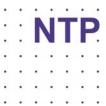
## Extract from John Vernon's evidence: page 29 of JGV11.pdf

# Weekday 17:00-18:00 hours, with Committed, with Development, "optimised" timings

original column number	1 link	2 flow	3	4 %	12	13 XS	15	16 graan	17 graan
link description	link num	in	satn flow	sat	max Q	cars?	exit node	green start	green end
Bridge Road RT into BHS	77	47	715	9	0				
Bridge Road W-bound SA	101	585<	1900	85	15		1	60	8
Savins Mill Way LT into Bridge Road	102	779	1785	85	12	(0.0)*	1	16	56
Bridge Road E-bound RT into Savins Mill Way	103	413	1710	53	7	(0.0)*	1	27	8
Bridge Road E-bound SA	104	877	1915	75	12	(0.0)*	1	40	8
Savins Mill Way RT into Bridge Road	105	220	1785	76	6	, ,	1	13	25
Savins Mill Way W-bound through junction	202	720	1940	80	11		2	30	66
Savins Mill Way LT to Morrisons	203	423	1740	53	6		2	30	66
Morrisons right rurn out	204	300	1760	76	8	$(0.0)^*$	2	7	24
Morrisons LT out into Savins Mill Way	205	269	1720	39	5		2	73	24
Savins Mill Way RT to Morrisons	206	176	1725	68	5		2	71	2
Savins Mill Way E-bound through junction	207	269	2000	21	1		2	32	2
Abbey Road SA then RT into Savins Mill Way	301	412	2300	48	7		3	79	28
Abbey Road S-bound SA & LT	302	803	3300	78	18		3	4	28
Kirkstall Lane W-bound RT	303	156	1675	53	4		3	35	74
Kirkstall Lane W-bound SA	304	537<	1790	60	8		3	35	74
Kirkstall Lane W-bound LT	305	153	1770	23	3		3	36	65
Commercial Road N-bound LT	306	46	1785	7	0		3	1	31
Commercial Road N-bound SA	307	1215	3970	79	13	$(0.0)^*$	3	1	31
Bridge Road E-bound LT	308	597	2000	82	12	$(0.0)^*$	3	37	65
Bridge Road E-bound SA	309	421	1785	65	6		3	37	65
Commercial Road RT into Savins Mill Way	401	468	3300	76	12	$(0.0)^*$	4	38	52
Commercial Road S-bound SA	402	804	3300	41	1		4	6	53
Commercial Road N-bound SA	403	1002	3000	84	23		4	1	32
Commercial Road LT into Savins Mill Way	404	645	1710	60	9		4	65	34
Savins Mill Way E-bound RT	405	324	1900	76	8		4	57	74
Savins Mill Way E-bound LT	406	254	2000	68	7		4	62	76
Morris Lane RT into Kirkstall Lane	701	109	1600	19	2		7	29	56
Morris Lane S-bound SA & LT	702	286	1750	47	5		7	29	56
Kirkstall Lane W-bound all moves	703	518	1950	106	33		7	69	8
Kirkstall Hill N-bound all moves	704	694	1900	104	38	+	7	29	56
Kirkstall Lane E-bound RT	705	124	1800	42	2		7	61	13
Kirkstall Lane E-bound SA & LT	706	565	1900	88	15		7	62	8
Bridge Road W. bound into L&BR	901	408	1740	85	11		9	78	19
Bridge Road W-bound into Wyther Lane	902	943<	1740	75	10		9	42	19
Wyther Lane NE-bound all moves	903	741	1900	98	26	+	9	42	73
Leeds & Bradford Road all moves	904	482	1665	93	15		9	78	22
Wyther Lane SW-bound all moves	1001	965<	1845	97	31	+	10	63	25
Wyther Lane N-bound all moves	1002	451	1710	96	17		10	36	57
Broad Lane E-bound all moves	1003	324	1910	45 76	6	(0.0\*	10	76	25
Bridge Road E-bound SA	1401	1156	1965	76	5	(0.0)*	14	55 44	36
BHS site exit RT	1402	50	1871	21	1		14	41	50 50
BHS site exit LT	1403	134	1791	60	4		14	41 55	50
Bridge Road W-bound SA	1404	1320<	3970	43	10		14	55	36

**Abbreviations:** SA – straight ahead, LT – left turn, RT – right turn

**Comments:** Columns 5-11 and 14 have been omitted. Please refer to the link diagram for junction numbers. A < symbol in column 2 means the computer model could not accept the requested flow, a + in column 13 means that the cars will not physically fit into the available road space, and will jam the upstream junction.



APPEAL BY ALLDERS DEPARTMENT STORES LTD (IN LIQUIDATION) LTD AGAINST THE DECISION OF THE LOCAL PLANNING AUTHORITY (LEEDS CITY COUNCIL) TO REFUSE TO GRANT PLANNING PERMISSION FOR THE REDEVELOPMENT OF THE FORMER ALLDERS STORE, BRIDGE ROAD, KIRKSTALL, LEEDS

PLANNING APPLICATION REF: 24/214/04/FU

PROOF OF EVIDENCE OF JOHN G VERNON MSC BA TRANSPORT AND HIGHWAYS MATTERS

> January 2008 jgv/7043/POE/v1

#### **Northern Transport Planning**

Suite 7, Vincent House, Westgate, Wakefield, WF2 9SR
Tel: 01924 367460 Fax: 01924 368931
Email: mail@ntpconsultants.co.uk Internet: www.ntpconsultants.co.uk



## PLANNING APPLICATION REF: 24/214/04/FU

## Document Status - Final

Produced by: ----- John Vernon Date: 21 January 2008

Checked by: ----- Andy Kirby Date: 21 January 2008

Approved by: ----- John Vernon Date: 21 January 2008

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## **APPENDICES (Bound Separately)**

JGV1: Letter from Leeds City Council dated 26th November 2007

JGV2: Plans

JGV3: Drawing Number DLT0072-37 Revision A

JGV4: Travel Plan Reference jgv/DLT0072/tp/v2 and Council Comments dated 16/01/08

JGV5: November 2004 TRANSYT Analysis

JGV6: Traffic Flow Diagrams provided by Council

JGV7: Site Access Traffic Survey Data

JGV8: Traffic Flow Diagrams:-

JGV9: TRICS Output

JGV10: Leeds City Council Existing TRANSYT Output and Summary Table

JGV11: NTP TRANSYT Analysis – Output and Summary Tables



#### 1 NAME AND QUALIFICATIONS

- 1.1.1 I am John George Vernon and my evidence deals with transport and highway matters on behalf of the appellant. I am a Partner of Northern Transport Planning; a specialist consultancy that advises clients on the transport issues associated with development. I hold the degrees of Master of Science in Transport Planning and Bachelor of Arts in Economics. I represent Allders Department Stores Ltd (in Liquidation) and will present evidence on transport related matters in support of the appeal against refusal of planning permission given by the Planning Authority.
- 1.1.2 For the past 20 years I have worked as a consultant in the private sector dealing with a broad range of transport planning and development issues. My experience has been gained working with a number of transport planning consultancies. I have attended informal hearings and public inquiries as an expert witness presenting evidence on traffic, transport and highways issues.
- 1.1.3 I have been involved in the proposals to redevelop the Bridge Road site since November 2003, providing traffic and transport related advice initially to Allders, and more latterly to the appellant.
- 1.1.4 I am familiar with the site and the surrounding highway and transport network.



## 2 INTRODUCTION AND SCOPE OF EVIDENCE

#### 2.1 Introduction

2.1.1 My evidence is submitted in support of an appeal by Allders Department Stores Ltd (in Liquidation) against the refusal of planning permission by Leeds City Council for the redevelopment of the former Allders Department Store site, which is now operated by BHS, located north of Bridge Road in Kirkstall, Leeds. My evidence relates to the transportation and highways aspects of the proposed redevelopment scheme.

## 2.2 Site Description and Location

- 2.2.1 The site is located in Kirkstall, approximately 5km northwest of the centre of Leeds, West Yorkshire. The location of the site is identified on the plans contained within **Appendix JGV1**. It is roughly triangular in shape, and is bounded to the south by Bridge Road, to the east by Kirkstall Valley Park and to the west by the River Aire and Sandford Place.
- 2.2.2 The site currently contains a department store operated by BHS. The existing buildings have a combined Gross Floor Area (GFA) of 12,730sq.m. Vehicular and pedestrian access is currently available from a number of locations on Bridge Road.
- 2.2.3 The Bridge Road site has been used for retail operations for many years, but more recently the character of the area, and specifically the nature of the local highway network, has changed. This is mainly the result of new development in the District Centre and beyond and, most notably, the construction of the nearby Morrison's Superstore and adjacent retail park, which opened in 2000. This development required the construction of a link road, Savins Mill Way, which connects Commercial Road to Bridge Road at a signal controlled junction along the frontage of the site.



## 2.3 Development Proposals

- 2.3.1 The relevant planning history and planning issues are fully addressed in the Planning Evidence of Julian N Stevenson. In short, a detailed planning application for redevelopment of the Bridge Road site was submitted to the Council in August 2004 (application reference: 24/413/04/FU). The development proposals had a total floorspace of 16,619sq.m. GFA, comprising a replacement department store of 6,382sq.m. GFA and associated retail and restaurant/café units totalling 10,237sq.m. GFA. Pedestrian access would be provided using a dedicated footpath link with Bridge Road. Vehicular access to the site would be provided via improved junctions with Bridge Road.
- 2.3.2 A Transport Assessment of the proposals for redevelopment was prepared by RPS Transport Planning in July 2004 (reference jgv/DLT0072/TA/v6) and submitted to the Council in support of the planning application. The Transport Assessment concluded that the proposed development was satisfactory from a transport policy, traffic and highways viewpoint and there were no transport-related reasons for withholding planning consent.
- 2.3.3 The application was held in abeyance when Allders went into receivership but was reactivated in 2006. No new highway assessment was provided or requested in 2006 and Leeds City Council Highways Officers did not object to the proposal subject to conditions and contributions to fund amendments to provide a right turn facility from Savins Mill Way onto Bridge Road. The application was subsequently refused by the Council on 18 May 2006 with two reasons for refusal, neither of the reasons being traffic, transport or highways related. The refusal was against the Officer's recommendation for approval.



- 2.3.4 The Council has indicated in a letter of 26<sup>th</sup> November 2007, provided as Appendix **JGV2**, that the position remains they raise no highway/transport objection and will not be calling highway evidence at the inquiry. However, in the same letter, the Council assert that the highway position has "materially changed" since the submission of the original transport assessment. They do not however explain the basis for any change:
  - "...although we do not intend to produce highway evidence as that issue did not form part of our reason for refusal, we will be bound to inform the Inquiry that the Council's position on highways is based on a transport assessment submitted with the application and that the highways position has subsequently materially changed."
- 2.3.5 Also, the Kirkstall Valley Community Association has been given Rule 6 status and has raised traffic/highway issues. A statement of case has been submitted by the Kirkstall Valley Community Association.
- 2.3.6 In this proof, I address both the question of changes in circumstances concerning traffic and transportation issues since the original Transport Assessment and certain relevant matters raised in the Kirkstall Valley Community Association's statement of case.
- 2.3.7 In addition, in the Proof of Evidence I consider the opportunities for walking, cycling and use of public transport to and from the proposed development site.



- 2.3.8 My evidence seeks to demonstrate how the proposed development fully accords with national and local transport related policies by:
  - Being located within an established retail development site within the Kirkstall Town Centre.
  - Being readily accessible by a range of transport modes.
  - Being located where the need for people to travel, particularly by car, can be minimised.
  - Providing adequate servicing and parking for motor vehicles and cycles.
  - Facilitating multi-purpose trips, walking, cycling and the use of public transport.
  - Helping to reduce the growth in the length and number of motorised journeys.
  - Reducing reliance on the private car.
  - Providing satisfactory access to the road network.

## 2.4 Scope of the Evidence

- 2.4.1 Subsequent sections of my evidence deal with the following matters:
  - Section Three considers relevant transport related policy.
  - Section Four considers the location of the site and the surrounding transport network.
  - Section Five considers the traffic issues relating to the proposed development.
  - Section Six provides an operational analysis of the highway network.
  - Section Seven provides a summary and conclusion.



## 3 TRANSPORT RELATED POLICY AND GUIDANCE

#### 3.1 Introduction

- 3.1.1 A consistent theme stated in Government Policy is the need for the integration of planning and transport at national, regional and local levels, with a view to achieving Government objectives for sustainable development. This section of my evidence reviews relevant transport related policy statements and guidance to establish the context within which the proposed development should be considered. The following documents are considered:
  - Transport White Paper A New Deal for Transport: Better for Everyone.
  - Planning Policy Statement 1 Delivering Sustainable Communities.
  - Planning Policy Guidance Note 13 Transport.
  - Leeds UDP (Review 2006).
  - Guidance on Transport Assessment.

## 3.2 Transport White Paper - A New Deal for Transport: Better for Everyone

- 3.2.1 The White Paper, published in July 1998, was the culmination of a fundamental review of transport policy and widespread consultation. The White Paper sets the framework within which detailed transport policies are to be taken forward.
- 3.2.2 The White Paper states that the Government wants transport to:

"contribute to our quality of life not detract from it. The way forward is through an integrated transport policy. By this we mean:

- Integration within and between different types of transport so that each contributes its full potential and people can move easily between them;
- Integration with the environment so that our transport choices support a better environment;
- Integration with land use planning at national, regional and local level, so that transport and planning work together to support more sustainable travel choices and reduce the need to travel;
- Integration with our policies for education, health and wealth creation so that transport helps to make a fairer, more inclusive society."



- 3.2.3 Key objectives of the new integrated transport policy are to:
  - "improve choice in transport;
  - reduce the need to travel while improving access to education, jobs, leisure and services;
  - reduce environmental impacts from transport: on greenhouse gas emissions, air pollution and noise, habitats and wildlife;
  - improve transport safety and security.

## 3.3 Planning Policy Statement 1 – Delivering Sustainable Communities

3.3.1 PPS1, published in February 2005, sets out overarching policies on the delivery of sustainable development through the planning system. With regard to transport, paragraph 13 encourages Local Planning Authorities to bring forward Development Plan policies which reduce the need to travel by private car. Paragraph 27 encourages authorities to site new development where it can be well served by public transport, whilst also noting that planning should seek actively to bring vacant and underused previously developed land back into beneficial use.

## 3.4 Planning Policy Guidance Note 13 – Transport

- 3.4.1 The objectives of PPG13, published in March 2001, are "to integrate planning and transport at the national, regional, strategic and local level to:
  - promote more sustainable transport choices for both people and for moving freight;
  - promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling, and
  - reduce the need to travel, especially by car."
- 3.4.2 PPG13 identifies in paragraph 19, a key planning objective:
  - "To ensure that jobs, shopping, leisure facilities and services are accessible by public transport, walking and cycling. This is important for all, but especially for those who do not have regular use of a car and to promote social inclusion."



- 3.4.3 With specific relevance to Retail and Leisure is paragraph 35:
  - "Policies for retail and leisure should seek to promote the vitality and viability of existing town centres, which should be the preferred locations for new retail and leisure developments. At the regional and strategic level, local authorities should establish a hierarchy of town centres, taking account of accessibility by public transport, to identify preferred locations for major retail and leisure investment. At the local level, preference should be given to town centre sites, followed by edge of centre and, only then, out of centre sites in locations which are (or will be) well served by public transport."

#### 3.5 Leeds UDP Review 2006

3.5.1 The Leeds UDP Review 2006 was adopted in July 2006. The UDP states in paragraph 6.1.1:

"A co-ordinated approach to land-use and transport planning is integral to ensuring sustainable development and improving accessibility. The safe movement of goods and people is crucial to improving competitiveness in the local economy, whereas traffic congestion and consequent unreliable public transport increases the costs imposed on businesses thereby reducing competitiveness. Mobility enhances the quality of life, provides access to employment and other facilities, for example retail and leisure. However, transport has a major impact on the environment, particularly through the effect of road traffic on air quality. Continued road traffic growth and major road building is not sustainable in the longer term. The location and nature of development has a significant impact on the amount and mode of travel. An integrated approach is, therefore, required to tackle problems related to traffic and changes in travel behaviour, to achieve sustainable development, and to affect both travel demand, including the number and length of trips, and modal split."



3.5.2 In paragraph 6.1.2 it states that

"The UDP's strategic aim is thus:

SA2: to encourage development in locations that will reduce the need for travel, promote the use of public transport and other sustainable modes, reduce the journey lengths of those trips which are made by car, whilst promoting safe travel, economic development and protection of the environment"

3.5.3 In 6.1.3 it continues:

"New development should be encouraged into locations that are accessible by a range of travel modes. This will encourage the use of alternative modes of transport other than the private car and also improve access to facilities for those without a car. Public transport needs to be reliable, safe and attractive to users and the measures adopted need to ensure the best use of transport assets for the effective and efficient movement of people."

3.5.4 Policy T2 states that:

"T2: New development should normally:

I. Be served adequately by existing or programmed highways or by improvements to the highway network which are funded by the developer via planning conditions on planning permissions or planning obligations, and will not create or materially add to problems of safety, environment or efficiency on the highway network; and

II. Be capable of being adequately served by public transport and taxi services and should ensure that necessary infrastructure for new services is included in the development; and

III. Make adequate provision for easy, safe and secure cycle use and parking; and

IV. Additionally in the case of residential development, be within convenient walking distance of local facilities and does not create problems of personal accessibility."



## 3.6 Guidance on Transport Assessment

- 3.6.1 This document, published in March 2007, is not a statement of Government policy and therefore should be read in conjunction with, and in the context of, relevant Government policies, in particular those relating to transport and planning.
- 3.6.2 The guidance states in paragraph 1.19 that:

"In preparing a transport assessment the following considerations will therefore be relevant:

#### **Encouraging environmental sustainability**

- Reducing the need to travel, especially by car reducing the need for travel, reducing the length of trips, and promoting multi-purpose or linked trips by promoting more sustainable patterns of development and more sustainable communities that reduce the physical separation of key land uses.
- Tackling the environmental impact of travel by improving sustainable transport choices, and by making it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking, and cycling.
- The accessibility of the location the extent to which a site is, or is capable of becoming, accessible by non car modes, particularly for large developments that involve major generators of travel demand.
- Other measures which may assist in influencing travel behaviour (ITB) –
  achieving reductions in car usage (particularly single occupancy vehicles), by
  measures such as car sharing/pooling, High Occupancy Vehicle (HOV) lanes
  and parking control.



## Managing the existing network

- Making best possible use of existing transport infrastructure for instance
  by low-cost improvements to the local public transport network and using
  advanced signal control systems, public transport priority measures (bus lanes),
  or other forms of Intelligent Transport Systems (ITS) to improve operations on
  the highway network. It should be noted that the capacity of the existing public
  transport infrastructure and footpaths is finite, and in some areas overcrowding
  already exists.
- Managing access to the highway network taking steps to maximise the
  extent to which the development can be made to 'fit' within the available capacity
  by managing access from developments onto the highway network.

## Mitigating residual impacts

- Through demand management using traffic control measures across a wide network to regulate flows.
- Through improvements to the local public transport network, and walking and cycling facilities – for example, by extending bus routes and increasing bus frequencies, and designing sites to facilitate walking and cycling.
- Through minor physical improvements to existing roads it may be
  possible in some circumstances to improve the capacity of existing roads by
  relatively minor physical adjustments such as improving the geometry of
  junctions etc. within the existing highway boundary.
- Through provision of new or expanded roads it is considered good transport planning practice to demonstrate that the other opportunities above have been fully explored before considering the provision of additional road space such as new roads or major junction upgrades."



#### 4 THE SURROUNDING TRANSPORT NETWORK

#### 4.1 Introduction

4.1.1 This section of my evidence provides a description of the transport network surrounding the site, and considers the site's accessibility by a range of transport modes. The analysis first considers access by pedestrians, followed by people with disabilities, cyclists, public transport users and commercial vehicles. The analysis finally considers access by private cars and taxis.

## 4.2 Accessibility on Foot

- 4.2.1 Appropriate pedestrian access to and within the site will be available from Bridge Road. Within the site designated paths will be provided, with appropriate raised crossings of the internal road network. These routes are shown in an accessibility plan produced as an appendix to Mr Arthur's proof.
- 4.2.2 The infrastructure available for visitors accessing the appeal site on foot is excellent, with all highways in the vicinity of the site benefiting from a good standard of footways and street lighting, and numerous pedestrian crossing facilities being available.
- 4.2.3 Signal controlled pedestrian crossing facilities, identified on **Plan 03** within **Appendix JGV1**, are available as follows:
  - across Bridge Road;
  - across Savins Mill Way;
  - across Commercial Road;
  - across Abbey Road;
  - across Kirkstall Lane.



- 4.2.4 Appropriate existing infrastructure is available for trips to be made on foot between the site and the surrounding residential, commercial and retail areas. Furthermore, as part of the development proposals an additional crossing facility, identified on **Plan 03**, would be provided to facilitate the safe movement of pedestrians across Bridge Road on the frontage of the site in the vicinity of the existing bus stops. This additional crossing point, together with existing routes, will ensure that there are several safe and direct opportunities for pedestrians to move between the appeal site and other parts of the District Centre.
- 4.2.5 PPG 13 states in paragraph 75 that "walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2 kilometres."
- 4.2.6 A large built-up part of northwest Leeds lies within a 2km walk from the site, this includes the whole of Kirkstall (east of the site), and virtually the whole of Hawksworth (north of the site) and Burley (southeast of the site). Large parts of Headingley (to the east), West Park (to the north) and Bramley (to the west) lie within a 2km walk from the site. These areas contain a significant number of residential properties, and therefore potential employees and customers, who can access the site on foot. There are direct and safe routes to the District Centre from these areas, with good quality footways and pedestrian crossing facilities being available.
- 4.2.7 Headingley railway station is located approximately 800m from the site; this represents a 10 minute walk assuming the typical average walk speed of 3mph/4.83kph. A couple of minutes walk away (160m), within the Kirkstall District Centre, is the entrance to Abbey Retail Park, where various retail units and the Morrison's superstore are located. The new crossing proposed as part of the appeal proposal will increase opportunities for linkage between the appeal site and the retail and other units on the opposite site of Bridge Road.



- 4.2.8 High quality routes within the site will be available for use by pedestrians, connecting the various elements of the development and linking to the external pedestrian infrastructure and bus stops. Pedestrian crossing facilities will be provided as shown on the architect's plans to facilitate easy and safe movement on foot across the more heavily trafficked links of the internal highway network.
- 4.2.9 I conclude that the site is accessible on foot from a sizeable catchment area.

## 4.3 Accessibility for People with Disabilities

4.3.1 Appropriate provision for disabled access into and within the site will be available as identified on the architect's plans. A total of 20 car parking spaces for people with disabilities will be available close to the entrances to the proposed units, in accordance with the Council's requirements.

## 4.4 Accessibility by Cycle

- 4.4.1 Cycle lanes, identified on Plan 03 within Appendix JGV1, are available on both sides of Commercial Road/Kirkstall Road to the south of Bridge Road and on Abbey Road to the north of Bridge Road. Cycle lanes and advanced stop lines are also available on Bridge Road east of the site and on Savins Mill Way. The Leeds and Liverpool Canal Towpath is available for cycling to the west of the site accessed from Wyther Lane.
- 4.4.2 Cycle parking spaces would be available at appropriate locations within the site that are convenient for use by cyclists. A total of 66 short stay spaces and 33 long stay spaces, all being covered from the weather, would be provided in accordance with Leeds City Council quidelines.
- 4.4.3 PPG13 states in paragraph 78 that "Cycling also has potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport."



- 4.4.4 Within a 5km distance from the site lies a large part of the north west of Leeds, including the whole of Kirkstall, Headingley, Burley, Woodhouse, Armley, Wortley, Bramley, Hawksworth and parts of the City Centre, Pudsey, Meanwood and Horsforth.
- 4.4.5 I conclude that the site is highly accessible by cycle from a considerable catchment area.

## 4.5 Accessibility by Public Transport

- 4.5.1 The site benefits from its town centre location, being on or close to several bus routes. The bus stops and bus routes are identified respectively on Plan 03 and Plan 04 within Appendix JGV1. The opportunity will be available for bus passengers to wait in comfort at one of the cafés that are proposed as part of the development along the Bridge Road frontage. The developer of the site is willing to make a financial contribution towards public transport enhancements, which might be used for the provision of real time bus service information, bus stop improvements on Bridge Road, for example.
- 4.5.2 Bus stops are located on Bridge Road approximately 50m, or less than a one minute walk, from the site. From here the 15, 38, 49, 91/91A, 670 and 760 bus services are available.
- 4.5.3 Bus stops are located on Commercial Road/Abbey Road, approximately 200m from the site, representing a two minute walk. From here the 33/33A and 757 bus services are available.
- 4.5.4 Bus stops are located on Morris Lane, approximately 400m, or a five minute walk, from the site. From here the 50/50A bus services are available.



# 4.5.5 The bus services, the primary locations served, and the bus frequency are identified in Table 4.01:

SERVICE NUMBER	ROUTE	FREQUENCY (MINUTES)		
		Mon-Sat Daytime	Evenings and Sundays	
15	Leeds – Kirkstall – Farsley – Thornbury – Bradford	30	60	
33/33A	Leeds – Kirkstall – Horsforth – Guiseley – Otley	10	30	
38	White Rose Centre – Wortley – Kirkstall – Headingley – Moortown Corner – Gledhow	30	60	
49	Bramley – Kirkstall – Leeds – St James' Hospital – Harehills – Dib Lane – Monkswood Gate	10	30	
50/50A	Horsforth – Hawksworth – Kirkstall – Leeds – St James' Hospital – Harehills – Dib Lane - Seacroft	10	30	
91/91A	Pudsey – Bramley – Kirkstall – Chapeltown – Headingley – Osmondthorpe – Harehills – Halton Moor	30	30 Sunday 60 Evening	
670	Leeds – Rodley – Calverley – Greengates – Bradford	30	None	
757	Leeds – Kirkstall – Horsforth – Rawdon – L&B Airport – Pool – Otley	30	60	
760	Leeds – Kirkstall – Calverley – Greengates – Shipley – Bingley – Keighley	30	60	

Table 4.01 – Bus Services available from the Site



- 4.5.6 A summary of the frequency of Monday to Saturday daytime bus services available from the site to primary locations within Leeds and its surrounds is provided as follows:
  - Central Leeds 26 services per hour.
  - Bradford 4 services per hour.
  - Otley 8 services per hour.
  - Keighley 2 services per hour.
  - Headingley 4 services per hour.
  - Meanwood 2 services per hour.
  - Wortley 2 services per hour.
  - Pudsey 2 services per hour.
  - Horsforth 6 services per hour.
  - Bramley 8 services per hour.
  - Calverley 4 services per hour.
  - Hawksworth 6 services per hour.
  - Harehills 8 services per hour.
  - Seacroft 6 services per hour.
  - Guiseley 6 services per hour.
- 4.5.7 Local Transport Plan proposals in the vicinity of the appeal site include the proposed A65 Kirkstall Road Quality Bus Initiative. The A65 Quality Bus Corridor scheme has been developed to provide a high standard of bus service along this route into Leeds city centre. Government approval was recently granted for this scheme which covers the section of the route between the Inner Ring Road and Kirkstall Lane and comprises extensive bus priority measures together with significant measures to benefit pedestrians and cyclists.



## 4.5.8 The scheme will provide:

- 4 kilometres of new bus lane covering inbound and outbound journeys.
- Bus priority signal arrangements at two major junctions.
- Additional pedestrian and cycle crossing facilities and cycle lanes.
- Pre-signal arrangements to give buses priority at the exits from the bus lanes.
- Improvements to bus passenger facilities including new shelters and information displays (in real time at the busiest stops).

#### 4.5.9 Benefits from the scheme include:

- Bus passenger journey time improvements of 4-6 minutes in the peak periods and up to 3 minutes in the off-peak periods.
- A projected increase of 9% in bus use.
- Improvements in the safety and movement of pedestrians, cyclists and traffic.
- 4.5.10 The Quality Bus scheme was identified in the Local Transport Plan 2001-06 and was granted major scheme "Programme Entry" status by the Department for Transport in the summer of 2006 with a programme for completion in the 2010-11 financial year. Total estimated cost is £21.580 million of which the Government contribution would be £20.746 million and to which Leeds City Council has committed £834,000.
- 4.5.11 Headingley railway station is approximately 800m, or a 10 minute walk, from the site. Also,4 buses per hour provide a public transport link between the site and Headingley railway station.
- 4.5.12 Headingley railway station lies on the Harrogate Line. On Monday to Saturday daytimes a half-hourly service between Headingley and Leeds (in the south) via Burley Park is available. A half-hourly service is available between Headingley and Knaresborough (in the north) via a number of stations such as Horsforth and Weeton. One train per hour is available onwards to York. In peak hours there are extra services between Headingley and Leeds and between Headingley and Horsforth. Evenings and Sundays there is an hourly service in each direction.



- 4.5.13 Leeds Railway Station is located approximately 4.6km southeast of the site in the centre of Leeds. Whilst this is beyond a comfortable walking distance it is worth reiterating the guidance provided by PPG13 that "Cycling also has potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport."
- 4.5.14 A total of 26 bus services per hour provide a public transport link between the site and Leeds railway station during a typical Monday to Saturday daytime.
- 4.5.15 From Leeds railway station a considerable range of local and long distance train services are available.
- 4.5.16 I conclude that the site is accessible by public transport from a very wide and geographically spread catchment area.

## 4.6 Accessibility by Commercial Vehicles

4.6.1 The site would be safely and efficiently serviced using dedicated areas as shown on the architect's plans. The large retail units would be serviced from the rear (the extreme west of the site). The smaller units which provide a frontage to Bridge Road would be serviced using an area within the site accessed direct from the internal road network.

#### 4.7 Accessibility by Private Car and Taxi

4.7.1 The site is well located for access by private car and taxi. Access and egress is presently available via three junctions with Bridge Road. I consider that the existing access arrangements are somewhat confusing, inefficient and poorly located. It is therefore proposed to rationalise the access arrangements by providing a priority controlled entry-only junction towards the far east of the site and a signal controlled exit-only junction towards the western end, as shown on **Drawing Number NTP/7043/01** within **Appendix JGV3**. Customers will be able to access and egress the site to and from the east and west.



- 4.7.2 The benefits of the proposed access arrangements are as follows:
  - The scheme rationalises the site access arrangements, which are presently confusing, inefficient and poorly located.
  - The scheme provides new signals at the site exit junction, which will enable Leeds UTC to coordinate and control traffic more efficiently.
  - The scheme provides a new signal controlled pedestrian crossing of Bridge Road in the vicinity of the bus stops.
  - The scheme provides a new signal controlled pedestrian crossing facility across
    the Bridge Road site exit junction presently pedestrians are required to cross
    two uncontrolled junctions at the western end of the site.
  - The scheme removes the right-turn manoeuvre from Bridge Road (west of Savins Mill Way) to the site thereby freeing up link capacity and improving road safety on this important link.
- 4.7.3 Off-site highway works consist of the pedestrian crossing of Bridge Road. The modifications to the junction of Savins Mill Way/Bridge Road, which are identified on Drawing Number NTP/7043/01, are to be carried out by the Council, forming part of the safety scheme which is considered in more detail in Section 5 of my evidence. All off-site highway works take place wholly within highway land or land controlled by the Appellant and would be secured by a Section 278 agreement.
- 4.7.4 A total of 439 car parking spaces would be available for use by customers. This level of parking provision is in accordance with national and local guidelines. A total of 20 spaces would be designed and reserved for disabled users. In addition a small number of spaces would be provided to cater for staff car parking to the rear of the large retail units, at the extreme west of the site.



- 4.7.5 A car parking strategy has been agreed with the Council, as outlined below:
  - The site management company will have a presence on site during opening hours.

    They will be responsible for all matters relating to the operation of the car parks.
  - The site management company staff will be available to direct customer traffic to the most appropriate car parking area on busy shopping days.
  - Staff working at the retail units will be positively discouraged from using a car to travel
    to work, but those who do travel to work by car, and do not have a space allocated in
    the staff parking area, will be instructed to park at the extreme northern end of the
    northern car park. Staff vehicles will be identified by a unique badge which would be
    displayed within the vehicle.
  - A maximum parking stay of 4 hours would be imposed to discourage commuter parking but allow some use of the car for other/linked town centre uses.
- 4.7.6 A detailed consideration of the traffic implications of the proposed development is provided in Sections Five and Six of my evidence.

## 4.8 Travel Plan

- 4.8.1 The proposed development would be conditioned at the Planning Approval stage with the requirement to operate a Travel Plan.
- 4.8.2 The Travel Plan is a tool for building owners or occupiers to help reduce the environmental impact of travel. It analyses the key transport challenges and opportunities facing an employer, and provides the structure to develop an integrated, strategic response. The Plan relates to the management of all travel linked to the development. It is a package of practical measures aimed at encouraging staff and visitors to choose alternative modes of travel to that of the private car, particularly for single occupancy journeys.



A Travel Plan was prepared by RPS Transport Planning (Reference jgv/DLT0072/tp/v1) and submitted to the Council in support of the planning application in October 2004. The Travel Plan was subsequently amended following discussions and meetings with officers of the Council and resubmitted in November 2005 (Reference jgv/DLT0072/tp/v2). The Council made no further comments on Version 2 of the Travel Plan, which is provided as Appendix JGV4, until very recently. The recent comments, received on 16<sup>th</sup> January 2008, are also provided within Appendix JGV4. I have not been able to update the draft travel plan in light of these comments, however I will provide an updated travel plan at the inquiry which reflects these comments and the Appellant's response to them.



## 5 TRAFFIC-RELATED MATTERS

#### 5.1 Introduction

- 5.1.1 This section of my evidence considers traffic-related matters.
- 5.1.2 The proposed development involves the demolition of the existing 12,730sq.m GFA department store, which will be replaced by buildings with a total floorspace of 16,619sq.m. GFA, comprising a department store of 6,382sq.m. GFA. and new retail and café units totalling 10,237 sq.m. GFA. The actual increase in proposed gross floor area compared with that already existing on site is therefore relatively modest, totalling 3,889sq.m.

## 5.2 July 2004 Transport Assessment

- 5.2.1 A Transport Assessment was prepared by RPS Transport Planning in July 2004 (reference jgv/DLT0072/TA/v6) and submitted in support of the planning application for redevelopment of the appeal site. The local highway network which was analysed by the Transport Assessment consisted of the site access junctions with Bridge Road and the junction of Bridge Road with Savins Mill Way. Officers of the Council's highways department had previously agreed the local highway network area of interest. This 'local highway network' is identified on Plan 02 within Appendix JGV1.
- 5.2.2 The operation of this local highway network was tested using the TRANSYT program. The council requested amendments to the original submission as follows:
  - The signal operation was changed to an 80 second cycle time.
  - The give-way entrance to the site was modelled within TRANSYT.
  - The time required for pedestrians to cross at the exit from the site was increased to a total of 20 seconds.
  - Queue weightings were applied on the internal links.



5.2.3 This revised TRANSYT assessment was undertaken, as requested, and submitted to the Council on 5<sup>th</sup> November 2004 – the TRANSYT output and Link/Node Diagram is provided within **Appendix JGV5**.

#### 5.3 The Wider Highway Network

- After initial member comment was made regarding traffic concerns, Leeds City Council highway officers requested extensions to the TRANSYT model to include additional highway links and junctions. This 'wider highway network' is identified on Plan 02 within Appendix JGV1. RPS however contended that the additional work was not required because the modest increase in traffic associated with the proposed development would not have a material effect on these junctions.
- 5.3.2 Leeds City Council officers subsequently carried out their own traffic assessment of the operation of the gyratory and concluded that the increase in trips could be accommodated on the gyratory, and therefore did not therefore persist in their request that the "wider highway network" be considered by the Appellant. Having regard to this, in relation to highways, the Report to Panel on 23<sup>rd</sup> March 2006 stated that:

"The junction of Bridge Road and Savins Mill Way is to be reconfigured as part of this scheme and an additional traffic signal junction is to be provided at the southern exit to application site. The applicants have provided modelling information regarding the capacity of the junction. The work being done as part of the application is considered reasonable and realistic given the capacity issues at the gyratory. Given the nature of the scheme it is unlikely to generate traffic to have a further significant impact at the morning peak and its busiest times are likely to be at the weekends. Highways officers have considered the impact of the scheme in the light of other developments in Kirkstall and are content with the scheme. The applicant has agreed to provide a contribution to public transport – the amount is still under discussion. The design of the scheme should ensure better integration with development on the other side of Bridge Road and footpath links have been provided from the car park to Kirkstall Abbey fields."



5.3.3 It can be seen, therefore, that the Council's highways officers did not raise any objection on traffic or transport related issue, nor did members decide to refuse the application on any matter related to traffic or transportation

#### 5.4 Committed Development

- 5.4.1 Since the submission of the Transport Assessment, the proposed development at Kirkstall Forge has been granted planning permission. Kirkstall Forge is located west of the A65, approximately 1.5km northwest of the appeal site. The Kirkstall Forge development comprises some 1,385 new homes, 16,518sq.m. of office floorspace, a range of bars, restaurants, small-scale retail, health and fitness and spa, banking, a crèche, accommodation for social/community uses, and a riverside hotel. This proposal will have an effect on the levels of traffic using the local highway network in the vicinity of the appeal site.
- In order to update the information contained within the traffic assessment, for the purposes of this proof of evidence I have considered the impact of the development at Kirkstall Forge, and the effect that traffic generated by that development will have on the impact of the appeal proposal.
- It should however be noted in this context that when the Kirkstall Forge development planning application was submitted in 2005, it was accompanied by a Transport Assessment. The traffic analysis contained within the Kirkstall Forge Transport Assessment considered the additional traffic effect of the redevelopment of the Allders site which is currently proposed as at that time the Allders Planning Application had made sufficient progress through the planning system for the proposals to be considered by the Council as a 'committed development'.
- 5.4.4 Leeds City Council therefore considered the combined traffic effect of Kirkstall Forge and the Allders redevelopment and concluded that it was acceptable; the Council approved the Kirkstall Forge application in April 2006, subject to planning conditions and a Section 106 agreement.



I have considered the Kirkstall Forge development as a commitment and included the traffic which would be generated by that development in my updated traffic assessment.

## 5.5 Traffic Flows on The Wider Highway Network

- I remain of the view that the traffic associated with the proposed development will not have a material impact on the wider highway network, however for completeness, as part of the traffic analysis in this Proof of Evidence I have made an assessment of the wider highway network, as well as the local network.
- 5.5.2 Weekday and Saturday traffic flows on the wider highway network have been provided by the Council, and are contained within **Appendix JGV6**.
- 5.5.3 The data provided by the Council has been supplemented by traffic flow data collected at the site accesses on Friday 5<sup>th</sup> December 2003 and Saturday 6<sup>th</sup> December 2003, which is provided within **Appendix JGV7**. At this time the site was operating as an Allders Department Store, plus various ancillary operations such as warehousing and an internet retailing business.



5.5.4 The observed levels of traffic associated with the site on those two dates are shown in **Table 5.01** and **Table 5.02** respectively:

	TRAFFIC FLOW			
Hour Ending	Arr	Dep	2 Way	
17:00	66	86	152	
18:00	49	77	126	

Table 5.01 – Observed Traffic associated with Site on Friday December 2003.

	TRAFFIC FLOW			
Hour Ending	Arr	Dep	2 Way	
14:00	193	179	372	

Table 5.02 – Observed Traffic associated with Site on Saturday December 2003.

5.5.5 The above surveys were repeated in October 2007, when the site was operating as a BHS store. The data is provided within **Appendix JGV7**. The observed levels of traffic associated with the site on the Friday and Saturday are shown in **Table 5.03** and **Table 5.04** respectively:

	TRAFFIC FLOW			
Hour Ending	Arr	Dep	2 Way	
17:00	35	48	83	
18:00	23	43	66	

Table 5.03 - Observed Traffic associated with Site on Friday October 2007.

	TRAFFIC FLOW			
Hour Ending	Arr	Dep	2 Way	
14:00	130	156	286	

Table 5.04 – Observed Traffic associated with Site on Saturday October 2007.



- 5.5.6 Comparing **Table 5.01** with **Table 5.03**, and **Table 5.02** with **Table 5.04**, it can be seen that when operated by BHS the site attracts around 45% less traffic during the weekday evening peak and around 25% less traffic during the Saturday peak, compared with its operation as an Allders department store. I consider the reasons for this are twofold:
  - The December 2003 surveys were undertaken during the busy pre-Christmas trading peak, and it is anticipated that these would be somewhat higher than typical.
  - A department store, when operated by BHS, generates a lower level of traffic
    than one operated as a traditional department store, such as an Allders, due to
    the different type of its customer base.

#### 5.6 Assessment Periods

5.6.1 The Council have stated that the weekday evening peak hour 17:00 to 18:00 hours, and Saturday peak hour 13:00 to 14:00 hours, are appropriate for an assessment of the traffic effects of the proposed development.

## 5.7 Access Proposals

5.7.1 The proposed site access arrangements are identified on **Drawing Number DLT0072-37 Revision A** contained within **Appendix JGV3**. These arrangements were included in the traffic analysis section of the original Transport Assessment and are considered within my evidence.

## 5.8 Traffic Growth

5.8.1 There is little potential for peak hour traffic growth on the A65, although there is evidence of 'peak hour spreading', and this is agreed by the Council.



## 5.9 Committed Highways/Traffic Management Schemes

5.9.1 The Council has plans to amend the layout of the highway network in the vicinity of the site in order to improve road safety. This 'safety scheme' would include the banning of the right-turn movement from Commercial Road (south) to Kirkstall Lane (east). The right-turn manoeuvre would be achieved by travelling via a left-turn into Savins Mill Way, turning right onto Bridge Road and straight across Commercial Road to Kirkstall Lane.

5.9.2 Presently the right-turn movement from Savins Mill Way to Bridge Road is not permitted, and two lanes are available for the left-turn movement. Highway alterations at the junction of Savins Mill Way/Bridge Road are therefore required as part of the safety scheme, involving the formation of separate left-turn and right-turn lanes onto Bridge Road. Associated alterations to the layout of the junction of Bridge Road/Abbey Road/Commercial Street will also be made. These alterations have been approved by Leeds City Council and I have been informed by the Council that implementation of this scheme is imminent. I have therefore included these works in the updated traffic analysis.

## 5.10 Traffic Flows 'Without Development'

Using the data provided by the Council, and provided within Appendix JGV6, I have calculated the 'without proposed development' traffic flows. These flows include the committed development, the safety scheme redistribution and the observed flows associated with the appeal site allowing for the traffic redistribution effect of the proposed site access improvements, as shown on the traffic flow diagrams Figure 01 and Figure 02 – all traffic flow diagrams are contained within Appendix JGV8.



## 5.11 Traffic Flows associated with Proposed Development

- 5.11.1 The proposed development involves the demolition of the existing 12,730sq.m GFA department store, which will be replaced by buildings with a total floorspace of 16,619sq.m. GFA, comprising a department store of 6,382sq.m. GFA. and new retail and café units totalling 10,237 sq.m. GFA.
- 5.11.2 The methodology I have used to forecast the traffic associated with the proposed development, and which has been agreed with the Council, is as follows:
  - The December 2003 traffic generated by the 12,730sq.m former Allders department store is assumed to remain constant, i.e. the same level of traffic is assumed to be generated by the new 6,382sq.m. department store. This traffic was at the time using the 'wider highway network' and is therefore included within the traffic flows which were observed in 2004 and which have been provided by the Council.
  - The TRICS [Version 2007(b)] database (Retail Park excluding food category)
    has been used to estimate the traffic associated with the additional 10,237 sq.m.
    GFA of retail and café units. All TRICS output is provided as Appendix JGV9.
- 5.11.3 I consider that use of the December 2003 observed traffic associated with the store when operated by Allders will ensure a particularly robust analysis of the traffic effects of the development for the following reasons:
  - The traffic associated with the department store has not been reduced pro-rata (i.e. proposed 6,382sq.m. GFA compared with existing 12,730sq.m. GFA).
  - The existing traffic movements were observed during the busy pre-Christmas trading peak.
  - A department store, when operated by BHS, generates a considerably lower level of traffic than one operated as a traditional department store, such as an Allders.



- 5.11.4 A consideration of the TRICS database survey site information shows that of the 14 sites available for use in the Retail Park Excluding Food category, the majority are in 'edge of town' locations where walking is typically a less convenient mode of transport. Only one TRICS site is located in a 'neighbourhood centre' similar to the Kirkstall proposed redevelopment site. The TRICS information also shows that the majority of sites are served by just two buses per hour, or less, during the daytime Monday to Saturday. In addition, it appears from the information available that none of the sites used for the TRICS analysis operate a Travel Plan.
- 5.11.5 Given that visitors to the majority of sites used for the TRICS traffic generation analysis have a high reliance on use of the private car, I anticipate that average TRICS trip rates will provide a particularly robust analysis, and probably an over-estimate, of the traffic generating characteristics of the proposed development; the appeal site is very well located for access by a range of transport modes, and there will be a requirement as part of any planning permission to implement a strong Travel Plan.
- 5.11.6 The following weekday and Saturday assessment period traffic flow forecasts for the proposed new non-food retail/restaurant units are based on TRICS average trip rates:

TRAFFIC FLOW ON WEEKDAY 17:00 to 18:00 HOURS		TRAFFIC FLOW ON SATURDAY 13:00 to 14:00 HOURS			
Arr	Dep	2 Way	Arr	Dep	2 Way
129	143	272	299	287	586

Table 5.05 – Assessment Period Forecast Traffic associated with 10,237sq.m. Non-Food Retail/Restaurant units.

I anticipate that a significant number of visitors to the new non-food retail and restaurant units would also visit the department store. I consider it is necessary to make an allowance for dual trip making, particularly given that the traffic generation forecasts are, to start off with, likely to be an overestimate. Consequently the level of traffic associated with the new non-food retail units has been reduced by 25%. This reduction has been agreed with the Council.



5.11.8 The DfT Guidance on Transport Assessment states in paragraph 4.67 that:

"In some circumstances, the extent of access by non-car modes of transport may suggest an adjustment of development-generated vehicle trips. This is likely to be the case where new sustainable transport infrastructure, such as cycleway or bus services, is proposed by the developer. It may also be appropriate when a proposed development is located where there is a particularly high-quality and accessible existing public transport system."

#### 5.11.9 It continues in paragraph 4.71:

"It is important that the appropriate level of reduction, if any, should be agreed among the developer, the LHA and/or the HA preferably at the pre-application consultation stage."

5.11.10 The resulting assessment period traffic forecasts, allowing for dual-purpose trips, are provided in **Table 5.06** below:

		WEEKDAY	TRAFFIC FLOW ON SATURDAY 13:00 to 14:00 HOURS					
Arr	00 to 18:00 F Dep	2 Way	Arr	Dep	2 Way			
97	107	204	224	216	440			

Table 5.06 – Assessment Period Forecast Traffic associated with 10,237sq.m. Non-Food Retail/Restaurant units, with allowance for Dual-Purpose Trips.

## 5.12 Trip Distribution and Assignment

## 5.12.1 The DfT Guidance on Transport Assessment states in paragraph 4.64 that:

"As certain types of development, particularly retail, can have a significant effect on vehicular traffic, consideration may be given to the different types of vehicular trips that are likely to be generated, such as:

NTP

**New trips** – these are trips that do not appear anywhere on the road network prior to the opening of the development. For many types of development, this element of generated trips can be relatively small; however, it is customary to consider all trips from residential developments as being new to the network.

Pass-by trips – these are trips that are already present on the road network directly adjacent to the point(s) of access to the site, which will turn into the site. This type of trip is likely to be relevant only where the site is located on a major arterial route within an urban area. If it can be clearly demonstrated that there will be a proportion of true 'pass-by' trips that were already on the network, then these can be deducted from the calculated generation for the development.

Linked trips – these are trips that will have multiple destinations either within the proposed development site. Examples include trips to food and non-food retail, between both the development site and existing adjacent sites or between the development site and an established town centre. Where there is a high probability that there will be a proportion of linked trips between two uses on a development, it is customary only to 'count' those trips once for the development as a whole, and not effectively double-count them by attributing two visits and departures affecting the sections of highway network being assessed.

**Diverted trips** – these are trips that are already present on the local road network but not the road(s) from which site access is taken and will divert from their existing route to access the site. These are similar to pass-by trips, but they have to deviate to make use of the development under consideration. It is important to identify the potential for such diversion to occur so as to ensure that the correct flows are assessed at specific junctions on the highway network. Diverted trips will tend to return to their original route after visiting the development under consideration.

NTP

**Transferred trips** – these are trips that are already present on the local road network, accessing similar existing sites in close proximity to the proposed development and will have the potential to transfer their destination to the proposed development. Slightly different from diverted trips, these wholly transfer from using an existing development to a new one, e.g. shoppers switching to a new supermarket that is more conveniently located for them."

5.12.2 It continues in paragraph 4.65:

"The level of reduction in vehicular trip generation based on the mix of trips, as set out above, will be to a degree subjective and dependent on the specific characteristics and location of the proposed development. The methodology for deriving the development's vehicular trips and appropriate level of trip reduction, if any, should be agreed among the developer, the LHA and/or the HA during the pre-application consultations."

5.12.3 It is generally accepted that new retail development primarily results in a redistribution of existing shopping trips, rather than the creation of new trips. It is therefore anticipated that the trips attracted to the proposed development would be either redistributed trips which transfer from other similar destinations, or linked trips currently being made on the A65 and B6157.

5.12.4 The proposed development provides a local retail opportunity for people living or working in the North West Leeds area. Such a facility would reduce overall travel demand by reducing the need for local people to travel to similar destinations further away, thereby making car trips shorter, and allowing some customers to use walking and cycling as a replacement for the car as the mode of transport.



- 5.12.5 The proposed development site is ideally located for linked trip making, being in a designated town centre and on two busy traffic corridors. The opportunity will be available to extend existing trips associated with the adjacent Morrison's Superstore and associated retail park and other nearby shops and leisure facilities. The opportunity will also be available to divert existing trips (work to home trips home to shop trips for example) already being made on the A65 and B6157 into the proposed development. The ability to link trips provides scope to allow one trip to serve several purposes, thereby providing the potential to reduce overall travel demand.
- 5.12.6 Having regard to the location of the site and the guidance provided in the above publications, I consider the trip type proportions provided in **Table 5.07**, which have previously been agreed with the Council, are appropriate:

			7:00 to 18:00 JRS	SATURDAY 13:00 to 14:00 HOURS				
Trip type	Proportion	Arrivals	Departures	Arrivals	Departures			
Primary New	0%	0	0	0	0			
Primary Transferred	35%	34	37	78	75			
Linked Pass-by	35%	34	38	79	76			
Linked Diverted	30%	29	32	67	65			
	Total	97	107	224	216			

Table 5.07 – Trip Type Proportions

I have used the same trip type proportions for the weekday and Saturday. This is partially because the levels of traffic observed on the wider highway network are similar on the weekday and the Saturday. I anticipate that on a weekday evening peak the linked trips will tend to be part of a work to home trip, whilst on a Saturday peak they will tend to be part of other trip types, such as home to shop, home to leisure, social visit to home, etc. I consider that overall the trip type proportions will be similar.



5.12.8 The trip distribution proportions shown in **Table 5.08** below, which is based on the existing trip making pattern at the Bridge Road store and has been agreed with the Council, has been used to assign the primary transferred trips to the local highway network:

To/From	Proportion
Bridge Road (West)	30%
Abbey Road (North)	25%
Kirkstall Lane (East)	20%
Commercial Road (South)	25%

Table 5.08 - Trip Distribution

- 5.12.9 The primary transferred trips are identified on **Figure 03/Figure 04**.
- 5.12.10 The linked pass-by trips are calculated based upon the levels of traffic passing the site on Bridge Road, and are identified on **Figure 05/Figure 06**. The linked diverted trips are calculated based upon the levels of traffic using Commercial Road, and are identified on **Figure 07/Figure 08**.
- 5.12.11 The total additional development trips are identified on **Figure 09/Figure 10**.
- On the basis of the total additional trips shown on **Figures 09/10**, I consider that the net increases in traffic flows resulting from the proposed development are not material beyond the 'local highway network', typically being no higher than a two-way increase of 30 vehicles per hour; no more than an additional vehicle every two minutes.

NTP

5.12.13 Paragraph 2.11 of the DfT Guidance on Transport Assessment indicates that an increase of over 30 vehicles per hour is a useful 'rule of thumb' for considering materiality and triggering a requirement for a Transport Assessment:

"Appendix B provides suggested thresholds below which a formal assessment may not be needed, and above which the preparation of a TS or a TA would be appropriate. The thresholds in Appendix B are based upon scenarios which would typically generate 30 two-way peak hour vehicle trips. Whilst there is no suggestion that 30 two-way peak hour vehicle trips would, in themselves, cause a detrimental impact, it is a useful point of reference from which to commence discussions."

# 5.13 Traffic Flows 'With Development'

5.13.1 The 'with development' traffic flows are calculated by adding the total additional development trips shown on **Figure 09/Figure 10** to the base traffic flows (which includes the existing plus the redistributed department store traffic plus the Kirkstall Forge development traffic flows plus the traffic safety scheme redistribution effects) shown on **Figure 01/Figure 02**.

5.13.2 The 'with development' traffic flows are shown on **Figure 11/Figure 12** 



#### 6 OPERATIONAL ANALYSIS

#### 6.1 Introduction

6.1.1 This section of my evidence provides an operational analysis of the traffic effects of the proposed development.

# 6.2 TRANSYT Analysis

6.2.1 The operation of the wider highway network, in the weekday evening and Saturday 'without development' and 'with development' scenarios, has been tested using the TRANSYT program.

# 6.2.2 The TRANSYT (Version 12) User Guide states that:

"TRANSYT is an off-line computer program for determining and studying optimum fixed time, co-ordinated, traffic signal timings in any network of roads for which the average traffic flows are know. A traffic model of the network calculates a Performance Index (PI) in monetary terms, which is the weighted sum of all vehicle delay and stops. An optimising routine systematically alters signal offsets and/or allocation of green times to search for the timings which reduce the PI to a minimum value. TRANSYT is the most widely used program of its type throughout the world."

- I have undertaken my operational analysis using, as a basis, a TRANSYT model which was provided by the Council. This TRANSYT model has been used by the Council as a basis to consider a range of proposed developments and potential highway modifications in the vicinity of the Kirkstall District Centre. I am confident this is an appropriate model to be used to quantify the changes in operation of the wider highway network caused by the traffic effects of the proposed Bridge Road development.
- 6.2.4 The Link/Node diagram for the existing TRANSYT model is provided as **Figure 13** within **Appendix JGV8**.



- The existing weekday evening peak and Saturday peak output from the TRANSYT model provided by the Council is contained within **Appendix JGV10**. These models use traffic data in the existing scenario, that is using data collected in 2004, without Kirkstall Forge and without the highway changes and traffic reassignment caused by the safety scheme. The Degree of Saturation and Mean Maximum Queue for each link which forms part of the wider highway network in the existing scenario are summarised in **Table 10.1** in **Appendix JGV10**.
- 6.2.6 I have then modified the Council's TRANSYT model to include the changes resulting from the safety scheme and to include the signal controlled site exit junction and the priority controlled right-turn entry into the site. All saturation flows, lags, etc., have been retained as provided by the Council, where these are available.
- In the first set of TRANSYT analyses I have used the existing signal timings, these being provided by the Council within the TRANSYT model of the existing weekday evening peak and Saturday peak scenario. It has been necessary to input timings for the site access and to modify timings for the junction of Bridge Road/Commercial Road and Bridge Road/Savins Mill Way to allow for the changes brought about by the safety scheme. The TRANSYT output is provided as **Appendix JGV11**. The Degree of Saturation and Mean Maximum Queue for each link which forms part of the wider highway network, and the change in these values moving from the 'without development' scenario to the 'with development' scenario, are summarised in **Table 11.1/Table 11.2** provided in **Appendix JGV11**.
- 6.2.8 Taking the 90% Degree of Saturation (DoS) as a measure of a link approaching capacity it can be seen that using the Council's signal timings the local highway network is operating within capacity during the weekday evening and Saturday peak periods in both the 'without development' and 'with development' scenarios.



- 6.2.9 It can also be seen that the majority of links of the wider highway network are operating within capacity during the weekday evening and Saturday peak periods in both the 'without development' and 'with development' scenarios. The effect of the traffic associated with the proposed development is small, with some queues increasing slightly and others reducing slightly. Overall the impact is not material, even on the very robust basis arising from the inputs into the model.
- 6.2.10 It is clear to me that as a result of the changes in traffic volumes generated by the Kirkstall Forge development and changes in traffic assignment caused by the safety scheme, and indeed traffic generation and reassignment caused by the proposed Bridge Road development, it will be necessary to modify the traffic signal timings on the wider highway network to optimise signal co-ordination to maximise the throughput of traffic whilst minimising delays. In practice the Council's traffic signal engineer would iteratively change the signal timings as a result of on-site observations, as traffic volumes and traffic turning movements change over time, but using the existing timings and data provided by TRANSYT as a starting point.
- 6.2.11 Consequently in the second set of analyses I have allowed the TRANSYT program to fully optimise the timings in both the 'without development' scenario and the 'with development' scenario.
- The Degree of Saturation and Mean Maximum Queue for each link which forms part of the wider highway network, and the change in these values moving from the 'without development' scenario to the 'with development' scenario, are summarised on Table 11.3/Table 11.4 provided in Appendix JGV11.



- 6.2.13 It can be seen that the local highway network is operating within capacity during the weekday evening and Saturday peak periods in both the 'without development' and 'with development' scenarios using the optimised timings. Also the majority of links of the wider highway network are operating within capacity during the weekday evening and Saturday peak periods in both the 'without development' and 'with development' scenarios. The effect of the traffic associated with the proposed development is small, with some queues increasing slightly and others reducing slightly. I do not consider these changes to be material.
- 6.2.14 The TRANSYT analysis demonstrates that the local highway network will continue to operate satisfactorily after opening of the proposed redevelopment scheme, even with the Kirkstall Forge development in place. Furthermore the output of the TRANSYT analysis demonstrates that the proposed development will not have a material effect on the operation of the wider highway network.



# 7 SUMMARY AND CONCLUSION

#### 7.1 Introduction

7.1.1 My evidence dealing with transport and highway matters is submitted in support of an appeal by Allders Department Stores Ltd (in Liquidation) against the refusal of planning permission by Leeds City Council for the redevelopment of the former Allders Department Store site, which is now operated by BHS, located north of Bridge Road in Kirkstall, Leeds.

# 7.2 Site Location and Description

- 7.2.1 The site is located in Kirkstall, approximately 5km northwest of the centre of Leeds.
- 7.2.2 The site currently contains a department store operated by BHS. The existing buildings have a combined Gross Floor Area of 12,730sq.m. Vehicular and pedestrian access is available from a number of locations on Bridge Road.

#### 7.3 Proposed Development

- 7.3.1 The proposed development involves the demolition of the existing department store, which will be replaced by buildings with a total floorspace of 16,619sq.m. GFA, comprising a department store of 6,382sq.m. GFA. and new retail and café units totalling 10,237 sq.m. GFA. The actual increase in proposed gross floor area compared with that already existing on site is therefore relatively modest, totalling 3,889sq.m.
- 7.3.2 Pedestrian access would be provided using a dedicated footpath link with Bridge Road. Vehicular access to the site would be provided via improved junctions with Bridge Road.



# 7.4 Background

- 7.4.1 A Transport Assessment of the proposals for redevelopment was prepared by RPS Transport Planning in July 2004 and submitted to the Council in support of the planning application. Having considered that assessment, Leeds City Council Highways Officers did not object to the proposal. The application was subsequently refused by the Council on 18 May 2006 with two reasons for refusal, neither of the reasons being traffic, transport or highways related. The refusal was against the Officer's recommendation for approval.
- 7.4.2 The Council subsequently stated that the position remains they raise no highway or transport objection and will not be calling highway evidence at the inquiry. However, they have asserted that the "highway position has materially changed" since the submission of the original transport assessment. Also the Kirkstall Valley Community Association has been given Rule 6 status and has raised traffic/highway issues.
- 7.4.3 In this proof I have addressed both the question of changes in circumstances concerning traffic and transportation issues since the original Transport Assessment and certain relevant matters raised in the Kirkstall Valley Community Association's statement of case.

## 7.5 Transport Related Policy and Guidance

- 7.5.1 A consistent theme stated in Government Policy is the need for the integration of planning and transport at national, regional and local levels, with a view to achieving Government objectives for sustainable development.
- 7.5.2 PPS1 encourages authorities to site new development where it can be well served by public transport, whilst also noting that planning should seek actively to bring vacant and underused previously developed land back into beneficial use.



- 7.5.3 The objectives of PPG13 are "to integrate planning and transport at the national, regional, strategic and local level". PPG13 identifies a key planning objective:
  - "To ensure that jobs, shopping, leisure facilities and services are accessible by public transport, walking and cycling. This is important for all, but especially for those who do not have regular use of a car and to promote social inclusion."
- 7.5.4 The Leeds UDP reflects national guidance, having the strategic aim "to encourage development in locations that will reduce the need for travel, promote the use of public transport and other sustainable modes, reduce the journey lengths of those trips which are made by car, whilst promoting safe travel, economic development and protection of the environment."
- 7.5.5 Policy T2 of the UDP states that new development should normally "be served adequately by existing or programmed highways or by improvements to the highway network which are funded by the developer via planning conditions on planning permissions or planning obligations, and will not create or materially add to problems of safety, environment or efficiency on the highway network.
- 7.5.6 The Department for Transport's Guidance on Transport Assessment reiterates the guidance provided by PPG13 in relation to making it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking, and cycling. It states that it is considered good transport planning practice to demonstrate that other opportunities "have been fully explored before considering the provision of additional road space such as new roads or major junction upgrades."



# 7.6 Accessibility

- 7.6.1 Within the site a high quality pedestrian network will be provided. The infrastructure available for visitors accessing the appeal site on foot is already excellent, and this will be improved as part of the development proposals, with an additional crossing facility being provided to facilitate the safe movement of pedestrians across Bridge Road on the frontage of the site in the vicinity of the existing bus stops. A large built-up part of northwest Leeds lies within walking distance of the site.
- 7.6.2 I conclude that the site is highly accessible on foot from a considerable catchment area.
- 7.6.3 A variety of cycle facilities are available in the vicinity of the site. Within the site covered cycle parking spaces, provided in accordance with Leeds City Council guidelines, would be available at appropriate locations within the site that are convenient for use by cyclists. A large part of the north west of Leeds lies within cycling distance of the site.
- 7.6.4 I conclude that the site is highly accessible by cycle from a considerable catchment area.
- 7.6.5 The site benefits from its town centre location, being on or close to several bus routes. The opportunity will be available for bus passengers to wait in comfort at one of the cafés that are proposed as part of the development along the Bridge Road frontage.
- 7.6.6 Access to the site is available from a large part of Leeds via 30 bus services per hour during the Monday to Saturday daytime. Bus access will be improved by the A65 Quality Bus Corridor scheme. The site is readily accessible from Headingley railway station. The site is also accessible from Leeds Railway Station via bus, local train and by cycle.
- 7.6.7 I conclude that the site is highly accessible by public transport from a very wide and geographically spread catchment area.



- 7.6.8 The site is well located for access by private car and taxi. It is proposed to rationalise the existing access arrangements by providing a priority controlled entry-only junction towards the far east of the site and a signal controlled exit-only junction towards the western end. The proposed site access scheme will provide significant benefits, not just for visitors to the redevelopment site, but for pedestrians, public transport users and vehicle users in general.
- 7.6.9 Within the site a car parking strategy has been agreed with the Council to ensure parking is sufficient without being excessive. The proposed development would be conditioned at the Planning Approval stage with the requirement to operate a Travel Plan to minimise the traffic associated with the site.
- 7.6.10 The proposed development provides a local retail opportunity for people living or working in the North West Leeds area. Such a facility would reduce overall travel demand by reducing the need for local people to travel to similar destinations further away, thereby making car trips shorter, and allowing some customers to use walking and cycling as a replacement for the car as the mode of transport. The proposed development site is ideally located for linked trip making, being in a designated town centre and on two busy traffic corridors. The ability to link trips provides scope to allow one trip to serve several purposes, thereby providing the potential to reduce overall travel demand.

## 7.7 Operational Analysis

- 7.7.1 Prior to the refusal of planning permission, Leeds City Council officers carried out their own traffic assessment of the proposed development, stating that:
  - "Highways officers have considered the impact of the scheme in the light of other developments in Kirkstall and are content with the scheme."
- 7.7.2 Since the submission of the original Transport Assessment, the development at Kirkstall Forge has been granted planning permission. Prior to granting planning permission for that, however, Leeds City Council considered the combined traffic effect of Kirkstall Forge and the Allders redevelopment and concluded that it was acceptable.



- 7.7.3 Notwithstanding the above, I have undertaken my own operational analysis of the wider highway network, including the impact of the recently committed development at Kirkstall Forge, and taking account of the Council's nearby highway safety scheme.
- 7.7.4 Weekday and Saturday traffic flows on the wider highway network have been provided by the Council. This has been supplemented by traffic flow data collected at the site accesses. Using this data I have calculated the 'without proposed development' traffic flows.
- 7.7.5 I have used a combination of observed traffic flow data and TRICS database data to forecast the traffic associated with the proposed development. I consider that my forecast is a particularly robust one.
- 7.7.6 The operation of the wider highway network, in the weekday evening and Saturday 'without development' and 'with development' scenarios, has been tested using the TRANSYT program. I have undertaken my operational analysis using, as a basis, a TRANSYT model which was provided by the Council.
- 7.7.7 The TRANSYT analysis demonstrates that the local highway network will continue to operate satisfactorily after opening of the proposed redevelopment scheme, even with the Kirkstall Forge development in place. Furthermore the output of the TRANSYT analysis demonstrates that the proposed development will not have a material effect on the operation of the wider highway network.
- 7.7.8 I conclude that the proposed development provides satisfactory access to the road network.



# 7.8 Overall Summary

- 7.8.1 My evidence has demonstrated how the proposed development fully accords with national and local transport related policies by:
  - Being located within an established retail development site within the Kirkstall Town Centre.
  - Being readily accessible by a range of transport modes.
  - Being located where the need for people to travel, particularly by car, can be minimised.
  - Providing adequate servicing and parking for motor vehicles and cycles.
  - Facilitating multi-purpose trips, walking, cycling and the use of public transport.
  - Helping to reduce the growth in the length and number of motorised journeys.
  - Reducing reliance on the private car.
  - Providing satisfactory access to the road network.

# 7.9 Overall Conclusion

7.9.1 Having regard to the above, it is respectfully requested that the appeal is allowed and that planning permission is granted subject to appropriate conditions.



# JGV11

			17:00-18	ekday ::00 Hours elopment	17:00-18	ekday ::00 Hours velopment	17:00-18 Cha With Dev	Weekday 17:00-18:00 Hours Change With Development		
Junction	Link Description	Link No.	DoS	MMQ	DoS	MMQ	DoS	MMQ		
Bridge Road/site entry	Bridge Road right turn	77	2	0	9	0	7	0		
	Bridge Road westbound straight ahead	101	85	16	84	15	-1	-1		
Bridge Road/Savins	Savins Mill Way left turn	102	86	12	85	12	-1	0		
Mill Way	Bridge Road right turn	103	50	7	52	7	2	0		
IVIIII VVay	Bridge Road eastbound straight ahead	104	69	8	74	10	5	2		
	Savins Mill Way right turn	105	66	5	76	6	10	1		
	Savins Mill Way westbound through junction	202	78	17	80	18	2	1		
Savins Mill	Savins Mill Way left turn to Morrisons	203	53	9	52	9	-1	0		
Savins Mill	Morrisons right rurn out	204	85	9	85	9	0	0		
Way/Morrisons	Morrisons left turn out	205	39	5	39	5	0	0		
	Savins Mill Way right turn to Morrisons	206	58	4	58	4	0	0		
	Savins Mill Way eastbound through junction	207	18	1	20	1	2	0		
	Abbey Rd Straight ahead then right to Savins Mill Way	301	44	7	46	7	2	0		
<u> </u>	Abbey Rd straight ahead & left turn	302	76	18	75	17	-1	-1		
	Kirkstall Lane right turn	303	53	4	54	4	1	0		
	Kirkstall Lane straight ahead	304	60	9	61	9	1	0		
Road/Bridge Road	Kirkstall Lane left turn	305	23	3	23	3	0	0		
Road/Bridge Road	Commercial Road left turn	306	3	0	6	0	3	0		
	Commercial Road straight ahead	307	76	11	75	10	-1	-1		
	Bridge Road left turn	308	83	12	84	13	1	1		
	Bridge Road straight ahead	309	63	7	66	7	3	0		
	Commercial Road right turn	401	47	9	49	10	2	1		
Commercial	Commercial Road southbound straight ahead	402	40	0	39	0	-1	0		
Road/Savins Mill	Commercial Road northbound straight ahead	403	102	44	103	46	1	2		
Way	Commercial Road left turn	404	72	12	72	12	0	0		
vvay	Savins Mill Way right turn	405	79	8	84	9	5	1		
	Savins Mill Way left turn	406	78	7	78	7	0	0		
	Morris Lane right turn	701	18	2	19	2	1	0		
	Morris Lane straight ahead & left turn	702	45	5	45	5	0	0		
Kirkstall	Kirkstall Lane westbound all movements	703	110	40	112	43	2	3		
Lane/Kirkstall Hill	Kirkstall Hill all movements	704	100	29	101	30	1	1		
	Kirkstall Lane eastbound right turn	705	41	2	41	2	0	0		
	Kirkstall Lane eastbound straight ahead & right turn	706	89	15	91	16	2	1		
	Bridge Road straight ahead	901	92	13	93	14	1	1		
Bridge Road/Wyther	Bridge Road left turn	902	74	12	74	11	0	-1		
Lane	Wyther Lane all movements	903	90	12	90	12	0	0		
	Leeds & Bradford Road all movements	904	100	21	101	23	1	2		
Broad Lane/Wyther	Wyther Lane southbound all movements	1001	94	28	94	28	0	0		
,	Wyther Lane northbound all movements	1002	100	20	100	21	0	1		
Lane	Broad Lane all movements	1003	104	19	104	20	0	1		
	Bridge Road eastbound straight ahead	1401	80	13	80	13	0	0		
Bridge Road/Site	Site Exit right turn	1402	6	0	15	1	9	1		
Exit	Site Exit left turn	1403	18	1	43	3	25	2		
	Bridge Road westbound straight ahead	1404	46	15	46	15	0	0		

			13:00-14	urday :00 Hours elopment	13:00-14	urday :00 Hours velopment	13:00-14: Cha With Dev	nge elopment
Junction	Link Description	Link No.	DoS	MMQ	DoS	MMQ	DoS	MMQ
Bridge Road/site entry	Bridge Road right turn	77	11	0	30	0	19	0
	Bridge Road westbound straight ahead	101	75	12	73	11	-2	-1
Bridge Road/Savins	Savins Mill Way left turn	102	75	10	73	10	-2	0
Mill Way	Bridge Road right turn	103	68	8	73	9	5	1
wiiii vvay	Bridge Road eastbound straight ahead	104	55	7	66	10	11	3
	Savins Mill Way right turn	105	61	7	76	9	15	2
	Savins Mill Way westbound through junction	202	88	18	94	22	6	4
	Savins Mill Way left turn to Morrisons	203	75	12	75	12	0	0
Way/Morrisons	Morrisons right rurn out	204	69	8	69	8	0	0
	Morrisons left turn out	205	36	4	36	4	0	0
	Savins Mill Way right turn to Morrisons	206	94	10	94	10	0	0
	Savins Mill Way eastbound through junction	207	29	2	33	2	4	0
	Abbey Rd Straight ahead then right to Savins Mill Way	301	58	9	63	10	5	1
Commercial	Abbey Rd straight ahead & left turn	302	71	16	69	16	-2	0
	Kirkstall Lane right turn	303	39	3	41	3	2	0
	Kirkstall Lane straight ahead	304	42	5	45	6	3	1
	Kirkstall Lane left turn	305	34	5	34	5	0	0
rtodd/Bridge rtodd	Commercial Road left turn	306	9	0	17	0	8	0
	Commercial Road straight ahead	307	67	17	65	15	-2	-2
	Bridge Road left turn	308	64	12	66	11	2	-1
	Bridge Road straight ahead	309	33	3	39	3	6	0
	Commercial Road right turn	401	64	12	69	13	5	1
Commercial	Commercial Road southbound straight ahead	402	48	2	46	1	-2	-1
Road/Savins Mill	Commercial Road northbound straight ahead	403	79	16	81	17	2	1
Way	Commercial Road left turn	404	72	12	72	12	0	0
vvay	Savins Mill Way right turn	405	85	11	95	16	10	5
	Savins Mill Way left turn	406	59	6	59	6	0	0
	Morris Lane right turn	701	34	3	34	3	0	0
	Morris Lane straight ahead & left turn	702	59	7	59	7	0	0
Kirkstall	Kirkstall Lane westbound all movements	703	91	15	94	17	3	2
Lane/Kirkstall Hill	Kirkstall Hill all movements	704	83	13	84	13	1	0
	Kirkstall Lane eastbound right turn	705	54	3	57	3	3	0
	Kirkstall Lane eastbound straight ahead & right turn	706	75	12	78	12	3	0
	Bridge Road straight ahead	901	69	9	70	9	1	0
Bridge Road/Wyther	Bridge Road left turn	902	79	13	80	14	1	1
Lane	Wyther Lane all movements	903	70	11	71	11	1	0
	Leeds & Bradford Road all movements	904	71	9	73	9	2	0
Broad Lane/Wyther	Wyther Lane southbound all movements	1001	59	1	60	1	1	0
Lane	Wyther Lane northbound all movements	1002	76	7	78	8	2	1
Lanc	Broad Lane all movements	1003	79	11	80	11	1	0
	Bridge Road eastbound straight ahead	1401	78	18	79	18	1	0
Bridge Road/Site	Site Exit right turn	1402	12	1	27	2	15	1
Exit	Site Exit left turn	1403	37	3	82	8	45	5
	Bridge Road westbound straight ahead	1404	40	13	39	12	-1	-1

			17:00-18 No Dev	ekday :00 Hours elopment	17:00-18 With Dev	ekday :00 Hours velopment	With Dev	00 Hours inge elopment
Junction	Link Description	Link No.	DoS	MMQ	DoS	MMQ	DoS	MMQ
Bridge Road/site entry	Bridge Road right turn	77	2	0	9	0	7	0
	Bridge Road westbound straight ahead	101	84	16	85	15	1	-1
Bridge Road/Savins	Savins Mill Way left turn	102	88	10	85	12	-3	2
Mill Way	Bridge Road right turn	103	49	6	53	7	4	1
Willi VVay	Bridge Road eastbound straight ahead	104	67	12	75	12	8	0
	Savins Mill Way right turn	105	78	6	76	6	-2	0
	Savins Mill Way westbound through junction	202	78	12	80	11	2	-1
	Savins Mill Way left turn to Morrisons	203	53	6	53	6	0	0
Way/Morrisons	Morrisons right rurn out	204	76	8	76	8	0	0
	Morrisons left turn out	205	39	5	39	5	0	0
	Savins Mill Way right turn to Morrisons	206	68	5	68	5	0	0
		207	19	1	21	1	2	0
	Abbey Rd Straight ahead then right to Savins Mill Way	301	46	7	48	7	2	0
	Abbey Rd straight ahead & left turn	302	79	18	78	18	-1	0
Commercial	Kirkstall Lane right turn	303	52	4	53	4	1	0
	Kirkstall Lane straight ahead	304	59	8	60	8	1	0
	Kirkstall Lane left turn	305	23	3	23	3	0	0
Noad/Bridge Noad	Commercial Road left turn	306	3	0	7	0	4	0
	Commercial Road straight ahead	307	80	13	79	13	-1	0
	Bridge Road left turn	308	81	13	82	12	1	-1
	Bridge Roadstraight ahead	309	61	8	65	6	4	-2
	Commercial Road right turn	401	78	12	76	12	-2	0
Commercial	Commercial Road southbound straight ahead	402	41	1	41	1	0	0
Road/Savins Mill	Commercial Road northbound straight ahead	403	80	21	84	23	4	2
Way	Commercial Road left turn	404	59	9	60	9	1	0
vvay	Savins Mill Way right turn	405	71	7	76	8	5	1
	Savins Mill Way left turn	406	68	7	68	7	0	0
	Morris Lane right turn	701	19	2	19	2	0	0
	Morris Lane straight ahead & left turn	702	47	5	47	5	0	0
Kirkstall	Kirkstall Lane westbound all movements	703	105	30	106	33	1	3
Lane/Kirkstall Hill	Kirkstall Hill all movements	704	104	37	104	38	0	1
	Kirkstall Lane eastbound right turn	705	41	2	42	2	1	0
	Kirkstall Lane eastbound straight ahead & right turn	706	86	15	88	15	2	0
	Bridge Road straight ahead	901	84	11	85	11	1	0
Bridge Road/Wyther	Bridge Road left turn	902	74	7	75	10	1	3
Lane	Wyther Lane all movements	903	97	21	98	26	1	5
	Leeds & Bradford Road all movements	904	92	15	93	15	1	0
Broad Lane/Wyther	Wyther Lane southbound all movements	1001	97	29	97	31	0	2
Lane	Wyther Lane northbound all movements	1002	95	16	96	17	1	1
Lane	Broad Lane all movements	1003	45	6	45	6	0	0
	Bridge Road eastbound straight ahead	1401	73	4	76	5	3	1
Bridge Road/Site	Site Exit right turn	1402	11	0	21	1	10	1
Exit	Site Exit left turn	1403	32	1	60	4	28	3
	Bridge Road westbound straight ahead	1404	42	10	43	10	1	0

			13:00-14 No Dev	urday ::00 Hours elopment	13:00-14 With Dev	urday k:00 Hours velopment	13:00-14 Cha With Dev	irday :00 Hours ange relopment
Junction	Link Description	Link No.	DoS	MMQ	DoS	MMQ	DoS	MMQ
Bridge Road/site entry	Bridge Road right turn	77	11	0	30	0	19	0
	Bridge Road westbound straight ahead	101	78	8	73	11	-5	3
Bridge Road/Savins	Savins Mill Way left turn	102	73	9	73	7	0	-2
Mill Wav	Bridge Road right turn	103	71	8	73	8	2	0
wiiii vvay	Bridge Road eastbound straight ahead	104	57	11	66	12	9	1
	Savins Mill Way right turn	105	55	5	75	9	20	4
	Savins Mill Way westbound through junction	202	83	15	86	13	3	-2
Savins Mill Way/Morrisons	Savins Mill Way left turn to Morrisons	203	70	10	68	7	-2	-3
	Morrisons right rurn out	204	83	10	83	10	0	0
	Morrisons left turn out	205	38	5	39	5	1	0
	Savins Mill Way right turn to Morrisons	206	81	7	87	8	6	1
;	Savins Mill Way eastbound through junction	207	27	3	31	3	4	0
	Abbey Rd Straight ahead then right to Savins Mill Way	301	56	9	63	10	7	1
	Abbey Rd straight ahead & left turn	302	68	16	69	16	1	0
	Kirkstall Lane right turn	303	41	3	41	2	0	-1
	Kirkstall Lane straight ahead	304	43	6	45	6	2	0
Road/Bridge Road	Kirkstall Lane left turn	305	35	5	34	5	-1	0
Noad/Bridge Noad	Commercial Road left turn	306	9	0	17	0	8	0
	Commercial Road straight ahead	307	65	12	65	11	0	-1
	Bridge Road left turn	308	66	12	66	9	0	-3
	Bridge Road straight ahead	309	34	5	39	3	5	-2
	Commercial Road right turn	401	74	13	73	13	-1	0
Commercial	Commercial Road southbound straight ahead	402	49	11	48	11	-1	0
Road/Savins Mill	Commercial Road northbound straight ahead	403	73	15	85	18	12	3
Way	Commercial Road left turn	404	67	11	70	12	3	1
vvay	Savins Mill Way right turn	405	81	11	86	12	5	1
	Savins Mill Way left turn	406	56	5	53	6	-3	1
	Morris Lane right turn	701	35	3	36	3	1	0
	Morris Lane straight ahead & left turn	702	61	7	61	7	0	0
Kirkstall	Kirkstall Lane westbound all movements	703	87	14	90	15	3	1
Lane/Kirkstall Hill	Kirkstall Hill all movements	704	87	13	87	14	0	1
	Kirkstall Lane eastbound right turn	705	52	3	55	2	3	-1
	Kirkstall Lane eastbound straight ahead & right turn	706	73	13	75	13	2	0
	Bridge Road straight ahead	901	55	6	58	8	3	2
Bridge Road/Wyther	Bridge Road left turn	902	69	9	70	12	1	3
Lane	Wyther Lane all movements	903	84	17	83	12	-1	-5
	Leeds & Bradford Road all movements	904	57	7	60	8	3	1
Broad Lane/Wyther	Wyther Lane southbound all movements	1001	60	5	61	5	1	0
Lane	Wyther Lane northbound all movements	1002	72	7	74	7	2	0
Lanc	Broad Lane all movements	1003	44	6	45	7	1	1
	Bridge Road eastbound straight ahead	1401	70	5	81	15	11	10
Bridge Road/Site	Site Exit right turn	1402	19	1	26	2	7	1
Exit	Site Exit left turn	1403	60	4	77	8	17	4
	Bridge Road westbound straight ahead	1404	36	8	40	8	4	0

#### Traffic Network Study Tool

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For sales and distribution information, program advice and maintenance, contact:

+44 (0) 1344 770018 +44 (0) 1344 770864 Tel: TRL Limited Old Wokingham road Fax: Email: softwarebureau@trl.co.uk Crowthorne, Berks. RG45 6AU, UK. Web: www.trlsoftware.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "WEEKDAY 17-18 WITH COMMITTED NO DEV ORIGINAL TIMINGS.DAT" at 16:38 on 18/01/08

TRANSYT 12.0

Weekday 17:00-18:00 hours with Committed no Dev original timings

#### PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES NUMBER OF LINKS NUMBER OF OPTIMISED NODES MAXIMUM NUMBER OF GRAPHIC PLOTS NUMBER OF STEPS IN CYCLE 8 MAXIMUM NUMBER OF SHARED STOPLINES
MAXIMUM NUMBER OF TIMING POINTS 0 4 MAXIMUM LINKS AT ANY NODE

CORE REQUESTED = 11940 WORDS CORE AVAILABLE = 72000 WORDS

DATA INPUT :-

		~ ~~~~														
CARD	CARD	.~ ~~~~														
NO.	TYPE															
( 1)=		- Weekd	av 17:00	-18:00 F	nours wit	h Comm	itted no 1	Dev origi	nal timi	nas						
CARD	CARD	CYCLE	NO. OF		FFECTIVE			0=UNEQUA		_	-SPEEDS	OPTIMISE	EXTRA	HILL-	DELAY	STOP
NO.	TYPE	TIME	STEPS		DISPLACE		SETTINGS	CYCLE	SCALE	SCALE	CARD32	0=NONE	COPIES	CLIMB	VALUE	VALUE
			PER	1-1200	START	END	0=NO	1=EQUAL	10-200		0=TIMES	1=O/SET	FINAL	OUTPUT	P PER	P PER
		(SEC)	CYCLE	MINS.	(SEC)	(SEC)	1=YES	CYCLE	용	용	1=SPEEDS	2=FULL	OUTPUT	1=FULL	PCU-H	100
2)=	1	80	80	60	2	3	0	0	0	0	1	0	0	0	1420	260
CARD	CARD					L	IST OF I	NODES TO	BE OF	TIMISED						
NO.	TYPE															
3)=	2	1	2	3	4	7	9	10	14	0	0	0	0	0	0	0
					E CARDS:	MINII			ORKING)							
CARD	CARD	NODE		S1	S2	S3	S4	S5	S6	s7	S8	S9	S10			
NO.	TYPE	NO.														
4)=	10	1		7	7	7										
5)=	10	2		7	7	7										
6)=	10	3		7	7	7	4									
7)=	10	4		7	7	7										
8 ) =	10	7		3	7	7										
9)=	10	9		7	7											
10)=	10	10		7	7	7										
11)=	10	14		7	7											

				NOD	E CARDS:	PRECEI	ING INTE	RSTAGE :	TIMES (WO	RKING)			
CARD	CARD	NODE		S1	S2	S3	S4	S5	S6	s7	S8	S9	S10
NO.	TYPE	NO.											
12)=	11	1		2	4	8							
13)=	11	2		8	5	5							
14)=	11	3		7	9	7	5						
15)=	11	4		5	7	6							
16)=	11	7		6	4	21							
17)=	11	9		5	23								
18)=	11	10		2	6	6							
19)=	11	14		5	5								
				NOD	E CARDS:	STAGE	CHANGE T	CIMES (WO	ORKING)				
CARD	CARD	NODE	Sgl/Dbl	NOD S1	E CARDS: S2	STAGE S3	CHANGE T	CIMES (WO	ORKING) S6	s7	S8	S9	S10
CARD NO.	CARD TYPE	NODE	Sgl/Dbl Cycled							S7	S8	S9	S10
			_							s7	S8	S9	S10
NO.	TYPE	NO.	_	S1	S2	S3				S7	S8	S9	S10
NO. 20)=	TYPE 12	NO.	Cycled 1	S1 32	S2 63	S3 15				S7	S8	S9	S10
NO. 20)= 21)=	TYPE 12 12	NO. 1 2	Cycled 1	32 31	S2 63 73	S3 15 11	S4			S7	S8	S9	S10
NO. 20)= 21)= 22)=	TYPE 12 12 12	NO. 1 2 3	Cycled 1	32 31 74	S2 63 73 29	S3 15 11 45	S4			s7	S8	S9	S10
NO. 20)= 21)= 22)= 23)=	TYPE 12 12 12 12	NO. 1 2 3 4	Cycled 1	32 31 74 53	S2 63 73 29 73	S3 15 11 45 25	S4			S7	S8	S9	S10
NO. 20)= 21)= 22)= 23)= 24)=	TYPE 12 12 12 12 12	NO. 1 2 3 4 7	Cycled 1	S1 32 31 74 53 54	S2 63 73 29 73 63	S3 15 11 45 25	S4			S7	S8	S9	S10

LINK CARDS: GIVEWAY DATA

PRIORITY LINKS LINK1 GIVEWAY COEFFS. CARD CARD LINK LINK1 LINK2 ONLY TYPE NO. % FLOW X100 X100 NO. NO. NO.

MAX DELAY FLOW WT.X100 T.TNK STOP DELAY DISPSN LENGTH WT.X100 X100

CARD NO. 75)= 76)= 770)= 80)= 81)= 81)= 82)= 83)= 84)= 86)= 87)= 88)= 90)= 91)= 93)= 94)= 95)= 100)= 101)= 102)= 103)= 104)= 105)= 107)= 1109= 111)= 112)= 114)= 115)= 116)= 117)= 118)=	CARD NO. 32)= 33)= 34)= 35)= 36)= 37)= 38)= 40)= 41)= 42)= 43)= 44)= 45)= 50)= 51)= 53)= 54)= 55)= 56)= 57)= 60)= 61)= 62)= 63)= 64)= 65)= 67)= 68)= 67)= 68)= 67)= 71)= 72)= 73)= 74)=	28) = 29) = 30) = 31) =
32 32 32 32 32 32 32 32 32 32 32 32 32 3	31 31 31 31 31 31 31 31 31 31 31 31 31 3	30 30 30 30
LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 903 704 705 901 902 903 904 1001 1002 1003 77 1401 1002 1403 1404	LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706 901 902 903 904 1001 1002 1003 1401 1402 1403 1404	77 103 303 705
TOTAL FLOW 617 790 391 811 191 702 424 300 269 177 249 395 814 163 552 161 23 1232 583 395 451 823 995 645 645 107 286 551 1692 123 553 409 954 477 976 448 210 1145 20 57 1361	EXIT NODE 1 1 1 1 1 2 2 2 2 2 2 2 3 3 3 3 3 3 3 4 4 4 4 4 4	105 101 308 703
UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		104 0 0
ENTRY 1 LINK NO. 304 202 1401 1401 202 401 401 0 0 101 101 101 0 701 701 701 403 403 104 104 104 301 302 0 0 204 204 204 0 0 0 302 302 1402 1402 1402 1402 1002 0 902 0 0 903 0 101	FIRST TART  LAG 4 8 2 15 5 6 6 5 7 7 8 7 7 8 7 7 9 6 12 7 13 5 10 21 21 4 21 5 6 5 23 23 5 6 11 6 5 5 5 5	0 0 0
FLOW 592 571 372 773 138 289 174 0 0 19 26 0 0 20 669 31 23 972 472 395 720 0 0 46 254 0 0 0 15 67 10 14 445 0 954 0 0 0 571	GREEN STAGE 3 2 3 3 1 2 2 2 1 1 1 3 3 2 2 2 1 1 1 3 3 2 2 2 1 1 1 3 3 2 2 2 1 1 2 2 2 3 3 2 2 2 3 3 2 2 2 3 3 2 2 2 3 3 2 2 2 3 3 2 2 2 3 3 2 2 2 3	22 50 50 50
LINK CAF CRUISE SPEED 43 43 43 43 43 43 43 43 43 43 43 43 43	END	19 100 100 100
		0 0 0 0
FLOW DATA  2  FLOW  25  219  19  38  53  413  250  0  158  223  0  0  85  289  130  0  254  111  0  56  103  0  257  0  0  0  108  486  403  940  315  0  22  0  0  439  0  790	EIXED DA' SECON: SECON: TART LAG 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0
	D GREEN	0 0 0 0
ENTRY: LINK NO. 0 0 0 0 0 0 0 0 704 704 0 0 0 0 0 0 0 0	ND LAG 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0
FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LINK LENGTH 145 100 85 85 100 135 200 200 80 200 230 230 230 230 555 100 100 65 65 200 200 140 140 200 200 240 240 210 200 240 240 210 200 200 200 140 140 50 70	100 100 100 100
CRUISE SPEED 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	STOP WT.X100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0
ENTRY LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SAT FLOW 1900 1785 1710 1915 1785 1940 1770 1720 1720 1725 2000 2300 3300 1675 1790 1770 2000 1785 3300 3300 3000 1785 1790 1770 1900 1900 1900 1950 1950 1950 1950 195	715 1000 1000 1000
	DELAY WT.X100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0
CRUISE SPEED  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DISPSN X100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0

\*\*\*\*\*END OF SUBROUTINE TINPUT\*\*\*\*

80 SECOND CYCLE 80 STEPS

INITIAL SETTINGS
- (SECONDS)

NODE NO	NUMBER OF STAC		STAGE 2	STAGI	E STAGE	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10					
1	3	32	63	15												
2	3	31	73	11												
3 4	4	74 53	29 73	45 25	65											
7	3	54	63	5												
9	2	73	17													
10	3	21	39	70												
14	2	50	32													
LINK	FLOW	SAT DI	EGREE N	MEAN TIM	ES	DELAY-		ST	TOPS	OII	EUE	PERFORMANCE	EXIT	GRE	EN TI	IMES
NUMBER	INTO	FLOW	OF	PER PCU		RM RANDO		MEAN	COST	MEAN		INDEX.	NODE	STA		START
	LINK	5	SAT C	CRUISE		OVERS		STOPS	OF	MAX.	AVERAGE	WEIGHTED SUM			END	END
	(DCII/H)	(PCU/H)	(%) (5	DELA SEC) (SEC		D=MEAN Q J-H/H)	) DELAY (\$/H)	/PCU (%)	STOPS (\$/H)	(PCU)	EXCESS (PCU)	OF ( ) VALUES (\$/H)	i	18	T SECON	2ND
	(PCU/H)	(PCU/H)	(6) (2	SEC) (SE	_) (PC	J-n/n)	(\$/H)	(6)	(\$/H)	(PCU)	(PCU)	(\$/H)		(	SECOR	NDS)
77	10	715	2 8	3.9 4.0	0.0	0.0	( 0.1)	0	( 0.0)	0		0.1				
101	587<	1900		2.6 34.9			(79.6)	111	( 17.7)	16		97.3	1	67	15	
102	788 387	1785 1710		3.9 28.9 7.6 24.3			(88.3)	68	( 13.8)	12 7		102.1	1 1	23 34	63 15	
103 104	387 805	1710		7.6 24 7.6 14.!			( 36.3) ( 44.5)	90 46	(9.1)	8		45.4 54.1	1	34 47	15	
105	190	1785		3.9 54.			(40.5)	117	( 5.8)	5		46.2	1	20	32	
202	699	1940		.8 32.			(87.2)	107	(19.4)	17		106.6	2	37	73	
203	423	1740		.8 23.4			( 38.3)	89	( 9.8)	9		48.0	2	37	73	
204	300	1760		7.2 62.8			(73.7)	127	( 9.8)	9		83.6	2	16	31	
205 206	269 174	1720 1725		7.2 21.9 7.2 47.4			( 22.7) ( 32.2)	71 109	(5.0)	5 4		27.6 37.1	2	0 78	31 11	
207	245	2000		7.2 47.			( 4.8)	18	( 1.2)	1		5.9	2	39	11	
301	395	2300		7.2 22.3			(33.9)	74	(7.5)	7		41.4	3	79	29	
302	814	3300	76 17	7.2 31.0	5.5	1.6	(99.8)	93	(19.4)	18		119.2	3	4	29	
303	154	1675		9.8 35.4			(21.2)	97	( 4.1)	4		25.3	3	36	74	
304	524<			9.8 20.1 9.8 23.0			(40.8)	66 70	( 9.4)	9		50.2	3	36 37	74 65	
305 306	149< 23	1770 1785		7.0 23.1 5.1 3.			( 13.6)	79 4	( 3.3)	0		16.8 0.3	3	1	32	
307	1212<	3970		5.1 7.9			(35.4)	29	( 9.2)	11		44.6	3	1	32	
308	579	2000	83 8	3.9 40.9	9 4.2		(92.4)	91	(13.7)	12		106.1	3	38	65	
309	393	1785		3.9 35.3			(53.9)	77	(7.8)	7		61.7	3	38	65	
401	447	3300		.9 24.4			(42.1)	92	( 10.7)	9		52.8	4	31	53	
402 403	815 995	3300 3000		5.9 2.3 7.2 106.8			( 5.4) (417.1)	3 171	( 0.6)	0 44		5.9 460.9	4	5 0	54 25	
404	645	1710		7.2 22.0			(54.8)	78	(13.0)	12		67.8	4	66	27	
405	299	1900	79 12	2.2 38.4			(44.7)	107	(8.4)	8		53.1	4	58	73	
406	254	2000		2.2 56.3			(55.9)	128	(8.4)	7		64.3	4	63	75	
701	107	1600		7.2 21.			( 9.0)	69	( 1.9)	2		10.9	7 7	26	54	
702 703	286 511	1750 1950		7.2 25.1 7.2 239.0			( 27.7) (480.7)	77 233	( 5.7)	5 40	+	33.4 511.3	7	26 67	54 5	
704	692	1900		7.2 233.0			(268.8)	167	(29.7)	29		298.5	7	26	54	
705	122	1800	41 20	0.6 20.8	0.3	+ 0.3	( 9.8)	90	( 2.9)	2		12.6	7	59	10	
706	550	1900		0.6 34.2			(73.1)	96	( 13.6)	15		86.7	7	60	5	
901 902	401	1740 1740		3.1 66.2 3.1 12.			(103.9)	131	( 13.8)	13 12		117.7	9 9	78 40	17 17	
902	933< 725<			3.1 12. 5.4 28.9			( 44.8) ( 81.2)	60 70	( 14.9) ( 13.2)	12		59.7 94.4	9	40	73	
904	477	1665		7.2 108.3			(202.7)	172	(21.2)	21		223.9	9	78	20	
1001	955<	1845	94 5	5.5 45.0	5.5	+ 6.5	(170.0)	125	( 31.4)	28	+	201.4	10	76	39	
1002	448	1710		7.2 113.			(199.3)	175	( 20.3)	20		219.6	10	50	70	
1003	322	1910 1965		7.2 173.0 2.2 8.3			(219.8)	210	( 17.4)	19 13		237.2	10	27	39	
1401 1402	1135 20	1965		2.2 8 1.7 34.0			(34.9)	32 86	( 9.6)	13		44.5 3.1	14 14	55 37	32 50	
	57			1.7 35.			( 7.9)			1		9.2	14	37		
1404		3970		5.4 7.4			(36.3)			15		51.4	14	55		
mom**		moma *		1237	mom: *	moma	T		moma r		373 T (D)7	moma r				
TOTAL DISTAN		TOTAL TIME	JOURN	EAN IEV	TOTAL UNIFORM				TOTAL COST		NALTY FOR	TOTAL PERFORMANCE				
TRAVELL		SPENT	SPE		DELAY	OVERS			OF		XCESS	INDEX				
						DELA			STOPS		UEUES					
(PCU-KM	I/H)	(PCU-H/H	) (KN	1/H)	(PCU-H/H	(PCU-H/	H) (\$/F	I)	(\$/H)	(	\$/H)	(\$/H)				
3076.	1	320.3	c	9.6	100.0	148.8	/3533	2 (1) + /	( 508.2)	+ (	0 0)	= 4040.1	TOT	Z.TA		
	<u>.</u>		: 	 		140.0	(3332	, + (				- 4040.T				
													ROU'	ΓE		

*******	******	******	******	*******	******
	CRUISE	DELAY	STOPS	TOTALS	
	LITRES PER HOUR	LITRES PER HOUR	LITRES PER HOUR	LITRES PER HOUR	
FUEL CONSUMPTION PREDICTIONS	165.0	+ 286.0	+ 231.6	= 682.6	

FUEL CONSUMPTION PREDICTIONS

NO. OF ENTRIES TO SUBPT = 1
NO. OF LINKS RECALCULATED= 44

PROGRAM TRANSYT FINISHED

#### Traffic Network Study Tool

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For sales and distribution information, program advice and maintenance, contact:

+44 (0) 1344 770018 +44 (0) 1344 770864 Tel: TRL Limited Old Wokingham road Fax: Email: softwarebureau@trl.co.uk Crowthorne, Berks. RG45 6AU, UK. Web: www.trlsoftware.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file: - "WEEKDAY 17-18 WITH COMMITTED WITH DEV ORIGINAL TIMINGS.DAT" at 16:38 on 18/01/08

TRANSYT 12.0

23)= 24)= 12 12

25)= 12

Weekday 17:00-18:00 hours with Committed with Dev original timings

#### PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES NUMBER OF LINKS NUMBER OF OPTIMISED NODES MAXIMUM NUMBER OF GRAPHIC PLOTS 8 NUMBER OF STEPS IN CYCLE MAXIMUM NUMBER OF SHARED STOPLINES
MAXIMUM NUMBER OF TIMING POINTS 0 4 MAXIMUM LINKS AT ANY NODE

CORE REQUESTED = 11940 WORDS CORE AVAILABLE = 72000 WORDS

		INPUT														
CARD	CARD	~ ~~~~														
NO.	TYPE															
	TITLE:	- Weekd	ay 17:00					h Dev ori		imings						
CARD	CARD		NO. OF					0=UNEQUA			SPEEDS	OPTIMISE			DELAY	STOP
NO.	TYPE	TIME	STEPS		DISPLACE	MENTS			SCALE		CARD32	0=NONE	COPIES	CLIMB	VALUE	VALUE
			PER	1-1200	START	END		1=EQUAL			0=TIMES	1=O/SET	FINAL	OUTPUT	P PER	P PER
		(SEC)	CYCLE	MINS.	(SEC)	(SEC)		CYCLE	용	8	1=SPEEDS			1=FULL		100
2)=	1	80	80	60	2	3	0	0	0	0	1	0	0	0	1420	260
CARD	CARD					LI	ST OF	NODES TO	BE O	PTIMISED						
NO.	TYPE		_	_	_	_	_			_	_	_			_	_
3)=	2	1	2	3	4	7	9	10	14	0	0	0	0	0	0	0
				NOD	E CARDS:	MTNTM	IUM STAGE	TIMES (W	ORKING)							
CARD	CARD	NODE		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10			
NO.	TYPE	NO.														
4)=	10	1		7	7	7										
5)=	10	2		7	7	7										
6)=	10	3		7	7	7	4									
7)=	10	4		7	7	7										
8)=	10	7		3	7	7										
9)=	10	9		7	7											
10)=	10	10		7	7	7										
11)=	10	14		7	7											
				NOD	E CARDS:	DDFCF	יוסדוארי דואיתי	ERSTAGE T	TMEC /W	ODVING)						
CARD	CARD	NODE		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10			
NO.	TYPE	NO.		51	52	55	51	55	50	57	50	37	510			
12)=		1		2	4	8										
13)=		2		8	5	5										
14)=		3		7	9	7	5									
15)=		4		5	7	6										
16)=		7		6	4	21										
17)=		9		5	23											
18)=	11	10		2	6	6										
19)=	11	14		5	5											
				MOD	n canno.	OM3 OH	GUANGE	mining (NO	DICTNG)							
CARD	CARD	NODE	Sgl/Dbl	S1	E CARDS:	STAGE S3	S4	TIMES (WO	S6	s7	S8	S9	S10			
NO.	TYPE	NO.	Cycled	SI	54	23	54	دد	20	57	50	اون	210			
20)=		NO.	1	32	63	15										
20)=		2	1	31	73	11										
22)=		3	1	74	29	45	65									
22)-		4	1	74	72	45	0.5									

26)= 27)= 12 12 10 14 39 32 LINK CARDS: GIVEWAY DATA

73 63

25 5

70

PRIORITY LINKS LINK1 GIVEWAY COEFFS. CARD CARD LINK LINK1 LINK2 ONLY TYPE % FLOW X100 X100 NO. NO. NO. NO.

53 54 73

21

T.TNK STOP MAX DELAY DISPSN LENGTH WT.X100 FLOW WT.X100 X100

NO.   Type   NO.   NODE   STAGE   LAG   LAG	28) = 29) = 30) = 31) =	30 30 30 30	77 103 303 705	105 101 308 703	104 0 0	0 0 0	22 50 50 50	19 100 100 100	0 0 0	0 0 0	0 0 0	0 0 0 0	100 100 100 100	0 0 0	715 1000 1000 1000	0 0 0	0 0 0 0
71)= 31 1401 14 1 5 2 0 0 0 0 140 0 1965 0 0	NO. 32)= 33)= 34)= 35)= 36)= 37)= 40)= 42)= 43)= 44)= 45)= 45)= 50)= 51)= 50)= 51)= 56)= 57)= 56)= 61)= 62)= 62)= 67)= 68)= 67)= 68)= 67)= 68)= 67)=	TYPE 31 31 31 31 31 31 31 31 31 31 31 31 31	NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 405 406 701 702 703 704 705 706 901 902 903 904 1001 1002 1003	NODE 1 1 1 1 1 2 2 2 2 2 2 3 3 3 3 3 3 4 4 4 4 7 7 7 7 7 9 9 9 10 10 10	STAGE 2 3 1 1 1 3 1 1 1 2 2 2 1 1 1 2 2 2 2 1 1 1 1	TART LAG 4 8 2 15 6 6 5 7 5 8 5 10 7 7 8 7 9 9 6 12 7 13 5 10 21 4 21 5 6 5 23 23 6 11 6	STAG 3 2 3 3 1 2 2 1 1 3 3 2 2 1 1 3 3 2 2 1 1 3 3 2 2 1 1 3 3 2 2 1 1 3 3 2 2 1 2 2 2 2	N END   E LAG   0	STAG 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SECON START E LAG 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ID GREEN F STAGE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LAG 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LENGTH 145 100 85 85 85 100 200 200 230 230 230 230 230 230 240 240 240 210 200 200 200 200 200 200 200 200 20	WT.X100	PLOW 1900 1785 1710 1915 1785 1940 1740 1725 2000 2300 1675 1790 1770 1785 3970 2000 1785 3970 2000 1785 3970 2000 1785 3970 2000 1785 3970 2000 1785 1790 1790 1790 1790 1790 1790 1790 1790	WT.X100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	CARD NO. : 76)= 770= 78)= 80)= 81)= 82)= 83)= 84)= 85)= 86)= 87)= 90)= 91)= 92)= 93)= 94)= 95)= 101)= 102)= 101)= 103)= 104)= 105)= 111)= 112)= 113)= 115)= 116)= 117)= 118)=	32 32 32 32 32 32 32 32 32 32 32 32 32 3	LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 705 706 901 1002 1003 77 1401 1402 1403 1404	TOTAL FLOW 610 780 413 876 220 722 424 300 269 177 271 412 803 562 161 46 1216 596 420 645 325 254 109 286 518 694 125 564 416 961 741 482 983 451 324 471 155 50 134 1344	UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LINK NO. 304 202 1401 1401 202 401 0 0 101 101 0 701 701 701 403 403 104 104 301 302 0 204 204 0 0 302 302 1402 1402 1402 1002 0 903 0 903 0 101	FLOW 564 569 370 785 161 305 179 0 0 18 27 0 0 0 15 67 15 35 448 0 961 0 0 711 0 0 0 564	CRUISE SPEED 43 43 43 43 43 43 43 43 43 43 43 43 43	LINK NO. 306 205 1403 1403 205 404 0 0 0 103 103 0 0 0 406 105 0 0 305 305 0 0 207 0 0 0 0 308 308 1404 1404 1003 0 0 904 0 0 0 904 0 0 0 102	FLOW 46 212 43 91 60 417 245 0 0 159 244 0 85 295 130 0 254 120 0 59 101 0 279 0 0 0 110 496 401 926 317 0 22 0 0 444 0 0 780	CRUISE SPEED 43 43 43 43 43 43 43 43 43 43 43 43 43	LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CRUISE SPEED 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CRUISE SPEEL 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

\*\*\*\*\*END OF SUBROUTINE TINPUT\*\*\*\*

80 SECOND CYCLE 80 STEPS

INITIAL SETTINGS
- (SECONDS)

(DEC	CONDO														
NODE	NUMBER	STAGE	STAGI	E STAGE	STAGE	STAGE	STAGE	STAGE	STAGE	STAGE	STAGE				
NO	OF STAC		2	3	4	5	6	7	8	9	10				
1	3	32	63	15											
2	3	31	73	11											
3	4	74	29	45	65										
4	3	53	73	25											
7	3	54	63	5											
9	2	73	17												
10	3	21	39	70											
14	2	50	32												
														ann	
LINK	FLOW			MEAN TIME PER PCU		-DELAY-			OPS	QUE	UE	PERFORMANCE	EXIT		EN TIMES
NUMBER	INTO LINK	FLOW	OF SAT (	CRUISE	UNIFUR	M RANDO	AT OF	MEAN STOPS	COST OF	MEAN MAX. A	TIED VCE	INDEX. WEIGHTED SUM	NODE	STA	RT START END EN
	LINK		SAI (	DELA	V (II+R+0	=MEAN Q		/PCU	STOPS		EXCESS	OF ( ) VALUES		1s	
	(PCU/H)	(PCU/H)	(%) (%	SEC) (SEC		-H/H)	(\$/H)	(%)	(\$/H)	(PCU)	(PCU)	(\$/H)			SECONDS)
	(100,11)	(100/11)	( ) ( )	020, (020	., (200	//	( 4 / 11 /	( • )	(4/11/	(100)	(100)	(4//		`	ozconoc,
77	47	715	9 8	8.9 4.5	0.0 +	0.1	( 0.7)	0	( 0.0)	0		0.7			
101	576<	1900		2.6 34.2			(76.6)		(17.1)	15		93.7	1	67	15
102	778	1785		8.9 28.5			(86.1)		(13.6)	12		99.7	1	23	63
103	407	1710	52	7.6 22.8			(35.8)		( 9.0)	7		44.9	1	34	15
104	865<	1915	74 ′	7.6 15.7	2.3 +	1.4	(51.9)	51	(11.5)	10		63.4	1	47	15
105	219	1785		8.9 61.7			(52.9)		(7.1)	6		60.0	1	20	32
202	718	1940		1.8 33.1			(92.2)		( 20.2)	18		112.4	2	37	73
203	422	1740		1.8 23.0			( 37.4)		( 9.6)	9		47.0	2	37	73
204	300	1760		7.2 62.8			(73.7)		( 9.8)	9		83.6	2	16	31
205	269	1720		7.2 21.9			(22.7)		( 5.0)	5		27.6	2	0	31
206	174	1725		7.2 47.2			( 32.0)		( 5.0)	4		37.0	2	78	11
207	266	2000		7.2 5.5			( 5.3)		( 1.3)	1		6.6	2	39	11
301	412	2300		7.2 22.5			( 35.8)		(7.9)	7		43.7	3	79	29
302	803	3300		7.2 31.2			(97.2)		(19.0)	17		116.3	3	4	29
303 304	153 530<	1675 1790		9.8 36.2 9.8 20.3			( 21.5) ( 41.4)		( 4.1)	4 9		25.7 50.8	3	36 36	74 74
305	147<	1770		9.8 23.5			( 13.3)		(9.5)	3		16.6	3	37	65
306	45	1785		5.1 3.7			( 0.6)		( 0.1)	0		0.6	3	1	32
307	1189<	3970		5.1 7.7			(33.6)		( 9.0)	10		42.6	3	1	32
308	590	2000	84 8	8.9 43.8			(100.7)		(14.7)	13		115.4	3	38	65
309	415	1785	66 8	8.9 38.3	3.4 +	1.0	(61.8)	79	(8.6)	7		70.4	3	38	65
401	466	3300	49 !	5.9 24.6	2.6 +	0.5	(44.3)	92	(11.2)	10		55.4	4	31	53
402	800	3300	39 !	5.9 2.2	0.1 +	0.3	(5.2)	3	( 0.6)	0		5.8	4	5	54
403	1002	3000		7.2 115.3			(453.9)		(45.7)	46		499.6	4	0	25
404	645	1710		7.2 22.0			(54.8)		( 13.0)	12		67.8	4	66	27
405	320	1900		2.2 45.0			(56.2)		( 9.6)	9		65.7	4	58	73
406	254	2000		2.2 56.3			(55.9)		(8.4)	7		64.3	4	63	75
701	109	1600		7.2 21.8			( 9.1)		( 1.9)	2		11.1	7	26	54
702	286	1750		7.2 25.1			( 27.7)		( 5.7)	5		33.4	7	26	54
703	518 694	1950		7.2 258.9			(528.0) (277.2)		(31.8)	43	+	559.7	7 7	67 26	5
704 705	123	1900 1800		7.2 101.8 0.6 20.8			(2//.2)		( 30.2) ( 2.9)	30 2		307.4 12.8	7	26 59	54 10
706	560	1900		0.6 37.4			(81.5)		( 14.6)	16		96.1	7	60	5
901	406	1740		8.1 69.7			(110.9)		(14.4)	14		125.3	9	78	17
902	937<	1740		8.1 12.5			(44.3)		(14.4)	11		58.8	9	40	17
903	726<	1900		6.4 29.1			(82.0)		(13.3)	12		95.2	9	40	73
904	482	1665		7.2 117.9			(223.2)		( 22.3)	23		245.4	9	78	20
1001	959<	1845		5.5 47.3			(177.0)		(31.9)	28	+	209.0	10	76	39
1002	451	1710	100 1	7.2 119.2		11.2	(211.1)	180	(20.9)	21		232.0	10	50	70
1003	324	1910		7.2 180.7			(230.2)	213	( 17.8)	20		248.0	10	27	39
1401	1138<			2.2 8.4			(35.4)		(9.7)	13		45.1	14	55	32
1402	50	1871		4.7 35.0		0.1			( 1.1)	1		7.9	14	37	50
1403	134			4.7 39.9			( 20.8)	97		3		24.2	14	37	
1404	1311<	3970	46	6.4 7.5	2.1 +	0.4	( 36.0)	43	( 14.8)	15		50.8	14	55	32
mom**		moma r		E A M	moma r	mom.		A.T.	mom* *	D	יאד מייז	moma r			
TOTAL		TOTAL TIME		EAN	TOTAL	TOTAL			TOTAL	PEN	IALTY 'OR	TOTAL PERFORMANCE			
DISTAN		SPENT	JOURI	NEY EED	UNIFORM DELAY	RANDO! OVERS			COST OF		CESS	INDEX			
11/W A P.T.T	ענננ	OE DIN I	SPI	עננט	DELAI	DELA			STOPS		JEUES	TINDEV			
(PCU-KM	1/H)	(PCU-H/H)	) (KI	M/H)	(PCU-H/H)				(\$/H)		5/H)	(\$/H)			
,0 10	/	,	, (10	,		, / 1	, (7/	,	\ T / **/	( 4	/	\ T / **/			
3121.	. 7	337.0	9	9.3	103.3	161.1	(375	4.8) + (	524.6)	+ (	0.0)	= 4279.4	TOT	ALS	

CRUISE DELAY STOPS TOTALS
LITRES PER HOUR LITRES PER HOUR LITRES PER HOUR LITRES PER HOUR

FUEL CONSUMPTION PREDICTIONS 167.4 + 304.1 + 239.0 = 710.6

ROUTE

NO. OF ENTRIES TO SUBPT = 1 NO. OF LINKS RECALCULATED= 44

PROGRAM TRANSYT FINISHED

#### Traffic Network Study Tool

Analysis Program Release 4 (March 2005) (c) Copyright TRL Limited, 2004

For sales and distribution information, program advice and maintenance, contact:

+44 (0) 1344 770018 Tel: TRL Limited Old Wokingham road Fax: +44 (0) 1344 770864 Email: softwarebureau@trl.co.uk Crowthorne, Berks. RG45 6AU, UK. Web: www.trlsoftware.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "SATURDAY 13-14 WITH COMMITTED NO DEV ORIGINAL TIMINGS.DAT" at 16:38 on 18/01/08

TRANSYT 12.0

Saturday 13:00-14:00 hours with Committed no Dev original timings

#### PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES NUMBER OF LINKS NUMBER OF OPTIMISED NODES MAXIMUM NUMBER OF GRAPHIC PLOTS 8 NUMBER OF STEPS IN CYCLE MAXIMUM NUMBER OF SHARED STOPLINES
MAXIMUM NUMBER OF TIMING POINTS 0 4 MAXIMUM LINKS AT ANY NODE

CORE REQUESTED = 11940 WORDS CORE AVAILABLE = 72000 WORDS

DATA INDITT .

	DATA	INPUT	:-													
CARD NO.	CARD TYPE	~ ~~~~														
( 1)=		- Satur	day 13:0				nitted no			mings						
CARD	CARD		NO. OF				EQUISAT				SPEEDS	OPTIMISE		HILL-	DELAY	STOP
NO.	TYPE	TIME	STEPS		DISPLACE				SCALE		CARD32	0=NONE	COPIES	CLIMB	VALUE	VALUE
			PER	1-1200	START	END		1=EQUAL	10-200	50-200	0=TIMES	1=O/SET	FINAL	OUTPUT	P PER	P PER
		(SEC)	CYCLE	MINS.	(SEC)	(SEC)	1=YES	CYCLE	용	용	1=SPEEDS		OUTPUT	1=FULL	PCU-H	100
2)=	1	80	80	60	2	3	0	0	0	0	1	0	0	0	1420	260
CARD	CARD					L	IST OF 1	NODES TO	BE C	PTIMISED						
NO.	TYPE															
3)=	2	1	2	3	4	7	9	10	14	0	0	0	0	0	0	0
				NOT	DE CARDS:	MTNTN	NUM STAGE	TIMES (W	ORKING	)						
CARD	CARD	NODE		S1	S2	S3	S4	S5	S6	s7	S8	S9	S10			
NO.	TYPE	NO.														
4)=	10	1		7	7	7										
5)=	10	2		7	7	7										
6)=	10	3		7	7	7	1									
7)=	10	4		7	7	7										
8)=	10	7		3	7	7										
9)=	10	9		7	7	7										
10)=	10	10		7	7	7										
11)=	10	14		7	7											
				***												
CARD	CARR	MODE			DE CARDS: S2	S3	EDING INT: S4	ERSTAGE 1 S5	IMES (V		90	70	010			
CARD NO.	CARD TYPE	NODE NO.		S1	52	53	54	85	56	S7	S8	S9	S10			
12)=	1175	NO.		2	4	8										
13)=	11	2		8	5	5										
14)=	11	3		7	9	1	5									
15)=	11	4		5	7	6	5									
16)=	11	7		6	4	21										
17)=	11	9		5	7	2										
18)=	11	10		2	6	6										
19)=		14		5	5	0										
191=	TT	14		Э	Э											

LINK CARDS: GIVEWAY DATA PRIORITY LINKS LINK1 GIVEWAY COEFFS.

NODE CARDS:

S2

65

27

72 60

18

35

S3

10

43

22

6

38

57

S1

29

76

48

51

66

10

Sql/Dbl

Cycled

1

1

CARD

NO.

20)= 12 12

21)=

22)= 12

23)=

24)=

25)= 12

26)= 27)= 12 12

CARD

TYPE

12 12

NODE

NO.

47

10

CARD CARD LINK LINK1 LINK2 ONLY T.TNK STOP MAX DELAY DISPSN TYPE NO. % FLOW X100 X100 LENGTH WT.X100 FLOW WT.X100 NO. X100 NO. NO.

S7

S6

S8

S9

S10

STAGE CHANGE TIMES (WORKING)

S5

S4

70

28) = 29) = 30) =	30 30 30	77 103 303	105 101 308	104 0 0	0 0 0	22 50 50	19 100 100	0 0 0	0 0 0	0 0 0	0 0 0	100 100 100	0 0 0	715 1000 1000	0 0 0	0 0 0
31)=	30	705	703	0	0	50	100	0	0	0	0	100	0	1000	0	0
					FIRST	GREE		ARDS: I	FIXED DA							
CARD NO.	CARD TYPE	LINK NO.	EXIT NODE	S STAGE	TART	STAG	END	STAGI	START		ND LAG	LINK LENGTH	STOP WT.X100	SAT FLOW	DELAY WT.X100	DISPSN X100
32)=	31	101	1	2	4	3	0	0	0	0	0	145	0	1900	0	0
33)= 34)=	31 31	102 103	1 1	3 1	8 2	2	0	0	0	0	0	100 85	0	1785 1710	0	0
35)=	31	104	1	1 3	2	3	0	0	0	0	0	85	0	1915	0	0
36)= 37)=	31 31	105 202	1 2	1	5 6	1 2	0	0 0	0	0	0	100 135	0	1785 1940	0	0
38)= 39)=	31 31	203 204	2 2	1 3	6 5	2 1	0	0	0	0	0	135 200	0	1740 1760	0	0
40)=	31	205	2	2	7	1	0	0	0	0	0	200	0	1720	0	0
41)= 42)=	31 31	206 207	2	2 1	5 8	3 3	0	0 0	0	0	0	80 80	0	1725 2000	0 0	0
43) = 44) =	31 31	301 302	3	1 1	5 5	2	0	0	0	0	0	200 200	0	2300 3300	0	0
45)=	31	303	3	2	7	1	0	0	0	0	0	230	0	1675	0	0
46)= 47)=	31 31	304 305	3 3	2 2	7 8	1 4	0	0 0	0	0	0 0	230 230	0	1790 1770	0 0	0
48)= 49)=	31 31	306 307	3 3	1 1	7 7	2	3	0	0	0	0	55 55	0	1785 3970	0	0
50)=	31	308	3	2	9	4	0	0	0	0	0	100	0	2000	0	0
51)= 52)=	31 31	309 401	3 4	2	8 6	4 1	0	0 0	0	0	0	100 65	0 0	1785 3300	0	0 0
53)= 54)=	31 31	402 403	4	2 2	12 7	1	1 0	0	0	0	0	65 200	0	3300 3000	0	0
55)=	31	404	4	1 1	13 5	3 2	2	0	0	0	0	200	0	1710	0	0
56)= 57)=	31 31	405 406	4	1	10	2	0 2	0	0	0	0	140 140	0 0	1900 2000	0	0
58)= 59)=	31 31	701 702	7 7	3 3	21 21	1 1	0	0	0	0	0	200 200	0	1600 1750	0	0
60)=	31	703 704	7 7	2	4 21	3 1	0	0	0	0	0	200 200	0	1950 1900	0	0
61)= 62)=	31 31	705	7	1	5	3	5	0	0	0	0	240	0	1800	0	0
63)= 64)=	31 31	706 901	7 9	1 1	6 5	3 2	0	0	0	0	0	240 210	0	1900 1740	0	0
65)= 66)=	31 31	902 903	9	3 2	20 7	2 1	0	0	0	0	0	210 70	0	1740 1900	0	0
67)=	31	904	9	1	5	2	0	0	0	0	0	200	0	1665	0	0
68)= 69)=	31 31	1001 1002	10 10	3 2	6 6	2	0	0	0	0	0	60 200	0	1845 1710	0	0 0
70)= 71)=	31 31	1003 1401	10 14	1 1	2 5	2 2	0	0	0	0	0	200 140	0	1910 1965	0	0
72)=	31	1402	14	2	5	1	0	0	0	0	0	50	0	1871	0	0
73)= 74)=		1403 1404	14 14	2 1	5 5	1 2	0	0 0	0	0	0 0	50 70	0	1791 3970	0	0
							0	0	0							
74)=	31	1404	14	1	5 ENTRY	2	0 LINK CAF	0 RDS: 1 ENTRY	0 FLOW DATA 2	0	0 ENTRY	70	0	3970 ENTRY	0	0
74)= CARD NO.	31 CARD TYPE	LINK	14 TOTAL FLOW	1 UNIFORM FLOW	ENTRY : LINK NO.	2 1 FLOW	UINK CAR	0 RDS: 1 ENTRY LINK NO.	0 FLOW DATA 2 FLOW	0  CRUISE SPEED	0 ENTRY : LINK NO.	70 3	0  CRUISE SPEED	3970 ENTRY LINK NO.	0 4	0 CRUISE SPEED
74)=	CARD TYPE 32	1404 LINK	14 TOTAL	1 UNIFORM	5 ENTRY	2 1	UINK CAR	0 RDS: 1 ENTRY LINK	0 FLOW DATA 2	0  CRUISE	0 ENTRY 3 LINK	70	0  CRUISE	3970 ENTRY LINK	0 4	0  CRUISE
74) =  CARD NO. 75) = 76) = 77) =	31 CARD TYPE 32 32 32	LINK NO. 101 102 103	TOTAL FLOW 465 734 466	UNIFORM FLOW 0 0	5 ENTRY LINK NO. 304 202 1401	2 1 FLOW 407 507 414	LINK CAR CRUISE SPEED 43 43 43	0 RDS: 1 ENTRY LINK NO. 306 205 1403	0 FLOW DATA 2 FLOW 58 227 52	0 CRUISE SPEED 43 43 43	ENTRY ILINK NO. 0 0	70 3 FLOW 0 0 0	OCRUISE SPEED OOO O	ENTRY LINK NO. 0	0 4 FLOW 0 0 0	O CRUISE SPEED O O
74) =  CARD NO. 75) = 76) = 77) = 78) = 79) =	CARD TYPE 32 32 32 32 32	LINK NO. 101 102 103 104 105	TOTAL FLOW 465 734 466 714 283	UNIFORM FLOW 0 0 0 0 0 0	5 ENTRY: LINK NO. 304 202 1401 1401 202	2  1  FLOW 407 507 414 634 195	LINK CAR CRUISE SPEED 43 43 43 43 43	0  RDS: 1  ENTRY LINK NO. 306 205 1403 1403 205	0 FLOW DATA 2 FLOW 58 227 52 80 88	0 CRUISE SPEED 43 43 43 43 43	0 ENTRY : LINK NO. 0 0 0	70 3 FLOW 0 0 0 0	CRUISE SPEED 0 0 0 0 0 0	3970 ENTRY LINK NO. 0 0 0	0  FLOW 0 0 0 0 0	CRUISE SPEED 0 0 0
74)=  CARD NO. 75)= 76)= 77)= 78)=	31 CARD TYPE 32 32 32 32	LINK NO. 101 102 103 104	TOTAL FLOW 465 734 466 714	UNIFORM FLOW 0 0 0	ENTRY LINK NO. 304 202 1401 1401	2 1 FLOW 407 507 414 634	LINK CAR CRUISE SPEED 43 43 43 43	0 RDS: 1 ENTRY LINK NO. 306 205 1403 1403	0 FLOW DATA 2 FLOW 58 227 52 80	0 CRUISE SPEED 43 43 43	ENTRY : LINK NO. 0 0	70 3 FLOW 0 0 0	CRUISE SPEED 0 0 0	3970 ENTRY LINK NO. 0 0	0 FLOW 0 0 0 0 0	CRUISE SPEED 0 0 0 0
CARD NO. 75)= 76)= 77)= 78)= 79)= 80)= 81)= 82)=	CARD TYPE 32 32 32 32 32 32 32 32 32	LINK NO. 101 102 103 104 105 202 203 204	TOTAL FLOW 465 734 466 714 283 660 503 365	1 UNIFORM FLOW 0 0 0 0 0 0	5 ENTRY LINK NO. 304 202 1401 1401 202 401 401 0	2  FLOW 407 507 414 634 195 297 226 0	0 LINK CAH  CRUISE SPEED 43 43 43 43 43 43 43	0 RDS: 1 ENTRY LINK NO. 306 205 1403 1403 205 404 404 0	0 FLOW DATA 2 FLOW 58 227 52 80 88 363 277 0	0 CRUISE SPEED 43 43 43 43 43 43 43	0 ENTRY : LINK NO. 0 0 0 0	70  FLOW 0 0 0 0 0 0 0 0 0	CRUISE SPEED 0 0 0 0 0	3970  ENTRY LINK NO. 0 0 0 0 0 0 0 0	0	0 CRUISE SPEED 0 0 0 0 0
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74)=  CARD NO. 75)= 76)= 77)= 80)= 81)= 82)= 83)= 84)= 85)= 87)= 88)= 90)= 91)= 92)= 93)= 94)= 95)= 96)= 101)= 102)= 103)= 105)= 106)= 107)= 108)=	31  CARD TYPE 32 32 32 32 32 32 32 32 32 32 32 32 32	LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 701 702 703 704 705 706 901 902	TOTAL FLOW 465 734 466 714 283 660 503 365 296 243 328 407 790 128 406 270 58 937 560 265 551 910 673 404 176 534 417 705	1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 ENTRY LINK NO. 304 202 1401 1401 202 401 401 0 0 101 101 101 0 701 701 403 403 403 403 104 104 301 302 0 0 204 204 204 204 204 204 204 204 2	2  FLOW 407 507 414 634 195 297 226 0 0 35 47 0 0 26 83 74 58 655 447 739 0 0 114 251 0 0 0 20 62 16 27	0 LINK CAH CRUISE SPEED 43 43 43 43 43 43 43 43 43 43 43 43 43	0 0 EDS: I ENTRY LINK NO. 306 205 1403 1403 1403 205 404 404 0 0 103 103 0 0 703 703 0 0 406 105 0 0 305 305 305 305 305 305 305 305 3	0 FLOW DATA 2 FLOW 58 227 52 80 88 363 277 0 0 208 281 0 0 69 218 196 0 251 159 0 104 171 0 0 290 0 0 156 472 401 678	0 CRUISE SPEED 43 43 43 43 43 43 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 43 0 0 43 43 43 0 0 43 43 43 43 0 0 43 43 43 43 43 43 43 43 43 43 43 43 43	0 ENTRY: LINK NO. 0 0 0 0 0 0 0 0 0 704 704 0 0 0 0 0 0 0	70  FLOW  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O	3970  ENTRY LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O
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74)=  CARD NO. 75)= 76)= 77)= 80)= 81)= 83)= 84)= 85)= 87)= 91)= 92)= 93)= 94)= 95)= 96)= 101)= 102)= 104)= 105)= 106)= 107)= 108)= 109)= 111)=	31  CARD TYPE 32 32 32 32 32 32 32 32 32 32 32 32 32	1404  LINK NO. 101 102 103 104 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 701 702 703 704 705 706 901 902 903 904 1001	TOTAL FLOW 465 734 466 714 283 660 503 328 447 790 128 406 270 58 937 560 265 551 910 713 673 404 176 534 417 705 699 413 724	1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 ENTRY LINK NO. 304 202 1401 1401 202 401 401 0 0 101 101 101 701 701 701 403 403 403 104 104 301 302 0 0 204 204 0 0 302 1402 1402 1402 1002 902	2  1  FLOW 407 507 414 634 195 297 226 0 0 35 47 0 0 26 83 74 58 655 447 739 0 0 114 251 0 0 0 20 62 27 269 0 705	0 LINK CAH CRUISE SPEED 43 43 43 43 43 43 43 43 43 43 43 43 43	0 0 2DS: 11 ENTRY LINK NO. 306 205 1403 1403 1403 205 404 404 0 0 103 103 103 703 703 703 703 703 0 406 105 0 0 207 0 0 0 0 308 308 308 1404 1404 1003 0 904	0 FLOW DATA 2 FLOW 58 227 52 80 88 363 277 0 0 208 281 0 0 69 218 196 0 251 159 0 104 171 0 0 290 0 0 0 156 472 401 678 450 0 19	0 CRUISE SPEED 43 43 43 43 43 43 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 0 43 43 43 0 0 0 43 43 43 0 0 0 0	0 ENTRY : LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	70  FLOW  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O	3970  ENTRY LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O
74)=  CARD NO. 75)= 76)= 77)= 80)= 81)= 82)= 83)= 84)= 85)= 86)= 87)= 90)= 91)= 92)= 93)= 94)= 95)= 101)= 102)= 103)= 104)= 107)= 108)= 107)= 110)= 111)= 111)=	31  CARD TYPE 32 32 32 32 32 32 32 32 32 32 32 32 32	LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706 901 902 903 904 1001 1002	TOTALL FLOW 465 734 466 503 365 296 243 328 447 790 128 406 270 58 8937 560 265 551 910 713 673 404 251 168 320 511 494 177 705 534 417 705 534 417 705 534 417 705 534 417 705 534 417 705 534 417 705 534 417 705 534 55 55 55 55 55 55 55 55 55 55 55 55 55	1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 ENTRY LINK NO. 304 202 1401 1401 202 401 0 0 101 101 0 0 701 701 701 403 403 104 104 104 301 302 0 0 204 204 0 0 0 0 302 302 1402 1402 1402 1002 0 902 0 0	2  1  FLOW 407 507 414 634 195 297 226 0 0 35 47 0 0 26 83 74 58 401 2655 447 739 0 0 114 251 0 0 0 0 20 62 16 27 269 0 705 0 0 0	0 LINK CAH CRUISE SPEED 43 43 43 43 43 43 43 43 43 43 43 43 43	0	0 FLOW DATA 2 FLOW 58 227 52 80 88 363 277 0 0 208 281 0 0 69 218 196 0 104 171 0 0 290 0 0 156 472 401 678 450 0 19 0 0	0 CRUISE SPEED 43 43 43 43 43 43 43 43 0 0 43 43 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 0 43 43 0 0 0 43 43 0 0 0 0	0 ENTRY: LINK NO. 0 0 0 0 0 0 0 0 704 704 0 0 0 0 0 0 0 0	70  FLOW  0  0  0  0  0  0  0  0  0  0  0  0  0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O	3970  ENTRY LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O
74)=  CARD NO. 75)= 76)= 77)= 78)= 80)= 81)= 82)= 83)= 84)= 85)= 86)= 87)= 88)= 90)= 91)= 92)= 93)= 94)= 95)= 96)= 97)= 100)= 101)= 103)= 104)= 105)= 106)= 107)= 108)= 109)= 110]= 111]= 112]=	31  CARD TYPE 32 32 32 32 32 32 32 32 32 32 32 32 32	LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 701 702 703 704 705 706 901 902 903 904 1001 1002	TOTAL FLOW 465 734 466 714 283 660 503 365 296 243 328 407 790 128 406 270 58 937 560 265 551 910 673 404 251 168 320 511 168 320 511 494 176 534 417 705 699 413 724 276	1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 ENTRY LINK NO. 304 202 1401 1401 202 401 401 0 0 101 101 0 701 701 403 403 104 301 302 0 0 204 204 204 204 204 204 204 204 2	2  1  FLOW 407 507 414 634 195 297 226 0 0 35 47 0 0 26 83 74 58 655 401 265 447 739 0 0 114 251 0 0 0 20 62 16 27 269 0 705 0	0 LINK CAH	0 0 2DS: II ENTRY LINK NO. 306 205 1403 1403 1403 205 404 404 0 0 0 103 103 0 0 703 703 0 406 105 0 0 207 0 0 0 0 308 308 308 1404 1003 0 904 0 0	0 FLOW DATA 2 FLOW 58 227 52 80 88 363 277 0 208 281 0 0 69 218 196 0 251 159 0 104 171 0 0 290 0 104 171 0 0 290 0 156 472 401 678 450 0 199 0	0 CRUISE SPEED 43 43 43 43 43 43 43 43 43 0 0 43 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 0 43 43 0 0 0 43 43 0 0 0 43 43 43 0 0 0 43 43 43 0 0 0 43 43 43 43 43 43 43 43 43 43 43 43 43	0 ENTRY: LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	70  3  FLOW  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O	3970  ENTRY LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O
74)=  CARD  NO. 75)= 76)= 77)= 80)= 81)= 82)= 83)= 84)= 85)= 90)= 91)= 91)= 92)= 93)= 94)= 96)= 97)= 101)= 103)= 104)= 105)= 107)= 110)= 111)= 113)= 114)= 115)=	CARD TYPE 32 32 32 32 32 32 32 32 32 32 32 32 32	LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706 901 902 903 904 1001 1002 1003 77 1401 1402	TOTALL FLOW 465 734 466 503 365 296 243 328 447 790 58 937 560 265 551 910 713 673 404 251 168 320 511 494 417 705 699 413 724 455 57 1069 45	1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 ENTRY LINK NO. 304 202 1401 1401 202 401 401 0 0 101 101 101 701 701 701 403 403 104 104 104 104 104 204 0 0 0 0 302 302 1402 1402 1402 1402 1402 1002 0 0 903 0	2  1  FLOW 407 507 414 634 195 297 226 0 0 35 47 0 0 26 83 74 588 401 265 447 739 0 0 114 251 0 0 0 0 20 62 16 27 269 0 705 0 0 0 682 0	0 LINK CAH CRUISE SPEED 43 43 43 43 43 43 43 43 43 43 43 43 43	0 0 EDS: 1 ENTRY LINK NO. 306 205 1403 1403 205 404 404 0 0 103 103 0 0 0 703 703 703 703 703 703 703 703	0 FLOW DATA 2 FLOW 58 227 52 80 88 363 277 0 0 208 281 0 0 69 218 196 0 104 171 0 0 290 0 104 171 0 0 0 156 472 401 678 450 0 19 0 0 387 0	0 CRUISE SPEED 43 43 43 43 43 43 43 43 0 0 43 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 0 43 43 0 0 0 0	O ENTRY : LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O	3970  ENTRY LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O
74)=  CARD NO. 75)= 76)= 77)= 80)= 81)= 82)= 83)= 84)= 85)= 87)= 99)= 91)= 92)= 93)= 94)= 95)= 96)= 101)= 102)= 104)= 105)= 104)= 105)= 1101= 112)= 113)= 112)= 113)=	31  CARD TYPE 32 32 32 32 32 32 32 32 32 32 32 32 32	LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 701 702 703 704 705 706 901 902 903 904 1001 1002 1003 77 1401	TOTAL FLOW 465 734 466 714 283 660 503 365 296 243 328 447 790 128 406 270 58 937 560 265 551 910 713 673 404 176 534 417 705 699 413 724 276 455 57 1069	1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 ENTRY LINK NO. 304 202 1401 1401 202 401 401 0 0 101 101 101 0 0 701 701 701 403 403 403 403 104 104 301 302 0 0 204 204 204 204 204 204 0 0 0 0 302 1402 1402 1402 1002 0 902 0 903	2  1  FLOW 407 507 414 634 195 297 226 0 0 35 47 0 0 26 83 74 58 655 447 739 0 0 114 251 0 0 0 20 62 27 269 0 705 0 0 682	0 LINK CAH	0 0 2DS: II ENTRY LINK NO. 306 306 306 404 404 0 0 103 103 703 703 703 703 703 703 703 703 703 7	0 FLOW DATA 2 FLOW 58 227 52 80 88 363 277 0 0 208 281 0 0 69 218 196 0 251 159 0 104 171 0 0 290 0 0 156 472 401 678 450 0 0 0 387	0 CRUISE SPEED 43 43 43 43 43 43 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 0 0 43 43 43 43 43 43 43 43 43 43 43 43 43	0 ENTRY : LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O	3970  ENTRY LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CRUISE SPEED O O O O O O O O O O O O O O O O O O

\*\*\*\*\*END OF SUBROUTINE TINPUT\*\*\*\*

80 SECOND CYCLE 80 STEPS

INITIAL SETTINGS
- (SECONDS)

NODE NO	NUMBE OF STA		STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10					
1 2	3	35 29	61 65	10 1												
3	4	76	27	43	70											
4	3	48	72	22												
7 9	3	51 66	60 18	6 38												
10	3	10	35	57												
14	2	44	24													
LINK	FLOW	SAT DI	EGREE MEAN	I TIMES		DELAY		ST	OPS	OUE	IIE	PERFORMANCE	EXIT	GRE	EN TI	MES
NUMBER	INTO	FLOW	OF PER	R PCU		RANDOM		MEAN	COST	MEAN		INDEX.	NODE	STA		START
	LINK	5	SAT CRUI		/ II - D - O	OVERSA		STOPS	OF		VERAGE	WEIGHTED SUM			END	END
	(PCU/H)	(PCU/H)	(%) (SEC)	DELAY (SEC)	(U+R+U= (PCU-	:MEAN Q) :H/H)	(\$/H)	/PCU (%)	STOPS (\$/H)	(PCU)	EXCESS (PCU)	OF ( ) VALUES (\$/H)		1S (	T SECON	2ND IDS)
	(,,	(= = = / == /	( ) ( ) ( )	(/	(	,,	( + / /	( - /	( + / /	(,	(,	( + / /		,		
77	57	715	11 8.9	4.4	0.0 +	0.1 (			( 0.0)	0		0.9	-	<b>6</b> F	1.0	
101 102	465 734	1900 1785	75 12.6 75 8.9	31.3	2.5 + 2.7 +	1.5 ( 1.5 (			( 13.0) ( 11.0)	12 10		69.6 70.1	1 1	65 18	10 61	
103	467	1710	68 7.6	29.0	2.7 +	1.0 (			(11.0)	8		63.4	1	37	10	
104	716	1915	55 7.6	9.7	1.2 +	0.6 (			(7.3)	7		33.3	1	37	10	
105 202	284 661	1785 1940	61 8.9 88 11.8	44.8 40.7	2.7 + 4.0 +	0.8 (	49.6) 104.9)		( 7.8) ( 19.8)	7 18		57.4 124.7	1 2	15 35	35 65	
202	503	1740	75 11.8	30.7	2.8 +		59.9)		(13.1)	12		73.0	2	35	65	
204	365	1760	69 17.2	36.1	2.5 +	1.1 (	51.3)	96	( 9.1)	8		60.4	2	6	29	
205 206	296 244	1720 1725	36 17.2 94 7.2	17.3 101.5	1.1 + 1.9 +	0.3 (	19.6)		( 4.8) ( 10.6)	4 10		24.4 107.8	2	72 70	29 1	
206	330	2000	29 7.2	8.9	0.6 +		97.2) 11.0)		( 2.3)	2		13.2	2	37	1	
301	447	2300	58 17.2	27.7	2.7 +	0.7 (			(9.7)	9		57.7	3	1	27	
302	790	3300	71 17.2	29.1	5.1 +	1.2 (			(18.0)	16		107.2	3	1	27	
303 304	128 405	1675 1790	39 19.8 42 19.8	28.8 17.1	0.7 + 1.5 +		14.3) 26.5)		( 3.1)	3 5		17.4 32.6	3	34 34	76 76	
305	270	1770	34 19.8	22.4	1.4 +		23.3)		(5.4)	5		28.7	3	35	70	
306	58	1785	9 5.1	3.8	0.0 +	0.1 (			( 0.1)	0		0.8	3	3	30	
307 308	937 562	3970 2000	67 5.1 64 8.9	10.4 24.7	1.5 + 2.9 +	1.0 (			( 14.0) ( 12.3)	17 12		50.5 65.9	3	3 36	30 70	
309	266	1785	33 8.9	20.7	1.2 +		21.2)		( 3.6)	3		24.9	3	35	70	
401	551	3300	64 5.9	24.7	2.8 +	0.9 (			(13.2)	12		65.9	4	28	48	
402 403	911 713	3300 3000	48 5.9 79 17.2	3.7 35.7	0.4 + 5.1 +	0.5 ( 1.9 (	11.6) 98.9)		( 1.8)	2 16		13.3 116.9	4	4 79	49 22	
404	673	1710	72 17.2	20.5	2.5 +		53.2)		(13.1)	12		66.3	4	61	24	
405	405	1900	85 12.2	46.1	2.4 +	2.7 (	72.9)		(11.4)	11		84.3	4	53	72	
406 701	251 168	2000	59 12.2 34 17.2	45.6 27.1	2.4 + 1.0 +		44.6) 17.6)		(7.3)	6 3		51.9 21.0	4 7	58 27	74 51	
701	320	1600 1750	59 17.2	31.5	2.1 +		39.2)		( 3.4) ( 7.3)	3 7		46.5	7	27	51	
703	511	1950	91 17.2	58.9	3.9 +	4.4 (	117.6)		( 16.6)	15		134.2	7	64	6	
704	494	1900	83 17.2	43.3	3.5 +		83.4)		( 13.7)	13		97.1	7	27	51	
705 706	177 535	1800 1900	54 20.6 75 20.6	24.2 18.7	0.6 + 1.2 +		16.6) 38.4)		( 4.5) ( 10.1)	3 12		21.0 48.4	7 7	56 57	11 6	
901	417	1740	69 18.1	23.9	1.6 +	1.1 (	38.5)	81	(8.7)	9		47.2	9	71	18	
902	704	1740	79 18.1	17.9	1.6 +		48.3)		( 9.6)	13		57.9	9	58	18	
903 904	699 413	1900 1665	70 6.4 71 17.2	10.2 33.4	0.7 + 2.6 +	1.2 (	26.8) 53.7)		(10.3)	11 9		37.0 63.6	9 9	25 71	66 18	
1001	723	1845	59 5.5	4.1	0.0 +		10.3)		( 0.9)	1		11.2	10	63	35	
1002	276	1710	76 17.2	50.0	2.3 +	1.5 (			( 8.0)	7		61.9	10	41	57	
1003 1401	455 1070	1910 1965	79 17.2 78 12.2	41.0 13.3	3.3 + 2.1 +		72.7) 54.1)		(12.2)	11 18		84.9 72.6	10 14	12 49	35 24	
1401	45	1871	12 4.7			0.1 (			( 1.0)	1		6.6	14	29	44	
1403	134	1791	37 4.7	36.2	1.0 +	0.3 (	18.9)	92	( 3.2)	3		22.0	14	29		
1404	1121	3970	40 6.4	8.3	2.1 +	0.3 (	34.3)	44	(12.7)	13		47.0	14	49	24	
TOTAL		TOTAL	MEAN		TOTAL	TOTAL	TOTAL		TOTAL	PEN	IALTY	TOTAL				
DISTAN	ICE	TIME	JOURNEY	1	UNIFORM	RANDOM	+ COST		COST	F	'OR	PERFORMANCE				
TRAVELI	ED	SPENT	SPEED		DELAY	OVERSA			OF		CESS	INDEX				
(PCU-KN	1/H)	(PCU-H/H	(KM/H)	(1	PCU-H/H)(	DELAY PCU-H/H			STOPS (\$/H)		EUES (H)	(\$/H)				
				( -												
2906.	. 3	206.0	14.1		87.1	51.3	(1965.	3) + (	397.6)	+ (	0.0)	= 2362.9	TOTA	ALS		
													ROU'	re		

***********	******	******	******	*******
CRUISE	DELAY	STOPS	TOTALS	
LITRES PER HOU	R LITRES PER HOUR	LITRES PER HOUR	LITRES PER HOUR	

FUEL CONSUMPTION PREDICTIONS 155.9 + 159.2 + 181.2 = 496.2

NO. OF ENTRIES TO SUBPT = 1 NO. OF LINKS RECALCULATED= 44

PROGRAM TRANSYT FINISHED

#### Traffic Network Study Tool

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For sales and distribution information, program advice and maintenance, contact:

+44 (0) 1344 770018 +44 (0) 1344 770864 Tel: TRL Limited Old Wokingham road Fax: Email: softwarebureau@trl.co.uk Crowthorne, Berks. RG45 6AU, UK. Web: www.trlsoftware.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "SATURDAY 13-14 WITH COMMITTED WITH DEV ORIGINAL TIMINGS.DAT" at 16:38 on 18/01/08

TRANSYT 12.0

Saturday 13:00-14:00 hours with Committed with Dev original timings

#### PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES NUMBER OF LINKS NUMBER OF OPTIMISED NODES MAXIMUM NUMBER OF GRAPHIC PLOTS 8 NUMBER OF STEPS IN CYCLE MAXIMUM NUMBER OF SHARED STOPLINES
MAXIMUM NUMBER OF TIMING POINTS 0 4 MAXIMUM LINKS AT ANY NODE

CORE REQUESTED = 11940 WORDS CORE AVAILABLE = 72000 WORDS

10 14

23)= 24)= 12 12

25)= 12

26)= 27)= 12 12

		INPUT														
CARD NO.	CARD TYPE	~ ~~~~														
							mitted wi									
CARD	CARD		NO. OF				EQUISAT				-SPEEDS	OPTIMISE		HILL-	DELAY	STOP
NO.	TYPE	TIME	STEPS	PERIOD		MENTS	SETTINGS		SCALE		CARD32	0=NONE	COPIES	CLIMB	VALUE	VALUE
			PER	1-1200	START	END		1=EQUAL	10-200	50-200	0=TIMES	1=O/SET	FINAL	OUTPUT		P PER
		(SEC)	CYCLE	MINS.	(SEC)	(SEC)		CYCLE	8	8	1=SPEEDS		OUTPUT	1=FULL		100
2)=	1	80	80	60	2	3	0	0	0	0	1	0	0	0	1420	260
CARD	CARD					L:	IST OF	NODES TO	D BE O	PTIMISED						
NO.	TYPE															
3 ) =	2	1	2	3	4	7	9	10	14	0	0	0	0	0	0	0
					DE CARDS:		MUM STAGE									
CARD	CARD	NODE		S1	S2	S3	S4	S5	S6	s7	S8	S9	S10			
NO.	TYPE	NO.														
	10	1		7	7	7										
5)=	10	2		7	7	7										
6)=	10	3		7	7	7	1									
	10	4		7	7	7										
8)=	10	7		3	7	7										
9)=	10	9		7	7	7										
10)=	10	10		7	7	7										
11)=	10	14		7	7											
					DE CARDS:		EDING INT									
	CARD	NODE		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10			
NO.	TYPE	NO.														
	11	1		2	4	8										
	11	2		8	5	5										
	11	3		7	9	1	5									
15)=		4		5	7	6										
16)=		7		6	4	21										
17)=	11	9		5	7	2										
18)=	11	10		2	6	6										
19)=	11	14		5	5											
				NOI	DE CARDS:		E CHANGE		ORKING)							
CARD	CARD	NODE	Sgl/Dbl	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10			
NO.	TYPE	NO.	Cycled													
	12	1	1	35	61	10										
	12	2	1	29	65	1										
22)=		3	1	76	27	43	70									
221-	10	4	1	4.0	7.0	2.2										

LINK CARDS: GIVEWAY DATA PRIORITY LINKS LINK1 GIVEWAY COEFFS.

72 60

18

35 24

22 6

38

57

CARD CARD LINK LINK1 LINK2 ONLY TYPE % FLOW X100 X100 NO. NO. NO. NO.

48 51

66

10

T.TNK STOP MAX DELAY DISPSN LENGTH WT.X100 FLOW WT.X100 X100

NO.   TYPE   NO.   NODE   STAGE   LAG   ST	28) = 29) = 30) = 31) =	30 30 30 30	77 103 303 705	105 101 308 703	104 0 0	0 0 0	22 50 50 50	19 100 100 100	0 0 0	0 0 0	0 0 0	0 0 0	100 100 100 100	0 0 0	715 1000 1000 1000	0 0 0	0 0 0 0
70)= 31 1003 10 1 2 2 0 0 0 0 0 200 0 1910 0	NO. 32)= 33)= 34)= 35)= 36)= 37)= 40)= 42)= 43)= 45)= 45)= 50)= 51)= 55)= 56)= 57)= 58)= 60)= 62)= 62)= 62)= 67)= 68)= 67)= 68)= 67)=	TYPE 31 31 31 31 31 31 31 31 31 31 31 31 31	NO. 101 102 103 104 105 406 701 702 703 706 901 902 903 904 1001 1002 1003	NODE 1 1 1 1 1 2 2 2 2 2 2 3 3 3 3 3 3 4 4 4 4 7 7 7 7 7 9 9 9 10 10 10	STAGE 2 3 1 1 3 1 1 2 2 1 1 2 2 1 1 2 2 1 1 1 3 2 2 1 1 1 3 2 2 1 1 1 1	TART LAG 4 8 2 2 5 6 6 5 7 8 7 9 8 6 12 7 13 5 10 21 4 21 5 6 5 2 7 6 6 6 2	STAG 3 2 3 3 1 2 2 1 1 3 3 2 2 1 1 3 3 2 2 1 1 3 3 2 2 1 1 3 3 2 2 1 1 3 3 2 2 1 2 2 2 2	N END   CASE   C	STAG 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SECON START E LAG 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ID GREEN  F STAGE  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LAG 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LENGTH 145 100 85 85 85 100 135 135 200 200 200 230 230 230 230 230 230 240 240 240 210 200 240 240 210 200 200 200 200 200 200 200 200 20	WT.X100	) FLOW 1900 1785 1710 1915 1785 2000 2300 1675 1790 1785 3970 2000 1600 1750 1950 1950 1900 1740 1740 1740 1740 1740 1910 1665 1845 1710 1910	WT.X100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DISF X11 CC C
	CARD NO: 75)= 76)= 77)= 78)= 78)= 80)= 81)= 82)= 83)= 84)= 85)= 90)= 91)= 92)= 93)= 94)= 95)= 101)= 103)= 104)= 105)= 106)= 110)= 110)= 111)= 112)= 113)= 114)= 115)= 116)= 117)=	32 32 32 32 32 32 32 32 32 32 32 32 32 3	LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706 901 902 903 904 1001 1002 1003 77 1401 1402 1403 1404	TOTAL FLOW 451 712 513 850 354 709 503 365 296 243 376 488 764 128 429 270 107 904 581 313 600 877 729 673 452 251 172 251 172 251 172 251 172 2251	UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LINK NO. 304 202 1401 1401 202 401 401 0 0 101 101 101 701 701 701 701 403 403 104 104 104 104 204 0 0 0 302 302 1402 1402 1402 1402 1402 1002 0 903 0 903 0 101	FLOW 361 502 404 670 250 334 237 0 0 32 50 0 26 87 74 407 622 410 0 313 488 713 0 0 114 251 0 0 0 20 62 37 61 277 0 716 0 0 0 0 694 0 0 373	CRUISE SPEED 43 43 43 43 43 43 43 43 43 43 43 43 43	LINK NO. 306 205 1403 1403 205 404 0 0 103 103 0 0 703 703 703 703 703 703 703 703 7	FLOW 90 210 109 180 104 375 266 0 0 211 326 0 0 69 232 196 0 0 251 171 0 0 338 0 0 0 0 160 490 391 654 454 0 19 0 0 399 0 0 0 712	CRUISE SPEED 43 43 43 43 43 43 43 43 43 43 43 43 43	LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CRUISE SPEED 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LINK NO. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CRUISIS SPEE

\*\*\*\*\*END OF SUBROUTINE TINPUT\*\*\*\*

80 SECOND CYCLE 80 STEPS

INITIAL SETTINGS
- (SECONDS)

NODE NO	NUMBE OF STA		STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10					
					-	-	-	•	-	-						
1 2	3	35 29	61 65	10 1												
3	4	76	27	43	70											
4	3	48	72	22												
7 9	3	51 66	60 18	6 38												
10	3	10	35	57												
14	2	44	24													
LINK	FLOW	SAT DI	EGREE MEAN	I TIMES		DELAY		C/T	OPS	OUE	יווי	PERFORMANCE	EXIT	CDE	EN TI	MEC
NUMBER	INTO	FLOW		R PCU		I RANDOM		MEAN	COST	MEAN	OE	INDEX.	NODE	STA		TART
	LINK	5	SAT CRU			OVERSA		STOPS	OF	MAX. A	VERAGE	WEIGHTED SUM			END	END
	(PCU/H)	(PCU/H)	(%) (SEC	DELAY (SEC)	(U+R+O= (PCU-	MEAN Q)	DELAY (\$/H)	/PCU (%)	STOPS (\$/H)	(PCU)	EXCESS (PCU)	OF ( ) VALUES (\$/H)		1S	T SECON	2ND
	(FCO/II)	(FCO/II)	(8) (5EC	(BEC)	(FC0	11/11/	(9/11/	( 0 )	(9/11/	(FC0)	(FCO)	(\$/11)		(	DECON	iDS)
77	143	715	30 8.9	5.9	0.0 +	0.2 (			( 0.0)	0		3.0				
101 102	450 712	1900 1785	73 12.6 73 8.9	32.3 21.4	2.7 + 2.8 +	1.3 (	56.5) 58.8)		( 12.5) ( 11.0)	11 10		69.1 69.8	1 1	65 18	10 61	
102	513	1710	73 7.6	27.9	2.5 +		55.4)		(12.2)	9		67.7	1	37	10	
104	851	1915	66 7.6	10.6	1.4 +	1.0 (	34.0)	46	( 10.0)	10		44.0	1	37	10	
105	354	1785	76 8.9	51.7	3.5 +		71.5)		(10.5)	9		82.0	1	15	35 65	
202 203	709 504	1940 1740	94 11.8 75 11.8	54.8 29.7	4.3 + 2.6 +		151.7) 58.1)		( 24.2) ( 12.9)	22 12		175.9 71.0	2	35 35	65 65	
204	365	1760	69 17.2	36.1	2.5 +		51.3)		( 9.1)	8		60.4	2	6	29	
205	296	1720	36 17.2	17.3	1.1 +		19.6)		( 4.8)	4		24.4	2	72	29	
206 207	243 376	1725 2000	94 7.2 33 7.2	99.7 8.9	1.9 + 0.6 +	4.8 (	95.1) 12.5)		( 10.5)	10 2		105.6 15.0	2	70 37	1 1	
301	488	2300	63 17.2	29.0	3.0 +		54.9)		(10.9)	10		65.8	3	1	27	
302	764	3300	69 17.2	28.5	4.8 +	1.1 (			(17.1)	16		101.4	3	1	27	
303 304	128 428	1675 1790	41 19.8 45 19.8	28.8 17.3	0.7 +		14.3) 28.4)		( 3.2) ( 6.6)	3 6		17.5 35.0	3 3	34 34	76 76	
304	270	1770	34 19.8	22.1	1.6 + 1.4 +		23.1)		( 5.4)	5		28.5	3	35	70	
306	106	1785	17 5.1	4.1	0.0 +	0.1 (			( 0.1)	0		1.6	3	3	30	
307	905	3970	65 5.1	10.1	1.5 +	0.9 (			(12.6)	15		46.9	3	3	30	
308 309	581 313	2000 1785	66 8.9 39 8.9	22.7 19.1	2.6 + 1.3 +	1.0 (	50.8) 23.0)		( 11.5) ( 3.9)	11 3		62.4 26.9	3	36 35	70 70	
401	600	3300	69 5.9	25.8	3.1 +		59.9)		(14.7)	13		74.6	4	28	48	
402	877	3300	46 5.9	3.6	0.3 +		10.9)		( 1.7)	1		12.5	4	4	49	
403 404	729 673	3000 1710	81 17.2 72 17.2	36.7 20.5	5.2 + 2.5 +		104.0) 53.2)		( 18.7) ( 13.1)	17 12		122.7 66.3	4	79 61	22 24	
405	452	1900	95 12.2	72.7	2.8 +		128.6)		(16.1)	16		144.7	4	53	72	
406	251	2000	59 12.2	45.6	2.4 +		44.6)		(7.3)	6		51.9	4	58	74	
701 702	172 320	1600 1750	34 17.2 59 17.2	27.2 31.5	1.0 + 2.1 +		18.1) 39.2)		( 3.5) ( 7.3)	3 7		21.6 46.5	7 7	27 27	51 51	
702	527	1950	94 17.2	68.1	4.1 +		140.5)		(18.5)	17		159.0	7	64	6	
704	498	1900	84 17.2	44.0	3.5 +		85.5)		( 14.0)	13		99.4	7	27	51	
705	180 553	1800	57 20.6	25.5	0.6 + 1.3 +		17.7)		( 4.7)	1 2		22.5	7 7	56 57	11 6	
706 901	553 428	1900 1740	78 20.6 70 18.1	19.9 25.1	1.3 +	1.7 (	42.3) 41.6)		( 10.5)	12 9		52.7 50.9	9	71	18	
902	716	1740	80 18.1	19.2	1.7 +	2.0 (	52.9)		( 12.1)	14		64.9	9	58	18	
903	711	1900	71 6.4	10.4	0.7 +	1.2 (			(10.4)	11		38.3	9	25	66	
904 1001	425 735	1665 1845	73 17.2 60 5.5	34.4 4.2	2.7 + 0.0 +		56.9) 10.7)		( 10.4)	9 1		67.3 11.7	9 10	71 63	18 35	
1002	284	1710	78 17.2	52.0	2.3 +		57.7)		( 8.4)	8		66.1	10	41	57	
1003	459	1910	80 17.2	41.6	3.3 +	1.9 (	74.4)	105	(12.4)	11		86.8	10	12	35	
1401 1402	1092 102	1965 1871	79 12.2 27 4.7	13.9 34.2	2.1 + 0.8 +		57.5)		(19.1)	18 2		76.7 15.9	14 14	49 29	24 44	
1402	293	1791	82 4.7			0.2 (	65.3)		( 2.3) ( 9.1)	8		74.5	14	29 29		
1404	1085	3970	39 6.4	8.5		0.3 (			( 12.5)	12		46.6	14	49		
mom* *		moma r	MERS		TOTA T	moma r	mom? T		TOTAT	DEN	17 T TT 7	TOTA T				
TOTAL		TOTAL TIME	MEAN JOURNEY	ī	TOTAL UNIFORM	TOTAL			TOTAL		IALTY 'OR	TOTAL PERFORMANCE				
TRAVELL		SPENT	SPEED	,	DELAY	OVERSA	T OF		OF	EX	CESS	INDEX				
( D.C	. /	/ DOI: /	/****/		DOI: 17 /77 /	DELAY			STOPS		EUES	(4)				
(PCU-KM	1/H)	(PCU-H/H)	) (KM/H)	) (1	PCU-H/H)(	PCU-H/H	) (\$/H)		(\$/H)	(\$	(H)	(\$/H)				
3003.	3	226.1	13.3		91.9	64.3	(2218.	9) + (	428.6)	+ (	0.0)	= 2647.5	TOTA	ALS		
													ROU'	ľE		

*******	******	*****	*****	*****	*****	*****	********
	CRUISE		DELAY		STOPS		TOTALS
	LITRES PER HOUR	LITR	ES PER HOUR	LITR	ES PER HOUR	LITR	ES PER HOUR
FUEL CONSUMPTION PREDICTIONS	161.1	+	179.7	+	195.3	=	536.1

NO. OF ENTRIES TO SUBPT = 1 NO. OF LINKS RECALCULATED= 44

PROGRAM TRANSYT FINISHED

1

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For sales and distribution information, program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770018
Old Wokingham road Fax: +44 (0) 1344 770864
Crowthorne, Berks. Email: softwarebureau@trl.co.uk
RG45 6AU, UK. Web: www.trlsoftware.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "WEEKDAY 17-18 WITH COMMITTED NO DEV OPTIMISED TIMINGS.DAT" at 17:06 on 17/01/08

TRANSYT 12.0

Weekday 17:00-18:00 hours with Committed no Dev optimised timings

#### PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES	=	8
NUMBER OF LINKS	=	44
NUMBER OF OPTIMISED NODES	=	8
MAXIMUM NUMBER OF GRAPHIC PLOTS	=	0
NUMBER OF STEPS IN CYCLE	=	80
MAXIMUM NUMBER OF SHARED STOPLINES	=	0
MAXIMUM NUMBER OF TIMING POINTS	=	4
MAXIMUM LINKS AT ANY NODE	=	9

CORE REQUESTED = 11940 WORDS CORE AVAILABLE = 72000 WORDS

י דוומאד בדבת

		INPUT	:-												
		~ ~~~~													
CARD	CARD														
NO.	TYPE	Mooled	17:00	10.00 %			tted no I	m+:n							
CARD	CARD		NO. OF				EQUISAT				-SPEEDS	OPTIMISE	ע מערט ז	шттт	DELAY
STOP	CARD	CICLE	NO. OF	IIME E	SFFECITVE.	-GKEEN	EQUISAI	0-0NEQUA	AL FLOW	CKUISE	-255502	OPIIMISE	EAIRA	птпп-	DELAI
NO.	TYPE	TIME	STEPS	DERIOD	DISDIACE!	PTMTN	SETTINGS	CVCLE	SCALE	SCALE	CARD32	0=NONE	COPIES	CLIMB	VALUE
VALUE	1111	111111	DILLO	IBRIOD	DIDI BACBI	ILIVID	DETTINOD	СТСШ	БСПВВ	осишь	CIMODSE	0-NONE	COLIDO	CHILID	VALDOD
VII.LUL			PER	1-1200	START	END	0=NO	1=EOUAL	10-200	50-200	0=TIMES	1=O/SET	FINAL	OUTPUT	P PER
PER								~ -							
		(SEC)	CYCLE	MINS.	(SEC)	(SEC)	1=YES	CYCLE	%	용	1=SPEEDS	2=FULL	OUTPUT	1=FULL	PCU-H
100															
2)=	1	80	80	60	2	3	1	0	0	0	1	2	0	0	1420
CARD	CARD					LI	ST OF 1	NODES TO	D BE OF	TIMISED					
NO.	TYPE														
3)=	2	1	2	3	4	7	9	10	14	0	0	0	0	0	0
				NOT	E CARDS:	MINITA	ATIM CULACE	TIMEC /I	ORKING)						
CARD	CARD	NODE		S1	S2	MINIM S3	MUM STAGE S4	S5	S6	s7	S8	S9	S10		
NO.	TYPE	NO.		51	52	55	51	55	50	57	50	57	510		
4)=		1		7	7	7									
5)=	10	2		7	7	7									
	10	3		7	7	7	4								
	10	4		7	7	7									
8)=	10	7		3	7	7									
9)=	10	9		7	7										
10)=		10		7	7	7									
11)=	10	14		7	7										
				****											
CARD	CARD	NODE		S1	DE CARDS: S2	PRECE S3	DING INTE	SRSTAGE 1	S6	S7	S8	S9	S10		
NO.	TYPE	NO.		51	52	53	54	55	50	57	50	59	210		
12)=		1		2	4	8									
13)=		2		8	5	5									
14)=		3		7	9	7	5								
15)=		4		5	7	6									
16)=	11	7		6	4	21									
17)=		9		5	23										
18)=		10		2	6	6									
19)=	11	14		5	5										
				NOT	n anna.	OMA OF	. GUANGE E	DIMEG /FI	DICTNG \						
CARD	CARD	NODE	Sgl/Dbl		DE CARDS: S2	STAGE S3	CHANGE 1	S5	S6	s7	S8	S9	S10		
NO.	TYPE	NO.	Cycled	31	52	33	24	55	50	51	50	39	210		
20)=		NO.	1	51	1	34									
21)=		2	1	31	74	9									
22)=		3	1	74	28	45	65								
23)=		4	1	53	74	34									
24)=	12	7	1	54	63	6									
25)=		9	1	73	18										
26)=		10	1	21	56	8									
271-	12	1.4	1	5.0	38										

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LINK CARDS: GIVEWAY DATA

g1.55	a		PRIORIT		LINK1 G								ama n			
CARD DISPSN NO.	CARD TYPE	LINK	LINK1	LINK2	ONLY % FLOW	A1 X100	A2 X100					LINK LENGTH W	STOP	MAX FLOW	DELAY WT.X100	
X100 28)=	30	77	105	104	0 PLOW	22	19	0	0	0	0	100	0	715	0	0
29)=	30 30	103 303	101	0	0	50 50	100	0	0	0	0	100	0	1000	0	0
31)=	30	705	703	0	0	50	100	0	0	0	0	100	0	1000	0	0
					FIRST	GREEN		RDS: FI	XED DA							
CARD	CARD	LINK	EXIT	S	TART		END	ST	'ART	D GREEN EN	D	LINK	STOP	SAT	DELAY	
DISPSN NO.	TYPE	NO.	NODE	STAGE	LAG	STAGE	LAG	STAGE	LAG	STAGE	LAG	LENGTH	WT.X100	FLOW	WT.X100	
X100 32)=	31	101	1	2	4	3	0	0	0	0	0	145	0	1900	0	0
33) = 34) =	31	102 103	1	3 1	8 2	2	0	0	0	0	0	100 85	0	1785 1710	0	0
35)= 36)=	31 31	104 105	1 1	1 3	15 5	3 1	0	0	0	0 0	0	85 100	0	1915 1785	0 0	0
37) = 38) =	31 31	202 203	2 2	1	6 6	2 2	0	0	0	0 0	0	135 135	0	1940 1740	0 0	0
39)= 40)=	31 31	204 205	2	3 2	5 7	1 1	0	0 0	0	0 0	0	200 200	0	1760 1720	0 0	0
41) = 42) =	31 31	206 207	2 2	2 1	5 8	3	0	0	0	0 0	0	80 80	0 0	1725 2000	0 0	0 0
43) = 44) =	31 31	301 302	3	1 1	5 10	2	0	0 0	0	0	0	200 200	0	2300 3300	0 0	0
45) = 46) =	31 31	303 304	3	2 2	7 7	1 1	0	0 0	0	0	0	230 230	0	1675 1790	0 0	0
47) = 48) =	31 31	305 306	3	2 1	8 7	4 2	0	0	0	0	0	230 55	0	1770 1785	0 0	0
49) = 50) =	31 31	307 308	3	1 2	7 9	2 4	3	0	0	0	0	55 100	0	3970 2000	0	0
51) = 52) =	31 31	309 401	3 4	2	9	4	0	0	0	0	0	100	0	1785 3300	0	0
53) = 54) =	31	402 403	4	2 2	12 7	1 3	1 0	0	0	0	0	65 200	0	3300 3000	0	0
55) = 56) =	31 31	404 405	4	1	13 5	3 2	2	0	0	0	0	200 140	0	1710 1900	0	0
57)=	31	406	4 7	1 3	10	2	2	0	0	0	0	140	0	2000	0	0
58) = 59) =	31 31	701 702	7	3	21 21	1	0	0	0	0	0	200	0	1600 1750	0	0
60)= 61)=	31 31	703 704	7	2	4 21	3 1	0	0	0	0	0	200	0	1950 1900	0	0
62) = 63) =	31 31	705 706	7 7	1	5 6	3	5 0	0	0	0 0	0	240 240	0	1800 1900	0 0	0
64)= 65)=	31 31	901 902	9 9	1 2	5 23	2 2	0	0 0	0	0	0	210 210	0	1740 1740	0 0	0
	2.1															
66)= 67)=	31 31	903 904	9 9	2 1	23 5	1 2	0	0	0	0	0	70 200	0	1900 1665	0 0	0 0
									0		-					
67) = 68) =	31 31	904 1001	9 10	1 3	5 6	2 2	3	0	0 0 0	0	0	200 60	0	1665 1845	0	0
67) = 68) = 69) = 70) =	31 31 31 31	904 1001 1002 1003	9 10 10 10	1 3 2 1	5 6 11 6	2 2 3 2	3 0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	200 60 200 200	0 0 0 0	1665 1845 1710 1910	0 0 0 0	0 0 0
67) = 68) = 69) = 70) = 71) = 72) =	31 31 31 31 31 31	904 1001 1002 1003 1401 1402	9 10 10 10 14 14	1 3 2 1 1 2	5 6 11 6 5	2 2 3 2 2 1	3 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	200 60 200 200 140 50	0 0 0 0 0	1665 1845 1710 1910 1965 1871	0 0 0 0 0	0 0 0 0 0
67) = 68) = 69) = 70) = 71) = 72) = 73) =	31 31 31 31 31 31	904 1001 1002 1003 1401 1402 1403	9 10 10 10 14 14	1 3 2 1 1 2 2	5 6 11 6 5 5 5 5	2 2 3 2 2 1 1 2	3 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	200 60 200 200 140 50 50 70	0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791	0 0 0 0 0 0	0 0 0 0 0
67) = 68) = 69) = 70) = 71) = 72) = 73) =	31 31 31 31 31 31 31 31	904 1001 1002 1003 1401 1402 1403	9 10 10 10 14 14 14	1 3 2 1 1 2 2	5 6 11 6 5 5 5 5	2 2 3 2 2 1 1 2	3 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	200 60 200 200 140 50 50 70	0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970	0 0 0 0 0 0	0 0 0 0 0
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67) = 68) = 70) = 71) = 72) = 73) = 74) = 74) = 74) = 74) = 74) = 75 = 76) = 76) = 77) = 76) = 76) = 77) = 80) = 81) = 84) = 85) = 86) = 87) = 91) = 9	31 31 31 31 31 31 31 31 31 31 31 31 32 32 32 32 32 32 32 32 32 32 32 32 32	904 1001 1002 1003 1401 1402 1403 1404  LINK NO.  101 102 103 104 105 202 203 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706	9 10 10 10 11 4 11 4 11 4 11 4 11 4 11 4	1 3 2 2 1 1 2 2 2 1 1 UNIFORM 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 6 6 11 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2 2 2 3 3 2 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	200 60 200 200 140 50 50 70 3 FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970  ENTRY  LINK  NO.  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
67) = 68) = 70) = 71) = 72) = 72) = 74) = 74) = 74) = 74) = 74) = 75 = 76) = 7	31 31 31 31 31 31 31 31 31 31	904 1001 1002 1003 1401 1402 1403 1404  LINK NO.  101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 401 402 405 406 406 407 702 703 704 705 706 901 902	9 10 10 10 14 14 14 14 14 14 14 14 15 TOTAL FLOW 617 790 391 811 191 702 424 300 269 177 249 395 814 163 552 161 23 1232 583 395 451 823 995 645 303 254 107 286 511 692 123 553 409 954	1 3 2 1 1 2 2 1 1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 6 11 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2 2 2 3 3 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 2 2 2 1 2	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	200 60 200 200 140 50 50 70  3  FLOW  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970  ENTRY  LINK NO.  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
67) = 68) = 70) = 71) = 72) = 74) = 74) = 74) = 74) = 74) = 75 = 76) = 76) = 76) = 76) = 76) = 81) = 82) = 83) = 84) = 85) = 86) = 87) = 90) = 91) = 92) = 93) = 94) = 95) = 96) = 97) = 96) = 97) = 9100 = 101) = 102) = 103) = 104) = 105) = 105) = 106) = 107) = 107) = 1	31 31 31 31 31 31 31 31 31 31	904 1001 1002 1003 1401 1402 1403 1404  LINK NO.  101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 901	9 10 10 10 11 14 14 14 14 14 14 14 15 16 17 790 391 811 191 702 424 300 269 177 249 395 814 163 395 451 823 995 645 303 254 107 286 511 692 123 553 409	1 3 2 1 1 2 2 1 1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 6 6 11 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2 2 2 3 3 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 2 1 1 2	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	200 60 200 200 140 50 50 70 3 FLOW  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970  ENTRY LINK NO.  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

115) = 116) = 117) = 118) =    CARD QUEUE NO. WEIGHT 119) = 120) = 121) =	32 3 32 3 32 3 32 3 32 3 32 3 32 3 32 3	402 403 404 LINK NO. 102 307 204	976 448 322 10 1145 20 57 1361  LIMIT QUEUE 14 13 10 E TINPU	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 9 9 9 9	9022 0 0 0 9033 0 101 LIN NO 103 308 401	0 0 706 0 0 571 L.: K LIMIT		904 0 0 0 0 904 0 102 QUEUE LINK NO. 104 1401 0	222 0 0 0 439 0 790 CONSTR LIM QUE	4 AINTS IT QU UE WEI 9999	IGHT		0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
. 8	0 SECONI	CYCLE	80 STE	EPS													
	L SETTIN CONDS)	IGS															
NODE NO	NUMBE OF STA			TAGE ST	TAGE 3	STAGE S	STAGE STA 5	GE S'	TAGE 7	STAGE 8	STAGE 9	STAGE 10					
1 2 3 4 7 9 10	3 3 4 3 3 2 3 2	51 31 74 53 54 73 21 50		74 28	34 9 45 34 6	65											
LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN CRUIS	PCU	UNIFORM H	ELAY RANDOM+ CO OVERSAT O	ST I	STOP MEAN FOPS	S COST OF	MEAN	AVERAGE	INI	DEX.	EXIT NODE	GREEN TO START S	IMES START
END	(PCU/H)	(PCU/H	[ ) (%)	(SEC)	DELAY	(U+R+O=MI (PCU-H)	EAN Q) DEL			STOPS (\$/H)	(PCU)	EXCESS (PCU)		) VALUES		1ST (SECO	2ND NDS)
77 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706 901 902 903 904 1001 1002 1003	155 24 1232 584 396 449 995 645 302 254 107 286 511 692 123 554 404 939 736 477 960 448 322	1785 1710 1915 1785 1940 1740 1760 1720 1725 2000 3300 1675 1790 1770 1785 3970 2000 3000 1785 3300 3000 1710 1900 1900 1900 1900 1900 1900 1	75 73 19 47 105 104 41 86 88 74 94 95 97 95	8.9 7.6 7.6 8.9 11.8 11.8 17.2 17.2 17.2 17.2 19.8 19.8 19.8 5.1 5.1 5.1 5.1 20.6 17.2	33.7 35.2 22.6 8.1 140.4 39.5 43.3 2.3 26.6 13.0 55.2 52.6 22.6 24.0 21.0 22.6 44.0 21.0 22.6 44.0 45.0 46.0 46.0 47.0 4	2.6 + 1.2 + 1.2 + 1.3 + 4 + 1.3 + 4 + 1.3 + 1.2 + 1.3 + 1.2 + 1.3 + 1.2 + 1.3 + 1.2 + 1.3 + 1.2 + 1.3 + 1.2 + 1.3 + 1.2 + 1.3	2.4 (114. 3.6 (87. 0.5 (25. 1.1 (35. 0.9 (42. 6 (70. 1.5 (55. 1.3 (23. 1.4 (36. 1.4 (36. 1.4 (36. 1.4 (36. 1.4 (36. 1.2 (13. 0.5 (21. 0.7 (40. 0.2 (13. 0.0 (0. 2.0 (60. 2.0 (91. 0.8 (60. 1.7 (75. 1.7 (75. 1.7 (5.) 1.7 (5. 1.8 (5. 1.7 (5. 1.8 (60. 1.7 (75. 1.7 (5. 1.7 (5. 1.3 (5. 1.7 (5. 1.3 (5. 1.7 (5. 1.3 (5. 1.7 (5. 1.3 (5. 1.7 (5. 1.3 (5. 1.5 (25. 1	4) 3) 1) 8) 9) 55) 8) 77) 55) 77) 99) 6) 77) 77) 8) 77) 89) 77) 89) 77) 11) 11) 99) 22)	101 ( 61 ( 55 ( 10	17.8) 20.6) 6.1) 11.5) 5.2) 16.4) 6.7) 8.5) 5.1) 1.6) 7.7) 24.1) 9.3) 3.4) 13.7) 16.7) 16.7) 18.6) 7.7) 29.4) 19.3) 3.4) 11.7) 12.0) 22.5) 12.7) 12.0) 24.9) 13.5) 12.7) 12.0) 24.9) 13.7)	15 10 12 1 21 9 8 7 2 5 30 37 2 15 11 22 11 22 17 26 16	( 0.1)* ( 0.2)* ( 0.0)*	1 10 1 1 3 4	0.1 132.2 136.8 31.2 54.9 48.1 87.2 39.2 64.3 28.8 42.0 6.9 43.1 126.8 25.6 49.5 16.9 0.8 135.8 300.3 72.0 88.8 6.3 125.1 41.2 69.4 59.8 11.3 34.9 34.9 34.9 35.9 36.9 17.9 74.1 99.8 59.8 11.3 12.9 74.1 12.9 74.1 13.1 14.2 15.3 16.9 16.9 16.9 16.9 17.0	1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5 34 42 1 53 34 66 34 39 51 37 74 37 74 14 31 1 31 79 9 79 28 4 28 35 74 36 65 1 31 37 65 37 65 40 53 6 36 6 36 6 36 6 36 74 63 76 65 40 75 40 7	
LINK	0 SECONI FLOW	SAT	DEGREE	E MEAN			ELAY		STOP			JEUE			EXIT	GREEN T	
NUMBER END	INTO	FLOW	OF SAT	CRUIS		(	RANDOM+ CO OVERSAT O	F S	MEAN TOPS	OF	MEAN MAX.	AVERAGE	WEIGH		NODE	START S	
	(PCU/H)	(PCU/H	[) (%)	(SEC)			EAN Q) DEL /H) (\$/	H)	(%)			(PCU)	(\$	) VALUES 5/H)		1ST (SECO	2ND NDS)
1401 1402 1403 1404	1146 20 57 1340<	1965 1871 1791 3970	73 11 32 42	12.2 4.7 4.7 6.4		0.2 + ( 0.5 + (	1.3 ( 20. 0.1 ( 3. 0.2 ( 10. 0.4 ( 9.	4) 8)	14 ( 100 ( 107 ( 13 (	0.5) 1.6)	7 0 1 6	( 0.0)*		24.6 4.0 12.4 13.8	14 14 14 14	55 38 43 50 43 50 55 38	
TOTA:	L	TOTA TIM	L	MEAN DURNEY		TOTAL		TOTAL COST	T		PE	CNALTY FOR	TO	OTAL FORMANCE			

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TRAVELLED
                 SPENT
                           SPEED
                                         DELAY OVERSAT
                                                                                     EXCESS
                                                                                                 INDEX
                                                            OF
                                                                         OF
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                     QUEUES
                                      (PCU-H/H)(PCU-H/H)
               (PCU-H/H)
                            (KM/H)
(PCU-KM/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
  3076.1
                 283.2
                            10.9
                                        102.0
                                                 109.7
                                                          (3005.6) + ( 469.3) + (1189.4)
                                                                                                  4664.3
                                                                                                              TOTALS
CRUISE
                                                      DELAY
                                                                         STOPS
                                                                                            TOTALS
                             LITRES PER HOUR
                                                 LITRES PER HOUR
                                                                     LITRES PER HOUR
                                                                                        LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS
                                  165.0
                                                      243.4
                                                                          213.9
                                                                                             622.3
NO. OF ENTRIES TO SUBPT =
NO. OF LINKS RECALCULATED=
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12
 - (SECONDS)
                   39
                           69
                                   22
                   31
                           74
            4
                   74
                           28
                                          65
                           74
    4
                   53
                                   34
                   54
                           63
                                   6
                   17
77
                           42
   10
                           32
                                   64
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                  TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                                                                 TOTAL
 DISTANCE
                  TIME
                          JOURNEY
                                       UNIFORM
                                                 RANDOM+
                                                            COST
                                                                        COST
                                                                                    FOR
EXCESS
                                                                                               PERFORMANCE
TRAVELLED
                 SPENT
                           SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                        OF
                                                                                                 INDEX
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                     QUEUES
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
                 276.7
                            11.1
                                         95.4
                                                 109.7
                                                          (2913.3) + ( 458.7) + ( 192.0)
                                                                                                  3564.1
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                            21
NO. OF LINKS RECALCULATED= 329
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32
 - (SECONDS)
                   39
                           69
                                   22
                   31
74
    2
                           74
                                   9
                           28
                                   45
                                           65
    4
            3
                   53
                           74
                                   34
                           63
                   54
                                   6
                   17
   1.0
                   77
                           32
                                   64
                   62
                           50
   14
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                  TOTAL
                                                                                                 TOTAL
 DISTANCE
                  TIME
                         JOURNEY
                                       UNIFORM
                                                 RANDOM+
                                                            COST
                                                                        COST
                                                                                     FOR
                                                                                               PERFORMANCE
TRAVELLED
                 SPENT
                            SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                         OF
                                                                                     EXCESS
                                                                                                 TNDEX
                                                           DELAY
                                                                       STOPS
                                                                                     OUEUES
                                                  DELAY
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
                 276.7
                            11.1
                                         95.4
                                                 109.7
                                                          (2913.3) + ( 458.7) + ( 192.0) =
                                                                                                  3564.1
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                            17
NO. OF LINKS RECALCULATED= 298
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1
  - (SECONDS)
    2
            3
                   31
                           73
                                   9
                   74
                           28
                                          65
    3
                                   44
    7
            3
                   54
                           63
                                   6
                   16
                           42
   10
                           32
                                   64
                   62
                           50
   14
                                                 TOTAL
RANDOM+
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                                                                 TOTAL
 DISTANCE
                         JOURNEY
                                       UNIFORM
                                                            COST
                                                                                               PERFORMANCE
                  TIME
                                                                        COST
                                                                                     FOR
                 SPENT
                           SPEED
                                                 OVERSAT
                                                             OF
                                                                         OF
                                                                                     EXCESS
                                                                                                 INDEX
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                     OUFUES
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
                                                          (2900.4) + (455.5) + (14.7)
  3076.1
                 275.8
                            11.2
                                         94.7
                                                 109.6
                                                                                                  3370.6
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                            42
NO. OF LINKS RECALCULATED= 574
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1 12
 - (SECONDS)
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31

70

73

```
65
                             28
                                      44
    4
7
                    53
                             75
                                      34
                    54
                             63
                                      6
                    16
                             42
   10
                             32
                                      64
                    62
   14
                             50
  TOTAL.
                  TOTAL
                               MEAN
                                             TOTAL.
                                                      TOTAL.
                                                                TOTAL.
                                                                             TOTAL.
                                                                                           PENALTY
                                                                                                          TOTAL.
                                                                                                        PERFORMANCE
 DISTANCE
                            JOURNEY
                                           UNIFORM
                                                      RANDOM+
                                                                 COST
                                                                              COST
                   TIME
                                                                                             FOR
                  SPENT
                              SPEED
                                                      OVERSAT
                                                                  OF
                                                                               OF
                                                                                            EXCESS
                                                                                                          INDEX
TRAVELLED
                                                      DELAY
                                                                DELAY
                                                                             STOPS
                                                                                            OUFUES
(PCU-KM/H)
                (PCU-H/H)
                              (KM/H)
                                          (PCU-H/H)(PCU-H/H)
                                                                                                          ($/H)
                                                                ($/H)
                                                                             ($/H)
                                                                                            ($/H)
                  275.8
                                             94.7
                                                      109.6
                                                               (2900.4) + (455.5) + (14.7)
                                                                                                           3370.6
  3076.1
                               11.2
                                                                                                                        TOTALS
NO. OF ENTRIES TO SUBPT =
                               17
NO. OF LINKS RECALCULATED=
                              344
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :-
                                                 12 32 -1 12 32
 - (SECONDS)
                             70
                                      22
    2
                    31
                             73
    3
                    74
                             2.8
                                      44
                                              65
                    53
                             75
                                     34
                    54
                             63
                    16
                             42
                             32
   14
                    62
                             50
  TOTAL
                  TOTAL
                               MEAN
                                             TOTAL
                                                       TOTAL
                                                                TOTAL
                                                                             TOTAL
                                                                                           PENALTY
                                                                                                          TOTAL
 DISTANCE
                   TIME
                            JOURNEY
                                           UNIFORM
                                                      RANDOM+
                                                                 COST
                                                                              COST
                                                                                             FOR
                                                                                                        PERFORMANCE
                                                      OVERSAT
                                                                  OF
                                                                                            EXCESS
TRAVELLED
                  SPENT
                              SPEED
                                                                               OF
                                                       DELAY
                                                                DELAY
                                                                             STOPS
                                                                                            QUEUES
(PCU-KM/H)
                (PCU-H/H)
                              (KM/H)
                                          (PCU-H/H)(PCU-H/H)
                                                                                                          ($/H)
                                                                ($/H)
                                                                             ($/H)
                                                                                            ($/H)
  3076.1
                  275.8
                               11.2
                                             94.7
                                                      109.6
                                                               (2900.4) + ( 455.5) + ( 14.7)
                                                                                                           3370.6
                                                                                                                        TOTALS
NO. OF ENTRIES TO SUBPT = 17
NO. OF LINKS RECALCULATED= 366
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :-
                                                 12 32 -1 12 32
                                                                        1
 - (SECONDS)
                    36
                             69
                                     2.1
                    28
                             70
    3
             4
                    74
                             28
                                      44
                                              65
                             75
    4
                    53
                                      34
    7
                    56
                             65
    9
             2
                    17
                             43
                                     63
   10
                    76
                             31
  TOTAL
                  TOTAL
                               MEAN
                                             TOTAL
                                                       TOTAL
                                                                TOTAL
                                                                             TOTAL
                                                                                           PENALTY
                                                                                                          TOTAL
 DISTANCE
                   TIME
                            JOURNEY
                                           UNIFORM
                                                     RANDOM+
OVERSAT
                                                                 COST
                                                                              COST
                                                                                             FOR
                                                                                                        PERFORMANCE
                                                                  OF
                                                                                            EXCESS
TRAVELLED
                  SPENT
                              SPEED
                                             DELAY
                                                                               OF
                                                                                                          INDEX
                                                       DELAY
                                                                DELAY
                                                                             STOPS
                                                                                            QUEUES
                                          (PCU-H/H)(PCU-H/H)
(PCII-KM/H)
                (PCU-H/H)
                              (KM/H)
                                                                ($/H)
                                                                             ($/H)
                                                                                            ($/H)
                                                                                                          ($/H)
  3076.1
                  274.8
                               11.2
                                             93.7
                                                      109.6
                                                               (2886.3) + ( 451.6) + (
                                                                                              1.7)
                                                                                                           3339.6
                                                                                                                        TOTALS
NO. OF ENTRIES TO SUBPT
NO. OF LINKS RECALCULATED= 431
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :-
                                                 12 32 -1 12 32 1 -1
 - (SECONDS)
    1
                    36
                             68
                                      21
                    28
                             70
    2
                                      6
                             28
                                              65
    4
             3
                    53
                             75
                                      34
                    56
                             65
                                      8
                    17
                             43
                    76
                                      63
   10
                             31
   14
                    62
                             50
  TOTAL
                  TOTAL
                               MEAN
                                             TOTAL
                                                       TOTAL
                                                                TOTAL
                                                                             TOTAL
                                                                                           PENALTY
                                                                                                          TOTAL
                            JOURNEY
                                           UNIFORM
                                                      RANDOM+
                                                                 COST
                                                                              COST
                                                                                                        PERFORMANCE
TRAVELLED
                  SPENT
                              SPEED
                                             DELAY
                                                      OVERSAT
                                                                  OF
                                                                               OF
                                                                                            EXCESS
                                                                                                          INDEX
                                                       DELAY
                                                                DELAY
                                                                             STOPS
                                                                                            QUEUES
(PCU-KM/H)
                (PCU-H/H)
                              (KM/H)
                                          (PCU-H/H)(PCU-H/H)
                                                                ($/H)
                                                                             ($/H)
                                                                                            ($/H)
                                                                                                          ($/H)
                  274.7
                               11.2
                                             93.5
                                                      109.6
                                                               (2884.4) + ( 451.7) + (
                                                                                             1.7)
                                                                                                           3337.9
                                                                                                                        TOTALS
NO. OF ENTRIES TO SUBPT
NO. OF LINKS RECALCULATED=
     80 SECOND CYCLE 80 STEPS
FINAL SETTINGS OBTAINED WITH INCREMENTS :-
  (SECONDS)
```

NODE NUMBER

STAGE STAGE

STAGE

STAGE

STAGE STAGE

STAGE

STAGE

STAGE

STAGE

NO	OF SIA	GEO I		2	3	-	3	O	,	O	,	10			
1	3	36	6	8	21										
2	3	28	7		6										
3	4	74	2		44	65									
4	3	53	7		34	0.5									
7	3	56	6		8										
9	2	16	4												
10	3	75	3		62										
14	2	62	5												
LINK	FLOW	SAT I	EGREE	MEAN	I TIMES		-DELAY-		ST	OPS	OU	EUE	PERFORMANCE	EXIT	GREEN TIMES
NUMBER	INTO	FLOW	OF		R PCU			M+ COST	MEAN	COST	MEAN		INDEX.	NODE	START START
	LINK		SAT	CRUI	ISE		OVERS	SAT OF	STOPS	OF	MAX.	AVERAGE	WEIGHTED SUM		END
END															
					DELAY	(U+R+O:	=MEAN Ç	) DELAY	/PCU	STOPS		EXCESS	OF ( ) VALUES	3	1ST 2ND
	(PCU/H)	(PCU/H)	(왕)	(SEC	(SEC)	(PCU	-H/H)	(\$/H)	(왕)	(\$/H)	(PCU)	(PCU)	(\$/H)		(SECONDS)
77	10	715	2	8.9	4.0	0.0 +		( 0.1)		( 0.0)	0		0.1		
101	595<		84	12.6	37.6	3.7 +		(87.1)		( 17.8)	16		104.8	1	72 21
102	789	1785	88	8.9	25.5	1.9 +	3.6	(77.7)		(10.9)	10	( 0.0)*	88.6	1	29 68
103	390	1710	49	7.6	16.7	1.3 +		(24.8)		(7.8)	6	( 0.0)*	32.7	1	38 21
104	812	1915	67	7.6	16.6	2.6 +	1.0	(51.6)		( 13.5)	12	( 0.0)*	65.1	1	51 21
105	190	1785	78	8.9	74.9	2.3 +	1.6	(55.8)		(6.5)	6		62.3	1	26 36
202	700	1940	78	11.8	24.5	2.9 +		(66.4)		( 12.6)	12		79.0	2	34 70
203	424	1740	53	11.8	18.7	1.6 +		( 30.4)		( 6.5)	6		36.8	2	34 70
204	300	1760	76	17.2	47.6	2.4 +		(55.8)		( 8.5)	8	( 0.0)*	64.3	2	11 28
205	269	1720	39	17.2	21.9	1.3 +	0.3	(22.7)		(5.0)	5		27.6	2	77 28
206	176	1725	68	7.2	52.3	1.5 +	1.0	( 36.0)		(5.5)	5		41.5	2	75 6
207	247	2000	19	7.2	5.7	0.2 +		( 5.1)		( 1.6)	1		6.7	2	36 6
301	395	2300	46	17.2	23.2	2.1 +		(35.4)		(7.7)	7		43.1	3	79 28
302	814	3300	79	17.2	33.7	5.7 +	1.8	(106.7)		( 20.1)	18		126.8	3	4 28
303	157	1675	52	19.8	33.2	0.9 +		( 20.3)		( 4.0)	4		24.3	3	35 74
304	531<	1790	59	19.8	19.1	2.0 +		(38.9)		( 9.0)	8		47.9	3	35 74
305	155	1770	23	19.8	21.3	0.7 +		( 12.7)		( 3.4)	3		16.1	3	36 65
306	1222	1785	3	5.1	8.3	0.0 +	0.0	( 0.7)		( 0.1)	12	( 0 0)+	0.8	3	1 31
307 308	1232 584	3970 2000	80 81	5.1 8.9	13.1 41.2	2.3 + 4.6 +	2.0	( 61.2) ( 93.7)		( 12.5) ( 14.7)	13 13	( 0.0)*	75.4 108.4	3	1 31 37 65
309	396	1785	61	8.9	38.5	3.4 +		( 93.7) ( 59.4)		( 9.0)	8	( 0.0)	68.4	3	37 65
401	449	3300	78	5.9	43.4	3.7 +	1.7	(76.0)		(13.1)	12	( 0.0)*	89.1	4	40 53
401	819	3300	41	5.9	2.4	0.1 +	0.4	( 6.0)		( 0.7)	1	( 0.0)	6.7	4	7 54
403	995	3000	80	17.2	28.5	5.7 +	2.0	(109.7)		(23.3)	21		133.0	4	2 34
404	645	1710	59	17.2	13.0	1.5 +	0.7	(31.7)		( 9.4)	9		41.2	4	66 36
405	302	1900	71	12.2	30.3	1.3 +		(35.5)		(6.9)	7		42.3	4	58 75
406	254	2000	68	12.2	51.7	2.6 +	1.0	(51.3)		(7.7)	7		59.0	4	63 77
701	107	1600	19	17.2	22.6	0.5 +	0.1	(9.3)		(1.9)	2		11.3	7	29 56
702	286	1750	47	17.2	26.2	1.6 +		(29.0)		(5.9)	5		34.9	7	29 56
703	511	1950	105	17.2	165.3	4.8 +	18.6	(332.1)	205	(27.0)	30		359.1	7	69 8
704	692	1900	104	17.2	139.9	5.3 +	21.5	(380.5)	194	(34.6)	37	+	415.1	7	29 56
705	123	1800	41	20.6	20.5	0.3 +	0.3	(9.7)	90	( 2.8)	2		12.5	7	61 13
706	554	1900	86	20.6	29.8	1.6 +	3.0	(64.0)	100	(14.3)	15		78.3	7	62 8
901	404	1740	84	18.1	44.8	2.4 +	2.5	(70.5)	115	( 12.1)	11		82.6	9	21 42
902	939<		74	18.1	9.1	0.8 +	1.4	( 32.0)	36	(8.9)	7		40.9	9	65 42
903	736	1900	97	6.4	61.4	3.6 +	8.9	(176.8)		(22.9)	21	+	199.7	9	65 16
904	477	1665	92	17.2	61.3	3.5 +	4.6	(114.5)		( 15.9)	15		130.4	9	21 45
1001	961<		97	5.5	47.9	3.1 +	9.6	(179.7)		( 26.6)	29	+	206.4	10	68 30
1002	448	1710	95	17.2	80.4	3.5 +	6.4	(141.1)		(17.1)	16		158.2	10	41 62
1003	322	1910	45	17.2	23.9	1.7 +		(29.7)		( 6.3)	6	( 0 0)+	36.0	10	1 30
1401	1146	1965	73	12.2	6.2	0.5 +	1.3	(25.7)		( 4.6)	4	( 0.0)*	30.3	14	67 50
1402 1403	20 57	1871 1791	11 32	4.7	44.1 48.7	0.2 + 0.5 +		( 3.4)		( 0.5)	0 1		4.0 12.4	14 14	55 62 55 62
								( 10.8)		( 1.6)			31.0	14	
1404	1340<	3970	42	6.4	4.4	1.1 +	0.4	( 20.7)	29	( 10.3)	10		31.0	14	67 50
TOTAI		TOTAL		MEAN		TOTAL	TOTA	L TOT	λT.	TOTAL	DE	NALTY	TOTAL		
DISTAN		TIME	.то	URNEY		UNIFORM	RANDO		ST	COST		FOR	PERFORMANCE		
TRAVELI		SPENT		SPEED		DELAY	OVERS			OF		XCESS	INDEX		
	-						DELA			STOPS		UEUES			
(PCU-KN	4/H)	(PCU-H/H	Ι)	(KM/H)	) (	PCU-H/H)				(\$/H)	_	\$/H)	(\$/H)		
, - 55 10	,	, / 1	*	/ - 1		//		, (7/	,	( T / /	(	,	\ T / **/		
3076.	. 1	274.5		11.2		93.4	109.6	(288	2.4) + (	450.9)	+ (	1.7) =	3335.1	TOTA	ALS
														ROU'	ΓE

NO OF STAGES 1 2 3 4 5 6 7 8

\*\*

CRUISE DELAY STOPS TOTALS

LITRES PER HOUR LITRES PER HOUR LITRES PER HOUR

LITRES PER HOUR

FUEL CONSUMPTION PREDICTIONS 165.0 + 233.4 + 205.5 = 603.9

NO. OF ENTRIES TO SUBPT = 19 NO. OF LINKS RECALCULATED= 395

## Analysis Program Release 4 (March 2005) (c) Copyright TRL Limited, 2004

For sales and distribution information, program advice and maintenance, contact:

Tel: +44 (0) 1344 770018
Fax: +44 (0) 1344 770864
Email: softwarebureau@trl.co.uk
Web: www.trlsoftware.co.uk TRL Limited Old Wokingham road Crowthorne, Berks. RG45 6AU, UK.

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "WEEKDAY 17-18 WITH COMMITTED WITH DEV OPTIMISED TIMINGS.DAT" at 17:07 on 17/01/08

TRANSYT 12.0

1

Weekday 17:00-18:00 hours with Committed with Dev optimised timings

## PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES	=	8
NUMBER OF LINKS	=	44
NUMBER OF OPTIMISED NODES	=	8
MAXIMUM NUMBER OF GRAPHIC PLOTS	=	0
NUMBER OF STEPS IN CYCLE	=	80
MAXIMUM NUMBER OF SHARED STOPLINES	=	0
MAXIMUM NUMBER OF TIMING POINTS	=	4
MAXIMUM LINKS AT ANY NODE	=	9

CORE REQUESTED = 11940 WORDS CORE AVAILABLE = 72000 WORDS

		INPUT														
CARD	~~~ CARD	~ ~~~~														
NO.	TYPE															
( 1)=	TITLE:	- Weekd	ay 17:00	-18:00 h	ours with	n Commi	tted with	n Dev opt	imised t	imings						
CARD	CARD	CYCLE	NO. OF	TIME E	FFECTIVE	-GREEN	EQUISAT	0=UNEQUA	L FLOW	CRUISE	-SPEEDS	OPTIMISE	EXTRA	HILL-	DELAY	
STOP												_				
NO.	TYPE	TIME	STEPS	PERIOD	DISPLACE	MENTS	SETTINGS	CYCLE	SCALE	SCALE	CARD32	0=NONE	COPIES	CLIMB	VALUE	
VALUE			PER	1-1200	מתאסת	END	0-NO	1=EQUAL	10-200	50-200	0=TIMES	1=O/SET	FINAL	OUTPUT	P PER	P
PER			FER	1 1200	SIAKI	END	0-140	I-EQUAL	10 200	30 200	0-IIMES	1-0/551	LIMMI	001101	r run	F
		(SEC)	CYCLE	MINS.	(SEC)	(SEC)	1=YES	CYCLE	%	용	1=SPEEDS	2=FULL	OUTPUT	1=FULL	PCU-H	
100																
2)=	1	80	80	60	2	3	1	0	0	0	1	2	0	0	1420	260
CARD	CARD					LI	ST OF 1	NODES TO	BE OF	PTIMISED						
NO.	TYPE	1		2		-		1.0	1.4			0				
3)=	2	1	2	3	4	7	9	10	14	0	0	0	0	0	0	0
				NOT	E CARDS:	MTNTM	UM STAGE	TIMES (W	ORKING)							
CARD	CARD	NODE		S1	S2	S3	S4	S5 (N	S6	s7	S8	S9	S10			
NO.	TYPE	NO.														
4)=	10	1		7	7	7										
5)=	10	2		7	7	7										
6)=	10	3		7	7	7	4									
7)=	10	4		7	7	7										
8)=	10	7		3	7	7										
9)=	10	9		7	7											
10)=		10		7	7	7										
11)=		14		7	7	,										
				NOD	E CARDS:	PRECE	DING INT	ERSTAGE I	IMES (WO	ORKING)						
CARD	CARD	NODE		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10			
NO.	TYPE	NO.														
12)=	11	1		2	4	8										
13)=	11	2		8	5	5										
14)=	11	3		7	9	7	5									
15)=	11	4		5	7	6										
16)=	11	7		6	4	21										
17)=		9		5	23											
18)=		10		2	6	6										
19)=		14		5	5	ŭ										
101-				3	3											
				NOD	E CARDS:	STAGE	CHANGE 7	TIMES (WC	RKING)							
CARD	CARD	NODE	Sgl/Dbl	S1	S2	S3	S4	S5	S6	s7	S8	S9	S10			
NO.	TYPE	NO.	Cycled													
20)=	12	1	1	51	1	34										
21)=		2	1	31	74	9										
22)=		3	1	74	27	45	65									
23)=		4	1	53	74	33	0.5									
24)=		7	1	54	63	6										
24)=		9	1	73	18	U										
25)=	1.0	9	_	7.3	10											

LINK CARDS: GIVEWAY DATA

CARD	CARD	LINK	PRIORITY	Y LINKS LINK2	LINK1 GI	VEWAY C	COEFFS. A2					LINK	STOP	MAX	DELAY	
DISPSN	TYPE	NO.	NO.		% FLOW	X100	X100					LENGTH W			WT.X100	
X100 28)=	30	77	105	104	0	22	19	0	0	0	0	100	0	715	0	0
29)= 30)=	30 30	103 303	101 308	0	0	50 50	100 100	0	0	0	0	100 100	0	1000 1000	0	0
31)=	30	705	703	0	0	50	100	0	0	0	0	100	0	1000	0	0
							LINK CA	ARDS: F	FIXED DAT	A						
CARD	CARD	LINK	EXIT	,s	FIRST	GREEN	I END	e	SECOND START		ND	LINK	STOP	SAT	DELAY	
DISPSN																
NO. X100	TYPE	NO.	NODE	STAGE	LAG	STAGE	E LAG	STAGE	LAG	STAGE	LAG	LENGTH	WT.X100	FLOW	WT.X100	
32)= 33)=	31 31	101 102	1 1	2	4 8	3 2	0	0	0	0	0	145 100	0	1900 1785	0	0
34)=	31	103	1	1	2	3	0	0	0	0	0	85	0	1710	0	0
35)= 36)=	31 31	104 105	1 1	1 3	15 5	3 1	0	0	0	0 0	0	85 100	0	1915 1785	0	0
37)= 38)=	31 31	202 203	2 2	1 1	6 6	2 2	0	0	0	0	0	135 135	0	1940 1740	0	0
39)=	31	204	2	3	5	1	0	0	0	0	0	200	0	1760	0	0
40) = 41) =	31 31	205 206	2	2 2	7 5	1	0 0	0	0	0 0	0 0	200 80	0	1720 1725	0	0
42) = 43) =	31 31	207 301	2	1 1	8 5	3 2	0	0	0	0	0	80 200	0	2000 2300	0	0
44)=	31	302	3	1	10	2	0	0	0	0	0	200	0	3300	0	0
45)= 46)=	31 31	303 304	3	2 2	7 7	1 1	0	0	0	0	0	230 230	0	1675 1790	0	0
47) = 48) =	31 31	305 306	3	2 1	8 7	4 2	0	0	0	0	0	230 55	0	1770 1785	0	0
49)=	31	307	3	1	7	2	3	0	0	0	0	55	0	3970	0	0
50)= 51)=	31 31	308 309	3	2 2	9 9	4	0	0	0	0	0	100 100	0	2000 1785	0	0
52)=	31	401	4	3 2	6 12	1	0	0	0	0	0	65 65	0	3300	0	0
53)= 54)=	31 31	402 403	4	2	7	1 3	0	0	0	0	0	200	0	3300 3000	0	0
55)= 56)=	31 31	404 405	4	1 1	13 5	3 2	2	0	0	0	0	200 140	0	1710 1900	0	0
57)=	31	406	4 7	1	10	2	2	0	0	0	0	140	0	2000	0	0
58)= 59)=	31 31	701 702	7	3 3	21 21	1 1	0 0	0	0 0	0 0	0 0	200 200	0	1600 1750	0 0	0
60)= 61)=	31 31	703 704	7 7	2	4 21	3 1	0	0	0	0	0	200 200	0	1950 1900	0	0
62)=	31	705	7	1	5	3	5	0	0	0	0	240	0	1800	0	0
63)= 64)=	31 31	706 901	7 9	1 1	6 5	3 2	0	0	0 0	0 0	0 0	240 210	0	1900 1740	0 0	0
65)= 66)=	31 31	902 903	9 9	2 2	23 23	2 1	0	0	0	0	0	210 70	0	1740 1900	0	0
67)=	31	904			23											
			9	1	5	2	3	0	0	0	0	200	0	1665	0	0
68) = 69) =	31	1001 1002	9 10 10	1 3 2	5 6 11	2 2 3	3 0 0			0 0 0	0 0 0		0 0		0 0 0	0 0 0
68) = 69) = 70) =	31 31 31	1001 1002 1003	10 10 10	3 2 1	6 11 6	2 3 2	0 0	0 0 0	0 0 0	0 0	0 0	200 60 200 200	0 0	1665 1845 1710 1910	0 0 0	0 0
68) = 69) = 70) = 71) = 72) =	31 31 31 31 31	1001 1002 1003 1401 1402	10 10 10 14 14	3 2 1 1 2	6 11 6 5	2 3 2 2 1	0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0	200 60 200 200 140 50	0 0 0 0	1665 1845 1710 1910 1965 1871	0 0 0 0	0 0 0 0 0
68) = 69) = 70) = 71) =	31 31 31 31 31 31	1001 1002 1003 1401	10 10 10 14	3 2 1 1	6 11 6 5	2 3 2 2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0	0 0 0 0	200 60 200 200 140	0 0 0	1665 1845 1710 1910 1965	0 0 0 0	0 0 0
68) = 69) = 70) = 71) = 72) = 73) =	31 31 31 31 31 31	1001 1002 1003 1401 1402 1403	10 10 10 14 14	3 2 1 1 2 2	6 11 6 5 5	2 3 2 2 1 1 2	0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	200 60 200 200 140 50	0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791	0 0 0 0 0	0 0 0 0 0
68) = 69) = 70) = 71) = 72) = 73) =	31 31 31 31 31 31 31	1001 1002 1003 1401 1402 1403	10 10 10 14 14	3 2 1 1 2 2	6 11 6 5 5 5 5	2 3 2 2 1 1 2	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	200 60 200 200 140 50	0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791	0 0 0 0 0 0	0 0 0 0 0
68) = 69) = 70) = 71) = 72) = 73) = 74) =	31 31 31 31 31 31 31	1001 1002 1003 1401 1402 1403	10 10 10 14 14	3 2 1 1 2 2	6 11 6 5 5 5 5	2 3 2 2 1 1 2	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	200 60 200 200 140 50 50 70	0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970	0 0 0 0 0 0	0 0 0 0 0
68) = 69) = 70) = 71) = 72) = 73) = 74) =  CARD CRUISE NO. SPEED	31 31 31 31 31 31 31 31 TYPE	1001 1002 1003 1401 1402 1403 1404	10 10 10 14 14 14 14	3 2 1 1 2 2 1	6 11 6 5 5 5 5 LINK NO.	2 3 2 2 1 1 1 2	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 ENTRY LINK	200 60 200 200 140 50 50 70	0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970 ENTRY	0 0 0 0 0 0	0 0 0 0 0
68) = 69) = 70) = 71) = 72) = 73) = 74) =  CARD CRUISE NO. SPEED 75) =	31 31 31 31 31 31 31 31 TYPE	1001 1002 1003 1401 1402 1403 1404 LINK NO.	10 10 10 14 14 14 14 14 TOTAL FLOW	3 2 1 1 2 2 2 1	6 11 6 5 5 5 5 LINK NO.	2 3 2 2 1 1 2 5 5 6 4	0 0 0 0 0 0 0 0 0 CRUISE SPEED 43	0 0 0 0 0 0 0 0 0 0 0 EDS: F ENTRY LINK NO.	0 0 0 0 0 0 0 0 0 FLOW DATA 2	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	200 60 200 200 140 50 70	0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970 ENTRY	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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68) = 69) = 70) = 71) = 72) = 73) = 74) =  CARD CRUISE NO. SPEED 75) = 76) = 77) = 78) = 80) = 81) = 82) = 84) = 85) = 86) = 87) = 90) = 91) = 91) = 92) = 93) = 94) = 92) = 93) = 94) = 95) = 96) = 97) = 98) = 99) = 100) = 101) = 102 = 103) =	31 31 31 31 31 31 31 31 31 31 31 31 31 3	1001 1002 1003 1401 1402 1403 1404 LINK NO. 101 102 103 104 105 200 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703	10 10 10 11 14 14 14 14 14 14 14 14 14 14 14 14	3 2 1 1 2 2 2 1 1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 11 6 5 5 5 5 5 5  ENTRY 1  LINK  NO.  304 202 1401 1401 202 401 1401 0 0 0 101 101 0 701 701 701 701 403 403 104 104 104 301 302 0 0 204 204 0 0 0 0	FLOW  564 569 370 785 161 305 179 0 0 18 27 0 0 20 71 31 46 956 476 420 70 0 0 46 254 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O O O O O O O O O O O O O O O O O O O	200 60 200 140 50 70 3  FLOW 0 0 0 0 0 0 0 0 57 197 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1665 1845 1710 1910 1910 1965 1871 1791 3970  ENTRY  LINK  NO.  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
68) = 69) = 70) = 71) = 72) = 73) = 74) =   CARD  CRUISE NO. SPEED 75) = 76) = 77) = 78) = 80) = 81) = 82) = 85) = 80) = 81) = 82) = 85) = 86) = 87) = 88) = 89) = 91) = 92) = 93) = 94) = 95) = 96) = 97) = 98) = 9100 = 101) = 102) = 103) = 104) = 105) = 106 = 107) =	31 31 31 31 31 31 31 31 31 31	1001 1002 1003 1401 1402 1403 1404 LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706 901	10 10 10 10 11 14 14 14 14 14 15 16 10 10 10 10 10 10 10 10 10 10 10 10 10	3 2 1 1 2 2 1 1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 11 6 5 5 5 5 5 5 5 5 5 5  LINK  NO.  304 202 1401 1401 202 401 401 0 0 101 101 101 101 101 101 101	2 3 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 1 2 2 2 1 1 1 2 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ENTRY LINK NO.  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	200 60 200 140 50 50 70  3  FLOW  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970  ENTRY  LINK  NO.  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
68) = 69) = 70) = 71) = 72) = 73) = 74) =  CARD CRUISE NO. SPEED 75) = 76) = 77) = 81) = 82) = 83) = 80) = 81) = 82) = 83) = 90) = 91) = 92) = 93) = 94) = 95) = 96) = 97) = 96) = 97) = 96) = 97) = 100) = 101) = 102) = 103) = 104) = 106) =	31 31 31 31 31 31 31 31 31 31	1001 1002 1003 1401 1402 1403 1404 LINK NO. 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 401 405 406 701 702 703 704 705 706	10 10 10 10 11 14 14 14 14 14 16 FLOW  610 780 610 780 620 722 424 300 269 177 271 412 803 562 161 46 1216 596 420 471 810 1002 645 325 254 109 286 518 694 125 564	3 2 1 1 2 2 2 1 1 UNIFORM FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 11 6 5 5 5 5 5 5  ENTRY 1  LINK  NO.  304 202 1401 1401 202 401 401 0 0 101 101 101 0 701 701 701 701 701	FLOW  564 569 370 785 161 305 179 0 0 18 27 0 0 20 71 31 46 956 476 420 4412 709 0 46 254 0 0 0 0 15 67	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O O O O O O O O O O O O O O O O O O O	200 60 200 200 140 50 50 70 3 FLOW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1665 1845 1710 1910 1910 1965 1871 1791 3970  ENTRY  LINK  NO.  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

115) = 116) = 117) = 118) =    CARD QUEUE NO. WEIGHT 119) = 120) = 121) =	32 1 32 1 32 1 32 1 32 1 32 1 32 1 32 1	402 403 404 1 LINK NO. 102 307 204	983 451 324 47 1155 50 134 1344 LIMIT QUEUE 14 13 10	0 0 0 0 0 0 0 0 QUEUE WEIGHT 99999 99999	0 0 0 903 0 101 LINK	LIMIT QUEUE 9 13	43 43 43 43 43 43 43 43 WEIGHT 99999 99999	904 0 0 0 904 0 102 QUEUE LINK NO. 104 1401 0	22 ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 QUEUE WEIGHT 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
. 8	0 SECOND	CYCLE	80 STE	PS												
	L SETTIN CONDS)	GS														
NODE NO	NUMBE OF STA		GE SI	AGE STAG	E STAG		AGE STA	GE ST 6	rage 7	STAGE 8	STAGE STAGE 9 10	Ξ				
1 2 3 4 7 9 10	3 3 4 3 3 2 3 2	51 31 74 53 54 73 21 50	2 7 6 1 5	1 34 9 7 45 4 33 3 6 8 6 8 7	65											
LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN TIM PER PCU CRUISE		ORM RA	AY NDOM+ CO: ERSAT OI	ST N	STOI MEAN FOPS	PS COST OF	QUEUE MEAN MAX. AVERAGE	IN	ORMANCE DEX. HTED SUM	EXIT NODE	GREEN TIN START ST END	MES TART
END		(PCU/H)		DEL (SEC) (SE			N Q) DEL	AY /	/PCU (%)	STOPS	EXCESS	S OF (	) VALUES	;	1ST (SECONI	2ND DS)
77 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706 901 902 903 904 1001 1002 .	477 588< 779 413 877 220 720 423 300 269 176 269 412 803 153 46 1215 597 421 468 804 1002 645 324 109 286 518 694 124 555 408 943< 741 741 468 469 479 479 479 479 479 479 479 47	715 1900 1785 1710 1915 1785 1940 1740 1720 1725 2000 1770 1785 3970 2000 1770 1785 3970 2000 1770 1785 3970 1785 1790 1885 1710 1910	9 82 87 54 75 76 6 78 51 76 40 74 21 51 58 22 80 63 76 40 80 73 106 104 47 106 104 42 88 89 75 80 80 80 80 80 80 80 80 80 80 80 80 80	8.9 4. 12.6 47. 8.9 26. 7.6 16. 7.6 16. 8.9 65. 11.8 27. 11.8 19. 17.2 47. 17.2 22. 7.2 53. 7.2 5. 19.8 33. 19.8 18. 5.1 8. 5.1 14. 8.9 38. 5.9 40. 5.1 2 25. 17.2 28. 17.2 183. 12.2 57. 12.2 52. 17.2 183. 17.2 183. 17.2 183. 17.2 183. 17.2 183. 17.2 183. 17.2 183. 17.2 183. 17.2 83. 17.2 83. 17.2 83.	57	+ 0. + 2. + 3. + 0. + 1. + 1. + 1. + 0. + 1. + 0. + 2. + 0. + 0. + 1. + 0. + 2. + 0. + 1. + 0. + 2. + 0. + 1. + 1. + 0. + 1. + 1. + 1. + 1. + 1. + 1. + 1. + 1	1 ( 0.1 2 (108.1 3 ( 80.4 6 ( 25.5 5 ( 55.4 5 ( 49.1 5 ( 32.1 5 ( 32.1 5 ( 32.1 1 ( 111.1 5 ( 20.4 1 ( 111.1 5 ( 20.4 1 ( 111.1 6 ( 33.1 1 ( 111.1 8 ( 13.1 8 (	7) 9) 14) 9) 11) 9) 11) 9) 17) 17) 17) 17) 17) 17) 17) 17) 17) 17	0 (109 (109 (109 (109 (109 (109 (109 (10	0.0) 17.1) 19.3) 6.7) 15.5) 17.8) 6.6) 8.5) 17.8) 6.6) 8.5) 1.8) 8.3) 20.4) 4.0) 9.1) 3.3) 0.2) 14.0) 14.0) 9.1) 13.4) 0.6) 9.8) 9.7) 7.9) 23.6) 9.7) 11.8) 13.4) 0.6) 13.1) 11.7) 25.5) 18.8)	0 15 20 ( 0.8 5 ( 0.0) 16 ( 0.3) 17 6 8 ( 0.0) 5 5 2 8 8 4 8 8 3 0 16 ( 0.1) 15 ( 0.2) 10 12 ( 0.0) 12 2 9 9 7 7 2 2 5 33 3 8 8 + 2 16 12 11 23 + 18 27 + 17 6	* * * * *	0.7 126.1 869.2 32.5 350.7 62.4 94.1 38.8 64.3 28.8 44.7 16.0 1.7 149.1 276.1 75.2 87.7 6.1 135.2 43.5 81.8 59.8 11.5 34.9 402.3 427.0 12.9 83.7 104.3 51.3 219.9 176.9 258.9 165.5 36.3	1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5 34 42 1 53 34 66 34 39 51 37 74 37 74 37 74 11 31 79 9 39 9 79 27 4 27 34 74 34 74 35 65 1 30 1 30 36 65 39 53 6 54 1 33 66 35 58 74 63 76 27 54 67 6 27 54 67 6 78 18 41 18 41 18 41 73 78 21 14 56 67 8 27 56	
LINK NUMBER	FLOW	SAT FLOW	80 STE				AY		STOI MEAN	PS COST	QUEUE		ORMANCE DEX.	EXIT NODE	GREEN TIN	
END	LINK	<u> </u>	SAT	CRUISE DEL		OV	ERSAT O	F SI	rops /pcu	OF STOPS	MAX. AVERAGE	E WEIG			END 1ST	2ND
1401 1402 1403 1404		1965 1871 1791 3970	75 24 67 42	(SEC) (SE  12.2 5. 4.7 44. 4.7 60. 6.4 2.	5 0.1 1 0.4 5 1.3 3 0.3		5 ( 22.° 2 ( 8.° 0 ( 31.° 4 ( 9.°	7) 6) 1	100 ( 121 ( 14 (	4.2)	(PCU) (PCU) 9 (0.0) 1 4 6 PENALTY	*	\$/H)  27.3  9.9  35.9  14.4	14 14 14 14	(SECONI 55 37 42 50 42 50 55 37	OS)
DISTA		TIME		MEAN URNEY	TOTA		OTAL '	COST	•	COST	FOR		OTAL FORMANCE			

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TRAVELLED
                 SPENT
                           SPEED
                                         DELAY OVERSAT
                                                                                    EXCESS
                                                                                                 INDEX
                                                            OF
                                                                        OF
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                    QUEUES
                                      (PCU-H/H)(PCU-H/H)
               (PCU-H/H)
                            (KM/H)
(PCU-KM/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                    ($/H)
                                                                                                 ($/H)
  3121.7
                 297.1
                            10.5
                                        105.4
                                                 119.1
                                                          (3187.8) + ( 489.6) + (1296.8)
                                                                                                  4974.3
                                                                                                             TOTALS
CRUISE
                                                      DELAY
                                                                         STOPS
                                                                                            TOTALS
                             LITRES PER HOUR
                                                 LITRES PER HOUR
                                                                    LITRES PER HOUR
                                                                                        LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS
                                  167.4
                                                      258.2
                                                                          223 1
                                                                                             648.7
NO. OF ENTRIES TO SUBPT =
NO. OF LINKS RECALCULATED=
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12
 - (SECONDS)
                   27
                           57
                                  10
                   31
                           74
                           27
74
            4
                   74
                                          65
    4
                   53
                                   33
                   54
                           63
                                   6
                   73
                           18
   10
                                  56
                   69
                           24
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                  TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                                                                 TOTAL
                                                                                    FOR
EXCESS
 DISTANCE
                  TIME
                          JOURNEY
                                       UNIFORM
                                                 RANDOM+
                                                            COST
                                                                       COST
                                                                                               PERFORMANCE
TRAVELLED
                 SPENT
                           SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                        OF
                                                                                                 INDEX
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                    QUEUES
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
                 288.4
                            10.8
                                         96.7
                                                 119.1
                                                          (3064.5) + (483.5) + (212.5)
                                                                                                  3760.5
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
NO. OF LINKS RECALCULATED= 335
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32
 - (SECONDS)
                   27
                                  10
                   31
74
    2
                           74
                                   9
                           27
                                   45
                                           65
    4
            3
                   53
                           74
                                  33
                           63
                   54
                                   6
                   73
                           18
   1.0
                   69
                           24
                                  56
                   50
   14
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                  TOTAL
                                                                                                 TOTAL
 DISTANCE
                  TIME
                         JOURNEY
                                       UNIFORM
                                                 RANDOM+
                                                           COST
                                                                       COST
                                                                                     FOR
                                                                                               PERFORMANCE
TRAVELLED
                 SPENT
                            SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                        OF
                                                                                    EXCESS
                                                                                                 TNDEX
                                                           DELAY
                                                                       STOPS
                                                                                    OUEUES
                                                  DELAY
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
                 288.4
                            10.8
                                         96.7
                                                 119.1
                                                          (3064.5) + ( 483.5) + ( 212.5)
                                                                                                  3760.5
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                            17
NO. OF LINKS RECALCULATED= 293
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1
  - (SECONDS)
                           58
                                  10
    2
            3
                   30
                           73
                                   8
                   73
                           27
                                          64
    3
                                   43
    7
            3
                   54
                           63
                                   6
                   72
                           18
   10
                           24
                                  56
   14
                   50
                           36
                                                 TOTAL
RANDOM+
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                                                                 TOTAL
 DISTANCE
                         JOURNEY
                                       UNIFORM
                                                            COST
                                                                                               PERFORMANCE
                  TIME
                                                                       COST
                                                                                     FOR
                 SPENT
                           SPEED
                                                 OVERSAT
                                                             OF
                                                                        OF
                                                                                    EXCESS
                                                                                                 INDEX
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                    OUFUES
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                    ($/H)
                                                                                                 ($/H)
                                                          (3046.3) + (480.1) + (0.0)
                 287.1
                            10.9
                                         96.3
                                                 118.2
                                                                                                  3526.3
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                            45
NO. OF LINKS RECALCULATED= 613
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1 12
 - (SECONDS)
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30

58

73

```
73
                                              64
                                      43
    4
7
                    52
                             74
                                      33
                    54
                             63
                                      6
                    72
                             18
   10
                    69
                                      56
   14
                    50
                             36
  TOTAL.
                  TOTAL
                               MEAN
                                             TOTAL.
                                                      TOTAL.
                                                                TOTAL.
                                                                             TOTAL.
                                                                                           PENALTY
                                                                                                          TOTAL.
                                                                                                        PERFORMANCE
 DISTANCE
                            JOURNEY
                                           UNIFORM
                                                     RANDOM+
                                                                 COST
                                                                              COST
                   TIME
                                                                                             FOR
TRAVELLED
                  SPENT
                              SPEED
                                                     OVERSAT
                                                                  OF
                                                                               OF
                                                                                            EXCESS
                                                                                                          INDEX
                                                      DELAY
                                                                DELAY
                                                                             STOPS
                                                                                            OUFUES
(PCU-KM/H)
                (PCU-H/H)
                              (KM/H)
                                          (PCU-H/H)(PCU-H/H)
                                                                                                          ($/H)
                                                                ($/H)
                                                                             ($/H)
                                                                                            ($/H)
                  287.1
                                             96.3
                                                     118.2
                                                               (3046.3) + (480.1) + (
                                                                                              0.0)
  3121.7
                               10.9
                                                                                                           3526.3
                                                                                                                        TOTALS
NO. OF ENTRIES TO SUBPT =
                               17
NO. OF LINKS RECALCULATED= 335
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :-
                                                 12 32 -1 12 32
 - (SECONDS)
                             58
                                     10
                             73
27
    2
                    30
                    73
    3
                                      43
                                              64
                    52
                             74
                                     33
                    54
72
                             63
                                      6
                             18
   14
                    50
                             36
  TOTAL
                  TOTAL
                               MEAN
                                             TOTAL
                                                      TOTAL
                                                                TOTAL
                                                                             TOTAL
                                                                                           PENALTY
                                                                                                          TOTAL
 DISTANCE
                   TIME
                            JOURNEY
                                           UNIFORM
                                                     RANDOM+
                                                                 COST
                                                                              COST
                                                                                             FOR
                                                                                                        PERFORMANCE
                                                                               OF
                                                     OVERSAT
                                                                  OF
                                                                                            EXCESS
TRAVELLED
                  SPENT
                              SPEED
                                                      DELAY
                                                                DELAY
                                                                             STOPS
                                                                                            QUEUES
(PCU-KM/H)
                (PCU-H/H)
                              (KM/H)
                                          (PCU-H/H)(PCU-H/H)
                                                                                                          ($/H)
                                                                ($/H)
                                                                             ($/H)
                                                                                            ($/H)
  3121.7
                  287.1
                               10.9
                                             96.3
                                                     118.2
                                                               (3046.3) + ( 480.1) + (
                                                                                             0.0)
                                                                                                           3526.3
                                                                                                                        TOTALS
NO. OF ENTRIES TO SUBPT = 17
NO. OF LINKS RECALCULATED= 368
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :-
                                                 12 32 -1 12 32
                                                                        1
 - (SECONDS)
                    26
                                      9
                    25
                             68
    3
             4
                    73
                             27
                                      43
                                              64
                             74
    4
                    52
                                      33
    7
                    55
    9
             2
                    73
                             19
                                     57
   10
                    70
                             25
  TOTAL
                  TOTAL
                               MEAN
                                             TOTAL
                                                       TOTAL
                                                                TOTAL
                                                                             TOTAL
                                                                                           PENALTY
                                                                                                          TOTAL
 DISTANCE
                   TIME
                            JOURNEY
                                           UNIFORM
                                                     RANDOM+
OVERSAT
                                                                 COST
                                                                              COST
                                                                                             FOR
                                                                                                        PERFORMANCE
                  SPENT
                                                                  OF
                                                                                            EXCESS
                                                                                                          INDEX
TRAVELLED
                              SPEED
                                             DELAY
                                                                               OF
                                                      DELAY
                                                                DELAY
                                                                             STOPS
                                                                                            QUEUES
                (PCU-H/H)
                                          (PCU-H/H)(PCU-H/H)
(PCII-KM/H)
                              (KM/H)
                                                                ($/H)
                                                                             ($/H)
                                                                                            ($/H)
                                                                                                          ($/H)
  3121.7
                  285.4
                               10.9
                                             94.6
                                                     118.2
                                                               (3021.3) + ( 471.3) + (
                                                                                              0.0)
                                                                                                           3492.6
                                                                                                                        TOTALS
NO. OF ENTRIES TO SUBPT
NO. OF LINKS RECALCULATED= 419
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :-
                                                 12 32 -1 12 32 1 -1
 - (SECONDS)
    1
                    25
                             56
                                      8
                    25
                             67
    2
                             74
    4
             3
                    52
                                     32
                    55
                             64
                    73
                             19
                                     57
                    70
                             25
   10
   14
                    50
                             36
  TOTAL
                  TOTAL
                               MEAN
                                             TOTAL
                                                      TOTAL
                                                                TOTAL
                                                                             TOTAL
                                                                                           PENALTY
                                                                                                          TOTAL
 DISTANCE
                            JOURNEY
                                           UNIFORM
                                                     RANDOM+
                                                                 COST
                                                                              COST
                                                                                                        PERFORMANCE
TRAVELLED
                  SPENT
                              SPEED
                                             DELAY
                                                     OVERSAT
                                                                  OF
                                                                               OF
                                                                                            EXCESS
                                                                                                          INDEX
                                                      DELAY
                                                                DELAY
                                                                             STOPS
                                                                                            QUEUES
(PCU-KM/H)
                (PCU-H/H)
                              (KM/H)
                                          (PCU-H/H)(PCU-H/H)
                                                                ($/H)
                                                                             ($/H)
                                                                                            ($/H)
                                                                                                          ($/H)
  3121.7
                  284.8
                               11.0
                                             94.2
                                                     118.0
                                                               (3012.8) + ( 470.3) + (
                                                                                             0.0)
                                                                                                           3483.1
                                                                                                                        TOTALS
NO. OF ENTRIES TO SUBPT
NO. OF LINKS RECALCULATED=
     80 SECOND CYCLE 80 STEPS
FINAL SETTINGS OBTAINED WITH INCREMENTS :-
  (SECONDS)
```

STAGE STAGE

STAGE

STAGE

STAGE STAGE

NODE NUMBER

STAGE STAGE STAGE

NO	OF STA	GES I		2	3	4	5	6	-7	8	9	10				
1	3	25	5	6	8											
2	3	24		6	2											
3	4	74		8	44	65										
4	3	52		4	32	03										
7	3	56		5	8											
9	2	73	1		0											
10	3	70		5	57											
14	2	50		6	5 /											
14	2	50	3	0												
T TATE	FLOW	CAM F	EGREE	MEAN	TOTME	-	DET AV		cm	ODG	OII	arria	DEDEODMANCE	EXIT	CDEEN	птмпо
LINK	INTO	SAT D			I TIMES					OPS		EUE	PERFORMANCE		GREEN	
NUMBER		FLOW	OF		R PCU	UNIFUR		OM+ COST		COST	MEAN	ALTED A CE	INDEX.	NODE	START	STAF
	LINK		SAT	CRUI	SE		OVERS	SAT OF	STOPS	OF	MAX.	AVERAGE	WEIGHTED SUM		END	
END					DELAI	/ / / T . D . O	MUNN	) DEL 31	/DOI	amona		BYGBGG	OF ( ) VALUES	,	1.00	21
	/ DOII /II \	( DOII /II )	/ 9- \	(CEC)	DELA			2) DELAY		STOPS	( DOII )	EXCESS		)	1ST	
	(PCU/H)	(PCU/H)	(왕)	(SEC)	(SEC	) (PCU	-H/H)	(\$/H)	(%)	(\$/H)	(PCU)	(PCU)	(\$/H)		(SEC	ONDS)
77	47	715	0	0 0	4 -	0 0 .	0 1	( 0 7)	0	( 0 0)	0		0.7			
77	47	715	9	8.9	4.5	0.0 +	0.1	( 0.7)		( 0.0)	0		0.7	4		
101	585<	1900	85	12.6	30.0	2.1 +	2.7	(68.1)		(16.2)	15		84.3	1	60 8	
102	779	1785	85	8.9	29.5	3.5 +	2.8	(89.2)		(14.2)	12	( 0.0)*	103.3	1	16 56	
103	413	1710	53	7.6	21.4	1.8 +	0.6	( 34.0)		(9.2)	7	( 0.0)*	43.2	1	27 8	
104	877	1915	75	7.6	16.4	2.4 +	1.5	(55.0)		(13.2)	12	( 0.0)*	68.2	1	40 8	
105	220	1785	76	8.9	61.1	2.2 +	1.5	(52.6)		(7.1)	6		59.7	1	13 25	
202	720	1940	80	11.8	24.0	2.7 +	2.0	(66.8)	68	(12.6)	11		79.5	2	30 66	
203	423	1740	53	11.8	17.2	1.4 +	0.6	(27.9)	57	(6.2)	6		34.1	2	30 66	
204	300	1760	76	17.2	47.6	2.4 +	1.5	(55.8)	110	(8.5)	8	( 0.0)*	64.3	2	7 24	
205	269	1720	39	17.2	21.9	1.3 +	0.3	(22.7)		(5.0)	5		27.6	2	73 24	
206	176	1725	68	7.2	55.4	1.6 +	1.0	(38.1)		(5.5)	5		43.6	2	71 2	
207	269	2000	21	7.2	5.8	0.3 +	0.1	( 5.6)		( 1.3)	1		6.9	2	32 2	
301	412	2300	48	17.2	23.5	2.2 +	0.5	(37.4)		(8.1)	7		45.5	3	79 28	
302	803	3300	78	17.2	33.3	5.6 +	1.7	(103.8)		(19.7)	18		123.4	3	4 28	
303	156	1675	53	19.8	33.9	0.9 +		(20.5)		( 4.0)	4		24.6	3	35 74	
304	537<	1790	60	19.8	19.1	2.0 +	0.7	(39.4)		( 9.1)	8		48.5	3	35 74	
305		1770		19.8	21.2	0.7 +							15.8			
	153		23				0.1	( 12.5)		( 3.3)	3			3		
306	46	1785	7	5.1	7.3	0.1 +	0.0	( 1.2)		( 0.1)	0	( 0 0)+	1.4	3	1 31	
307	1215	3970	79	5.1	12.0	2.0 +	1.9	(55.3)		(12.2)	13	( 0.0)*	68.7	3	1 31	
308	597	2000	82	8.9	35.4	3.5 +	2.3	(82.1)		(13.1)	12	( 0.0)*	95.3	3	37 65	
309	421	1785	65	8.9	28.8	2.4 +	0.9	(46.9)		( 6.6)	6		53.6	3	37 65	
401	468	3300	76	5.9	39.8	3.6 +	1.5	(72.5)		(13.3)	12	( 0.0)*	85.8	4	38 52	
402	804	3300	41	5.9	2.4	0.1 +	0.3	( 6.0)		( 0.7)	1		6.7	4	6 53	
403	1002	3000	84	17.2	31.0	6.0 +	2.5	(120.5)	95	(24.4)	23		145.0	4	1 32	
404	645	1710	60	17.2	13.8	1.6 +	0.8	(33.8)	59	(9.8)	9		43.5	4	65 34	
405	324	1900	76	12.2	35.0	1.6 +	1.5	(44.1)	109	(9.1)	8		53.2	4	57 74	
406	254	2000	68	12.2	54.7	2.8 +	1.0	(54.3)	117	(7.7)	7		62.0	4	62 76	
701	109	1600	19	17.2	22.6	0.5 +	0.1	( 9.5)	70	( 2.0)	2		11.5	7	29 56	
702	286	1750	47	17.2	26.2	1.6 +	0.4	(29.0)	80	(5.9)	5		34.9	7	29 56	
703	518	1950	106		183.4	5.0 +		(373.7)		(28.5)	33		402.1	7	69 8	
704	694	1900	104		143.6		22.3	(391.7)		(35.0)	38	+	426.7	7	29 56	
705	124	1800	42	20.6	20.6	0.3 +		( 9.8)		( 2.9)	2		12.7	7	61 13	
706	565	1900	88	20.6	32.4	1.6 +	3.4	(71.2)		(15.1)	15		86.3	7	62 8	
901	408	1740	85	18.1	46.4	2.5 +	2.7	(73.8)		(11.8)	11		85.6	9	78 19	
902	943<	1740	75	18.1	10.7	1.2 +	1.5	(37.9)		(11.1)	10		49.0	9	42 19	
903	741	1900	98	6.4	69.1	4.4 +	9.7	(200.4)		( 28.1)	26	+	228.5	9	42 73	
903	482	1665	93	17.2	64.4	3.6 +		(121.5)		( 16.5)	15	т	137.9	9	78 22	
			93	5.5	47.5						31				63 25	
1001	965<	1845					10.3	(178.8)		( 30.1)		+	208.9	10		
1002	451	1710	96	17.2	83.7	3.6 +	6.8	(148.0)		(17.5)	17		165.5	10	36 57	
1003	324	1910	45	17.2	23.9	1.7 +	0.4	(29.9)	76	(6.4)	6		36.3	10	76 25	
1401	1156	1965	76	12.2	5.7	0.1 +		(23.6)		( 3.3)	5	( 0.0)*	27.0	14	55 36	
1402	50	1871	21	4.7	41.8	0.4 +	0.1	(8.1)		( 1.3)	1		9.4	14	41 50	
1403	134	1791	60	4.7	53.3	1.2 +	0.7	(27.9)		( 3.9)	4		31.8	14	41 50	
1404	1320<	3970	43	6.4	4.8	1.2 +	0.4	(22.6)	30	(10.4)	10		33.0	14	55 36	
TOTAL		TOTAL		MEAN		TOTAL	TOTA		TAL	TOTAL		NALTY	TOTAL			
DISTAN	CE	TIME	JO	URNEY		UNIFORM	RANDO		OST	COST		FOR	PERFORMANCE			
TRAVELL	ED	SPENT		SPEED		DELAY	OVERS	SAT	OF	OF	E	XCESS	INDEX			
							DELA	AY DE	LAY	STOPS	Q1	JEUES				
(PCU-KM	/H)	(PCU-H/H	I)	(KM/H)		(PCU-H/H)	(PCU-H	/H) (\$	(H)	(\$/H)		\$/H)	(\$/H)			
3121.	7	284.2		11.0		93.6	118.0	0 (30	04.3) + (	470.1)	+ (	1.2)	= 3475.5	TOT	ALS	
														ROU'	TE	

NO OF STAGES 1 2 3 4 5 6 7 8

\*\*

CRUISE DELAY STOPS TOTALS

LITRES PER HOUR LITRES PER HOUR LITRES PER HOUR

LITRES PER HOUR

FUEL CONSUMPTION PREDICTIONS 167.4 + 243.3 + 214.2 = 624.9

NO. OF ENTRIES TO SUBPT = 18 NO. OF LINKS RECALCULATED= 392

## Analysis Program Release 4 (March 2005) (c) Copyright TRL Limited, 2004

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For sales and distribution information, program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770018
Old Wokingham road Fax: +44 (0) 1344 770864
Crowthorne, Berks. Email: softwarebureau@trl.co.uk
RG45 6AU, UK. Web: www.trlsoftware.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "SATURDAY 13-14 WITH COMMITTED NO DEV OPTIMISED TIMINGS.DAT" at 17:06 on 17/01/08

TRANSYT 12.0

1

Saturday 13:00-14:00 hours with Committed no Dev optimised timings

## PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

 NUMBER OF NODES
 =
 8

 NUMBER OF LINKS
 =
 44

 NUMBER OF OPTIMISED NODES
 =
 8

 MAXIMUM NUMBER OF GRAPHIC PLOTS
 =
 0

 NUMBER OF STEPS IN CYCLE
 =
 80

 MAXIMUM NUMBER OF SHARED STOPLINES
 =
 0

 MAXIMUM NUMBER OF TIMING POINTS
 =
 4

 MAXIMUM LINKS AT ANY NODE
 =
 9

CORE REQUESTED = 11940 WORDS CORE AVAILABLE = 72000 WORDS

DATA INPUT :-

	~~~	~ ~~~~															
CARD NO.	CARD TYPE																
		- Satur	day 13:0	0-14:00	hours wit	h Comm	nitted no	Dev or	at in	mised t	iminas						
CARD	CARD		NO. OF		FFECTIVE						CRUISE-	-SPEEDS	OPTIMISE	EXTRA	HILL-	DELAY	
NO. VALUE	TYPE	TIME	STEPS	PERIOD	DISPLACE	MENTS	SETTINGS	CYCLI	3	SCALE	SCALE	CARD32	0=NONE	COPIES	CLIMB	VALUE	
PER			PER	1-1200	START	END	0=NO	1=EQUA	AL	10-200	50-200	0=TIMES	1=O/SET	FINAL	OUTPUT	P PER	P
100		(SEC)	CYCLE	MINS.	(SEC)	(SEC)	1=YES	CYCLI	3	왕	8	1=SPEEDS	2=FULL	OUTPUT	1=FULL	PCU-H	
2)=	1	80	80	60	2	3	1	0		0	0	1	2	0	0	1420	260
CARD	CARD	80	80	00	2			NODES	ТΟ		PTIMISED	1	2	U	U	1420	200
NO.	TYPE							NODED	10	DD O	TIMEDED						
3)=	2	1	2	3	4	7	9	10		14	0	0	0	0	0	0	0
3,	-	-	-	3	-	,					· ·	Ü	Ü	Ü	Ü	Ü	Ü
				NOL	E CARDS:	MININ	MUM STAGE	TIMES	(WC	ORKING)							
CARD	CARD	NODE		S1	S2	S3	S4	S5		S6	s7	S8	S9	S10			
NO.	TYPE	NO.															
4)=	10	1		7	7	7											
5)=	10	2		7	7	7											
6)=	10	3		7	7	7	1										
7)=	10	4		7	7	7											
8)=	10	7		3	7	7											
	10	9		7	7	7											
10)=		10		7	7	7											
11)=	10	14		7	7												
CARD	CARD	NODE		S1	DE CARDS:	S3	DING INT S4	ERSTAGI S5	s Tl	IMES (WO	S7	S8	S9	S10			
NO.	TYPE	NO.		51	52	53	54	55		50	57	50	59	510			
12)=		1		2	4	8											
13)=		2		8	5	5											
14)=		3		7	9	1	5										
15)=		4		5	7	6	3										
16)=		7		6	4	21											
17)=		9		5	7	2											
18)=	11	10		2	6	6											
19)=	11	14		5	5												
				NOD	DE CARDS:		CHANGE		(WOI								
CARD	CARD	NODE	Sgl/Dbl	S1	S2	S3	S4	S5		S6	s7	S8	S9	S10			
NO.	TYPE	NO.	Cycled														
20)=		1	1	76	23	52											
21)=		2	1	29	67	5											
22)=		3	1	60	13	37	54										
23)=		4	1	48	74	25											
24)= 25)=		7 9	1	51 66	60	7 32											
25)= 26)=		10	1	10	18 51	32 77											
26)=		14	1	44	31	/ /											
2/)=	12	14	Т	44	31												

LINK CARDS: GIVEWAY DATA

a155	g1.pp		PRIORIT		LINK1 G								ama n			
CARD DISPSN NO.	CARD	LINK	LINK1	LINK2	ONLY % FLOW	A1 X100	A2 X100					LINK LENGTH W	STOP	MAX FLOW	DELAY WT.X100	
X100 28)=	30	77	105	104	0 0	22	19	0	0	0	0	100	0	715	0	0
29)=	30 30	103 303	101	0	0	50 50	100	0	0	0	0	100	0	1000	0	0
31)=	30	705	703	0	0	50	100	0	0	0	0	100	0	1000	0	0
					FIRST	GREEN		RDS: FI	IXED DA							
CARD	CARD	LINK	EXIT	S	TART		END	SI	SECOR TART	ID GREEN ENI	)	LINK	STOP	SAT	DELAY	
DISPSN NO.	TYPE	NO.	NODE	STAGE	LAG	STAGE	LAG	STAGE	LAG	STAGE	LAG	LENGTH	WT.X100	FLOW	WT.X100	
X100 32)=	31	101	1	2	4	3	0	0	0	0	0	145	0	1900	0	0
33) = 34) =	31 31	102 103	1	3 1	8 2	2	0	0	0	0	0	100 85	0	1785 1710	0	0
35)= 36)=	31 31	104 105	1 1	1 3	2 5	3 1	0	0	0	0	0	85 100	0	1915 1785	0 0	0
37) = 38) =	31 31	202 203	2 2	1	6 6	2	0	0	0 0	0	0	135 135	0	1940 1740	0 0	0
39)= 40)=	31 31	204 205	2 2	3 2	5 7	1 1	0 0	0 0	0	0	0	200 200	0	1760 1720	0 0	0 0
41)= 42)=	31 31	206 207	2 2	2 1	5 8	3	0 0	0 0	0 0	0	0	80 80	0 0	1725 2000	0	0
43) = 44) =	31 31	301 302	3	1 1	5 5	2 2	0	0	0 0	0	0	200 200	0	2300 3300	0	0
45) = 46) =	31 31	303 304	3	2 2	7 7	1 1	0	0	0	0	0	230 230	0	1675 1790	0	0
47) = 48) =	31 31	305 306	3	2 1	8 7	4 2	0	0	0	0	0	230 55	0	1770 1785	0	0
49) = 50) =	31 31	307 308	3	1 2	7 9	2 4	3	0	0	0	0	55 100	0	3970 2000	0	0
51) = 52) =	31 31	309 401	3	2	8	4	0	0	0	0	0	100	0	1785 3300	0	0
53) = 54) =	31 31	402 403	4	2 2	12 7	1 3	1	0	0	0	0	65 200	0	3300 3000	0	0
55) = 56) =	31	404 405	4	1	13	3 2	2	0	0	0	0	200 140	0	1710 1900	0	0
57)=	31	406	4 7	1 3	10	2	2	0	0	0	0	140	0	2000	0	0
58) = 59) =	31 31	701 702	7	3	21 21	1	0	0	0	0	0	200	0	1600 1750	0	0
60)= 61)=	31 31	703 704	7 7	2	4 21	3 1	0	0	0	0	0	200	0	1950 1900	0	0
62)= 63)=	31 31	705 706	7 7	1	5 6	3	5 0	0	0	0	0	240 240	0	1800 1900	0 0	0
64)= 65)=	31 31	901 902	9 9	1 3	5 20	2	0	0	0	0	0	210 210	0	1740 1740	0 0	0
66)= 67)=	31 31	903 904	9 9	2 1	7 5	1 2	0 0	0 0	0	0	0	70 200	0 0	1900 1665	0 0	0
68)= 69)=	31 31	1001 1002	10 10	3 2	6 6	2	0	0	0 0	0	0	60 200	0	1845 1710	0	0
70)= 71)=	31 31	1003 1401	10 14	1 1	2 5	2 2	0	0	0 0	0	0	200 140	0	1910 1965	0	0
72)= 73)=	31 31	1402 1403	14 14	2 2	5 5	1	0	0 0	0	0	0	50 50	0	1871 1791	0 0	0
74)=	31	1404	14	1	5	2	0	0	0	0	0	70	0	3970	0	0
					ENTRY 1	L	LINK CAR		LOW DATA		ENTRY	3		ENTR	Y 4	
CARD	CARD	LINK	TOTAL	UNIFORM	LINK		CRUISE	LINK		CRUISE I	LINK		CRUISE	LINK		
CRUISE NO.	TYPE	NO.	FLOW	FLOW	NO.	FLOW	SPEED	NO.	FLOW	SPEED	NO.	FLOW	SPEED	NO.	FLOW	
SPEED 75)=		101	465	0	304	407	43	306	58	43 43	0	0	0	0	0	0
76) = 77) =		102	734 466	0	202 1401	507 414	43 43	205 1403	227 52	43	0	0	0	0	0	0
78) = 79) =	32	104 105	714 283	0	1401 202	634 195	43 43	1403 205	80 88	43 43	0	0	0	0	0	0
80)= 81)=	32	202	660 503	0	401 401	297 226	43 43	404 404	363 277	43 43	0	0	0	0	0	0
82) = 83) =	32	204	365 296	0	0	0	43 43	0	0	0	0	0	0	0	0	0
84) = 85) =	32	206 207	243 328	0	101 101	35 47	43 43	103 103	208 281	43 43	0	0	0	0	0 0	0
86) = 87) =	32	301 302	447 790	0 0	0	0	43 43	0 0	0 0	0	0	0	0	0	0 0	0
88) = 89) =	32	303 304	128 406	0 0	701 701	26 83	43 43	703 703	69 218		704 704	33 105	43 43	0	0	0
90)= 91)=		305 306	270 58	0 0	701 403	74 58	43 43	703 0	196 0	43 0	0	0	0	0	0	0
92)= 93)=		307 308	937 560	0 0	403 104	655 401	43 43	406 105	251 159	43 43	0	0	0	0	0	0
94)= 95)=		309 401	265 551	0 0	104 301	265 447	43 43	0 305	0 104	0 43	0	0	0	0	0 0	0
96)= 97)=		402 403	910 713	0 0	302 0	739 0	43 43	305 0	171 0	43 0	0	0	0	0	0	0
98) = 99) =	32	404 405	673 404	0	0 204	0 114	43 43	0 207	0 290	0 43	0	0	0	0	0	0
100) = 101) =	32	406 701	251 168	0	204	251 0	43 43	0	0	0	0	0	0	0	0	0
102) =	32	702 703	320 511	0	0	0	43 43	0	0	0	0	0	0	0	0	0
104) = 105) =	32	704 705	494 176	0	0 302	0 20	43 43	0 308	0 156	0 43	0	0	0	0	0	0
106) = 107) =	32	706 901	534 417	0	302 1402	62 16	43 43	308 1404	472 401	43 43	0	0	0	0	0	0
108)=	32	902 903	705 699	0	1402	27 269	43 43	1404	678 450	43 43	0	0	0	0	0	0
110)=		904	413	0	0	0	43	0	0	0	0	0	0	0	0	0

111) = 112) = 113) = 114) = 115) = 116) = 117) = 118) = CARD QUEUE NO. WEIGHT 119) = 120) = 121) = *****E	32 1 32 1 32 1 32 1 32 1 32 1 32 1 32 1	402 403 404 1 LINK NO. 102 307 204	13 10	0 0 0 0 0 0 0 0 QUEUE WEIGHT 99999 99999	9022 0 0 9033 0 0 1011 LIN NO 103 308 401	0 0 0 682 0 0 387 L. K. LIMIT		LINK	38 73 CONST LI QU 1	0 0 0 0 7 4 0 0 0 0 4 4 4 4 4 4 4 4 4 4	GHT 1		0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	0 SECOND		80 STE	PS													
- (SE	L SETTIN		ים פידי	ACE S	TA CE	CTACE (	omace on	יאכים כ	TACE	CTA CE	CTA CE	CTACE					
NODE NO	NUMBE OF STA	GES 1		2	TAGE 3	STAGE :	STAGE ST 5	'AGE S 6	TAGE 7	STAGE 8	STAGE 9	STAGE 10					
1 2 3 4 7 9 10	3 4 3 3 3 3 2	76 29 60 48 51 66 10 44	6 1 7 6 1 5	7 3 4 0 8	52 5 37 25 7 32	54											
LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN PER CRUIS	PCU		ELAY RANDOM+ C OVERSAT	OST	STO MEAN TOPS	PS COST OF	MEAN	UE	INI	ORMANCE DEX. HTED SUM	EXIT NODE	GREEN TI START S	IMES START
END		(PCU/H)			DELAY	(U+R+O=M) (PCU-H)	EAN Q) DE	LAY	/PCU	STOPS	(PCU)	EXCESS (PCU)	OF (	) VALUES		1ST (SECON	2ND NDS)
77 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706 901 902 903 904 1001 1002 .	57 465 734 467 716 284 661 503 365 296 244 330 447 790 128 405 2270 58 937 562 266 551 911 713 673 405 251 168 320 511 168 320 511 417 704 699 417 704 699 445 455	715 1900 1785 1710 1915 1785 1940 1740 1720 1725 2000 1770 1785 3970 2000 1770 1785 3970 2000 1770 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 1790 18845 1710 1910	11 75 75 66 54 83 70 83 88 12 77 54 66 43 44 36 67 78 53 67 78 53 67 78 53 67 78 54 67 78 54 67 78 54 67 78 67 78 67 78 67 78 67 78 78 78 78 78 78 78 78 78 78 78 78 78	8.9 12.6 8.9 7.6 8.9 7.6 8.9 11.8 11.8 17.2 7.2 17.2 19.8 19.8 5.1 5.1 5.1 5.1 20.6 20.6 20.6 20.6 20.6 20.6 20.6 20.6	4.4 29.0 21.0 16.8 12.6 33.1 27.0 518.9 77.3 26.3 27.4 15.5 21.7 15.8 22.7 43.7 15.8 21.1 22.7 43.7 133.2 24.3 25.3 27.4 43.7 133.2 28.6 21.7 43.7 133.2 28.6 28.6 28.6 28.6 28.6 28.6 28.6 28	0.0 + 1 2.2 + 1 2.7 + 1 1.8 + 1 1.6 + 1 3.7 + 2 5.5 + 2 1.2 + 1 3.2 + 1 1.5 + 1 2.5 + 2 1.2 + 1 1.5 + 2 2.5 + 2 2.5 + 2 1.2 + 1 1.5 + 2 2.5 + 2 1.0 + 2 1.1 + 1 1.5 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 1.0 + 2 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LINK	0 SECOND FLOW	SAT	80 STE	MEAN		D				PS		EUE			EXIT	GREEN TI	
NUMBER END	INTO	FLOW	OF SAT	PER CRUIS		UNIFORM I	OVERSAT	OF S	MEAN TOPS /PCU	OF STOPS	MEAN MAX. A	AVERAGE	WEIGH	DEX. HTED SUM ) VALUES	NODE	START S END 1ST	2ND
1401 1402 1403 1404	1070 45 134 1121	(PCU/H) 1965 1871 1791 3970	69 21 67 36	(SEC) 12.2 4.7 4.7 6.4 MEAN	(SEC) 10.0 43.7 60.5 4.6	(PCU-H)  1.7 + 1  0.4 + 1  1.3 + 1  1.0 + 1	(\$) (\$) (\$) (\$) (\$) (\$) (\$) (\$) (\$) (\$)	(/H) (.3) (.7) (.7) (.2)	58 ( 100 ( 121 ( 31 (	(\$/H) 15.9) 1.2) 4.2) 8.9)	15 1 4 9	(PCU) ( 0.0)*	( <b>\$</b>	56.2 8.8 35.9 27.1	14 14 14 14	(SECON 49 31 36 44 36 44 49 31	
DISTA	NCE	TIME	g JO	URNEY	U	NIFORM I	RANDOM+	COST		COST	I	FOR	PERF	FORMANCE			

```
TRAVELLED
                 SPENT
                           SPEED
                                         DELAY OVERSAT
                                                                                     EXCESS
                                                                                                 INDEX
                                                             OF
                                                                         OF
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                     QUEUES
               (PCU-H/H)
                                       (PCU-H/H)(PCU-H/H)
                                                                                                 ($/H)
(PCU-KM/H)
                            (KM/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
  2906.3
                 209.8
                            13.9
                                         98.7
                                                  43.4
                                                          (2018.8) + ( 442.6) + ( 215.4)
                                                                                                  2676.8
                                                                                                              TOTALS
CRUISE
                                                      DELAY
                                                                          STOPS
                                                                                            TOTALS
                             LITRES PER HOUR
                                                 LITRES PER HOUR
                                                                     LITRES PER HOUR
                                                                                        LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS
                                  155.9
                                                      163.5
                                                                          201.7
                                                                                             521.1
NO. OF ENTRIES TO SUBPT =
NO. OF LINKS RECALCULATED=
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12
 - (SECONDS)
                   64
                           11
                                   40
                   41
                           79
    2
                                   17
                           25
74
            4
                   72
                                   49
                                           66
    4
                   48
                                   2.5
                   51
                           60
                   78
                           30
   10
                   78
                           39
  TOTAL
                 TOTAL
                             MEAN
                                         TOTAL
                                                  TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                    PENALTY
                                                                                                 TOTAL
                                                                                     FOR
EXCESS
 DISTANCE
                  TIME
                          JOURNEY
                                       UNIFORM
                                                 RANDOM+
                                                            COST
                                                                        COST
                                                                                               PERFORMANCE
TRAVELLED
                 SPENT
                           SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                        OF
                                                                                                 INDEX
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                     QUEUES
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                  ($/H)
                 197.9
                             14.7
                                          86.9
                                                          (1850.1) + (387.7) + (
                                                                                      0.0)
                                                                                                  2237.8
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                             19
NO. OF LINKS RECALCULATED= 335
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32
 - (SECONDS)
                   64
                           11
                                   40
                   41
72
                           79
    2
                                   17
                           25
                                   49
    4
            3
                   48
                           74
                                   25
                           60
                   51
                   78
                           30
   1.0
            3
                   78
                           39
                                   65
   14
                   56
                           43
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                  TOTAL
                                                                                                 TOTAL
 DISTANCE
                  TIME
                          JOURNEY
                                       UNIFORM
                                                 RANDOM+
                                                            COST
                                                                        COST
                                                                                     FOR
                                                                                               PERFORMANCE
TRAVELLED
                 SPENT
                            SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                         OF
                                                                                     EXCESS
                                                                                                 TNDEX
                                                           DELAY
                                                                       STOPS
                                                                                     OUEUES
                                                  DELAY
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                  ($/H)
                 197.9
                            14.7
                                         86.9
                                                  43.4
                                                          (1850.1) + ( 387.7) + ( 0.0)
                                                                                                  2237.8
  2906.3
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                             17
NO. OF LINKS RECALCULATED= 311
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1
  - (SECONDS)
                   65
    2
            3
                   41
                           79
                                   17
                   73
                           27
                                          67
    3
                                   43
    4
7
            3
                   51
                           60
                                    7
                   73
                           30
                                   45
   10
                   78
                           42
   14
                   56
                                                 TOTAL
RANDOM+
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                    PENALTY
                                                                                                 TOTAL
 DISTANCE
                          JOURNEY
                                       UNIFORM
                                                            COST
                                                                                               PERFORMANCE
                  TIME
                                                                        COST
                                                                                     FOR
                 SPENT
                           SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                         OF
                                                                                     EXCESS
                                                                                                 INDEX
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                     OUFUES
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
                                                          (1821.0) + (374.5) + (1.6)
  2906.3
                 195.8
                             14.8
                                         84.4
                                                  43.8
                                                                                                  2197.1
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                             61
NO. OF LINKS RECALCULATED= 741
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1 12
 - (SECONDS)
```

53

52

3 4 7 9 10 14	4 3 3 3 3	73 47 51 73 78 44	27 72 60 30 42 29	43 25 7 45 65	67									
TOTAL DISTANCE TRAVELLED	2	TOTAL TIME SPENT	MEAN JOURNEY SPEED		TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT	TOTAL COST OF		TOTAL COST OF		PENALTY FOR EXCESS		TOTAL PERFORMANCE INDEX	
(PCU-KM/H)		(PCU-H/H)	(KM/H)		(PCU-H/H)(	DELAY PCU-H/H)	DELAY (\$/H)		STOPS (\$/H)		QUEUES (\$/H)		(\$/H)	
2906.3		193.5	15.0		82.1	43.8	(1788.1)	+ (	373.0)	+ (	1.6)	=	2162.7	TOTALS
NO. OF ENTE	RIES	TO SUBPT	= 18											
NO. OF LINE														
INTERMEDIAT	re se	CYCLE 80 ETTINGS - I		SO	FAR :- 12	2 32 -1	12 32							
1	3	77	23	52										
2	3 4	53 73	11 27	29 43	67									
4	3	47	72	25	07									
7 9	3	51 73	60 30	7 45										
10 14	3 2	78 44	42 29	65										
TOTAL DISTANCE TRAVELLED		TOTAL TIME SPENT	MEAN JOURNEY SPEED		TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY		TOTAL COST OF STOPS		PENALTY FOR EXCESS QUEUES		TOTAL PERFORMANCE INDEX	
(PCU-KM/H)		(PCU-H/H)	(KM/H)		(PCU-H/H)(		(\$/H)		(\$/H)		(\$/H)		(\$/H)	
2906.3		193.5	15.0		82.1	43.8	(1788.1)	+ (	373.0)	+ (	1.6)	=	2162.7	TOTALS
NO. OF ENTE NO. OF LINE														
80 SEC	COND	CYCLE 80	STEPS											
INTERMEDIAT		ETTINGS - I	NCREMENTS	SO	FAR :- 12	2 32 -1	12 32	1						
1 2	3	77 53	23 11	52 29										
3	4	72	26	42	66									
4 7	3	45 54	70 63	23 10										
9 10	3	74 79	31 43	46										
14	2	44	29	66										
TOTAL DISTANCE TRAVELLED		TOTAL TIME SPENT	MEAN JOURNEY SPEED		TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY		TOTAL COST OF STOPS		PENALTY FOR EXCESS QUEUES		TOTAL PERFORMANCE INDEX	
(PCU-KM/H)		(PCU-H/H)	(KM/H)		(PCU-H/H)(		(\$/H)		(\$/H)		(\$/H)		(\$/H)	
2906.3		192.8	15.1		81.4	43.8	(1778.2)	+ (	371.0)	+ (	1.8)	=	2151.0	TOTALS
NO. OF ENTE														
80 SEC	COND	CYCLE 80	STEPS											
INTERMEDIAT		ETTINGS - I	NCREMENTS	SO	FAR :- 12	2 32 -1	12 32	1	-1					
1 2	3	79 53	24	52										
3	3 4	53 72	11 24	29 40	66									
4 7	3	45 54	70 63	22 10										
9	3	73	32	46										
10 14	3 2	79 44	43 30	66										
TOTAL		TOTAL	MEAN		TOTAL	TOTAL	TOTAL		TOTAL		PENALTY		TOTAL	
DISTANCE TRAVELLED		TIME SPENT	JOURNEY SPEED		UNIFORM DELAY	RANDOM+ OVERSAT DELAY	COST OF DELAY		COST OF STOPS		FOR EXCESS QUEUES		PERFORMANCE INDEX	
(PCU-KM/H)		(PCU-H/H)	(KM/H)		(PCU-H/H)(	PCU-H/H)	(\$/H)		(\$/H)		(\$/H)		(\$/H)	
2906.3		191.9	15.1		79.9	44.4	(1765.7)	+ (	366.7)	+ (	0.0)	=	2132.5	TOTALS
NO. OF ENTE NO. OF LINE														
80 SEC	COND	CYCLE 80	STEPS											
FINAL SETTI		OBTAINED W	ITH INCRE	MENT	rs :- 12	32 -1 1	2 32 1	-1	1					

NODE NUMBER STAGE STAGE STAGE STAGE STAGE STAGE STAGE STAGE STAGE STAGE

1 2 3 4 7 9 10 14	3 3 4 3 3 3 3 2	79 55 72 45 57 74 0 45	2: 1: 2: 7: 6: 3: 4: 3:	3 4 0 6 3 4	52 31 40 22 13 47 67	66	DEI AV		CT	ODG	QUEUE	DEDECOMANCE	EVTT.	CREE	N TIMES
NUMBER	INTO LINK	FLOW	OF SAT		PCU	UNIFORM		+ COST		COST OF	MEAN	INDEX. WEIGHTED SUM		STAR	T START
END	(PCU/H)	(PCU/H)	(왕)	(SEC)		(U+R+O= (PCU-				STOPS (\$/H)	EXCESS (PCU) (PCU)	OF ( ) VALUES (\$/H)	3	1ST (S	2ND ECONDS)
77	57	715		8.9		0.0 +				( 0.0)	0	0.9			
101 102	465 734	1900 1785		12.6 8.9		2.8 + 1.7 +				( 9.0) ( 8.4)	8	74.1 * 52.0	1	28 60	
102		1710		7.6		1.7 +				( 11.0)		52.1	1	1	
104		1915	57	7.6	14.2		0.7 (			(12.4)		51.0	1	1	52
105		1785	55	8.9	37.2		0.6 (		81	(5.9)	5		1		79
202	661			11.8			2.3 (			(15.9)	15	96.7	2		13
203 204	503 365			11.8 17.2		2.4 + 2.9 +	1.2 (		81 116	( 10.4)	10 10 ( 0.0)	60.8			13 55
204		1720		17.2		1.2 +				( 5.0)		* 84.3 26.5			55
206	244			7.2		1.6 +				(7.5)	7	57.6			31
207	330	2000	27	7.2		0.6 +	0.2 (	10.5)	36	( 3.0)	3	13.5	2	63	31
	447	2300		17.2		2.6 +			82	(9.4)	9	55.3			24
	790	3300		17.2 19.8		4.9 + 0.5 +			86	(17.6)	16 3	102.1			24
303 304	128 405	1675 1790		19.8			0.3 (		82 61	( 2.7)	6	15.0 28.6	3		72 72
305	270	1770		19.8		1.0 +			79	(5.5)	5	24.1	3		66
306	58	1785	9	5.1	4.1	0.0 +			5	( 0.1)	0 12 ( 0.0) 12 ( 0.0)	0.9	3		27
307	937	3970				1.3 +			42	(10.2)	12 ( 0.0)	42.3	3		27
308	562					3.6 +			95	( 13.7)	12 ( 0.0)	79.2	3		66
309 401	266 551					0.9 + 3.3 +				( 5.7)	5 13 ( 0.0)	22.3 * 81.3	3 4		66 45
401		3300		5.9		0.4 +				( 4.1)			4		46
403		3000		17.2		4.7 +					15 11	103.2	4		22
404	673			17.2			1.0 (		68	(11.8)	11	55.9	4		24
405	405			12.2			2.1 (		116	(12.1)	11 5 3	86.9	4		70
406 701	251	2000 1600		12.2 17.2			0.6 (		6.3 0.1	( 4.1) ( 3.5)	5	16.9 21.8	4 7		72 57
	320			17.2			0.8 (		91	( 7.5)	7	48.8			57
	511			17.2			3.2 (		115	(15.2)	14	113.9	7	70	13
	494			17.2			3.0 (			( 14.6)		109.0	7		57
	177			20.6	21.1	0.5 +	0.5 (	14.3)	95	( 4.3)	3	18.7			18
	535 417	1900 1740		20.6 18.1	16 3	1.9 +	1.3 (	45.9) 26.1)	99 61	( 13.6) ( 6.5)	13	59.5 32.6			13 33
902	704			18.1	12.1	1.2 +	1.1 (	32.3)	48	(8.7)	9	40.9	9		33
903	699	1900	84	6.4	30.7	3.3 +	2.6 (	83.3)	90	(16.2)	17 +	99.6	9		74
904	413	1665		17.2	23.0	1.9 +	0.7 (	36.7)	76	(8.1)	7	44.8	9		33
1001		1845		5.5	4.4	0.0 +	0.8 (	11.2)	10	( 1.9)	5	13.2			44
	276 455			17.2 17.2	14 9	2.2 +	0.4 (	48.8) 25.8)	10 / 59	( 7.6)	6	56.4 32.8		2	67 44
1401		1965		12.2	5.4	0.3 +	1.2 (	20.9)	15	( 4.1)	5 ( 0.0)	25.0	14		31
1402		1871		4.7	41.4	0.4 +	0.1 (	7.3)	97	(1.1)	1	8.4	14	36	
1403		1791		4.7	53.3	1.2 +	0.7 (	27.9)	113	( 3.9)	6 5 ( 0.0) 1 4 8	31.8	14	36	
1404	1121	3970	36	6.4	4.2	0.9 +	0.3 (	16.2)	26	(7.6)	3 13 6 9 17 + 7 5 7 6 5 (0.0) 1 4 8	23.8	14	50	31
TOTAL DISTAN TRAVELL (PCU-KM	ICE JED	TOTAL TIME SPENT	J01		τ	JNIFORM DELAY	RANDOM OVERSA DELAY	I+ CC T C	ST F AY	TOTAL COST OF STOPS (\$/H)	FOR	TOTAL PERFORMANCE INDEX (\$/H)			
					\.										
2906. 		191.7 		15.2		79.7 					+ ( 0.0)		TOT. ROU'		

NO OF STAGES 1 2 3 4 5 6 7 8

\*

CRUISE DELAY STOPS TOTALS

LITRES PER HOUR LITRES PER HOUR LITRES PER HOUR

LITRES PER HOUR LITRES PER HOUR

FUEL CONSUMPTION PREDICTIONS 155.9 + 142.7 + 166.5 = 465.1

NO. OF ENTRIES TO SUBPT = 20 NO. OF LINKS RECALCULATED= 445

Traffic Network Study Tool

Analysis Program Release 4 (March 2005) (c) Copyright TRL Limited, 2004

For sales and distribution information, program advice and maintenance, contact:

+44 (0) 1344 770018 TRL Limited Tel: +44 (0) 1344 770864 Old Wokingham road Fax: Email: softwarebureau@trl.co.uk Crowthorne, Berks. RG45 6AU, UK. Web: www.trlsoftware.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "SATURDAY 13-14 WITH COMMITTED WITH DEV OPTIMISED TIMINGS.DAT" at 17:06 on 17/01/08

TRANSYT 12.0

27)= 12 14

1

44

23

1

Saturday 13:00-14:00 hours with Committed with Dev optimised timings

PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES 8 NUMBER OF LINKS NUMBER OF OPTIMISED NODES MAXIMUM NUMBER OF GRAPHIC PLOTS 8 NUMBER OF STEPS IN CYCLE 80 MAXIMUM NUMBER OF SHARED STOPLINES MAXIMUM NUMBER OF TIMING POINTS 0 MAXIMUM LINKS AT ANY NODE CORE REQUESTED = 11940 WORDS CORE AVAILABLE = 72000 WORDS

DATA INPUT :-

CARD CARD NO. TYPE ( 1)= TITLE:- Saturday 13:00-14:00 hours with Committed with Dev optimised timings CARD TIME EFFECTIVE-GREEN EQUISAT 0=UNEQUAL FLOW CRUISE-SPEEDS OPTIMISE EXTRA HILL-CARD CYCLE NO. OF DELAY STOP STEPS PERIOD DISPLACEMENTS SETTINGS CYCLE SCALE SCALE CARD32 0=NONE COPIES CLIMB NO. TYPE TIME VALUE VALUE PER 1-1200 START END 0=NO 1=EOUAL 10-200 50-200 0=TIMES 1=O/SET FINAL OUTPUT P PER Ρ PER (SEC) CYCLE MINS. (SEC) (SEC) 1=YES CYCLE 용 % 1=SPEEDS 2=FULL OUTPUT 1=FULL PCU-H 100 2)= 80 80 60 2 0 0 1 2 0 0 1420 260 CARD LIST OF NODES TO BE OPTIMISED NO TYPE 3 4 7 10 0 3)= 2 MINIMUM STAGE TIMES (WORKING) NODE CARDS: CARD CARD NODE S1 S10 S2 S3 S4 S5 NO. TYPE NO. 4)= 10 1 6)= 10 3 1 7)= 10 8)= 10 3 7 9)= 10 10)= 10 10 11)= 10 14 NODE CARDS: PRECEDING INTERSTAGE TIMES (WORKING) s1 S8 CARD CARD NODE S2 S3 S4 S5 S6 S9 S10 NO. TYPE NO. 12)= 1 2 2 4 13)= 11 5 14)= 11 15)= 11 5 6 16)= 11 21 17)= 11 18)= 11 10 2 6 6 19)= 11 14 NODE CARDS: STAGE CHANGE TIMES (WORKING) CARD Sgl/Dbl S1 S8 S9 S10 NO. NO. TYPE Cycled 20)= 12 76 50 21)= 12 29 68 22)= 12 3 60 12 37 54 23)= 12 75 25 48 24)= 12 51 60 25)= 12 66 32 18 12 10 10 51

LINK CARDS: GIVEWAY DATA

g1.pp	<b>~</b> 1.55		PRIORIT		LINK1 G								amon			
CARD DISPSN NO.	CARD TYPE	LINK	LINK1	LINK2	ONLY % FLOW	A1 X100	A2 X100					LINK LENGTH W	STOP	MAX FLOW	DELAY WT.X100	
X100 28)=	30	77	105	104	0 PLOW	22	19	0	0	0	0	100	0	715	0	0
29)=	30 30	103 303	101	0	0	50 50	100	0	0	0	0	100	0	1000	0	0
31)=	30	705	703	0	0	50	100	0	0	0	0	100	0	1000	0	0
					FIRST	GREEN		RDS: FI	XED DA'							
CARD	CARD	LINK	EXIT	S	TART		END	ST	'ART	D GREEN EN	D	LINK	STOP	SAT	DELAY	
DISPSN NO.	TYPE	NO.	NODE	STAGE	LAG	STAGE	LAG	STAGE	LAG	STAGE	LAG	LENGTH	WT.X100	FLOW	WT.X100	
X100 32)=	31	101	1	2	4	3	0	0	0	0	0	145	0	1900	0	0
33) = 34) =	31	102 103	1	3 1	8 2	2	0	0	0	0	0	100 85	0	1785 1710	0	0
35)= 36)=	31 31	104 105	1 1	1 3	2 5	3 1	0	0	0	0 0	0	85 100	0	1915 1785	0 0	0
37) = 38) =	31 31	202 203	2 2	1	6 6	2 2	0	0	0	0 0	0	135 135	0	1940 1740	0 0	0
39)= 40)=	31 31	204 205	2	3 2	5 7	1 1	0	0 0	0	0 0	0	200 200	0	1760 1720	0 0	0
41) = 42) =	31 31	206 207	2 2	2 1	5 8	3	0	0 0	0	0 0	0	80 80	0	1725 2000	0 0	0 0
43) = 44) =	31 31	301 302	3	1 1	5 5	2	0	0 0	0	0	0	200 200	0	2300 3300	0 0	0
45) = 46) =	31 31	303 304	3	2 2	7 7	1 1	0	0 0	0	0	0	230 230	0	1675 1790	0 0	0
47) = 48) =	31 31	305 306	3	2 1	8 7	4 2	0	0	0	0	0	230 55	0	1770 1785	0	0
49) = 50) =	31 31	307 308	3	1 2	7 9	2 4	3	0	0	0	0	55 100	0	3970 2000	0	0
51) = 52) =	31 31	309 401	3 4	2	8	4	0	0	0	0	0	100	0	1785 3300	0	0
53) = 54) =	31	402 403	4	2 2	12 7	1	1	0	0	0	0	65 200	0	3300 3000	0	0
55)=	31	404	4	1	13 5	3 2	2	0	0	0	0	200 200 140	0	1710	0	0
56) = 57) =	31 31	405 406	4	1	10	2	2	0	0	0	0	140	0	1900 2000	0	0
58) = 59) =	31 31	701 702	7	3	21 21	1	0	0	0	0	0	200	0	1600 1750	0	0
60)= 61)=	31 31	703 704	7 7 -	2	4 21	3 1	0	0	0	0	0	200	0	1950 1900	0	0
62) = 63) =	31 31	705 706	7 7	1	5 6	3 3	5 0	0	0	0 0	0	240 240	0	1800 1900	0 0	0
64)= 65)=	31 31	901 902	9 9	1 3	5 20	2	0	0 0	0	0	0	210 210	0	1740 1740	0 0	0
66)=	31	903														0
67)=	31	904	9 9	2 1	7 5	1 2	0 0	0 0	0	0	0	70 200	0	1900 1665	0 0	0
									-		-					
67) = 68) =	31 31	904 1001	9 10	1 3	5 6	2	0	0	0	0	0	200 60	0	1665 1845	0	0
67) = 68) = 69) = 70) =	31 31 31 31	904 1001 1002 1003	9 10 10 10	1 3 2 1	5 6 6 2	2 2 3 2	0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0	200 60 200 200	0 0 0	1665 1845 1710 1910	0 0 0 0	0 0 0
67) = 68) = 69) = 70) = 71) = 72) =	31 31 31 31 31 31	904 1001 1002 1003 1401 1402	9 10 10 10 14 14	1 3 2 1 1 2	5 6 6 2 5 5	2 2 3 2 2	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	200 60 200 200 140 50	0 0 0 0 0	1665 1845 1710 1910 1965 1871	0 0 0 0 0	0 0 0 0 0
67) = 68) = 69) = 70) = 71) = 72) = 73) =	31 31 31 31 31 31	904 1001 1002 1003 1401 1402 1403	9 10 10 10 14 14	1 3 2 1 1 2 2	5 6 6 2 5 5 5 5	2 2 3 2 2 1 1 2	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 0	200 60 200 200 140 50 50 70	0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791	0 0 0 0 0 0	0 0 0 0 0
67) = 68) = 69) = 70) = 71) = 72) = 73) =	31 31 31 31 31 31 31 31	904 1001 1002 1003 1401 1402 1403	9 10 10 10 14 14 14	1 3 2 1 1 2 2	5 6 6 2 5 5 5 5	2 2 3 2 2 1 1 2	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	200 60 200 200 140 50 50 70	0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970	0 0 0 0 0 0	0 0 0 0 0
67)= 68)= 69)= 70)= 71)= 72)= 73)= 74)=  CARD CRUISE NO.	31 31 31 31 31 31 31 31	904 1001 1002 1003 1401 1402 1403 1404	9 10 10 10 14 14 14	1 3 2 1 1 2 2 2	5 6 2 5 5 5 5 5	2 2 3 2 2 1 1 2	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	200 60 200 200 140 50 50 70	0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970	0 0 0 0 0 0	0 0 0 0 0
67)= 68)= 69)= 70)= 71)= 72)= 73)= 74)=  CARD CRUISE NO. SPEED 75)=	31 31 31 31 31 31 31 31 7 7 7 7 7 7 7 7	904 1001 1002 1003 1401 1402 1403 1404 LINK NO.	9 10 10 10 14 14 14 14 14 15 TOTAL	1 3 2 1 1 2 2 1 UNIFORM FLOW	5 6 6 2 5 5 5 5 5 5 LINK NO.	2 2 3 3 2 2 1 1 1 2 2 FLOW 361	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 DS: FI ENTRY 2 LINK NO.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 7	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 ENTRY LINK NO.	200 60 200 200 140 50 70 3	0 0 0 0 0 0 0 0 0	1665 1845 1710 1910 1965 1871 1791 3970 ENTRY LINK NO.	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
67) = 68) = 69) = 70) = 71) = 72) = 74) = 74) = 74) = 75) = 76) = 77) = 76) = 77) = 76) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) = 77) =	31 31 31 31 31 31 31 31 31 TYPE	904 1001 1002 1003 1401 1402 1403 1404 LINK NO.	9 10 10 10 14 14 14 14 14 TOTAL	1 3 2 1 1 2 2 1 UNIFORM FLOW 0 0	5 6 6 2 5 5 5 5 5 5 LINK	2 2 3 3 2 2 1 1 2 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 ENTRY 2 LINK	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 CRUISE SPEED 43 43 43	0 0 0 0 0 0 0 0 0 0 ENTRY LINK NO.	200 60 200 200 140 50 70 3	0 0 0 0 0 0 0 0  CRUISE SPEED	1665 1845 1710 1910 1965 1871 1791 3970 ENTRY LINK NO. 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
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LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN	TIMES PCU	UNIFORM I	ELAY RANDOM+ CO OVERSAT O	ST I	STOI MEAN TOPS	PS COST OF	QUEUE MEAN MAX. AVERAGE	INDEX.	NODE	GREEN TIMES START START END
END		(PCU/H)			DELAY (SEC)		EAN Q) DEL	AY	/PCU (%)	STOPS (\$/H)	EXCESS			1ST 2ND (SECONDS)
77 101 102 103 104 105 202 203 204 205 206 207 301 302 303 304 305 306 307 308 309 401 402 403 404 405 406 701 702 703 704 705 706 901 902 903 904 1001 1002 1003 .	143 450 712 513 851 709 504 3655 296 243 376 488 764 128 428 270 106 905 581 313 600 877 729 673 451 172 320 527 498 180 553 428 716 711 425 735 284 459 0 SECOND	715 1900 1785 1710 1915 1785 1940 1740 1720 1725 2000 1770 1785 3970 2000 1770 1785 3970 2000 1770 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 3970 1785 1790 18845 1710 1910	300 733 766 677 722 866 688 833 399 87311 666 422 466 635 166 635 167 819 819 819 819 819 819 819 819 819 819	8.9 12.6 8.9 7.6 7.6 8.9 11.8 11.8 17.2 7.2 17.2 17.2 19.8 19.8 19.8 19.8 19.8 19.8 19.8 19.2 17.2 17.2 17.2 17.2 17.2 17.2 17.2 17	5.9 27.5 18.3 23.8 13.9 35.4 25.2 51.5 7 92.4 20.2 27.6 27.1 26.0 14.9 25.6 29.9 25.6 30.7 47.2 16.4 36.7 17.1 31.3 38.9 33.2 54.6 50.0 22.9 27.1 26.0 27.1 26.0 27.1 27.0 27.0 27.0 27.0 27.0 27.0 27.0 27.0	0.0 + 1 2.0 + 1 2.2 + 1 1.8 + 2 2.2 + 1 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 1.8 + 2 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2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 16. 2.5 ( 1	0) 9) 0) 1) 0) 0) 0) 5) 0) 4) 5) 1) 3) 2) 1) 9) 4) 1) 6) 5) 1) 8) 9) 1) 1) 8) 9) 1) 1) 8) 9) 1) 1) 1) 1) 1) 1) 1) 1) 1) 1) 1) 1) 1)	0 ( ) 73 ( ) 83 ( ) 92 ( ) 68 ( ) 97 ( ) 110 ( ) 87 ( ) 116 ( ) 68 ( ) 79 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 60 ( ) 6	0.0) 8.5) 15.1) 12.1) 14.8) 8.9) 20.0) 11.3) 10.9) 5.2) 7.7) 10.6) 16.7) 2.6) 7.3)	0 9 14 ( 0.0) 9 ( 0.0) 14 ( 0.1) 9 19 12 10 ( 0.0) 5 8 7 10 15 2 7 7 5 1 15 ( 0.1) 12 ( 0.0) 5 17 17 11 12 6 6 3 7 7 15 14 4 13 8 8 8 14 4 9 17 + 6 7	3.0 56.4 * 65.1 * 59.3 * 171.8 52.9 117.5 60.3 * 44.3 27.6 97.0 36.9 62.7 96.8 15.5 31.7 21.4 13.9 * 44.6 * 73.0 17.5	1 1 1 1 1 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3	25 50 58 21 78 50 78 50 78 50 55 76 35 68 35 68 35 68 37 5 65 12 65 12 19 60 20 54 67 15 67 15 21 54 20 54 31 48 7 49 2 25 61 27 53 75 58 77 28 51 28 51 56 12 57 7 71 18 52 18 53 51 57 77 71 18 53 51 57 77 71 18 53 51 57 77 71 2 51
LINK NUMBER	FLOW	SAT FLOW	80 STE	MEAN	TIMES PCU		ELAY RANDOM+ CO		STOI MEAN	PS COST	QUEUE MEAN	PERFORMANCE INDEX.	EXIT NODE	GREEN TIMES START START
END	LINK		SAT	CRUIS		(	OVERSAT O	F S'	TOPS /PCU	OF STOPS	MAX. AVERAGE		M	END 1ST 2ND
1401 1402 1403	1092 102 293	(PCU/H) 1965 1871 1791	(%) 81 26 77	(SEC) 12.2 4.7 4.7	(SEC) 15.3 32.8 50.0	(PCU-H	/H) (\$/ 2.1 (63. 0.2 (13.	H) 6) 0)	86 (	(\$/H) 19.5)	(PCU) (PCU)  18 ( 0.0) 2 8	(\$/H)	14 14 14	(SECONDS)  49 23 28 44 28 44
1404 TOTA	1085 L	3970 TOTAL	40	6.4 MEAN DURNEY	5.9	1.3 + 0	0.3 ( 23.		34 (	9.5) FOTAL COST	9 PENALTY FOR	32.6 TOTAL PERFORMANC	14	49 23

```
TRAVELLED
                 SPENT
                           SPEED
                                         DELAY OVERSAT
                                                                                     EXCESS
                                                                                                 INDEX
                                                             OF
                                                                         OF
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                     QUEUES
                                      (PCU-H/H)(PCU-H/H)
               (PCU-H/H)
                            (KM/H)
                                                                                                 ($/H)
(PCU-KM/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
  3003.3
                 226.5
                            13.3
                                        105.2
                                                  51.5
                                                          (2224.5) + ( 470.4) + ( 739.3)
                                                                                                  3434.2
                                                                                                              TOTALS
CRUISE
                                                      DELAY
                                                                         STOPS
                                                                                            TOTALS
                             LITRES PER HOUR
                                                                                        LITRES PER HOUR
                                                 LITRES PER HOUR
                                                                     LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS
                                  161.1
                                                      180.1
                                                                          214.3
                                                                                             555.6
NO. OF ENTRIES TO SUBPT =
NO. OF LINKS RECALCULATED=
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12
 - (SECONDS)
                   76
                           21
                                   50
                   65
    2
                           24
                                   41
            4
                   72
                           24
75
                                   49
                                          66
    4
                   48
                                   2.5
                   63
                           72
                                   19
                   66
                           18
                                   32
   10
                   78
                           39
                                   65
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                  TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                                                                 TOTAL
                                                                                    FOR
EXCESS
 DISTANCE
                  TIME
                          JOURNEY
                                       UNIFORM
                                                 RANDOM+
                                                            COST
                                                                        COST
                                                                                               PERFORMANCE
TRAVELLED
                 SPENT
                           SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                        OF
                                                                                                 INDEX
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                     QUEUES
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
                            13.9
                                         94.0
                                                          (2065.9) + ( 436.1) + ( 289.1)
                                                                                                  2791.1
                                                                                                              TOTALS
                 215.3
                                                  51.5
NO. OF ENTRIES TO SUBPT =
                            20
NO. OF LINKS RECALCULATED= 334
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32
 - (SECONDS)
                   28
                   17
72
    2
                           56
                                   73
                           24
                                   49
    4
            3
                   48
                           75
                                   25
                           72
                   63
                                   19
                   66
                                   32
   1.0
            3
                   46
                                   33
   14
                   28
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                  TOTAL
                                                                                                 TOTAL
 DISTANCE
                  TIME
                         JOURNEY
                                       UNIFORM
                                                 RANDOM+
                                                            COST
                                                                        COST
                                                                                     FOR
                                                                                               PERFORMANCE
TRAVELLED
                 SPENT
                            SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                         OF
                                                                                     EXCESS
                                                                                                 TNDEX
                                                           DELAY
                                                                       STOPS
                                                                                     OUEUES
                                                  DELAY
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                       (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
                 212.0
                            14.2
                                         90.7
                                                  51.5
                                                          (2019.2) + ( 415.5) + ( 208.6)
                                                                                                  2643.3
  3003.3
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                            19
NO. OF LINKS RECALCULATED= 310
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1
  - (SECONDS)
                           55
    2
            3
                   17
                           55
                                   73
                   72
                           25
                                   41
                                          66
    3
    4
7
                           72
            3
                   63
                                  19
                   60
                           18
                                   32
   10
                   46
                           10
   14
                                                 TOTAL
RANDOM+
  TOTAL
                 TOTAL
                            MEAN
                                         TOTAL
                                                           TOTAL
                                                                       TOTAL
                                                                                   PENALTY
                                                                                                 TOTAL
 DISTANCE
                         JOURNEY
                                       UNIFORM
                                                            COST
                                                                                               PERFORMANCE
                  TIME
                                                                        COST
                                                                                     FOR
                 SPENT
                           SPEED
                                         DELAY
                                                 OVERSAT
                                                             OF
                                                                         OF
                                                                                     EXCESS
                                                                                                 INDEX
                                                  DELAY
                                                           DELAY
                                                                       STOPS
                                                                                     OUFUES
(PCU-KM/H)
               (PCU-H/H)
                            (KM/H)
                                      (PCU-H/H)(PCU-H/H)
                                                           ($/H)
                                                                       ($/H)
                                                                                     ($/H)
                                                                                                 ($/H)
                                                          (2028.4) + (411.3) + (8.4)
  3003.3
                 212.7
                            14.1
                                         89.1
                                                  53.7
                                                                                                  2448.1
                                                                                                              TOTALS
NO. OF ENTRIES TO SUBPT =
                            70
NO. OF LINKS RECALCULATED= 847
     80 SECOND CYCLE 80 STEPS
INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1 12
 - (SECONDS)
```

17

55

3 4 7 9 10 14	4 3 3 3 3	72 50 51 60 34 27	25 76 60 18 78	41 24 7 32 21	66									
TOTAL DISTANCE TRAVELLED		TOTAL TIME SPENT	MEAN JOURNEY SPEED		TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY		TOTAL COST OF STOPS		PENALTY FOR EXCESS QUEUES		TOTAL PERFORMANCE INDEX	
(PCU-KM/H)		(PCU-H/H)	(KM/H)		(PCU-H/H)(		(\$/H)		(\$/H)		(\$/H)		(\$/H)	momat a
3003.3		211.5	14.2		87.9	53.7	(2010.9)	+ (	405.7)	+ (	15.3)	=	2431.9	TOTALS
NO. OF LINE														
80 SEC	COND	CYCLE 80	STEPS											
INTERMEDIA:	3)				FAR :- 12	2 32 -1	12 32							
1 2	3	27 17	55 55	3 73										
3 4	4 3	72 50	25 76	41 24	66									
7 9	3	51 60	60 18	7 32										
10	3	34	78	21										
14 TOTAL DISTANCE	2	27 TOTAL TIME	7 MEAN JOURNEY		TOTAL UNIFORM	TOTAL RANDOM+	TOTAL COST		TOTAL COST		PENALTY FOR		TOTAL PERFORMANCE	
TRAVELLED		SPENT	SPEED		DELAY	OVERSAT DELAY	OF DELAY		OF STOPS		EXCESS QUEUES		INDEX	
(PCU-KM/H)		(PCU-H/H)	(KM/H)		(PCU-H/H)(	(PCU-H/H)	(\$/H)		(\$/H)		(\$/H)		(\$/H)	
3003.3		211.5	14.2		87.9	53.7	(2010.9)	+ (	405.7)	+ (	15.3)	=	2431.9	TOTALS
NO. OF ENTE NO. OF LINE			= 17 D= 386											
80 SEC	COND	CYCLE 80	STEPS											
INTERMEDIA:		ETTINGS - I	NCREMENTS	SO	FAR :- 12	2 32 -1	12 32	1						
1 2	3	32 20	60 58	8 76										
3	4	77	30	46	71									
4 7	3	50 58	76 67	24 14										
9 10	3	56 34	14 78	28 21										
14	2	27	7											
TOTAL DISTANCE TRAVELLED		TOTAL TIME SPENT	MEAN JOURNEY SPEED		TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT	TOTAL COST OF		TOTAL COST OF		PENALTY FOR EXCESS		TOTAL PERFORMANCE INDEX	
(PCU-KM/H)		(PCU-H/H)	(KM/H)		(PCU-H/H)(	DELAY	DELAY (\$/H)		STOPS (\$/H)		QUEUES (\$/H)		(\$/H)	
3003.3		209.1	14.4		85.5			+ (		+ (		=	2374.7	TOTALS
NO. OF ENTE														
80 SEC	COND	CYCLE 80	STEPS											
INTERMEDIA:		ETTINGS - I	NCREMENTS	SO	FAR :- 12	2 32 -1	12 32	1 -	-1					
1 2	3	33 20	59 59	8 76										
3	4	78	29	45	72									
4 7	3	50 58	76 67	25 14										
9 10	3	56 34	14 78	28 21										
14	2	28	7											
TOTAL DISTANCE TRAVELLED		TOTAL TIME SPENT	MEAN JOURNEY SPEED		TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT	TOTAL COST OF		TOTAL COST OF		PENALTY FOR EXCESS		TOTAL PERFORMANCE INDEX	
(PCU-KM/H)		(PCU-H/H)	(KM/H)		(PCU-H/H)(	DELAY (PCU-H/H)	DELAY (\$/H)		STOPS (\$/H)		QUEUES (\$/H)		(\$/H)	
3003.3		207.9	14.4		85.4	52.7	(1960.7)	+ (	392.4)	+ (	7.3)	=	2360.4	TOTALS
NO. OF ENTE														
80 SE	COND	CYCLE 80	STEPS											
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LINK   FLOW   SAT   DEGREE   MEAN TIMES   DEGREE   MEAN TIMES   DEGREE   MEAN TIMES   DEGREE   DEGRE						21											
NIMBER   INTO   FLOW   197   PER   PCU   UNIFORM PARMONH   COST   MEAN   COST   MEAN   MAX.   AVERAGE   MENTER'S DIVISION   NEW	14	2	28		/												
END    Character	LINK	FLOW	SAT D	EGREE	MEAN	TIMES		DELAY-		ST	OPS	QUEUE	PERFORMANCE	EXIT	GREEI	N TIMES	
RPOUND	NUMBER						UNIFORM							NODE			
PCU/H)   PCU/H)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)   (\$)		LINK		SAT	CRUI	SE		OVERS	AT OF	STOPS	OF	MAX. AVERAGE	WEIGHTED SUM		El	ND	
(PCU-M) (PCU) (\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\	END					DELAY	(II+R+O=	MEAN O	) DELAY	/ DCII	STODS	FYCESS	OF ( ) VALUES	:	1 9 7	2ND	
77		(PCU/H)	(PCU/H)	(왕)	(SEC)									,		ECONDS)	
101																	
102   712   1785   73   8.9   15.0   1.6 + 1.3   (40.7)   41   (7.5)   7   (0.0) *   48.2   1   20   63   103   513   710   73   7.6   2.1   3.0   64   7.6   10.2   1.3   1.6   1.4   (42.0)   77   (10.2)   8   (0.0) *   52.2   1   39   12   104   851   1915   66   7.6   10.2   1.3   1.0   (32.6)   49   (10.8)   12   (0.0) *   43.4   1   39   12   105   354   1785   75   8.9   53.6   3.7*   1.5   (74.1)   107   (9.8)   9   83.9   1   17   37   76   202   709   1940   86   11.8   28.4   2.6   2.9   (78.0)   74   (13.5)   13   91.5   2   26   59   203   504   1740   88   1.3   2.1   1.7   1.1   (13.0)   62   (8.0)   1.7   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1.0   1																	
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NO OF STAGES 1 2 3 4 5 6 7 8 9

CRUISE DELAY STOPS TOTALS
LITRES PER HOUR LITRES PER HOUR LITRES PER HOUR LITRES PER HOUR

FUEL CONSUMPTION PREDICTIONS 161.1 + 158.5 + 178.4 = 498.0

NO. OF ENTRIES TO SUBPT = 22 NO. OF LINKS RECALCULATED= 478

