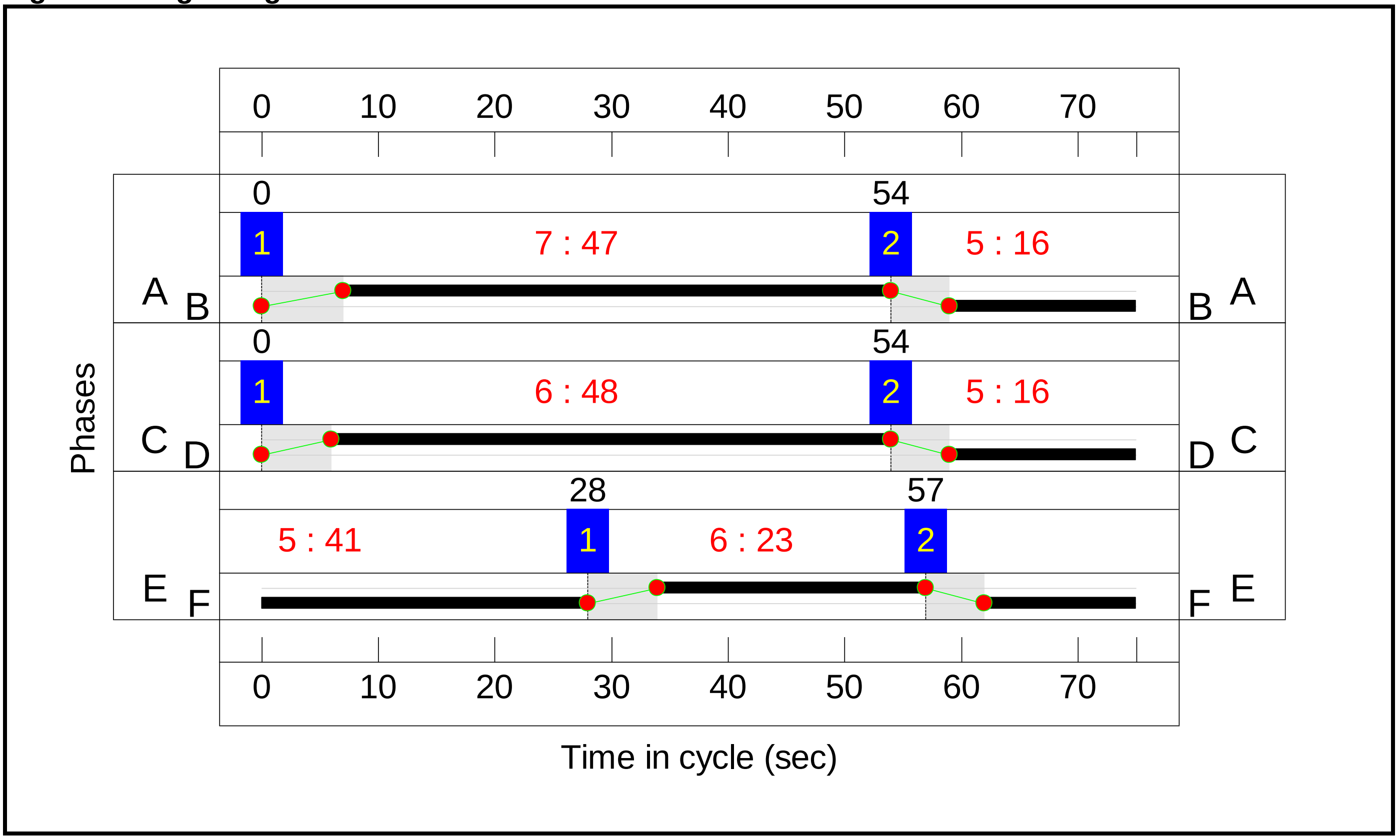
Stage	1	2
Duration	48	16
Change Point	0	54

Stage Stream: 3

Stage	1	2
Duration	23	41
Change Point	28	57

Full Input Data And Results

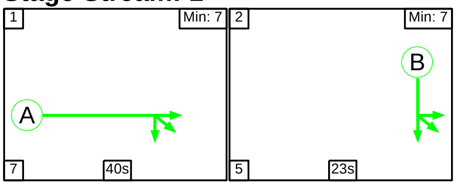
Signal Timings Diagram



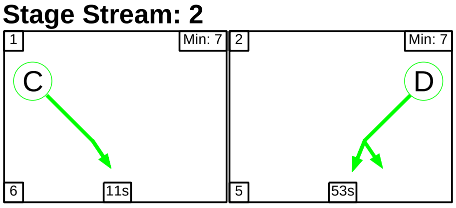
C2 - East

Stage Sequence Diagram

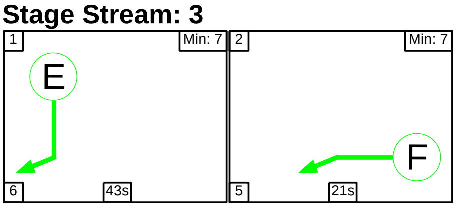
Stage Stream: 1



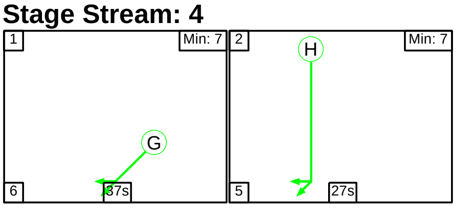
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Full Input Data And Results

Stage Timings

Stage Stream: 1

Stage	1	2
Duration	40	23
Change Point	66	38

Stage Stream: 2

Stage	1	2
Duration	11	53
Change Point	46	63

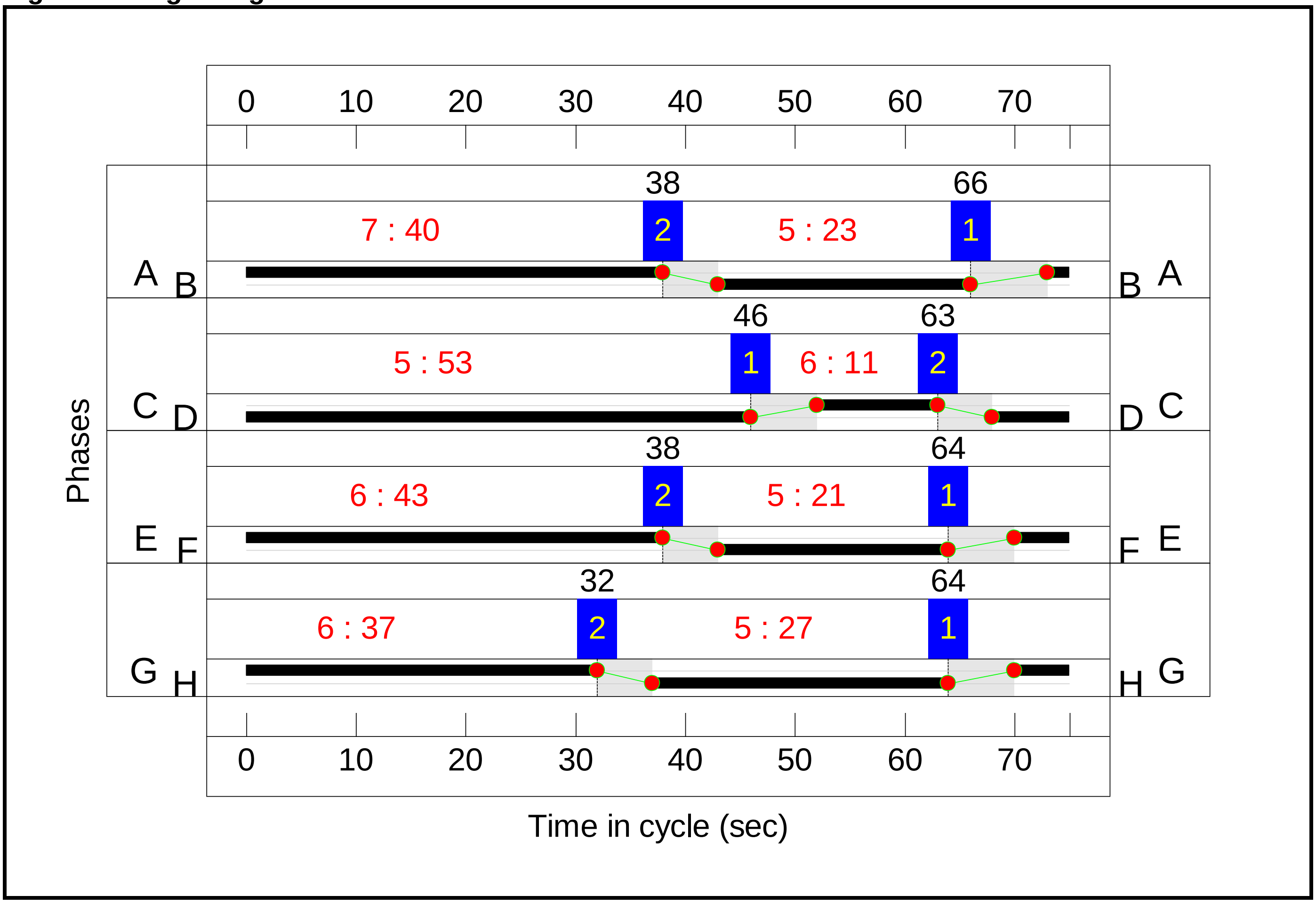
Stage Stream: 3

Stage	1	2
Duration	43	21
Change Point	64	38

Stage Stream: 4

Stage	1	2
Duration	37	27
Change Point	64	32

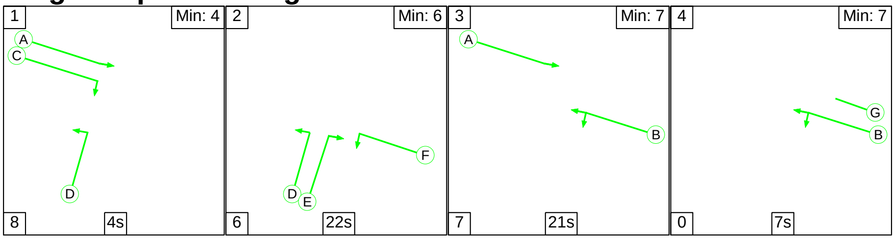
Signal Timings Diagram



Full Input Data And Results

C3

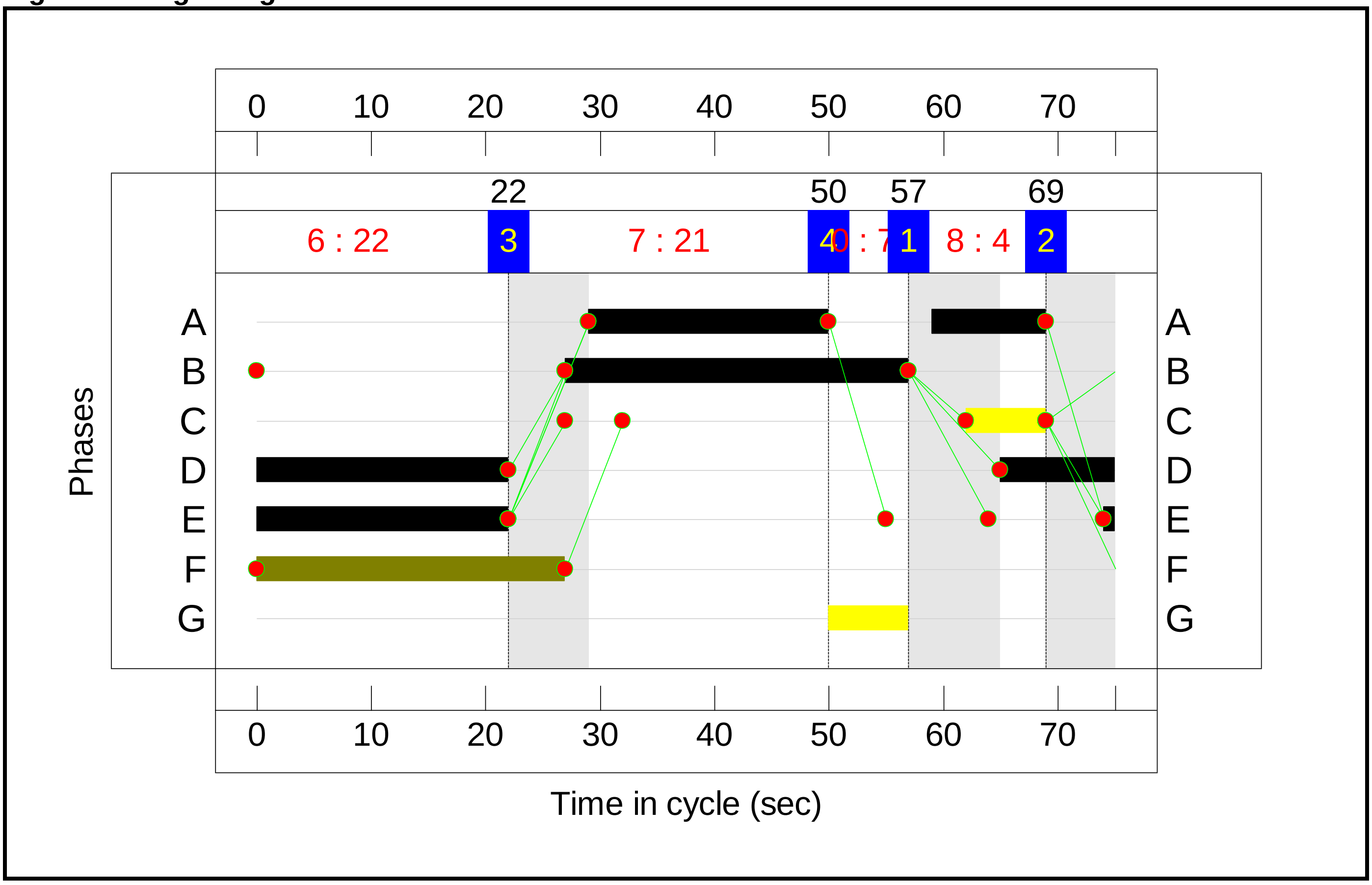
Stage Sequence Diagram



Stage Timings

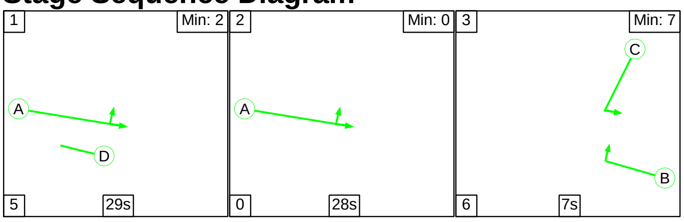
Stage	1	2	3	4
Duration	4	22	21	7
Change Point	57	69	22	50

Signal Timings Diagram



C4

Stage Sequence Diagram



Full Input Data And Results

Stage Timings

Stage	1	2	3
Duration	29	28	7
Change Point	64	23	51

Signal Timings Diagram