Appendix A

Traffic to Aimsun Zone Correspondence

Aimsun Zone	NEW CORDON Aimsun-EMME REF
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
205	205
210	210
286	286
296	296
297	297
412	412
540	540
545	545
546	546
547	547
548	548
555	555
560	560
561	561
562	562
563	563
568	568
572	572
582	582
583	583
599	599
649	649
650	650
651	651
652	652
653	653
654	654
655	655
656	656
657	657
658	658
659	659
660	660
662	662
663	663
664	664

Aimsun Zone	NEW CORDON Aimsun-EMME REF
665	665
666	666
667	667
668	668
669	669
670	670
671	671
672	672
673	673
677	677
678	678
693	693
694	694
695	695
697	697
698	698
699	699
705	705
706	706
865	865
867	867
868	868
869	869
870	870
871	871
873	873
896	896
897	897
900	900
901	901
902	902
903	903
1013	13
1017	17
1654	654
1656	656
1902	902
1903	903
2903	903

Appendix B

Road Parameters

Table B1 – Key Road Type Parameters: Main

	Maximum Speed (km/h)	User-Defined Cost	Third User-Defined Cost	Capacity per Lane (PCUs/h)
Arterial	50	1.4	1.2	1600
Arterial - 50k Reeves	50	1.6	1.4	1200
Arterial - 50k Reeves EBD	50	1.6	1.4	1200
Arterial - Divided	60	1.2	1.1	1600
Busway	60	1	1.2	1600
Collector	50	2	1.4	900
Collector - Ireland	50	2	1.4	900
Expressway	80	0.9	0.2	2100
Local - 30k	30	5	2	500
Local - 50k	50	3	1.6	500
Minor Arterial	50	1.4	1.2	1400

Table B2 - Key Road Type Parameters: Dynamic Models

Road-Type Parameters								
Dynamic Models - Section Parameters								
	Lane Changing				**Side Lane**			**Consider Two-Lane Car Following Model**
	Cooperation (%)	**Aggressiveness (%)**	**Breaking Intensity**	**Imprudent Lane Changing**	**Cooperation Distance**	**Merging Distance**	**Merge: First veh on is first veh off**	
Arterial	50	0	Regular	No	Whole Lane	Default	Yes	Yes
Arterial - 50k Reeves	50	0	Regular	No	Whole Lane	Default	Yes	Yes
Arterial - 50k Reeves EBD	50	0	Regular	No	Whole Lane	Default	Yes	Yes
Arterial - Divided	80	0	Regular	No	Whole Lane	Default	Yes	Yes
Busway	50	0	Regular	No	Whole Lane	Default	Yes	Yes
Collector	50	0	Regular	No	Whole Lane	Default	Yes	Yes
Collector - Ireland	50	0	Regular	No	Whole Lane	Default	Yes	Yes
Expressway	80	0	Regular	No	Whole Lane	Default	Yes	Yes
Local - 30k	50	0	Regular	No	Whole Lane	Default	Yes	Yes
Local - 50k	50	0	Regular	No	Whole Lane	Default	Yes	Yes
Minor Arterial	50	0	Regular	No	Whole Lane	Default	Yes	Yes
	Queue Discharge							
	Acceleration Factor	**Additional Reaction Time at Stop (sec)**	**Additional Reaction Time at Traffic Light (sec)**					
Arterial	No Change	0	0					
Arterial - 50k Reeves	No Change	0	0					
Arterial - 50k Reeves EBD	No Change	0	0					
Arterial - Divided	No Change	0	0					
Busway	No Change	0	0					
Collector	No Change	0	0					
Collector - Ireland	No Change	0	0					
Expressway	No Change	0	0					
Local - 30k	No Change	0	0					
Local - 50k	No Change	0	0					
Minor Arterial	No Change	0	0					

Table B3 - Key Road Type Parameters: Dynamic Models continued

Road-Type Parameters							
Dynamic Models - Turn Parameters							
	Microscopic Model						
	Distance Zone 1 (m)	**Distance Zone 2 (m)**	**Additional Waiting Time Before Losing Turn (sec)**	**Yellow Box Speed (km/h)**			
Arterial	333.3	166.67	0	10			
Arterial - 50k Reeves	333.3	166.67	0	10			
Arterial - 50k Reeves EBD	333.3	166.67	0	10			
Arterial - Divided	333.3	166.67	0	10			
Busway	333.3	166.67	0	10			
Collector	277.78	138.89	0	10			
Collector - Ireland	277.78	138.89	0	10			
Expressway	555.56	277.78	0	10			
Local - 30k	277.78	138.89	0	10			
Local - 50k	277.78	138.89	0	10			
Minor Arterial	277.78	138.89	0	10			
	Giveway Model						
	Initial Safety Margin (sec)	**Initial Giveway Time Factor**	**Visibility to Give Way (m)**	**Final Safety Margin (sec)**	**Final Give Way Time Factor**	**Visibility along Main Stream (m)**	
Arterial	3	1	25	1	2	60	
Arterial - 50k Reeves	3	1	25	1	2	60	
Arterial - 50k Reeves EBD	3	1	25	1	2	60	
Arterial - Divided	3	1	25	1	2	60	
Busway	3	1	25	1	2	60	
Collector	3	1	25	1	2	60	
Collector - Ireland	3	1	25	1	2	60	
Expressway	3	1	25	1	2	100	
Local - 30k	3	1	25	1	2	60	
Local - 50k	3	1	25	1	2	60	
Minor Arterial	3	1	25	1	2	60	

Appendix C

Vehicle Parameters

Table C1 - Key Vehicle Parameters

Vehicle Parameters				
Main				
Length (m)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	4.5	0.4	3.3	5.3
Truck	11.3	4.3	6.5	19.1
Bus	13	1	12.6	13.5
Width (m)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	1.75	0	1.75	1.75
Truck	2.4	0	2.4	2.4
Bus	2.4	0	2.4	2.4
Max Desired Speed (km/h)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	110	10	80	120
Truck	100	5	80	110
Bus	90	10	70	100
Dynamic Models - Main				
Speed Acceptance	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	1.05	0.1	0.9	1.3
Truck	1.05	0.1	1	1.1
Bus	1	0.1	0.9	1.1
Clearance (m)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	1.5	0.5	1	2.3
Truck	2	0.5	1.5	3
Bus	1.5	0.5	1	2.5
Max Give Way Time (secs)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	10	2.5	5	15
Truck	25	5	10	35
Bus	35	10	20	60
Dynamic Models - Experiment Defaults				
	Reaction Time	**Reaction Time at Stop**	**Reaction Time for Front Veh**	**Probability**
Car	0.8	1.15	1.35	1
Truck	0.8	1.3	1.7	1
Bus	0.8	1.3	1.7	1

Table C1 - Key Vehicle Parameters continued

Vehicle Parameters				
Microscopic Model - Main				
Max Acceleration (m/s2)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	2.7	0.2	2.2	3.5
Truck	1.45	0.6	0.5	2.4
Bus	1	0.3	0.8	1.8
Normal Deceleration (m/s2)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	3.5	0.2	3	4
Truck	3	0.3	2	3.5
Bus	2	1	1.5	4.5
Max Deceleration (m/s2)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	6	0.5	5	7
Truck	5	0.5	4	6
Bus	5	1	4	6
Sensitivity Factor	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	1.1	0	1.1	1.1
Truck	1.1	0	1.1	1.1
Bus	1	0	1	1
Gap (secs)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	1.1	0.2	0.5	2
Truck	1.3	0.2	0.5	2.5
Bus	1.1	0.2	0.5	2.5
Headway Aggressiveness	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	0	0	-1	1
Truck	0	0	-1	1
Bus	0	0	-1	1
Favours Stop and Go				
Car	No			
Truck	No			
Bus	No			
Lane-Changing Model	**Staying in Overtaking Lane**	**Imprudent Lane Changing**		
Car	No	No		
Truck	No	No		
Bus	No	No		
Margin for Overtaking Manouver (secs)	**Mean**	**Deviation**	**Minimum**	**Maximum**
Car	5	3	1	10
Truck	5	3	1	10
Bus	5	3	1	10

Table C1 - Key Vehicle Parameters continued

Vehicle Parameters			
Static Models			
	Transportation Mode	**PCUs**	
Car	None	1	
Truck	None	2.5	
Bus	None	2.5	

Appendix D

Bus Services List

Base 2018 Bus Services
31
35
70
72X
72M
72C
352
351
353
711
355
739
712
735
733
734
323
743
751

Appendix E

Attribute Overrides and Applicability

Attribute Overrides and Applicability

Attribute Override Name	AM	PM	Static	Dynamic
Base 2016 Yellow Box	√	√	√	√
Base 2018 Section Speed	√	√	√	√
Base 2018 Turn Capacity	√	√	√	√
Harris Rd Lane Cooperation	√	√	√	√
Ti Rakau Lane Cooperation	√		√	√
Pakuranga Rd Look Aheads	√		√	√
Pakuranga Rd Section Speed		√	√	√

Appendix F

Junction and Turn Delay Calculation Parameters

Intersection Coding Adopted from ADTA

To assist with scripting and automation, a classification system was applied to turn movements to signify different conflict situations at intersections. The external ID of each turn movement was set to a 4-digit code following the convention below:
XYZZ
where **X** = intersection type
Y = number of approaches/legs
ZZ = movement type
These 4-digit codes were used in each JDF and TPF cost function scripts to allocate the correct calibration parameters to each turn at the calibration stage

X	INTERSECTION TYPE
1	Signalised
2	Roundabout
3	Priority intersection – Give-way sign at Minor Road
4	Priority intersection – Stop sign at Minor Road
5	Two-way one lane bridge
6	Zebra pedestrian crossing
Y	**NUMBER OF APPROACHES**
ZZ	**MOVEMENT TYPE[3]**
00	Unopposed Turn (e.g. Through and left turn on Major Road, as well as signalised movements)
01	Left Turn – 1-lane opposing
02	Left Turn – 2-lane or more opposing
03	Through Movement Crossing One-way Road – 2-lane one-way
04	Through Movement Crossing One-way Road – 3-lane one-way
05	Through Movement Crossing One-way Road – 4-lane one-way
06	Through Movement Crossing Two-way Road – 2-lane two-way
07	Through Movement Crossing Two-way Road – 4-lane two-way
08	Through Movement Crossing Two-way Road – 6-lane two-way
09	Right Turn from Major Road - Across 1 lane
10	Right Turn from Major Road - Across 2 lanes
11	Right Turn from Major Road - Across 3 lanes
12	Right Turn from Minor Road – One-way
13	Right Turn from Minor Road – 2-lane two-way Major Road / Across 1 lane
14	Right Turn from Minor Road – 4-lane two-way Major Road / Across 2 lanes
15	Right Turn from Minor Road – 6-lane two-way Major Road / Across 3 lanes
16	Staged Right Turn from Minor Road – Across 1 lane with flush median or merge lane in the middle
17	Staged Right Turn from Minor Road – Across 2 lanes with flush median or merge lane in the middle
18	Staged Right Turn from Minor Road – Across 3 lanes with flush median or merge lane in the middle

ADTA-Calibrated Intercept and Slope Values for turn types used in JDF

Turn External Id	Number of Approach lanes for this Movement	Intercept	Slope
1x01	x	735	0.37
1x02	x	925	0.35
1x03	x	400	0.18
1x04	x	330	0.15
1x06	x	300	0.08
1x07	x	225	0.05
1x09	x	595	0.29
1x10	x	595	0.25
1x11	x	630	0.27
1x13	x	300	0.08
1x14	x	225	0.05
1x15	x	225	0.05
2xxx	1	1,200	0.7
2xxx	2	2,500	0.8
2xxx	3	3,100	0.8
3x01	x	735	0.37
3x02	x	925	0.35
3x03	x	400	0.18
3x04	x	330	0.15
3x05	x	330	0.15
3x06	x	300	0.08
3x07	x	225	0.05
3x08	x	225	0.05
3x09	x	595	0.29
3x10	x	595	0.25
3x11	x	630	0.27
3x12	x	400	0.18
3x13	x	300	0.08
3x14	x	225	0.05
3x15	x	225	0.05
3x16	x	400	0.18
3x17	x	330	0.15
3x18	x	330	0.15
4x01	x	510	0.21
4x02	x	505	0.09
4x03	x	355	0.15
4x04	x	310	0.14
4x05	x	310	0.14
4x06	x	230	0.05
4x07	x	230	0.05
4x08	x	230	0.05
4x09	x	595	0.29
4x10	x	595	0.25
4x11	x	630	0.27
4312	x	355	0.15
4313	x	230	0.05
4314	x	230	0.05
4315	x	230	0.05
4316	x	355	0.15
4317	x	310	0.14
4318	x	310	0.14
4412	x	355	0.15
4413	x	235	0.16
4414	x	235	0.16
4415	x	230	0.05
4416	x	355	0.15
4417	x	310	0.14
4418	x	310	0.14
5x03	x	500	0.2

Appendix G

Cost Function Scripts

Volume Delay Function

```
model = None
tollCarColumn = None
tollTruckColumn = None
assignedVolColumn = None
laneCapacityColumn = None

def checkExperimentContext(context, turning):
	global model
	global tollCarColumn
	global tollTruckColumn
	global assignedVolColumn
	global laneCapacityColumn
	if model == None:
		model = context.experiment.getModel()

	# get the section type
	sectionType = model.getType('GKSection')
	if tollCarColumn == None:
		tollCarColumn = sectionType.getColumnByExternalName ("TOLL - CAR", 0)
	if tollTruckColumn == None:
		tollTruckColumn = sectionType.getColumnByExternalName ("TOLL - TRUCK", 0)

	# get the road type
	roadType = model.getType('GKRoadType')
	if laneCapacityColumn == None:
		laneCapacityColumn = roadType.getColumnByExternalName('Lane Capacity',0)

	turnType = model.getType('GKTurning')
	if assignedVolColumn == None:
		assignedVolColumn = turnType.getColumn('MACRO::' + str(context.experiment.getId()) + '_GKTurning_macroAssignedVolume_0', 0)

def travelTime(context, section, funcVolume):

	global model

	#define the peak hour factor based on peak
	# get the experiment
	experiment = context.experiment
	# get the scenario
	scenario = experiment.getScenario()
	# get the traffic demand
	trafficDemand = scenario.getDemand()
	# get the start time of the demand
	startTime = trafficDemand.initialTime()
	# get the duration of the demand
	assignmentDuration = trafficDemand.duration().hour()

	#set parameters from sections
	speed = section.getSpeed()
	volume = funcVolume.getVolume()
	length = section.length3D()
	capacity = section.getCapacity()
	capacityperlane = section.getRoadType().getDataValueDouble(laneCapacityColumn)
	JA = section.getUserDefinedCost3()

	# assign volume peak hour factor based on peak
	phfVol = 1.0

	# fixed, global factor
	if startTime.hour() == 6:
		phfVol = 1.15
	elif startTime.hour() == 11:
		phfVol = 1.02
	elif startTime.hour() == 15:
		phfVol = 1.05


	# assign speed peak hour factor based on peak
	phfSpeed = 1.0
	'''
	# fixed, global factor
	if startTime.hour() == 6:
		phfSpeed = 1.1595
	elif startTime.hour() == 11:
		phfSpeed = 1.0707
	elif startTime.hour() == 15:
		phfSpeed = 1.1422
	'''
	#calculate additional parameters
	#apply peak volume factor when calculating degree of saturation
	X = (volume * phfVol) / capacity
	T0 = 1000 / (speed / 3.6) # minimum travel time for section

	#calculate dealy based of the Akcelik delay function

	Tf = 1.0 # Analysis Flow Period, taken as 1 hour
	Rf = (Tf*3600) / T0 # unitless ratio
	#JA = 0.2
	eightX = (8.0 * JA * X ) / (capacityperlane * Tf)

	Time = T0 *( 1 + 0.25*Rf*((X-1.0)+((X-1.0)**2 + eightX)**0.5)) #give seconds per Km

	# peak hour travel time in seconds
	peakHourTravelTime = (Time * (length / 1000))
```

```
        # peak hour speed in m/s
        peakHourSpeed = length / peakHourTravelTime
        # three hour average speed in m/s
        threeHourAveSpeed = peakHourSpeed * phfSpeed
        # cap the speed at the section maximum speed
        if threeHourAveSpeed > (speed / 3.6):
            threeHourAveSpeed = (speed / 3.6)
        # four hour average travel time in seconds
        threeHourAveTravelTime = length / threeHourAveSpeed

        return (threeHourAveTravelTime /60)

def distCost(context, section, funcVolume):

        '''
        The distance factor adopted from Wellington N2A model
        P:\429\4291565\Technical\300 Technical\320 Models\321 Network Build\N2A_GeneralisedCostDistanceFactor.xlsx

        Assumptions
        Fuel cost                                                       1.75        $/litre
        fuel consumption                                    9.5                     l/100km
        fuel rate                                                       0.16625     $/km
        Assume gc is just fuel cost

        Assumed acg Value of time           16.27       $/hr, 2002 (EEM urban arterial)
        Update factor to 2015                           1.44        EEM
        VoT 2015                                                    23.43       $/hr
        Update factor 2016 estimated 1.01
        VoT 2016 est                                        23.66   $/hr, 2002 (EEM urban arterial)
        Value of time                                       2.536   min/$
        gc of fuel                                                  0.422       mins per km

        Assume 0.4 for Car

        Truck factor was agreed to be 1.0
        '''

        # get the length of the section
        length = section.length3D()/1000 # length in km

        # factor for the distance component (unit: mins/km)
        className = str(context.userClass.getName())
        if className[0:3] == "Car":
            distFactor = 0.5
        else:
            distFactor = 1.0

        # get the user defined cost of the section
        roadTypeFactor = section.getUserDefinedCost()

        # calculate the distance cost
        distanceCost = distFactor * roadTypeFactor * length

        return distanceCost

# this function calculates the speed in km/hr of the section
def calculateSpeed(context, section, funcVolume):
        # convert travel time to seconds
        tTime = travelTime(context, section, funcVolume) * 60.0
        # get the section length in metres
        length = section.length3D()
        # calculate and return the speed in km/hr
        return (length / tTime)*3.6

# this function calculates the truck percentage
def calculateTruckPercentage(context, section, funcVolume):
        # get the car volume
        carVolume = (funcVolume.getVolume(model.getCatalog().findByName('Car - ALL', model.getType('GKVehicle'))) +
                                                    funcVolume.getVolume(model.getCatalog().findByName('Car - L - LOV',
model.getType('GKVehicle'))) +
                                                    funcVolume.getVolume(model.getCatalog().findByName('Car - L - HOV',
model.getType('GKVehicle'))) +
                                                    funcVolume.getVolume(model.getCatalog().findByName('Car - M - LOV',
model.getType('GKVehicle'))) +
                                                    funcVolume.getVolume(model.getCatalog().findByName('Car - M - HOV',
model.getType('GKVehicle'))) +
                                                    funcVolume.getVolume(model.getCatalog().findByName('Car - H - LOV',
model.getType('GKVehicle'))) +
                                                    funcVolume.getVolume(model.getCatalog().findByName('Car - H - HOV',
model.getType('GKVehicle'))) )
        # get the truck volume
        truckVolume = funcVolume.getVolume(model.getCatalog().findByName('Truck', model.getType('GKVehicle')))

        # error handling for zero volume
        if (carVolume + truckVolume) > 0:
            truckPercentage = (truckVolume / (carVolume + truckVolume)) * 100
        else:
            truckPercentage = 0
        # return the truck percenage
        return truckPercentage

def vdf(context, section, funcVolume):

        # assign the global variables
        checkExperimentContext(context, section)

        # calculate average section speed in km/hr
        speed = calculateSpeed(context, section, funcVolume)
```

```
    # calculate the truck percentage on this section
    truckPercentage = calculateTruckPercentage(context, section, funcVolume)

    # calculate total cost
    totalCost = travelTime(context, section, funcVolume) + distCost(context, section, funcVolume)

    return totalCost
```

Volume Delay Function (Connector)

```
def travelTimeConnector(context, connection, funcVolume):

    # work out the time period
    experiment = context.experiment
    scenario = experiment.getScenario()
    trafficDemand = scenario.getDemand()
    duration = trafficDemand.duration()
    durationInHours = duration.toHours()

    #set parameters
    speed = 30.0
    capacity = 200.0 * durationInHours # set to 200 veh/hr, capacity need to be total over three hours
    capacityperlane = 200.0
    JA = 10.0

    volume = funcVolume.getVolume()
    length = connection.length3D()
    totalVolume = volume

    #calculate additional parameters

    X = totalVolume / capacity
    T0 = 1000 / (speed / 3.6) # minimum travel time for section

    #calculate dealy based of the Akcelik delay function

    Tf = 1.0 # Analysis Flow Period, taken as 1 hour
    Rf = (Tf*3600) / T0 # unitless ratio
    #JA = 0.2
    eightX = (8.0 * JA * X ) / (capacityperlane * Tf)

    Time = T0 *( 1 + 0.25*Rf*((X-1.0)+((X-1.0)**2 + eightX)**0.5)) #give seconds per Km

    TotalTravelTime = (Time * (length / 1000))/60

    return TotalTravelTime

def distCostConnector(context, connection, funcVolume):

    '''
    The distance factor adopted from Wellington N2A model
    P:\429\4291565\Technical\300 Technical\320 Models\321 Network Build\N2A_GeneralisedCostDistanceFactor.xlsx

    Assumptions
    Fuel cost                                                   1.75        $/litre
    fuel consumption                                    9.5                 l/100km
    fuel rate                                                   0.16625     $/km
    Assume gc is just fuel cost

    Assumed acg Value of time       16.27       $/hr, 2002 (EEM urban arterial)
    Update factor to 2015                       1.44        EEM
    VoT 2015                                                    23.43       $/hr
    Update factor 2016 estimated 1.01
    VoT 2016 est                                        23.66   $/hr, 2002 (EEM urban arterial)
    Value of time                                       2.536   min/$
    gc of fuel                                                  0.422       mins per km

    Assume 0.4 for Car

    Truck factor was agreed to be 1.0
    '''

    # get the length of the section
    length = connection.length3D()/1000 # length in km

    # factor for the distance component (unit: mins/km)
    className = str(context.userClass.getName())
    dashIndex = className.find(' - ')
    vehName = className[:dashIndex]
    if vehName == "Car" :
        distFactor = 0.5
    elif vehName == "Truck":
        distFactor = 1.0
    else:
        distFactor = 0.0

    # calculate the distance cost
    distanceCost = distFactor * length

    return distanceCost

def vdf(context, connection, funcVolume):
```

```
    # calculate total cost
    totalCost = travelTimeConnector(context, connection, funcVolume) + distCostConnector(context, connection, funcVolume)

    return totalCost
```

Junction Delay Function

```
def travelTime( context, turn, volume, ownVolume, conflictVolume ):
    model = context.experiment.getModel()
    # work out the time period
    experiment = context.experiment
    scenario = experiment.getScenario()
    trafficDemand = scenario.getDemand()
    duration = trafficDemand.duration()
    durationInHours = duration.toHours()

    #define the peak hour factor based on peak
    # get the experiment
    experiment = context.experiment
    # get the scenario
    scenario = experiment.getScenario()
    # get the traffic demand
    trafficDemand = scenario.getDemand()
    # get the start time of the demand
    startTime = trafficDemand.initialTime()
    # assign peak hour factor based on peak
    # use 1.0 to start adjust as required during calibration - base on observed data
    phfVol = 1.0

    if startTime.hour() == 6:
        phfVol = 1.15
    elif startTime.hour() == 11:
        phfVol = 1.02
    elif startTime.hour() == 15:
        phfVol = 1.05

    # assign travel time factor to reduce peak hour travel time to three hour average travel time
    phfTT = 1.0
    '''
    if startTime.hour() == 6:
        phfTT = 0.6946
    elif startTime.hour() == 11:
        phfTT = 0.8726
    elif startTime.hour() == 15:
        phfTT = 0.7902
    '''
    turnType = model.getType('GKTurning')
    userSlopeColumn = turnType.getColumnByExternalName('Turn Capacity Slope',0)

    #set give-way linear parameters and calculate give-way turn capacity
    Slope = turn.getDataValueDouble(userSlopeColumn)
    Intercept = turn.getCapacity ()
    OpposingFlow = (conflictVolume.getVolume() * phfVol) / durationInHours # AIMSUN return total volume over the time period

    overrides = experiment.getNetworkAttributesOverrides()
    targetId = turn.getId()
    for override in overrides:
        objects = override.getObjects()
        for object in objects:
            if object.getId() == targetId:
                for column, value in override.getObjectData(object).iteritems():
                    if column.getName() == 'GKTurning::capacityAtt':
                        Intercept = int(value)

    Capacity = (Intercept - Slope * OpposingFlow) # per hour
```

```
	#calculate dealy based of the Akcelik dealy function
	turnFlow = volume.getVolume()
	if Capacity < 50:
		if Intercept < 50:
			Capacity = Intercept
		else:
			Capacity = 50

	X = (turnFlow * phfVol) / (Capacity * durationInHours)
	TurnLength = turn.length3D()
	TurnSpeed = turn.getSpeed()
	T0 = 1
	Tf = 1.0
	Rf = (Tf*3600) / T0
	JA = 1.0 # Curve Parameter
	eightX = 8.0 * JA * X / (Capacity * Tf)

	Time = (T0 *( 1 + 0.25*Rf*((X-1.0)+((X-1.0)**2 + eightX)**0.5)))/60

	return Time * phfTT

def jdf( context, turn, volume, ownVolume, conflictVolume ):

	TT = travelTime( context, turn, volume, ownVolume, conflictVolume )

	#debugging
	#print 'JDF of turn %i with volume of %f and opposing volume of %f calculated the travel time at %f' % (turn.getId(), volume.getVolume(),
conflictVolume.getVolume(), TT)

	return TT
```

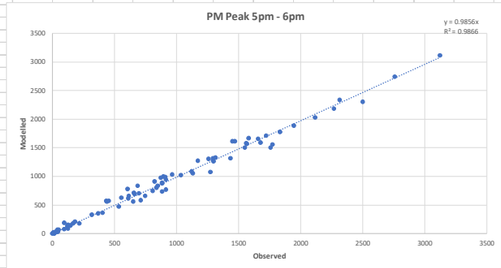
Turn Delay Function

```
'''
Updated 04/05/2017
From built-in Aimsun 8.2 TPF - Example for Signalized Intersection

Updated 01/08/2017
Refined turn saturation flow to be a function of turn speed
'''
experimentId = None
analysisPeriod = 0.0 # [h]
phfVol = 1.0
phfTT = 1.0

def initialiseContext(context):
	global experimentId
	global analysisPeriod
	global phfVol
	global phfTT
	if context.experiment.getId() != experimentId:
		experimentId = context.experiment.getId()
		analysisPeriod = context.experiment.getScenario().getDemand().duration().toHours()
	#define the peak hour factor based on peak
	# get the experiment
	experiment = context.experiment
	# get the scenario
	scenario = experiment.getScenario()
	# get the traffic demand
	trafficDemand = scenario.getDemand()
	# get the start time of the demand
	startTime = trafficDemand.initialTime()
	# assign peak hour factor based on peak
	phfVol = 1

	if startTime.hour() == 6:
		phfVol = 1.15
	elif startTime.hour() == 10:
```

```
            phfVol = 1.02
        elif startTime.hour() == 15:
            phfVol = 1.05

        # assign travel time factor to reduce peak hour travel time to four hour average travel time
        phfTT = 1
        '''
        if startTime.hour() == 6:
            phfTT = 0.6946
        elif startTime.hour() == 10:
            phfTT = 0.8726
        elif startTime.hour() == 15:
            phfTT = 0.7902
        '''
# free flow travel time [min]
def freeFlowTravelTime(turn):
        return turn.length3D()/1000.0 * 60.0/turn.getSpeed()

# actual green duration for actuated phases [s]
# calculated considering the demand and the queue discharge rate
def actualGreen(turn, volume):
        dischargeRate = 0.5 # [veh/s]
        requiredGreen = volume / dischargeRate # [s]
        numberOfCycles = 3600.0 * analysisPeriod / turn.getCycle()
        return min(max(requiredGreen / numberOfCycles, turn.getMinGreenTime()), turn.getMaxGreenTime())

# HCM2010 progression adjustment factor
def progressionAdjustmentFactor(green, cycle):
        g_over_c = green / cycle
        P = min(1.33 * g_over_c, 1.0)
        top_part = (1.0 - P)
        bottom_part = 1.0 - g_over_c
        return top_part / bottom_part

# HCM2010 uniform control delay (quick estimation method) [s]
def uniformControlDelay(volume, capacity, green, cycle):
        g_over_c = green / cycle
        X = (volume * phfVol) / (capacity * analysisPeriod)
        top_part = 0.5 * cycle * (1.0 - g_over_c)**2
        bottom_part = 1.0 - (min(1.0, X) * g_over_c)
        return top_part / bottom_part

# HCM2010 incremental delay (quick estimation method) [s]
def incrementalDelay(volume, capacity):
        X = (volume * phfVol) / (capacity * analysisPeriod)
        return 900.0 * analysisPeriod * ((X - 1.0) + ((X - 1.0)**2 + (4.0 * X / (capacity * analysisPeriod)))**0.5)

# HCM2010 control delay (quick estimation method) [min]
def controlDelay(volume, capacity, green, cycle):
        pf = progressionAdjustmentFactor(green, cycle)
        d_one = uniformControlDelay(volume, capacity, green, cycle)
        d_two = incrementalDelay(volume, capacity)
        res = (pf * d_one) + d_two
        return res / 60.0 * phfTT

def calculateCapacity(turn):
        # get the speed of the turn
        speed = turn.getSpeed()
        # if the speed is less than 50 km/hr
        if speed < 50:
            # calculate saturation flow based on speed
            s = -0.513*speed**2 + 54.81*speed + 553.46
        # else
        else:
            # saturation flow (PCUs/hr)
            s = 2000.0
        # get the turn object as coded (GKTurn)
        turnObject = turn.getMaster()
```

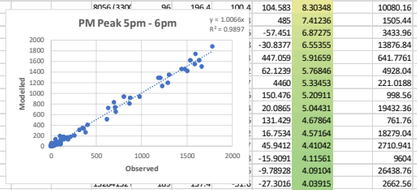
```
        # get the index of the left most lane for this turn
        leftMostLanes = turnObject.getOriginFromLane()
        # get the index of the right most lane for this turn
        rightMostLanes = turnObject.getOriginToLane()
        # calculate number of lanes
        lanes = rightMostLanes - leftMostLanes + 1
        #  the capacity is saturation flow * lanes * green / cycle
        capacity = s * lanes * (turn.getGreenTime() / turn.getCycle())

        return capacity

def tpf(context, turn, volume):
        initialiseContext(context)
        res = freeFlowTravelTime(turn)
        if turn.getCycle() > 0.0:
                green = turn.getGreenTime()
                if turn.getControlJunctionType() == 4: # actuated
                        green = actualGreen(turn, volume.getVolume())
                # error handling for 0 green time in control plan for this turn
                if green > 0:
                        if green < turn.getCycle():
                                res += controlDelay(volume.getVolume(), calculateCapacity(turn), green, turn.getCycle())
                else:
                        print 'turn %u in node %u has no green time in the control plan used' % (turn.getMaster().getId(), turn.getMaster().getNode().getId())
        return res
```

Object	Count - SC	Count - Ar	Absolute	Relative D	GEH		Diff^2	Obs/N
7228	96	191.8	95.8	99.7917	7.98611		9177.64	1.170732
7240	608	782.4	174.4	28.6842	6.61442		30415.36	7.414634
12210663	435	578.4	143.4	32.9655	6.3705		20563.56	5.304878
7172	1759	1510.2	-248.8	-14.1444	6.15382		61901.44	21.45122
7532	1276	1080.6	-195.4	-15.3135	5.69242		38181.16	15.56098
7428	687	840.2	153.2	22.2999	5.54403		23470.24	8.378049
7116	1776	1555	-221	-12.4437	5.41527		48841	21.65854
7390	887	733.2	-153.8	-17.3393	5.40365		23654.44	10.81707
16548	441	557.8	116.8	26.4853	5.22659		13642.24	5.378049
7730	457	572.8	115.8	25.3392	5.10325		13409.64	5.573171
16517	914	766.6	-147.4	-16.1269	5.08488		21726.76	11.14634
12210502	713	589	-124	-17.3913	4.85994		15376	8.695122
7098	39	73.8	34.8	89.2308	4.63383		1211.04	0.47561
6940	1449	1618.8	169.8	11.7184	4.3355		28832.04	17.67073
7222	2503	2310	-193	-7.71075	3.93427		37249	30.52439
12210270	0	7.6	7.6	inf	3.89872		57.76	0
12126	1470	1619.4	149.4	10.1633	3.80127		22320.36	17.92683
7210	127	89	-38	-29.9213	3.65655		1444	1.54878
17011	653	564.4	-88.6	-13.5681	3.59114		7849.96	7.963415
16027	896	1005	109	12.1652	3.5355		11881	10.92683
7220	876	980.4	104.4	11.9178	3.42673		10899.36	10.68293
12210282	1434	1314.4	-119.6	-8.34081	3.22631		14304.16	17.4878
7540	746	665.4	-80.6	-10.8043	3.03407		6496.36	9.097561
7164	557	629.2	72.2	12.9623	2.96465		5212.84	6.792683
13643	1175	1276.8	101.8	8.66383	2.9075		10363.24	14.32927
12211629	16	6.4	-9.6	-60	2.86855		92.16	0.195122
7166	825	907.6	82.6	10.0121	2.80638		6822.76	10.06098
15955	908	990.6	82.6	9.09692	2.68089		6822.76	11.07317
7126	217	180	-37	-17.0507	2.62616		1369	2.646341
7106	535	477.4	-57.6	-10.7664	2.56013		3317.76	6.52439
7400	1133	1052	-81	-7.14916	2.45061		6561	13.81707
12210262	811	744	-67	-8.26141	2.40284		4489	9.890244
12211631	13	23.2	10.2	78.4615	2.39751		104.04	0.158537
7410	97	75.6	-21.4	-22.0619	2.30361		457.96	1.182927
7438	126	152.4	26.4	20.9524	2.23761		696.96	1.536585
7074	1584	1673.6	89.6	5.65657	2.22011		8028.16	19.31707
7036	23	13.6	-9.4	-40.8696	2.19737		88.36	0.280488
12211551	657	714.4	57.4	8.73668	2.19202		3294.76	8.012195
17220	52	68.2	16.2	31.1538	2.08967		262.44	0.634146
7732	403	362.2	-40.8	-10.1241	2.08587		1664.64	4.914634
12152	1677	1596.4	-80.6	-4.8062	1.99228		6496.36	20.45122
7524	182	209.8	27.8	15.2747	1.98622		772.84	2.219512
7274	968	1030	62	6.40496	1.96159		3844	11.90488
12210676	13	7	-6	-46.1538	1.89737		36	0.158537
12210661	2115	2030.8	-84.2	-3.98109	1.84937		7089.64	25.79268
16525	2271	2185.8	-85.2	-3.75165	1.80486		7259.04	27.69512
12870	617	660.8	43.8	7.09887	1.73284		1918.44	7.52439
7066	48	37.2	-10.8	-22.5	1.6547		116.64	0.585366
12211562	1256	1306.8	50.8	4.04459	1.41913		2580.64	15.31707
12210514	838	799.2	-38.8	-4.63007	1.35611		1505.44	10.21951
7192	166	183.6	17.6	10.6024	1.3312		309.76	2.02439
15953	1948	1889.8	-58.2	-2.98768	1.32861		3387.24	23.7561
15596	1834	1784	-50	-2.72628	1.17558		2500	22.36585
12211544	662	691.4	29.4	4.44109	1.13018		864.36	8.073171
7254	1124	1089	-35	-3.11388	1.05219		1225	13.70732
12211534	17	21.6	4.6	27.0588	1.04708		21.16	0.207317
16119	1550	1509.6	-40.4	-2.60645	1.03291		1632.16	18.90244
10618	917	948.2	31.2	3.4024	1.02166		973.44	11.18293
11897	370	350.8	-19.2	-5.18919	1.01137		368.64	4.512195
12211719	1299	1263.4	-35.6	-2.74057	0.994584		1267.36	15.84146
7214	123	133.2	10.2	8.29268	0.901209		104.04	1.5
7092	35	31	-4	-11.4286	0.696311		16	0.426829
7040	40	44	4	10	0.617213		16	0.487805
12210320	1292	1314	22	1.70279	0.609467		484	15.7561
7408	848	832.8	-15.2	-1.79245	0.524325		231.04	10.34146
7104	41	38	-3	-7.31707	0.477334		9	0.5
7180	698	709.6	11.6	1.66189	0.437254		134.56	8.512195
7276	320	327.2	7.2	2.25	0.400247		51.84	3.902439
7356	1034	1021.2	-12.8	-1.23791	0.399299		163.84	12.60976
7724	2759	2739.6	-19.4	-0.70315	0.369991		376.36	33.64634
7118	2316	2333.6	17.6	0.759931	0.365023		309.76	28.2439
7042	1564	1578.2	14.2	0.907928	0.35825		201.64	19.07317
12210516	1314	1326.6	12.6	0.958904	0.346764		158.76	16.02439
7140	149	144.8	-4.2	-2.81879	0.346528		17.64	1.817073
12210650	1565	1574.8	9.8	0.626198	0.247338		96.04	19.08537
12211564	32	33.2	1.2	3.75	0.210171		1.44	0.390244
6920	1722	1714.2	-7.8	-0.45296	0.188179		60.84	21
7442	612	615.6	3.6	0.588235	0.145308		12.96	7.463415
6964	1293	1288.8	-4.2	-0.32483	0.116897		17.64	15.76829
12155	1659	1663	4	0.241109	0.098147		16	20.23171
6962	3121	3117.4	-3.6	-0.11535	0.064459		12.96	38.06098
12211622	887	888.8	1.8	0.202931	0.060407		3.24	10.81707
Mean	886.22	883.149	-3.07073	-0.3465				



Link		
<5	87%	
<7.5	99%	
<10	100%	
82 RMSE	9%	

Turn	
<5	84%
<7.5	94%
<10	100%
80 RMSE	14%



Object	Count - SC	Count - Ar	Absolute	Relative D	GEH		Diff^2	Obs/N
13284072	5	61.2	56.2	1124	9.76837		3158.44	0.060976
10376 (330	50	137.4	87.4	174.8	9.02904		7638.76	0.609756
13284096	0.666667	40.4	39.7333	5960	8.7685		1578.735	0.00813
13284131	3	43.4	40.4	1346.67	8.38759		1632.16	0.036585
8056 (330	96	196.4	100.4	104.583	8.30348		10080.16	1.170732
13284124	54	88	34	62.963	4.03506		1156	0.658537
12426 (130	71	41.6	-29.4	-41.4085	3.91826		864.36	0.865854
8170 (3200	628	728.6	100.6	16.0191	3.86267		10120.36	7.658537
13566 (340	64	37.2	-26.8	-41.875	3.76755		718.24	0.780488
12421 (130	1590	1742.4	152.4	9.58491	3.73355		23225.76	19.39024
10375 (330	49	77.4	28.4	57.9592	3.5724		806.56	0.597561
13284094	139.667	185	45.3333	32.4582	3.55806		2055.108	1.703256
13284108	6	0	-6	-100	3.4641		36	0.073171
8206 (1800	120	160.4	40.4	33.6667	3.41199		1632.16	1.463415
13284123	254	202.6	-51.4	-20.2362	3.40181		2641.96	3.097561
8238 (3315	8	20	12	150	3.20713		144	0.097561
12423 (130	39	60.8	21.8	55.8974	3.08607		475.24	0.47561
13284109	4	0	-4	-100	2.82843		16	0.04878
13284070	1187	1286.4	99.4	8.37405	2.82653		9880.36	14.47561
8202 (1800	179	144.8	-34.2	-19.1061	2.68784		1169.64	2.182927
8232 (3310	16	7	-9	-56.25	2.65396		81	0.195122
8228 (3300	1225	1137	-88	-7.18367	2.56069		7744	14.93902
8308 (1300	1780	1882	102	5.73034	2.38372		10404	21.70732
8060 (3310	104	81.2	-22.8	-21.9231	2.36935		519.84	1.268293
8054 (3300	1285	1201.8	-83.2	-6.47471	2.35949		6922.24	15.67073
8184 (1300	213	180	-33	-15.493	2.35414		1089	2.597561
10377 (330	1205	1287	82	6.80498	2.32303		6724	14.69512
12422 (130	173	145.4	-27.6	-15.9538	2.18745		761.76	2.109756
8210 (1800	1501	1419.6	-81.4	-5.42305	2.13012		6625.96	18.30488
12118	1536	1616.2	80.2	5.22135	2.02014		6432.04	18.73171
10379 (330	712	659.4	-52.6	-7.38764	2.00872		2766.76	8.682927
13284068	869	813	-56	-6.44419	1.93103		3136	10.59756
8236 (3302	12	6.4	-5.6	-46.6667	1.84627		31.36	0.146341
8312 (1300	13	7.2	-5.8	-44.6154	1.82502		33.64	0.158537
8240 (3300	43	32.2	-10.8	-25.1163	1.76129		116.64	0.52439
8316 (1300	52	64.4	12.4	23.8462	1.6254		153.76	0.634146
13284135	362	333.6	-28.4	-7.8453	1.52284		806.56	4.414634
12424 (130	140	157.6	17.6	12.5714	1.44282		309.76	1.707317
13284110	1	0	-1	-100	1.41421		1	0.012195
13284112	1	0	-1	-100	1.41421		1	0.012195
13284093	1	0	-1	-100	1.41421		1	0.012195
12404 (130	30	38	8	26.6667	1.37199		64	0.365854
13284097	0.333333	1.6	1.26667	380	1.28832		1.604453	0.004065
13284121	42	34.2	-7.8	-18.5714	1.26367		60.84	0.512195
10378 (330	103	116.2	13.2	12.8155	1.26087		174.24	1.256098
13284125	1303	1348.4	45.4	3.48427	1.2469		2061.16	15.89024
13554	706	739.4	33.4	4.73088	1.24242		1115.56	8.609756
8180 (1300	106	93.6	-12.4	-11.6981	1.24124		153.76	1.292683
13284122	979	940.8	-38.2	-3.90194	1.23296		1459.24	11.93902
13284133	874	909.2	35.2	4.02746	1.17885		1239.04	10.65854
8224 (3310	1	0.2	-0.8	-80	1.0328		0.64	0.012195
8058 (3300	28	24	-4	-14.2857	0.784465		16	0.341463
8050 (3300	1584	1554	-30	-1.89394	0.757373		900	19.31707
13562 (340	78	71.6	-6.4	-8.20513	0.739996		40.96	0.95122
13284126	30	26.4	-3.6	-12	0.677919		12.96	0.365854
13565 (343	137	130	-7	-5.10949	0.605839		49	1.670732
8208 (1800	1442	1459.8	17.8	1.2344	0.467306		316.84	17.58537
13563 (340	346	351.6	5.6	1.6185	0.299847		31.36	4.219512
8318 (1300	49	47	-2	-4.08163	0.288675		4	0.597561
8176 (1300	1472	1461.2	-10.8	-0.7337	0.282012		116.64	17.95122
8182 (1300	1635	1625.4	-9.6	-0.58716	0.237767		92.16	19.93902
13284073	159	161.8	2.8	1.76101	0.221083		7.84	1.939024
13284130	95	93.2	-1.8	-1.89474	0.185557		3.24	1.158537
8212 (1800	178	175.8	-2.2	-1.23596	0.165409		4.84	2.170732
10374 (330	314	312.4	-1.6	-0.50955	0.090409		2.56	3.829268
13284113	0	0	0	0	0		0	0
Mean	402.7	409.758	7.0575	1.75255				

Appendix I

Travel Time Validation Tables

AM

Almsun	Route Nar	Year_Mon	Period	Route ID	Route Nar	Seg ID	From	To	0700-0800 Length	0700-0800 Median Ti	0700-0800 15th Perce	0700-0800 85th Percentile (s	0800-0900 Median Ti	0800-0900 15th Perce	0800-0900 85th Perce	Route Nar	Cumul Dis	0700-0800 Median Ti	0700-0800 15th Perce	0700-0800 85th Perce	0800-0900 Median Ti	0800-0900 15th Perce	0800-0900 85th Perce	7:00-8:00 Av	7:00-8:00 Cumulative	8:00-9:00 Av	8:00-9:00 Cumulative	0 13284762	5	6	7	8	9	10	11	12	13	14	15			
	AM - Pakuranga Rd/Cascades Rd to Mt W Hwy																											7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	9:30	9:45			
								Cascades Road									0	0	0	0	0	0	0	0	0	0	0															
13284775	Ellerslie P	201806	7:00-8:00	55	Ellerslie P	795	Cascades Road	Ti Rakau Drive	2436	333	238	544	298	230	446	Ellerslie P	2.436	5.55	3.966667	9.066667	4.966667	3.833333	7.433333	6.715237134	6.715237134	5.252887086	5.252887086	440.4762	381.5404	386.7261	394.8797	346.6544	275.7413	243.4176	189.8557	173.8853	#N/A	#N/A			100%	
13284791	Ellerslie P	201806	7:00-8:00	55	Ellerslie P	796	Ti Rakau Drive	Jellicoe Road	2379	281	201	520	250	191	360	Ellerslie P	4.815	10.23333	7.316667	17.73333	9.133333	7.016667	13.43333	4.142544307	10.85778144	3.655526584	8.908413669	235.7302	255.7841	254.1436	225.1594	220.0202	226.7243	205.4225	196.219	190.8661	#N/A	#N/A				
13285848	Ellerslie P	201806	7:00-8:00	55	Ellerslie P	797	Jellicoe Road	Mt W Hwy	549	92	61	131	87	62	113	Ellerslie P	5.364	11.76667	8.333333	19.91667	10.58333	8.05	15.31667	1.496765815	12.35454726	1.445537407	10.35395108	87.71831	85.02526	96.67428	88.01156	95.77518	82.33967	80.80258	72.91596	66.866	#N/A	#N/A			OK	OK
	AM - Pakuranga Rd/ Mt W Hwy to Cascades Rd																																								
								Mt W Hwy									0	0	0	0	0	0	0	0	0	0	0															
13285849	Ellerslie P	201806	7:00-8:00	193	Ellerslie P	1628	Mt Wellington Highwa	Jellicoe Road	549	69	47	95	62	44	89	Ellerslie P	0.549	1.15	0.783333	1.583333	1.033333	0.733333	1.483333	1.053888111	1.053888111	1.117161018	1.117161018	58.6654	61.37602	69.65844	71.0786	67.08065	67.206	62.7534	64.68988	64.66237	#N/A	#N/A				
13284792	Ellerslie P	201806	7:00-8:00	193	Ellerslie P	1629	Jellicoe Road	Ti Rakau Drive	2379	252	219	323	251	196	301	Ellerslie P	2.928	5.35	4.433333	9.966667	5.216667	4	6.5	3.473369498	4.527257609	3.586402588	4.703563606	216.1577	202.7737	206.2751	214.7854	219.6861	213.8163	212.4488	200.9834	209.5098	#N/A	#N/A				
13284793	Ellerslie P	201806	7:00-8:00	193	Ellerslie P	1630	Ti Rakau Drive	Cascades Road	2436	230	172	294	257	201	344	Ellerslie P	5.364	9.183333	7.3	11.86667	9.5	7.35	12.23333	3.815852882	8.343110491	3.698984091	8.402547697	217.0994	232.8622	236.892	228.2255	225.4598	217.3337	216.7372	214.5611	192.4057	#N/A	#N/A			OK	OK
	AM - Ti Rakau Dr/Te Irirangi Dr to Mt W Hwy																																								
								Te Irirangi									0	0	0	0	0	0	0	0	0	0	0															
13284776	Ellerslie P	201806	7:00-8:00	193	Ellerslie P	1638	Te Irirangi	Harris Road	1351	141	103	206	180	120	289	Ellerslie P	1.351	2.35	1.716667	3.433333	3	2	4.816667	2.933602381	2.933602381	3.19143616	3.19143616	169.6078	178.2053	180.2353	165.015	180.2173	211.3492	209.3632	162.2794	155.0845	#N/A	#N/A				
13285850	Freight - S	201806	7:00-8:00	32	Freight - S	286	Harris Road	Edgewater Drive	2035	274	163	477	216	166	371	Freight - S	3.386	6.916667	4.433333	11.38333	6.6	4.766667	11	3.423284854	6.356887235	3.264148074	6.455584234	205.697	222.7637	187.7305	188.9014	195.8394	194.4593	204.1954	193.5673	173.2855	#N/A	#N/A				
13284777	Freight - S	201806	7:00-8:00	32	Freight - S	287	Edgewater Drive	Ti Rakau Dr	823	184	94	261	185	97	249	Freight - S	4.209	9.983333	6	15.73333	9.683333	6.383333	15.15	2.291097843	8.647985078	1.348770252	7.804354485	145.67	156.7759	109.9516	83.04348	80.13192	78.86989	81.65957	73.86161	67.44692	#N/A	#N/A				
13284778	Freight - S	201806	7:00-8:00	32	Freight - S	288	Ti Rakau Dr	Pakuranga Highway	1722	121	102	163	106	92	136	Freight - S	5.931	12	7.7	18.45	11.45	7.916667	17.41667	1.745227332	10.39331241	1.420618457	9.224972942	101.5622	110.9832	101.6135	86.12433	85.77199	84.06021	84.99189	84.51595	81.66155	#N/A	#N/A				
13285851	Freight - S	201806	7:00-8:00	32	Freight - S	289	Pakuranga Highway	Carbine Road	826	102	61	153	105	57	181	Freight - S	6.757	13.7	8.716667	21	13.2	8.866667	20.43333	2.772824454	13.16613686	1.756137231	10.98111017	165.1919	167.087	166.8296	137.3861	101.8616	94.86441	87.36082	89.79646	83.38686	#N/A	#N/A				
13284779	Freight - S	201806	7:00-8:00	32	Freight - S	290	Carbine Road	SH1	889	65	53	77	61	51	73	Freight - S	7.646	14.78333	9.6	22.28333	14.21667	9.716667	21.65	0.698891413	13.86502828	0.687764383	11.66887456	41.94585	41.78626	42.06834	41.99305	41.11108	40.7525	41.20683	40.54274	40.07985	#N/A	#N/A			OK	OK
	AM - Ti Rakau Dr/Mt W Hwy to Te Irirangi Dr																																								
								SH1									0	0	0	0	0	0	0	0	0	0	0															
13284780	Freight - S	201806	7:00-8:00	32	Freight - S	290	SH1	Carbine Road	889	61	47	137	60	47	158	Freight - S	0.889	1.016667	0.783333	2.283333	1	0.783333	2.633333	1.056718255	1.056718255	1.055825798	1.055825798	64.4477	61.61637	64.14522	63.33931	62.67607	64.38094	63.00186	64.30032	64.14703	#N/A	#N/A				
13285861	Freight - S	201806	7:00-8:00	32	Freight - S	289	Carbine Road	Pakuranga Highway	826	54	46	70	54	46	70	Freight - S	1.715	1.916667	1.55	3.45	1.9	1.55	3.8	0.806079663	1.862797918	0.810367347	1.866193145	47.90932	47.77321	49.41181	48.5792	48.839	48.75928	48.31069	47.78683	46.38716	#N/A	#N/A				
13284781	Freight - S	201806	7:00-8:00	32	Freight - S	288	Pakuranga Highway	Ti Rakau Dr	1722	127	98	244	182	99	301	Freight - S	3.437	4.033333	3.183333	7.516667	4.933333	3.2	8.816667	2.97181444	4.834612359	3.396308137	5.262501282	165.7252	176.4436	192.7578	223.008	230.1351	196.8289	165.142	175.4729	163.554	#N/A	#N/A				
13284782	Freight - S	201806	7:00-8:00	32	Freight - S	287	Ti Rakau Dr	Edgewater Drive	823	66	57	123	71	61	181	Freight - S	4.26	5.133333	4.133333	9.566667	6.116667	4.216667	11.83333	1.00422865	5.838841009	1.010173131	6.272674413	61.77564	59.16104	59.82447	58.96715	60.55422	60.77331	62.14687	62.85486	58.27952	#N/A	#N/A				
13284783	Freight - S	201806	7:00-8:00	32	Freight - S	286	Edgewater Drive	Harris Road	2035	191	144	236	188	149	239	Freight - S	6.295	8.316667	6.533333	13.5	9.25	6.7	15.81667	3.348044962	9.186885971	4.072943874	10.34561829	192.2772	195.4956	214.8753	221.0975	230.4707	250.5756	275.3627	218.8658	207.7454	#N/A	#N/A				
13285862	Ellerslie P	201806	7:00-8:00	32	Freight - S	787	Harris Road	Te Irirangi	1351	113	94	174	151	102	241	Freight - S	7.646	10.2	8.1	16.4	11.76667	8.4	19.83333	2.408427732	11.5953157	2.427727494	12.77334578	138.7867	140.4843	154.246	136.5582	143.505	149.0525	153.4989	150.2803	148.3059	#N/A	#N/A			OK	OK
	AM - Pakuranga Rd to Pakuranga Highway and vice versa																																								
								Pakuranga Rd									0	0	0	0	0	0	0	0	0	0	0															
13284788	Ti Rakau D	201806	7:00-8:00	197	Ti Rakau D	1642	Pakuranga Rd	Pakuranga Hwy	341	135	77	205	99	56	183	Ti Rakau D	0.341	2	1.283333	3.416667	2	0.933333	3.05	1.96656028	1.96656028	1.790551845	1.790551845	116.9302	118.2226	118.828	109.1476	111.1534	106.0589	103.3725	99.48425	82.47163	#N/A	#N/A			OK	OK
								Pakuranga Hwy									0	0	0	0	0	0	0	0	0	0	0															
13284787	Ti Rakau D	201806	7:00-8:00	196	Ti Rakau D	1641	Pakuranga Hwy	Pakuranga Rd	327	80	31	142	77	33	174	Ti Rakau D	0.668	2	0.516667	2.366667	2	0.55	2.9	2.05992453	2.05992453	2.249934948	2.249934948	116.7869	116.8271	137.1725	131.714	134.9766	141.989	131.3048	110.9097	99.61536	#N/A	#N/A			OK	OK
	AM - Gossamer/Ti Rakau Dr to Pakuranga Rd																																								
								Ti Rakau Dr									0	0	0	0	0	0	0	0	0	0	0															
13284784	Gossamer	201806	7:00-8:00	164	Gossamer	1433	Ti Rakau Dr	Chatsworth Cr / Ennis /	645	52	47	181	56	48	155	Gossamer	0.645	0.866667	0.783333	3.016667	0.933333	0.8	2.583333	0.885232182	0.885232182	0.902051166	0.902051166	55.50934	52.24112	51.59133	54.12953	54.7835	55.25712	52.32212	53.18494	51.87362	#N/A	#N/A				
13285866	Gossamer	201806	7:00-8:00	164	Gossamer	1434	Chatsworth Cr / Ennis /	Reeves Rd	395	35	29	51	40	34	80	Gossamer	1.04	1.45	1.266667	3.866667	1.6	1.366667	3.916667	0.664773858	1.55006604	0.659771456	1.561822622	41.07973	39.97202	38.60754	41.00231	40.60318	38.68965	38.05001	37.52435	37.64223	#N/A	#N/A				
13285870	Gossamer	201806	7:00-8:00	164	Gossamer	1435	Reeves Rd	Larne Ave	454	36	32	44	42	36	49	Gossamer	1.494	2.05	1.8	4.6	2.3	1.966667	4.733333	0.60098122	2.15088726	0.60318482	2.165007442	36.51309	35.9744	35.68913	36.02549	36.57902	36.22032	35.93953	35.81905	37.12194	#N/A	#N/A				
13285874	Gossamer	201806	7:00-8:00	164	Gossamer	1436	Larne Ave	Pakuranga Rd	601	73	53	154	170	81	559	Gossamer	2.095	3.266667	2.683333	7.166667	5.133333	3.316667	14.05	1.730070943	3.881058204	1.807190997	3.972198438	101.7532	106.0285	103.6311	109.0441	106.3685	112.0688	106.2444	101.6535	109.228	#N/A	#N/A			OK	OK
	AM - Gossamer/Pakuranga Rd to Ti Rakau Dr																																								
								Pakuranga Rd									0	0	0	0	0	0	0	0	0	0	0															
13284796	Gossamer	201806	7:00-8:00	164	Gossamer	1436	Pakuranga Rd	Larne Ave	601	49	45	65	71	46	129	Gossamer	0.601	0.816667	0.75	1.083333	1.183333	0.766667	2.15	0.858634454	0.858634454	0.849688087	0.849688087	52.028	51.39223	51.13396	50.38556	52.03655	51.07142	50.43161	50.3199	49.06647	#N/A	#N/A				
13285878	Gossamer	201806	7:00-8:00	164	Gossamer	1435	Larne Ave	Reeves Rd	454	48	38	57	48	39	82	Gossamer	1.055	1.616667	1.383333	2.033333	1.983333	1.416667	3.516667	0.775669683	1.634304137	0.750392167	1.600088254	48.23585	46.50015	44.88444	44.30616	46.71995	44.74986	44.31815	42.05678	42.01707	#N/A	#N/A				
13285882	Gossamer	201806	7:00-8:00	164	Gossamer	1434	Reeves Rd	Chatsworth Cr / Ennis /	395	29	25	33	35	28	104	Gossamer	1.45	2.1	1.8	2.583333	2.566667	1.883333	5.25	0.516202321	2.150506458	0.515693172	2.115773427	31.00559	30.9713	30.93953	30.90586	31.1137	31.00629	30.74051	31.04925	30.96776	#N/A	#N/A				
13285886	Gossamer	201806	7:00-8:00	164	Gossamer	1433	Chatsworth Cr / Ennis /	Ti Rakau Dr	645	72	48	150	154	76	271	Gossamer	2.095	3.3	2.6	5.083333	5.133333	3.15	9.766667	1.696491139	3.846997598	1.797266661	3.913040088	92.74557	110.0827	102.5401	112.0977	105.9941	110.7331	102.5192	98.72786	104.3459	#N/A	#N/A			OK	OK
	AM - Bus									Median Ti	15th Perce	85th Perce	Median Ti	15th Perce	85th Perce													3															
								Botany Town Centre									0	0	0	0	0	0	0	0	0	0	0															
19206840							Botany Town Centre	Panmure Interchange									7.63	38.83333	30.23333	47.01667	27.63333	25.22	36.31667	30.03937771	30.03937771	29.06571162	29.06571162	1750.953	1795.066	1861.068	1743.562	1752.677	1801.477	1678.054	1813.218	1700.757	#N/A	#N/A				
								Panmure Interchange									0	0	0	0	0	0	0	0	0	0	0															
19206842							Panmure Interchange	Botany Town Centre									7.638	27.28333	20.11667	32.88333	30	18	32	26.22906907	26.22906907	28.09448037	28.09448037	1544.36	1496.846	1680.026	1576.824	1668.109	1721.432	1776.311	1604.345	1496.002	#N/A	#N/A				
								Cascades Road									0	0	0	0	0	0	0	0	0	0	0															
19206841							Cascades Road	Panmure Interchange									4.962	20.71667	17.46667	25.39167	20.71667	17.46667	25.39167	22.92836997	22.92836997	22.59312132	22.59312132	1373.438	1380.146	1373.523	1325.09	1426.063	1336.073	1335.122	1266.16	1056.849	#N/A	#N/A				
								Panmure Interchange									0	0	0	0	0	0	0	0	0	0	0															
19206843							Panmure Interchange	Cascades Road									4.897	18	9.533333	19	18	10.66167	19	16.49977349	16.49977349	16.96103015	16.96103015	988.45	973.2352	1008.274	1020.141	1027.344	1026.23	996.9319	986.3285	962.0151	#N/A	#N/A				

PM

Aimsun	Route Nai	Year	Mon	Period	Route ID	Route Nai	Seg ID	From	To	Length	1600-1700 Median Ti	15th Perce	85th Percentile (s	Median Ti	1700-1800 15th Perce	85th Perce	Route Nai	Cumul Dis	1600-1700 Median Ti	15th Perce	85th Perce	Median Ti	1700-1800 15th Perce	85th Perce	16:00-17:00 Av	16:00-17:00 Cummulative	17:00-18:00 Av	17:00-18:00 Cummulative	0 13284835	0	5	6	7	8	9	10	11	12	13	14	15		
	PM - Pakuranga Rd/Cascades Rd to Mt W Hwy																												16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45		
									Cascades Road									0	0	0	0	0	0	0	0	0	0	0														
13284775	Ellerslie P	201806	7:00-8:00		55	Ellerslie P	795	Cascades Road	Ti Rakau Drive	2436	204	178	271	213	175	307	Ellerslie P	2.436	3.4	2.966667	4.516667	3.55	2.916667	5.116667	3.672386476	3.672386476	3.729485955	3.729485955	219.7794	218.2562	222.9939	226.2317	217.7831	228.5905	222.4713	219.5799	223.4172	215.0311	#N/A	#N/A		81%		
13284791	Ellerslie P	201806	7:00-8:00		55	Ellerslie P	796	Ti Rakau Drive	Jellicoe Road	2379	214	184	267	231	193	292	Ellerslie P	4.815	6.966667	6.033333	8.966667	7.4	6.133333	9.983333	2.966762449	6.639148926	2.960384108	6.689870063	176.9659	181.8054	175.2459	177.8604	178.8053	177.8888	175.9376	173.5232	174.5689	175.7231	#N/A	#N/A				
13285848	Ellerslie P	201806	7:00-8:00		55	Ellerslie P	797	Jellicoe Road	Mt W Hwy	549	77	51	122	80	48	153	Ellerslie P	5.364	8.25	6.883333	11	8.733333	6.933333	12.53333	1.175093382	7.814242308	1.176770011	7.866640074	69.3579	72.02161	70.13729	70.38239	70.37246	70.56143	71.10852	69.54756	67.61011	63.14393	#N/A	#N/A		OK	OK	
	PM - Pakuranga Rd/ Mt W Hwy to Cascades Rd																																									
									Mt W Hwy									0	0	0	0	0	0	0	0	0	0	0														
13285849	Ellerslie P	201806	7:00-8:00		193	Ellerslie P	1628	Mt Wellington Highwa	Jellicoe Road	549	157	84	228	243	164	312	Ellerslie P	0.549	2.616667	1.4	3.8	4.05	2.733333	5.2	1.351156253	1.351156253	1.551183367	1.551183367	74.34868	83.82057	85.03887	93.89767	90.84426	98.01386	89.52822	78.86495	74.08614	68.25999	#N/A	#N/A				
13284792	Ellerslie P	201806	7:00-8:00		193	Ellerslie P	1629	Jellicoe Road	Ti Rakau Drive	2379	287	208	422	469	295	767	Ellerslie P	2.928	7.4	4.866667	10.83333	11.86667	7.65	17.98333	3.949620592	5.300776845	5.512754337	7.063937704	229.5614	233.9628	247.4075	280.642	302.7486	340.5109	399.1595	481.6804	467.5166	432.7425	#N/A	#N/A				
13284793	Ellerslie P	201806	7:00-8:00		193	Ellerslie P	1630	Ti Rakau Drive	Cascades Road	2436	248	209	331	379	303	463	Ellerslie P	5.364	11.53333	8.35	16.35	18.18333	12.7	25.7	3.959955448	9.260732294	5.102215299	12.1661 53	213.8126	231.8755	267.1039	285.2944	293.0839	320.1452	326.0083	310.9813	307.0724	271.7908	#N/A	#N/A		OK	:(	
	PM - Ti Rakau Dr/Te Irirangi Dr to Mt W Hwy																																									
									Te Irirangi									0	0	0	0	0	0	0	0	0	0	0														
13284776	Ellerslie P	201806	7:00-8:00		193	Ellerslie P	1638	Te Irirangi	Harris Road	1351	164	117	227	186	122	347	Ellerslie P	1.351	2.733333	1.95	3.783333	3.1	2.033333	5.783333	2.996646152	2.996646152	2.854877477	2.854877477	174.9167	184.412	180.0675	172.4086	162.0063	180.2206	170.5351	174.2074	172.8762	179.1294	#N/A	#N/A				
13285850	Freight - S	201806	7:00-8:00		32	Freight - S	286	Harris Road	Edgewater Drive	2035	237	179	356	260	188	424	Freight - S	3.386	6.683333	4.933333	9.716667	7.433333	5.166667	12.85	3.184632109	6.181278262	3.37198965	6.226867127	175.6967	193.4484	204.0887	191.3311	202.0108	208.2878	207.6479	241.3509	287.7392	292.7797	#N/A	#N/A				
13284777	Freight - S	201806	7:00-8:00		32	Freight - S	287	Edgewater Drive	Ti Rakau Dr	823	167	92	296	168	87	457	Freight - S	4.209	9.466667	6.466667	14.65	10.23333	6.616667	20.46667	1.671360645	7.852638906	2.542705856	8.769572983	84.0801	95.02923	121.7356	180.4905	142.2249	136.2698	151.2642	170.808	195.1949	170.1465	#N/A	#N/A				
13284778	Freight - S	201806	7:00-8:00		32	Freight - S	288	Ti Rakau Dr	Pakuranga Highway	1722	93	83	136	91	77	129	Freight - S	5.931	11.01667	7.85	16.91667	11.75	7.5	22.61667	1.284673323	9.13731223	1.28951806	10.05909104	76.93013	76.58362	77.72745	77.78598	77.66823	77.33698	76.69314	76.5434	76.23417	76.29361	#N/A	#N/A				
13285851	Freight - S	201806	7:00-8:00		32	Freight - S	289	Pakuranga Highway	Carbine Road	826	50	41	99	54	43	80	Freight - S	6.757	11.85	8.533333	18.56667	12.65	8.616667	23.95	1.22097178	10.35828401	1.323229088	11.38232013	67.99326	70.93437	80.8473	80.82416	79.77451	79.69257	77.28374	75.41792	78.31787	73.91309	#N/A	#N/A				
13284779	Freight - S	201806	7:00-8:00		32	Freight - S	290	Carbine Road	SH1	889	53	45	61	51	43	63	Freight - S	7.646	12.73333	9.283333	19.58333	13.5	9.333333	25	0.626877309	10.98516132	0.638241363	12.02056149	37.17142	37.252	38.4145	38.37633	38.7038	38.33495	37.76285	37.56767	37.53474	37.50876	#N/A	#N/A		OK	OK	
	PM - Ti Rakau Dr/Mt W Hwy to Te Irirangi Dr																																									
									SH1									0	0	0	0	0	0	0	0	0	0	0														
13284780	Freight - S	201806	7:00-8:00		32	Freight - S	290	SH1	Carbine Road	889	114	69	178	219	124	327	Freight - S	0.889	1.9	1.15	2.966667	3.65	2.066667	5.45	1.345064957	1.345064957	3.374359507	3.374359507	75.48622	80.01641	86.60906	165.3861	208.0027	212.9573	223.5001	197.6962	198.629	196.575	#N/A	#N/A				
13285861	Freight - S	201806	7:00-8:00		32	Freight - S	289	Carbine Road	Pakuranga Highway	826	80	54	146	153	96	203	Freight - S	1.715	3.233333	2.05	5.4	6.2	3.666667	8.333333	1.433112498	2.778177455	3.232694485	6.607053992	55.36503	67.54587	135.0493	194.4563	189.6552	196.2735	195.4616	180.5886	182.8227	197.316	#N/A	#N/A				
13284781	Freight - S	201806	7:00-8:00		32	Freight - S	288	Pakuranga Highway	Ti Rakau Dr	1722	170	121	237	222	160	297	Freight - S	3.437	6.066667	4.066667	9.35	9.9	6.333333	13.78333	3.491695509	6.269836964	4.207693114	10.81474711	174.3283	211.5984	242.572	250.3782	250.1193	262.7635	246.5854	245.3859	254.4818	268.6982	#N/A	#N/A				
13284782	Freight - S	201806	7:00-8:00		32	Freight - S	287	Ti Rakau Dr	Edgewater Drive	823	71	60	192	83	61	178	Freight - S	4.26	7.25	5.066667	12.55	11.28333	7.35	16.75	1.114326877	7.384163841	1.23034951	12.04509662	66.68746	68.36258	65.52881	68.19181	72.22885	78.83919	76.02403	80.6121	82.86103	79.03827	#N/A	#N/A				
13284783	Freight - S	201806	7:00-8:00		32	Freight - S	286	Edgewater Drive	Harris Road	2035	371	215	537	512	326	680	Freight - S	6.295	13.43333	8.65	21.5	19.81667	12.78333	28.08333	6.694758894	14.07892274	7.87886034	19.92395696	348.2213	405.0955	451.7397	464.8879	510.9525	468.521	446.5651	465.3191	460.2442	472.3467	#N/A	#N/A				
13285862	Ellerslie P	201806	7:00-8:00		32	Freight - S	787	Harris Road	Te Irirangi	1351	210	156	309	269	167	406	Freight - S	7.646	16.93333	11.25	26.65	24.3	15.56667	34.85	3.981469813	18.06039255	5.038878356	24.96283531	219.9947	233.6889	262.9809	300.5452	314.9621	301.3707	292.4528	290.3868	253.6829	194.2535	#N/A	#N/A		OK	OK	
	PM - Pakuranga Rd to Pakuranga Highway and vice versa																																									
									Pakuranga Rd									0	0	0	0	0	0	0	0	0	0	0														
13284788	Ti Rakau D	201806	7:00-8:00		197	Ti Rakau D	1642	Pakuranga Rd	Pakuranga Hwy	341	147	48	279	141	78	238	Ti Rakau D	0.341	2	0.8	4.65	2	1.3	3.966667	1.702523223	1.702523223	1.771228996	1.771228996	99.2407	102.8184	104.3967	108.1075	109.1288	106.201	101.6576	103.6174	104.8745	100.1289	#N/A	#N/A		OK	OK	
									Pakuranga Hwy									0	0	0	0	0	0	0	0	0	0	0														
13284787	Ti Rakau D	201806	7:00-8:00		196	Ti Rakau D	1641	Pakuranga Hwy	Pakuranga Rd	327	107	37	129	123	60	153	Ti Rakau D	0.668	1.783333	0.616667	2.15	2.05	1	2.55	1.969262132	1.969262132	1.906575235	1.906575235	116.596	117.7154	120.1557	116.0114	121.3794	100.5643	119.623	130.1888	119.8587	107.1413	#N/A	#N/A		OK	OK	
	PM - Gossamer/Ti Rakau Dr to Pakuranga Rd																																									
									Ti Rakau Dr									0	0	0	0	0	0	0	0	0	0	0														
13284784	Gossamer	201806	7:00-8:00		164	Gossamer	1433	Ti Rakau Dr	Chatsworth Cr / Ennis /	645	52	49	58	52	49	63	Gossamer	0.645	0.866667	0.816667	0.966667	0.866667	0.816667	1.05	0.924053235	0.924053235	0.930076103	0.930076103	55.55813	55.03185	55.7396	55.13666	55.70274	56.54814	55.83073	55.61799	55.23948	55.08163	#N/A	#N/A				
13285866	Gossamer	201806	7:00-8:00		164	Gossamer	1434	Chatsworth Cr / Ennis /	Reeves Rd	395	36	30	40	34	27	50	Gossamer	1.04	1.466667	1.316667	1.633333	1.433333	1.266667	1.883333	0.644485482	1.568538716	0.646303777	1.576379881	38.7924	38.22575	38.98924	38.59636	38.58211	39.37888	38.55556	38.67347	38.43066	38.22625	#N/A	#N/A				
13285870	Gossamer	201806	7:00-8:00		164	Gossamer	1435	Reeves Rd	Larne Ave	454	37	34	41	41	35	87	Gossamer	1.494	2.083333	1.883333	2.316667	2.116667	1.85	3.333333	0.61376967	2.182308387	0.614425966	2.193805847	37.3418	36.691	36.44574	37.09026	36.69769	36.90775	36.76654	36.68242	36.80475	36.80433	#N/A	#N/A				
13285874	Gossamer	201806	7:00-8:00		164	Gossamer	1436	Larne Ave	Pakuranga Rd	601	129	82	193	223	109	385	Gossamer	2.095	4.233333	3.25	5.533333	5.833333	3.666667	9.75	1.644612721	3.826921107	1.692846159	3.883652006	99.7732	99.20631	97.05078	97.6546	99.17301	106.5627	102.8928	98.85815	100.4477	102.5011	#N/A	#N/A		OK	:(	
	PM - Gossamer/Pakuranga Rd to Ti Rakau Dr																																									
									Pakuranga Rd									0	0	0	0	0	0	0	0	0	0	0														
13284796	Gossamer	201806	7:00-8:00		164	Gossamer	1436	Pakuranga Rd	Larne Ave	601	48	44	111	49	44	56	Gossamer	0.601	0.8	0.733333	1.85	0.816667	0.733333	0.933333	0.801570582	0.801570582	0.810898816	0.810898816	48.24005	48.1795	47.86315	47.8039	48.45717	49.34373	49.01092	48.25483	48.78706	48.65613	#N/A	#N/A				
13285878	Gossamer	201806	7:00-8:00		164	Gossamer	1435	Larne Ave	Reeves Rd	454	42	38	49	45	34	53	Gossamer	1.055	1.5	1.366667	2.666667	1.566667	1.3	1.816667	0.681652994	1.483223576	0.684442075	1.495340891	41.40261	40.16048	41.13445	41.0816	41.20696	40.86016	41.11738	40.8232	41.2704	40.67774	#N/A	#N/A				
13285882	Gossamer	201806	7:00-8:00		164	Gossamer	1434	Reeves Rd	Chatsworth Cr / Ennis /	395	31	27	37	32	27	45	Gossamer	1.45	2.016667	1.816667	3.283333	2.1	1.75	2.566667	0.50957196	1.992795536	0.508546463	2.003887354	30.51677	30.62805	30.57813	30.60602	30.45761	30.57072	30.4168	30.46105	30.8859	30.72589	#N/A	#N/A				
13285886	Gossamer	201806	7:00-8:00		164	Gossamer	1433	Chatsworth Cr / Ennis /	Ti Rakau Dr	645	56	45	93	57	45	107	Gossamer	2.095	2.95	2.566667	4.833333	3.05	2.5	4.35	2.049160027	4.041955563	1.785142203	3.789029557	125.381	113.1702	130.2976	82.40907	113.6328	120.0437	112.3486	95.27297	118.8606	120.795	#N/A	#N/A		:(	OK	
	AM - Bus																		Median Ti	15th Perce	85th Perce	Median Ti	15th Perce	85th Percentile (s)					3													
									Botany Town Centre									0	0	0	0	0	0	0	0	0	0	0														
19206840								Botany Town Centre	Panmure Interchange									7.63	32	24.98333	39.31667	29.91667	27.06	36.1	34.31789006	34.31789006	41.77545029	41.77545029	2019.738	2115.785	2041.696	2286.365	2434.836	2614.659	2690.249	2574.8	2622.602	2650.862	#N/A				
									Panmure Interchange									0	0	0	0	0	0	0	0	0	0	0														
19206842								Panmure Interchange	Botany Town Centre									7.638	31.69167	27.475	43	31	19.33333	38.23333	30.07516254	30.07516254	35.98015616	35.98015616	1584.004	1851.134	1978.392	2015.969	2178.627	2190.471	2250.17	2335.352	2289.128	2437.627	#N/A				
									Cascades Road									0	0	0	0	0	0	0	0	0	0	0														
19206841								Cascades Road	Panmure Interchange									4.962	18	16	23	18	16	23	17.94052257	17.94052257	17.82903687	17.82903687	1047.784	1124.981	1056.529	1109.705	1081.476	1034.967	1052.821	1027.834	1035.117	1017.107	#N/A				
									Panmure Interchange									0	0	0	0	0	0	0	0	0	0	0														
19206843								Panmure Interchange	Cascades Road									4.897	20	11.26333	23	21	11.31333	25	17.64189456	17.64189456	19.31552166	19.31552166	1061.597	1026.393	1087.55	1117.556	1133.384	1166.271	1218.514	1238.809	1235.37	1233.232	#N/A				