Regional Investment Programme

A27 Worthing-Lancing Improvements

PCF Stage 1 - Economic Assessment Report

April 2017

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ECONOMIC ASSESSMENT REPORT - A27 WORTHING-LANCING IMPROVEMENTS

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1 STUDY OVERVIEW

1.1 BACKGROUND

1.1.1 The Road Investment Strategy (RIS) for the period 2015-2021, published in 2014 and known as 'RIS 1' comprises a long term vision for England's motorways and trunk roads. It specifies those locations which are to be the subject of technical study and which should, as a result, be improved through a programme of investment.

1.1.2 The A27 through Worthing and Lancing was identified by RIS 1 as an area for investment (referred to as 'A27 Worthing-Lancing Improvements').

1.1.3 Highways England have commissioned WSP to undertake a technical assessment of the A27 through Worthing and Lancing, and to consider in detail the various technical issues associated with improving these sections of the A27. The assessment has been undertaken in line with the Project Control Framework (PCF) operated by Highways England. Specifically, the assessment is at PCF Stage 1; 'Option Identification'. This is the stage where:

- Options are identified to be taken to public consultation
- Options are assessed in terms of environmental impact, traffic forecasts and economic benefits
- Cost estimates are carried out.

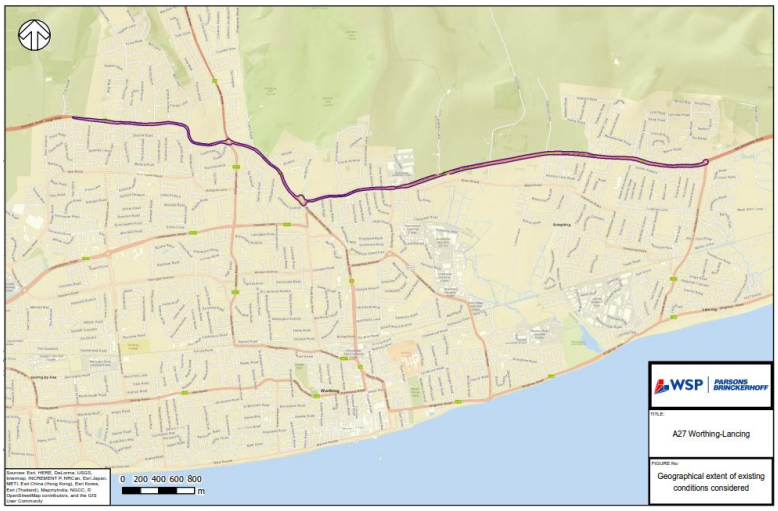
1.1.4 This report describes the scope and methodology of the economic assessment that has been undertaken in furtherance of PCF Stage 1 of the A27 Worthing Lancing improvement schemes.

1.2 SCHEME LOCATION

Worthing-Lancing Improvements Scheme Location

1.2.1 Worthing and Lancing are located along the A27 within Worthing Borough and Adur District between Arundel and Brighton. The A27 scheme extends from Forest Lane to the west of Worthing, to the Grinstead Lane / Manor Road Junction to the east, in Lancing as shown on Figure 2. This section of the A27 passes alongside the South Downs National Park (SDNP) is in part constrained by urban development to the north and the south and is the key east-west trunk road in the region.

Figure 1-1: A27 Worthing – Lancing Scheme Section



1.3 SCHEME OBJECTIVES

1.3.1 The objectives of the A27 Worthing-Lancing Improvements scheme are detailed in the Client Scheme Requirements documents and are summarised below.

1.3.2 Taken together, the A27 Worthing-Lancing Improvements seek to deliver the following objectives:

- To enhance the capacity, connectivity, and the resilience provided by the A27 route within the West Sussex Coastal Area and the wider coastal region. This will contribute positively to the economy of Worthing and strengthen the local and regional economic base, as well as facilitate housing allocations within Local Plans. Also to minimise disruption to traffic and to business during the implementation of any scheme.
- To improve the safety and personal security of travellers along the Worthing-Lancing sections of the A27 route for all road users including vulnerable road users.
- To improve road safety and reduce dis-benefits to communities and vulnerable road users on the wider local road network that is caused by traffic avoiding congestion on the A27.
- To reduce the community severance caused by the A27 through Worthing, Lancing, , and to improve links between local communities, including for vulnerable road users. Also to provide better access to local services and facilities and to the South Downs National Park (SDNP), particularly for more sustainable modes of transport.
- To deliver a high standard of design for any A27 improvement that reflects the character of the route and the quality of the surrounding landscape, minimises the adverse environmental impact of new construction, improves air quality within the AQMA, and supports the following:

- planning for climate change
- working in harmony with the environment to conserve natural resources and encourage bio-diversity
- protecting and enhancing countryside and historic and archaeological environments
- reducing air and noise pollution

→ To recognise that any improvement would have a significant impact on the SDNP, and have regard to the purposes and special qualities of the National Park that the SDNP authority is seeking to preserve in designing and evaluating improvement options.

1.4 SCHEME OPTIONS

1.4.1 Numerous Scheme Options are proposed for the Worthing-Lancing sections of the A27. As this study has progressed through PCF (Project Control Framework) Stage 1 it has become apparent that some Options are better suited to delivering the objectives listed in Section 1.3 than others, and indeed that some Options are not suitable to be taken forward to economic assessment. The full list of Options that were considered within PCF Stage 1 is detailed below, along with an identification of those Options that have been taken forward to economic assessment.

Worthing-Lancing Scheme Proposals

1.4.2 PCF Stage 1 of the Worthing and Lancing improvements study has given consideration to 5 Options. Details for each option are provided below:

→ **Option 1** – Junction improvements only (at grade), direct access onto A27 permitted.

→ **Option 2** – Junction improvements only (grade separated), direct access onto A27 permitted.

→ **Option 3** – Junction improvements (at grade) in conjunction with dualling. Direct access onto A27 permitted.

→ **Option 3A** – Junction improvements (at grade) in conjunction with narrow lane dualling. Direct access onto A27 permitted with 2m footway on the north and 3m shared lane on the south side.

→ **Option 4** – Junction improvements (grade separated) in conjunction with dualling. Direct access onto A27 permitted.

→ **Option 5** – Junction improvements (grade separated) in conjunction with dualling. Service roads to be provided (no direct access to A27 permitted).

1.4.3 Those options which include a degree of grade separation are considered to be unsuitable for detailed economic assessment as they are expected to exceed the outline budget allocated to the Worthing-Lancing RIS scheme. Therefore only three of the five Options listed above have been taken forward to economic assessment. They are:

→ Option 1

→ Option 3

→ Option 3A.

1.5 PREVIOUS ECONOMIC ASSESSMENTS

1.5.1 The A27 Worthing-Lancing Improvements scheme was subjected to a degree of economic assessment during PCF Stage 0.

1.5.2 A feasibility study was commissioned by the Department for Transport (DfT) and is provided at the following location.

https://www.gov.uk/government/publications/a27-corridor-feasibility-study-technical-reports

Stage 0 Economic Assessment of Worthing-Lancing Scheme

1.5.3 Benefit to Cost Ratios were calculated for a number of options, including tunnels and bypasses which were discounted by the Road Investment Strategy. The options which are pertinent to PCF Stage 1, are options F and G from the feasibility study, as they are similar to option 3 and 1 respectively for PCF Stage 1.

1.5.4 An extract from the feasibility study is provided below. The Present Value Costs from the feasibility study are lower than currently anticipated by Benchmark.

Figure 6-1: Benefit-Cost Ratio Calculations – Worthing and Arundel Investment Case

Option name		Option A - tunnels at Worthing and Lancing	Option F - online dualling improvements at Worthing and Lancing	Option G – online localised widening and junction improvements	Arundel Bypass (A) + Online dualling improvements at Worthing and Lancing (F)
Overall cost of scheme (£ undiscounted)		1,314.2	96.5	50.0	284.5
Present Value Costs (PVC)		1,098.7	82.9	48.6	242.3
Accident Benefits		5.6	N/A	N/A	N/A
Present Value Benefits (PVB)	Core	1,001.3	540.8	291.0	927.7
total including accidents	Adjusted	1,044.2	564.1	303.5	967.7
Core BCR		**0.9**	**6.5**	**6.0**	**3.9**
Adjusted BCR		0.9	6.8	6.3	4.0
Range of BCR	*[Low Growth]*	0.7	5.1	3.8	N/A
	[High Growth]	1.2	8.1	8.5	N/A

2 ECONOMIC ASSESSMENT APPROACH

2.1 TRANSPORT MODEL DESCRIPTION

2.1.1 An updated strategic highway model developed in SATURN has been used as the basis for the economic benefits outlined in this report.

2.1.2 The West Sussex County Transport Model (WSCTM) previously validated by Amey in 2009, and most recently updated by Atkins at 2013, was used as the starting point for the SATURN highway model. The model included all motorways, primary roads, A roads, B roads and the majority of the C roads that carry significant volumes of traffic or are required to provide appropriate representation of access to the villages in the county.

2.1.3 Following agreement with Highways England, the WSCTM was subsequently cordoned to reduce the simulation area, but covered a suitable extent for the area of impact for both A27 schemes.

2.1.4 Extensive recoding of the model network was required to ensure the model was a suitable basis from which to validate and calibrate the base year model to 2015 survey data which included Road Side Interviews (RSIs), Automatic Traffic Counts (ATCs) and Manual Classified Counts (MCCs).

2.1.5 Owing to the proximity of the two schemes, a single base year model has been prepared to validate both schemes, as agreed with Highways England's TAME Division and described in the Appraisal Specification Reports for the A27 Arundel (HE551523_WSP-PB_A27A_P002_ASR) and Worthing-Lancing (HE551524_WSP-PB_A27WL_P002_ASR) schemes.

2.1.6 The performance of the base year model is detailed in the Local Model Validation Report (HE551523,4_WSP-PB_A27AWL_P014_LMVR_v1.1.9). Traffic forecasting was carried out assuming a common opening year of 2023 for both schemes, with a future design year of 2041 also produced. Details of the traffic forecasting for the A27 Worthing-Lancing Improvements scheme which has been carried out are detail in the Traffic Forecasting Report (HE551524_WSP_A27WL_P013_TFR_1.1.12).

2.1.7 In summary, the time periods covered by the SATURN highway modelling includes the following time periods:

- Average Morning Peak Average Hour (07:00 – 10:00)
- Average Inter Peak Average Hour (10:00 – 16:00)
- Average Evening Peak Average Hour (16:00 – 19:00)

2.1.8 The models cover the following assessment years:

- 2015 (Base Year)
- 2023 (Assumed opening year for both A27 schemes)
- 2041 (Future horizon year for both A27 schemes)

2.1.9 The trip matrices were segmented in accordance with the trip purposes identified and surveyed throughout the road side interviews.

2.1.10 These consisted of the following trip purposes:

- Home Based Work

- → Home Based Employers' Business
- → Home Based Other
- → Non-Home Based Employers' Business
- → Non-Home Based other.

2.1.11 The segments outlined above were collected for Cars and Light Goods Vehicles (LGV), whilst Heavy Goods Vehicles (HGV) were aggregated in to a single purpose. LGV trip purposes were further aggregated in to 'Personal' and 'Business' use for compliance in TUBA during the scheme economics stage of the assessment.

2.1.12 Table 2-1 shows the overall structure of the demand matrix used through the assignment procedure.

Table 2-1: Matrix Structure (8 User Classes)

Vehicle Class	User Class	Abbreviation Used (Within SATURN)	Matrix Level
Car	Home Based Work	HBW	1
Car	Home Based Employers' Business	HBEB	2
Car	Home Based Other	HBO	3
Car	Non-Home Based Employers' Business	NHBEB	4
Car	Non-Home Based Other	NHBO	5
LGV	Personal (Home Based Work + Home Based Other + Non-Home Based Other)	LGV Personal	6
LGV	Business (Home Based Employers' Business + Non-Home Based Employers' Business)	LGV Business	7
HGV	All	HGV ALL	8

2.1.13 The resulting trip matrix consisted of 8 levels representing different trip purposes and 3 vehicle types (Cars, LGV and HGV).

2.1.14 Full details of the base year modelling are presented in the Local Model Validation Report (LMVR) dated January 2017[1], with details of the forecast modelling presented in the Traffic Forecasting Report dated January 2017[2].

2.1.15 It should be noted that the current modelling approach (cordoned SATURN model from WSCTM) has been agreed and adopted as suitable for PCF Stage 1, until a new fully compliant strategic model is developed.

2.1.16 It is proposed that going forward during PCF Stage 2 strategic modelling will be developed based upon the Highways England South East Regional Model and used to verify the current modelling and assumptions.

[1] A27 Arundel and Worthing-Lancing Improvements PCF Stage 1 – Local Model Validation Report, January 2017

[2] A27 Worthing-Lancing Improvements PCF Stage 1 – Traffic Forecasting Report, January 2017

2.2 VARIABLE DEMAND MODELLING

2.2.1 It was agreed with Highways England TAME that Variable Demand Modelling (VDM) would not be undertaken at PCF Stage 1. This will be undertaken at Stage 2 using the South East Regional Transport Model.

2.3 ECONOMIC ASSESSMENT PROCESS AND ECONOMIC PARAMETERS USED

2.3.1 The appraisal of the economic elements associated with the scheme has been undertaken using the DfT's standard appraisal software:

- Transport User Benefit Appraisal (TUBA) version 1.9.8
- COst and Benefit to Accidents – Light Touch (COBALT).

2.3.2 Both appraisals were undertaken in accordance with WebTAG Unit A1.1 Cost-Benefit Analysis.

TUBA

2.3.3 The following economic elements have been considered for PCF Stage 1 of the study;

- Time Savings
- Vehicle Operating Costs
- Carbon Savings
- Scheme Costs
- Indirect tax revenue.

2.3.4 TUBA was used to carry out the economic appraisal of all the options associated with the A27 Worthing-Lancing Improvements scheme. All costs and benefits reported by TUBA are based on willingness to pay and expressed in the market price unit of account.

2.3.5 The economic appraisal was carried out over a 60 year period, from 2023 (opening year) to 2082.

COBALT

2.3.6 COBALT is a computer program developed by Highways England to undertake the analysis of the impact on accidents as part of economic appraisal for a road scheme. It uses detailed inputs of separate road links and road junctions impacted by the scheme. The assessment is based on a comparison of accidents by severity and associated costs across an identified network in 'Without-Scheme' and 'With-Scheme' forecasts, using details of link and junction characteristics, relevant accident rates and costs and forecast traffic volumes by link and junction.

2.4 NON-STANDARD PROCEDURES AND ECONOMIC PARAMETERS

2.4.1 The SATURN modelling was undertaken for private vehicle usage, and Public Transport demand was not explicitly modelled.

2.4.2 Additionally, there is no major public transport improvement scheme proposed on the network included in the model. As such, benefits to public transport users such as reduced journey times have not been included in the overall economic assessment.

3 ESTIMATION OF COSTS

3.1 INTRODUCTION

3.1.1 Highways England provided cost estimates for each of the Worthing-Lancing scheme options based on estimates produced by their cost consultant, Benchmark Estimating. The estimated costs take account of all anticipated scheme costs (including preparation, land, utilities diversions, construction, and with allowances for inflation and risk).

3.1.2 The expenditure profiles are based upon cost estimates for each financial year prepared in 2014 Q1 prices and then inflated to outturn costs using Highway England's projected construction related inflation. These costs have then been rebased to 2010 calendar year profiles for economic calculations, using the GDP-deflator series as published in the WebTAG Databook. All costs are in the factor cost unit of account and will be funded by Central Government.

3.2 RISK AND OPTIMISM BIAS ASSUMPTIONS

3.2.1 The costs included above include quantified risk derived as part of the estimation process undertaken by Highway England's cost estimation specialists Benchmark along with allowances for uncertainty and programme risk.

3.2.2 The costs exclude all recoverable VAT.

3.3 SCHEME COSTS

3.3.1 Tables detailing costs and spend profile are shown for each Worthing-Lancing scheme option which has been tested. Appendix A provides the cost and spend profiles supplied by Highway England's cost consultant, Benchmark Estimating Ltd.

3.3.2 Table 3-1 shows the overall scheme costs for the various Worthing-Lancing options Benchmark provided 'Most Likely' costs which were then rebased to 2010 in the factor cost unit of account. The PVC generated by TUBA is also provided in Table 3-1.

Table 3-1: Worthing-Lancing – Overall scheme costs

Worthing-Lancing Scheme Option	Total Cost – Most Likely	HE Economics Output Table	PVC
Option 1	£68.56M	£52.86M	£44.99M
Option 3	£181.02M	£141.34M	£120.89M
Option 3A	£114.5M	£88.04M	£73.92M

3.3.3 Table 3-2, Table 3-3 and Table 3-4 detail factor costs and spend profile broken down by year are shown for each Worthing-Lancing scheme option tested.

Table 3-2: Worthing-Lancing - Option 1 Scheme Cost and Spend Profile

Total Cost	Construction	Land	Preparation	Supervision
2015 / 2016	0%	0%	0%	0%
2016 / 2017	0%	0%	1%	0%
2017 / 2018	0%	23%	35%	0%
2018 / 2019	0%	0%	27%	0%
2019 / 2020	2%	77%	38%	0%
2020 / 2021	52%	0%	0%	69%
2021 / 2022	46%	0%	0%	31%
Total	**34,507,224**	**11,588,622**	**5,582,328**	**1,180,889**

Table 3-3: Worthing-Lancing - Option 3 Scheme Cost and Spend Profile

Total Cost	Construction	Land	Preparation	Supervision
2015 / 2016	0%	0%	0%	0%
2016 / 2017	0%	0%	1%	0%
2017 / 2018	0%	39%	29%	0%
2018 / 2019	0%	0%	27%	0%
2019 / 2020	2%	61%	43%	0%
2020 / 2021	28%	0%	0%	27%
2021 / 2022	35%	0%	0%	45%
2022 / 2023	35%	0%	0%	28%
Total	**69,626,477**	**61,245,861**	**7,989,451**	**2,475,831**

Table 3-4: Worthing-Lancing - Option 3A Scheme Cost and Spend Profile

Total Cost	Construction	Land	Preparation	Supervision
2015 / 2016	0%	0%	0%	0%
2016 / 2017	0%	0%	1%	0%
2017 / 2018	0%	29%	29%	0%
2018 / 2019	0%	0%	27%	0%
2019 / 2020	2%	71%	42%	0%
2020 / 2021	28%	0%	0%	27%
2021 / 2022	35%	0%	0%	45%
2022 / 2023	35%	0%	0%	28%
Total	**57,715,281**	**20,124,227**	**7,828,570**	**2,368,029**

3.4 OPERATIONAL AND MAINTENANCE COSTS

3.4.1 Operational and maintenance costs have not been considered at this stage of assessment. As with the construction costs, it is anticipated there will be significant variance in operational and maintenance costs between the three options.

3.4.2 This assumption requires that no operational and maintenance costs are applied to the Do-Minimum scenario either, which therefore has an outturn cost of zero.

3.5 GRANTS AND SUBSIDIES ALLOWANCE

3.5.1 No grants and subsidies are applicable to these scheme costs. The entire construction cost will be met from central government's broad transport budget.

4 ESTIMATION OF BENEFITS

4.1 INTRODUCTION

4.1.1 The economic appraisal was undertaken in TUBA Version 1.9.8, as mentioned in Section 2.3.

4.1.2 The basic TUBA input consists of two files containing the economic data and scheme data. The economic input file contains all of the economic data and parameters required by TUBA in the economic appraisal.

4.1.3 The scheme input file contains data regarding scheme costs, user classes, modelled years, annualisation factors and input matrices. The scheme input data is described in this section apart from the scheme costs that are already described in Section 3.

4.2 TUBA SCHEME INPUT FILE

4.2.1 This section describes the parameters included in the scheme input file, these include Time slices, scheme opening year, economic horizon year, scheme costs and spend profile. The matrix file inputs are discussed in the following section.

MODELLED YEARS

4.2.2 The economic appraisal was carried out over a 60 year period, from 2023 (opening year) to a horizon year of 2082. Traffic flows have been based on the 2023 and 2041 forecast year SATURN modelling results.

4.2.3 Annualisation factors have been applied to convert peak period flows into annual flows. Details are provided in the following sections.

TIME SCALES / ANNUALISATION

4.2.4 TUBA makes a distinction between time slices and time periods. Standard time periods are defined in the economics file as:

- AM Peak (Weekday 0700 – 1000)
- PM Peak (Weekday 1600 – 1900)
- Inter-peak (Weekday 1000 – 1600)
- Off-peak (Weekday 1900 – 0700)
- Weekend.

4.2.5 The SATURN model does not include weekend and the off-peak periods as origin-destination data were not collected for these time periods, therefore it has not been possible to determine potential benefits for these periods.

4.2.6 The SATURN model has been assigned as an average hour model for the AM peak and PM peak period which enables the benefits for these peak periods to be used in TUBA.

4.2.7 In order to model the time slices in TUBA, an annualisation factor is required to convert to each time period. The annualisation factor is given by h x d where h is the number of this time slice in the time period and d is the number of days a year containing the time period. The annualisation factor is specified in the scheme input file.

4.2.8 From the information detailed above, the modelled time slices used to represent the weekday benefit are detailed below:

- Average AM Peak period average hour time slice
- Average PM Peak period average hour time slice
- Average Inter-peak period average hour time slice.

4.2.9 Using the equation given in paragraph 4.2.7 and the fact that there are 253 peaked weekdays (excludes weekdays falling on bank holidays) the annualisation factors (A) for the time periods used in the TUBA input file are calculated below:

- AM peak A = 3 hour x 253 days) = 759
- PM peak A = 3 hour x 253 days)= 759
- Inter-peak A = 6 hours x 253 days = 1,518.

4.2.10 The benefits produced in this assessment represent a conservative estimate of the total benefits produced from the scheme. This is due to three main reasons:

- No benefits were calculated for weekday off-peak periods (19:00 – 07:00)
- No benefits have been calculated for weekends or bank holidays.

SCHEME COSTS / SPEND PROFILE

4.2.11 The costs for each option estimated by Benchmark, Highways England's cost estimator were supplied in March 2017. The costs for each option including breakdown by cost type and spend profile are included in Section 3.

4.3 MATRIX INPUT

4.3.1 Matrix inputs were required for the number of trips and journey time for each user class and also for trip distance. The trip distance and journey time matrices were taken from the SATURN model directly for the 2023 and 2041 periods.

JOURNEY PURPOSE / USER CLASS

4.3.2 As detailed in the LMVR and Forecasting Report the trip matrices were split into the following vehicle types and journey purposes shown in Table 4-1. The correspondence between the SATURN matrix user classes and TUBA user classes is also shown.

Table 4-1: TUBA to SATURN matrix user class correspondence

SATURN User Class	Vehicle Type	Journey Purpose	TUBA User Class	TUBA Purpose
1	Car	Home Based Work	1	Commuting
2	Car	Home Based Employers Business	2	Business
3	Car	Home Based Other	3	Other
4	Car	Non Home Based Employers Business	4	Business
5	Car	Non Home Based Other	5	Other
6	LGV	Personal	6	Other
7	LGV	Business	7	Business
8	HGV	Business	8	Business
8	HGV	Business	9	Business

4.3.3 For the HGV user class a split between OGV1 and OGV2 was derived using proportions from the RSI data used to build the matrices for the SATURN model, shown in Table 4.2.

Table 4-2: TUBA to SATURN matrix user class correspondence

SATURN Vehicle Type	AM Peak Period (0700-1000)	Inter Peak Period (0800-0900)	AM Peak Period (1600-1900)
OGV1	0.63	0.62	0.58
OGV2	0.37	0.38	0.42

4.4 TUBA ECONOMICS INPUT

4.4.1 The default TUBA economics file (TUBA 1.9.8) has been used and is based on WebTAG Data Book (November 2016).

4.5 TRAVEL TIME SAVINGS

4.5.1 Travel time savings are monetised as a perceived benefit, reflecting users' willingness to pay for a quicker journey. The value of those savings differs depending on the reason for the trip, of which three are defined in WebTAG; business users, commuters, and non-commuting consumers (for example leisure trips).

4.5.2 The costs and benefits for travel time savings have been assessed using TUBA. The trip length, trip volume and journey time information needed for this has been taken from the relevant SATURN models.

4.6 VEHICLE OPERATING COST SAVINGS

4.6.1 Vehicle operating cost savings accrue in two categories; fuel costs, a function of the speed of the vehicle through the network and fuel efficiency, and non-fuel costs such as oil, tyres, vehicle maintenance depreciation and business vehicle capital costs, largely a function of the distance travelled by the vehicle.

4.6.2 The costs and benefits for vehicle operating costs have been assessed using TUBA. The trip length, trip volume and journey time information needed for this has been skimmed from the relevant SATURN models.

4.7 DERIVATION OF ACCIDENT COST SAVINGS

4.7.1 The costs and benefits for accident savings have been assessed using COBALT using the traffic flows from the relevant SATURN models. The results from COBALT analysis have been used to determine the costs and benefits for accident saving.

4.7.2 Full reporting of the COBALT analysis is included in Section 0 of this report.

4.8 DELAYS AND TRAVEL TIME VARIABILITY CHANGES

4.8.1 These have not been assessed as part of PCF Stage 1.

4.9 DELAYS DURING CONSTRUCTION AND MAINTENANCE (AT BOTH DO-SOMETHING AND DO-MINIMUM NETWORKS)

4.9.1 An assessment has been undertaken of potential construction delay associated with construction of the Worthing-Lancing Scheme (Option 1).

4.9.2 This assessment has been undertaken with a number of caveats/assumptions:

- Using the SATURN model with TUBA being used to estimate the cost of the delays
- No construction phasing therefore a worst case scenario of closing a single lane of traffic and reducing the speed limit down to 30mph for the entire length of the proposed scheme during the full construction periods has been assumed
- Construction period of two years for Option 1 (2021 and 2022) with scheme opening of 2023
- Indirect Taxation Revenues remain the same as the highway scheme economic assessment.

4.10 DERIVATION OF THE COST OF GREENHOUSE GASES

4.10.1 Following advice from Highways England TAME that the Environment Group have previously advised that carbon emission calculations in TUBA are not accurate so that it is preferable to exclude them from the economic calculation entirely, until such time that a compliant analysis can be undertaken.

5 COBALT: ESTIMATION OF COLLISION SAVING

5.1 INTRODUCTION

5.1.1 COBALT was used to assess the safety aspects of road schemes based on a comparison of accidents by severity and associated costs across an identified network in 'Without-Scheme' and 'With-Scheme' forecasts.

5.1.2 The combined analysis method was used to assess the road schemes within the study. This method is based on link input data only and uses the default accident rates specified for the road types within the WebTAG 2016 parameters file.

5.2 LINK INPUTS

5.2.1 In COBALT, link inputs are split into three sections: link classification, link flow and link accident rate. Link classification contains the following criteria:

- Link name – unique link identifier
- Link type – type of link, based on age, design standard and presence of a hard strip
- Link length
- Link speed limit.

5.2.2 The link flow section contains the Annual Average Daily Traffic (AADT) flow for each link specified in the link classification section. This is added for base year and all modelled years.

5.2.3 The link accident rate section is used to add local accident rates for links where they are significantly different from the default accident rates within the parameter file. For this study, the default accident rates were used.

5.1 ANALYSIS METHODOLOGY

5.1.1 In order to reduce the scheme input files and the manual classification of links in-line with the COBALT user guide only links with a forecast difference of +/- 1500 vehicles (AADT) were included within the analysis.

5.1.2 The results of COBALT analysis are provided in Section 6.

6 ECONOMIC ASSESSMENT RESULTS: WORTHING-LANCING

6.1 BENEFITS' PROFILE BY TIME PERIOD AND TRAVEL PURPOSE

6.1.1 Table 6-1 to Table 6-3 show the benefits for each scheme broken down by time period for fixed assignment. The results are also presented using the standard Transport Economic Efficiency (TEE) and Analysis of Monetised Costs & Benefits (AMCB) tables in Appendix C.

6.1.2 Analysis of the benefits show higher economic benefits in 2041 compared to 2023. The increased levels of traffic in 2041 lead to greater congestion in the Do Minimum scenario which the Worthing-Lancing schemes help to alleviate.

Table 6-1: Worthing-Lancing - Benefits by Time Period, Fixed Assignment: User Time (£000s)

PERIOD	YEAR	OPTION 1	OPTION 3	OPTION 3A
AM Peak	2023	469	498	479
	2041	855	775	690
	Total	42,051	38,749	34,847
Inter-Peak	2023	-333	-296	-345
	2041	271	297	-128
	Total	9,106	10,621	-8695
PM Peak	2023	322	382	26
	2041	502	587	518
	Total	25,199	29,386	23,251

Table 6-2: Worthing-Lancing - Benefits by Time Period, Fixed Assignment: Vehicle Operating Costs Fuel (£000s)

PERIOD	YEAR	OPTION 1	OPTION 3	OPTION 3A
AM Peak	2023	6	4	3
	2041	57	54	50
	Total	2,116	1,994	1,828
Inter-Peak	2023	-65	-72	-75
	2041	-4	20	-26
	Total	-670	174	-1,524
PM Peak	2023	2	-2	9
	2041	13	12	9
	Total	471	436	387

Table 6-3: Worthing-Lancing - Benefits by Time Period, Fixed Assignment: Vehicle Operating Costs Non Fuel (£000s)

PERIOD	YEAR	OPTION 1	OPTION 3	OPTION 3A
AM Peak	2023	-16	-20	-20
	2041	17	15	14
	Total	468	373	336
Inter-Peak	2023	-44	-50	-51
	2041	-12	3	-24
	Total	-781	-292	-1,229
PM Peak	2023	-12	-19	10
	2041	-10	-15	-14
	Total	-439	-660	-406

6.1.3 Table 6-4 to Table 6-6 shows the benefits broken down by trip purpose for fixed assignment.

Table 6-4: Worthing-Lancing - Benefits by Trip Type, Fixed Assignment: User Time (£000s)

PERIOD	YEAR	OPTION 1	OPTION 3	OPTION 3A
Business	2023	143	205	54
	2041	651	622	372
	Total	30,144	29,439	16,976
Commuting	2023	330	367	180
	2041	696	696	578
	Total	33,801	34,136	27,254
Other	2023	-6	11	-73
	2041	281	340	131
	Total	12,408	15,183	5,175

Table 6-5: Worthing-Lancing - Benefits by Trip Type, Fixed Assignment: Vehicle Operating Costs Fuel (£000s)

PERIOD	YEAR	OPTION 1	OPTION 3	OPTION 3A
Business	2023	5	7	-2
	2041	54	63	41
	Total	2,007	2,332	1,468
Commuting	2023	-13	-16	3
	2041	24	22	18
	Total	760	674	660
Other	2023	-49	-60	-64
	2041	-13	2	-26
	Total	-850	-402	-1,436

Table 6-6: Worthing-Lancing - Benefits by Trip Type, Fixed Assignment: Vehicle Operating Costs Non Fuel (£000s)

PERIOD	YEAR	OPTION 1	OPTION 3	OPTION 3A
Business	2023	2	4	-6
	2041	32	36	18
	Total	1,141	1,296	572
Commuting	2023	-35	-42	-9
	2041	-6	-8	-7
	Total	-472	-603	-321
Other	2023	-39	-53	-47
	2041	-32	-25	-34
	Total	-1,420	-1,272	-1,550

6.2 TRAVEL TIME AND VEHICLE OPERATING BENEFITS

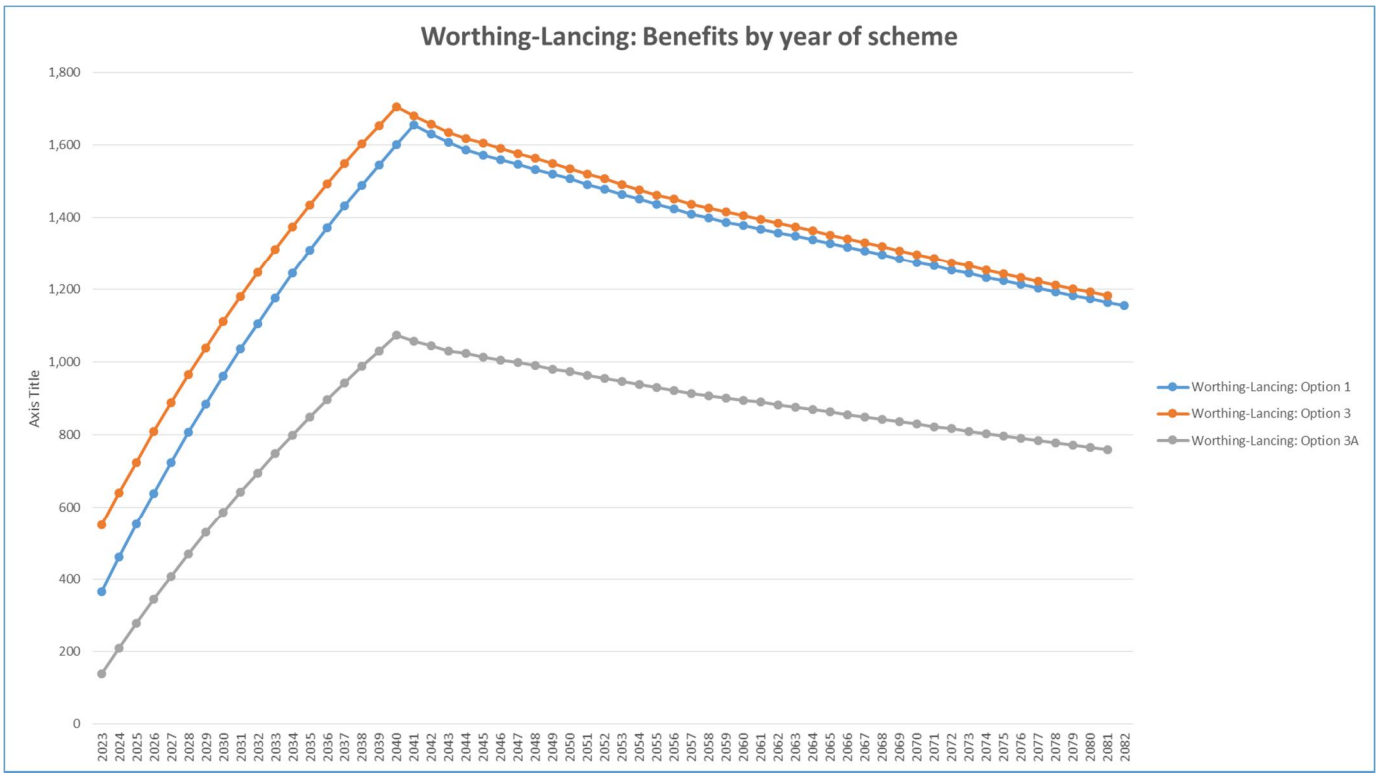
6.2.1 Travel Time and Vehicle Operating cost results are provided in Section 6.1.

6.3 BENEFITS BY YEAR OF SCHEME

6.3.1 The scheme benefits are explicitly calculated only for the modelled years of 2023 and 2041. Benefits for each year between those years are interpolated from their outputs. The default assumption in TUBA is that there is no growth in the magnitude of impacts after the last modelled year, and this is assumed for the purposes of this scheme; therefore scheme benefits are slowly reduced year-on-year after 2041 due to the effects of inflation and the discounting of benefits further into the future.

6.3.2 The benefits accrued in each year over the life of the scheme, given these assumptions, are shown in Figure 6-1, which shows that the scheme benefits peak in 2041 at which point the traffic growth is capped.

Figure 6-1: Benefits by year of scheme (Worthing-Lancing)



6.4 BENEFITS BY TIME SAVING AND DISTANCE TRAVELLED

6.4.1 The benefits as banded by size of travel time saving are shown in Table 6.7 with the time bands being the defaults used by in TUBA.

6.4.2 As you can see there are benefits delivered from journey time improvements of between 0 minutes and 2 minutes. However there looks to be dis-benefits in journey time saving of between 0 minutes to 2 minutes.

Table 6-7: Scheme benefits by size of travel time saving (in thousands of pounds)

OPTION	MODE AND PURPOSE	<-5 MINS	-5 TO -2 MINS	-2 TO 0 MINS	0 TO 2 MINS	2 TO 5 MINS	>5 MIN
Worthing – Lancing: Option 1	Car (Business)	0	-1,946	-15,150	19,010	10,582	412
	Car (Commuting)	0	-3,733	-22,804	29,043	28,945	2,353
	Car (Other)	0	-3,743	-12,825	13,760	6,800	433
	LGV (Personal)	-21	-573	-2,703	5,004	5,974	305
	LGV (Freight)	-58	-1,261	-5,649	10,060	5,870	6
	OGV1	0	-97	-967	3,069	2,719	399
	OGV2	0	-60	-597	1,926	1,642	234
Worthing – Lancing: Option 3	Car (Business)	-151	-1,933	-21,446	21,182	12,544	222
	Car (Commuting)	-287	-4,161	-27,566	29,448	33,892	2,810
	Car (Other)	-472	-2,182	-16,348	16,597	8,717	503
	LGV (Personal)	-131	-316	-3,493	5,172	6,817	319
	LGV (Freight)	-66	-847	-7,471	10,976	6,610	6
	OGV1	0	-221	-804	3,831	2,855	417
	OGV2	0	-135	-499	2,391	1,733	245
Worthing – Lancing: Option 3A	Car (Business)	-1,936	-2,469	-20,143	16,843	11,443	220
	Car (Commuting)	-1,875	-5,063	-27,062	26,267	32,213	2,772
	Car (Other)	-1,350	-4,507	-15,737	11,749	7,497	490
	LGV (Personal)	-374	-613	-3,240	4,490	6,453	316
	LGV (Freight)	-500	-1,607	-6,989	8,532	6,153	6
	OGV1	-148	-241	-923	2,786	2,725	410
	OGV2	-107	-151	-576	1,757	1,648	241

6.5 ACCIDENT RESULTS

6.5.1 The results of the COBALT analysis for the Worthing-Lancing scheme options are presented in Table 6-8.

Table 6-8: Worthing-Lancing Total Accident Benefits (£000)

PERIOD	OPTION 1	OPTION 3	OPTION 3A
Total Without-Scheme Accident Costs	313,520	355,891	355,891
Total With-Scheme Accident Costs	307,922	353,040	353,040
Total Accident Benefits Saved by Scheme	5,598	2,850	2,850

6.5.2 Table 6.8 shows that all Worthing-Lancing scheme options are forecast to provide an accident saving. Option 1 is forecast to provide the largest accident saving with a total accident benefit of £5.598M.

6.5.3 It should be noted that the accident benefit associated with Option 3 and Option 3A are the same as the COBALT analysis does not recognise the difference between the scheme options.

6.6 DELAYS AND TRAVEL TIME VARIABILITY RESULTS

6.6.1 These have not been assessed as part of PCF Stage 1.

6.7 DELAY DUE TO CONSTRUCTION AND MAINTENANCE RESULTS

6.7.1 An assessment has been undertaken of potential construction delay associated with construction of the Worthing-Lancing Scheme (Option 1).

6.7.2 This assessment has been undertaken with a number of caveats/assumptions:

- Using the SATURN model with TUBA being used to estimate the cost of the delays
- No construction phasing therefore a worst case scenario of closing a single lane of traffic and reducing the speed limit down to 30mph for the entire length of the proposed scheme during the full construction periods has been assumed
- Construction period of two years for Option 1 (2020 and 2021) with scheme opening of 2022
- Indirect Taxation Revenues remain the same as the highway scheme economic assessment.

6.7.3 Table 6-9 shows the delays during construction for each of the Worthing-Lancing scheme options. It must be stressed that construction delays have only been estimated for Worthing-Lancing Option 1 therefore an assumption has been made that the same construction delays are included for Worthing-Lancing Option 3 and Worthing-Lancing Option 3A.

Table 6-9: Worthing-Lancing – Delays due to construction (£000s)

	OPTION 1	OPTION 3	OPTION 3A
User Time	-11,062	-11,062	-11,062
Vehicle Operating Costs Fuel	-1,264	-1,264	-1,264
Vehicle Operating Costs Non Fuel	-827	-827	-827
Total	-13,153	-13,153	-13,153

6.8 ENVIRONMENTAL IMPACT RESULTS (GREENHOUSE GASES, AIR QUALITY AND NOISE)

6.8.1 Table 6-10 shows the increase in CO2 emissions for all scheme options for the fixed assignment.

Table 6-10: Worthing-Lancing - CO2 emissions, fixed assignment (increase in tonnes)

PERIOD	OPTION 1	OPTION 3	OPTION 3A
AM Peak	8	10	9
Inter-Peak	21	13	22
PM Peak	10	14	7

6.9 TRANSPORT ECONOMIC EFFICIENCY (TEE) TABLE

6.9.1 Appendix C-1 contains Transport Economic Efficient (TEE) tables for the Worthing-Lancing scheme options.

6.10 PUBLIC ACCOUNTS (PA) TABLE

6.10.1 Appendix C-2 contains Public Accounts (PA) tables for the Worthing-Lancing scheme options.

6.11 ANALYSIS OF MONETISED COSTS AND BENEFITS (AMCB) TABLE

6.11.1 Analysis of the Monetised Costs and Benefits (AMCB) summary tables for the Worthing-Lancing schemes are provided in Appendix C-3.

6.11.2 Table 6-11 outlines a summary of the results from TUBA for each scheme, providing the Analysis of Monetised Costs and Benefits (AMCB) for each scheme option for the fixed assignment. Table 6-12 shows the BCR with the accident benefits included.

Table 6-11: Worthing-Lancing - Analysis of Monetised Costs and Benefits, Fixed Assignment (TUBA only)

TYPE	OPTION 1 (£000S)	OPTION 3 (£000S)	OPTION 3A (£000S)
Greenhouse Gases*	0	0	0
Economic Efficiency: Consumer Users (Commuting)	34,089	34,208	27,593
Economic Efficiency: Consumer Users (Other)	10,138	13,509	2,189
Economic Efficiency: Business Users and Providers	33,292	33,067	19,016
Wider Public Finances (Indirect Taxation Revenues)	-1,064	-1,441	-395
Construction Delay	-13,153	-13,153	-13,153
Present Value of Benefits (PVB)	63,302	66,190	35,250
Broad Transport Budget	44,986	120,894	73,920
Present Value of Costs (PVC)	44,986	120,894	73,920
Overall Impacts			
Net Present Value (NPV)	18,316	-54,704	-38,670
Benefit to Cost Ratio (BCR)	1.41	0.55	0.48

*Note: *to be calculated at a later date*

Table 6-12: Worthing-Lancing - Analysis of Monetised Costs and Benefits, Fixed Assignment (with Accident Impact & Benefit Cost Ratio)

TYPE	OPTION 1 (£000S)	OPTION 3 (£000S)	OPTION 3A (£000S)
Present Value of Benefits (PVB) (TUBA)	63,302	66,190	35,250
Accident Impacts (COBALT)	5,598	2,850	2,850
Sub Total Value of Benefits (sum of above 2 rows)	68,900	69,040	38,100
Present Value of Costs (PVC)	44,986	120,894	73,920
Overall Impacts			
Net Present Value (NPV)	23,914	-51,854	-35,820
Benefit to Cost Ratio (BCR)	1.53	0.57	0.52

7 SUMMARY

7.1 SUMMARY OF ECONOMIC ASSESSMENT PROCESS

TRAFFIC MODELLING INPUT

7.1.1 The assessment process has used SATURN model outputs to calculate scheme benefits using TUBA and COBALT. All option testing was undertaken using the 2023 and 2041 central growth scenarios. For future PCF Stages, the Highways England South East Regional Transport Model will be used.

ECONOMIC ASSESSMENT

7.1.2 This Economic Assessment has been carried out in accordance with WebTAG guidance. The Present Value of Benefits (PVB), Net Present Value (NPV) and Subtotal Value of Benefits reported indicate that for Worthing-Lancing, Option 1 is shown to provide the best economic benefit.

7.2 BENEFITS COMPARED TO SCHEME OBJECTIVES

7.2.1 Comparison of options compared to the scheme objectives.

7.3 PREFERRED OPTION RECOMMENDATION

7.3.1 Option 1 is shown to produce the highest BCR value of the three scheme options and is therefore recommended as the preferred option purely in economic terms. There may be other costs and benefits which cannot be quantified. Where this is the case, this analysis does not provide a good measure of value for money and should not be the sole basis for decisions.

7.4 MAJOR ASSUMPTIONS OR CAVEATS AFFECTING THE INTERPRETATION OF RESULTS

7.4.1 Traffic signals have not been optimised across the entire A27 route in respect of the Worthing-Lancing scheme. Optimisation has been carried out for each individual junction in isolation.

7.4.2 There are significant capacity issues shown in the forecast modelling due to the large increases in traffic levels on unmitigated sections of the network, affecting the ability of traffic at certain zones to enter the network. Further revisions of the strategic modelling may be required to alleviate these issues which will have a subsequent impact on both the base year and forecast year modelling. This will be carried out at Stage 2 using the regional model.

7.5 APPRAISAL SUMMARY TABLE (AST) CONFIRMATION

7.5.1 To be provided.

Appendix A

BENCHMARK COST ESTIMATION

APPENDIX A-1

BENCHMARK ESTIMATE – WORTHING-LANCING

ECONOMICS INFORMATION FOR THE WHOLE PACKAGE

OPTION 1

PROJECT NAME:	**A27 Worthing & Lancing Improvement Scheme**
PROJECT STAGE:	**1. Options - Options Identification**
PROJECT SCOPE:	
0	

RANGE ESTIMATE

Min	Most likely	Max
46.44m	68.56m	108.45m

IF YOU HAVE ANY QUESTIONS REGARDING THE INFORMATION PROVIDED PLEASE CONTACT CommercialServicesDivision@highwaysengland.co.uk

REBASED 2010 CALENDAR YEAR PROFILES FOR ECONOMIC CALCULATIONS - ALL COSTS ARE IN THE FACTOR COST UNIT OF ACCOUNT

The expenditure profiles are based upon cost estimates for each financial year prepared in 2014 Q1 prices and then inflated to outturn costs using HA projected construction related inflation. These costs have then been rebased to 2010 calender year profiles for economic calculations, using the GDP-deflator series as published in the WebTAG Databook.

The costs exclude all recoverable VAT. All historic costs have been removed - previous years and an approximate of this years spend that occurs in the past.

	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	otal (Excl His
PREPARATION EXPENDITURE PROFILE	£0	£58,005	£1,933,984	£1,484,361	£2,105,978	£0	£0	£5,582,328
SUPERVISION EXPENDITURE PROFILE	£0	£0	£0	£0	£0	£819,326	£361,563	£1,180,889
WORKS EXPENDITURE PROFILE	£0	£0	£0	£0	£608,561	£17,906,087	£15,992,576	£34,507,224
LANDS EXPENDITURE PROFILE	£0	£0	£2,618,970	£0	£8,969,652	£0	£0	£11,588,622
TOTAL EXPENDITURE FORECAST	**£0**	**£58,005**	**£4,552,954**	**£1,484,361**	**£11,684,191**	**£18,725,412**	**£16,354,139**	**£52,859,063**

PREPARATION EXPENDITURE PROFILE	0%	1%	35%	27%	38%	0%	0%	100%
SUPERVISION EXPENDITURE PROFILE	0%	0%	0%	0%	0%	69%	31%	100%
WORKS EXPENDITURE PROFILE	0%	0%	0%	0%	2%	52%	46%	100%
LANDS EXPENDITURE PROFILE	0%	0%	23%	0%	77%	0%	0%	100%
TOTAL EXPENDITURE FORECAST (ALL COSTS INCLUDED)	**0.0%**	**0.1%**	**8.6%**	**2.8%**	**22.1%**	**35.4%**	**30.9%**	**100.0%**

ECONOMICS INFORMATION FOR THE WHOLE PACKAGE

OPTION 3

PROJECT NAME:	**A27 Worthing & Lancing Improvement Scheme**
PROJECT STAGE:	**1. Options - Options Identification**
PROJECT SCOPE:	
0	

RANGE ESTIMATE

Min	Most Likely	Max
80.24m	181.02m	273.3m

IF YOU HAVE ANY QUESTIONS REGARDING THE INFORMATION PROVIDED PLEASE CONTACT CommercialServicesDivision@highwaysengland.co.uk

REBASED 2010 CALENDAR YEAR PROFILES FOR ECONOMIC CALCULATIONS - ALL COSTS ARE IN THE FACTOR COST UNIT OF ACCOUNT

The expenditure profiles are based upon cost estimates for each financial year prepared in 2014 Q1 prices and then inflated to outturn costs using HA projected construction related inflation. These costs have then been rebased to 2010 calender year profiles for economic calculations, using the GDP-deflator series as published in the WebTAG Databook.

The costs exclude all recoverable VAT. All historic costs have been removed - previous years and an approximate of this years spend that occurs in the past.

	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	Total (Excl Hist)
PREPARATION EXPENDITURE PROFILE	£0	£54,136	£2,313,654	£2,182,764	£3,438,897	£0	£0	£0	£7,989,451
SUPERVISION EXPENDITURE PROFILE	£0	£0	£0	£0	£5,307	£662,088	£1,107,658	£700,777	£2,475,831
WORKS EXPENDITURE PROFILE	£0	£0	£0	£0	£1,324,861	£19,197,136	£24,666,781	£24,437,699	£69,626,477
LANDS EXPENDITURE PROFILE	£0	£0	£24,181,340	£0	£37,064,521	£0	£0	£0	£61,245,861
TOTAL EXPENDITURE FORECAST	**£0**	**£54,136**	**£26,494,994**	**£2,182,764**	**£41,833,587**	**£19,859,224**	**£25,774,439**	**£25,138,476**	**£141,337,620**

PREPARATION EXPENDITURE PROFILE	0%	1%	29%	27%	43%	0%	0%	0%	100%
SUPERVISION EXPENDITURE PROFILE	0%	0%	0%	0%	0%	27%	45%	28%	100%
WORKS EXPENDITURE PROFILE	0%	0%	0%	0%	2%	28%	35%	35%	100%
LANDS EXPENDITURE PROFILE	0%	0%	39%	0%	61%	0%	0%	0%	100%
TOTAL EXPENDITURE FORECAST (ALL COSTS INCLUDED)	**0.0%**	**0.0%**	**18.7%**	**1.5%**	**29.6%**	**14.1%**	**18.2%**	**17.8%**	**100.0%**

ECONOMICS INFORMATION FOR THE WHOLE PACKAGE

OPTION 3A

PROJECT NAME:	**A27 Worthing & Lancing Improvement Scheme**
PROJECT STAGE:	**1. Options - Options Identification**
PROJECT SCOPE:	
0	

IF YOU HAVE ANY QUESTIONS REGARDING THE INFORMATION PROVIDED PLEASE CONTACT CommercialServicesDivision@highwaysengland.co.uk

RANGE ESTIMATE

Min	Most Likely	Max
80.24m	114.5m	237.3m

REBASED 2010 CALENDAR YEAR PROFILES FOR ECONOMIC CALCULATIONS - ALL COSTS ARE IN THE FACTOR COST UNIT OF ACCOUNT

The expenditure profiles are based upon cost estimates for each financial year prepared in 2014 Q1 prices and then inflated to outturn costs using HA projected construction related inflation. These costs have then been rebased to 2010 calender year profiles for economic calculations, using the GDP-deflator series as published in the WebTAG Databook.

The costs exclude all recoverable VAT. All historic costs have been removed - previous years and an approximate of this years spend that occurs in the past.

	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	Total (Excl Hist)
PREPARATION EXPENDITURE PROFILE	£0	£64,193	£2,296,346	£2,152,616	£3,315,414	£0	£0	£0	£7,828,570
SUPERVISION EXPENDITURE PROFILE	£0	£0	£0	£0	£5,076	£633,260	£1,059,429	£670,264	£2,368,029
WORKS EXPENDITURE PROFILE	£0	£0	£0	£0	£1,087,414	£15,880,983	£20,472,491	£20,274,392	£57,715,281
LANDS EXPENDITURE PROFILE	£0	£0	£5,908,622	£0	£14,215,605	£0	£0	£0	£20,124,227
TOTAL EXPENDITURE FORECAST	**£0**	**£64,193**	**£8,204,968**	**£2,152,616**	**£18,623,510**	**£16,514,243**	**£21,531,920**	**£20,944,656**	**£88,036,107**

PREPARATION EXPENDITURE PROFILE	0%	1%	29%	27%	42%	0%	0%	0%	100%
SUPERVISION EXPENDITURE PROFILE	0%	0%	0%	0%	0%	27%	45%	28%	100%
WORKS EXPENDITURE PROFILE	0%	0%	0%	0%	2%	28%	35%	35%	100%
LANDS EXPENDITURE PROFILE	0%	0%	29%	0%	71%	0%	0%	0%	100%
TOTAL EXPENDITURE FORECAST (ALL COSTS INCLUDED)	**0.0%**	**0.1%**	**9.3%**	**2.4%**	**21.2%**	**18.8%**	**24.5%**	**23.8%**	**100.0%**

Appendix B

SUMMARY OF TUBA OUTPUTS: WORTHING - LANCING

highways england

APPENDIX B-1

TEE TABLES

highways england

Economic Efficiency of the Transport System (TEE) - W-L Option 1

Non-business: Commuting	**ALL MODES**	**ROAD**		**BUS and COACH**	**RAIL**	**OTHER**
User benefits	**TOTAL**	**Private Cars and LGVs**		**Passengers**	**Passengers**	
Travel time	33801	33801		0	0	
Vehicle operating costs	288	288				
User charges	0	0		0	0	
During Construction & Maintenance	0	0		0	0	
COMMUTING	34089	34089		0	0	

Non-business: Other	**ALL MODES**	**ROAD**		**BUS and COACH**	**RAIL**	**OTHER**
User benefits	**TOTAL**	**Private Cars and LGVs**		**Passengers**	**Passengers**	
Travel time	12408	12408		0	0	
Vehicle operating costs	-2271	-2271				
User charges	0	0		0	0	
During Construction & Maintenance	0	0		0	0	
NET NON-BUSINESS BENEFITS: OTHER	10137	10137		0	0	

Business							
User benefits		**Road (Personal)**	**Road (Freight)**	**Passengers**	**Freight**	**Passengers**	
Travel time	30144	12909	17235	0	0	0	
Vehicle operating costs	3148	105	3043				
User charges	0	0	0	0	0	0	
During Construction & Maintenance	0	0	0	0	0	0	
Subtotal	33292	13014	20278	0	0	0	
Private sector provider impacts					**Freight**	**Passengers**	
Revenue	0				0	0	
Operating costs	0				0	0	
Investment costs	0				0	0	
Grant/subsidy	0				0	0	
Subtotal	0				0	0	
Other business impacts							
Developer contributions	0						
NET BUSINESS IMPACT	33292						

TOTAL	
Present Value of Transport Economic Efficiency Benefits (TEE)	77518

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.
All entries are discounted present values, in 2010 prices and values

Economic Efficiency of the Transport System (TEE) - W-L Option 3

Non-business: Commuting	**ALL MODES**	**ROAD**		**BUS and COACH**	**RAIL**	**OTHER**
User benefits	**TOTAL**	**Private Cars and LGVs**		**Passengers**	**Passengers**	
Travel time	34137	34137		0	0	
Vehicle operating costs	70	70				
User charges	0	0		0	0	
During Construction & Maintenance	0	0		0	0	
COMMUTING	34207	34207		0	0	

Non-business: Other	**ALL MODES**	**ROAD**		**BUS and COACH**	**RAIL**	**OTHER**
User benefits	**TOTAL**	**Private Cars and LGVs**		**Passengers**	**Passengers**	
Travel time	15183	15183		0	0	
Vehicle operating costs	-1673	-1673				
User charges	0	0		0	0	
During Construction & Maintenance	0	0		0	0	
NET NON-BUSINESS BENEFITS: OTHER	13510	13510		0	0	

Business							
User benefits		**Road (Personal)**	**Road (Freight)**	**Passengers**	**Freight**	**Passengers**	
Travel time	29439	10419	19020	0	0	0	
Vehicle operating costs	3628	92	3536				
User charges	0	0	0	0	0	0	
During Construction & Maintenance	0	0	0	0	0	0	
Subtotal	33067	10511	22556	0	0	0	
Private sector provider impacts					**Freight**	**Passengers**	
Revenue	0				0	0	
Operating costs	0				0	0	
Investment costs	0				0	0	
Grant/subsidy	0				0	0	
Subtotal	0				0	0	
Other business impacts							
Developer contributions	0						
NET BUSINESS IMPACT	33067						

TOTAL	
Present Value of Transport Economic Efficiency Benefits (TEE)	80784

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.
All entries are discounted present values, in 2010 prices and values

Economic Efficiency of the Transport System (TEE) - W-L Option 3A

Non-business: Commuting	**ALL MODES**	**ROAD**		**BUS and COACH**	**RAIL**	**OTHER**
User benefits	**TOTAL**	**Private Cars and LGVs**		**Passengers**	**Passengers**	
Travel time	27254	27254		0	0	
Vehicle operating costs	339	339				
User charges	0	0		0	0	
During Construction & Maintenance	0	0		0	0	
COMMUTING	27593	27593		0	0	
Non-business: Other	**ALL MODES**	**ROAD**		**BUS and COACH**	**RAIL**	**OTHER**
User benefits	**TOTAL**	**Private Cars and LGVs**		**Passengers**	**Passengers**	
Travel time	5175	5175		0	0	
Vehicle operating costs	-2986	-2986				
User charges	0	0		0	0	
During Construction & Maintenance	0	0		0	0	
NET NON-BUSINESS BENEFITS: OTHER	2189	2189		0	0	
Business						
User benefits		**Road (Personal)**	**Road (Freight)**	**Passengers**	**Freight**	**Passengers**
Travel time	16976	3958	13018	0	0	0
Vehicle operating costs	2040	-287	2327			
User charges	0	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0	0
Subtotal	19016	3671	15345	0	0	0
Private sector provider impacts					**Freight**	**Passengers**
Revenue	0				0	0
Operating costs	0				0	0
Investment costs	0				0	0
Grant/subsidy	0				0	0
Subtotal	0				0	0
Other business impacts						
Developer contributions	0					
NET BUSINESS IMPACT	19016					
TOTAL						
Present Value of Transport Economic Efficiency Benefits (TEE)	48798					

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.
All entries are discounted present values, in 2010 prices and values

APPENDIX B-2

PA TABLES

Public Accounts (PA) Table - W-L Option 1

	ALL MODES		ROAD	BUS and COACH	RAIL	OTHER
Local Government Funding	**TOTAL**		**INFRASTRUCTURE**			
Revenue	0		0			0
Operating Costs	0		0			0
Investment Costs	0		0			0
Developer and Other Contributions	0		0	0	0	0
Grant/Subsidy Payments	0		0	0	0	0
NET IMPACT	0	*(7)*	0	0	0	0
Central Government Funding: Transport						
Revenue	0		0			0
Operating costs	0		0			0
Investment Costs	44986		44986			0
Developer and Other Contributions	0		0	0	0	0
Grant/Subsidy Payments	0		0	0	0	0
NET IMPACT	44986	*(8)*	44986	0	0	0
Central Government Funding: Non-Transport						
Indirect Tax Revenues	1064	*(9)*	1064	0	0	0
TOTALS						
Broad Transport Budget	44986	*(10) = (7) + (8)*				
Wider Public Finances	1064	*(11) = (9)*				

Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.
All entries are discounted present values in 2010 prices and values.

Public Accounts (PA) Table - W-L Option 3

	ALL MODES		ROAD	BUS and COACH	RAIL	OTHER
Local Government Funding	**TOTAL**		**INFRASTRUCTURE**			
Revenue	0		0			0
Operating Costs	0		0			0
Investment Costs	0		0			0
Developer and Other Contributions	0		0	0	0	0
Grant/Subsidy Payments	0		0	0	0	0
NET IMPACT	0	*(7)*	0	0	0	0
Central Government Funding: Transport						
Revenue	0		0			0
Operating costs	0		0			0
Investment Costs	120894		120894			0
Developer and Other Contributions	0		0	0	0	0
Grant/Subsidy Payments	0		0	0	0	0
NET IMPACT	120894	*(8)*	120894	0	0	0
Central Government Funding: Non-Transport						
Indirect Tax Revenues	1441	*(9)*	1441	0	0	0
TOTALS						
Broad Transport Budget	120894	*(10) = (7) + (8)*				
Wider Public Finances	1441	*(11) = (9)*				

Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.
All entries are discounted present values in 2010 prices and values.

Public Accounts (PA) Table - W-L Option 3A

	ALL MODES TOTAL		ROAD INFRASTRUCTURE	BUS and COACH	RAIL	OTHER
Local Government Funding						
Revenue	0		0			0
Operating Costs	0		0			0
Investment Costs	0		0			0
Developer and Other Contributions	0		0	0	0	0
Grant/Subsidy Payments	0		0	0	0	0
NET IMPACT	0	*(7)*	0	0	0	0
Central Government Funding: Transport						
Revenue	0		0			0
Operating costs	0		0			0
Investment Costs	73920		73920			0
Developer and Other Contributions	0		0	0	0	0
Grant/Subsidy Payments	0		0	0	0	0
NET IMPACT	73920	*(8)*	73920	0	0	0
Central Government Funding: Non-Transport						
Indirect Tax Revenues	395	*(9)*	395	0	0	0
TOTALS						
Broad Transport Budget	73920	*(10) = (7) + (8)*				
Wider Public Finances	395	*(11) = (9)*				

Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.
All entries are discounted present values in 2010 prices and values.

APPENDIX B-3

AMCB TABLES

Analysis of Monetised Costs and Benefits - Worthing-Lancing Option 1

Greenhouse Gases	0	*(14)*
Accidents	5598	*(17)*
Economic Efficiency: Consumer Users (Commuting)	34089	*(1a)*
Economic Efficiency: Consumer Users (Other)	10138	*(1b)*
Economic Efficiency: Business Users and Providers	33292	*(5)*
Construction Delays: estimated	-13153	
Wider Public Finances (Indirect Taxation Revenues)	-1064	*- (11) - sign changed from PA table, as PA table represents costs, not benefits*
Present Value of Benefits (see notes) (PVB)	68900	*(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)*
Broad Transport Budget	44986	*(10)*
Present Value of Costs (see notes) (PVC)	44986	*(PVC) = (10)*
OVERALL IMPACTS		
Net Present Value (NPV)	23914	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	1.53	BCR=PVB/PVC

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Analysis of Monetised Costs and Benefits - Worthing-Lancing Option 3

Greenhouse Gases	0	*(14)*
Accidents	2850	*(17)*
Economic Efficiency: Consumer Users (Commuting)	34208	*(1a)*
Economic Efficiency: Consumer Users (Other)	13509	*(1b)*
Economic Efficiency: Business Users and Providers	33067	*(5)*
Construction Delays: estimated	-13153	
Wider Public Finances (Indirect Taxation Revenues)	-1441	*- (11) - sign changed from PA table, as PA table represents costs, not benefits*
Present Value of Benefits (see notes) (PVB)	69040	*(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)*
Broad Transport Budget	120894	*(10)*
Present Value of Costs (see notes) (PVC)	120894	*(PVC) = (10)*
OVERALL IMPACTS		
Net Present Value (NPV)	-51854	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	0.57	BCR=PVB/PVC

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Analysis of Monetised Costs and Benefits - Worthing-Lancing Option 3A

Greenhouse Gases	0	*(14)*
Accidents	2850	*(17)*
Economic Efficiency: Consumer Users (Commuting)	27593	*(1a)*
Economic Efficiency: Consumer Users (Other)	2189	*(1b)*
Economic Efficiency: Business Users and Providers	19016	*(5)*
Construction Delays: estimated	-13153	
Wider Public Finances (Indirect Taxation Revenues)	-395	*- (11) - sign changed from PA table, as PA table represents costs, not benefits*
Present Value of Benefits (see notes) (PVB)	38100	*(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)*
Broad Transport Budget	73920	*(10)*
Present Value of Costs (see notes) (PVC)	73920	*(PVC) = (10)*
OVERALL IMPACTS		
Net Present Value (NPV)	-35820	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	0.52	BCR=PVB/PVC

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Appendix C

COBALT RESULTS

APPENDIX C-1

COBALT RESULTS – WORTHING-LANCING

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*****************************************************************************
*                                                                           *
*        CCC      OOO     BBBB      AAA             L         TTTTT        *
*       C   C    O   O    B   B    A   A            L           T          *
*       C        O   O    B   B    A   A            L           T          *
*       C        O   O    BBBB     AAAAA    ----    L           T          *
*       C        O   O    B   B    A   A            L           T          *
*       C   C    O   O    B   B    A   A            L           T          *
*        CCC      OOO     BBBB     A   A            LLLLL       T          *
*                                                                           *
*****************************************************************************
*                                                                           *
*                                                 Version 2013.02           *
*                                                                           *
*      Transport Appraisal and Strategic Modelling (TASM) Division,         *
*                                        Department for Transport,          *
*                                             Great Minster House,          *
*                                              33 Horseferry Road,          *
*                                                         London,           *
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*                                                                           *
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Written by Roger Himlin

Contents

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[Section 1] Summary Statistics

[Section 1.1] Economic Summary

Total Without-Scheme Accident Costs = 311,272.4
Total With-Scheme Accident Costs = 304,517.2

Total Accident Benefits Saved by Scheme = 6,755.1

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 1.2] Accident Summary

Total Without-Scheme Accidents = 6,034.4
Total With-Scheme Accidents = 5,896.5

Total Accidents Saved by Scheme = 138.0

[Section 1.3] Casualty Summary

Total Without-Scheme Casualties (Fatal) = 60.0
(Serious) = 764.4
(Slight) = 7,367.0
Total With-Scheme Casualties (Fatal) = 59.7
(Serious) = 740.3
(Slight) = 7,221.7

Total Casualties Saved by Scheme (Fatal) = 0.3
(Serious) = 24.1
(Slight) = 145.3

[Section 2] Accident Statistics

[Section 2.1] Link Accident Statistics

Link Name	Without-Scheme: Number of Accidents 2023	2038	Total	Cost	With-Scheme: Number of Accidents 2023	2038	Total	Cost	Benefit: Number of Accidents 2023	2038	Total
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0 0.0 0.0 0.0 0.0 0.0

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 2.2] Junction Accident Statistics

	---------- Without-Scheme ---------			*---------- With-Scheme ----------*			*------------ Benefits ------------*	
	-- Number of Accidents -		Total*	*-- Number of Accidents -*		Total*		
Junction Name	* 2023	2038	Total*	Cost*	* 2023	2038	Total*	Benefit*
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 2.3] Combined Link and Junction Accident Statistics

	---------- Without-Scheme ---------			*---------- With-Scheme ----------*			*------------ Benefits ------------*	
	-- Number of Accidents -		Total*	*-- Number of Accidents -*		Total*		
Link Name	* 2023	2038	Total*	Cost*	* 2023	2038	Total*	Benefit*
14341432	0.0	0.1	3.2	155.7	0.0	0.1	4.0	191.5
14341442	0.0	0.0	0.5	26.8	0.0	0.0	0.5	23.2
14621444	0.1	0.1	5.9	286.5	0.1	0.1	6.5	316.1
14421446	0.0	0.0	1.4	70.0	0.0	0.0	1.3	64.6
14701462	0.0	0.0	2.1	101.6	0.0	0.0	2.2	109.4
14761470	0.0	0.0	1.6	80.3	0.0	0.0	1.8	89.4
14661472	0.0	0.0	1.7	83.1	0.0	0.0	1.6	77.4
15801558	1.1	0.9	56.7	2,790.2	0.9	0.7	39.8	1,971.2
15981580	0.3	0.3	16.3	804.8	0.3	0.2	12.3	610.2
76001598	2.8	2.5	155.5	7,631.9	2.2	1.7	105.2	5,200.4
17221660	0.5	0.4	24.3	1,192.6	0.5	0.5	27.9	1,371.4
60271716	0.0	0.0	0.4	18.0	0.0	0.0	0.6	27.0

17641722	0.6	0.5	29.7	1,458.4	0.6	0.6	34.1	1,676.9	-0.1	-0.1	-4.5	-218.5			
16601722	0.5	0.5	28.2	1,385.2	0.5	0.4	25.7	1,265.8	0.0	0.0	2.5	119.4			
18041764	0.4	0.4	22.5	1,100.0	0.5	0.5	31.0	1,518.8	-0.1	-0.1	-8.6	-418.7			
17221764	0.6	0.6	34.5	1,693.8	0.6	0.5	31.4	1,547.8	0.0	0.1	3.0	146.0			
18801772	1.3	1.2	72.0	3,533.5	0.9	0.8	50.4	2,472.6	0.4	0.4	21.6	1,060.9			
17961772	4.8	4.4	266.6	13,078.1	4.1	2.9	180.4	8,982.6	0.6	1.4	86.2	4,095.5			
18161804	0.2	0.1	8.4	414.6	0.2	0.2	10.2	501.7	0.0	0.0	-1.8	-87.1			
18341816	0.1	0.1	3.4	168.2	0.1	0.1	4.1	203.6	0.0	0.0	-0.7	-35.3			
18341828	0.0	0.0	2.2	107.1	0.0	0.0	2.8	135.6	0.0	0.0	-0.6	-28.4			
18501834	0.1	0.1	5.9	288.9	0.1	0.1	7.3	356.9	0.0	0.0	-1.4	-68.0			
18641850	0.3	0.2	13.4	663.1	0.3	0.3	15.4	754.0	0.0	0.0	-1.9	-90.9			
20441856	5.0	4.0	247.5	12,220.5	5.4	4.8	294.7	14,476.9	-0.4	-0.8	-47.3	-2,256.4			
18281856	0.4	0.4	21.6	1,062.9	0.4	0.4	23.8	1,169.3	0.0	0.0	-2.3	-106.4			
18561864	0.2	0.2	11.8	583.1	0.2	0.2	13.6	666.5	0.0	0.0	-1.8	-83.3			
18781874	0.0	0.0	2.1	104.0	0.0	0.0	1.8	87.0	0.0	0.0	0.3	17.0			
20441878	0.8	0.7	43.0	2,111.1	0.6	0.6	34.2	1,675.8	0.2	0.1	8.7	435.4			
18981884	0.1	0.1	3.5	170.5	0.1	0.1	4.2	206.1	0.0	0.0	-0.8	-35.7			
19681892	2.9	2.6	157.3	7,739.9	3.3	3.2	197.2	9,645.8	-0.4	-0.7	-39.9	-1,905.9			
90131898	0.4	0.4	22.0	1,085.7	0.4	0.4	26.3	1,283.8	0.0	-0.1	-4.3	-198.1			
20181968	2.1	1.8	110.9	5,463.6	2.2	2.2	134.6	6,585.5	-0.2	-0.4	-23.7	-1,122.0			
79401982	0.9	1.7	105.5	5,029.6	0.5	0.5	27.5	1,347.2	0.4	1.3	78.0	3,682.4			
95151982	3.6	2.9	179.4	8,861.9	3.4	3.2	192.2	9,434.4	0.2	-0.2	-12.8	-572.5			
19961984	1.9	1.6	98.7	4,867.8	1.5	1.4	82.9	4,065.0	0.4	0.3	15.9	802.8			
90161994	0.2	0.1	8.6	500.4	0.2	0.2	10.2	592.2	0.0	0.0	-1.7	-91.8			
20141996	0.5	0.4	25.7	1,266.6	0.4	0.4	21.6	1,057.7	0.1	0.1	4.1	208.9			
19841996	1.8	1.5	91.9	4,531.8	1.8	1.9	114.2	5,579.3	-0.1	-0.4	-22.3	-1,047.4			
75962018	0.9	0.8	47.8	2,354.7	1.0	1.0	58.0	2,835.9	-0.1	-0.2	-10.2	-481.1			

20442038	1.5	1.2	74.9	3,703.4	1.6	1.5	89.8	4,398.2	0.0	-0.2	-14.9	-694.8
76162044	2.9	2.3	143.0	7,067.3	2.8	2.5	153.9	7,560.2	0.1	-0.2	-10.9	-492.9
18562044	5.5	4.5	276.4	13,635.0	5.7	5.2	319.8	15,673.1	-0.2	-0.7	-43.4	-2,038.1
75982060	0.2	0.2	13.5	655.2	0.4	0.4	22.3	1,096.4	-0.2	-0.1	-8.8	-441.2
20962066	0.8	0.7	40.1	2,340.6	0.8	0.8	46.3	2,687.0	0.0	-0.1	-6.3	-346.4
19942070	0.9	0.8	49.4	2,878.8	0.9	0.9	53.1	3,084.6	0.0	-0.1	-3.7	-205.8
73722084	2.8	2.5	152.0	7,469.7	3.4	3.6	219.3	10,694.4	-0.6	-1.1	-67.4	-3,224.7
95092086	0.1	0.1	6.3	309.3	0.1	0.1	6.6	325.1	0.0	0.0	-0.4	-15.7
73712182	0.2	0.2	12.2	601.4	0.3	0.3	17.5	850.9	-0.1	-0.1	-5.2	-249.5
73772182	0.1	0.1	4.0	198.3	0.1	0.1	4.4	217.8	0.0	0.0	-0.4	-19.5
90102218	0.1	0.1	5.6	276.7	0.2	0.2	14.3	694.4	-0.1	-0.1	-8.7	-417.7
22482218	0.1	0.0	2.8	163.1	0.1	0.1	3.5	199.5	0.0	0.0	-0.6	-36.4
73702222	0.3	0.3	17.1	995.0	0.3	0.3	18.8	1,092.1	0.0	0.0	-1.7	-97.0
22462244	0.1	0.1	4.4	215.3	0.1	0.1	4.0	197.4	0.0	0.0	0.4	17.9
90092246	0.4	0.4	24.8	1,206.4	0.3	0.3	20.3	993.8	0.0	0.1	4.5	212.6
22502248	1.0	1.0	59.8	3,467.0	1.1	1.1	65.2	3,771.6	0.0	-0.1	-5.4	-304.6
24242250	1.1	1.0	62.2	3,601.6	1.1	1.1	67.9	3,923.8	0.0	-0.1	-5.7	-322.1
22442252	0.1	0.1	5.1	247.9	0.1	0.1	4.5	219.3	0.0	0.0	0.6	28.7
22682262	0.0	0.0	2.5	123.8	0.1	0.1	3.5	173.0	0.0	0.0	-1.0	-49.2
22742268	0.1	0.1	4.7	232.7	0.1	0.1	6.5	318.3	0.0	0.0	-1.8	-85.6
90072268	0.2	0.2	10.0	492.2	0.3	0.2	15.2	741.4	-0.1	-0.1	-5.2	-249.2
22802272	0.3	0.3	18.2	889.0	0.3	0.3	20.0	976.7	0.0	0.0	-1.8	-87.7
22602272	0.0	0.0	0.3	14.9	0.0	0.0	1.0	50.4	0.0	0.0	-0.7	-35.4
22722274	0.1	0.1	5.4	262.5	0.1	0.1	6.3	307.8	0.0	0.0	-0.9	-45.3
76782280	1.5	1.4	87.2	6,491.2	1.6	1.6	96.0	7,129.9	-0.1	-0.1	-8.8	-638.7
22602280	0.4	0.4	21.8	1,062.6	0.3	0.3	20.0	976.7	0.0	0.0	1.8	85.9
23742372	0.0	0.0	2.6	126.0	0.0	0.0	2.3	114.9	0.0	0.0	0.2	11.1

24362420	1.0	1.0	58.4	2,850.4	0.9	0.9	53.4
2,619.1	0.0	0.1	5.0	231.3			
24782436	0.2	0.2	13.4	773.1	0.2	0.2	12.2
708.7	0.0	0.0	1.2	64.4			
74862478	1.4	1.3	82.2	6,112.5	1.4	1.2	75.0
5,604.0	0.0	0.1	7.2	508.5			
25762546	3.4	3.6	221.6	10,785.9	3.6	4.0	241.3
11,730.3	-0.2	-0.3	-19.7	-944.4			
76782546	1.3	1.3	78.9	5,864.8	1.2	1.2	72.4
5,390.9	0.1	0.1	6.5	474.0			
26002572	0.0	0.1	8.1	381.0	0.0	0.0	0.2
8.9	0.0	0.1	7.9	372.1			
25462576	3.7	4.0	245.5	11,940.2	3.6	3.7	223.2
10,890.6	0.1	0.4	22.3	1,049.7			
25942592	0.1	0.1	7.8	384.3	0.1	0.1	7.3
357.4	0.0	0.0	0.6	26.9			
76822600	0.0	0.1	3.6	170.1	0.0	0.0	0.1
4.0	0.0	0.1	3.5	166.1			
90052638	2.0	2.1	130.5	6,346.4	1.8	1.9	112.9
5,512.6	0.1	0.3	17.6	833.8			
26382640	0.1	0.1	5.6	412.7	0.1	0.1	4.7
353.1	0.0	0.0	0.8	59.6			
27142706	1.1	1.2	75.2	3,657.5	1.1	1.1	64.2
3,134.8	0.1	0.2	11.0	522.6			
27102708	0.1	0.1	6.2	303.9	0.1	0.1	6.0
293.6	0.0	0.0	0.2	10.3			
75882710	1.5	1.6	96.4	4,687.5	1.4	1.4	85.5
4,169.8	0.1	0.2	10.8	517.7			
27082712	0.1	0.1	5.8	285.2	0.1	0.1	5.4
266.2	0.0	0.0	0.4	19.0			
27282714	2.1	2.2	136.2	6,628.3	1.9	1.9	116.3
5,681.1	0.1	0.3	20.0	947.2			
26402728	6.4	7.0	428.0	20,808.6	6.0	5.9	358.9
17,533.5	0.5	1.1	69.1	3,275.1			
16566027	0.1	0.1	4.7	230.5	0.1	0.1	7.2
346.1	0.0	0.0	-2.5	-115.6			
76186502	0.2	0.3	15.5	757.7	0.1	0.1	8.6
417.9	0.1	0.1	7.0	339.8			
21827370	0.2	0.2	10.1	497.0	0.2	0.2	11.1
545.7	0.0	0.0	-1.0	-48.7			
22187371	0.3	0.3	16.1	936.0	0.4	0.4	22.9
1,324.1	-0.1	-0.1	-6.8	-388.0			
73767372	0.2	0.1	8.9	437.8	0.2	0.2	12.9
626.9	0.0	-0.1	-4.0	-189.1			
20807373	3.5	3.2	192.6	9,467.8	3.6	3.4	209.0
10,241.6	-0.1	-0.3	-16.3	-773.8			
73777376	0.1	0.1	5.0	245.1	0.1	0.1	7.2
350.3	0.0	0.0	-2.2	-105.2			
73737376	0.2	0.2	11.4	559.3	0.2	0.2	12.3
605.0	0.0	0.0	-1.0	-45.7			
21827377	0.1	0.1	4.9	241.8	0.1	0.1	7.1
345.3	0.0	0.0	-2.2	-103.5			
73767377	0.1	0.1	5.8	284.8	0.1	0.1	6.3
307.2	0.0	0.0	-0.5	-22.3			

95397486	1.7	1.6	100.3	7,462.0	1.7	1.5	91.7
6,846.5	0.0	0.1	8.7	615.5			
27067588	1.3	1.4	82.8	4,028.9	1.2	1.2	73.5
3,583.9	0.1	0.2	9.3	445.0			
90147596	0.6	0.6	33.6	1,654.0	0.6	0.6	39.5
1,931.8	0.0	-0.1	-5.9	-277.8			
20147598	0.0	0.1	4.4	209.9	0.3	0.2	13.6
670.5	-0.2	-0.2	-9.2	-460.6			
17727600	2.4	2.1	129.4	6,354.5	1.8	1.4	85.2
4,215.7	0.6	0.7	44.2	2,138.9			
18867614	1.8	1.5	89.6	4,418.9	2.0	1.8	109.4
5,367.4	-0.2	-0.3	-19.9	-948.5			
18747618	0.2	0.2	14.7	716.6	0.2	0.1	9.2
447.7	0.1	0.1	5.5	269.0			
20867636	1.0	0.8	51.4	2,533.5	1.0	1.0	59.5
2,915.5	0.0	-0.1	-8.2	-382.0			
22807678	1.5	1.5	92.9	6,903.2	1.5	1.4	85.2
6,345.3	0.1	0.1	7.7	557.9			
25467678	1.3	1.2	74.1	5,514.8	1.3	1.3	81.5
6,057.4	-0.1	-0.1	-7.5	-542.7			
25727940	0.5	1.2	75.6	3,578.6	0.1	0.1	4.7
230.2	0.4	1.2	70.9	3,348.4			
25769005	4.2	4.5	276.1	13,439.5	4.1	4.0	244.8
11,960.0	0.2	0.5	31.3	1,479.5			
22229007	0.3	0.2	12.5	618.1	0.3	0.3	19.0
930.3	-0.1	-0.1	-6.5	-312.2			
22489009	0.3	0.3	18.0	873.0	0.2	0.2	14.7
719.1	0.0	0.1	3.2	153.9			
22629010	0.2	0.2	9.6	473.0	0.4	0.4	24.4
1,187.1	-0.2	-0.2	-14.8	-714.1			
20169013	0.0	0.0	1.4	69.9	0.0	0.0	1.7
82.6	0.0	0.0	-0.3	-12.7			
20169014	0.1	0.1	6.7	331.5	0.1	0.1	8.2
399.7	0.0	0.0	-1.5	-68.2			
20669016	0.2	0.1	8.2	476.1	0.2	0.2	9.7
563.5	0.0	0.0	-1.6	-87.3			
18929515	0.2	0.1	8.4	416.4	0.2	0.1	8.9
436.9	0.0	0.0	-0.5	-20.5			
19969519	0.5	0.4	25.0	1,232.0	0.5	0.5	31.0
1,516.7	0.0	-0.1	-6.1	-284.7			
25929539	0.0	0.0	1.8	104.0	0.0	0.0	1.6
95.5	0.0	0.0	0.2	8.6			
Total	103.9	99.0	6,034.4	311,272.9	101.9	96.7	5,896.5
304,516.4	2.0	2.3	138.0	6,756.4			

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 3] Accident Rates

[Section 3.1] Link Accident Rates

Link Name	Accident Rate 2023	Accident Rate 2038

Accident rates are in accidents per million vehicle kilometres.

[Section 3.2] Junction Accident Rates

Junction Name	Coefficient 'a' 2023	Coefficient 'a' 2038

[Section 3.3] Combined Link and Junction Accident Rates

Link Name	Accident Rate 2023	Accident Rate 2038
14341432	0.395754	0.328904
14341442	0.395754	0.328904
14621444	0.395754	0.328904
14421446	0.395754	0.328904
14701462	0.395754	0.328904
14761470	0.395754	0.328904
14661472	0.395754	0.328904
15801558	0.539109	0.445665
15981580	0.539109	0.445665
76001598	0.539109	0.445665
17221660	0.539109	0.445665
60271716	0.539109	0.445665
17641722	0.539109	0.445665
16601722	0.539109	0.445665
18041764	0.395754	0.328904
17221764	0.539109	0.445665
18801772	0.539109	0.445665
17961772	0.539109	0.445665
18161804	0.395754	0.328904
18341816	0.395754	0.328904
18341828	0.395754	0.328904
18501834	0.395754	0.328904
18641850	0.395754	0.328904
20441856	0.539109	0.445665
18281856	0.395754	0.328904
18561864	0.395754	0.328904
18781874	0.539109	0.445665
20441878	0.539109	0.445665
18981884	0.539109	0.445665
19681892	0.395754	0.328904
90131898	0.539109	0.445665
20181968	0.395754	0.328904
79401982	0.539109	0.445665
95151982	0.395754	0.328904
19961984	0.395754	0.328904
90161994	0.063991	0.051784

20141996	0.395754	0.328904
19841996	0.395754	0.328904
75962018	0.395754	0.328904
20442038	0.539109	0.445665
76162044	0.539109	0.445665
18562044	0.539109	0.445665
75982060	0.539109	0.445665
20962066	0.063991	0.051784
19942070	0.063991	0.051784
73722084	0.395754	0.328904
95092086	0.539109	0.445665
73712182	0.539109	0.445665
73772182	0.395754	0.328904
90102218	0.395754	0.328904
22482218	0.063991	0.051784
73702222	0.063991	0.051784
22462244	0.395754	0.328904
90092246	0.395754	0.328904
22502248	0.063991	0.051784
24242250	0.063991	0.051784
22442252	0.395754	0.328904
22682262	0.395754	0.328904
22742268	0.395754	0.328904
90072268	0.395754	0.328904
22802272	0.539109	0.445665
22602272	0.395754	0.328904
22722274	0.539109	0.445665
76782280	0.143220	0.114668
22602280	0.539109	0.445665
23742372	0.395754	0.328904
24362420	0.539109	0.445665
24782436	0.063991	0.051784
74862478	0.143220	0.114668
25762546	0.539109	0.445665
76782546	0.143220	0.114668
26002572	0.539109	0.445665
25462576	0.539109	0.445665
25942592	0.539109	0.445665
76822600	0.539109	0.445665
90052638	0.539109	0.445665
26382640	0.143220	0.114668
27142706	0.539109	0.445665
27102708	0.395754	0.328904
75882710	0.539109	0.445665
27082712	0.395754	0.328904
27282714	0.539109	0.445665
26402728	0.539109	0.445665
16566027	0.539109	0.445665
76186502	0.539109	0.445665
21827370	0.395754	0.328904
22187371	0.063991	0.051784
73767372	0.395754	0.328904
20807373	0.395754	0.328904
73777376	0.395754	0.328904

73737376	0.395754	0.328904
21827377	0.539109	0.445665
73767377	0.395754	0.328904
95397486	0.143220	0.114668
27067588	0.539109	0.445665
90147596	0.395754	0.328904
20147598	0.539109	0.445665
17727600	0.539109	0.445665
18867614	0.539109	0.445665
18747618	0.539109	0.445665
20867636	0.539109	0.445665
22807678	0.143220	0.114668
25467678	0.143220	0.114668
25727940	0.539109	0.445665
25769005	0.539109	0.445665
22229007	0.539109	0.445665
22489009	0.395754	0.328904
22629010	0.395754	0.328904
20169013	0.539109	0.445665
20169014	0.395754	0.328904
20669016	0.063991	0.051784
18929515	0.395754	0.328904
19969519	0.395754	0.328904
25929539	0.063991	0.051784

Accident rates are in accidents per million vehicle kilometres.

[Section 4] Input Data - Scheme File

Scheme Name
Worthing & Lancing Option 1 Analysis

Years Subsection

Current Year	2017
Base Year	2015
Without-Scheme	
Year 1	2023
Year 2	2041
Year 3	0
Year 4	0
Year 5	0
With-Scheme	
Year 1	2023
Year 2	2041
Year 3	0
Year 4	0
Year 5	0

Scheme Opening Year 2023

Link Input Section

Link Classification Subsection

Link Name	Road Type	Length (km)	Speed Limit (mph)	Error/Warning Summary (!=Error, #=Warning)

Link Flow Subsection

Link Name	Base Year Flows	Without-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5	With-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5

Link Local Accident Rate Subsection

Link Name	Observed Accidents	First Observed Accident Year	Local Severity Split Ratio	Year

Junction Input Section

Junction Classification Subsection

Junction Name	Junction Geometry	Highest Carriageway	Highest Standard	Speed Limit (mph)	Error/Warning Summary (!=Error, #=Warning)

Junction Flow Subsection

Base Year Flows

Junction Name	Arm 1 (Major)	Arm 2 (Minor)	Arm 3 (Major)	Arm 4 (Minor)	Arm 5 (Major)	Arm 6 (Minor)

Without-Scheme Year Flows

Junction Name	Year	Arm 1 (Major)	Arm 2 (Minor)	Arm 3 (Major)	Arm 4 (Minor)	Arm 5 (Major)	Arm 6 (Minor)

With-Scheme Year Flows

Junction Name	Year	Arm 1 (Major)	Arm 2 (Minor)	Arm 3 (Major)	Arm 4 (Minor)	Arm 5 (Major)

Junction Local Accident Rate Subsection

Junction Name	Observed Accidents	First Observed Accident Year	Local Severity Split Ratio	Year

Link and Junction Combined Input Section

Combined Classification Subsection

Link Name	Road Type	Length (km)	Speed Limit (mph)	Error/Warning Summary (!=Error, #=Warning)
14341432	12	0.05	30	
14341442	12	0.01	30	
14621444	12	0.05	30	
14421446	12	0.01	30	
14701462	12	0.01	30	
14761470	12	0.01	30	
14661472	12	0.01	30	
15801558	8	0.56	30	
15981580	8	0.11	30	

76001598	8	1.00	30
17221660	8	0.19	30
60271716	8	0.02	30
17641722	8	0.24	30
16601722	8	0.19	30
18041764	12	0.35	30
17221764	8	0.24	30
18801772	8	0.80	40
17961772	8	4.00	30
18161804	12	0.07	30
18341816	12	0.03	30
18341828	12	0.02	30
18501834	12	0.03	30
18641850	12	0.06	30
20441856	8	1.20	40
18281856	12	0.09	30
18561864	12	0.05	30
18781874	8	0.02	30
20441878	8	0.54	30
18981884	8	0.05	30
19681892	12	0.97	40
90131898	8	0.37	30
20181968	12	0.62	40
79401982	8	3.34	30
95151982	12	0.93	40
19961984	12	0.52	40
90161994	12	0.52	60
20141996	12	0.13	40
19841996	12	0.52	40
75962018	12	0.29	40
20442038	8	0.40	40
76162044	8	0.99	30
18562044	8	1.20	40
75982060	8	0.35	30
20962066	12	1.93	60
19942070	12	1.81	60
73722084	12	0.85	40
95092086	8	0.03	40
73712182	8	0.06	40
73772182	12	0.02	40
90102218	12	0.22	40
22482218	12	0.13	70
73702222	12	0.63	60
22462244	12	0.03	30
90092246	12	0.32	30
22502248	12	1.80	60
24242250	12	2.08	60
22442252	12	0.05	30
22682262	12	0.02	30
22742268	12	0.06	30
90072268	12	0.46	40
22802272	8	0.10	30
22602272	12	0.07	30
22722274	8	0.03	30

76782280	8	1.91	50
22602280	8	0.12	30
23742372	12	0.02	30
24362420	8	0.38	40
24782436	12	0.75	50
74862478	8	2.06	50
25762546	8	1.41	40
76782546	8	1.62	50
26002572	8	0.65	30
25462576	8	1.41	40
25942592	8	0.04	30
76822600	8	0.29	30
90052638	8	0.95	30
26382640	8	0.14	50
27142706	8	0.52	30
27102708	12	0.02	30
75882710	8	0.67	30
27082712	12	0.04	30
27282714	8	0.95	30
26402728	8	3.00	40
16566027	8	0.20	30
76186502	8	0.50	30
21827370	12	0.06	40
22187371	12	0.62	60
73767372	12	0.05	40
20807373	12	0.93	40
73777376	12	0.03	40
73737376	12	0.06	40
21827377	8	0.02	40
73767377	12	0.03	40
95397486	8	2.49	50
27067588	8	0.57	30
90147596	12	0.20	40
20147598	8	0.35	30
17727600	8	0.88	30
18867614	8	0.48	40
18747618	8	0.41	30
20867636	8	0.29	40
22807678	8	1.91	50
25467678	8	1.62	50
25727940	8	3.03	30
25769005	8	1.74	30
22229007	8	0.46	40
22489009	12	0.23	40
22629010	12	0.37	40
20169013	8	0.02	30
20169014	12	0.04	40
20669016	12	0.49	60
18929515	12	0.05	40
19969519	12	0.14	40
25929539	12	0.10	50

Combined Flow Subsection

Link	Base Year	Without-Scheme Flows

With-Scheme Flows

Name	Flows	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
14341432	7,224	6,086	8,686	0	0	0	6,515	10,959	0	0	0
14341442	7,834	8,024	9,358	0	0	0	8,100	7,767	0	0	0
14621444	14,755	13,803	16,843	0	0	0	15,131	18,605	0	0	0
14421446	17,974	16,623	19,629	0	0	0	16,715	17,709	0	0	0
14701462	18,056	16,965	20,435	0	0	0	18,309	21,969	0	0	0
14761470	16,553	15,507	18,883	0	0	0	16,912	21,096	0	0	0
14661472	17,902	17,011	19,244	0	0	0	17,015	17,590	0	0	0
15801558	10,748	10,059	11,023	0	0	0	8,073	7,507	0	0	0
15981580	15,344	15,368	16,089	0	0	0	12,106	12,067	0	0	0
76001598	14,605	14,879	16,987	0	0	0	11,380	11,215	0	0	0
17221660	11,908	12,277	13,636	0	0	0	14,035	15,703	0	0	0
60271716	1,825	1,929	2,570	0	0	0	2,011	4,115	0	0	0
17641722	11,908	12,277	13,636	0	0	0	14,035	15,703	0	0	0
16601722	13,076	14,205	15,853	0	0	0	13,510	14,333	0	0	0
18041764	7,955	7,384	8,897	0	0	0	10,152	12,296	0	0	0
17221764	13,076	14,205	15,853	0	0	0	13,510	14,333	0	0	0
18801772	8,412	8,616	9,762	0	0	0	6,026	6,832	0	0	0
17961772	6,345	6,260	7,283	0	0	0	5,432	4,674	0	0	0
18161804	16,079	15,175	16,592	0	0	0	18,278	20,099	0	0	0
18341816	16,079	15,175	16,591	0	0	0	18,278	20,099	0	0	0
18341828	13,378	13,970	13,780	0	0	0	15,009	18,189	0	0	0
18501834	29,457	29,145	30,372	0	0	0	33,287	38,288	0	0	0
18641850	30,665	30,279	30,494	0	0	0	31,821	35,413	0	0	0
20441856	21,355	21,857	22,001	0	0	0	23,689	26,702	0	0	0
18281856	30,705	31,885	32,488	0	0	0	31,842	36,654	0	0	0
18561864	29,883	29,310	29,238	0	0	0					

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14,931 18,620 0 0 0
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19,254 21,986 0 0 0
19841996 24,415 23,557 23,919 0 0 0
24,468 30,730 0 0 0
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22,542 27,727 0 0 0
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19,167 25,557 0 0 0
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23,562 27,815 0 0 0
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9,110 11,534 0 0 0
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3,742 4,555 0 0 0
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14,935 18,702 0 0 0
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12,875 15,150 0 0 0
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14,935 18,702 0 0 0
26002572 306 287 1,543 0 0 0 24
31 0 0 0
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13,402 17,607 0 0 0
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17,348 19,224 0 0 0
76822600 306 287 1,543 0 0 0 24
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10,200 13,258 0 0 0
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11,235 14,337 0 0 0
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10,682 13,614 0 0 0
27102708 31,779 36,225 42,566 0 0 0
35,405 41,007 0 0 0
75882710 8,262 11,473 16,171 0 0 0

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16,579  19,660  0       0       0
    27282714        8,262           11,472  16,171  0       0       0
10,682  13,614  0       0       0
    26402728        7,976           11,179  16,047  0       0       0
10,390  13,240  0       0       0
    16566027        1,825           1,929   2,570   0       0       0
2,011   4,115   0       0       0
    76186502        2,752           2,633   3,496   0       0       0
1,519   1,909   0       0       0
    21827370        24,052          22,810  24,951  0       0       0
23,562  27,815  0       0       0
    22187371        21,850          21,134  23,757  0       0       0
25,964  34,755  0       0       0
    73767372        22,998          22,127  24,173  0       0       0
27,228  35,871  0       0       0
    20807373        27,272          25,659  28,085  0       0       0
26,425  30,757  0       0       0
    73777376        22,773          21,970  24,213  0       0       0
27,085  35,822  0       0       0
    73737376        27,272          25,659  28,085  0       0       0
26,425  30,757  0       0       0
    21827377        22,773          21,970  24,213  0       0       0
27,085  35,822  0       0       0
    73767377        26,894          25,484  28,147  0       0       0
26,253  30,703  0       0       0
    95397486        8,054           13,049  16,981  0       0       0
12,989  15,282  0       0       0
    27067588        8,262           11,473  16,171  0       0       0
10,682  14,247  0       0       0
    90147596        22,110          21,244  22,308  0       0       0
21,833  26,898  0       0       0
    20147598        880             729     1,472   0       0       0
4,095   4,190   0       0       0
    17727600        13,841          14,112  16,071  0       0       0
10,613  10,299  0       0       0
    18867614        20,158          19,326  19,961  0       0       0
21,317  24,871  0       0       0
    18747618        3,200           3,077   3,948   0       0       0
1,985   2,448   0       0       0
    20867636        15,541          18,636  19,161  0       0       0
18,970  22,768  0       0       0
    22807678        13,915          15,646  20,523  0       0       0
14,935  18,702  0       0       0
    25467678        14,569          15,138  19,173  0       0       0
15,969  21,253  0       0       0
    25727940        662             811     3,047   0       0       0       135
   172     0       0       0
    25769005        10,026          12,786  17,761  0       0       0
12,278  15,545  0       0       0
    22229007        3,485           2,954   2,891   0       0       0
3,742   4,555   0       0       0
    22489009        6,522           7,629   10,863  0       0       0
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7,031 8,737 0 0 0
22629010 3,697 3,528 3,433 0 0 0
6,797 9,198 0 0 0
20169013 6,136 6,066 6,341 0 0 0
5,875 7,874 0 0 0
20169014 22,110 21,244 21,421 0 0 0
21,833 26,898 0 0 0
20669016 11,679 14,496 15,184 0 0 0
14,931 18,620 0 0 0
18929515 25,278 24,214 23,943 0 0 0
23,075 25,781 0 0 0
19969519 24,415 23,557 23,919 0 0 0
24,468 30,730 0 0 0
25929539 8,054 13,049 16,981 0 0 0
12,989 15,282 0 0 0

Combined Local Accident Rate Subsection

Link Name	Observed Accidents	First Observed Accident Year	Local Severity Ratio	Split Year

[Section 5] Input Data - Parameter File

COBALT Parameter File
Version 2,016.10

Cost Base Year
2010

Appraisal Period
60

Discount Rate

Years from Current Year	Discount Rate (%)
30	3.50
75	3.00
125	2.50

Cost per Casualty

Severity	Cost
Fatal	1,635,937
Serious	183,834
Slight	14,172

Cost per Accident

Severity	Insurance Administration	Damage to Property Urban	Rural	Motorway
Fatal	300	7,822	13,267	16,876
Serious	187	4,192	6,048	14,400
Slight	113	2,473	4,009	7,285
Damage	54	2,473	2,644	2,541

	Police Cost Urban	Rural	Motorway

Fatal	16,951	17,407	17,610
Serious	1,872	2,337	2,468
Slight	484	664	554
Damage	484	20	17

Compound Annual Rates of Growth of Accident Values

Range of Years	Rate of Growth (%p.a.)
2010-2011	1.13
2011-2012	0.51
2012-2013	1.52
2013-2014	2.16
2014-2015	1.66
2015-2016	1.69
2016-2017	1.80
2017-2018	1.73
2018-2019	1.64
2019-2020	1.66
2020-2021	1.77
2021-2022	1.78
2022-2023	1.80
2023-2024	1.91
2024-2025	1.93
2025-2026	1.94
2026-2027	1.96
2027-2028	1.98
2028-2029	1.99
2029-2030	2.01
2030-2031	2.02
2031-2032	2.04
2032-2033	2.05
2033-2034	2.16
2034-2035	2.07
2035-2036	2.08
2036-2040	2.09
2040-2045	2.11
2045-2046	2.24
2046-2050	2.14
2050-2055	2.07
2055-2057	2.09
2057-2059	2.19
2059-2060	2.29
2060-2063	2.30
2063-2065	2.20
2065-2070	2.18
2070-2085	2.17
2085-2110	2.18

Number of Damage Only Accidents per PIA

	Urban	Rural	Motorway
Damage	17.7	7.8	7.6

Link Only Accident Proportions

Base Year

2009

Road Type	Speed Limit (mph)	Accident Proportions Fatal	Serious	Slight
1	50	0.019	0.104	0.877
1	60	0.019	0.104	0.877
1	70	0.019	0.104	0.877
1	80	0.019	0.104	0.877
2	50	0.019	0.104	0.877
2	60	0.019	0.104	0.877
2	70	0.019	0.104	0.877
2	80	0.019	0.104	0.877
3	50	0.019	0.104	0.877
3	60	0.019	0.104	0.877
3	70	0.019	0.104	0.877
3	80	0.019	0.104	0.877
4	30	0.014	0.145	0.841
4	40	0.014	0.145	0.841
4	50	0.046	0.206	0.748
4	60	0.046	0.206	0.748
4	70	0.046	0.206	0.748
4	80	0.046	0.206	0.748
5	30	0.014	0.145	0.841
5	40	0.014	0.145	0.841
5	50	0.046	0.206	0.748
5	60	0.046	0.206	0.748
5	70	0.046	0.206	0.748
5	80	0.046	0.206	0.748
6	30	0.014	0.145	0.841
6	40	0.014	0.145	0.841
6	50	0.046	0.206	0.748
6	60	0.046	0.206	0.748
6	70	0.046	0.206	0.748
6	80	0.046	0.206	0.748
7	30	0.014	0.145	0.841
7	40	0.014	0.145	0.841
7	50	0.046	0.206	0.748
7	60	0.046	0.206	0.748
7	70	0.046	0.206	0.748
7	80	0.046	0.206	0.748
8	30	0.014	0.145	0.841
8	40	0.014	0.145	0.841
8	50	0.046	0.206	0.748
8	60	0.046	0.206	0.748
8	70	0.046	0.206	0.748
8	80	0.046	0.206	0.748
9	30	0.010	0.145	0.846
9	40	0.010	0.145	0.846
9	50	0.026	0.193	0.780
9	60	0.026	0.193	0.780
9	70	0.026	0.193	0.780
9	80	0.026	0.193	0.780
10	30	0.017	0.135	0.849
10	40	0.017	0.135	0.849
10	50	0.028	0.135	0.837
10	60	0.028	0.135	0.837

10	70	0.028	0.135	0.837
10	80	0.028	0.135	0.837
11	30	0.017	0.135	0.849
11	40	0.017	0.135	0.849
11	50	0.028	0.135	0.837
11	60	0.028	0.135	0.837
11	70	0.028	0.135	0.837
11	80	0.028	0.135	0.837
12	30	0.017	0.135	0.849
12	40	0.017	0.135	0.849
12	50	0.028	0.135	0.837
12	60	0.028	0.135	0.837
12	70	0.028	0.135	0.837
12	80	0.028	0.135	0.837
13	30	0.017	0.135	0.849
13	40	0.017	0.135	0.849
13	50	0.028	0.135	0.837
13	60	0.028	0.135	0.837
13	70	0.028	0.135	0.837
13	80	0.028	0.135	0.837
14	30	0.017	0.135	0.849
14	40	0.017	0.135	0.849
14	50	0.028	0.135	0.837
14	60	0.028	0.135	0.837
14	70	0.028	0.135	0.837
14	80	0.028	0.135	0.837
15	30	0.017	0.135	0.849
15	40	0.017	0.135	0.849
15	50	0.028	0.135	0.837
15	60	0.028	0.135	0.837
15	70	0.028	0.135	0.837
15	80	0.028	0.135	0.837

Link and Junction Combined Accident Proportions

Base Year

2009

Road Type	Speed Limit (mph)	Accident Proportions Fatal	Serious	Slight
1	50	0.018	0.101	0.882
1	60	0.018	0.101	0.882
1	70	0.018	0.101	0.882
1	80	0.018	0.101	0.882
2	50	0.018	0.101	0.882
2	60	0.018	0.101	0.882
2	70	0.018	0.101	0.882
2	80	0.018	0.101	0.882
3	50	0.018	0.101	0.882
3	60	0.018	0.101	0.882
3	70	0.018	0.101	0.882
3	80	0.018	0.101	0.882
4	30	0.008	0.122	0.869
4	40	0.008	0.122	0.869
4	50	0.034	0.187	0.779
4	60	0.034	0.187	0.779

4	70	0.034	0.187	0.779
4	80	0.034	0.187	0.779
5	30	0.008	0.122	0.869
5	40	0.008	0.122	0.869
5	50	0.034	0.187	0.779
5	60	0.034	0.187	0.779
5	70	0.034	0.187	0.779
5	80	0.034	0.187	0.779
6	30	0.008	0.122	0.869
6	40	0.008	0.122	0.869
6	50	0.034	0.187	0.779
6	60	0.034	0.187	0.779
6	70	0.034	0.187	0.779
6	80	0.034	0.187	0.779
7	30	0.008	0.122	0.869
7	40	0.008	0.122	0.869
7	50	0.034	0.187	0.779
7	60	0.034	0.187	0.779
7	70	0.034	0.187	0.779
7	80	0.034	0.187	0.779
8	30	0.008	0.122	0.869
8	40	0.008	0.122	0.869
8	50	0.034	0.187	0.779
8	60	0.034	0.187	0.779
8	70	0.034	0.187	0.779
8	80	0.034	0.187	0.779
9	30	0.007	0.126	0.867
9	40	0.007	0.126	0.867
9	50	0.024	0.187	0.789
9	60	0.024	0.187	0.789
9	70	0.024	0.187	0.789
9	80	0.024	0.187	0.789
10	30	0.009	0.104	0.887
10	40	0.009	0.104	0.887
10	50	0.023	0.127	0.850
10	60	0.023	0.127	0.850
10	70	0.023	0.127	0.850
10	80	0.023	0.127	0.850
11	30	0.009	0.104	0.887
11	40	0.009	0.104	0.887
11	50	0.023	0.127	0.850
11	60	0.023	0.127	0.850
11	70	0.023	0.127	0.850
11	80	0.023	0.127	0.850
12	30	0.009	0.104	0.887
12	40	0.009	0.104	0.887
12	50	0.023	0.127	0.850
12	60	0.023	0.127	0.850
12	70	0.023	0.127	0.850
12	80	0.023	0.127	0.850
13	30	0.009	0.104	0.887
13	40	0.009	0.104	0.887
13	50	0.023	0.127	0.850
13	60	0.023	0.127	0.850

13	70	0.023	0.127	0.850
13	80	0.023	0.127	0.850
14	30	0.009	0.104	0.887
14	40	0.009	0.104	0.887
14	50	0.023	0.127	0.850
14	60	0.023	0.127	0.850
14	70	0.023	0.127	0.850
14	80	0.023	0.127	0.850
15	30	0.009	0.104	0.887
15	40	0.009	0.104	0.887
15	50	0.023	0.127	0.850
15	60	0.023	0.127	0.850
15	70	0.023	0.127	0.850
15	80	0.023	0.127	0.850

Junction Only Accident Proportions
Base Year
2000

Road Type	Speed Limit (mph)	Accident Proportions Fatal	Serious	Slight
1	50	0.024	0.188	0.787
1	60	0.024	0.188	0.787
1	70	0.024	0.188	0.787
1	80	0.024	0.188	0.787
2	30	0.007	0.124	0.869
2	40	0.007	0.124	0.869
3	50	0.024	0.188	0.787
3	60	0.024	0.188	0.787
3	70	0.024	0.188	0.787
3	80	0.024	0.188	0.787
4	30	0.007	0.124	0.869
4	40	0.007	0.124	0.869
5	50	0.027	0.206	0.766
5	60	0.027	0.206	0.766
5	70	0.027	0.206	0.766
5	80	0.027	0.206	0.766
6	30	0.006	0.116	0.878
6	40	0.006	0.116	0.878
7	50	0.027	0.206	0.766
7	60	0.027	0.206	0.766
7	70	0.027	0.206	0.766
7	80	0.027	0.206	0.766
8	30	0.006	0.116	0.878
8	40	0.006	0.116	0.878
9	50	0.027	0.206	0.766
9	60	0.027	0.206	0.766
9	70	0.027	0.206	0.766
9	80	0.027	0.206	0.766
10	30	0.006	0.116	0.878
10	40	0.006	0.116	0.878
11	50	0.027	0.206	0.766
11	60	0.027	0.206	0.766
11	70	0.027	0.206	0.766
11	80	0.027	0.206	0.766

12	30	0.006	0.116	0.878
12	40	0.006	0.116	0.878
13	50	0.024	0.188	0.787
13	60	0.024	0.188	0.787
13	70	0.024	0.188	0.787
13	80	0.024	0.188	0.787
14	30	0.007	0.124	0.869
14	40	0.007	0.124	0.869
15	50	0.024	0.188	0.787
15	60	0.024	0.188	0.787
15	70	0.024	0.188	0.787
15	80	0.024	0.188	0.787
16	30	0.007	0.124	0.869
16	40	0.007	0.124	0.869
17	50	0.027	0.206	0.766
17	60	0.027	0.206	0.766
17	70	0.027	0.206	0.766
17	80	0.027	0.206	0.766
18	30	0.006	0.116	0.878
18	40	0.006	0.116	0.878
19	50	0.027	0.206	0.766
19	60	0.027	0.206	0.766
19	70	0.027	0.206	0.766
19	80	0.027	0.206	0.766
20	30	0.006	0.116	0.878
20	40	0.006	0.116	0.878
21	50	0.027	0.206	0.766
21	60	0.027	0.206	0.766
21	70	0.027	0.206	0.766
21	80	0.027	0.206	0.766
22	30	0.006	0.116	0.878
22	40	0.006	0.116	0.878
23	50	0.027	0.206	0.766
23	60	0.027	0.206	0.766
23	70	0.027	0.206	0.766
23	80	0.027	0.206	0.766
24	30	0.006	0.116	0.878
24	40	0.006	0.116	0.878
25	50	0.024	0.188	0.787
25	60	0.024	0.188	0.787
25	70	0.024	0.188	0.787
25	80	0.024	0.188	0.787
26	30	0.007	0.124	0.869
26	40	0.007	0.124	0.869
27	50	0.024	0.188	0.787
27	60	0.024	0.188	0.787
27	70	0.024	0.188	0.787
27	80	0.024	0.188	0.787
28	30	0.007	0.124	0.869
28	40	0.007	0.124	0.869
29	50	0.027	0.206	0.766
29	60	0.027	0.206	0.766
29	70	0.027	0.206	0.766
29	80	0.027	0.206	0.766

30	30	0.006	0.116	0.878
30	40	0.006	0.116	0.878
31	50	0.027	0.206	0.766
31	60	0.027	0.206	0.766
31	70	0.027	0.206	0.766
31	80	0.027	0.206	0.766
32	30	0.006	0.116	0.878
32	40	0.006	0.116	0.878
33	50	0.027	0.206	0.766
33	60	0.027	0.206	0.766
33	70	0.027	0.206	0.766
33	80	0.027	0.206	0.766
34	30	0.006	0.116	0.878
34	40	0.006	0.116	0.878
35	50	0.027	0.206	0.766
35	60	0.027	0.206	0.766
35	70	0.027	0.206	0.766
35	80	0.027	0.206	0.766
36	30	0.006	0.116	0.878
36	40	0.006	0.116	0.878
37	50	0.009	0.117	0.874
37	60	0.009	0.117	0.874
37	70	0.009	0.117	0.874
37	80	0.009	0.117	0.874
38	30	0.006	0.107	0.887
38	40	0.006	0.107	0.887
39	50	0.009	0.117	0.874
39	60	0.009	0.117	0.874
39	70	0.009	0.117	0.874
39	80	0.009	0.117	0.874
40	30	0.006	0.107	0.887
40	40	0.006	0.107	0.887
41	50	0.009	0.115	0.876
41	60	0.009	0.115	0.876
41	70	0.009	0.115	0.876
41	80	0.009	0.115	0.876
42	30	0.006	0.107	0.887
42	40	0.006	0.107	0.887
43	50	0.009	0.115	0.876
43	60	0.009	0.115	0.876
43	70	0.009	0.115	0.876
43	80	0.009	0.115	0.876
44	30	0.006	0.107	0.887
44	40	0.006	0.107	0.887
45	50	0.009	0.115	0.876
45	60	0.009	0.115	0.876
45	70	0.009	0.115	0.876
45	80	0.009	0.115	0.876
46	30	0.006	0.107	0.887
46	40	0.006	0.107	0.887
47	50	0.009	0.115	0.876
47	60	0.009	0.115	0.876
47	70	0.009	0.115	0.876
47	80	0.009	0.115	0.876

48	30	0.006	0.107	0.887
48	40	0.006	0.107	0.887
49	50	0.006	0.091	0.903
49	60	0.006	0.091	0.903
49	70	0.006	0.091	0.903
49	80	0.006	0.091	0.903
50	30	0.003	0.075	0.923
50	40	0.003	0.075	0.923
51	50	0.006	0.091	0.903
51	60	0.006	0.091	0.903
51	70	0.006	0.091	0.903
51	80	0.006	0.091	0.903
52	30	0.003	0.075	0.923
52	40	0.003	0.075	0.923
53	50	0.006	0.091	0.903
53	60	0.006	0.091	0.903
53	70	0.006	0.091	0.903
53	80	0.006	0.091	0.903
54	30	0.003	0.075	0.923
54	40	0.003	0.075	0.923
55	50	0.006	0.091	0.903
55	60	0.006	0.091	0.903
55	70	0.006	0.091	0.903
55	80	0.006	0.091	0.903
56	30	0.003	0.075	0.923
56	40	0.003	0.075	0.923
57	50	0.006	0.091	0.903
57	60	0.006	0.091	0.903
57	70	0.006	0.091	0.903
57	80	0.006	0.091	0.903
58	30	0.003	0.075	0.923
58	40	0.003	0.075	0.923
59	50	0.006	0.091	0.903
59	60	0.006	0.091	0.903
59	70	0.006	0.091	0.903
59	80	0.006	0.091	0.903
60	30	0.003	0.075	0.923
60	40	0.003	0.075	0.923
61	50	0.006	0.091	0.903
61	60	0.006	0.091	0.903
61	70	0.006	0.091	0.903
61	80	0.006	0.091	0.903
62	30	0.003	0.075	0.923
62	40	0.003	0.075	0.923
63	50	0.006	0.091	0.903
63	60	0.006	0.091	0.903
63	70	0.006	0.091	0.903
63	80	0.006	0.091	0.903
64	30	0.003	0.075	0.923
64	40	0.003	0.075	0.923
65	50	0.006	0.091	0.903
65	60	0.006	0.091	0.903
65	70	0.006	0.091	0.903
65	80	0.006	0.091	0.903

66	30	0.003	0.075	0.923
66	40	0.003	0.075	0.923
67	50	0.006	0.091	0.903
67	60	0.006	0.091	0.903
67	70	0.006	0.091	0.903
67	80	0.006	0.091	0.903
68	30	0.003	0.075	0.923
68	40	0.003	0.075	0.923
69	50	0.006	0.091	0.903
69	60	0.006	0.091	0.903
69	70	0.006	0.091	0.903
69	80	0.006	0.091	0.903
70	30	0.003	0.075	0.923
70	40	0.003	0.075	0.923
71	50	0.006	0.091	0.903
71	60	0.006	0.091	0.903
71	70	0.006	0.091	0.903
71	80	0.006	0.091	0.903
72	30	0.003	0.075	0.923
72	40	0.003	0.075	0.923
73	50	0.006	0.091	0.903
73	60	0.006	0.091	0.903
73	70	0.006	0.091	0.903
73	80	0.006	0.091	0.903
74	30	0.003	0.087	0.910
74	40	0.003	0.087	0.910
75	50	0.006	0.091	0.903
75	60	0.006	0.091	0.903
75	70	0.006	0.091	0.903
75	80	0.006	0.091	0.903
76	30	0.003	0.087	0.910
76	40	0.003	0.087	0.910
77	50	0.006	0.091	0.903
77	60	0.006	0.091	0.903
77	70	0.006	0.091	0.903
77	80	0.006	0.091	0.903
78	30	0.003	0.087	0.910
78	40	0.003	0.087	0.910
79	50	0.006	0.091	0.903
79	60	0.006	0.091	0.903
79	70	0.006	0.091	0.903
79	80	0.006	0.091	0.903
80	30	0.003	0.087	0.910
80	40	0.003	0.087	0.910
81	50	0.006	0.091	0.903
81	60	0.006	0.091	0.903
81	70	0.006	0.091	0.903
81	80	0.006	0.091	0.903
82	30	0.003	0.087	0.910
82	40	0.003	0.087	0.910
83	50	0.006	0.091	0.903
83	60	0.006	0.091	0.903
83	70	0.006	0.091	0.903
83	80	0.006	0.091	0.903

84	30	0.003	0.087	0.910
84	40	0.003	0.087	0.910
85	50	0.004	0.062	0.934
85	60	0.004	0.062	0.934
85	70	0.004	0.062	0.934
85	80	0.004	0.062	0.934
86	30	0.003	0.064	0.933
86	40	0.003	0.064	0.933
87	50	0.004	0.062	0.934
87	60	0.004	0.062	0.934
87	70	0.004	0.062	0.934
87	80	0.004	0.062	0.934
88	30	0.003	0.064	0.933
88	40	0.003	0.064	0.933
89	50	0.004	0.062	0.934
89	60	0.004	0.062	0.934
89	70	0.004	0.062	0.934
89	80	0.004	0.062	0.934
90	30	0.003	0.064	0.933
90	40	0.003	0.064	0.933
91	50	0.004	0.062	0.934
91	60	0.004	0.062	0.934
91	70	0.004	0.062	0.934
91	80	0.004	0.062	0.934
92	30	0.003	0.064	0.933
92	40	0.003	0.064	0.933
93	50	0.004	0.062	0.934
93	60	0.004	0.062	0.934
93	70	0.004	0.062	0.934
93	80	0.004	0.062	0.934
94	30	0.003	0.064	0.933
94	40	0.003	0.064	0.933
95	50	0.004	0.062	0.934
95	60	0.004	0.062	0.934
95	70	0.004	0.062	0.934
95	80	0.004	0.062	0.934
96	30	0.003	0.064	0.933
96	40	0.003	0.064	0.933

Link Only Accident Rates and Change Factors
Base Year
2009

Road Type	Speed Limit (mph)	Accident Rate	Beta Factor
1	50	0.063	0.956
1	60	0.063	0.956
1	70	0.063	0.956
2	50	0.063	0.956
2	60	0.063	0.956
2	70	0.063	0.956
3	50	0.075	0.956
3	60	0.075	0.956
3	70	0.075	0.956
4	30	0.175	0.964

4	40	0.175	0.964
4	50	0.143	0.958
4	60	0.143	0.958
4	70	0.143	0.958
4	80	0.143	0.958
5	30	0.175	0.964
5	40	0.175	0.964
5	50	0.143	0.958
5	60	0.143	0.958
5	70	0.143	0.958
5	80	0.143	0.958
6	30	0.206	0.964
6	40	0.206	0.964
6	50	0.082	0.958
6	60	0.082	0.958
6	70	0.082	0.958
6	80	0.082	0.958
7	30	0.206	0.964
7	40	0.206	0.964
7	50	0.082	0.958
7	60	0.082	0.958
7	70	0.082	0.958
7	80	0.082	0.958
8	30	0.206	0.964
8	40	0.206	0.964
8	50	0.143	0.958
8	60	0.143	0.958
8	70	0.143	0.958
8	80	0.143	0.958
9	30	0.195	0.957
9	40	0.195	0.957
9	50	0.163	0.935
9	60	0.163	0.935
9	70	0.163	0.935
9	80	0.163	0.935
10	30	0.148	0.965
10	40	0.148	0.965
10	50	0.077	0.960
10	60	0.077	0.960
10	70	0.077	0.960
10	80	0.077	0.960
11	30	0.154	0.965
11	40	0.154	0.965
11	50	0.059	0.960
11	60	0.059	0.960
11	70	0.059	0.960
11	80	0.059	0.960
12	30	0.154	0.965
12	40	0.154	0.965
12	50	0.077	0.960
12	60	0.077	0.960
12	70	0.077	0.960
12	80	0.077	0.960
13	30	0.184	0.949

13	40	0.184	0.949
13	50	0.101	0.956
13	60	0.101	0.956
13	70	0.101	0.956
13	80	0.101	0.956
14	30	0.184	0.949
14	40	0.184	0.949
14	50	0.101	0.956
14	60	0.101	0.956
14	70	0.101	0.956
14	80	0.101	0.956
15	30	0.184	0.949
15	40	0.184	0.949
15	50	0.101	0.956
15	60	0.101	0.956
15	70	0.101	0.956
15	80	0.101	0.956

Link and Junction Combined Accident Rates and Change Factors
Base Year
2009

Road Type	Speed Limit (mph)	Accident Rate	Beta Factor
1	50	0.080	0.956
1	60	0.080	0.956
1	70	0.080	0.956
2	50	0.067	0.956
2	60	0.067	0.956
2	70	0.067	0.956
3	50	0.079	0.956
3	60	0.079	0.956
3	70	0.079	0.956
4	30	0.532	0.959
4	40	0.532	0.959
4	50	0.244	0.955
4	60	0.244	0.955
4	70	0.244	0.955
4	80	0.244	0.955
5	30	0.532	0.959
5	40	0.532	0.959
5	50	0.244	0.955
5	60	0.244	0.955
5	70	0.244	0.955
5	80	0.244	0.955
6	30	0.863	0.959
6	40	0.863	0.959
6	50	0.163	0.955
6	60	0.163	0.955
6	70	0.163	0.955
6	80	0.163	0.955
7	30	0.863	0.959
7	40	0.863	0.959
7	50	0.163	0.955
7	60	0.163	0.955

7	70	0.163	0.955
7	80	0.163	0.955
8	30	0.863	0.959
8	40	0.863	0.959
8	50	0.244	0.955
8	60	0.244	0.955
8	70	0.244	0.955
8	80	0.244	0.955
9	30	0.559	0.951
9	40	0.559	0.951
9	50	0.233	0.933
9	60	0.233	0.933
9	70	0.233	0.933
9	80	0.233	0.933
10	30	0.553	0.967
10	40	0.553	0.967
10	50	0.107	0.956
10	60	0.107	0.956
10	70	0.107	0.956
10	80	0.107	0.956
11	30	0.599	0.967
11	40	0.599	0.967
11	50	0.072	0.956
11	60	0.072	0.956
11	70	0.072	0.956
11	80	0.072	0.956
12	30	0.599	0.967
12	40	0.599	0.967
12	50	0.107	0.956
12	60	0.107	0.956
12	70	0.107	0.956
12	80	0.107	0.956
13	30	0.620	0.951
13	40	0.620	0.951
13	50	0.123	0.946
13	60	0.123	0.946
13	70	0.123	0.946
13	80	0.123	0.946
14	30	0.620	0.951
14	40	0.620	0.951
14	50	0.123	0.946
14	60	0.123	0.946
14	70	0.123	0.946
14	80	0.123	0.946
15	30	0.620	0.951
15	40	0.620	0.951
15	50	0.123	0.946
15	60	0.123	0.946
15	70	0.123	0.946
15	80	0.123	0.946

Link Only and Link and Junction Combined Accident Beta Factor Changes over Time

Range of Years	Change to Beta Factor

2004-2019	1.000
2020-2029	0.500
2030-2039	0.250
2040-2153	0.000

Link Only Casualty Rates

Base Year

2009

Road Type	Speed Limit (mph)	Casualties per P.I.A. Fatal	Serious	Slight
1	50	0.021	0.129	1.464
1	60	0.021	0.129	1.464
1	70	0.021	0.129	1.464
2	50	0.021	0.129	1.464
2	60	0.021	0.129	1.464
2	70	0.021	0.129	1.464
3	50	0.021	0.129	1.464
3	60	0.021	0.129	1.464
3	70	0.021	0.129	1.464
4	30	0.015	0.162	1.154
4	40	0.015	0.162	1.154
4	50	0.052	0.274	1.251
4	60	0.052	0.274	1.251
4	70	0.052	0.274	1.251
4	80	0.052	0.274	1.251
5	30	0.015	0.162	1.154
5	40	0.015	0.162	1.154
5	50	0.052	0.274	1.251
5	60	0.052	0.274	1.251
5	70	0.052	0.274	1.251
5	80	0.052	0.274	1.251
6	30	0.015	0.162	1.154
6	40	0.015	0.162	1.154
6	50	0.052	0.274	1.251
6	60	0.052	0.274	1.251
6	70	0.052	0.274	1.251
6	80	0.052	0.274	1.251
7	30	0.015	0.162	1.154
7	40	0.015	0.162	1.154
7	50	0.052	0.274	1.251
7	60	0.052	0.274	1.251
7	70	0.052	0.274	1.251
7	80	0.052	0.274	1.251
8	30	0.015	0.162	1.154
8	40	0.015	0.162	1.154
8	50	0.052	0.274	1.251
8	60	0.052	0.274	1.251
8	70	0.052	0.274	1.251
8	80	0.052	0.274	1.251
9	30	0.010	0.156	1.071
9	40	0.010	0.156	1.071
9	50	0.028	0.230	1.178
9	60	0.028	0.230	1.178
9	70	0.028	0.230	1.178

9	80	0.028	0.230	1.178
10	30	0.018	0.148	1.183
10	40	0.018	0.148	1.183
10	50	0.031	0.161	1.328
10	60	0.031	0.161	1.328
10	70	0.031	0.161	1.328
10	80	0.031	0.161	1.328
11	30	0.018	0.148	1.183
11	40	0.018	0.148	1.183
11	50	0.031	0.161	1.328
11	60	0.031	0.161	1.328
11	70	0.031	0.161	1.328
11	80	0.031	0.161	1.328
12	30	0.018	0.148	1.183
12	40	0.018	0.148	1.183
12	50	0.031	0.161	1.328
12	60	0.031	0.161	1.328
12	70	0.031	0.161	1.328
12	80	0.031	0.161	1.328
13	30	0.018	0.148	1.183
13	40	0.018	0.148	1.183
13	50	0.031	0.161	1.328
13	60	0.031	0.161	1.328
13	70	0.031	0.161	1.328
13	80	0.031	0.161	1.328
14	30	0.018	0.148	1.183
14	40	0.018	0.148	1.183
14	50	0.031	0.161	1.328
14	60	0.031	0.161	1.328
14	70	0.031	0.161	1.328
14	80	0.031	0.161	1.328
15	30	0.018	0.148	1.183
15	40	0.018	0.148	1.183
15	50	0.031	0.161	1.328
15	60	0.031	0.161	1.328
15	70	0.031	0.161	1.328
15	80	0.031	0.161	1.328

Link and Junction Combined Casualty Rates
Base Year
2009

Road Type	Speed Limit (mph)	Casualties per P.I.A. Fatal	Serious	Slight
1	50	0.020	0.123	1.455
1	60	0.020	0.123	1.455
1	70	0.020	0.123	1.455
2	50	0.020	0.123	1.455
2	60	0.020	0.123	1.455
2	70	0.020	0.123	1.455
3	50	0.020	0.123	1.455
3	60	0.020	0.123	1.455
3	70	0.020	0.123	1.455
4	30	0.009	0.132	1.176
4	40	0.009	0.132	1.176

4	50	0.038	0.238	1.300
4	60	0.038	0.238	1.300
4	70	0.038	0.238	1.300
4	80	0.038	0.238	1.300
5	30	0.009	0.132	1.176
5	40	0.009	0.132	1.176
5	50	0.038	0.238	1.300
5	60	0.038	0.238	1.300
5	70	0.038	0.238	1.300
5	80	0.038	0.238	1.300
6	30	0.009	0.132	1.176
6	40	0.009	0.132	1.176
6	50	0.038	0.238	1.300
6	60	0.038	0.238	1.300
6	70	0.038	0.238	1.300
6	80	0.038	0.238	1.300
7	30	0.009	0.132	1.176
7	40	0.009	0.132	1.176
7	50	0.038	0.238	1.300
7	60	0.038	0.238	1.300
7	70	0.038	0.238	1.300
7	80	0.038	0.238	1.300
8	30	0.009	0.132	1.176
8	40	0.009	0.132	1.176
8	50	0.038	0.238	1.300
8	60	0.038	0.238	1.300
8	70	0.038	0.238	1.300
8	80	0.038	0.238	1.300
9	30	0.007	0.134	1.132
9	40	0.007	0.134	1.132
9	50	0.026	0.222	1.218
9	60	0.026	0.222	1.218
9	70	0.026	0.222	1.218
9	80	0.026	0.222	1.218
10	30	0.009	0.112	1.238
10	40	0.009	0.112	1.238
10	50	0.025	0.151	1.297
10	60	0.025	0.151	1.297
10	70	0.025	0.151	1.297
10	80	0.025	0.151	1.297
11	30	0.009	0.112	1.238
11	40	0.009	0.112	1.238
11	50	0.025	0.151	1.297
11	60	0.025	0.151	1.297
11	70	0.025	0.151	1.297
11	80	0.025	0.151	1.297
12	30	0.009	0.112	1.238
12	40	0.009	0.112	1.238
12	50	0.025	0.151	1.297
12	60	0.025	0.151	1.297
12	70	0.025	0.151	1.297
12	80	0.025	0.151	1.297
13	30	0.009	0.112	1.238
13	40	0.009	0.112	1.238

13	50	0.025	0.151	1.297
13	60	0.025	0.151	1.297
13	70	0.025	0.151	1.297
13	80	0.025	0.151	1.297
14	30	0.009	0.112	1.238
14	40	0.009	0.112	1.238
14	50	0.025	0.151	1.297
14	60	0.025	0.151	1.297
14	70	0.025	0.151	1.297
14	80	0.025	0.151	1.297
15	30	0.009	0.112	1.238
15	40	0.009	0.112	1.238
15	50	0.025	0.151	1.297
15	60	0.025	0.151	1.297
15	70	0.025	0.151	1.297
15	80	0.025	0.151	1.297

Link Only Casualty Change Factors

Base Year

2009

Road Type	Speed Limit (mph)	Beta Factor		
		Fatal	Serious	Slight
1	50	0.978	0.979	1.002
1	60	0.978	0.979	1.002
1	70	0.978	0.979	1.002
2	50	0.978	0.979	1.002
2	60	0.978	0.979	1.002
2	70	0.978	0.979	1.002
3	50	0.978	0.979	1.002
3	60	0.978	0.979	1.002
3	70	0.978	0.979	1.002
4	30	0.971	0.995	1.001
4	40	0.971	0.995	1.001
4	50	0.979	0.983	1.002
4	60	0.979	0.983	1.002
4	70	0.979	0.983	1.002
4	80	0.979	0.983	1.002
5	30	0.971	0.995	1.001
5	40	0.971	0.995	1.001
5	50	0.979	0.983	1.002
5	60	0.979	0.983	1.002
5	70	0.979	0.983	1.002
5	80	0.979	0.983	1.002
6	30	0.971	0.995	1.001
6	40	0.971	0.995	1.001
6	50	0.979	0.983	1.002
6	60	0.979	0.983	1.002
6	70	0.979	0.983	1.002
6	80	0.979	0.983	1.002
7	30	0.971	0.995	1.001
7	40	0.971	0.995	1.001
7	50	0.979	0.983	1.002
7	60	0.979	0.983	1.002
7	70	0.979	0.983	1.002

7	80	0.979	0.983	1.002
8	30	0.971	0.995	1.001
8	40	0.971	0.995	1.001
8	50	0.979	0.983	1.002
8	60	0.979	0.983	1.002
8	70	0.979	0.983	1.002
8	80	0.979	0.983	1.002
9	30	0.985	0.997	1.001
9	40	0.985	0.997	1.001
9	50	0.987	0.989	0.998
9	60	0.987	0.989	0.998
9	70	0.987	0.989	0.998
9	80	0.987	0.989	0.998
10	30	0.998	0.990	1.002
10	40	0.998	0.990	1.002
10	50	0.984	0.985	0.998
10	60	0.984	0.985	0.998
10	70	0.984	0.985	0.998
10	80	0.984	0.985	0.998
11	30	0.998	0.990	1.002
11	40	0.998	0.990	1.002
11	50	0.984	0.985	0.998
11	60	0.984	0.985	0.998
11	70	0.984	0.985	0.998
11	80	0.984	0.985	0.998
12	30	0.998	0.990	1.002
12	40	0.998	0.990	1.002
12	50	0.984	0.985	0.998
12	60	0.984	0.985	0.998
12	70	0.984	0.985	0.998
12	80	0.984	0.985	0.998
13	30	0.998	0.990	1.002
13	40	0.998	0.990	1.002
13	50	0.984	0.985	0.998
13	60	0.984	0.985	0.998
13	70	0.984	0.985	0.998
13	80	0.984	0.985	0.998
14	30	0.998	0.990	1.002
14	40	0.998	0.990	1.002
14	50	0.984	0.985	0.998
14	60	0.984	0.985	0.998
14	70	0.984	0.985	0.998
14	80	0.984	0.985	0.998
15	30	0.998	0.990	1.002
15	40	0.998	0.990	1.002
15	50	0.984	0.985	0.998
15	60	0.984	0.985	0.998
15	70	0.984	0.985	0.998
15	80	0.984	0.985	0.998

Link and Junction Combined Casualty Change Factors
Base Year
2009

Road Type	Speed Limit	Beta Factor

	(mph)	Fatal	Serious	Slight
1	50	0.978	0.979	1.002
1	60	0.978	0.979	1.002
1	70	0.978	0.979	1.002
2	50	0.978	0.979	1.002
2	60	0.978	0.979	1.002
2	70	0.978	0.979	1.002
3	50	0.978	0.979	1.002
3	60	0.978	0.979	1.002
3	70	0.978	0.979	1.002
4	30	0.971	0.995	1.001
4	40	0.971	0.995	1.001
4	50	0.979	0.983	1.002
4	60	0.979	0.983	1.002
4	70	0.979	0.983	1.002
4	80	0.979	0.983	1.002
5	30	0.971	0.995	1.001
5	40	0.971	0.995	1.001
5	50	0.979	0.983	1.002
5	60	0.979	0.983	1.002
5	70	0.979	0.983	1.002
5	80	0.979	0.983	1.002
6	30	0.971	0.995	1.001
6	40	0.971	0.995	1.001
6	50	0.979	0.983	1.002
6	60	0.979	0.983	1.002
6	70	0.979	0.983	1.002
6	80	0.979	0.983	1.002
7	30	0.971	0.995	1.001
7	40	0.971	0.995	1.001
7	50	0.979	0.983	1.002
7	60	0.979	0.983	1.002
7	70	0.979	0.983	1.002
7	80	0.979	0.983	1.002
8	30	0.971	0.995	1.001
8	40	0.971	0.995	1.001
8	50	0.979	0.983	1.002
8	60	0.979	0.983	1.002
8	70	0.979	0.983	1.002
8	80	0.979	0.983	1.002
9	30	0.985	0.997	1.001
9	40	0.985	0.997	1.001
9	50	0.987	0.989	0.998
9	60	0.987	0.989	0.998
9	70	0.987	0.989	0.998
9	80	0.987	0.989	0.998
10	30	0.998	0.990	1.002
10	40	0.998	0.990	1.002
10	50	0.984	0.985	0.998
10	60	0.984	0.985	0.998
10	70	0.984	0.985	0.998
10	80	0.984	0.985	0.998
11	30	0.998	0.990	1.002
11	40	0.998	0.990	1.002

11	50	0.984	0.985	0.998
11	60	0.984	0.985	0.998
11	70	0.984	0.985	0.998
11	80	0.984	0.985	0.998
12	30	0.998	0.990	1.002
12	40	0.998	0.990	1.002
12	50	0.984	0.985	0.998
12	60	0.984	0.985	0.998
12	70	0.984	0.985	0.998
12	80	0.984	0.985	0.998
13	30	0.998	0.990	1.002
13	40	0.998	0.990	1.002
13	50	0.984	0.985	0.998
13	60	0.984	0.985	0.998
13	70	0.984	0.985	0.998
13	80	0.984	0.985	0.998
14	30	0.998	0.990	1.002
14	40	0.998	0.990	1.002
14	50	0.984	0.985	0.998
14	60	0.984	0.985	0.998
14	70	0.984	0.985	0.998
14	80	0.984	0.985	0.998
15	30	0.998	0.990	1.002
15	40	0.998	0.990	1.002
15	50	0.984	0.985	0.998
15	60	0.984	0.985	0.998
15	70	0.984	0.985	0.998
15	80	0.984	0.985	0.998

Link Only and Link and Junction Combined Casualty Beta Factor Changes over Time

Range of Years	Change to Beta Factor
1995-2019	1.000
2020-2144	0.000

Junction Only Accident Parameters

Base Year

1997

Junction Type	Speed Limit (mph)	Coefficient 'a'	Power 'b'	Arms	Highest Formula Type Link (S/D)
1	50	0.195	0.460	3	S C
1	60	0.195	0.460	3	S C
1	70	0.195	0.460	3	S C
1	80	0.195	0.460	3	S C
2	20	0.195	0.460	3	S C
2	30	0.195	0.460	3	S C

```
 2               40              0.195           0.460   3       S
C
 3               50              0.195           0.460   3       D
C
 3               60              0.195           0.460   3       D
C
 3               70              0.195           0.460   3       D
C
 3               80              0.195           0.460   3       D
C
 4               20              0.195           0.460   3       D
C
 4               30              0.195           0.460   3       D
C
 4               40              0.195           0.460   3       D
C
 5               50              0.361           0.440   4       S
I
 5               60              0.361           0.440   4       S
I
 5               70              0.361           0.440   4       S
I
 5               80              0.361           0.440   4       S
I
 6               20              0.361           0.440   4       S
I
 6               30              0.361           0.440   4       S
I
 6               40              0.361           0.440   4       S
I
 7               50              0.240           0.710   4       D
C
 7               60              0.240           0.710   4       D
C
 7               70              0.240           0.710   4       D
C
 7               80              0.240           0.710   4       D
C
 8               20              0.240           0.710   4       D
C
 8               30              0.240           0.710   4       D
C
 8               40              0.240           0.710   4       D
C
 9               50              0.361           0.440   5       S
I
 9               60              0.361           0.440   5       S
I
 9               70              0.361           0.440   5       S
I
 9               80              0.361           0.440   5       S
I
 10              20              0.361           0.440   5       S
I
```

```
 10              30              0.361           0.440   5       S
I
 10              40              0.361           0.440   5       S
I
 11              50              0.361           0.440   5       D
I
 11              60              0.361           0.440   5       D
I
 11              70              0.361           0.440   5       D
I
 11              80              0.361           0.440   5       D
I
 12              20              0.361           0.440   5       D
I
 12              30              0.361           0.440   5       D
I
 12              40              0.361           0.440   5       D
I
 13              50              0.195           0.460   3       S
C
 13              60              0.195           0.460   3       S
C
 13              70              0.195           0.460   3       S
C
 13              80              0.195           0.460   3       S
C
 14              20              0.195           0.460   3       S
C
 14              30              0.195           0.460   3       S
C
 14              40              0.195           0.460   3       S
C
 15              50              0.195           0.460   3       D
C
 15              60              0.195           0.460   3       D
C
 15              70              0.195           0.460   3       D
C
 15              80              0.195           0.460   3       D
C
 16              20              0.195           0.460   3       D
C
 16              30              0.195           0.460   3       D
C
 16              40              0.195           0.460   3       D
C
 17              50              0.361           0.440   4       S
I
 17              60              0.361           0.440   4       S
I
 17              70              0.361           0.440   4       S
I
 17              80              0.361           0.440   4       S
I
```

```
 18              20              0.361           0.440   4       S
I
 18              30              0.361           0.440   4       S
I
 18              40              0.361           0.440   4       S
I
 19              50              0.240           0.710   4       D
C
 19              60              0.240           0.710   4       D
C
 19              70              0.240           0.710   4       D
C
 19              80              0.240           0.710   4       D
C
 20              20              0.240           0.710   4       D
C
 20              30              0.240           0.710   4       D
C
 20              40              0.240           0.710   4       D
C
 21              50              0.361           0.440   5       S
I
 21              60              0.361           0.440   5       S
I
 21              70              0.361           0.440   5       S
I
 21              80              0.361           0.440   5       S
I
 22              20              0.361           0.440   5       S
I
 22              30              0.361           0.440   5       S
I
 22              40              0.361           0.440   5       S
I
 23              50              0.361           0.440   5       D
I
 23              60              0.361           0.440   5       D
I
 23              70              0.361           0.440   5       D
I
 23              80              0.361           0.440   5       D
I
 24              20              0.361           0.440   5       D
I
 24              30              0.361           0.440   5       D
I
 24              40              0.361           0.440   5       D
I
 25              50              0.195           0.460   3       S
C
 25              60              0.195           0.460   3       S
C
 25              70              0.195           0.460   3       S
C
```

```
 25              80              0.195           0.460   3       S
C
 26              20              0.195           0.460   3       S
C
 26              30              0.195           0.460   3       S
C
 26              40              0.195           0.460   3       S
C
 27              50              0.195           0.460   3       D
C
 27              60              0.195           0.460   3       D
C
 27              70              0.195           0.460   3       D
C
 27              80              0.195           0.460   3       D
C
 28              20              0.195           0.460   3       D
C
 28              30              0.195           0.460   3       D
C
 28              40              0.195           0.460   3       D
C
 29              50              0.361           0.440   4       S
I
 29              60              0.361           0.440   4       S
I
 29              70              0.361           0.440   4       S
I
 29              80              0.361           0.440   4       S
I
 30              20              0.361           0.440   4       S
I
 30              30              0.361           0.440   4       S
I
 30              40              0.361           0.440   4       S
I
 31              50              0.240           0.710   4       D
C
 31              60              0.240           0.710   4       D
C
 31              70              0.240           0.710   4       D
C
 31              80              0.240           0.710   4       D
C
 32              20              0.240           0.710   4       D
C
 32              30              0.240           0.710   4       D
C
 32              40              0.240           0.710   4       D
C
 33              50              0.361           0.440   5       S
I
 33              60              0.361           0.440   5       S
I
```

```
 33              70              0.361           0.440   5       S
I
 33              80              0.361           0.440   5       S
I
 34              20              0.361           0.440   5       S
I
 34              30              0.361           0.440   5       S
I
 34              40              0.361           0.440   5       S
I
 35              50              0.361           0.440   5       D
I
 35              60              0.361           0.440   5       D
I
 35              70              0.361           0.440   5       D
I
 35              80              0.361           0.440   5       D
I
 36              20              0.361           0.440   5       D
I
 36              30              0.361           0.440   5       D
I
 36              40              0.361           0.440   5       D
I
 37              50              0.223           0.610   3       S
I
 37              60              0.223           0.610   3       S
I
 37              70              0.223           0.610   3       S
I
 37              80              0.223           0.610   3       S
I
 38              20              0.223           0.610   3       S
I
 38              30              0.223           0.610   3       S
I
 38              40              0.223           0.610   3       S
I
 39              50              0.494           0.420   3       D
C
 39              60              0.494           0.420   3       D
C
 39              70              0.494           0.420   3       D
C
 39              80              0.494           0.420   3       D
C
 40              20              0.291           0.510   3       D
C
 40              30              0.291           0.510   3       D
C
 40              40              0.291           0.510   3       D
C
 41              50              1.378           0.200   4       S
C
```

```
 41              60              1.378           0.200   4       S
C
 41              70              1.378           0.200   4       S
C
 41              80              1.378           0.200   4       S
C
 42              20              1.378           0.200   4       S
C
 42              30              1.378           0.200   4       S
C
 42              40              1.378           0.200   4       S
C
 43              50              0.494           0.420   4       D
C
 43              60              0.494           0.420   4       D
C
 43              70              0.494           0.420   4       D
C
 43              80              0.494           0.420   4       D
C
 44              20              0.291           0.510   4       D
C
 44              30              0.291           0.510   4       D
C
 44              40              0.291           0.510   4       D
C
 45              50              0.254           0.620   5       S
I
 45              60              0.254           0.620   5       S
I
 45              70              0.254           0.620   5       S
I
 45              80              0.254           0.620   5       S
I
 46              20              0.254           0.620   5       S
I
 46              30              0.254           0.620   5       S
I
 46              40              0.254           0.620   5       S
I
 47              50              0.238           0.850   5       D
I
 47              60              0.238           0.850   5       D
I
 47              70              0.238           0.850   5       D
I
 47              80              0.238           0.850   5       D
I
 48              20              0.160           0.970   5       D
I
 48              30              0.160           0.970   5       D
I
 48              40              0.160           0.970   5       D
I
```

```
 49              50              0.033           0.760   3       S
C
 49              60              0.033           0.760   3       S
C
 49              70              0.033           0.760   3       S
C
 49              80              0.033           0.760   3       S
C
 50              20              0.033           0.760   3       S
C
 50              30              0.033           0.760   3       S
C
 50              40              0.033           0.760   3       S
C
 51              50              0.033           0.760   3       D
C
 51              60              0.033           0.760   3       D
C
 51              70              0.033           0.760   3       D
C
 51              80              0.033           0.760   3       D
C
 52              20              0.033           0.760   3       D
C
 52              30              0.033           0.760   3       D
C
 52              40              0.033           0.760   3       D
C
 53              50              0.024           0.890   4       S
C
 53              60              0.024           0.890   4       S
C
 53              70              0.024           0.890   4       S
C
 53              80              0.024           0.890   4       S
C
 54              20              0.048           0.740   4       S
C
 54              30              0.048           0.740   4       S
C
 54              40              0.048           0.740   4       S
C
 55              50              0.063           0.690   4       D
C
 55              60              0.063           0.690   4       D
C
 55              70              0.063           0.690   4       D
C
 55              80              0.063           0.690   4       D
C
 56              20              0.022           0.850   4       D
C
 56              30              0.022           0.850   4       D
C
```

```
 56              40              0.022           0.850   4       D
C
 57              50              0.007           1.770   5       S
I
 57              60              0.007           1.770   5       S
I
 57              70              0.007           1.770   5       S
I
 57              80              0.007           1.770   5       S
I
 58              20              0.014           1.530   5       S
I
 58              30              0.014           1.530   5       S
I
 58              40              0.014           1.530   5       S
I
 59              50              0.019           1.420   5       D
I
 59              60              0.019           1.420   5       D
I
 59              70              0.019           1.420   5       D
I
 59              80              0.019           1.420   5       D
I
 60              20              0.006           1.730   5       D
I
 60              30              0.006           1.730   5       D
I
 60              40              0.006           1.730   5       D
I
 61              50              0.033           0.760   3       S
C
 61              60              0.033           0.760   3       S
C
 61              70              0.033           0.760   3       S
C
 61              80              0.033           0.760   3       S
C
 62              20              0.033           0.760   3       S
C
 62              30              0.033           0.760   3       S
C
 62              40              0.033           0.760   3       S
C
 63              50              0.033           0.760   3       D
C
 63              60              0.033           0.760   3       D
C
 63              70              0.033           0.760   3       D
C
 63              80              0.033           0.760   3       D
C
 64              20              0.033           0.760   3       D
C
```

```
 64              30              0.033           0.760   3       D
C
 64              40              0.033           0.760   3       D
C
 65              50              0.101           0.660   4       S
C
 65              60              0.101           0.660   4       S
C
 65              70              0.101           0.660   4       S
C
 65              80              0.101           0.660   4       S
C
 66              20              0.263           0.540   4       S
C
 66              30              0.263           0.540   4       S
C
 66              40              0.263           0.540   4       S
C
 67              50              0.101           0.660   4       D
C
 67              60              0.101           0.660   4       D
C
 67              70              0.101           0.660   4       D
C
 67              80              0.101           0.660   4       D
C
 68              20              0.263           0.540   4       D
C
 68              30              0.263           0.540   4       D
C
 68              40              0.263           0.540   4       D
C
 69              50              0.044           1.280   5       S
I
 69              60              0.044           1.280   5       S
I
 69              70              0.044           1.280   5       S
I
 69              80              0.044           1.280   5       S
I
 70              20              0.095           1.140   5       S
I
 70              30              0.095           1.140   5       S
I
 70              40              0.095           1.140   5       S
I
 71              50              0.044           1.280   5       D
I
 71              60              0.044           1.280   5       D
I
 71              70              0.044           1.280   5       D
I
 71              80              0.044           1.280   5       D
I
```

```
 72              20              0.095           1.140   5       D
I
 72              30              0.095           1.140   5       D
I
 72              40              0.095           1.140   5       D
I
 73              50              0.012           1.040   3       S
C
 73              60              0.012           1.040   3       S
C
 73              70              0.012           1.040   3       S
C
 73              80              0.012           1.040   3       S
C
 74              20              0.012           1.040   3       S
C
 74              30              0.012           1.040   3       S
C
 74              40              0.012           1.040   3       S
C
 75              50              0.012           1.040   3       D
C
 75              60              0.012           1.040   3       D
C
 75              70              0.012           1.040   3       D
C
 75              80              0.012           1.040   3       D
C
 76              20              0.012           1.040   3       D
C
 76              30              0.012           1.040   3       D
C
 76              40              0.012           1.040   3       D
C
 77              50              0.070           0.640   4       S
C
 77              60              0.070           0.640   4       S
C
 77              70              0.070           0.640   4       S
C
 77              80              0.070           0.640   4       S
C
 78              20              0.070           0.640   4       S
C
 78              30              0.070           0.640   4       S
C
 78              40              0.070           0.640   4       S
C
 79              50              0.070           0.640   4       D
C
 79              60              0.070           0.640   4       D
C
 79              70              0.070           0.640   4       D
C
```

```
 79              80              0.070           0.640   4       D
C
 80              20              0.070           0.640   4       D
C
 80              30              0.070           0.640   4       D
C
 80              40              0.070           0.640   4       D
C
 81              50              0.013           1.470   5       S
I
 81              60              0.013           1.470   5       S
I
 81              70              0.013           1.470   5       S
I
 81              80              0.013           1.470   5       S
I
 82              20              0.013           1.470   5       S
I
 82              30              0.013           1.470   5       S
I
 82              40              0.013           1.470   5       S
I
 83              50              0.013           1.470   5       D
I
 83              60              0.013           1.470   5       D
I
 83              70              0.013           1.470   5       D
I
 83              80              0.013           1.470   5       D
I
 84              20              0.013           1.470   5       D
I
 84              30              0.013           1.470   5       D
I
 84              40              0.013           1.470   5       D
I
 85              50              0.033           0.760   3       S
C
 85              60              0.033           0.760   3       S
C
 85              70              0.033           0.760   3       S
C
 85              80              0.033           0.760   3       S
C
 86              20              0.033           0.760   3       S
C
 86              30              0.033           0.760   3       S
C
 86              40              0.033           0.760   3       S
C
 87              50              0.033           0.760   3       D
C
 87              60              0.033           0.760   3       D
C
```

87	70	0.033	0.760	3	D
C					
87	80	0.033	0.760	3	D
C					
88	20	0.033	0.760	3	D
C					
88	30	0.033	0.760	3	D
C					
88	40	0.033	0.760	3	D
C					
89	50	0.024	0.890	4	S
C					
89	60	0.024	0.890	4	S
C					
89	70	0.024	0.890	4	S
C					
89	80	0.024	0.890	4	S
C					
90	20	0.048	0.740	4	S
C					
90	30	0.048	0.740	4	S
C					
90	40	0.048	0.740	4	S
C					
91	50	0.063	0.690	4	D
C					
91	60	0.063	0.690	4	D
C					
91	70	0.063	0.690	4	D
C					
91	80	0.063	0.690	4	D
C					
92	20	0.022	0.850	4	D
C					
92	30	0.022	0.850	4	D
C					
92	40	0.022	0.850	4	D
C					
93	50	0.007	1.770	5	S
I					
93	60	0.007	1.770	5	S
I					
93	70	0.007	1.770	5	S
I					
93	80	0.007	1.770	5	S
I					
94	20	0.014	1.530	5	S
I					
94	30	0.014	1.530	5	S
I					
94	40	0.014	1.530	5	S
I					
95	50	0.019	1.420	5	D
I					

95	60	0.019	1.420	5	D I
95	70	0.019	1.420	5	D I
95	80	0.019	1.420	5	D I
96	20	0.006	1.730	5	D I
96	30	0.006	1.730	5	D I
96	40	0.006	1.730	5	D I

Junction Only Accident Change Factors
Base Year
2000

Classification	Speed Limit (mph)	Beta Factor
Major	20	0.991
Major	30	0.991
Major	40	0.991
Major	50	0.984
Major	60	0.984
Major	70	0.984
Major	80	0.984
Minor	20	0.976
Minor	30	0.976
Minor	40	0.976
Minor	50	0.996
Minor	60	0.996
Minor	70	0.996
Minor	80	0.996

Junction Only Accident Beta Factor Changes over Time

Range of Years	Change to Beta Factor
1995-2010	1.000
2011-2020	0.500
2021-2030	0.250
2031-2144	0.000

Junction Only Casualty Rates
Base Year
2000

Road Type	Casualties per P.I.A.		
	Fatal	Serious	Slight
1	0.0265	0.2413	1.355
2	0.0075	0.1350	1.144
3	0.0265	0.2413	1.355
4	0.0075	0.1350	1.144
5	0.0295	0.2793	1.459
6	0.0062	0.1292	1.244
7	0.0295	0.2793	1.459
8	0.0062	0.1292	1.244
9	0.0295	0.2793	1.459

10	0.0062	0.1292	1.244
11	0.0295	0.2793	1.459
12	0.0062	0.1292	1.244
13	0.0265	0.2413	1.355
14	0.0075	0.1350	1.144
15	0.0265	0.2413	1.355
16	0.0075	0.1350	1.144
17	0.0295	0.2793	1.459
18	0.0062	0.1292	1.244
19	0.0295	0.2793	1.459
20	0.0062	0.1292	1.244
21	0.0295	0.2793	1.459
22	0.0062	0.1292	1.244
23	0.0295	0.2793	1.459
24	0.0062	0.1292	1.244
25	0.0265	0.2413	1.355
26	0.0075	0.1350	1.144
27	0.0265	0.2413	1.355
28	0.0075	0.1350	1.144
29	0.0295	0.2793	1.459
30	0.0062	0.1292	1.244
31	0.0295	0.2793	1.459
32	0.0062	0.1292	1.244
33	0.0295	0.2793	1.459
34	0.0062	0.1292	1.244
35	0.0295	0.2793	1.459
36	0.0062	0.1292	1.244
37	0.0092	0.1631	1.444
38	0.0064	0.1157	1.214
39	0.0092	0.1631	1.444
40	0.0064	0.1157	1.214
41	0.0095	0.1423	1.467
42	0.0061	0.1177	1.253
43	0.0095	0.1423	1.467
44	0.0061	0.1177	1.253
45	0.0095	0.1423	1.467
46	0.0061	0.1177	1.253
47	0.0095	0.1423	1.467
48	0.0061	0.1177	1.253
49	0.0060	0.1019	1.214
50	0.0027	0.0806	1.163
51	0.0060	0.1019	1.214
52	0.0027	0.0806	1.163
53	0.0060	0.1019	1.214
54	0.0027	0.0806	1.163
55	0.0060	0.1019	1.214
56	0.0027	0.0806	1.163
57	0.0060	0.1019	1.214
58	0.0027	0.0806	1.163
59	0.0060	0.1019	1.214
60	0.0027	0.0806	1.163
61	0.0060	0.1019	1.214
62	0.0027	0.0806	1.163
63	0.0060	0.1019	1.214

64	0.0027	0.0806	1.163
65	0.0060	0.1019	1.214
66	0.0027	0.0806	1.163
67	0.0060	0.1019	1.214
68	0.0027	0.0806	1.163
69	0.0060	0.1019	1.214
70	0.0027	0.0806	1.163
71	0.0060	0.1019	1.214
72	0.0027	0.0806	1.163
73	0.0060	0.1019	1.214
74	0.0028	0.0965	1.182
75	0.0060	0.1019	1.214
76	0.0028	0.0965	1.182
77	0.0060	0.1019	1.214
78	0.0028	0.0965	1.182
79	0.0060	0.1019	1.214
80	0.0028	0.0965	1.182
81	0.0060	0.1019	1.214
82	0.0028	0.0965	1.182
83	0.0060	0.1019	1.214
84	0.0028	0.0965	1.182
85	0.0039	0.0703	1.258
86	0.0031	0.0705	1.221
87	0.0039	0.0703	1.258
88	0.0031	0.0705	1.221
89	0.0039	0.0703	1.258
90	0.0031	0.0705	1.221
91	0.0039	0.0703	1.258
92	0.0031	0.0705	1.221
93	0.0039	0.0703	1.258
94	0.0031	0.0705	1.221
95	0.0039	0.0703	1.258
96	0.0031	0.0705	1.221

Junction Only Casualty Change Factors

Base Year

2000

Classification	Speed Limit (mph)	Beta Factor		
		Fatal	Serious	Slight
Major	20	0.949	0.962	1.010
Major	30	0.949	0.962	1.010
Major	40	0.949	0.962	1.010
Major	50	0.961	0.959	1.011
Major	60	0.961	0.959	1.011
Major	70	0.961	0.959	1.011
Major	80	0.961	0.959	1.011
Minor	20	0.968	0.958	1.006
Minor	30	0.968	0.958	1.006
Minor	40	0.968	0.958	1.006
Minor	50	0.976	0.972	1.011
Minor	60	0.976	0.972	1.011
Minor	70	0.976	0.972	1.011
Minor	80	0.976	0.972	1.011

Junction Only Casualty Beta Factor Changes over Time

Range of Years	Change to Beta Factor
1995-2010	1.000
2011-2144	0.000

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*************************************************************************
*                                                                       *
*        CCC      OOO     BBBB      AAA             L         TTTTT      *
*       C   C    O   O    B   B    A   A            L           T        *
*       C        O   O    B   B    A   A            L           T        *
*       C        O   O    BBBB     AAAAA    ----    L           T        *
*       C        O   O    B   B    A   A            L           T        *
*       C   C    O   O    B   B    A   A            L           T        *
*        CCC      OOO     BBBB     A   A            LLLLL       T        *
*                                                                       *
*************************************************************************
*                                                                       *
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Written by Roger Himlin

Contents

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[Section 1] Summary Statistics

[Section 1.1] Economic Summary

Total Without-Scheme Accident Costs = 290,912.5
Total With-Scheme Accident Costs = 285,891.1

Total Accident Benefits Saved by Scheme = 5,021.4

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 1.2] Accident Summary

Total Without-Scheme Accidents = 5,956.2
Total With-Scheme Accidents = 5,802.0

Total Accidents Saved by Scheme = 154.2

[Section 1.3] Casualty Summary

Total Without-Scheme Casualties (Fatal) = 57.8
(Serious) = 742.9
(Slight) = 7,280.8
Total With-Scheme Casualties (Fatal) = 58.7
(Serious) = 701.6
(Slight) = 7,163.6

Total Casualties Saved by Scheme (Fatal) = -0.9
(Serious) = 41.3
(Slight) = 117.2

[Section 2] Accident Statistics

[Section 2.1] Link Accident Statistics

Link Name	Without-Scheme: Number of Accidents 2023	2038	Total	Cost	With-Scheme: Number of Accidents 2023	2038	Total	Cost	Benefit: Number of Accidents 2023	2038	Total
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0 0.0 0.0 0.0 0.0 0.0

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 2.2] Junction Accident Statistics

	---------- Without-Scheme ---------			*---------- With-Scheme ----------*			*------------ Benefits ------------*
	-- Number of Accidents -		Total*	*-- Number of Accidents -*		Total*	
Junction Name	* 2023	2038	Total*	Cost*	* 2023	2038	Total*	Benefit*
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 2.3] Combined Link and Junction Accident Statistics

	---------- Without-Scheme ---------			*---------- With-Scheme ----------*			*------------ Benefits ------------*
	-- Number of Accidents -		Total*	*-- Number of Accidents -*		Total*	
Link Name	* 2023	2038	Total*	Cost*	* 2023	2038	Total*	Benefit*
14341432	0.0	0.0	2.8	131.7	0.0	0.1	3.6	167.3
14341442	0.0	0.0	0.5	21.9	0.0	0.0	0.4	18.4
14621444	0.0	0.1	5.1	235.8	0.0	0.1	5.6	262.9
14421446	0.0	0.0	1.2	57.5	0.0	0.0	1.1	51.9
14701462	0.0	0.0	1.8	83.5	0.0	0.0	1.9	90.5
14761470	0.0	0.0	1.4	66.1	0.0	0.0	1.6	75.4
14661472	0.0	0.0	1.5	67.8	0.0	0.0	1.3	62.2
100991476	0.1	1.4	87.4	4,072.3	0.1	1.7	101.8	4,742.7
100931482	0.0	0.2	11.7	544.5	0.0	0.2	13.9	645.2
100851496	0.0	0.4	21.5	1,001.9	0.0	0.3	18.1	844.1
101321558	0.0	0.3	17.2	802.1	0.0	0.4	27.2	1,266.1
15801558	0.1	0.8	48.2	2,247.3	0.1	0.5	32.9	1,534.5

15981580		0.0	0.2	13.8	642.1	0.0	0.2	10.3	480.3	0.0	0.1	3.5	161.9
76001598		0.2	2.2	132.7	6,190.0	0.1	1.4	87.4	4,080.5	0.0	0.7	45.3	2,109.5
102071656		0.1	0.5	30.5	1,426.5	0.0	0.7	40.5	1,887.1	0.0	-0.2	-9.9	-460.6
17221660		0.0	0.3	20.6	961.0	0.0	0.4	24.4	1,138.4	0.0	-0.1	-3.8	-177.3
100991660		0.1	0.5	32.2	1,501.1	0.1	0.5	28.8	1,344.4	0.0	0.1	3.4	156.8
101201702		0.0	0.2	12.7	589.7	0.0	0.3	15.5	720.3	0.0	0.0	-2.8	-130.6
17641722		0.0	0.4	25.2	1,175.1	0.0	0.5	29.8	1,392.0	0.0	-0.1	-4.6	-216.8
16601722		0.0	0.4	24.1	1,122.9	0.0	0.4	21.6	1,009.8	0.0	0.0	2.4	113.1
18041764		0.0	0.3	19.4	905.0	0.0	0.5	28.0	1,304.7	0.0	-0.1	-8.6	-399.7
17221764		0.1	0.5	29.4	1,373.1	0.1	0.4	26.4	1,234.8	0.0	0.0	3.0	138.3
18801772		0.1	1.0	61.4	2,863.8	0.0	0.0	0.0	0.0	0.1	1.0	61.4	2,863.8
17961772		0.3	3.8	228.0	10,630.2	0.3	2.4	146.3	6,831.4	0.0	1.4	81.7	3,798.8
18161804		0.0	0.1	7.2	335.1	0.0	0.1	8.9	415.6	0.0	0.0	-1.7	-80.5
18341816		0.0	0.0	2.9	136.0	0.0	0.1	3.6	168.6	0.0	0.0	-0.7	-32.7
18341828		0.0	0.0	1.8	84.8	0.0	0.0	2.4	112.8	0.0	0.0	-0.6	-28.1
18501834		0.0	0.1	5.0	231.2	0.0	0.1	6.4	296.3	0.0	0.0	-1.4	-65.1
102071844		0.0	0.5	28.5	1,330.2	0.0	0.4	25.4	1,186.7	0.0	0.1	3.1	143.4
102091846		0.0	0.0	1.8	84.3	0.0	0.1	3.6	170.1	0.0	0.0	-1.8	-85.8
18641850		0.0	0.2	11.3	527.4	0.0	0.2	13.0	606.0	0.0	0.0	-1.7	-78.6
101061850		0.1	0.6	37.8	1,764.9	0.0	0.0	0.0	0.0	0.1	0.6	37.8	1,764.9
20441856		0.3	3.4	207.3	9,674.5	0.0	0.0	0.0	0.0	0.3	3.4	207.3	9,674.5
18281856		0.0	0.3	18.2	847.9	0.0	0.3	20.7	967.2	0.0	0.0	-2.6	-119.2
18561864		0.0	0.2	9.9	463.1	0.0	0.2	11.5	535.7	0.0	0.0	-1.6	-72.6
18781874		0.0	0.0	1.8	84.1	0.0	0.0	1.5	70.3	0.0	0.0	0.3	13.8
20441878		0.0	0.6	36.5	1,703.3	0.0	0.5	28.1	1,309.9	0.0	0.1	8.4	393.4
18981884		0.0	0.0	2.9	137.6	0.0	0.1	3.7	172.0	0.0	0.0	-0.7	-34.4
101181886		0.0	0.3	19.5	910.3	0.0	0.4	25.0	1,165.8	0.0	-0.1	-5.5	-255.5

76141886	0.1	1.3	79.4	3,704.5	0.1	1.4	87.2	4,066.6	0.0	-0.1	-7.8	-362.2
19681892	0.2	2.2	133.4	6,221.7	0.2	2.9	176.3	8,219.2	0.0	-0.7	-43.0	-1,997.5
101181892	0.0	0.1	6.3	291.8	0.0	0.1	6.8	318.5	0.0	0.0	-0.6	-26.6
90131898	0.0	0.3	18.6	867.5	0.0	0.4	23.1	1,079.2	0.0	-0.1	-4.6	-211.7
20181968	0.1	1.5	93.7	4,373.6	0.1	2.0	119.9	5,587.2	0.0	-0.4	-26.1	-1,213.6
79401982	0.1	1.6	98.0	4,558.4	0.0	0.4	24.0	1,119.0	0.0	1.2	74.0	3,439.4
95151982	0.2	2.5	150.2	7,010.3	0.2	2.7	164.0	7,652.1	0.0	-0.2	-13.9	-641.9
19961984	0.1	1.4	83.2	3,882.0	0.1	1.2	71.0	3,313.0	0.0	0.2	12.2	569.0
90161994	0.0	0.1	7.2	399.1	0.0	0.1	8.9	490.8	0.0	0.0	-1.7	-91.7
20141996	0.0	0.4	21.6	1,010.1	0.0	0.3	18.5	862.0	0.0	0.1	3.2	148.0
19841996	0.1	1.3	77.3	3,606.3	0.1	1.7	100.3	4,677.4	0.0	-0.4	-23.1	-1,071.1
75962018	0.1	0.7	40.4	1,884.6	0.1	0.8	50.9	2,372.0	0.0	-0.2	-10.5	-487.4
20442038	0.1	1.0	62.7	2,927.6	0.0	0.0	0.0	0.0	0.1	1.0	62.7	2,927.6
18562044	0.4	3.8	232.4	10,843.6	0.0	0.0	0.0	0.0	0.4	3.8	232.4	10,843.6
20582048	0.0	0.1	4.8	222.7	0.0	0.1	4.4	205.1	0.0	0.0	0.4	17.6
75982060	0.0	0.2	11.8	549.5	0.0	0.3	18.7	872.6	0.0	-0.1	-6.9	-323.1
20962066	0.1	0.6	33.7	1,862.8	0.1	0.7	40.1	2,216.4	0.0	-0.1	-6.4	-353.5
19942070	0.1	0.7	42.0	2,319.7	0.1	0.8	45.5	2,514.4	0.0	-0.1	-3.5	-194.8
73722084	0.2	2.1	129.3	6,035.3	0.2	3.2	192.7	8,983.6	0.0	-1.0	-63.3	-2,948.4
95092086	0.0	0.1	5.3	245.6	0.0	0.0	0.0	0.0	0.0	0.1	5.3	245.6
100562096	0.1	0.6	34.1	1,593.2	0.1	0.7	40.6	1,895.7	0.0	-0.1	-6.5	-302.6
73712182	0.0	0.2	10.4	485.9	0.0	0.3	15.3	713.3	0.0	-0.1	-4.9	-227.5
73772182	0.0	0.1	3.4	160.3	0.0	0.1	3.8	178.2	0.0	0.0	-0.4	-18.0
90102218	0.0	0.1	4.7	218.9	0.0	0.2	12.8	595.9	0.0	-0.1	-8.1	-377.0
22482218	0.0	0.0	2.4	132.1	0.0	0.0	3.0	165.8	0.0	0.0	-0.6	-33.7
73702222	0.0	0.2	14.5	798.9	0.0	0.3	16.1	888.2	0.0	0.0	-1.6	-89.3
22462244	0.0	0.1	3.8	179.4	0.0	0.1	3.5	163.6	0.0	0.0	0.3	15.8

90092246		0.0	0.4	21.9	1,021.7	0.0	0.3	17.7	825.3	0.0	0.1	4.2	196.3		
22502248		0.1	0.9	51.6	2,846.8	0.1	0.9	56.7	3,129.3	0.0	-0.1	-5.1	-282.5		
24242250		0.1	0.9	53.6	2,960.2	0.1	1.0	59.0	3,259.2	0.0	-0.1	-5.4	-299.1		
22442252		0.0	0.1	4.4	207.1	0.0	0.1	3.9	182.9	0.0	0.0	0.5	24.2		
22682262		0.0	0.0	2.2	100.5	0.0	0.1	3.1	145.6	0.0	0.0	-1.0	-45.1		
22742268		0.0	0.1	4.1	190.4	0.0	0.1	5.8	270.0	0.0	0.0	-1.7	-79.6		
90072268		0.0	0.1	8.3	389.0	0.0	0.2	13.0	607.4	0.0	-0.1	-4.7	-218.4		
22802272		0.0	0.3	15.8	734.2	0.0	0.3	17.6	819.0	0.0	0.0	-1.8	-84.9		
22602272		0.0	0.0	0.3	12.2	0.0	0.0	0.9	42.9	0.0	0.0	-0.7	-30.7		
22722274		0.0	0.1	4.6	216.7	0.0	0.1	5.5	258.4	0.0	0.0	-0.9	-41.7		
76782280		0.1	1.2	75.4	5,349.2	0.1	1.4	84.1	5,966.7	0.0	-0.1	-8.7	-617.6		
22602280		0.0	0.3	19.0	885.0	0.0	0.3	17.3	807.0	0.0	0.0	1.7	78.0		
23742372		0.0	0.0	2.2	104.5	0.0	0.0	2.0	93.6	0.0	0.0	0.2	11.0		
24362420		0.1	0.8	50.9	2,376.7	0.1	0.8	45.9	2,144.8	0.0	0.1	5.0	231.9		
24782436		0.0	0.2	11.6	644.0	0.0	0.2	10.5	579.7	0.0	0.0	1.2	64.3		
74862478		0.1	1.2	71.6	5,088.7	0.1	1.1	64.4	4,580.9	0.0	0.1	7.2	507.8		
25762546		0.2	3.2	194.0	9,038.1	0.2	3.5	212.0	9,876.0	0.0	-0.3	-18.0	-837.8		
76782546		0.1	1.1	68.6	4,874.5	0.1	1.0	62.6	4,444.7	0.0	0.1	6.1	429.8		
26002572		0.0	0.1	7.8	362.6	0.0	0.0	0.1	5.7	0.0	0.1	7.7	357.0		
25462576		0.3	3.6	216.0	10,070.4	0.3	3.2	193.0	9,003.5	0.0	0.4	23.0	1,066.9		
25942592		0.0	0.1	6.8	316.3	0.0	0.1	6.2	289.1	0.0	0.0	0.6	27.2		
76822600		0.0	0.1	3.5	161.8	0.0	0.0	0.1	2.5	0.0	0.1	3.4	159.3		
90052638		0.2	1.9	115.0	5,361.2	0.2	1.6	97.0	4,523.8	0.0	0.3	18.0	837.4		
26382640		0.0	0.1	4.9	347.7	0.0	0.1	4.1	288.3	0.0	0.0	0.8	59.4		
27142706		0.1	1.1	66.1	3,083.2	0.1	0.9	54.9	2,562.5	0.0	0.2	11.2	520.7		
27102708		0.0	0.1	5.3	249.7	0.0	0.1	5.1	239.4	0.0	0.0	0.2	10.3		
75882710		0.1	1.4	84.7	3,951.4	0.1	1.2	73.6	3,434.6	0.0	0.2	11.1	516.9		

27082712	0.0	0.1	5.1	236.9	0.0	0.1	4.7	219.5	0.0	0.0	0.4	17.4			
27282714	0.2	2.0	119.8	5,587.5	0.2	1.6	99.5	4,643.8	0.0	0.3	20.3	943.7			
26402728	0.5	6.2	377.2	17,588.1	0.5	5.1	307.0	14,324.8	0.0	1.2	70.2	3,263.4			
21827370	0.0	0.1	8.6	401.6	0.0	0.2	9.6	446.5	0.0	0.0	-1.0	-44.9			
22187371	0.0	0.2	13.7	754.9	0.0	0.3	20.1	1,108.2	0.0	-0.1	-6.4	-353.4			
73767372	0.0	0.1	7.6	353.7	0.0	0.2	11.3	526.6	0.0	-0.1	-3.7	-172.9			
20807373	0.2	2.7	164.0	7,652.5	0.2	3.0	179.2	8,362.3	0.0	-0.3	-15.2	-709.8			
73777376	0.0	0.1	4.2	198.3	0.0	0.1	6.3	294.3	0.0	0.0	-2.1	-96.0			
73737376	0.0	0.2	9.7	452.1	0.0	0.2	10.6	494.0	0.0	0.0	-0.9	-41.9			
21827377	0.0	0.1	4.2	194.7	0.0	0.1	6.2	288.9	0.0	0.0	-2.0	-94.2			
73767377	0.0	0.1	4.9	230.5	0.0	0.1	5.4	250.9	0.0	0.0	-0.4	-20.4			
95397486	0.1	1.4	87.4	6,210.9	0.1	1.3	78.7	5,596.2	0.0	0.1	8.7	614.7			
27067588	0.1	1.2	72.8	3,396.2	0.1	1.0	63.3	2,952.0	0.0	0.2	9.6	444.3			
90147596	0.0	0.5	28.4	1,323.8	0.0	0.6	34.7	1,617.3	0.0	-0.1	-6.3	-293.6			
20147598	0.0	0.1	4.0	184.8	0.0	0.2	11.3	526.2	0.0	-0.1	-7.3	-341.4			
17727600	0.2	1.8	110.4	5,149.2	0.1	1.2	70.6	3,293.6	0.0	0.7	39.8	1,855.6			
101297614	0.0	0.2	12.8	597.8	0.0	0.0	0.0	0.0	0.0	0.2	12.8	597.8			
18867614	0.1	1.2	75.3	3,510.2	0.1	1.6	96.5	4,499.4	0.0	-0.4	-21.3	-989.2			
20867636	0.1	0.7	43.2	2,016.7	0.0	0.0	0.0	0.0	0.1	0.7	43.2	2,016.7			
22807678	0.1	1.3	80.8	5,737.5	0.1	1.2	73.6	5,231.6	0.0	0.1	7.1	505.9			
25467678	0.1	1.1	64.0	4,544.6	0.1	1.2	71.4	5,069.2	0.0	-0.1	-7.4	-524.7			
25727940	0.0	1.2	71.8	3,335.6	0.0	0.1	4.1	192.3	0.0	1.1	67.7	3,143.3			
25769005	0.3	4.0	242.4	11,302.1	0.3	3.5	210.4	9,815.8	0.0	0.5	32.0	1,486.3			
22229007	0.0	0.2	10.4	486.1	0.0	0.3	16.3	758.9	0.0	-0.1	-5.8	-272.9			
22489009	0.0	0.3	15.9	739.3	0.0	0.2	12.8	597.2	0.0	0.1	3.1	142.1			
22629010	0.0	0.1	8.0	374.2	0.0	0.4	21.9	1,018.8	0.0	-0.2	-13.8	-644.6			
20169013	0.0	0.0	1.2	55.8	0.0	0.0	1.5	69.4	0.0	0.0	-0.3	-13.6			

20169014	0.0	0.1	5.6	263.2	0.0	0.1	7.2	334.6	0.0	0.0	-1.5	-71.5							
20669016	0.0	0.1	6.9	379.7	0.0	0.1	8.5	467.0	0.0	0.0	-1.6	-87.3							
100589509	0.2	1.6	94.1	4,393.8	0.0	0.0	0.0	0.0	0.2	1.6	94.1	4,393.8							
18929515	0.0	0.1	7.1	329.8	0.0	0.1	7.6	353.8	0.0	0.0	-0.5	-24.0							
19969519	0.0	0.3	21.0	980.4	0.0	0.5	27.3	1,271.5	0.0	-0.1	-6.3	-291.2							
25929539	0.0	0.0	1.6	86.6	0.0	0.0	1.4	78.1	0.0	0.0	0.2	8.6							
763610056	0.0	0.4	22.5	1,051.5	0.0	0.0	0.0	0.0	0.0	0.4	22.5	1,051.5							
203810058	0.1	0.9	56.4	2,637.4	0.0	0.0	0.0	0.0	0.1	0.9	56.4	2,637.4							
149410085	0.0	0.1	9.1	422.6	0.0	0.1	7.7	357.9	0.0	0.0	1.4	64.7							
143210093	0.0	0.2	12.1	563.3	0.0	0.3	15.4	715.4	0.0	-0.1	-3.3	-152.1							
147210099	0.2	1.5	89.8	4,191.6	0.2	1.3	80.8	3,776.7	0.0	0.1	8.9	414.9							
166010099	0.0	0.5	31.6	1,472.2	0.0	0.6	37.3	1,737.3	0.0	-0.1	-5.7	-265.1							
1012910106	0.0	0.2	12.2	566.9	0.0	0.0	0.0	0.0	0.0	0.2	12.2	566.9							
185010106	0.1	0.6	37.9	1,767.7	0.0	0.0	0.0	0.0	0.1	0.6	37.9	1,767.7							
188610118	0.0	0.3	19.9	927.9	0.0	0.4	21.7	1,012.5	0.0	0.0	-1.8	-84.6							
189210118	0.0	0.1	6.1	286.3	0.0	0.1	7.9	366.7	0.0	0.0	-1.7	-80.3							
188610120	0.0	0.3	20.6	959.7	0.0	0.5	28.4	1,324.1	0.0	-0.1	-7.8	-364.5							
761410129	0.0	0.2	12.1	566.7	0.0	0.0	0.0	0.0	0.0	0.2	12.1	566.7							
1010610129	0.0	0.2	12.8	597.8	0.0	0.0	0.0	0.0	0.0	0.2	12.8	597.8							
165610132	0.0	0.1	6.0	280.8	0.0	0.2	9.5	442.2	0.0	-0.1	-3.5	-161.4							
184410207	0.0	0.4	23.1	1,079.1	0.0	0.5	29.2	1,363.7	0.0	-0.1	-6.1	-284.7							
184410209	0.0	0.0	2.9	135.4	0.0	0.1	4.6	214.0	0.0	0.0	-1.7	-78.6							
10007	0.0	0.0	0.0	0.0	3.8	3.3	201.3	9,909.4	-3.8	-3.3	-201.3	-9,909.4							
10008	0.0	0.0	0.0	0.0	0.8	0.7	43.4	2,130.4	-0.8	-0.7	-43.4	-2,130.4							
10009	0.0	0.0	0.0	0.0	0.3	0.2	14.7	723.4	-0.3	-0.2	-14.7	-723.4							
10010	0.0	0.0	0.0	0.0	0.3	0.2	14.7	723.4	-0.3	-0.2	-14.7	-723.4							
10011	0.0	0.0	0.0	0.0	0.5	0.4	26.8	1,315.9	-0.5	-0.4	-26.8	-1,315.9							

10012		0.0	0.0	0.0	0.0	0.7	0.7	41.1	2,019.7
		-0.7	-0.7	-41.1	-2,019.7				
10013		0.0	0.0	0.0	0.0	0.1	0.1	4.8	236.2
		-0.1	-0.1	-4.8	-236.2				
10014		0.0	0.0	0.0	0.0	2.1	1.9	115.5	5,680.7
		-2.1	-1.9	-115.5	-5,680.7				
10015		0.0	0.0	0.0	0.0	1.3	1.1	68.4	3,365.2
		-1.3	-1.1	-68.4	-3,365.2				
10016		0.0	0.0	0.0	0.0	1.1	1.0	61.1	3,004.3
		-1.1	-1.0	-61.1	-3,004.3				
10017		0.0	0.0	0.0	0.0	4.0	3.7	224.1	11,004.5
		-4.0	-3.7	-224.1	-11,004.5				
10018		0.0	0.0	0.0	0.0	0.9	0.8	47.6	2,341.8
		-0.9	-0.8	-47.6	-2,341.8				
10019		0.0	0.0	0.0	0.0	0.3	0.3	15.6	764.4
		-0.3	-0.3	-15.6	-764.4				
10020		0.0	0.0	0.0	0.0	0.3	0.3	15.5	764.3
		-0.3	-0.3	-15.5	-764.3				
Total		8.5	98.4	5,956.2	290,912.6	23.2	95.8	5,802.0	285,891.1
		-14.7	2.6	154.2	5,021.6				

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 3] Accident Rates

[Section 3.1] Link Accident Rates

Link Name	Accident Rate 2023	Accident Rate 2038

Accident rates are in accidents per million vehicle kilometres.

[Section 3.2] Junction Accident Rates

Junction Name	Coefficient 'a' 2023	Coefficient 'a' 2038

[Section 3.3] Combined Link and Junction Accident Rates

Link Name	Accident Rate 2023	Accident Rate 2038
14341432	0.395754	0.328904
14341442	0.395754	0.328904
14621444	0.395754	0.328904
14421446	0.395754	0.328904
14701462	0.395754	0.328904
14761470	0.395754	0.328904

14661472	0.395754	0.328904
100991476	0.539109	0.445665
100931482	0.539109	0.445665
100851496	0.539109	0.445665
101321558	0.539109	0.445665
15801558	0.539109	0.445665
15981580	0.539109	0.445665
76001598	0.539109	0.445665
102071656	0.395754	0.328904
17221660	0.539109	0.445665
100991660	0.539109	0.445665
101201702	0.539109	0.445665
17641722	0.539109	0.445665
16601722	0.539109	0.445665
18041764	0.395754	0.328904
17221764	0.539109	0.445665
18801772	0.539109	0.445665
17961772	0.539109	0.445665
18161804	0.395754	0.328904
18341816	0.395754	0.328904
18341828	0.395754	0.328904
18501834	0.395754	0.328904
102071844	0.395754	0.328904
102091846	0.539109	0.445665
18641850	0.395754	0.328904
101061850	0.395754	0.328904
20441856	0.539109	0.445665
18281856	0.395754	0.328904
18561864	0.395754	0.328904
18781874	0.539109	0.445665
20441878	0.539109	0.445665
18981884	0.539109	0.445665
101181886	0.395754	0.328904
76141886	0.539109	0.445665
19681892	0.395754	0.328904
101181892	0.395754	0.328904
90131898	0.539109	0.445665
20181968	0.395754	0.328904
79401982	0.539109	0.445665
95151982	0.395754	0.328904
19961984	0.395754	0.328904
90161994	0.063991	0.051784
20141996	0.395754	0.328904
19841996	0.395754	0.328904
75962018	0.395754	0.328904
20442038	0.539109	0.445665
18562044	0.539109	0.445665
20582048	0.395754	0.328904
75982060	0.539109	0.445665
20962066	0.063991	0.051784
19942070	0.063991	0.051784
73722084	0.395754	0.328904
95092086	0.539109	0.445665
100562096	0.395754	0.328904

73712182	0.539109	0.445665
73772182	0.395754	0.328904
90102218	0.395754	0.328904
22482218	0.063991	0.051784
73702222	0.063991	0.051784
22462244	0.395754	0.328904
90092246	0.395754	0.328904
22502248	0.063991	0.051784
24242250	0.063991	0.051784
22442252	0.395754	0.328904
22682262	0.395754	0.328904
22742268	0.395754	0.328904
90072268	0.395754	0.328904
22802272	0.539109	0.445665
22602272	0.395754	0.328904
22722274	0.539109	0.445665
76782280	0.143220	0.114668
22602280	0.539109	0.445665
23742372	0.395754	0.328904
24362420	0.539109	0.445665
24782436	0.063991	0.051784
74862478	0.143220	0.114668
25762546	0.539109	0.445665
76782546	0.143220	0.114668
26002572	0.539109	0.445665
25462576	0.539109	0.445665
25942592	0.539109	0.445665
76822600	0.539109	0.445665
90052638	0.539109	0.445665
26382640	0.143220	0.114668
27142706	0.539109	0.445665
27102708	0.395754	0.328904
75882710	0.539109	0.445665
27082712	0.395754	0.328904
27282714	0.539109	0.445665
26402728	0.539109	0.445665
21827370	0.395754	0.328904
22187371	0.063991	0.051784
73767372	0.395754	0.328904
20807373	0.395754	0.328904
73777376	0.395754	0.328904
73737376	0.395754	0.328904
21827377	0.539109	0.445665
73767377	0.395754	0.328904
95397486	0.143220	0.114668
27067588	0.539109	0.445665
90147596	0.395754	0.328904
20147598	0.539109	0.445665
17727600	0.539109	0.445665
101297614	0.395754	0.328904
18867614	0.539109	0.445665
20867636	0.539109	0.445665
22807678	0.143220	0.114668
25467678	0.143220	0.114668

25727940	0.539109	0.445665
25769005	0.539109	0.445665
22229007	0.539109	0.445665
22489009	0.395754	0.328904
22629010	0.395754	0.328904
20169013	0.539109	0.445665
20169014	0.395754	0.328904
20669016	0.063991	0.051784
100589509	0.395754	0.328904
18929515	0.395754	0.328904
19969519	0.395754	0.328904
25929539	0.063991	0.051784
763610056	0.395754	0.328904
203810058	0.395754	0.328904
149410085	0.539109	0.445665
143210093	0.539109	0.445665
147210099	0.539109	0.445665
166010099	0.539109	0.445665
1012910106	0.395754	0.328904
185010106	0.395754	0.328904
188610118	0.395754	0.328904
189210118	0.395754	0.328904
188610120	0.539109	0.445665
761410129	0.395754	0.328904
1010610129	0.395754	0.328904
165610132	0.539109	0.445665
184410207	0.395754	0.328904
184410209	0.539109	0.445665
10007	0.365362	0.303646
10008	0.365362	0.303646
10009	0.365362	0.303646
10010	0.365362	0.303646
10011	0.365362	0.303646
10012	0.365362	0.303646
10013	0.365362	0.303646
10014	0.365362	0.303646
10015	0.365362	0.303646
10016	0.365362	0.303646
10017	0.365362	0.303646
10018	0.365362	0.303646
10019	0.365362	0.303646
10020	0.365362	0.303646

Accident rates are in accidents per million vehicle kilometres.

[Section 4] Input Data - Scheme File

Scheme Name
Worthing & Lancing Option 3 Analysis

Years Subsection

Current Year 2017
Base Year 2015
Without-Scheme
Year 1 2023
Year 2 2041
Year 3 0
Year 4 0
Year 5 0
With-Scheme
Year 1 2023
Year 2 2041
Year 3 0
Year 4 0
Year 5 0

Scheme Opening Year 2023

Link Input Section

Link Classification Subsection

Link Name	Road Type	Length (km)	Speed Limit (mph)	Error/Warning Summary (!=Error, #=Warning)

Link Flow Subsection

Link Name	Base Year Flows	Without-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5	With-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5

Link Local Accident Rate Subsection

Link Name	Observed Accidents	First Observed Accident Year	Local Severity Ratio	Split Year

Junction Input Section

Junction Classification Subsection

Junction Name	Junction Geometry	Highest Carriageway	Highest Standard	Speed Limit (mph)	Error/Warning Summary (!=Error, #=Warning)

Junction Flow Subsection

Base Year Flows

Junction Name	Arm 1 (Major)	Arm 2 (Minor)	Arm 3 (Major)	Arm 4 (Minor)	Arm 5 (Major)	Arm 6 (Minor)

Without-Scheme Year Flows

Junction Name	Year	Arm 1 (Major)	Arm 2 (Minor)	Arm 3 (Major)	Arm 4 (Minor)	Arm 5 (Major)	Arm 6 (Minor)

With-Scheme Year Flows

Junction Name	Year	Arm 1 (Major)	Arm 2 (Minor)	Arm 3 (Major)	Arm 4 (Minor)	Arm 5 (Major)

Junction Local Accident Rate Subsection

Junction Name	Observed Accidents	First Observed Accident Year	Local Severity Ratio	Split Year

Link and Junction Combined Input Section

Combined Classification Subsection

Link Name	Road Type	Length (km)	Speed Limit (mph)	Error/Warning Summary (!=Error, #=Warning)
14341432	12	0.05	30	
14341442	12	0.01	30	
14621444	12	0.05	30	
14421446	12	0.01	30	
14701462	12	0.01	30	
14761470	12	0.01	30	
14661472	12	0.01	30	
100991476	8	0.70	30	
100931482	8	0.17	30	
100851496	8	0.27	30	
101321558	8	0.41	30	
15801558	8	0.56	30	
15981580	8	0.11	30	
76001598	8	1.00	30	
102071656	12	0.46	40	
17221660	8	0.19	30	
100991660	8	0.27	30	
101201702	8	0.23	30	
17641722	8	0.24	30	
16601722	8	0.19	30	
18041764	12	0.35	30	
17221764	8	0.24	30	
18801772	8	0.80	40	
17961772	8	4.00	30	
18161804	12	0.07	30	
18341816	12	0.03	30	
18341828	12	0.02	30	
18501834	12	0.03	30	
102071844	12	0.30	40	
102091846	8	0.08	30	
18641850	12	0.06	30	
101061850	12	0.28	40	
20441856	8	1.20	40	
18281856	12	0.09	30	
18561864	12	0.05	30	
18781874	8	0.02	30	
20441878	8	0.54	30	
18981884	8	0.05	30	
101181886	12	0.12	40	
76141886	8	0.48	40	
19681892	12	0.97	40	
101181892	12	0.04	40	
90131898	8	0.37	30	
20181968	12	0.62	40	
79401982	8	3.34	30	

95151982	12	0.93	40
19961984	12	0.52	40
90161994	12	0.52	60
20141996	12	0.13	40
19841996	12	0.52	40
75962018	12	0.29	40
20442038	8	0.40	40
18562044	8	1.20	40
20582048	12	0.03	30
75982060	8	0.35	30
20962066	12	1.93	60
19942070	12	1.81	60
73722084	12	0.85	40
95092086	8	0.03	40
100562096	12	0.29	40
73712182	8	0.06	40
73772182	12	0.02	40
90102218	12	0.22	40
22482218	12	0.13	70
73702222	12	0.63	60
22462244	12	0.03	30
90092246	12	0.32	30
22502248	12	1.80	60
24242250	12	2.08	60
22442252	12	0.05	30
22682262	12	0.02	30
22742268	12	0.06	30
90072268	12	0.46	40
22802272	8	0.10	30
22602272	12	0.07	30
22722274	8	0.03	30
76782280	8	1.91	50
22602280	8	0.12	30
23742372	12	0.02	30
24362420	8	0.38	40
24782436	12	0.75	50
74862478	8	2.06	50
25762546	8	1.41	40
76782546	8	1.62	50
26002572	8	0.65	30
25462576	8	1.41	40
25942592	8	0.04	30
76822600	8	0.29	30
90052638	8	0.95	30
26382640	8	0.14	50
27142706	8	0.52	30
27102708	12	0.02	30
75882710	8	0.67	30
27082712	12	0.04	30
27282714	8	0.95	30
26402728	8	3.00	40
21827370	12	0.06	40
22187371	12	0.62	60
73767372	12	0.05	40

20807373	12	0.93	40
73777376	12	0.03	40
73737376	12	0.06	40
21827377	8	0.02	40
73767377	12	0.03	40
95397486	8	2.49	50
27067588	8	0.57	30
90147596	12	0.20	40
20147598	8	0.35	30
17727600	8	0.88	30
101297614	12	0.10	40
18867614	8	0.48	40
20867636	8	0.29	40
22807678	8	1.91	50
25467678	8	1.62	50
25727940	8	3.03	30
25769005	8	1.74	30
22229007	8	0.46	40
22489009	12	0.23	40
22629010	12	0.37	40
20169013	8	0.02	30
20169014	12	0.04	40
20669016	12	0.49	60
100589509	12	0.75	40
18929515	12	0.05	40
19969519	12	0.14	40
25929539	12	0.10	50
763610056	12	0.19	40
203810058	12	0.45	40
149410085	8	0.11	30
143210093	8	0.18	30
147210099	8	0.70	30
166010099	8	0.27	30
1012910106	12	0.10	40
185010106	12	0.28	40
188610118	12	0.12	40
189210118	12	0.04	40
188610120	8	0.49	30
761410129	12	0.10	40
1010610129	12	0.10	40
165610132	8	0.14	30
184410207	12	0.30	40
184410209	8	0.10	30
10007	10	1.20	40
10008	10	0.28	40
10009	10	0.10	40
10010	10	0.10	40
10011	10	0.19	40
10012	10	0.29	40
10013	10	0.03	40
10014	10	0.75	40
10015	10	0.45	40
10016	10	0.40	40
10017	10	1.20	40

10018	10	0.28	40
10019	10	0.10	40
10020	10	0.10	40

Combined Flow Subsection Link Name	Base Year Flows	Without-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5	With-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5
14341432	520	414	8,686	0	0	0	439	11,056	0	0	0
14341442	626	615	9,358	0	0	0	619	7,805	0	0	0
14621444	996	814	16,843	0	0	0	926	18,772	0	0	0
14421446	1,407	1,247	19,629	0	0	0	1,259	17,693	0	0	0
14701462	1,265	1,083	20,435	0	0	0	1,196	22,121	0	0	0
14761470	1,162	972	18,883	0	0	0	1,084	21,531	0	0	0
14661472	1,450	1,354	19,244	0	0	0	1,357	17,628	0	0	0
100991476	931	797	15,888	0	0	0	909	18,509	0	0	0
100931482	517	414	8,689	0	0	0	414	10,318	0	0	0
100851496	535	510	10,333	0	0	0	440	8,702	0	0	0
101321558	323	343	5,318	0	0	0	438	8,424	0	0	0
15801558	734	703	11,023	0	0	0	524	7,514	0	0	0
15981580	1,105	1,048	16,089	0	0	0	809	12,026	0	0	0
76001598	1,066	997	16,987	0	0	0	757	11,169	0	0	0
102071656	617	762	10,586	0	0	0	712	14,088	0	0	0
17221660	808	758	13,636	0	0	0	933	16,142	0	0	0
100991660	1,069	1,066	15,277	0	0	0	1,067	13,649	0	0	0
101201702	416	332	6,916	0	0	0	357	8,462	0	0	0
17641722	808	758	13,636	0	0	0	933	16,142	0	0	0
16601722	1,083	1,161	15,853	0	0	0	1,148	14,226	0	0	0
18041764	560	500	8,897	0	0	0	700	12,832	0	0	0
17221764	1,083	1,161	15,853	0	0	0	1,148	14,226	0	0	0
18801772	654	601	9,762	0	0	0	0				

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   0       0       0       0
    17961772        425             386     7,283   0       0       0       332
   4,656   0       0       0
    18161804        1,100           1,009   16,592  0       0       0
1,225   20,585  0       0       0
    18341816        1,100           1,009   16,591  0       0       0
1,225   20,585  0       0       0
    18341828        872             888     13,780  0       0       0       908
   18,420  0       0       0
    18501834        1,971           1,897   30,372  0       0       0
2,133   39,005  0       0       0
    102071844       816             946     15,246  0       0       0       766
   13,624  0       0       0
    102091846       189             165     2,744   0       0       0       506
   5,488   0       0       0
    18641850        2,075           2,027   30,494  0       0       0
2,082   35,107  0       0       0
    101061850       1,411           1,373   21,519  0       0       0       0
   0       0       0       0
    20441856        1,477           1,492   22,001  0       0       0       0
   0       0       0       0
    18281856        2,108           2,208   32,488  0       0       0
2,183   37,151  0       0       0
    18561864        2,086           2,014   29,238  0       0       0
2,070   33,896  0       0       0
    18781874        627             533     10,485  0       0       0       377
   8,784   0       0       0
    20441878        536             459     8,726   0       0       0       269
   6,735   0       0       0
    18981884        457             501     7,511   0       0       0       534
   9,417   0       0       0
    101181886       1,661           1,446   25,106  0       0       0
1,550   32,238  0       0       0
    76141886        1,486           1,419   21,019  0       0       0
1,402   23,119  0       0       0
    19681892        1,394           1,233   21,875  0       0       0
1,336   28,981  0       0       0
    101181892       1,811           1,697   25,528  0       0       0
1,610   27,927  0       0       0
    90131898        441             451     6,341   0       0       0       445
   7,922   0       0       0
    20181968        1,543           1,390   24,045  0       0       0
1,430   30,815  0       0       0
    79401982        113             81      3,773   0       0       0       55
   916     0       0       0
    95151982        1,867           1,752   25,816  0       0       0
1,650   28,254  0       0       0
    19961984        1,774           1,655   25,730  0       0       0
1,270   21,999  0       0       0
    90161994        844             1,053   15,184  0       0       0
1,069   18,740  0       0       0
    20141996        1,774           1,655   25,730  0       0       0
1,270   21,999  0       0       0
    19841996        1,627           1,480   23,919  0       0       0
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1,465   31,152  0       0       0
    75962018        1,423           1,259   22,308  0       0       0
1,266   28,168  0       0       0
    20442038        1,258           1,571   19,759  0       0       0       0
   0       0       0       0
    18562044        1,489           1,661   24,663  0       0       0       0
   0       0       0       0
    20582048        1,611           1,510   24,538  0       0       0
1,536   22,562  0       0       0
    75982060        173             198     4,274   0       0       0       394
   6,764   0       0       0
    20962066        1,046           1,348   18,912  0       0       0
1,362   22,572  0       0       0
    19942070        1,438           1,582   25,187  0       0       0
1,592   27,338  0       0       0
    73722084        1,576           1,470   24,175  0       0       0
1,785   36,099  0       0       0
    95092086        1,205           1,556   20,902  0       0       0       0
   0       0       0       0
    100562096       1,046           1,348   18,912  0       0       0
1,362   22,572  0       0       0
    73712182        1,440           1,330   23,757  0       0       0
1,631   34,972  0       0       0
    73772182        1,594           1,504   24,894  0       0       0
1,577   27,712  0       0       0
    90102218        251             257     3,433   0       0       0       449
   9,417   0       0       0
    22482218        1,189           1,074   20,324  0       0       0
1,183   25,555  0       0       0
    73702222        1,603           1,510   24,951  0       0       0
1,583   27,768  0       0       0
    22462244        1,064           1,202   21,156  0       0       0
1,149   19,277  0       0       0
    90092246        433             582     10,863  0       0       0       535
   8,757   0       0       0
    22502248        1,622           1,656   31,187  0       0       0
1,718   34,312  0       0       0
    24242250        1,443           1,483   28,032  0       0       0
1,537   30,892  0       0       0
    22442252        633             745     13,116  0       0       0       673
   11,580  0       0       0
    22682262        882             877     13,726  0       0       0
1,062   19,937  0       0       0
    22742268        628             685     10,835  0       0       0       769
   15,421  0       0       0
    90072268        254             192     2,891   0       0       0       293
   4,516   0       0       0
    22802272        942             985     19,171  0       0       0
1,022   21,409  0       0       0
    22602272        51              29      635     0       0       0       77
   2,236   0       0       0
    22722274        994             1,014   19,805  0       0       0
1,099   23,645  0       0       0
    76782280        942             985     19,173  0       0       0
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1,022   21,409  0       0       0
    22602280        996             1,199   20,522  0       0       0
1,149   18,697  0       0       0
    23742372        506             1,159   15,469  0       0       0
1,146   13,818  0       0       0
    24362420        545             1,160   16,886  0       0       0
1,151   15,208  0       0       0
    24782436        536             1,155   16,851  0       0       0
1,147   15,137  0       0       0
    74862478        536             1,155   16,851  0       0       0
1,147   15,138  0       0       0
    25762546        735             795     17,606  0       0       0       838
   19,247  0       0       0
    76782546        996             1,199   20,523  0       0       0
1,149   18,697  0       0       0
    26002572        36              16      1,543   0       0       0       0
   31      0       0       0
    25462576        813             1,068   19,564  0       0       0
1,042   17,466  0       0       0
    25942592        896             1,460   21,041  0       0       0
1,458   19,197  0       0       0
    76822600        36              16      1,543   0       0       0       0
   31      0       0       0
    90052638        577             864     15,519  0       0       0       836
   13,064  0       0       0
    26382640        661             956     17,083  0       0       0       916
   14,130  0       0       0
    27142706        599             912     16,171  0       0       0       871
   13,407  0       0       0
    27102708        2,434           2,892   42,566  0       0       0
2,851   40,796  0       0       0
    75882710        599             912     16,171  0       0       0       871
   14,033  0       0       0
    27082712        784             1,468   21,254  0       0       0
1,445   19,665  0       0       0
    27282714        599             912     16,171  0       0       0       871
   13,407  0       0       0
    26402728        572             882     16,047  0       0       0       841
   13,034  0       0       0
    21827370        1,603           1,510   24,951  0       0       0
1,583   27,768  0       0       0
    22187371        1,440           1,330   23,757  0       0       0
1,631   34,972  0       0       0
    73767372        1,576           1,470   24,173  0       0       0
1,785   36,099  0       0       0
    20807373        1,819           1,707   28,085  0       0       0
1,780   30,714  0       0       0
    73777376        1,512           1,404   24,213  0       0       0
1,721   36,039  0       0       0
    73737376        1,819           1,707   28,085  0       0       0
1,780   30,714  0       0       0
    21827377        1,512           1,404   24,213  0       0       0
1,721   36,039  0       0       0
    73767377        1,719           1,638   28,147  0       0       0
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1,712   30,653  0       0       0
    95397486        545             1,163   16,981  0       0       0
1,155   15,269  0       0       0
    27067588        599             912     16,171  0       0       0       871
   14,033  0       0       0
    90147596        1,423           1,259   22,308  0       0       0
1,245   27,338  0       0       0
    20147598        43              34      1,472   0       0       0       234
   4,152   0       0       0
    17727600        993             920     16,071  0       0       0       680
   10,253  0       0       0
    101297614       1,486           1,419   21,019  0       0       0       0
   0       0       0       0
    18867614        1,353           1,192   19,961  0       0       0
1,280   25,658  0       0       0
    20867636        1,097           1,352   19,161  0       0       0       0
   0       0       0       0
    22807678        996             1,199   20,523  0       0       0
1,149   18,697  0       0       0
    25467678        942             985     19,173  0       0       0
1,022   21,409  0       0       0
    25727940        69              42      3,047   0       0       0       15
   172     0       0       0
    25769005        740             1,009   17,761  0       0       0       981
   15,395  0       0       0
    22229007        254             192     2,891   0       0       0       293
   4,516   0       0       0
    22489009        433             582     10,863  0       0       0       535
   8,757   0       0       0
    22629010        251             257     3,433   0       0       0       449
   9,417   0       0       0
    20169013        441             451     6,341   0       0       0       445
   7,922   0       0       0
    20169014        1,423           1,259   21,421  0       0       0
1,245   27,338  0       0       0
    20669016        844             1,053   15,184  0       0       0
1,069   18,740  0       0       0
    100589509       1,177           1,524   19,930  0       0       0       0
   0       0       0       0
    18929515        1,676           1,573   23,943  0       0       0
1,471   25,748  0       0       0
    19969519        1,627           1,480   23,919  0       0       0
1,465   31,152  0       0       0
    25929539        545             1,163   16,981  0       0       0
1,155   15,269  0       0       0
    763610056       1,097           1,352   19,161  0       0       0       0
   0       0       0       0
    203810058       1,236           1,562   19,883  0       0       0       0
   0       0       0       0
    149410085       562             535     10,439  0       0       0       466
   8,837   0       0       0
    143210093       520             414     8,686   0       0       0       439
   11,056  0       0       0
    147210099       1,218           1,180   16,249  0       0       0
```

1,182 14,606 0 0 0
166010099 907 791 15,056 0 0 0 900
17,777 0 0 0
1012910106 1,353 1,193 19,976 0 0 0 0
0 0 0 0
185010106 1,500 1,500 21,517 0 0 0 0
0 0 0 0
188610118 1,811 1,697 25,528 0 0 0
1,610 27,925 0 0 0
189210118 1,661 1,446 25,107 0 0 0
1,550 32,238 0 0 0
188610120 342 285 5,323 0 0 0 378
7,349 0 0 0
761410129 1,353 1,192 19,969 0 0 0 0
0 0 0 0
1010610129 1,486 1,419 21,018 0 0 0 0
0 0 0 0
165610132 354 366 5,358 0 0 0 459
8,472 0 0 0
184410207 684 949 12,317 0 0 0 839
15,668 0 0 0
184410209 289 266 3,890 0 0 0 587
6,099 0 0 0
10007 0 0 0 0 0
23,229 24,516 0 0 0
10008 0 0 0 0 0
20,734 22,778 0 0 0
10009 0 0 0 0 0
20,734 22,209 0 0 0
10010 0 0 0 0 0
20,734 22,208 0 0 0
10011 0 0 0 0 0
19,049 21,103 0 0 0
10012 0 0 0 0 0
19,049 21,103 0 0 0
10013 0 0 0 0 0
19,050 22,403 0 0 0
10014 0 0 0 0 0
20,888 22,605 0 0 0
10015 0 0 0 0 0
20,551 22,276 0 0 0
10016 0 0 0 0 0
20,551 22,251 0 0 0
10017 0 0 0 0 0
24,726 27,528 0 0 0
10018 0 0 0 0 0
22,876 25,014 0 0 0
10019 0 0 0 0 0
21,526 23,575 0 0 0
10020 0 0 0 0 0
21,526 23,572 0 0 0

Combined Local Accident Rate Subsection
Link Observed First Observed Local Severity Split

Name	Accidents	Accident Year	Ratio	Year

[Section 5] Input Data - Parameter File

COBALT Parameter File
Version 2,016.10

Cost Base Year
2010

Appraisal Period
60

Discount Rate

Years from Current Year	Discount Rate (%)
30	3.50
75	3.00
125	2.50

Cost per Casualty

Severity	Cost
Fatal	1,635,937
Serious	183,834
Slight	14,172

Cost per Accident

Severity	Insurance Administration	Damage to Property Urban	Rural	Motorway
Fatal	300	7,822	13,267	16,876
Serious	187	4,192	6,048	14,400
Slight	113	2,473	4,009	7,285
Damage	54	2,473	2,644	2,541

	Police Cost Urban	Rural	Motorway
Fatal	16,951	17,407	17,610
Serious	1,872	2,337	2,468
Slight	484	664	554
Damage	484	20	17

Compound Annual Rates of Growth of Accident Values

Range of Years	Rate of Growth (%p.a.)
2010-2011	1.13
2011-2012	0.51
2012-2013	1.52
2013-2014	2.16
2014-2015	1.66
2015-2016	1.69
2016-2017	1.80
2017-2018	1.73
2018-2019	1.64
2019-2020	1.66
2020-2021	1.77

2021-2022	1.78
2022-2023	1.80
2023-2024	1.91
2024-2025	1.93
2025-2026	1.94
2026-2027	1.96
2027-2028	1.98
2028-2029	1.99
2029-2030	2.01
2030-2031	2.02
2031-2032	2.04
2032-2033	2.05
2033-2034	2.16
2034-2035	2.07
2035-2036	2.08
2036-2040	2.09
2040-2045	2.11
2045-2046	2.24
2046-2050	2.14
2050-2055	2.07
2055-2057	2.09
2057-2059	2.19
2059-2060	2.29
2060-2063	2.30
2063-2065	2.20
2065-2070	2.18
2070-2085	2.17
2085-2110	2.18

Number of Damage Only Accidents per PIA

	Urban	Rural	Motorway
Damage	17.7	7.8	7.6

Link Only Accident Proportions

Base Year

2009

Road Type	Speed Limit (mph)	Accident Proportions Fatal	Serious	Slight
1	50	0.019	0.104	0.877
1	60	0.019	0.104	0.877
1	70	0.019	0.104	0.877
1	80	0.019	0.104	0.877
2	50	0.019	0.104	0.877
2	60	0.019	0.104	0.877
2	70	0.019	0.104	0.877
2	80	0.019	0.104	0.877
3	50	0.019	0.104	0.877
3	60	0.019	0.104	0.877
3	70	0.019	0.104	0.877
3	80	0.019	0.104	0.877
4	30	0.014	0.145	0.841
4	40	0.014	0.145	0.841
4	50	0.046	0.206	0.748
4	60	0.046	0.206	0.748

4	70	0.046	0.206	0.748
4	80	0.046	0.206	0.748
5	30	0.014	0.145	0.841
5	40	0.014	0.145	0.841
5	50	0.046	0.206	0.748
5	60	0.046	0.206	0.748
5	70	0.046	0.206	0.748
5	80	0.046	0.206	0.748
6	30	0.014	0.145	0.841
6	40	0.014	0.145	0.841
6	50	0.046	0.206	0.748
6	60	0.046	0.206	0.748
6	70	0.046	0.206	0.748
6	80	0.046	0.206	0.748
7	30	0.014	0.145	0.841
7	40	0.014	0.145	0.841
7	50	0.046	0.206	0.748
7	60	0.046	0.206	0.748
7	70	0.046	0.206	0.748
7	80	0.046	0.206	0.748
8	30	0.014	0.145	0.841
8	40	0.014	0.145	0.841
8	50	0.046	0.206	0.748
8	60	0.046	0.206	0.748
8	70	0.046	0.206	0.748
8	80	0.046	0.206	0.748
9	30	0.010	0.145	0.846
9	40	0.010	0.145	0.846
9	50	0.026	0.193	0.780
9	60	0.026	0.193	0.780
9	70	0.026	0.193	0.780
9	80	0.026	0.193	0.780
10	30	0.017	0.135	0.849
10	40	0.017	0.135	0.849
10	50	0.028	0.135	0.837
10	60	0.028	0.135	0.837
10	70	0.028	0.135	0.837
10	80	0.028	0.135	0.837
11	30	0.017	0.135	0.849
11	40	0.017	0.135	0.849
11	50	0.028	0.135	0.837
11	60	0.028	0.135	0.837
11	70	0.028	0.135	0.837
11	80	0.028	0.135	0.837
12	30	0.017	0.135	0.849
12	40	0.017	0.135	0.849
12	50	0.028	0.135	0.837
12	60	0.028	0.135	0.837
12	70	0.028	0.135	0.837
12	80	0.028	0.135	0.837
13	30	0.017	0.135	0.849
13	40	0.017	0.135	0.849
13	50	0.028	0.135	0.837
13	60	0.028	0.135	0.837

13	70	0.028	0.135	0.837
13	80	0.028	0.135	0.837
14	30	0.017	0.135	0.849
14	40	0.017	0.135	0.849
14	50	0.028	0.135	0.837
14	60	0.028	0.135	0.837
14	70	0.028	0.135	0.837
14	80	0.028	0.135	0.837
15	30	0.017	0.135	0.849
15	40	0.017	0.135	0.849
15	50	0.028	0.135	0.837
15	60	0.028	0.135	0.837
15	70	0.028	0.135	0.837
15	80	0.028	0.135	0.837

Link and Junction Combined Accident Proportions
Base Year
2009

Road Type	Speed Limit (mph)	Accident Proportions Fatal	Serious	Slight
1	50	0.018	0.101	0.882
1	60	0.018	0.101	0.882
1	70	0.018	0.101	0.882
1	80	0.018	0.101	0.882
2	50	0.018	0.101	0.882
2	60	0.018	0.101	0.882
2	70	0.018	0.101	0.882
2	80	0.018	0.101	0.882
3	50	0.018	0.101	0.882
3	60	0.018	0.101	0.882
3	70	0.018	0.101	0.882
3	80	0.018	0.101	0.882
4	30	0.008	0.122	0.869
4	40	0.008	0.122	0.869
4	50	0.034	0.187	0.779
4	60	0.034	0.187	0.779
4	70	0.034	0.187	0.779
4	80	0.034	0.187	0.779
5	30	0.008	0.122	0.869
5	40	0.008	0.122	0.869
5	50	0.034	0.187	0.779
5	60	0.034	0.187	0.779
5	70	0.034	0.187	0.779
5	80	0.034	0.187	0.779
6	30	0.008	0.122	0.869
6	40	0.008	0.122	0.869
6	50	0.034	0.187	0.779
6	60	0.034	0.187	0.779
6	70	0.034	0.187	0.779
6	80	0.034	0.187	0.779
7	30	0.008	0.122	0.869
7	40	0.008	0.122	0.869
7	50	0.034	0.187	0.779
7	60	0.034	0.187	0.779

7	70	0.034	0.187	0.779
7	80	0.034	0.187	0.779
8	30	0.008	0.122	0.869
8	40	0.008	0.122	0.869
8	50	0.034	0.187	0.779
8	60	0.034	0.187	0.779
8	70	0.034	0.187	0.779
8	80	0.034	0.187	0.779
9	30	0.007	0.126	0.867
9	40	0.007	0.126	0.867
9	50	0.024	0.187	0.789
9	60	0.024	0.187	0.789
9	70	0.024	0.187	0.789
9	80	0.024	0.187	0.789
10	30	0.009	0.104	0.887
10	40	0.009	0.104	0.887
10	50	0.023	0.127	0.850
10	60	0.023	0.127	0.850
10	70	0.023	0.127	0.850
10	80	0.023	0.127	0.850
11	30	0.009	0.104	0.887
11	40	0.009	0.104	0.887
11	50	0.023	0.127	0.850
11	60	0.023	0.127	0.850
11	70	0.023	0.127	0.850
11	80	0.023	0.127	0.850
12	30	0.009	0.104	0.887
12	40	0.009	0.104	0.887
12	50	0.023	0.127	0.850
12	60	0.023	0.127	0.850
12	70	0.023	0.127	0.850
12	80	0.023	0.127	0.850
13	30	0.009	0.104	0.887
13	40	0.009	0.104	0.887
13	50	0.023	0.127	0.850
13	60	0.023	0.127	0.850
13	70	0.023	0.127	0.850
13	80	0.023	0.127	0.850
14	30	0.009	0.104	0.887
14	40	0.009	0.104	0.887
14	50	0.023	0.127	0.850
14	60	0.023	0.127	0.850
14	70	0.023	0.127	0.850
14	80	0.023	0.127	0.850
15	30	0.009	0.104	0.887
15	40	0.009	0.104	0.887
15	50	0.023	0.127	0.850
15	60	0.023	0.127	0.850
15	70	0.023	0.127	0.850
15	80	0.023	0.127	0.850

Junction Only Accident Proportions
Base Year
2000

Road Type	Speed Limit (mph)	Accident Proportions		
		Fatal	Serious	Slight
1	50	0.024	0.188	0.787
1	60	0.024	0.188	0.787
1	70	0.024	0.188	0.787
1	80	0.024	0.188	0.787
2	30	0.007	0.124	0.869
2	40	0.007	0.124	0.869
3	50	0.024	0.188	0.787
3	60	0.024	0.188	0.787
3	70	0.024	0.188	0.787
3	80	0.024	0.188	0.787
4	30	0.007	0.124	0.869
4	40	0.007	0.124	0.869
5	50	0.027	0.206	0.766
5	60	0.027	0.206	0.766
5	70	0.027	0.206	0.766
5	80	0.027	0.206	0.766
6	30	0.006	0.116	0.878
6	40	0.006	0.116	0.878
7	50	0.027	0.206	0.766
7	60	0.027	0.206	0.766
7	70	0.027	0.206	0.766
7	80	0.027	0.206	0.766
8	30	0.006	0.116	0.878
8	40	0.006	0.116	0.878
9	50	0.027	0.206	0.766
9	60	0.027	0.206	0.766
9	70	0.027	0.206	0.766
9	80	0.027	0.206	0.766
10	30	0.006	0.116	0.878
10	40	0.006	0.116	0.878
11	50	0.027	0.206	0.766
11	60	0.027	0.206	0.766
11	70	0.027	0.206	0.766
11	80	0.027	0.206	0.766
12	30	0.006	0.116	0.878
12	40	0.006	0.116	0.878
13	50	0.024	0.188	0.787
13	60	0.024	0.188	0.787
13	70	0.024	0.188	0.787
13	80	0.024	0.188	0.787
14	30	0.007	0.124	0.869
14	40	0.007	0.124	0.869
15	50	0.024	0.188	0.787
15	60	0.024	0.188	0.787
15	70	0.024	0.188	0.787
15	80	0.024	0.188	0.787
16	30	0.007	0.124	0.869
16	40	0.007	0.124	0.869
17	50	0.027	0.206	0.766
17	60	0.027	0.206	0.766
17	70	0.027	0.206	0.766
17	80	0.027	0.206	0.766

18	30	0.006	0.116	0.878
18	40	0.006	0.116	0.878
19	50	0.027	0.206	0.766
19	60	0.027	0.206	0.766
19	70	0.027	0.206	0.766
19	80	0.027	0.206	0.766
20	30	0.006	0.116	0.878
20	40	0.006	0.116	0.878
21	50	0.027	0.206	0.766
21	60	0.027	0.206	0.766
21	70	0.027	0.206	0.766
21	80	0.027	0.206	0.766
22	30	0.006	0.116	0.878
22	40	0.006	0.116	0.878
23	50	0.027	0.206	0.766
23	60	0.027	0.206	0.766
23	70	0.027	0.206	0.766
23	80	0.027	0.206	0.766
24	30	0.006	0.116	0.878
24	40	0.006	0.116	0.878
25	50	0.024	0.188	0.787
25	60	0.024	0.188	0.787
25	70	0.024	0.188	0.787
25	80	0.024	0.188	0.787
26	30	0.007	0.124	0.869
26	40	0.007	0.124	0.869
27	50	0.024	0.188	0.787
27	60	0.024	0.188	0.787
27	70	0.024	0.188	0.787
27	80	0.024	0.188	0.787
28	30	0.007	0.124	0.869
28	40	0.007	0.124	0.869
29	50	0.027	0.206	0.766
29	60	0.027	0.206	0.766
29	70	0.027	0.206	0.766
29	80	0.027	0.206	0.766
30	30	0.006	0.116	0.878
30	40	0.006	0.116	0.878
31	50	0.027	0.206	0.766
31	60	0.027	0.206	0.766
31	70	0.027	0.206	0.766
31	80	0.027	0.206	0.766
32	30	0.006	0.116	0.878
32	40	0.006	0.116	0.878
33	50	0.027	0.206	0.766
33	60	0.027	0.206	0.766
33	70	0.027	0.206	0.766
33	80	0.027	0.206	0.766
34	30	0.006	0.116	0.878
34	40	0.006	0.116	0.878
35	50	0.027	0.206	0.766
35	60	0.027	0.206	0.766
35	70	0.027	0.206	0.766
35	80	0.027	0.206	0.766

36	30	0.006	0.116	0.878
36	40	0.006	0.116	0.878
37	50	0.009	0.117	0.874
37	60	0.009	0.117	0.874
37	70	0.009	0.117	0.874
37	80	0.009	0.117	0.874
38	30	0.006	0.107	0.887
38	40	0.006	0.107	0.887
39	50	0.009	0.117	0.874
39	60	0.009	0.117	0.874
39	70	0.009	0.117	0.874
39	80	0.009	0.117	0.874
40	30	0.006	0.107	0.887
40	40	0.006	0.107	0.887
41	50	0.009	0.115	0.876
41	60	0.009	0.115	0.876
41	70	0.009	0.115	0.876
41	80	0.009	0.115	0.876
42	30	0.006	0.107	0.887
42	40	0.006	0.107	0.887
43	50	0.009	0.115	0.876
43	60	0.009	0.115	0.876
43	70	0.009	0.115	0.876
43	80	0.009	0.115	0.876
44	30	0.006	0.107	0.887
44	40	0.006	0.107	0.887
45	50	0.009	0.115	0.876
45	60	0.009	0.115	0.876
45	70	0.009	0.115	0.876
45	80	0.009	0.115	0.876
46	30	0.006	0.107	0.887
46	40	0.006	0.107	0.887
47	50	0.009	0.115	0.876
47	60	0.009	0.115	0.876
47	70	0.009	0.115	0.876
47	80	0.009	0.115	0.876
48	30	0.006	0.107	0.887
48	40	0.006	0.107	0.887
49	50	0.006	0.091	0.903
49	60	0.006	0.091	0.903
49	70	0.006	0.091	0.903
49	80	0.006	0.091	0.903
50	30	0.003	0.075	0.923
50	40	0.003	0.075	0.923
51	50	0.006	0.091	0.903
51	60	0.006	0.091	0.903
51	70	0.006	0.091	0.903
51	80	0.006	0.091	0.903
52	30	0.003	0.075	0.923
52	40	0.003	0.075	0.923
53	50	0.006	0.091	0.903
53	60	0.006	0.091	0.903
53	70	0.006	0.091	0.903
53	80	0.006	0.091	0.903

54	30	0.003	0.075	0.923
54	40	0.003	0.075	0.923
55	50	0.006	0.091	0.903
55	60	0.006	0.091	0.903
55	70	0.006	0.091	0.903
55	80	0.006	0.091	0.903
56	30	0.003	0.075	0.923
56	40	0.003	0.075	0.923
57	50	0.006	0.091	0.903
57	60	0.006	0.091	0.903
57	70	0.006	0.091	0.903
57	80	0.006	0.091	0.903
58	30	0.003	0.075	0.923
58	40	0.003	0.075	0.923
59	50	0.006	0.091	0.903
59	60	0.006	0.091	0.903
59	70	0.006	0.091	0.903
59	80	0.006	0.091	0.903
60	30	0.003	0.075	0.923
60	40	0.003	0.075	0.923
61	50	0.006	0.091	0.903
61	60	0.006	0.091	0.903
61	70	0.006	0.091	0.903
61	80	0.006	0.091	0.903
62	30	0.003	0.075	0.923
62	40	0.003	0.075	0.923
63	50	0.006	0.091	0.903
63	60	0.006	0.091	0.903
63	70	0.006	0.091	0.903
63	80	0.006	0.091	0.903
64	30	0.003	0.075	0.923
64	40	0.003	0.075	0.923
65	50	0.006	0.091	0.903
65	60	0.006	0.091	0.903
65	70	0.006	0.091	0.903
65	80	0.006	0.091	0.903
66	30	0.003	0.075	0.923
66	40	0.003	0.075	0.923
67	50	0.006	0.091	0.903
67	60	0.006	0.091	0.903
67	70	0.006	0.091	0.903
67	80	0.006	0.091	0.903
68	30	0.003	0.075	0.923
68	40	0.003	0.075	0.923
69	50	0.006	0.091	0.903
69	60	0.006	0.091	0.903
69	70	0.006	0.091	0.903
69	80	0.006	0.091	0.903
70	30	0.003	0.075	0.923
70	40	0.003	0.075	0.923
71	50	0.006	0.091	0.903
71	60	0.006	0.091	0.903
71	70	0.006	0.091	0.903
71	80	0.006	0.091	0.903

72	30	0.003	0.075	0.923
72	40	0.003	0.075	0.923
73	50	0.006	0.091	0.903
73	60	0.006	0.091	0.903
73	70	0.006	0.091	0.903
73	80	0.006	0.091	0.903
74	30	0.003	0.087	0.910
74	40	0.003	0.087	0.910
75	50	0.006	0.091	0.903
75	60	0.006	0.091	0.903
75	70	0.006	0.091	0.903
75	80	0.006	0.091	0.903
76	30	0.003	0.087	0.910
76	40	0.003	0.087	0.910
77	50	0.006	0.091	0.903
77	60	0.006	0.091	0.903
77	70	0.006	0.091	0.903
77	80	0.006	0.091	0.903
78	30	0.003	0.087	0.910
78	40	0.003	0.087	0.910
79	50	0.006	0.091	0.903
79	60	0.006	0.091	0.903
79	70	0.006	0.091	0.903
79	80	0.006	0.091	0.903
80	30	0.003	0.087	0.910
80	40	0.003	0.087	0.910
81	50	0.006	0.091	0.903
81	60	0.006	0.091	0.903
81	70	0.006	0.091	0.903
81	80	0.006	0.091	0.903
82	30	0.003	0.087	0.910
82	40	0.003	0.087	0.910
83	50	0.006	0.091	0.903
83	60	0.006	0.091	0.903
83	70	0.006	0.091	0.903
83	80	0.006	0.091	0.903
84	30	0.003	0.087	0.910
84	40	0.003	0.087	0.910
85	50	0.004	0.062	0.934
85	60	0.004	0.062	0.934
85	70	0.004	0.062	0.934
85	80	0.004	0.062	0.934
86	30	0.003	0.064	0.933
86	40	0.003	0.064	0.933
87	50	0.004	0.062	0.934
87	60	0.004	0.062	0.934
87	70	0.004	0.062	0.934
87	80	0.004	0.062	0.934
88	30	0.003	0.064	0.933
88	40	0.003	0.064	0.933
89	50	0.004	0.062	0.934
89	60	0.004	0.062	0.934
89	70	0.004	0.062	0.934
89	80	0.004	0.062	0.934

90	30	0.003	0.064	0.933
90	40	0.003	0.064	0.933
91	50	0.004	0.062	0.934
91	60	0.004	0.062	0.934
91	70	0.004	0.062	0.934
91	80	0.004	0.062	0.934
92	30	0.003	0.064	0.933
92	40	0.003	0.064	0.933
93	50	0.004	0.062	0.934
93	60	0.004	0.062	0.934
93	70	0.004	0.062	0.934
93	80	0.004	0.062	0.934
94	30	0.003	0.064	0.933
94	40	0.003	0.064	0.933
95	50	0.004	0.062	0.934
95	60	0.004	0.062	0.934
95	70	0.004	0.062	0.934
95	80	0.004	0.062	0.934
96	30	0.003	0.064	0.933
96	40	0.003	0.064	0.933

Link Only Accident Rates and Change Factors
Base Year
2009

Road Type	Speed Limit (mph)	Accident Rate	Beta Factor
1	50	0.063	0.956
1	60	0.063	0.956
1	70	0.063	0.956
2	50	0.063	0.956
2	60	0.063	0.956
2	70	0.063	0.956
3	50	0.075	0.956
3	60	0.075	0.956
3	70	0.075	0.956
4	30	0.175	0.964
4	40	0.175	0.964
4	50	0.143	0.958
4	60	0.143	0.958
4	70	0.143	0.958
4	80	0.143	0.958
5	30	0.175	0.964
5	40	0.175	0.964
5	50	0.143	0.958
5	60	0.143	0.958
5	70	0.143	0.958
5	80	0.143	0.958
6	30	0.206	0.964
6	40	0.206	0.964
6	50	0.082	0.958
6	60	0.082	0.958
6	70	0.082	0.958
6	80	0.082	0.958
7	30	0.206	0.964

7	40	0.206	0.964
7	50	0.082	0.958
7	60	0.082	0.958
7	70	0.082	0.958
7	80	0.082	0.958
8	30	0.206	0.964
8	40	0.206	0.964
8	50	0.143	0.958
8	60	0.143	0.958
8	70	0.143	0.958
8	80	0.143	0.958
9	30	0.195	0.957
9	40	0.195	0.957
9	50	0.163	0.935
9	60	0.163	0.935
9	70	0.163	0.935
9	80	0.163	0.935
10	30	0.148	0.965
10	40	0.148	0.965
10	50	0.077	0.960
10	60	0.077	0.960
10	70	0.077	0.960
10	80	0.077	0.960
11	30	0.154	0.965
11	40	0.154	0.965
11	50	0.059	0.960
11	60	0.059	0.960
11	70	0.059	0.960
11	80	0.059	0.960
12	30	0.154	0.965
12	40	0.154	0.965
12	50	0.077	0.960
12	60	0.077	0.960
12	70	0.077	0.960
12	80	0.077	0.960
13	30	0.184	0.949
13	40	0.184	0.949
13	50	0.101	0.956
13	60	0.101	0.956
13	70	0.101	0.956
13	80	0.101	0.956
14	30	0.184	0.949
14	40	0.184	0.949
14	50	0.101	0.956
14	60	0.101	0.956
14	70	0.101	0.956
14	80	0.101	0.956
15	30	0.184	0.949
15	40	0.184	0.949
15	50	0.101	0.956
15	60	0.101	0.956
15	70	0.101	0.956
15	80	0.101	0.956

Link and Junction Combined Accident Rates and Change Factors

Base Year

2009

Road Type	Speed Limit (mph)	Accident Rate	Beta Factor
1	50	0.080	0.956
1	60	0.080	0.956
1	70	0.080	0.956
2	50	0.067	0.956
2	60	0.067	0.956
2	70	0.067	0.956
3	50	0.079	0.956
3	60	0.079	0.956
3	70	0.079	0.956
4	30	0.532	0.959
4	40	0.532	0.959
4	50	0.244	0.955
4	60	0.244	0.955
4	70	0.244	0.955
4	80	0.244	0.955
5	30	0.532	0.959
5	40	0.532	0.959
5	50	0.244	0.955
5	60	0.244	0.955
5	70	0.244	0.955
5	80	0.244	0.955
6	30	0.863	0.959
6	40	0.863	0.959
6	50	0.163	0.955
6	60	0.163	0.955
6	70	0.163	0.955
6	80	0.163	0.955
7	30	0.863	0.959
7	40	0.863	0.959
7	50	0.163	0.955
7	60	0.163	0.955
7	70	0.163	0.955
7	80	0.163	0.955
8	30	0.863	0.959
8	40	0.863	0.959
8	50	0.244	0.955
8	60	0.244	0.955
8	70	0.244	0.955
8	80	0.244	0.955
9	30	0.559	0.951
9	40	0.559	0.951
9	50	0.233	0.933
9	60	0.233	0.933
9	70	0.233	0.933
9	80	0.233	0.933
10	30	0.553	0.967
10	40	0.553	0.967
10	50	0.107	0.956
10	60	0.107	0.956

10	70	0.107	0.956
10	80	0.107	0.956
11	30	0.599	0.967
11	40	0.599	0.967
11	50	0.072	0.956
11	60	0.072	0.956
11	70	0.072	0.956
11	80	0.072	0.956
12	30	0.599	0.967
12	40	0.599	0.967
12	50	0.107	0.956
12	60	0.107	0.956
12	70	0.107	0.956
12	80	0.107	0.956
13	30	0.620	0.951
13	40	0.620	0.951
13	50	0.123	0.946
13	60	0.123	0.946
13	70	0.123	0.946
13	80	0.123	0.946
14	30	0.620	0.951
14	40	0.620	0.951
14	50	0.123	0.946
14	60	0.123	0.946
14	70	0.123	0.946
14	80	0.123	0.946
15	30	0.620	0.951
15	40	0.620	0.951
15	50	0.123	0.946
15	60	0.123	0.946
15	70	0.123	0.946
15	80	0.123	0.946

Link Only and Link and Junction Combined Accident Beta Factor Changes over Time

Range of Years	Change to Beta Factor
2004-2019	1.000
2020-2029	0.500
2030-2039	0.250
2040-2153	0.000

Link Only Casualty Rates

Base Year

2009

Road Type	Speed Limit (mph)	Casualties per P.I.A. Fatal	Serious	Slight
1	50	0.021	0.129	1.464
1	60	0.021	0.129	1.464
1	70	0.021	0.129	1.464
2	50	0.021	0.129	1.464
2	60	0.021	0.129	1.464
2	70	0.021	0.129	1.464
3	50	0.021	0.129	1.464
3	60	0.021	0.129	1.464

3	70	0.021	0.129	1.464
4	30	0.015	0.162	1.154
4	40	0.015	0.162	1.154
4	50	0.052	0.274	1.251
4	60	0.052	0.274	1.251
4	70	0.052	0.274	1.251
4	80	0.052	0.274	1.251
5	30	0.015	0.162	1.154
5	40	0.015	0.162	1.154
5	50	0.052	0.274	1.251
5	60	0.052	0.274	1.251
5	70	0.052	0.274	1.251
5	80	0.052	0.274	1.251
6	30	0.015	0.162	1.154
6	40	0.015	0.162	1.154
6	50	0.052	0.274	1.251
6	60	0.052	0.274	1.251
6	70	0.052	0.274	1.251
6	80	0.052	0.274	1.251
7	30	0.015	0.162	1.154
7	40	0.015	0.162	1.154
7	50	0.052	0.274	1.251
7	60	0.052	0.274	1.251
7	70	0.052	0.274	1.251
7	80	0.052	0.274	1.251
8	30	0.015	0.162	1.154
8	40	0.015	0.162	1.154
8	50	0.052	0.274	1.251
8	60	0.052	0.274	1.251
8	70	0.052	0.274	1.251
8	80	0.052	0.274	1.251
9	30	0.010	0.156	1.071
9	40	0.010	0.156	1.071
9	50	0.028	0.230	1.178
9	60	0.028	0.230	1.178
9	70	0.028	0.230	1.178
9	80	0.028	0.230	1.178
10	30	0.018	0.148	1.183
10	40	0.018	0.148	1.183
10	50	0.031	0.161	1.328
10	60	0.031	0.161	1.328
10	70	0.031	0.161	1.328
10	80	0.031	0.161	1.328
11	30	0.018	0.148	1.183
11	40	0.018	0.148	1.183
11	50	0.031	0.161	1.328
11	60	0.031	0.161	1.328
11	70	0.031	0.161	1.328
11	80	0.031	0.161	1.328
12	30	0.018	0.148	1.183
12	40	0.018	0.148	1.183
12	50	0.031	0.161	1.328
12	60	0.031	0.161	1.328
12	70	0.031	0.161	1.328

12	80	0.031	0.161	1.328
13	30	0.018	0.148	1.183
13	40	0.018	0.148	1.183
13	50	0.031	0.161	1.328
13	60	0.031	0.161	1.328
13	70	0.031	0.161	1.328
13	80	0.031	0.161	1.328
14	30	0.018	0.148	1.183
14	40	0.018	0.148	1.183
14	50	0.031	0.161	1.328
14	60	0.031	0.161	1.328
14	70	0.031	0.161	1.328
14	80	0.031	0.161	1.328
15	30	0.018	0.148	1.183
15	40	0.018	0.148	1.183
15	50	0.031	0.161	1.328
15	60	0.031	0.161	1.328
15	70	0.031	0.161	1.328
15	80	0.031	0.161	1.328

Link and Junction Combined Casualty Rates
Base Year
2009

Road Type	Speed Limit (mph)	Casualties per P.I.A. Fatal	Serious	Slight
1	50	0.020	0.123	1.455
1	60	0.020	0.123	1.455
1	70	0.020	0.123	1.455
2	50	0.020	0.123	1.455
2	60	0.020	0.123	1.455
2	70	0.020	0.123	1.455
3	50	0.020	0.123	1.455
3	60	0.020	0.123	1.455
3	70	0.020	0.123	1.455
4	30	0.009	0.132	1.176
4	40	0.009	0.132	1.176
4	50	0.038	0.238	1.300
4	60	0.038	0.238	1.300
4	70	0.038	0.238	1.300
4	80	0.038	0.238	1.300
5	30	0.009	0.132	1.176
5	40	0.009	0.132	1.176
5	50	0.038	0.238	1.300
5	60	0.038	0.238	1.300
5	70	0.038	0.238	1.300
5	80	0.038	0.238	1.300
6	30	0.009	0.132	1.176
6	40	0.009	0.132	1.176
6	50	0.038	0.238	1.300
6	60	0.038	0.238	1.300
6	70	0.038	0.238	1.300
6	80	0.038	0.238	1.300
7	30	0.009	0.132	1.176
7	40	0.009	0.132	1.176

7	50	0.038	0.238	1.300
7	60	0.038	0.238	1.300
7	70	0.038	0.238	1.300
7	80	0.038	0.238	1.300
8	30	0.009	0.132	1.176
8	40	0.009	0.132	1.176
8	50	0.038	0.238	1.300
8	60	0.038	0.238	1.300
8	70	0.038	0.238	1.300
8	80	0.038	0.238	1.300
9	30	0.007	0.134	1.132
9	40	0.007	0.134	1.132
9	50	0.026	0.222	1.218
9	60	0.026	0.222	1.218
9	70	0.026	0.222	1.218
9	80	0.026	0.222	1.218
10	30	0.009	0.112	1.238
10	40	0.009	0.112	1.238
10	50	0.025	0.151	1.297
10	60	0.025	0.151	1.297
10	70	0.025	0.151	1.297
10	80	0.025	0.151	1.297
11	30	0.009	0.112	1.238
11	40	0.009	0.112	1.238
11	50	0.025	0.151	1.297
11	60	0.025	0.151	1.297
11	70	0.025	0.151	1.297
11	80	0.025	0.151	1.297
12	30	0.009	0.112	1.238
12	40	0.009	0.112	1.238
12	50	0.025	0.151	1.297
12	60	0.025	0.151	1.297
12	70	0.025	0.151	1.297
12	80	0.025	0.151	1.297
13	30	0.009	0.112	1.238
13	40	0.009	0.112	1.238
13	50	0.025	0.151	1.297
13	60	0.025	0.151	1.297
13	70	0.025	0.151	1.297
13	80	0.025	0.151	1.297
14	30	0.009	0.112	1.238
14	40	0.009	0.112	1.238
14	50	0.025	0.151	1.297
14	60	0.025	0.151	1.297
14	70	0.025	0.151	1.297
14	80	0.025	0.151	1.297
15	30	0.009	0.112	1.238
15	40	0.009	0.112	1.238
15	50	0.025	0.151	1.297
15	60	0.025	0.151	1.297
15	70	0.025	0.151	1.297
15	80	0.025	0.151	1.297

Link Only Casualty Change Factors

Base Year
2009

Road Type	Speed Limit (mph)	Beta Factor		
		Fatal	Serious	Slight
1	50	0.978	0.979	1.002
1	60	0.978	0.979	1.002
1	70	0.978	0.979	1.002
2	50	0.978	0.979	1.002
2	60	0.978	0.979	1.002
2	70	0.978	0.979	1.002
3	50	0.978	0.979	1.002
3	60	0.978	0.979	1.002
3	70	0.978	0.979	1.002
4	30	0.971	0.995	1.001
4	40	0.971	0.995	1.001
4	50	0.979	0.983	1.002
4	60	0.979	0.983	1.002
4	70	0.979	0.983	1.002
4	80	0.979	0.983	1.002
5	30	0.971	0.995	1.001
5	40	0.971	0.995	1.001
5	50	0.979	0.983	1.002
5	60	0.979	0.983	1.002
5	70	0.979	0.983	1.002
5	80	0.979	0.983	1.002
6	30	0.971	0.995	1.001
6	40	0.971	0.995	1.001
6	50	0.979	0.983	1.002
6	60	0.979	0.983	1.002
6	70	0.979	0.983	1.002
6	80	0.979	0.983	1.002
7	30	0.971	0.995	1.001
7	40	0.971	0.995	1.001
7	50	0.979	0.983	1.002
7	60	0.979	0.983	1.002
7	70	0.979	0.983	1.002
7	80	0.979	0.983	1.002
8	30	0.971	0.995	1.001
8	40	0.971	0.995	1.001
8	50	0.979	0.983	1.002
8	60	0.979	0.983	1.002
8	70	0.979	0.983	1.002
8	80	0.979	0.983	1.002
9	30	0.985	0.997	1.001
9	40	0.985	0.997	1.001
9	50	0.987	0.989	0.998
9	60	0.987	0.989	0.998
9	70	0.987	0.989	0.998
9	80	0.987	0.989	0.998
10	30	0.998	0.990	1.002
10	40	0.998	0.990	1.002
10	50	0.984	0.985	0.998
10	60	0.984	0.985	0.998
10	70	0.984	0.985	0.998

10	80	0.984	0.985	0.998
11	30	0.998	0.990	1.002
11	40	0.998	0.990	1.002
11	50	0.984	0.985	0.998
11	60	0.984	0.985	0.998
11	70	0.984	0.985	0.998
11	80	0.984	0.985	0.998
12	30	0.998	0.990	1.002
12	40	0.998	0.990	1.002
12	50	0.984	0.985	0.998
12	60	0.984	0.985	0.998
12	70	0.984	0.985	0.998
12	80	0.984	0.985	0.998
13	30	0.998	0.990	1.002
13	40	0.998	0.990	1.002
13	50	0.984	0.985	0.998
13	60	0.984	0.985	0.998
13	70	0.984	0.985	0.998
13	80	0.984	0.985	0.998
14	30	0.998	0.990	1.002
14	40	0.998	0.990	1.002
14	50	0.984	0.985	0.998
14	60	0.984	0.985	0.998
14	70	0.984	0.985	0.998
14	80	0.984	0.985	0.998
15	30	0.998	0.990	1.002
15	40	0.998	0.990	1.002
15	50	0.984	0.985	0.998
15	60	0.984	0.985	0.998
15	70	0.984	0.985	0.998
15	80	0.984	0.985	0.998

Link and Junction Combined Casualty Change Factors
Base Year
2009

Road Type	Speed Limit (mph)	Beta Factor Fatal	Serious	Slight
1	50	0.978	0.979	1.002
1	60	0.978	0.979	1.002
1	70	0.978	0.979	1.002
2	50	0.978	0.979	1.002
2	60	0.978	0.979	1.002
2	70	0.978	0.979	1.002
3	50	0.978	0.979	1.002
3	60	0.978	0.979	1.002
3	70	0.978	0.979	1.002
4	30	0.971	0.995	1.001
4	40	0.971	0.995	1.001
4	50	0.979	0.983	1.002
4	60	0.979	0.983	1.002
4	70	0.979	0.983	1.002
4	80	0.979	0.983	1.002
5	30	0.971	0.995	1.001
5	40	0.971	0.995	1.001

5	50	0.979	0.983	1.002
5	60	0.979	0.983	1.002
5	70	0.979	0.983	1.002
5	80	0.979	0.983	1.002
6	30	0.971	0.995	1.001
6	40	0.971	0.995	1.001
6	50	0.979	0.983	1.002
6	60	0.979	0.983	1.002
6	70	0.979	0.983	1.002
6	80	0.979	0.983	1.002
7	30	0.971	0.995	1.001
7	40	0.971	0.995	1.001
7	50	0.979	0.983	1.002
7	60	0.979	0.983	1.002
7	70	0.979	0.983	1.002
7	80	0.979	0.983	1.002
8	30	0.971	0.995	1.001
8	40	0.971	0.995	1.001
8	50	0.979	0.983	1.002
8	60	0.979	0.983	1.002
8	70	0.979	0.983	1.002
8	80	0.979	0.983	1.002
9	30	0.985	0.997	1.001
9	40	0.985	0.997	1.001
9	50	0.987	0.989	0.998
9	60	0.987	0.989	0.998
9	70	0.987	0.989	0.998
9	80	0.987	0.989	0.998
10	30	0.998	0.990	1.002
10	40	0.998	0.990	1.002
10	50	0.984	0.985	0.998
10	60	0.984	0.985	0.998
10	70	0.984	0.985	0.998
10	80	0.984	0.985	0.998
11	30	0.998	0.990	1.002
11	40	0.998	0.990	1.002
11	50	0.984	0.985	0.998
11	60	0.984	0.985	0.998
11	70	0.984	0.985	0.998
11	80	0.984	0.985	0.998
12	30	0.998	0.990	1.002
12	40	0.998	0.990	1.002
12	50	0.984	0.985	0.998
12	60	0.984	0.985	0.998
12	70	0.984	0.985	0.998
12	80	0.984	0.985	0.998
13	30	0.998	0.990	1.002
13	40	0.998	0.990	1.002
13	50	0.984	0.985	0.998
13	60	0.984	0.985	0.998
13	70	0.984	0.985	0.998
13	80	0.984	0.985	0.998
14	30	0.998	0.990	1.002
14	40	0.998	0.990	1.002

14	50	0.984	0.985	0.998
14	60	0.984	0.985	0.998
14	70	0.984	0.985	0.998
14	80	0.984	0.985	0.998
15	30	0.998	0.990	1.002
15	40	0.998	0.990	1.002
15	50	0.984	0.985	0.998
15	60	0.984	0.985	0.998
15	70	0.984	0.985	0.998
15	80	0.984	0.985	0.998

Link Only and Link and Junction Combined Casualty Beta Factor Changes over Time

Range of Years	Change to Beta Factor
1995-2019	1.000
2020-2144	0.000

Junction Only Accident Parameters

Base Year

1997

Junction Type	Speed Limit (mph)	Coefficient 'a'	Power 'b'	Arms	Highest Link (S/D)	Formula Type
1	50	0.195	0.460	3	S	C
1	60	0.195	0.460	3	S	C
1	70	0.195	0.460	3	S	C
1	80	0.195	0.460	3	S	C
2	20	0.195	0.460	3	S	C
2	30	0.195	0.460	3	S	C
2	40	0.195	0.460	3	S	C
3	50	0.195	0.460	3	D	C
3	60	0.195	0.460	3	D	C
3	70	0.195	0.460	3	D	C
3	80	0.195	0.460	3	D	C
4	20	0.195	0.460	3	D	C
4	30	0.195	0.460	3	D	C
4	40	0.195	0.460	3	D	C
5	50	0.361	0.440	4	S	I

```
 5               60              0.361           0.440   4       S
I
 5               70              0.361           0.440   4       S
I
 5               80              0.361           0.440   4       S
I
 6               20              0.361           0.440   4       S
I
 6               30              0.361           0.440   4       S
I
 6               40              0.361           0.440   4       S
I
 7               50              0.240           0.710   4       D
C
 7               60              0.240           0.710   4       D
C
 7               70              0.240           0.710   4       D
C
 7               80              0.240           0.710   4       D
C
 8               20              0.240           0.710   4       D
C
 8               30              0.240           0.710   4       D
C
 8               40              0.240           0.710   4       D
C
 9               50              0.361           0.440   5       S
I
 9               60              0.361           0.440   5       S
I
 9               70              0.361           0.440   5       S
I
 9               80              0.361           0.440   5       S
I
 10              20              0.361           0.440   5       S
I
 10              30              0.361           0.440   5       S
I
 10              40              0.361           0.440   5       S
I
 11              50              0.361           0.440   5       D
I
 11              60              0.361           0.440   5       D
I
 11              70              0.361           0.440   5       D
I
 11              80              0.361           0.440   5       D
I
 12              20              0.361           0.440   5       D
I
 12              30              0.361           0.440   5       D
I
 12              40              0.361           0.440   5       D
I
```

```
 13              50              0.195           0.460   3       S
C
 13              60              0.195           0.460   3       S
C
 13              70              0.195           0.460   3       S
C
 13              80              0.195           0.460   3       S
C
 14              20              0.195           0.460   3       S
C
 14              30              0.195           0.460   3       S
C
 14              40              0.195           0.460   3       S
C
 15              50              0.195           0.460   3       D
C
 15              60              0.195           0.460   3       D
C
 15              70              0.195           0.460   3       D
C
 15              80              0.195           0.460   3       D
C
 16              20              0.195           0.460   3       D
C
 16              30              0.195           0.460   3       D
C
 16              40              0.195           0.460   3       D
C
 17              50              0.361           0.440   4       S
I
 17              60              0.361           0.440   4       S
I
 17              70              0.361           0.440   4       S
I
 17              80              0.361           0.440   4       S
I
 18              20              0.361           0.440   4       S
I
 18              30              0.361           0.440   4       S
I
 18              40              0.361           0.440   4       S
I
 19              50              0.240           0.710   4       D
C
 19              60              0.240           0.710   4       D
C
 19              70              0.240           0.710   4       D
C
 19              80              0.240           0.710   4       D
C
 20              20              0.240           0.710   4       D
C
 20              30              0.240           0.710   4       D
C
```

```
 20              40              0.240           0.710   4       D
C
 21              50              0.361           0.440   5       S
I
 21              60              0.361           0.440   5       S
I
 21              70              0.361           0.440   5       S
I
 21              80              0.361           0.440   5       S
I
 22              20              0.361           0.440   5       S
I
 22              30              0.361           0.440   5       S
I
 22              40              0.361           0.440   5       S
I
 23              50              0.361           0.440   5       D
I
 23              60              0.361           0.440   5       D
I
 23              70              0.361           0.440   5       D
I
 23              80              0.361           0.440   5       D
I
 24              20              0.361           0.440   5       D
I
 24              30              0.361           0.440   5       D
I
 24              40              0.361           0.440   5       D
I
 25              50              0.195           0.460   3       S
C
 25              60              0.195           0.460   3       S
C
 25              70              0.195           0.460   3       S
C
 25              80              0.195           0.460   3       S
C
 26              20              0.195           0.460   3       S
C
 26              30              0.195           0.460   3       S
C
 26              40              0.195           0.460   3       S
C
 27              50              0.195           0.460   3       D
C
 27              60              0.195           0.460   3       D
C
 27              70              0.195           0.460   3       D
C
 27              80              0.195           0.460   3       D
C
 28              20              0.195           0.460   3       D
C
```

```
 28              30              0.195           0.460   3       D
C
 28              40              0.195           0.460   3       D
C
 29              50              0.361           0.440   4       S
I
 29              60              0.361           0.440   4       S
I
 29              70              0.361           0.440   4       S
I
 29              80              0.361           0.440   4       S
I
 30              20              0.361           0.440   4       S
I
 30              30              0.361           0.440   4       S
I
 30              40              0.361           0.440   4       S
I
 31              50              0.240           0.710   4       D
C
 31              60              0.240           0.710   4       D
C
 31              70              0.240           0.710   4       D
C
 31              80              0.240           0.710   4       D
C
 32              20              0.240           0.710   4       D
C
 32              30              0.240           0.710   4       D
C
 32              40              0.240           0.710   4       D
C
 33              50              0.361           0.440   5       S
I
 33              60              0.361           0.440   5       S
I
 33              70              0.361           0.440   5       S
I
 33              80              0.361           0.440   5       S
I
 34              20              0.361           0.440   5       S
I
 34              30              0.361           0.440   5       S
I
 34              40              0.361           0.440   5       S
I
 35              50              0.361           0.440   5       D
I
 35              60              0.361           0.440   5       D
I
 35              70              0.361           0.440   5       D
I
 35              80              0.361           0.440   5       D
I
```

```
 36              20              0.361           0.440   5       D
I
 36              30              0.361           0.440   5       D
I
 36              40              0.361           0.440   5       D
I
 37              50              0.223           0.610   3       S
I
 37              60              0.223           0.610   3       S
I
 37              70              0.223           0.610   3       S
I
 37              80              0.223           0.610   3       S
I
 38              20              0.223           0.610   3       S
I
 38              30              0.223           0.610   3       S
I
 38              40              0.223           0.610   3       S
I
 39              50              0.494           0.420   3       D
C
 39              60              0.494           0.420   3       D
C
 39              70              0.494           0.420   3       D
C
 39              80              0.494           0.420   3       D
C
 40              20              0.291           0.510   3       D
C
 40              30              0.291           0.510   3       D
C
 40              40              0.291           0.510   3       D
C
 41              50              1.378           0.200   4       S
C
 41              60              1.378           0.200   4       S
C
 41              70              1.378           0.200   4       S
C
 41              80              1.378           0.200   4       S
C
 42              20              1.378           0.200   4       S
C
 42              30              1.378           0.200   4       S
C
 42              40              1.378           0.200   4       S
C
 43              50              0.494           0.420   4       D
C
 43              60              0.494           0.420   4       D
C
 43              70              0.494           0.420   4       D
C
```

43	80	0.494	0.420	4	D C
44	20	0.291	0.510	4	D C
44	30	0.291	0.510	4	D C
44	40	0.291	0.510	4	D C
45	50	0.254	0.620	5	S I
45	60	0.254	0.620	5	S I
45	70	0.254	0.620	5	S I
45	80	0.254	0.620	5	S I
46	20	0.254	0.620	5	S I
46	30	0.254	0.620	5	S I
46	40	0.254	0.620	5	S I
47	50	0.238	0.850	5	D I
47	60	0.238	0.850	5	D I
47	70	0.238	0.850	5	D I
47	80	0.238	0.850	5	D I
48	20	0.160	0.970	5	D I
48	30	0.160	0.970	5	D I
48	40	0.160	0.970	5	D I
49	50	0.033	0.760	3	S C
49	60	0.033	0.760	3	S C
49	70	0.033	0.760	3	S C
49	80	0.033	0.760	3	S C
50	20	0.033	0.760	3	S C
50	30	0.033	0.760	3	S C
50	40	0.033	0.760	3	S C
51	50	0.033	0.760	3	D C
51	60	0.033	0.760	3	D C

```
 51              70              0.033           0.760   3       D
C
 51              80              0.033           0.760   3       D
C
 52              20              0.033           0.760   3       D
C
 52              30              0.033           0.760   3       D
C
 52              40              0.033           0.760   3       D
C
 53              50              0.024           0.890   4       S
C
 53              60              0.024           0.890   4       S
C
 53              70              0.024           0.890   4       S
C
 53              80              0.024           0.890   4       S
C
 54              20              0.048           0.740   4       S
C
 54              30              0.048           0.740   4       S
C
 54              40              0.048           0.740   4       S
C
 55              50              0.063           0.690   4       D
C
 55              60              0.063           0.690   4       D
C
 55              70              0.063           0.690   4       D
C
 55              80              0.063           0.690   4       D
C
 56              20              0.022           0.850   4       D
C
 56              30              0.022           0.850   4       D
C
 56              40              0.022           0.850   4       D
C
 57              50              0.007           1.770   5       S
I
 57              60              0.007           1.770   5       S
I
 57              70              0.007           1.770   5       S
I
 57              80              0.007           1.770   5       S
I
 58              20              0.014           1.530   5       S
I
 58              30              0.014           1.530   5       S
I
 58              40              0.014           1.530   5       S
I
 59              50              0.019           1.420   5       D
I
```

```
 59              60              0.019           1.420   5       D
I
 59              70              0.019           1.420   5       D
I
 59              80              0.019           1.420   5       D
I
 60              20              0.006           1.730   5       D
I
 60              30              0.006           1.730   5       D
I
 60              40              0.006           1.730   5       D
I
 61              50              0.033           0.760   3       S
C
 61              60              0.033           0.760   3       S
C
 61              70              0.033           0.760   3       S
C
 61              80              0.033           0.760   3       S
C
 62              20              0.033           0.760   3       S
C
 62              30              0.033           0.760   3       S
C
 62              40              0.033           0.760   3       S
C
 63              50              0.033           0.760   3       D
C
 63              60              0.033           0.760   3       D
C
 63              70              0.033           0.760   3       D
C
 63              80              0.033           0.760   3       D
C
 64              20              0.033           0.760   3       D
C
 64              30              0.033           0.760   3       D
C
 64              40              0.033           0.760   3       D
C
 65              50              0.101           0.660   4       S
C
 65              60              0.101           0.660   4       S
C
 65              70              0.101           0.660   4       S
C
 65              80              0.101           0.660   4       S
C
 66              20              0.263           0.540   4       S
C
 66              30              0.263           0.540   4       S
C
 66              40              0.263           0.540   4       S
C
```

```
 67              50              0.101           0.660   4       D
C
 67              60              0.101           0.660   4       D
C
 67              70              0.101           0.660   4       D
C
 67              80              0.101           0.660   4       D
C
 68              20              0.263           0.540   4       D
C
 68              30              0.263           0.540   4       D
C
 68              40              0.263           0.540   4       D
C
 69              50              0.044           1.280   5       S
I
 69              60              0.044           1.280   5       S
I
 69              70              0.044           1.280   5       S
I
 69              80              0.044           1.280   5       S
I
 70              20              0.095           1.140   5       S
I
 70              30              0.095           1.140   5       S
I
 70              40              0.095           1.140   5       S
I
 71              50              0.044           1.280   5       D
I
 71              60              0.044           1.280   5       D
I
 71              70              0.044           1.280   5       D
I
 71              80              0.044           1.280   5       D
I
 72              20              0.095           1.140   5       D
I
 72              30              0.095           1.140   5       D
I
 72              40              0.095           1.140   5       D
I
 73              50              0.012           1.040   3       S
C
 73              60              0.012           1.040   3       S
C
 73              70              0.012           1.040   3       S
C
 73              80              0.012           1.040   3       S
C
 74              20              0.012           1.040   3       S
C
 74              30              0.012           1.040   3       S
C
```

```
 74              40              0.012           1.040   3       S
C
 75              50              0.012           1.040   3       D
C
 75              60              0.012           1.040   3       D
C
 75              70              0.012           1.040   3       D
C
 75              80              0.012           1.040   3       D
C
 76              20              0.012           1.040   3       D
C
 76              30              0.012           1.040   3       D
C
 76              40              0.012           1.040   3       D
C
 77              50              0.070           0.640   4       S
C
 77              60              0.070           0.640   4       S
C
 77              70              0.070           0.640   4       S
C
 77              80              0.070           0.640   4       S
C
 78              20              0.070           0.640   4       S
C
 78              30              0.070           0.640   4       S
C
 78              40              0.070           0.640   4       S
C
 79              50              0.070           0.640   4       D
C
 79              60              0.070           0.640   4       D
C
 79              70              0.070           0.640   4       D
C
 79              80              0.070           0.640   4       D
C
 80              20              0.070           0.640   4       D
C
 80              30              0.070           0.640   4       D
C
 80              40              0.070           0.640   4       D
C
 81              50              0.013           1.470   5       S
I
 81              60              0.013           1.470   5       S
I
 81              70              0.013           1.470   5       S
I
 81              80              0.013           1.470   5       S
I
 82              20              0.013           1.470   5       S
I
```

```
 82              30              0.013           1.470   5       S
I
 82              40              0.013           1.470   5       S
I
 83              50              0.013           1.470   5       D
I
 83              60              0.013           1.470   5       D
I
 83              70              0.013           1.470   5       D
I
 83              80              0.013           1.470   5       D
I
 84              20              0.013           1.470   5       D
I
 84              30              0.013           1.470   5       D
I
 84              40              0.013           1.470   5       D
I
 85              50              0.033           0.760   3       S
C
 85              60              0.033           0.760   3       S
C
 85              70              0.033           0.760   3       S
C
 85              80              0.033           0.760   3       S
C
 86              20              0.033           0.760   3       S
C
 86              30              0.033           0.760   3       S
C
 86              40              0.033           0.760   3       S
C
 87              50              0.033           0.760   3       D
C
 87              60              0.033           0.760   3       D
C
 87              70              0.033           0.760   3       D
C
 87              80              0.033           0.760   3       D
C
 88              20              0.033           0.760   3       D
C
 88              30              0.033           0.760   3       D
C
 88              40              0.033           0.760   3       D
C
 89              50              0.024           0.890   4       S
C
 89              60              0.024           0.890   4       S
C
 89              70              0.024           0.890   4       S
C
 89              80              0.024           0.890   4       S
C
```

90	20	0.048	0.740	4	S C
90	30	0.048	0.740	4	S C
90	40	0.048	0.740	4	S C
91	50	0.063	0.690	4	D C
91	60	0.063	0.690	4	D C
91	70	0.063	0.690	4	D C
91	80	0.063	0.690	4	D C
92	20	0.022	0.850	4	D C
92	30	0.022	0.850	4	D C
92	40	0.022	0.850	4	D C
93	50	0.007	1.770	5	S I
93	60	0.007	1.770	5	S I
93	70	0.007	1.770	5	S I
93	80	0.007	1.770	5	S I
94	20	0.014	1.530	5	S I
94	30	0.014	1.530	5	S I
94	40	0.014	1.530	5	S I
95	50	0.019	1.420	5	D I
95	60	0.019	1.420	5	D I
95	70	0.019	1.420	5	D I
95	80	0.019	1.420	5	D I
96	20	0.006	1.730	5	D I
96	30	0.006	1.730	5	D I
96	40	0.006	1.730	5	D I

Junction Only Accident Change Factors
Base Year
2000

Classification	Speed Limit (mph)	Beta Factor

Major	20	0.991
Major	30	0.991
Major	40	0.991
Major	50	0.984
Major	60	0.984
Major	70	0.984
Major	80	0.984
Minor	20	0.976
Minor	30	0.976
Minor	40	0.976
Minor	50	0.996
Minor	60	0.996
Minor	70	0.996
Minor	80	0.996

Junction Only Accident Beta Factor Changes over Time

Range of Years	Change to Beta Factor
1995-2010	1.000
2011-2020	0.500
2021-2030	0.250
2031-2144	0.000

Junction Only Casualty Rates

Base Year
2000

Road Type	Casualties per P.I.A.		
	Fatal	Serious	Slight
1	0.0265	0.2413	1.355
2	0.0075	0.1350	1.144
3	0.0265	0.2413	1.355
4	0.0075	0.1350	1.144
5	0.0295	0.2793	1.459
6	0.0062	0.1292	1.244
7	0.0295	0.2793	1.459
8	0.0062	0.1292	1.244
9	0.0295	0.2793	1.459
10	0.0062	0.1292	1.244
11	0.0295	0.2793	1.459
12	0.0062	0.1292	1.244
13	0.0265	0.2413	1.355
14	0.0075	0.1350	1.144
15	0.0265	0.2413	1.355
16	0.0075	0.1350	1.144
17	0.0295	0.2793	1.459
18	0.0062	0.1292	1.244
19	0.0295	0.2793	1.459
20	0.0062	0.1292	1.244
21	0.0295	0.2793	1.459
22	0.0062	0.1292	1.244
23	0.0295	0.2793	1.459
24	0.0062	0.1292	1.244
25	0.0265	0.2413	1.355
26	0.0075	0.1350	1.144
27	0.0265	0.2413	1.355

28	0.0075	0.1350	1.144
29	0.0295	0.2793	1.459
30	0.0062	0.1292	1.244
31	0.0295	0.2793	1.459
32	0.0062	0.1292	1.244
33	0.0295	0.2793	1.459
34	0.0062	0.1292	1.244
35	0.0295	0.2793	1.459
36	0.0062	0.1292	1.244
37	0.0092	0.1631	1.444
38	0.0064	0.1157	1.214
39	0.0092	0.1631	1.444
40	0.0064	0.1157	1.214
41	0.0095	0.1423	1.467
42	0.0061	0.1177	1.253
43	0.0095	0.1423	1.467
44	0.0061	0.1177	1.253
45	0.0095	0.1423	1.467
46	0.0061	0.1177	1.253
47	0.0095	0.1423	1.467
48	0.0061	0.1177	1.253
49	0.0060	0.1019	1.214
50	0.0027	0.0806	1.163
51	0.0060	0.1019	1.214
52	0.0027	0.0806	1.163
53	0.0060	0.1019	1.214
54	0.0027	0.0806	1.163
55	0.0060	0.1019	1.214
56	0.0027	0.0806	1.163
57	0.0060	0.1019	1.214
58	0.0027	0.0806	1.163
59	0.0060	0.1019	1.214
60	0.0027	0.0806	1.163
61	0.0060	0.1019	1.214
62	0.0027	0.0806	1.163
63	0.0060	0.1019	1.214
64	0.0027	0.0806	1.163
65	0.0060	0.1019	1.214
66	0.0027	0.0806	1.163
67	0.0060	0.1019	1.214
68	0.0027	0.0806	1.163
69	0.0060	0.1019	1.214
70	0.0027	0.0806	1.163
71	0.0060	0.1019	1.214
72	0.0027	0.0806	1.163
73	0.0060	0.1019	1.214
74	0.0028	0.0965	1.182
75	0.0060	0.1019	1.214
76	0.0028	0.0965	1.182
77	0.0060	0.1019	1.214
78	0.0028	0.0965	1.182
79	0.0060	0.1019	1.214
80	0.0028	0.0965	1.182
81	0.0060	0.1019	1.214

82	0.0028	0.0965	1.182
83	0.0060	0.1019	1.214
84	0.0028	0.0965	1.182
85	0.0039	0.0703	1.258
86	0.0031	0.0705	1.221
87	0.0039	0.0703	1.258
88	0.0031	0.0705	1.221
89	0.0039	0.0703	1.258
90	0.0031	0.0705	1.221
91	0.0039	0.0703	1.258
92	0.0031	0.0705	1.221
93	0.0039	0.0703	1.258
94	0.0031	0.0705	1.221
95	0.0039	0.0703	1.258
96	0.0031	0.0705	1.221

Junction Only Casualty Change Factors

Base Year

2000

Classification	Speed Limit (mph)	Beta Factor Fatal	Serious	Slight
Major	20	0.949	0.962	1.010
Major	30	0.949	0.962	1.010
Major	40	0.949	0.962	1.010
Major	50	0.961	0.959	1.011
Major	60	0.961	0.959	1.011
Major	70	0.961	0.959	1.011
Major	80	0.961	0.959	1.011
Minor	20	0.968	0.958	1.006
Minor	30	0.968	0.958	1.006
Minor	40	0.968	0.958	1.006
Minor	50	0.976	0.972	1.011
Minor	60	0.976	0.972	1.011
Minor	70	0.976	0.972	1.011
Minor	80	0.976	0.972	1.011

Junction Only Casualty Beta Factor Changes over Time

Range of Years	Change to Beta Factor
1995-2010	1.000
2011-2144	0.000

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*************************************************************************
*                                                                       *
*        CCC      OOO     BBBB      AAA             L         TTTTT      *
*       C   C    O   O    B   B    A   A            L           T        *
*       C        O   O    B   B    A   A            L           T        *
*       C        O   O    BBBB     AAAAA    ----    L           T        *
*       C        O   O    B   B    A   A            L           T        *
*       C   C    O   O    B   B    A   A            L           T        *
*        CCC      OOO     BBBB     A   A            LLLLL       T        *
*                                                                       *
*************************************************************************
*                                                                       *
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Written by Roger Himlin

Contents

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[Section 1] Summary Statistics

[Section 1.1] Economic Summary

Total Without-Scheme Accident Costs = 290,912.5
Total With-Scheme Accident Costs = 285,891.1

Total Accident Benefits Saved by Scheme = 5,021.4

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 1.2] Accident Summary

Total Without-Scheme Accidents = 5,956.2
Total With-Scheme Accidents = 5,802.0

Total Accidents Saved by Scheme = 154.2

[Section 1.3] Casualty Summary

Total Without-Scheme Casualties (Fatal) = 57.8
(Serious) = 742.9
(Slight) = 7,280.8
Total With-Scheme Casualties (Fatal) = 58.7
(Serious) = 701.6
(Slight) = 7,163.6

Total Casualties Saved by Scheme (Fatal) = -0.9
(Serious) = 41.3
(Slight) = 117.2

[Section 2] Accident Statistics

[Section 2.1] Link Accident Statistics

Link Name	Without-Scheme: Number of Accidents 2023	2038	Total	Cost	With-Scheme: Number of Accidents 2023	2038	Total	Cost	Benefit: Number of Accidents 2023	2038	Total
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0 0.0 0.0 0.0 0.0 0.0

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 2.2] Junction Accident Statistics

	---------- Without-Scheme ---------			*---------- With-Scheme ----------*			*------------ Benefits ------------*
	-- Number of Accidents -		Total*	*-- Number of Accidents -*		Total*	
Junction Name	* 2023	2038	Total*	Cost*	* 2023	2038	Total*	Benefit*
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 2.3] Combined Link and Junction Accident Statistics

	---------- Without-Scheme ---------			*---------- With-Scheme ----------*			*------------ Benefits ------------*
	-- Number of Accidents -		Total*	*-- Number of Accidents -*		Total*	
Link Name	* 2023	2038	Total*	Cost*	* 2023	2038	Total*	Benefit*
14341432	0.0	0.0	2.8	131.7	0.0	0.1	3.6	167.3
14341442	0.0	0.0	0.5	21.9	0.0	0.0	0.4	18.4
14621444	0.0	0.1	5.1	235.8	0.0	0.1	5.6	262.9
14421446	0.0	0.0	1.2	57.5	0.0	0.0	1.1	51.9
14701462	0.0	0.0	1.8	83.5	0.0	0.0	1.9	90.5
14761470	0.0	0.0	1.4	66.1	0.0	0.0	1.6	75.4
14661472	0.0	0.0	1.5	67.8	0.0	0.0	1.3	62.2
100991476	0.1	1.4	87.4	4,072.3	0.1	1.7	101.8	4,742.7
100931482	0.0	0.2	11.7	544.5	0.0	0.2	13.9	645.2
100851496	0.0	0.4	21.5	1,001.9	0.0	0.3	18.1	844.1
101321558	0.0	0.3	17.2	802.1	0.0	0.4	27.2	1,266.1
15801558	0.1	0.8	48.2	2,247.3	0.1	0.5	32.9	1,534.5

15981580		0.0	0.2	13.8	642.1	0.0	0.2	10.3	480.3	0.0	0.1	3.5	161.9
76001598		0.2	2.2	132.7	6,190.0	0.1	1.4	87.4	4,080.5	0.0	0.7	45.3	2,109.5
102071656		0.1	0.5	30.5	1,426.5	0.0	0.7	40.5	1,887.1	0.0	-0.2	-9.9	-460.6
17221660		0.0	0.3	20.6	961.0	0.0	0.4	24.4	1,138.4	0.0	-0.1	-3.8	-177.3
100991660		0.1	0.5	32.2	1,501.1	0.1	0.5	28.8	1,344.4	0.0	0.1	3.4	156.8
101201702		0.0	0.2	12.7	589.7	0.0	0.3	15.5	720.3	0.0	0.0	-2.8	-130.6
17641722		0.0	0.4	25.2	1,175.1	0.0	0.5	29.8	1,392.0	0.0	-0.1	-4.6	-216.8
16601722		0.0	0.4	24.1	1,122.9	0.0	0.4	21.6	1,009.8	0.0	0.0	2.4	113.1
18041764		0.0	0.3	19.4	905.0	0.0	0.5	28.0	1,304.7	0.0	-0.1	-8.6	-399.7
17221764		0.1	0.5	29.4	1,373.1	0.1	0.4	26.4	1,234.8	0.0	0.0	3.0	138.3
18801772		0.1	1.0	61.4	2,863.8	0.0	0.0	0.0	0.0	0.1	1.0	61.4	2,863.8
17961772		0.3	3.8	228.0	10,630.2	0.3	2.4	146.3	6,831.4	0.0	1.4	81.7	3,798.8
18161804		0.0	0.1	7.2	335.1	0.0	0.1	8.9	415.6	0.0	0.0	-1.7	-80.5
18341816		0.0	0.0	2.9	136.0	0.0	0.1	3.6	168.6	0.0	0.0	-0.7	-32.7
18341828		0.0	0.0	1.8	84.8	0.0	0.0	2.4	112.8	0.0	0.0	-0.6	-28.1
18501834		0.0	0.1	5.0	231.2	0.0	0.1	6.4	296.3	0.0	0.0	-1.4	-65.1
102071844		0.0	0.5	28.5	1,330.2	0.0	0.4	25.4	1,186.7	0.0	0.1	3.1	143.4
102091846		0.0	0.0	1.8	84.3	0.0	0.1	3.6	170.1	0.0	0.0	-1.8	-85.8
18641850		0.0	0.2	11.3	527.4	0.0	0.2	13.0	606.0	0.0	0.0	-1.7	-78.6
101061850		0.1	0.6	37.8	1,764.9	0.0	0.0	0.0	0.0	0.1	0.6	37.8	1,764.9
20441856		0.3	3.4	207.3	9,674.5	0.0	0.0	0.0	0.0	0.3	3.4	207.3	9,674.5
18281856		0.0	0.3	18.2	847.9	0.0	0.3	20.7	967.2	0.0	0.0	-2.6	-119.2
18561864		0.0	0.2	9.9	463.1	0.0	0.2	11.5	535.7	0.0	0.0	-1.6	-72.6
18781874		0.0	0.0	1.8	84.1	0.0	0.0	1.5	70.3	0.0	0.0	0.3	13.8
20441878		0.0	0.6	36.5	1,703.3	0.0	0.5	28.1	1,309.9	0.0	0.1	8.4	393.4
18981884		0.0	0.0	2.9	137.6	0.0	0.1	3.7	172.0	0.0	0.0	-0.7	-34.4
101181886		0.0	0.3	19.5	910.3	0.0	0.4	25.0	1,165.8	0.0	-0.1	-5.5	-255.5

76141886	0.1	1.3	79.4	3,704.5	0.1	1.4	87.2	4,066.6	0.0	-0.1	-7.8	-362.2
19681892	0.2	2.2	133.4	6,221.7	0.2	2.9	176.3	8,219.2	0.0	-0.7	-43.0	-1,997.5
101181892	0.0	0.1	6.3	291.8	0.0	0.1	6.8	318.5	0.0	0.0	-0.6	-26.6
90131898	0.0	0.3	18.6	867.5	0.0	0.4	23.1	1,079.2	0.0	-0.1	-4.6	-211.7
20181968	0.1	1.5	93.7	4,373.6	0.1	2.0	119.9	5,587.2	0.0	-0.4	-26.1	-1,213.6
79401982	0.1	1.6	98.0	4,558.4	0.0	0.4	24.0	1,119.0	0.0	1.2	74.0	3,439.4
95151982	0.2	2.5	150.2	7,010.3	0.2	2.7	164.0	7,652.1	0.0	-0.2	-13.9	-641.9
19961984	0.1	1.4	83.2	3,882.0	0.1	1.2	71.0	3,313.0	0.0	0.2	12.2	569.0
90161994	0.0	0.1	7.2	399.1	0.0	0.1	8.9	490.8	0.0	0.0	-1.7	-91.7
20141996	0.0	0.4	21.6	1,010.1	0.0	0.3	18.5	862.0	0.0	0.1	3.2	148.0
19841996	0.1	1.3	77.3	3,606.3	0.1	1.7	100.3	4,677.4	0.0	-0.4	-23.1	-1,071.1
75962018	0.1	0.7	40.4	1,884.6	0.1	0.8	50.9	2,372.0	0.0	-0.2	-10.5	-487.4
20442038	0.1	1.0	62.7	2,927.6	0.0	0.0	0.0	0.0	0.1	1.0	62.7	2,927.6
18562044	0.4	3.8	232.4	10,843.6	0.0	0.0	0.0	0.0	0.4	3.8	232.4	10,843.6
20582048	0.0	0.1	4.8	222.7	0.0	0.1	4.4	205.1	0.0	0.0	0.4	17.6
75982060	0.0	0.2	11.8	549.5	0.0	0.3	18.7	872.6	0.0	-0.1	-6.9	-323.1
20962066	0.1	0.6	33.7	1,862.8	0.1	0.7	40.1	2,216.4	0.0	-0.1	-6.4	-353.5
19942070	0.1	0.7	42.0	2,319.7	0.1	0.8	45.5	2,514.4	0.0	-0.1	-3.5	-194.8
73722084	0.2	2.1	129.3	6,035.3	0.2	3.2	192.7	8,983.6	0.0	-1.0	-63.3	-2,948.4
95092086	0.0	0.1	5.3	245.6	0.0	0.0	0.0	0.0	0.0	0.1	5.3	245.6
100562096	0.1	0.6	34.1	1,593.2	0.1	0.7	40.6	1,895.7	0.0	-0.1	-6.5	-302.6
73712182	0.0	0.2	10.4	485.9	0.0	0.3	15.3	713.3	0.0	-0.1	-4.9	-227.5
73772182	0.0	0.1	3.4	160.3	0.0	0.1	3.8	178.2	0.0	0.0	-0.4	-18.0
90102218	0.0	0.1	4.7	218.9	0.0	0.2	12.8	595.9	0.0	-0.1	-8.1	-377.0
22482218	0.0	0.0	2.4	132.1	0.0	0.0	3.0	165.8	0.0	0.0	-0.6	-33.7
73702222	0.0	0.2	14.5	798.9	0.0	0.3	16.1	888.2	0.0	0.0	-1.6	-89.3
22462244	0.0	0.1	3.8	179.4	0.0	0.1	3.5	163.6	0.0	0.0	0.3	15.8

90092246		0.0	0.4	21.9	1,021.7	0.0	0.3	17.7	825.3	0.0	0.1	4.2	196.3		
22502248		0.1	0.9	51.6	2,846.8	0.1	0.9	56.7	3,129.3	0.0	-0.1	-5.1	-282.5		
24242250		0.1	0.9	53.6	2,960.2	0.1	1.0	59.0	3,259.2	0.0	-0.1	-5.4	-299.1		
22442252		0.0	0.1	4.4	207.1	0.0	0.1	3.9	182.9	0.0	0.0	0.5	24.2		
22682262		0.0	0.0	2.2	100.5	0.0	0.1	3.1	145.6	0.0	0.0	-1.0	-45.1		
22742268		0.0	0.1	4.1	190.4	0.0	0.1	5.8	270.0	0.0	0.0	-1.7	-79.6		
90072268		0.0	0.1	8.3	389.0	0.0	0.2	13.0	607.4	0.0	-0.1	-4.7	-218.4		
22802272		0.0	0.3	15.8	734.2	0.0	0.3	17.6	819.0	0.0	0.0	-1.8	-84.9		
22602272		0.0	0.0	0.3	12.2	0.0	0.0	0.9	42.9	0.0	0.0	-0.7	-30.7		
22722274		0.0	0.1	4.6	216.7	0.0	0.1	5.5	258.4	0.0	0.0	-0.9	-41.7		
76782280		0.1	1.2	75.4	5,349.2	0.1	1.4	84.1	5,966.7	0.0	-0.1	-8.7	-617.6		
22602280		0.0	0.3	19.0	885.0	0.0	0.3	17.3	807.0	0.0	0.0	1.7	78.0		
23742372		0.0	0.0	2.2	104.5	0.0	0.0	2.0	93.6	0.0	0.0	0.2	11.0		
24362420		0.1	0.8	50.9	2,376.7	0.1	0.8	45.9	2,144.8	0.0	0.1	5.0	231.9		
24782436		0.0	0.2	11.6	644.0	0.0	0.2	10.5	579.7	0.0	0.0	1.2	64.3		
74862478		0.1	1.2	71.6	5,088.7	0.1	1.1	64.4	4,580.9	0.0	0.1	7.2	507.8		
25762546		0.2	3.2	194.0	9,038.1	0.2	3.5	212.0	9,876.0	0.0	-0.3	-18.0	-837.8		
76782546		0.1	1.1	68.6	4,874.5	0.1	1.0	62.6	4,444.7	0.0	0.1	6.1	429.8		
26002572		0.0	0.1	7.8	362.6	0.0	0.0	0.1	5.7	0.0	0.1	7.7	357.0		
25462576		0.3	3.6	216.0	10,070.4	0.3	3.2	193.0	9,003.5	0.0	0.4	23.0	1,066.9		
25942592		0.0	0.1	6.8	316.3	0.0	0.1	6.2	289.1	0.0	0.0	0.6	27.2		
76822600		0.0	0.1	3.5	161.8	0.0	0.0	0.1	2.5	0.0	0.1	3.4	159.3		
90052638		0.2	1.9	115.0	5,361.2	0.2	1.6	97.0	4,523.8	0.0	0.3	18.0	837.4		
26382640		0.0	0.1	4.9	347.7	0.0	0.1	4.1	288.3	0.0	0.0	0.8	59.4		
27142706		0.1	1.1	66.1	3,083.2	0.1	0.9	54.9	2,562.5	0.0	0.2	11.2	520.7		
27102708		0.0	0.1	5.3	249.7	0.0	0.1	5.1	239.4	0.0	0.0	0.2	10.3		
75882710		0.1	1.4	84.7	3,951.4	0.1	1.2	73.6	3,434.6	0.0	0.2	11.1	516.9		

27082712	0.0	0.1	5.1	236.9	0.0	0.1	4.7	219.5	0.0	0.0	0.4	17.4			
27282714	0.2	2.0	119.8	5,587.5	0.2	1.6	99.5	4,643.8	0.0	0.3	20.3	943.7			
26402728	0.5	6.2	377.2	17,588.1	0.5	5.1	307.0	14,324.8	0.0	1.2	70.2	3,263.4			
21827370	0.0	0.1	8.6	401.6	0.0	0.2	9.6	446.5	0.0	0.0	-1.0	-44.9			
22187371	0.0	0.2	13.7	754.9	0.0	0.3	20.1	1,108.2	0.0	-0.1	-6.4	-353.4			
73767372	0.0	0.1	7.6	353.7	0.0	0.2	11.3	526.6	0.0	-0.1	-3.7	-172.9			
20807373	0.2	2.7	164.0	7,652.5	0.2	3.0	179.2	8,362.3	0.0	-0.3	-15.2	-709.8			
73777376	0.0	0.1	4.2	198.3	0.0	0.1	6.3	294.3	0.0	0.0	-2.1	-96.0			
73737376	0.0	0.2	9.7	452.1	0.0	0.2	10.6	494.0	0.0	0.0	-0.9	-41.9			
21827377	0.0	0.1	4.2	194.7	0.0	0.1	6.2	288.9	0.0	0.0	-2.0	-94.2			
73767377	0.0	0.1	4.9	230.5	0.0	0.1	5.4	250.9	0.0	0.0	-0.4	-20.4			
95397486	0.1	1.4	87.4	6,210.9	0.1	1.3	78.7	5,596.2	0.0	0.1	8.7	614.7			
27067588	0.1	1.2	72.8	3,396.2	0.1	1.0	63.3	2,952.0	0.0	0.2	9.6	444.3			
90147596	0.0	0.5	28.4	1,323.8	0.0	0.6	34.7	1,617.3	0.0	-0.1	-6.3	-293.6			
20147598	0.0	0.1	4.0	184.8	0.0	0.2	11.3	526.2	0.0	-0.1	-7.3	-341.4			
17727600	0.2	1.8	110.4	5,149.2	0.1	1.2	70.6	3,293.6	0.0	0.7	39.8	1,855.6			
101297614	0.0	0.2	12.8	597.8	0.0	0.0	0.0	0.0	0.0	0.2	12.8	597.8			
18867614	0.1	1.2	75.3	3,510.2	0.1	1.6	96.5	4,499.4	0.0	-0.4	-21.3	-989.2			
20867636	0.1	0.7	43.2	2,016.7	0.0	0.0	0.0	0.0	0.1	0.7	43.2	2,016.7			
22807678	0.1	1.3	80.8	5,737.5	0.1	1.2	73.6	5,231.6	0.0	0.1	7.1	505.9			
25467678	0.1	1.1	64.0	4,544.6	0.1	1.2	71.4	5,069.2	0.0	-0.1	-7.4	-524.7			
25727940	0.0	1.2	71.8	3,335.6	0.0	0.1	4.1	192.3	0.0	1.1	67.7	3,143.3			
25769005	0.3	4.0	242.4	11,302.1	0.3	3.5	210.4	9,815.8	0.0	0.5	32.0	1,486.3			
22229007	0.0	0.2	10.4	486.1	0.0	0.3	16.3	758.9	0.0	-0.1	-5.8	-272.9			
22489009	0.0	0.3	15.9	739.3	0.0	0.2	12.8	597.2	0.0	0.1	3.1	142.1			
22629010	0.0	0.1	8.0	374.2	0.0	0.4	21.9	1,018.8	0.0	-0.2	-13.8	-644.6			
20169013	0.0	0.0	1.2	55.8	0.0	0.0	1.5	69.4	0.0	0.0	-0.3	-13.6			

20169014	0.0	0.1	5.6	263.2	0.0	0.1	7.2	334.6	0.0	0.0	-1.5	-71.5							
20669016	0.0	0.1	6.9	379.7	0.0	0.1	8.5	467.0	0.0	0.0	-1.6	-87.3							
100589509	0.2	1.6	94.1	4,393.8	0.0	0.0	0.0	0.0	0.2	1.6	94.1	4,393.8							
18929515	0.0	0.1	7.1	329.8	0.0	0.1	7.6	353.8	0.0	0.0	-0.5	-24.0							
19969519	0.0	0.3	21.0	980.4	0.0	0.5	27.3	1,271.5	0.0	-0.1	-6.3	-291.2							
25929539	0.0	0.0	1.6	86.6	0.0	0.0	1.4	78.1	0.0	0.0	0.2	8.6							
763610056	0.0	0.4	22.5	1,051.5	0.0	0.0	0.0	0.0	0.0	0.4	22.5	1,051.5							
203810058	0.1	0.9	56.4	2,637.4	0.0	0.0	0.0	0.0	0.1	0.9	56.4	2,637.4							
149410085	0.0	0.1	9.1	422.6	0.0	0.1	7.7	357.9	0.0	0.0	1.4	64.7							
143210093	0.0	0.2	12.1	563.3	0.0	0.3	15.4	715.4	0.0	-0.1	-3.3	-152.1							
147210099	0.2	1.5	89.8	4,191.6	0.2	1.3	80.8	3,776.7	0.0	0.1	8.9	414.9							
166010099	0.0	0.5	31.6	1,472.2	0.0	0.6	37.3	1,737.3	0.0	-0.1	-5.7	-265.1							
1012910106	0.0	0.2	12.2	566.9	0.0	0.0	0.0	0.0	0.0	0.2	12.2	566.9							
185010106	0.1	0.6	37.9	1,767.7	0.0	0.0	0.0	0.0	0.1	0.6	37.9	1,767.7							
188610118	0.0	0.3	19.9	927.9	0.0	0.4	21.7	1,012.5	0.0	0.0	-1.8	-84.6							
189210118	0.0	0.1	6.1	286.3	0.0	0.1	7.9	366.7	0.0	0.0	-1.7	-80.3							
188610120	0.0	0.3	20.6	959.7	0.0	0.5	28.4	1,324.1	0.0	-0.1	-7.8	-364.5							
761410129	0.0	0.2	12.1	566.7	0.0	0.0	0.0	0.0	0.0	0.2	12.1	566.7							
1010610129	0.0	0.2	12.8	597.8	0.0	0.0	0.0	0.0	0.0	0.2	12.8	597.8							
165610132	0.0	0.1	6.0	280.8	0.0	0.2	9.5	442.2	0.0	-0.1	-3.5	-161.4							
184410207	0.0	0.4	23.1	1,079.1	0.0	0.5	29.2	1,363.7	0.0	-0.1	-6.1	-284.7							
184410209	0.0	0.0	2.9	135.4	0.0	0.1	4.6	214.0	0.0	0.0	-1.7	-78.6							
10007	0.0	0.0	0.0	0.0	3.8	3.3	201.3	9,909.4	-3.8	-3.3	-201.3	-9,909.4							
10008	0.0	0.0	0.0	0.0	0.8	0.7	43.4	2,130.4	-0.8	-0.7	-43.4	-2,130.4							
10009	0.0	0.0	0.0	0.0	0.3	0.2	14.7	723.4	-0.3	-0.2	-14.7	-723.4							
10010	0.0	0.0	0.0	0.0	0.3	0.2	14.7	723.4	-0.3	-0.2	-14.7	-723.4							
10011	0.0	0.0	0.0	0.0	0.5	0.4	26.8	1,315.9	-0.5	-0.4	-26.8	-1,315.9							

10012		0.0	0.0	0.0	0.0	0.7	0.7	41.1	2,019.7
		-0.7	-0.7	-41.1	-2,019.7				
10013		0.0	0.0	0.0	0.0	0.1	0.1	4.8	236.2
		-0.1	-0.1	-4.8	-236.2				
10014		0.0	0.0	0.0	0.0	2.1	1.9	115.5	5,680.7
		-2.1	-1.9	-115.5	-5,680.7				
10015		0.0	0.0	0.0	0.0	1.3	1.1	68.4	3,365.2
		-1.3	-1.1	-68.4	-3,365.2				
10016		0.0	0.0	0.0	0.0	1.1	1.0	61.1	3,004.3
		-1.1	-1.0	-61.1	-3,004.3				
10017		0.0	0.0	0.0	0.0	4.0	3.7	224.1	11,004.5
		-4.0	-3.7	-224.1	-11,004.5				
10018		0.0	0.0	0.0	0.0	0.9	0.8	47.6	2,341.8
		-0.9	-0.8	-47.6	-2,341.8				
10019		0.0	0.0	0.0	0.0	0.3	0.3	15.6	764.4
		-0.3	-0.3	-15.6	-764.4				
10020		0.0	0.0	0.0	0.0	0.3	0.3	15.5	764.3
		-0.3	-0.3	-15.5	-764.3				
Total		8.5	98.4	5,956.2	290,912.6	23.2	95.8	5,802.0	285,891.1
		-14.7	2.6	154.2	5,021.6				

Costs and benefits discounted to 2010 in multiples of a thousand pounds.

[Section 3] Accident Rates

[Section 3.1] Link Accident Rates

Link Name	Accident Rate 2023	Accident Rate 2038

Accident rates are in accidents per million vehicle kilometres.

[Section 3.2] Junction Accident Rates

Junction Name	Coefficient 'a' 2023	Coefficient 'a' 2038

[Section 3.3] Combined Link and Junction Accident Rates

Link Name	Accident Rate 2023	Accident Rate 2038
14341432	0.395754	0.328904
14341442	0.395754	0.328904
14621444	0.395754	0.328904
14421446	0.395754	0.328904
14701462	0.395754	0.328904
14761470	0.395754	0.328904

14661472	0.395754	0.328904
100991476	0.539109	0.445665
100931482	0.539109	0.445665
100851496	0.539109	0.445665
101321558	0.539109	0.445665
15801558	0.539109	0.445665
15981580	0.539109	0.445665
76001598	0.539109	0.445665
102071656	0.395754	0.328904
17221660	0.539109	0.445665
100991660	0.539109	0.445665
101201702	0.539109	0.445665
17641722	0.539109	0.445665
16601722	0.539109	0.445665
18041764	0.395754	0.328904
17221764	0.539109	0.445665
18801772	0.539109	0.445665
17961772	0.539109	0.445665
18161804	0.395754	0.328904
18341816	0.395754	0.328904
18341828	0.395754	0.328904
18501834	0.395754	0.328904
102071844	0.395754	0.328904
102091846	0.539109	0.445665
18641850	0.395754	0.328904
101061850	0.395754	0.328904
20441856	0.539109	0.445665
18281856	0.395754	0.328904
18561864	0.395754	0.328904
18781874	0.539109	0.445665
20441878	0.539109	0.445665
18981884	0.539109	0.445665
101181886	0.395754	0.328904
76141886	0.539109	0.445665
19681892	0.395754	0.328904
101181892	0.395754	0.328904
90131898	0.539109	0.445665
20181968	0.395754	0.328904
79401982	0.539109	0.445665
95151982	0.395754	0.328904
19961984	0.395754	0.328904
90161994	0.063991	0.051784
20141996	0.395754	0.328904
19841996	0.395754	0.328904
75962018	0.395754	0.328904
20442038	0.539109	0.445665
18562044	0.539109	0.445665
20582048	0.395754	0.328904
75982060	0.539109	0.445665
20962066	0.063991	0.051784
19942070	0.063991	0.051784
73722084	0.395754	0.328904
95092086	0.539109	0.445665
100562096	0.395754	0.328904

73712182	0.539109	0.445665
73772182	0.395754	0.328904
90102218	0.395754	0.328904
22482218	0.063991	0.051784
73702222	0.063991	0.051784
22462244	0.395754	0.328904
90092246	0.395754	0.328904
22502248	0.063991	0.051784
24242250	0.063991	0.051784
22442252	0.395754	0.328904
22682262	0.395754	0.328904
22742268	0.395754	0.328904
90072268	0.395754	0.328904
22802272	0.539109	0.445665
22602272	0.395754	0.328904
22722274	0.539109	0.445665
76782280	0.143220	0.114668
22602280	0.539109	0.445665
23742372	0.395754	0.328904
24362420	0.539109	0.445665
24782436	0.063991	0.051784
74862478	0.143220	0.114668
25762546	0.539109	0.445665
76782546	0.143220	0.114668
26002572	0.539109	0.445665
25462576	0.539109	0.445665
25942592	0.539109	0.445665
76822600	0.539109	0.445665
90052638	0.539109	0.445665
26382640	0.143220	0.114668
27142706	0.539109	0.445665
27102708	0.395754	0.328904
75882710	0.539109	0.445665
27082712	0.395754	0.328904
27282714	0.539109	0.445665
26402728	0.539109	0.445665
21827370	0.395754	0.328904
22187371	0.063991	0.051784
73767372	0.395754	0.328904
20807373	0.395754	0.328904
73777376	0.395754	0.328904
73737376	0.395754	0.328904
21827377	0.539109	0.445665
73767377	0.395754	0.328904
95397486	0.143220	0.114668
27067588	0.539109	0.445665
90147596	0.395754	0.328904
20147598	0.539109	0.445665
17727600	0.539109	0.445665
101297614	0.395754	0.328904
18867614	0.539109	0.445665
20867636	0.539109	0.445665
22807678	0.143220	0.114668
25467678	0.143220	0.114668

25727940	0.539109	0.445665
25769005	0.539109	0.445665
22229007	0.539109	0.445665
22489009	0.395754	0.328904
22629010	0.395754	0.328904
20169013	0.539109	0.445665
20169014	0.395754	0.328904
20669016	0.063991	0.051784
100589509	0.395754	0.328904
18929515	0.395754	0.328904
19969519	0.395754	0.328904
25929539	0.063991	0.051784
763610056	0.395754	0.328904
203810058	0.395754	0.328904
149410085	0.539109	0.445665
143210093	0.539109	0.445665
147210099	0.539109	0.445665
166010099	0.539109	0.445665
1012910106	0.395754	0.328904
185010106	0.395754	0.328904
188610118	0.395754	0.328904
189210118	0.395754	0.328904
188610120	0.539109	0.445665
761410129	0.395754	0.328904
1010610129	0.395754	0.328904
165610132	0.539109	0.445665
184410207	0.395754	0.328904
184410209	0.539109	0.445665
10007	0.365362	0.303646
10008	0.365362	0.303646
10009	0.365362	0.303646
10010	0.365362	0.303646
10011	0.365362	0.303646
10012	0.365362	0.303646
10013	0.365362	0.303646
10014	0.365362	0.303646
10015	0.365362	0.303646
10016	0.365362	0.303646
10017	0.365362	0.303646
10018	0.365362	0.303646
10019	0.365362	0.303646
10020	0.365362	0.303646

Accident rates are in accidents per million vehicle kilometres.

[Section 4] Input Data - Scheme File

Scheme Name
Worthing & Lancing Option 3 Analysis

Years Subsection

Current Year 2017
Base Year 2015
Without-Scheme
Year 1 2023
Year 2 2041
Year 3 0
Year 4 0
Year 5 0
With-Scheme
Year 1 2023
Year 2 2041
Year 3 0
Year 4 0
Year 5 0

Scheme Opening Year 2023

Link Input Section

Link Classification Subsection

Link Name	Road Type	Length (km)	Speed Limit (mph)	Error/Warning Summary (!=Error, #=Warning)

Link Flow Subsection

Link Name	Base Year Flows	Without-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5	With-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5

Link Local Accident Rate Subsection

Link Name	Observed Accidents	First Observed Accident Year	Local Severity Ratio	Split Year

Junction Input Section

Junction Classification Subsection

Junction Name	Junction Geometry	Highest Carriageway	Highest Standard	Speed Limit (mph)	Error/Warning Summary (!=Error, #=Warning)

Junction Flow Subsection

Base Year Flows

Junction Name	Arm 1 (Major)	Arm 2 (Minor)	Arm 3 (Major)	Arm 4 (Minor)	Arm 5 (Major)	Arm 6 (Minor)

Without-Scheme Year Flows

Junction Name	Year	Arm 1 (Major)	Arm 2 (Minor)	Arm 3 (Major)	Arm 4 (Minor)	Arm 5 (Major)	Arm 6 (Minor)

With-Scheme Year Flows

Junction Name	Year	Arm 1 (Major)	Arm 2 (Minor)	Arm 3 (Major)	Arm 4 (Minor)	Arm 5 (Major)

Junction Local Accident Rate Subsection

Junction Name	Observed Accidents	First Observed Accident Year	Local Severity Ratio	Split Year

Link and Junction Combined Input Section

Combined Classification Subsection

Link Name	Road Type	Length (km)	Speed Limit (mph)	Error/Warning Summary (!=Error, #=Warning)
14341432	12	0.05	30	
14341442	12	0.01	30	
14621444	12	0.05	30	
14421446	12	0.01	30	
14701462	12	0.01	30	
14761470	12	0.01	30	
14661472	12	0.01	30	
100991476	8	0.70	30	
100931482	8	0.17	30	
100851496	8	0.27	30	
101321558	8	0.41	30	
15801558	8	0.56	30	
15981580	8	0.11	30	
76001598	8	1.00	30	
102071656	12	0.46	40	
17221660	8	0.19	30	
100991660	8	0.27	30	
101201702	8	0.23	30	
17641722	8	0.24	30	
16601722	8	0.19	30	
18041764	12	0.35	30	
17221764	8	0.24	30	
18801772	8	0.80	40	
17961772	8	4.00	30	
18161804	12	0.07	30	
18341816	12	0.03	30	
18341828	12	0.02	30	
18501834	12	0.03	30	
102071844	12	0.30	40	
102091846	8	0.08	30	
18641850	12	0.06	30	
101061850	12	0.28	40	
20441856	8	1.20	40	
18281856	12	0.09	30	
18561864	12	0.05	30	
18781874	8	0.02	30	
20441878	8	0.54	30	
18981884	8	0.05	30	
101181886	12	0.12	40	
76141886	8	0.48	40	
19681892	12	0.97	40	
101181892	12	0.04	40	
90131898	8	0.37	30	
20181968	12	0.62	40	
79401982	8	3.34	30	

95151982	12	0.93	40
19961984	12	0.52	40
90161994	12	0.52	60
20141996	12	0.13	40
19841996	12	0.52	40
75962018	12	0.29	40
20442038	8	0.40	40
18562044	8	1.20	40
20582048	12	0.03	30
75982060	8	0.35	30
20962066	12	1.93	60
19942070	12	1.81	60
73722084	12	0.85	40
95092086	8	0.03	40
100562096	12	0.29	40
73712182	8	0.06	40
73772182	12	0.02	40
90102218	12	0.22	40
22482218	12	0.13	70
73702222	12	0.63	60
22462244	12	0.03	30
90092246	12	0.32	30
22502248	12	1.80	60
24242250	12	2.08	60
22442252	12	0.05	30
22682262	12	0.02	30
22742268	12	0.06	30
90072268	12	0.46	40
22802272	8	0.10	30
22602272	12	0.07	30
22722274	8	0.03	30
76782280	8	1.91	50
22602280	8	0.12	30
23742372	12	0.02	30
24362420	8	0.38	40
24782436	12	0.75	50
74862478	8	2.06	50
25762546	8	1.41	40
76782546	8	1.62	50
26002572	8	0.65	30
25462576	8	1.41	40
25942592	8	0.04	30
76822600	8	0.29	30
90052638	8	0.95	30
26382640	8	0.14	50
27142706	8	0.52	30
27102708	12	0.02	30
75882710	8	0.67	30
27082712	12	0.04	30
27282714	8	0.95	30
26402728	8	3.00	40
21827370	12	0.06	40
22187371	12	0.62	60
73767372	12	0.05	40

20807373	12	0.93	40
73777376	12	0.03	40
73737376	12	0.06	40
21827377	8	0.02	40
73767377	12	0.03	40
95397486	8	2.49	50
27067588	8	0.57	30
90147596	12	0.20	40
20147598	8	0.35	30
17727600	8	0.88	30
101297614	12	0.10	40
18867614	8	0.48	40
20867636	8	0.29	40
22807678	8	1.91	50
25467678	8	1.62	50
25727940	8	3.03	30
25769005	8	1.74	30
22229007	8	0.46	40
22489009	12	0.23	40
22629010	12	0.37	40
20169013	8	0.02	30
20169014	12	0.04	40
20669016	12	0.49	60
100589509	12	0.75	40
18929515	12	0.05	40
19969519	12	0.14	40
25929539	12	0.10	50
763610056	12	0.19	40
203810058	12	0.45	40
149410085	8	0.11	30
143210093	8	0.18	30
147210099	8	0.70	30
166010099	8	0.27	30
1012910106	12	0.10	40
185010106	12	0.28	40
188610118	12	0.12	40
189210118	12	0.04	40
188610120	8	0.49	30
761410129	12	0.10	40
1010610129	12	0.10	40
165610132	8	0.14	30
184410207	12	0.30	40
184410209	8	0.10	30
10007	10	1.20	40
10008	10	0.28	40
10009	10	0.10	40
10010	10	0.10	40
10011	10	0.19	40
10012	10	0.29	40
10013	10	0.03	40
10014	10	0.75	40
10015	10	0.45	40
10016	10	0.40	40
10017	10	1.20	40

10018	10	0.28	40
10019	10	0.10	40
10020	10	0.10	40

Combined Flow Subsection Link Name	Base Year Flows	Without-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5	With-Scheme Flows Year 1	Year 2	Year 3	Year 4	Year 5
14341432	520	414	8,686	0	0	0	439	11,056	0	0	0
14341442	626	615	9,358	0	0	0	619	7,805	0	0	0
14621444	996	814	16,843	0	0	0	926	18,772	0	0	0
14421446	1,407	1,247	19,629	0	0	0	1,259	17,693	0	0	0
14701462	1,265	1,083	20,435	0	0	0	1,196	22,121	0	0	0
14761470	1,162	972	18,883	0	0	0	1,084	21,531	0	0	0
14661472	1,450	1,354	19,244	0	0	0	1,357	17,628	0	0	0
100991476	931	797	15,888	0	0	0	909	18,509	0	0	0
100931482	517	414	8,689	0	0	0	414	10,318	0	0	0
100851496	535	510	10,333	0	0	0	440	8,702	0	0	0
101321558	323	343	5,318	0	0	0	438	8,424	0	0	0
15801558	734	703	11,023	0	0	0	524	7,514	0	0	0
15981580	1,105	1,048	16,089	0	0	0	809	12,026	0	0	0
76001598	1,066	997	16,987	0	0	0	757	11,169	0	0	0
102071656	617	762	10,586	0	0	0	712	14,088	0	0	0
17221660	808	758	13,636	0	0	0	933	16,142	0	0	0
100991660	1,069	1,066	15,277	0	0	0	1,067	13,649	0	0	0
101201702	416	332	6,916	0	0	0	357	8,462	0	0	0
17641722	808	758	13,636	0	0	0	933	16,142	0	0	0
16601722	1,083	1,161	15,853	0	0	0	1,148	14,226	0	0	0
18041764	560	500	8,897	0	0	0	700	12,832	0	0	0
17221764	1,083	1,161	15,853	0	0	0	1,148	14,226	0	0	0
18801772	654	601	9,762	0	0	0	0				

```
   0       0       0       0
    17961772        425             386     7,283   0       0       0       332
   4,656   0       0       0
    18161804        1,100           1,009   16,592  0       0       0
1,225   20,585  0       0       0
    18341816        1,100           1,009   16,591  0       0       0
1,225   20,585  0       0       0
    18341828        872             888     13,780  0       0       0       908
   18,420  0       0       0
    18501834        1,971           1,897   30,372  0       0       0
2,133   39,005  0       0       0
    102071844       816             946     15,246  0       0       0       766
   13,624  0       0       0
    102091846       189             165     2,744   0       0       0       506
   5,488   0       0       0
    18641850        2,075           2,027   30,494  0       0       0
2,082   35,107  0       0       0
    101061850       1,411           1,373   21,519  0       0       0       0
   0       0       0       0
    20441856        1,477           1,492   22,001  0       0       0       0
   0       0       0       0
    18281856        2,108           2,208   32,488  0       0       0
2,183   37,151  0       0       0
    18561864        2,086           2,014   29,238  0       0       0
2,070   33,896  0       0       0
    18781874        627             533     10,485  0       0       0       377
   8,784   0       0       0
    20441878        536             459     8,726   0       0       0       269
   6,735   0       0       0
    18981884        457             501     7,511   0       0       0       534
   9,417   0       0       0
    101181886       1,661           1,446   25,106  0       0       0
1,550   32,238  0       0       0
    76141886        1,486           1,419   21,019  0       0       0
1,402   23,119  0       0       0
    19681892        1,394           1,233   21,875  0       0       0
1,336   28,981  0       0       0
    101181892       1,811           1,697   25,528  0       0       0
1,610   27,927  0       0       0
    90131898        441             451     6,341   0       0       0       445
   7,922   0       0       0
    20181968        1,543           1,390   24,045  0       0       0
1,430   30,815  0       0       0
    79401982        113             81      3,773   0       0       0       55
   916     0       0       0
    95151982        1,867           1,752   25,816  0       0       0
1,650   28,254  0       0       0
    19961984        1,774           1,655   25,730  0       0       0
1,270   21,999  0       0       0
    90161994        844             1,053   15,184  0       0       0
1,069   18,740  0       0       0
    20141996        1,774           1,655   25,730  0       0       0
1,270   21,999  0       0       0
    19841996        1,627           1,480   23,919  0       0       0
```

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1,465   31,152  0       0       0
    75962018        1,423           1,259   22,308  0       0       0
1,266   28,168  0       0       0
    20442038        1,258           1,571   19,759  0       0       0       0
   0       0       0       0
    18562044        1,489           1,661   24,663  0       0       0       0
   0       0       0       0
    20582048        1,611           1,510   24,538  0       0       0
1,536   22,562  0       0       0
    75982060        173             198     4,274   0       0       0       394
   6,764   0       0       0
    20962066        1,046           1,348   18,912  0       0       0
1,362   22,572  0       0       0
    19942070        1,438           1,582   25,187  0       0       0
1,592   27,338  0       0       0
    73722084        1,576           1,470   24,175  0       0       0
1,785   36,099  0       0       0
    95092086        1,205           1,556   20,902  0       0       0       0
   0       0       0       0
    100562096       1,046           1,348   18,912  0       0       0
1,362   22,572  0       0       0
    73712182        1,440           1,330   23,757  0       0       0
1,631   34,972  0       0       0
    73772182        1,594           1,504   24,894  0       0       0
1,577   27,712  0       0       0
    90102218        251             257     3,433   0       0       0       449
   9,417   0       0       0
    22482218        1,189           1,074   20,324  0       0       0
1,183   25,555  0       0       0
    73702222        1,603           1,510   24,951  0       0       0
1,583   27,768  0       0       0
    22462244        1,064           1,202   21,156  0       0       0
1,149   19,277  0       0       0
    90092246        433             582     10,863  0       0       0       535
   8,757   0       0       0
    22502248        1,622           1,656   31,187  0       0       0
1,718   34,312  0       0       0
    24242250        1,443           1,483   28,032  0       0       0
1,537   30,892  0       0       0
    22442252        633             745     13,116  0       0       0       673
   11,580  0       0       0
    22682262        882             877     13,726  0       0       0
1,062   19,937  0       0       0
    22742268        628             685     10,835  0       0       0       769
   15,421  0       0       0
    90072268        254             192     2,891   0       0       0       293
   4,516   0       0       0
    22802272        942             985     19,171  0       0       0
1,022   21,409  0       0       0
    22602272        51              29      635     0       0       0       77
   2,236   0       0       0
    22722274        994             1,014   19,805  0       0       0
1,099   23,645  0       0       0
    76782280        942             985     19,173  0       0       0
```

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1,022   21,409  0       0       0
    22602280        996             1,199   20,522  0       0       0
1,149   18,697  0       0       0
    23742372        506             1,159   15,469  0       0       0
1,146   13,818  0       0       0
    24362420        545             1,160   16,886  0       0       0
1,151   15,208  0       0       0
    24782436        536             1,155   16,851  0       0       0
1,147   15,137  0       0       0
    74862478        536             1,155   16,851  0       0       0
1,147   15,138  0       0       0
    25762546        735             795     17,606  0       0       0       838
   19,247  0       0       0
    76782546        996             1,199   20,523  0       0       0
1,149   18,697  0       0       0
    26002572        36              16      1,543   0       0       0       0
   31      0       0       0
    25462576        813             1,068   19,564  0       0       0
1,042   17,466  0       0       0
    25942592        896             1,460   21,041  0       0       0
1,458   19,197  0       0       0
    76822600        36              16      1,543   0       0       0       0
   31      0       0       0
    90052638        577             864     15,519  0       0       0       836
   13,064  0       0       0
    26382640        661             956     17,083  0       0       0       916
   14,130  0       0       0
    27142706        599             912     16,171  0       0       0       871
   13,407  0       0       0
    27102708        2,434           2,892   42,566  0       0       0
2,851   40,796  0       0       0
    75882710        599             912     16,171  0       0       0       871
   14,033  0       0       0
    27082712        784             1,468   21,254  0       0       0
1,445   19,665  0       0       0
    27282714        599             912     16,171  0       0       0       871
   13,407  0       0       0
    26402728        572             882     16,047  0       0       0       841
   13,034  0       0       0
    21827370        1,603           1,510   24,951  0       0       0
1,583   27,768  0       0       0
    22187371        1,440           1,330   23,757  0       0       0
1,631   34,972  0       0       0
    73767372        1,576           1,470   24,173  0       0       0
1,785   36,099  0       0       0
    20807373        1,819           1,707   28,085  0       0       0
1,780   30,714  0       0       0
    73777376        1,512           1,404   24,213  0       0       0
1,721   36,039  0       0       0
    73737376        1,819           1,707   28,085  0       0       0
1,780   30,714  0       0       0
    21827377        1,512           1,404   24,213  0       0       0
1,721   36,039  0       0       0
    73767377        1,719           1,638   28,147  0       0       0
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1,712   30,653  0       0       0
    95397486        545             1,163   16,981  0       0       0
1,155   15,269  0       0       0
    27067588        599             912     16,171  0       0       0       871
   14,033  0       0       0
    90147596        1,423           1,259   22,308  0       0       0
1,245   27,338  0       0       0
    20147598        43              34      1,472   0       0       0       234
   4,152   0       0       0
    17727600        993             920     16,071  0       0       0       680
   10,253  0       0       0
    101297614       1,486           1,419   21,019  0       0       0       0
   0       0       0       0
    18867614        1,353           1,192   19,961  0       0       0
1,280   25,658  0       0       0
    20867636        1,097           1,352   19,161  0       0       0       0
   0       0       0       0
    22807678        996             1,199   20,523  0       0       0
1,149   18,697  0       0       0
    25467678        942             985     19,173  0       0       0
1,022   21,409  0       0       0
    25727940        69              42      3,047   0       0       0       15
   172     0       0       0
    25769005        740             1,009   17,761  0       0       0       981
   15,395  0       0       0
    22229007        254             192     2,891   0       0       0       293
   4,516   0       0       0
    22489009        433             582     10,863  0       0       0       535
   8,757   0       0       0
    22629010        251             257     3,433   0       0       0       449
   9,417   0       0       0
    20169013        441             451     6,341   0       0       0       445
   7,922   0       0       0
    20169014        1,423           1,259   21,421  0       0       0
1,245   27,338  0       0       0
    20669016        844             1,053   15,184  0       0       0
1,069   18,740  0       0       0
    100589509       1,177           1,524   19,930  0       0       0       0
   0       0       0       0
    18929515        1,676           1,573   23,943  0       0       0
1,471   25,748  0       0       0
    19969519        1,627           1,480   23,919  0       0       0
1,465   31,152  0       0       0
    25929539        545             1,163   16,981  0       0       0
1,155   15,269  0       0       0
    763610056       1,097           1,352   19,161  0       0       0       0
   0       0       0       0
    203810058       1,236           1,562   19,883  0       0       0       0
   0       0       0       0
    149410085       562             535     10,439  0       0       0       466
   8,837   0       0       0
    143210093       520             414     8,686   0       0       0       439
   11,056  0       0       0
    147210099       1,218           1,180   16,249  0       0       0
```

1,182 14,606 0 0 0
166010099 907 791 15,056 0 0 0 900
17,777 0 0 0
1012910106 1,353 1,193 19,976 0 0 0 0
0 0 0 0
185010106 1,500 1,500 21,517 0 0 0 0
0 0 0 0
188610118 1,811 1,697 25,528 0 0 0
1,610 27,925 0 0 0
189210118 1,661 1,446 25,107 0 0 0
1,550 32,238 0 0 0
188610120 342 285 5,323 0 0 0 378
7,349 0 0 0
761410129 1,353 1,192 19,969 0 0 0 0
0 0 0 0
1010610129 1,486 1,419 21,018 0 0 0 0
0 0 0 0
165610132 354 366 5,358 0 0 0 459
8,472 0 0 0
184410207 684 949 12,317 0 0 0 839
15,668 0 0 0
184410209 289 266 3,890 0 0 0 587
6,099 0 0 0
10007 0 0 0 0 0
23,229 24,516 0 0 0
10008 0 0 0 0 0
20,734 22,778 0 0 0
10009 0 0 0 0 0
20,734 22,209 0 0 0
10010 0 0 0 0 0
20,734 22,208 0 0 0
10011 0 0 0 0 0
19,049 21,103 0 0 0
10012 0 0 0 0 0
19,049 21,103 0 0 0
10013 0 0 0 0 0
19,050 22,403 0 0 0
10014 0 0 0 0 0
20,888 22,605 0 0 0
10015 0 0 0 0 0
20,551 22,276 0 0 0
10016 0 0 0 0 0
20,551 22,251 0 0 0
10017 0 0 0 0 0
24,726 27,528 0 0 0
10018 0 0 0 0 0
22,876 25,014 0 0 0
10019 0 0 0 0 0
21,526 23,575 0 0 0
10020 0 0 0 0 0
21,526 23,572 0 0 0

Combined Local Accident Rate Subsection
Link Observed First Observed Local Severity Split

Name	Accidents	Accident Year	Ratio	Year

[Section 5] Input Data - Parameter File

COBALT Parameter File
Version 2,016.10

Cost Base Year
2010

Appraisal Period
60

Discount Rate

Years from Current Year	Discount Rate (%)
30	3.50
75	3.00
125	2.50

Cost per Casualty

Severity	Cost
Fatal	1,635,937
Serious	183,834
Slight	14,172

Cost per Accident

Severity	Insurance Administration	Damage to Property Urban	Rural	Motorway
Fatal	300	7,822	13,267	16,876
Serious	187	4,192	6,048	14,400
Slight	113	2,473	4,009	7,285
Damage	54	2,473	2,644	2,541

	Police Cost Urban	Rural	Motorway
Fatal	16,951	17,407	17,610
Serious	1,872	2,337	2,468
Slight	484	664	554
Damage	484	20	17

Compound Annual Rates of Growth of Accident Values

Range of Years	Rate of Growth (%p.a.)
2010-2011	1.13
2011-2012	0.51
2012-2013	1.52
2013-2014	2.16
2014-2015	1.66
2015-2016	1.69
2016-2017	1.80
2017-2018	1.73
2018-2019	1.64
2019-2020	1.66
2020-2021	1.77

2021-2022	1.78
2022-2023	1.80
2023-2024	1.91
2024-2025	1.93
2025-2026	1.94
2026-2027	1.96
2027-2028	1.98
2028-2029	1.99
2029-2030	2.01
2030-2031	2.02
2031-2032	2.04
2032-2033	2.05
2033-2034	2.16
2034-2035	2.07
2035-2036	2.08
2036-2040	2.09
2040-2045	2.11
2045-2046	2.24
2046-2050	2.14
2050-2055	2.07
2055-2057	2.09
2057-2059	2.19
2059-2060	2.29
2060-2063	2.30
2063-2065	2.20
2065-2070	2.18
2070-2085	2.17
2085-2110	2.18

Number of Damage Only Accidents per PIA

	Urban	Rural	Motorway
Damage	17.7	7.8	7.6

Link Only Accident Proportions

Base Year

2009

Road Type	Speed Limit (mph)	Accident Proportions Fatal	Serious	Slight
1	50	0.019	0.104	0.877
1	60	0.019	0.104	0.877
1	70	0.019	0.104	0.877
1	80	0.019	0.104	0.877
2	50	0.019	0.104	0.877
2	60	0.019	0.104	0.877
2	70	0.019	0.104	0.877
2	80	0.019	0.104	0.877
3	50	0.019	0.104	0.877
3	60	0.019	0.104	0.877
3	70	0.019	0.104	0.877
3	80	0.019	0.104	0.877
4	30	0.014	0.145	0.841
4	40	0.014	0.145	0.841
4	50	0.046	0.206	0.748
4	60	0.046	0.206	0.748

4	70	0.046	0.206	0.748
4	80	0.046	0.206	0.748
5	30	0.014	0.145	0.841
5	40	0.014	0.145	0.841
5	50	0.046	0.206	0.748
5	60	0.046	0.206	0.748
5	70	0.046	0.206	0.748
5	80	0.046	0.206	0.748
6	30	0.014	0.145	0.841
6	40	0.014	0.145	0.841
6	50	0.046	0.206	0.748
6	60	0.046	0.206	0.748
6	70	0.046	0.206	0.748
6	80	0.046	0.206	0.748
7	30	0.014	0.145	0.841
7	40	0.014	0.145	0.841
7	50	0.046	0.206	0.748
7	60	0.046	0.206	0.748
7	70	0.046	0.206	0.748
7	80	0.046	0.206	0.748
8	30	0.014	0.145	0.841
8	40	0.014	0.145	0.841
8	50	0.046	0.206	0.748
8	60	0.046	0.206	0.748
8	70	0.046	0.206	0.748
8	80	0.046	0.206	0.748
9	30	0.010	0.145	0.846
9	40	0.010	0.145	0.846
9	50	0.026	0.193	0.780
9	60	0.026	0.193	0.780
9	70	0.026	0.193	0.780
9	80	0.026	0.193	0.780
10	30	0.017	0.135	0.849
10	40	0.017	0.135	0.849
10	50	0.028	0.135	0.837
10	60	0.028	0.135	0.837
10	70	0.028	0.135	0.837
10	80	0.028	0.135	0.837
11	30	0.017	0.135	0.849
11	40	0.017	0.135	0.849
11	50	0.028	0.135	0.837
11	60	0.028	0.135	0.837
11	70	0.028	0.135	0.837
11	80	0.028	0.135	0.837
12	30	0.017	0.135	0.849
12	40	0.017	0.135	0.849
12	50	0.028	0.135	0.837
12	60	0.028	0.135	0.837
12	70	0.028	0.135	0.837
12	80	0.028	0.135	0.837
13	30	0.017	0.135	0.849
13	40	0.017	0.135	0.849
13	50	0.028	0.135	0.837
13	60	0.028	0.135	0.837

13	70	0.028	0.135	0.837
13	80	0.028	0.135	0.837
14	30	0.017	0.135	0.849
14	40	0.017	0.135	0.849
14	50	0.028	0.135	0.837
14	60	0.028	0.135	0.837
14	70	0.028	0.135	0.837
14	80	0.028	0.135	0.837
15	30	0.017	0.135	0.849
15	40	0.017	0.135	0.849
15	50	0.028	0.135	0.837
15	60	0.028	0.135	0.837
15	70	0.028	0.135	0.837
15	80	0.028	0.135	0.837

Link and Junction Combined Accident Proportions
Base Year
2009

Road Type	Speed Limit (mph)	Accident Proportions Fatal	Serious	Slight
1	50	0.018	0.101	0.882
1	60	0.018	0.101	0.882
1	70	0.018	0.101	0.882
1	80	0.018	0.101	0.882
2	50	0.018	0.101	0.882
2	60	0.018	0.101	0.882
2	70	0.018	0.101	0.882
2	80	0.018	0.101	0.882
3	50	0.018	0.101	0.882
3	60	0.018	0.101	0.882
3	70	0.018	0.101	0.882
3	80	0.018	0.101	0.882
4	30	0.008	0.122	0.869
4	40	0.008	0.122	0.869
4	50	0.034	0.187	0.779
4	60	0.034	0.187	0.779
4	70	0.034	0.187	0.779
4	80	0.034	0.187	0.779
5	30	0.008	0.122	0.869
5	40	0.008	0.122	0.869
5	50	0.034	0.187	0.779
5	60	0.034	0.187	0.779
5	70	0.034	0.187	0.779
5	80	0.034	0.187	0.779
6	30	0.008	0.122	0.869
6	40	0.008	0.122	0.869
6	50	0.034	0.187	0.779
6	60	0.034	0.187	0.779
6	70	0.034	0.187	0.779
6	80	0.034	0.187	0.779
7	30	0.008	0.122	0.869
7	40	0.008	0.122	0.869
7	50	0.034	0.187	0.779
7	60	0.034	0.187	0.779

7	70	0.034	0.187	0.779
7	80	0.034	0.187	0.779
8	30	0.008	0.122	0.869
8	40	0.008	0.122	0.869
8	50	0.034	0.187	0.779
8	60	0.034	0.187	0.779
8	70	0.034	0.187	0.779
8	80	0.034	0.187	0.779
9	30	0.007	0.126	0.867
9	40	0.007	0.126	0.867
9	50	0.024	0.187	0.789
9	60	0.024	0.187	0.789
9	70	0.024	0.187	0.789
9	80	0.024	0.187	0.789
10	30	0.009	0.104	0.887
10	40	0.009	0.104	0.887
10	50	0.023	0.127	0.850
10	60	0.023	0.127	0.850
10	70	0.023	0.127	0.850
10	80	0.023	0.127	0.850
11	30	0.009	0.104	0.887
11	40	0.009	0.104	0.887
11	50	0.023	0.127	0.850
11	60	0.023	0.127	0.850
11	70	0.023	0.127	0.850
11	80	0.023	0.127	0.850
12	30	0.009	0.104	0.887
12	40	0.009	0.104	0.887
12	50	0.023	0.127	0.850
12	60	0.023	0.127	0.850
12	70	0.023	0.127	0.850
12	80	0.023	0.127	0.850
13	30	0.009	0.104	0.887
13	40	0.009	0.104	0.887
13	50	0.023	0.127	0.850
13	60	0.023	0.127	0.850
13	70	0.023	0.127	0.850
13	80	0.023	0.127	0.850
14	30	0.009	0.104	0.887
14	40	0.009	0.104	0.887
14	50	0.023	0.127	0.850
14	60	0.023	0.127	0.850
14	70	0.023	0.127	0.850
14	80	0.023	0.127	0.850
15	30	0.009	0.104	0.887
15	40	0.009	0.104	0.887
15	50	0.023	0.127	0.850
15	60	0.023	0.127	0.850
15	70	0.023	0.127	0.850
15	80	0.023	0.127	0.850

Junction Only Accident Proportions
Base Year
2000

Road Type	Speed Limit (mph)	Accident Proportions		
		Fatal	Serious	Slight
1	50	0.024	0.188	0.787
1	60	0.024	0.188	0.787
1	70	0.024	0.188	0.787
1	80	0.024	0.188	0.787
2	30	0.007	0.124	0.869
2	40	0.007	0.124	0.869
3	50	0.024	0.188	0.787
3	60	0.024	0.188	0.787
3	70	0.024	0.188	0.787
3	80	0.024	0.188	0.787
4	30	0.007	0.124	0.869
4	40	0.007	0.124	0.869
5	50	0.027	0.206	0.766
5	60	0.027	0.206	0.766
5	70	0.027	0.206	0.766
5	80	0.027	0.206	0.766
6	30	0.006	0.116	0.878
6	40	0.006	0.116	0.878
7	50	0.027	0.206	0.766
7	60	0.027	0.206	0.766
7	70	0.027	0.206	0.766
7	80	0.027	0.206	0.766
8	30	0.006	0.116	0.878
8	40	0.006	0.116	0.878
9	50	0.027	0.206	0.766
9	60	0.027	0.206	0.766
9	70	0.027	0.206	0.766
9	80	0.027	0.206	0.766
10	30	0.006	0.116	0.878
10	40	0.006	0.116	0.878
11	50	0.027	0.206	0.766
11	60	0.027	0.206	0.766
11	70	0.027	0.206	0.766
11	80	0.027	0.206	0.766
12	30	0.006	0.116	0.878
12	40	0.006	0.116	0.878
13	50	0.024	0.188	0.787
13	60	0.024	0.188	0.787
13	70	0.024	0.188	0.787
13	80	0.024	0.188	0.787
14	30	0.007	0.124	0.869
14	40	0.007	0.124	0.869
15	50	0.024	0.188	0.787
15	60	0.024	0.188	0.787
15	70	0.024	0.188	0.787
15	80	0.024	0.188	0.787
16	30	0.007	0.124	0.869
16	40	0.007	0.124	0.869
17	50	0.027	0.206	0.766
17	60	0.027	0.206	0.766
17	70	0.027	0.206	0.766
17	80	0.027	0.206	0.766

18	30	0.006	0.116	0.878
18	40	0.006	0.116	0.878
19	50	0.027	0.206	0.766
19	60	0.027	0.206	0.766
19	70	0.027	0.206	0.766
19	80	0.027	0.206	0.766
20	30	0.006	0.116	0.878
20	40	0.006	0.116	0.878
21	50	0.027	0.206	0.766
21	60	0.027	0.206	0.766
21	70	0.027	0.206	0.766
21	80	0.027	0.206	0.766
22	30	0.006	0.116	0.878
22	40	0.006	0.116	0.878
23	50	0.027	0.206	0.766
23	60	0.027	0.206	0.766
23	70	0.027	0.206	0.766
23	80	0.027	0.206	0.766
24	30	0.006	0.116	0.878
24	40	0.006	0.116	0.878
25	50	0.024	0.188	0.787
25	60	0.024	0.188	0.787
25	70	0.024	0.188	0.787
25	80	0.024	0.188	0.787
26	30	0.007	0.124	0.869
26	40	0.007	0.124	0.869
27	50	0.024	0.188	0.787
27	60	0.024	0.188	0.787
27	70	0.024	0.188	0.787
27	80	0.024	0.188	0.787
28	30	0.007	0.124	0.869
28	40	0.007	0.124	0.869
29	50	0.027	0.206	0.766
29	60	0.027	0.206	0.766
29	70	0.027	0.206	0.766
29	80	0.027	0.206	0.766
30	30	0.006	0.116	0.878
30	40	0.006	0.116	0.878
31	50	0.027	0.206	0.766
31	60	0.027	0.206	0.766
31	70	0.027	0.206	0.766
31	80	0.027	0.206	0.766
32	30	0.006	0.116	0.878
32	40	0.006	0.116	0.878
33	50	0.027	0.206	0.766
33	60	0.027	0.206	0.766
33	70	0.027	0.206	0.766
33	80	0.027	0.206	0.766
34	30	0.006	0.116	0.878
34	40	0.006	0.116	0.878
35	50	0.027	0.206	0.766
35	60	0.027	0.206	0.766
35	70	0.027	0.206	0.766
35	80	0.027	0.206	0.766

36	30	0.006	0.116	0.878
36	40	0.006	0.116	0.878
37	50	0.009	0.117	0.874
37	60	0.009	0.117	0.874
37	70	0.009	0.117	0.874
37	80	0.009	0.117	0.874
38	30	0.006	0.107	0.887
38	40	0.006	0.107	0.887
39	50	0.009	0.117	0.874
39	60	0.009	0.117	0.874
39	70	0.009	0.117	0.874
39	80	0.009	0.117	0.874
40	30	0.006	0.107	0.887
40	40	0.006	0.107	0.887
41	50	0.009	0.115	0.876
41	60	0.009	0.115	0.876
41	70	0.009	0.115	0.876
41	80	0.009	0.115	0.876
42	30	0.006	0.107	0.887
42	40	0.006	0.107	0.887
43	50	0.009	0.115	0.876
43	60	0.009	0.115	0.876
43	70	0.009	0.115	0.876
43	80	0.009	0.115	0.876
44	30	0.006	0.107	0.887
44	40	0.006	0.107	0.887
45	50	0.009	0.115	0.876
45	60	0.009	0.115	0.876
45	70	0.009	0.115	0.876
45	80	0.009	0.115	0.876
46	30	0.006	0.107	0.887
46	40	0.006	0.107	0.887
47	50	0.009	0.115	0.876
47	60	0.009	0.115	0.876
47	70	0.009	0.115	0.876
47	80	0.009	0.115	0.876
48	30	0.006	0.107	0.887
48	40	0.006	0.107	0.887
49	50	0.006	0.091	0.903
49	60	0.006	0.091	0.903
49	70	0.006	0.091	0.903
49	80	0.006	0.091	0.903
50	30	0.003	0.075	0.923
50	40	0.003	0.075	0.923
51	50	0.006	0.091	0.903
51	60	0.006	0.091	0.903
51	70	0.006	0.091	0.903
51	80	0.006	0.091	0.903
52	30	0.003	0.075	0.923
52	40	0.003	0.075	0.923
53	50	0.006	0.091	0.903
53	60	0.006	0.091	0.903
53	70	0.006	0.091	0.903
53	80	0.006	0.091	0.903

54	30	0.003	0.075	0.923
54	40	0.003	0.075	0.923
55	50	0.006	0.091	0.903
55	60	0.006	0.091	0.903
55	70	0.006	0.091	0.903
55	80	0.006	0.091	0.903
56	30	0.003	0.075	0.923
56	40	0.003	0.075	0.923
57	50	0.006	0.091	0.903
57	60	0.006	0.091	0.903
57	70	0.006	0.091	0.903
57	80	0.006	0.091	0.903
58	30	0.003	0.075	0.923
58	40	0.003	0.075	0.923
59	50	0.006	0.091	0.903
59	60	0.006	0.091	0.903
59	70	0.006	0.091	0.903
59	80	0.006	0.091	0.903
60	30	0.003	0.075	0.923
60	40	0.003	0.075	0.923
61	50	0.006	0.091	0.903
61	60	0.006	0.091	0.903
61	70	0.006	0.091	0.903
61	80	0.006	0.091	0.903
62	30	0.003	0.075	0.923
62	40	0.003	0.075	0.923
63	50	0.006	0.091	0.903
63	60	0.006	0.091	0.903
63	70	0.006	0.091	0.903
63	80	0.006	0.091	0.903
64	30	0.003	0.075	0.923
64	40	0.003	0.075	0.923
65	50	0.006	0.091	0.903
65	60	0.006	0.091	0.903
65	70	0.006	0.091	0.903
65	80	0.006	0.091	0.903
66	30	0.003	0.075	0.923
66	40	0.003	0.075	0.923
67	50	0.006	0.091	0.903
67	60	0.006	0.091	0.903
67	70	0.006	0.091	0.903
67	80	0.006	0.091	0.903
68	30	0.003	0.075	0.923
68	40	0.003	0.075	0.923
69	50	0.006	0.091	0.903
69	60	0.006	0.091	0.903
69	70	0.006	0.091	0.903
69	80	0.006	0.091	0.903
70	30	0.003	0.075	0.923
70	40	0.003	0.075	0.923
71	50	0.006	0.091	0.903
71	60	0.006	0.091	0.903
71	70	0.006	0.091	0.903
71	80	0.006	0.091	0.903

72	30	0.003	0.075	0.923
72	40	0.003	0.075	0.923
73	50	0.006	0.091	0.903
73	60	0.006	0.091	0.903
73	70	0.006	0.091	0.903
73	80	0.006	0.091	0.903
74	30	0.003	0.087	0.910
74	40	0.003	0.087	0.910
75	50	0.006	0.091	0.903
75	60	0.006	0.091	0.903
75	70	0.006	0.091	0.903
75	80	0.006	0.091	0.903
76	30	0.003	0.087	0.910
76	40	0.003	0.087	0.910
77	50	0.006	0.091	0.903
77	60	0.006	0.091	0.903
77	70	0.006	0.091	0.903
77	80	0.006	0.091	0.903
78	30	0.003	0.087	0.910
78	40	0.003	0.087	0.910
79	50	0.006	0.091	0.903
79	60	0.006	0.091	0.903
79	70	0.006	0.091	0.903
79	80	0.006	0.091	0.903
80	30	0.003	0.087	0.910
80	40	0.003	0.087	0.910
81	50	0.006	0.091	0.903
81	60	0.006	0.091	0.903
81	70	0.006	0.091	0.903
81	80	0.006	0.091	0.903
82	30	0.003	0.087	0.910
82	40	0.003	0.087	0.910
83	50	0.006	0.091	0.903
83	60	0.006	0.091	0.903
83	70	0.006	0.091	0.903
83	80	0.006	0.091	0.903
84	30	0.003	0.087	0.910
84	40	0.003	0.087	0.910
85	50	0.004	0.062	0.934
85	60	0.004	0.062	0.934
85	70	0.004	0.062	0.934
85	80	0.004	0.062	0.934
86	30	0.003	0.064	0.933
86	40	0.003	0.064	0.933
87	50	0.004	0.062	0.934
87	60	0.004	0.062	0.934
87	70	0.004	0.062	0.934
87	80	0.004	0.062	0.934
88	30	0.003	0.064	0.933
88	40	0.003	0.064	0.933
89	50	0.004	0.062	0.934
89	60	0.004	0.062	0.934
89	70	0.004	0.062	0.934
89	80	0.004	0.062	0.934

90	30	0.003	0.064	0.933
90	40	0.003	0.064	0.933
91	50	0.004	0.062	0.934
91	60	0.004	0.062	0.934
91	70	0.004	0.062	0.934
91	80	0.004	0.062	0.934
92	30	0.003	0.064	0.933
92	40	0.003	0.064	0.933
93	50	0.004	0.062	0.934
93	60	0.004	0.062	0.934
93	70	0.004	0.062	0.934
93	80	0.004	0.062	0.934
94	30	0.003	0.064	0.933
94	40	0.003	0.064	0.933
95	50	0.004	0.062	0.934
95	60	0.004	0.062	0.934
95	70	0.004	0.062	0.934
95	80	0.004	0.062	0.934
96	30	0.003	0.064	0.933
96	40	0.003	0.064	0.933

Link Only Accident Rates and Change Factors
Base Year
2009

Road Type	Speed Limit (mph)	Accident Rate	Beta Factor
1	50	0.063	0.956
1	60	0.063	0.956
1	70	0.063	0.956
2	50	0.063	0.956
2	60	0.063	0.956
2	70	0.063	0.956
3	50	0.075	0.956
3	60	0.075	0.956
3	70	0.075	0.956
4	30	0.175	0.964
4	40	0.175	0.964
4	50	0.143	0.958
4	60	0.143	0.958
4	70	0.143	0.958
4	80	0.143	0.958
5	30	0.175	0.964
5	40	0.175	0.964
5	50	0.143	0.958
5	60	0.143	0.958
5	70	0.143	0.958
5	80	0.143	0.958
6	30	0.206	0.964
6	40	0.206	0.964
6	50	0.082	0.958
6	60	0.082	0.958
6	70	0.082	0.958
6	80	0.082	0.958
7	30	0.206	0.964

7	40	0.206	0.964
7	50	0.082	0.958
7	60	0.082	0.958
7	70	0.082	0.958
7	80	0.082	0.958
8	30	0.206	0.964
8	40	0.206	0.964
8	50	0.143	0.958
8	60	0.143	0.958
8	70	0.143	0.958
8	80	0.143	0.958
9	30	0.195	0.957
9	40	0.195	0.957
9	50	0.163	0.935
9	60	0.163	0.935
9	70	0.163	0.935
9	80	0.163	0.935
10	30	0.148	0.965
10	40	0.148	0.965
10	50	0.077	0.960
10	60	0.077	0.960
10	70	0.077	0.960
10	80	0.077	0.960
11	30	0.154	0.965
11	40	0.154	0.965
11	50	0.059	0.960
11	60	0.059	0.960
11	70	0.059	0.960
11	80	0.059	0.960
12	30	0.154	0.965
12	40	0.154	0.965
12	50	0.077	0.960
12	60	0.077	0.960
12	70	0.077	0.960
12	80	0.077	0.960
13	30	0.184	0.949
13	40	0.184	0.949
13	50	0.101	0.956
13	60	0.101	0.956
13	70	0.101	0.956
13	80	0.101	0.956
14	30	0.184	0.949
14	40	0.184	0.949
14	50	0.101	0.956
14	60	0.101	0.956
14	70	0.101	0.956
14	80	0.101	0.956
15	30	0.184	0.949
15	40	0.184	0.949
15	50	0.101	0.956
15	60	0.101	0.956
15	70	0.101	0.956
15	80	0.101	0.956

Link and Junction Combined Accident Rates and Change Factors

Base Year

2009

Road Type	Speed Limit (mph)	Accident Rate	Beta Factor
1	50	0.080	0.956
1	60	0.080	0.956
1	70	0.080	0.956
2	50	0.067	0.956
2	60	0.067	0.956
2	70	0.067	0.956
3	50	0.079	0.956
3	60	0.079	0.956
3	70	0.079	0.956
4	30	0.532	0.959
4	40	0.532	0.959
4	50	0.244	0.955
4	60	0.244	0.955
4	70	0.244	0.955
4	80	0.244	0.955
5	30	0.532	0.959
5	40	0.532	0.959
5	50	0.244	0.955
5	60	0.244	0.955
5	70	0.244	0.955
5	80	0.244	0.955
6	30	0.863	0.959
6	40	0.863	0.959
6	50	0.163	0.955
6	60	0.163	0.955
6	70	0.163	0.955
6	80	0.163	0.955
7	30	0.863	0.959
7	40	0.863	0.959
7	50	0.163	0.955
7	60	0.163	0.955
7	70	0.163	0.955
7	80	0.163	0.955
8	30	0.863	0.959
8	40	0.863	0.959
8	50	0.244	0.955
8	60	0.244	0.955
8	70	0.244	0.955
8	80	0.244	0.955
9	30	0.559	0.951
9	40	0.559	0.951
9	50	0.233	0.933
9	60	0.233	0.933
9	70	0.233	0.933
9	80	0.233	0.933
10	30	0.553	0.967
10	40	0.553	0.967
10	50	0.107	0.956
10	60	0.107	0.956

10	70	0.107	0.956
10	80	0.107	0.956
11	30	0.599	0.967
11	40	0.599	0.967
11	50	0.072	0.956
11	60	0.072	0.956
11	70	0.072	0.956
11	80	0.072	0.956
12	30	0.599	0.967
12	40	0.599	0.967
12	50	0.107	0.956
12	60	0.107	0.956
12	70	0.107	0.956
12	80	0.107	0.956
13	30	0.620	0.951
13	40	0.620	0.951
13	50	0.123	0.946
13	60	0.123	0.946
13	70	0.123	0.946
13	80	0.123	0.946
14	30	0.620	0.951
14	40	0.620	0.951
14	50	0.123	0.946
14	60	0.123	0.946
14	70	0.123	0.946
14	80	0.123	0.946
15	30	0.620	0.951
15	40	0.620	0.951
15	50	0.123	0.946
15	60	0.123	0.946
15	70	0.123	0.946
15	80	0.123	0.946

Link Only and Link and Junction Combined Accident Beta Factor Changes over Time

Range of Years	Change to Beta Factor
2004-2019	1.000
2020-2029	0.500
2030-2039	0.250
2040-2153	0.000

Link Only Casualty Rates

Base Year

2009

Road Type	Speed Limit (mph)	Casualties per P.I.A. Fatal	Serious	Slight
1	50	0.021	0.129	1.464
1	60	0.021	0.129	1.464
1	70	0.021	0.129	1.464
2	50	0.021	0.129	1.464
2	60	0.021	0.129	1.464
2	70	0.021	0.129	1.464
3	50	0.021	0.129	1.464
3	60	0.021	0.129	1.464

3	70	0.021	0.129	1.464
4	30	0.015	0.162	1.154
4	40	0.015	0.162	1.154
4	50	0.052	0.274	1.251
4	60	0.052	0.274	1.251
4	70	0.052	0.274	1.251
4	80	0.052	0.274	1.251
5	30	0.015	0.162	1.154
5	40	0.015	0.162	1.154
5	50	0.052	0.274	1.251
5	60	0.052	0.274	1.251
5	70	0.052	0.274	1.251
5	80	0.052	0.274	1.251
6	30	0.015	0.162	1.154
6	40	0.015	0.162	1.154
6	50	0.052	0.274	1.251
6	60	0.052	0.274	1.251
6	70	0.052	0.274	1.251
6	80	0.052	0.274	1.251
7	30	0.015	0.162	1.154
7	40	0.015	0.162	1.154
7	50	0.052	0.274	1.251
7	60	0.052	0.274	1.251
7	70	0.052	0.274	1.251
7	80	0.052	0.274	1.251
8	30	0.015	0.162	1.154
8	40	0.015	0.162	1.154
8	50	0.052	0.274	1.251
8	60	0.052	0.274	1.251
8	70	0.052	0.274	1.251
8	80	0.052	0.274	1.251
9	30	0.010	0.156	1.071
9	40	0.010	0.156	1.071
9	50	0.028	0.230	1.178
9	60	0.028	0.230	1.178
9	70	0.028	0.230	1.178
9	80	0.028	0.230	1.178
10	30	0.018	0.148	1.183
10	40	0.018	0.148	1.183
10	50	0.031	0.161	1.328
10	60	0.031	0.161	1.328
10	70	0.031	0.161	1.328
10	80	0.031	0.161	1.328
11	30	0.018	0.148	1.183
11	40	0.018	0.148	1.183
11	50	0.031	0.161	1.328
11	60	0.031	0.161	1.328
11	70	0.031	0.161	1.328
11	80	0.031	0.161	1.328
12	30	0.018	0.148	1.183
12	40	0.018	0.148	1.183
12	50	0.031	0.161	1.328
12	60	0.031	0.161	1.328
12	70	0.031	0.161	1.328

12	80	0.031	0.161	1.328
13	30	0.018	0.148	1.183
13	40	0.018	0.148	1.183
13	50	0.031	0.161	1.328
13	60	0.031	0.161	1.328
13	70	0.031	0.161	1.328
13	80	0.031	0.161	1.328
14	30	0.018	0.148	1.183
14	40	0.018	0.148	1.183
14	50	0.031	0.161	1.328
14	60	0.031	0.161	1.328
14	70	0.031	0.161	1.328
14	80	0.031	0.161	1.328
15	30	0.018	0.148	1.183
15	40	0.018	0.148	1.183
15	50	0.031	0.161	1.328
15	60	0.031	0.161	1.328
15	70	0.031	0.161	1.328
15	80	0.031	0.161	1.328

Link and Junction Combined Casualty Rates
Base Year
2009

Road Type	Speed Limit (mph)	Casualties per P.I.A. Fatal	Serious	Slight
1	50	0.020	0.123	1.455
1	60	0.020	0.123	1.455
1	70	0.020	0.123	1.455
2	50	0.020	0.123	1.455
2	60	0.020	0.123	1.455
2	70	0.020	0.123	1.455
3	50	0.020	0.123	1.455
3	60	0.020	0.123	1.455
3	70	0.020	0.123	1.455
4	30	0.009	0.132	1.176
4	40	0.009	0.132	1.176
4	50	0.038	0.238	1.300
4	60	0.038	0.238	1.300
4	70	0.038	0.238	1.300
4	80	0.038	0.238	1.300
5	30	0.009	0.132	1.176
5	40	0.009	0.132	1.176
5	50	0.038	0.238	1.300
5	60	0.038	0.238	1.300
5	70	0.038	0.238	1.300
5	80	0.038	0.238	1.300
6	30	0.009	0.132	1.176
6	40	0.009	0.132	1.176
6	50	0.038	0.238	1.300
6	60	0.038	0.238	1.300
6	70	0.038	0.238	1.300
6	80	0.038	0.238	1.300
7	30	0.009	0.132	1.176
7	40	0.009	0.132	1.176

7	50	0.038	0.238	1.300
7	60	0.038	0.238	1.300
7	70	0.038	0.238	1.300
7	80	0.038	0.238	1.300
8	30	0.009	0.132	1.176
8	40	0.009	0.132	1.176
8	50	0.038	0.238	1.300
8	60	0.038	0.238	1.300
8	70	0.038	0.238	1.300
8	80	0.038	0.238	1.300
9	30	0.007	0.134	1.132
9	40	0.007	0.134	1.132
9	50	0.026	0.222	1.218
9	60	0.026	0.222	1.218
9	70	0.026	0.222	1.218
9	80	0.026	0.222	1.218
10	30	0.009	0.112	1.238
10	40	0.009	0.112	1.238
10	50	0.025	0.151	1.297
10	60	0.025	0.151	1.297
10	70	0.025	0.151	1.297
10	80	0.025	0.151	1.297
11	30	0.009	0.112	1.238
11	40	0.009	0.112	1.238
11	50	0.025	0.151	1.297
11	60	0.025	0.151	1.297
11	70	0.025	0.151	1.297
11	80	0.025	0.151	1.297
12	30	0.009	0.112	1.238
12	40	0.009	0.112	1.238
12	50	0.025	0.151	1.297
12	60	0.025	0.151	1.297
12	70	0.025	0.151	1.297
12	80	0.025	0.151	1.297
13	30	0.009	0.112	1.238
13	40	0.009	0.112	1.238
13	50	0.025	0.151	1.297
13	60	0.025	0.151	1.297
13	70	0.025	0.151	1.297
13	80	0.025	0.151	1.297
14	30	0.009	0.112	1.238
14	40	0.009	0.112	1.238
14	50	0.025	0.151	1.297
14	60	0.025	0.151	1.297
14	70	0.025	0.151	1.297
14	80	0.025	0.151	1.297
15	30	0.009	0.112	1.238
15	40	0.009	0.112	1.238
15	50	0.025	0.151	1.297
15	60	0.025	0.151	1.297
15	70	0.025	0.151	1.297
15	80	0.025	0.151	1.297

Link Only Casualty Change Factors

Base Year
2009

Road Type	Speed Limit (mph)	Beta Factor		
		Fatal	Serious	Slight
1	50	0.978	0.979	1.002
1	60	0.978	0.979	1.002
1	70	0.978	0.979	1.002
2	50	0.978	0.979	1.002
2	60	0.978	0.979	1.002
2	70	0.978	0.979	1.002
3	50	0.978	0.979	1.002
3	60	0.978	0.979	1.002
3	70	0.978	0.979	1.002
4	30	0.971	0.995	1.001
4	40	0.971	0.995	1.001
4	50	0.979	0.983	1.002
4	60	0.979	0.983	1.002
4	70	0.979	0.983	1.002
4	80	0.979	0.983	1.002
5	30	0.971	0.995	1.001
5	40	0.971	0.995	1.001
5	50	0.979	0.983	1.002
5	60	0.979	0.983	1.002
5	70	0.979	0.983	1.002
5	80	0.979	0.983	1.002
6	30	0.971	0.995	1.001
6	40	0.971	0.995	1.001
6	50	0.979	0.983	1.002
6	60	0.979	0.983	1.002
6	70	0.979	0.983	1.002
6	80	0.979	0.983	1.002
7	30	0.971	0.995	1.001
7	40	0.971	0.995	1.001
7	50	0.979	0.983	1.002
7	60	0.979	0.983	1.002
7	70	0.979	0.983	1.002
7	80	0.979	0.983	1.002
8	30	0.971	0.995	1.001
8	40	0.971	0.995	1.001
8	50	0.979	0.983	1.002
8	60	0.979	0.983	1.002
8	70	0.979	0.983	1.002
8	80	0.979	0.983	1.002
9	30	0.985	0.997	1.001
9	40	0.985	0.997	1.001
9	50	0.987	0.989	0.998
9	60	0.987	0.989	0.998
9	70	0.987	0.989	0.998
9	80	0.987	0.989	0.998
10	30	0.998	0.990	1.002
10	40	0.998	0.990	1.002
10	50	0.984	0.985	0.998
10	60	0.984	0.985	0.998
10	70	0.984	0.985	0.998

10	80	0.984	0.985	0.998
11	30	0.998	0.990	1.002
11	40	0.998	0.990	1.002
11	50	0.984	0.985	0.998
11	60	0.984	0.985	0.998
11	70	0.984	0.985	0.998
11	80	0.984	0.985	0.998
12	30	0.998	0.990	1.002
12	40	0.998	0.990	1.002
12	50	0.984	0.985	0.998
12	60	0.984	0.985	0.998
12	70	0.984	0.985	0.998
12	80	0.984	0.985	0.998
13	30	0.998	0.990	1.002
13	40	0.998	0.990	1.002
13	50	0.984	0.985	0.998
13	60	0.984	0.985	0.998
13	70	0.984	0.985	0.998
13	80	0.984	0.985	0.998
14	30	0.998	0.990	1.002
14	40	0.998	0.990	1.002
14	50	0.984	0.985	0.998
14	60	0.984	0.985	0.998
14	70	0.984	0.985	0.998
14	80	0.984	0.985	0.998
15	30	0.998	0.990	1.002
15	40	0.998	0.990	1.002
15	50	0.984	0.985	0.998
15	60	0.984	0.985	0.998
15	70	0.984	0.985	0.998
15	80	0.984	0.985	0.998

Link and Junction Combined Casualty Change Factors
Base Year
2009

Road Type	Speed Limit (mph)	Beta Factor Fatal	Serious	Slight
1	50	0.978	0.979	1.002
1	60	0.978	0.979	1.002
1	70	0.978	0.979	1.002
2	50	0.978	0.979	1.002
2	60	0.978	0.979	1.002
2	70	0.978	0.979	1.002
3	50	0.978	0.979	1.002
3	60	0.978	0.979	1.002
3	70	0.978	0.979	1.002
4	30	0.971	0.995	1.001
4	40	0.971	0.995	1.001
4	50	0.979	0.983	1.002
4	60	0.979	0.983	1.002
4	70	0.979	0.983	1.002
4	80	0.979	0.983	1.002
5	30	0.971	0.995	1.001
5	40	0.971	0.995	1.001

5	50	0.979	0.983	1.002
5	60	0.979	0.983	1.002
5	70	0.979	0.983	1.002
5	80	0.979	0.983	1.002
6	30	0.971	0.995	1.001
6	40	0.971	0.995	1.001
6	50	0.979	0.983	1.002
6	60	0.979	0.983	1.002
6	70	0.979	0.983	1.002
6	80	0.979	0.983	1.002
7	30	0.971	0.995	1.001
7	40	0.971	0.995	1.001
7	50	0.979	0.983	1.002
7	60	0.979	0.983	1.002
7	70	0.979	0.983	1.002
7	80	0.979	0.983	1.002
8	30	0.971	0.995	1.001
8	40	0.971	0.995	1.001
8	50	0.979	0.983	1.002
8	60	0.979	0.983	1.002
8	70	0.979	0.983	1.002
8	80	0.979	0.983	1.002
9	30	0.985	0.997	1.001
9	40	0.985	0.997	1.001
9	50	0.987	0.989	0.998
9	60	0.987	0.989	0.998
9	70	0.987	0.989	0.998
9	80	0.987	0.989	0.998
10	30	0.998	0.990	1.002
10	40	0.998	0.990	1.002
10	50	0.984	0.985	0.998
10	60	0.984	0.985	0.998
10	70	0.984	0.985	0.998
10	80	0.984	0.985	0.998
11	30	0.998	0.990	1.002
11	40	0.998	0.990	1.002
11	50	0.984	0.985	0.998
11	60	0.984	0.985	0.998
11	70	0.984	0.985	0.998
11	80	0.984	0.985	0.998
12	30	0.998	0.990	1.002
12	40	0.998	0.990	1.002
12	50	0.984	0.985	0.998
12	60	0.984	0.985	0.998
12	70	0.984	0.985	0.998
12	80	0.984	0.985	0.998
13	30	0.998	0.990	1.002
13	40	0.998	0.990	1.002
13	50	0.984	0.985	0.998
13	60	0.984	0.985	0.998
13	70	0.984	0.985	0.998
13	80	0.984	0.985	0.998
14	30	0.998	0.990	1.002
14	40	0.998	0.990	1.002

14	50	0.984	0.985	0.998
14	60	0.984	0.985	0.998
14	70	0.984	0.985	0.998
14	80	0.984	0.985	0.998
15	30	0.998	0.990	1.002
15	40	0.998	0.990	1.002
15	50	0.984	0.985	0.998
15	60	0.984	0.985	0.998
15	70	0.984	0.985	0.998
15	80	0.984	0.985	0.998

Link Only and Link and Junction Combined Casualty Beta Factor Changes over Time

Range of Years	Change to Beta Factor
1995-2019	1.000
2020-2144	0.000

Junction Only Accident Parameters

Base Year

1997

Junction Type	Speed Limit (mph)	Coefficient 'a'	Power 'b'	Arms	Highest Link (S/D)	Formula Type
1	50	0.195	0.460	3	S	C
1	60	0.195	0.460	3	S	C
1	70	0.195	0.460	3	S	C
1	80	0.195	0.460	3	S	C
2	20	0.195	0.460	3	S	C
2	30	0.195	0.460	3	S	C
2	40	0.195	0.460	3	S	C
3	50	0.195	0.460	3	D	C
3	60	0.195	0.460	3	D	C
3	70	0.195	0.460	3	D	C
3	80	0.195	0.460	3	D	C
4	20	0.195	0.460	3	D	C
4	30	0.195	0.460	3	D	C
4	40	0.195	0.460	3	D	C
5	50	0.361	0.440	4	S	I

```
 5               60              0.361           0.440   4       S
I
 5               70              0.361           0.440   4       S
I
 5               80              0.361           0.440   4       S
I
 6               20              0.361           0.440   4       S
I
 6               30              0.361           0.440   4       S
I
 6               40              0.361           0.440   4       S
I
 7               50              0.240           0.710   4       D
C
 7               60              0.240           0.710   4       D
C
 7               70              0.240           0.710   4       D
C
 7               80              0.240           0.710   4       D
C
 8               20              0.240           0.710   4       D
C
 8               30              0.240           0.710   4       D
C
 8               40              0.240           0.710   4       D
C
 9               50              0.361           0.440   5       S
I
 9               60              0.361           0.440   5       S
I
 9               70              0.361           0.440   5       S
I
 9               80              0.361           0.440   5       S
I
 10              20              0.361           0.440   5       S
I
 10              30              0.361           0.440   5       S
I
 10              40              0.361           0.440   5       S
I
 11              50              0.361           0.440   5       D
I
 11              60              0.361           0.440   5       D
I
 11              70              0.361           0.440   5       D
I
 11              80              0.361           0.440   5       D
I
 12              20              0.361           0.440   5       D
I
 12              30              0.361           0.440   5       D
I
 12              40              0.361           0.440   5       D
I
```

```
 13              50              0.195           0.460   3       S
C
 13              60              0.195           0.460   3       S
C
 13              70              0.195           0.460   3       S
C
 13              80              0.195           0.460   3       S
C
 14              20              0.195           0.460   3       S
C
 14              30              0.195           0.460   3       S
C
 14              40              0.195           0.460   3       S
C
 15              50              0.195           0.460   3       D
C
 15              60              0.195           0.460   3       D
C
 15              70              0.195           0.460   3       D
C
 15              80              0.195           0.460   3       D
C
 16              20              0.195           0.460   3       D
C
 16              30              0.195           0.460   3       D
C
 16              40              0.195           0.460   3       D
C
 17              50              0.361           0.440   4       S
I
 17              60              0.361           0.440   4       S
I
 17              70              0.361           0.440   4       S
I
 17              80              0.361           0.440   4       S
I
 18              20              0.361           0.440   4       S
I
 18              30              0.361           0.440   4       S
I
 18              40              0.361           0.440   4       S
I
 19              50              0.240           0.710   4       D
C
 19              60              0.240           0.710   4       D
C
 19              70              0.240           0.710   4       D
C
 19              80              0.240           0.710   4       D
C
 20              20              0.240           0.710   4       D
C
 20              30              0.240           0.710   4       D
C
```

```
 20              40              0.240           0.710   4       D
C
 21              50              0.361           0.440   5       S
I
 21              60              0.361           0.440   5       S
I
 21              70              0.361           0.440   5       S
I
 21              80              0.361           0.440   5       S
I
 22              20              0.361           0.440   5       S
I
 22              30              0.361           0.440   5       S
I
 22              40              0.361           0.440   5       S
I
 23              50              0.361           0.440   5       D
I
 23              60              0.361           0.440   5       D
I
 23              70              0.361           0.440   5       D
I
 23              80              0.361           0.440   5       D
I
 24              20              0.361           0.440   5       D
I
 24              30              0.361           0.440   5       D
I
 24              40              0.361           0.440   5       D
I
 25              50              0.195           0.460   3       S
C
 25              60              0.195           0.460   3       S
C
 25              70              0.195           0.460   3       S
C
 25              80              0.195           0.460   3       S
C
 26              20              0.195           0.460   3       S
C
 26              30              0.195           0.460   3       S
C
 26              40              0.195           0.460   3       S
C
 27              50              0.195           0.460   3       D
C
 27              60              0.195           0.460   3       D
C
 27              70              0.195           0.460   3       D
C
 27              80              0.195           0.460   3       D
C
 28              20              0.195           0.460   3       D
C
```

```
 28              30              0.195           0.460   3       D
C
 28              40              0.195           0.460   3       D
C
 29              50              0.361           0.440   4       S
I
 29              60              0.361           0.440   4       S
I
 29              70              0.361           0.440   4       S
I
 29              80              0.361           0.440   4       S
I
 30              20              0.361           0.440   4       S
I
 30              30              0.361           0.440   4       S
I
 30              40              0.361           0.440   4       S
I
 31              50              0.240           0.710   4       D
C
 31              60              0.240           0.710   4       D
C
 31              70              0.240           0.710   4       D
C
 31              80              0.240           0.710   4       D
C
 32              20              0.240           0.710   4       D
C
 32              30              0.240           0.710   4       D
C
 32              40              0.240           0.710   4       D
C
 33              50              0.361           0.440   5       S
I
 33              60              0.361           0.440   5       S
I
 33              70              0.361           0.440   5       S
I
 33              80              0.361           0.440   5       S
I
 34              20              0.361           0.440   5       S
I
 34              30              0.361           0.440   5       S
I
 34              40              0.361           0.440   5       S
I
 35              50              0.361           0.440   5       D
I
 35              60              0.361           0.440   5       D
I
 35              70              0.361           0.440   5       D
I
 35              80              0.361           0.440   5       D
I
```

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 36              20              0.361           0.440   5       D
I
 36              30              0.361           0.440   5       D
I
 36              40              0.361           0.440   5       D
I
 37              50              0.223           0.610   3       S
I
 37              60              0.223           0.610   3       S
I
 37              70              0.223           0.610   3       S
I
 37              80              0.223           0.610   3       S
I
 38              20              0.223           0.610   3       S
I
 38              30              0.223           0.610   3       S
I
 38              40              0.223           0.610   3       S
I
 39              50              0.494           0.420   3       D
C
 39              60              0.494           0.420   3       D
C
 39              70              0.494           0.420   3       D
C
 39              80              0.494           0.420   3       D
C
 40              20              0.291           0.510   3       D
C
 40              30              0.291           0.510   3       D
C
 40              40              0.291           0.510   3       D
C
 41              50              1.378           0.200   4       S
C
 41              60              1.378           0.200   4       S
C
 41              70              1.378           0.200   4       S
C
 41              80              1.378           0.200   4       S
C
 42              20              1.378           0.200   4       S
C
 42              30              1.378           0.200   4       S
C
 42              40              1.378           0.200   4       S
C
 43              50              0.494           0.420   4       D
C
 43              60              0.494           0.420   4       D
C
 43              70              0.494           0.420   4       D
C
```

43	80	0.494	0.420	4	D C
44	20	0.291	0.510	4	D C
44	30	0.291	0.510	4	D C
44	40	0.291	0.510	4	D C
45	50	0.254	0.620	5	S I
45	60	0.254	0.620	5	S I
45	70	0.254	0.620	5	S I
45	80	0.254	0.620	5	S I
46	20	0.254	0.620	5	S I
46	30	0.254	0.620	5	S I
46	40	0.254	0.620	5	S I
47	50	0.238	0.850	5	D I
47	60	0.238	0.850	5	D I
47	70	0.238	0.850	5	D I
47	80	0.238	0.850	5	D I
48	20	0.160	0.970	5	D I
48	30	0.160	0.970	5	D I
48	40	0.160	0.970	5	D I
49	50	0.033	0.760	3	S C
49	60	0.033	0.760	3	S C
49	70	0.033	0.760	3	S C
49	80	0.033	0.760	3	S C
50	20	0.033	0.760	3	S C
50	30	0.033	0.760	3	S C
50	40	0.033	0.760	3	S C
51	50	0.033	0.760	3	D C
51	60	0.033	0.760	3	D C

```
 51              70              0.033           0.760   3       D
C
 51              80              0.033           0.760   3       D
C
 52              20              0.033           0.760   3       D
C
 52              30              0.033           0.760   3       D
C
 52              40              0.033           0.760   3       D
C
 53              50              0.024           0.890   4       S
C
 53              60              0.024           0.890   4       S
C
 53              70              0.024           0.890   4       S
C
 53              80              0.024           0.890   4       S
C
 54              20              0.048           0.740   4       S
C
 54              30              0.048           0.740   4       S
C
 54              40              0.048           0.740   4       S
C
 55              50              0.063           0.690   4       D
C
 55              60              0.063           0.690   4       D
C
 55              70              0.063           0.690   4       D
C
 55              80              0.063           0.690   4       D
C
 56              20              0.022           0.850   4       D
C
 56              30              0.022           0.850   4       D
C
 56              40              0.022           0.850   4       D
C
 57              50              0.007           1.770   5       S
I
 57              60              0.007           1.770   5       S
I
 57              70              0.007           1.770   5       S
I
 57              80              0.007           1.770   5       S
I
 58              20              0.014           1.530   5       S
I
 58              30              0.014           1.530   5       S
I
 58              40              0.014           1.530   5       S
I
 59              50              0.019           1.420   5       D
I
```

```
 59              60              0.019           1.420   5       D
I
 59              70              0.019           1.420   5       D
I
 59              80              0.019           1.420   5       D
I
 60              20              0.006           1.730   5       D
I
 60              30              0.006           1.730   5       D
I
 60              40              0.006           1.730   5       D
I
 61              50              0.033           0.760   3       S
C
 61              60              0.033           0.760   3       S
C
 61              70              0.033           0.760   3       S
C
 61              80              0.033           0.760   3       S
C
 62              20              0.033           0.760   3       S
C
 62              30              0.033           0.760   3       S
C
 62              40              0.033           0.760   3       S
C
 63              50              0.033           0.760   3       D
C
 63              60              0.033           0.760   3       D
C
 63              70              0.033           0.760   3       D
C
 63              80              0.033           0.760   3       D
C
 64              20              0.033           0.760   3       D
C
 64              30              0.033           0.760   3       D
C
 64              40              0.033           0.760   3       D
C
 65              50              0.101           0.660   4       S
C
 65              60              0.101           0.660   4       S
C
 65              70              0.101           0.660   4       S
C
 65              80              0.101           0.660   4       S
C
 66              20              0.263           0.540   4       S
C
 66              30              0.263           0.540   4       S
C
 66              40              0.263           0.540   4       S
C
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```
 67              50              0.101           0.660   4       D
C
 67              60              0.101           0.660   4       D
C
 67              70              0.101           0.660   4       D
C
 67              80              0.101           0.660   4       D
C
 68              20              0.263           0.540   4       D
C
 68              30              0.263           0.540   4       D
C
 68              40              0.263           0.540   4       D
C
 69              50              0.044           1.280   5       S
I
 69              60              0.044           1.280   5       S
I
 69              70              0.044           1.280   5       S
I
 69              80              0.044           1.280   5       S
I
 70              20              0.095           1.140   5       S
I
 70              30              0.095           1.140   5       S
I
 70              40              0.095           1.140   5       S
I
 71              50              0.044           1.280   5       D
I
 71              60              0.044           1.280   5       D
I
 71              70              0.044           1.280   5       D
I
 71              80              0.044           1.280   5       D
I
 72              20              0.095           1.140   5       D
I
 72              30              0.095           1.140   5       D
I
 72              40              0.095           1.140   5       D
I
 73              50              0.012           1.040   3       S
C
 73              60              0.012           1.040   3       S
C
 73              70              0.012           1.040   3       S
C
 73              80              0.012           1.040   3       S
C
 74              20              0.012           1.040   3       S
C
 74              30              0.012           1.040   3       S
C
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 74              40              0.012           1.040   3       S
C
 75              50              0.012           1.040   3       D
C
 75              60              0.012           1.040   3       D
C
 75              70              0.012           1.040   3       D
C
 75              80              0.012           1.040   3       D
C
 76              20              0.012           1.040   3       D
C
 76              30              0.012           1.040   3       D
C
 76              40              0.012           1.040   3       D
C
 77              50              0.070           0.640   4       S
C
 77              60              0.070           0.640   4       S
C
 77              70              0.070           0.640   4       S
C
 77              80              0.070           0.640   4       S
C
 78              20              0.070           0.640   4       S
C
 78              30              0.070           0.640   4       S
C
 78              40              0.070           0.640   4       S
C
 79              50              0.070           0.640   4       D
C
 79              60              0.070           0.640   4       D
C
 79              70              0.070           0.640   4       D
C
 79              80              0.070           0.640   4       D
C
 80              20              0.070           0.640   4       D
C
 80              30              0.070           0.640   4       D
C
 80              40              0.070           0.640   4       D
C
 81              50              0.013           1.470   5       S
I
 81              60              0.013           1.470   5       S
I
 81              70              0.013           1.470   5       S
I
 81              80              0.013           1.470   5       S
I
 82              20              0.013           1.470   5       S
I
```

```
 82              30              0.013           1.470   5       S
I
 82              40              0.013           1.470   5       S
I
 83              50              0.013           1.470   5       D
I
 83              60              0.013           1.470   5       D
I
 83              70              0.013           1.470   5       D
I
 83              80              0.013           1.470   5       D
I
 84              20              0.013           1.470   5       D
I
 84              30              0.013           1.470   5       D
I
 84              40              0.013           1.470   5       D
I
 85              50              0.033           0.760   3       S
C
 85              60              0.033           0.760   3       S
C
 85              70              0.033           0.760   3       S
C
 85              80              0.033           0.760   3       S
C
 86              20              0.033           0.760   3       S
C
 86              30              0.033           0.760   3       S
C
 86              40              0.033           0.760   3       S
C
 87              50              0.033           0.760   3       D
C
 87              60              0.033           0.760   3       D
C
 87              70              0.033           0.760   3       D
C
 87              80              0.033           0.760   3       D
C
 88              20              0.033           0.760   3       D
C
 88              30              0.033           0.760   3       D
C
 88              40              0.033           0.760   3       D
C
 89              50              0.024           0.890   4       S
C
 89              60              0.024           0.890   4       S
C
 89              70              0.024           0.890   4       S
C
 89              80              0.024           0.890   4       S
C
```

90	20	0.048	0.740	4	S C
90	30	0.048	0.740	4	S C
90	40	0.048	0.740	4	S C
91	50	0.063	0.690	4	D C
91	60	0.063	0.690	4	D C
91	70	0.063	0.690	4	D C
91	80	0.063	0.690	4	D C
92	20	0.022	0.850	4	D C
92	30	0.022	0.850	4	D C
92	40	0.022	0.850	4	D C
93	50	0.007	1.770	5	S I
93	60	0.007	1.770	5	S I
93	70	0.007	1.770	5	S I
93	80	0.007	1.770	5	S I
94	20	0.014	1.530	5	S I
94	30	0.014	1.530	5	S I
94	40	0.014	1.530	5	S I
95	50	0.019	1.420	5	D I
95	60	0.019	1.420	5	D I
95	70	0.019	1.420	5	D I
95	80	0.019	1.420	5	D I
96	20	0.006	1.730	5	D I
96	30	0.006	1.730	5	D I
96	40	0.006	1.730	5	D I

Junction Only Accident Change Factors
Base Year
2000

Classification	Speed Limit (mph)	Beta Factor

Major	20	0.991
Major	30	0.991
Major	40	0.991
Major	50	0.984
Major	60	0.984
Major	70	0.984
Major	80	0.984
Minor	20	0.976
Minor	30	0.976
Minor	40	0.976
Minor	50	0.996
Minor	60	0.996
Minor	70	0.996
Minor	80	0.996

Junction Only Accident Beta Factor Changes over Time

Range of Years	Change to Beta Factor
1995-2010	1.000
2011-2020	0.500
2021-2030	0.250
2031-2144	0.000

Junction Only Casualty Rates

Base Year
2000

Road Type	Casualties per P.I.A.		
	Fatal	Serious	Slight
1	0.0265	0.2413	1.355
2	0.0075	0.1350	1.144
3	0.0265	0.2413	1.355
4	0.0075	0.1350	1.144
5	0.0295	0.2793	1.459
6	0.0062	0.1292	1.244
7	0.0295	0.2793	1.459
8	0.0062	0.1292	1.244
9	0.0295	0.2793	1.459
10	0.0062	0.1292	1.244
11	0.0295	0.2793	1.459
12	0.0062	0.1292	1.244
13	0.0265	0.2413	1.355
14	0.0075	0.1350	1.144
15	0.0265	0.2413	1.355
16	0.0075	0.1350	1.144
17	0.0295	0.2793	1.459
18	0.0062	0.1292	1.244
19	0.0295	0.2793	1.459
20	0.0062	0.1292	1.244
21	0.0295	0.2793	1.459
22	0.0062	0.1292	1.244
23	0.0295	0.2793	1.459
24	0.0062	0.1292	1.244
25	0.0265	0.2413	1.355
26	0.0075	0.1350	1.144
27	0.0265	0.2413	1.355

28	0.0075	0.1350	1.144
29	0.0295	0.2793	1.459
30	0.0062	0.1292	1.244
31	0.0295	0.2793	1.459
32	0.0062	0.1292	1.244
33	0.0295	0.2793	1.459
34	0.0062	0.1292	1.244
35	0.0295	0.2793	1.459
36	0.0062	0.1292	1.244
37	0.0092	0.1631	1.444
38	0.0064	0.1157	1.214
39	0.0092	0.1631	1.444
40	0.0064	0.1157	1.214
41	0.0095	0.1423	1.467
42	0.0061	0.1177	1.253
43	0.0095	0.1423	1.467
44	0.0061	0.1177	1.253
45	0.0095	0.1423	1.467
46	0.0061	0.1177	1.253
47	0.0095	0.1423	1.467
48	0.0061	0.1177	1.253
49	0.0060	0.1019	1.214
50	0.0027	0.0806	1.163
51	0.0060	0.1019	1.214
52	0.0027	0.0806	1.163
53	0.0060	0.1019	1.214
54	0.0027	0.0806	1.163
55	0.0060	0.1019	1.214
56	0.0027	0.0806	1.163
57	0.0060	0.1019	1.214
58	0.0027	0.0806	1.163
59	0.0060	0.1019	1.214
60	0.0027	0.0806	1.163
61	0.0060	0.1019	1.214
62	0.0027	0.0806	1.163
63	0.0060	0.1019	1.214
64	0.0027	0.0806	1.163
65	0.0060	0.1019	1.214
66	0.0027	0.0806	1.163
67	0.0060	0.1019	1.214
68	0.0027	0.0806	1.163
69	0.0060	0.1019	1.214
70	0.0027	0.0806	1.163
71	0.0060	0.1019	1.214
72	0.0027	0.0806	1.163
73	0.0060	0.1019	1.214
74	0.0028	0.0965	1.182
75	0.0060	0.1019	1.214
76	0.0028	0.0965	1.182
77	0.0060	0.1019	1.214
78	0.0028	0.0965	1.182
79	0.0060	0.1019	1.214
80	0.0028	0.0965	1.182
81	0.0060	0.1019	1.214

82	0.0028	0.0965	1.182
83	0.0060	0.1019	1.214
84	0.0028	0.0965	1.182
85	0.0039	0.0703	1.258
86	0.0031	0.0705	1.221
87	0.0039	0.0703	1.258
88	0.0031	0.0705	1.221
89	0.0039	0.0703	1.258
90	0.0031	0.0705	1.221
91	0.0039	0.0703	1.258
92	0.0031	0.0705	1.221
93	0.0039	0.0703	1.258
94	0.0031	0.0705	1.221
95	0.0039	0.0703	1.258
96	0.0031	0.0705	1.221

Junction Only Casualty Change Factors

Base Year

2000

Classification	Speed Limit (mph)	Beta Factor Fatal	Serious	Slight
Major	20	0.949	0.962	1.010
Major	30	0.949	0.962	1.010
Major	40	0.949	0.962	1.010
Major	50	0.961	0.959	1.011
Major	60	0.961	0.959	1.011
Major	70	0.961	0.959	1.011
Major	80	0.961	0.959	1.011
Minor	20	0.968	0.958	1.006
Minor	30	0.968	0.958	1.006
Minor	40	0.968	0.958	1.006
Minor	50	0.976	0.972	1.011
Minor	60	0.976	0.972	1.011
Minor	70	0.976	0.972	1.011
Minor	80	0.976	0.972	1.011

Junction Only Casualty Beta Factor Changes over Time

Range of Years	Change to Beta Factor
1995-2010	1.000
2011-2144	0.000