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**PRISM: Black Country Joint Core Strategy  
Transport Technical Document  
Report**

**July 2009**

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# PRISM: Black Country Study Transport Technical Document Report

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## Table of Contents

<b>1</b>	<b><u>INTRODUCTION</u></b>	<b>4</b>
<b>2</b>	<b><u>MODEL INPUTS</u></b>	<b>6</b>
<b>3</b>	<b><u>MODEL SCENARIOS</u></b>	<b>7</b>
<b>4</b>	<b><u>MODEL RESULTS</u></b>	<b>9</b>
<b>5</b>	<b><u>CONCLUSIONS</u></b>	<b>23</b>

## 1 Introduction

### 1.1 The Black Country Study

The West Midlands' central location generates enormous demands on the region's transport network from commuters, visitors and through traffic. Travel demand is expected to grow in the future, placing even greater pressure on the region's transport infrastructure thereby adversely impacting on the region's competitiveness and undermining efforts to secure further economic growth and regeneration in line with wider national and regional policy objectives.

The Black Country is located to the North and West of Birmingham, and comprises the four boroughs of Dudley, Sandwell, Walsall and Wolverhampton. The region has good connectivity through Britain's motorway network, besides being served by two inter-city rail stations with frequent services to London and other major UK cities. This location, while bringing greater accessibility to the region through the M5 and M6 motorways, also results in significant highway congestion.

As part of West Midlands Regional Spatial Strategy (RSS) Phase one revision, the Black Country Consortium carried out the Black Country Study (BCS) from 2004-2006. The study focused on the socio-economic regeneration of the Black Country. The Black Country Consortium developed and tested a plan for long term change and development of the whole area in order to deliver the Black Country "Vision" that in 30 years the Black Country will be a successful, attractive "we can do it" place. The key findings and results of the study are available at [www.blackcountryconsortium.co.uk](http://www.blackcountryconsortium.co.uk).

As part of the BCS the Black Country Consortium commissioned Mott MacDonald to assess the transport impacts of the various land use options being considered. Subsequently the transport infrastructure investments required to delivery the strategy for Black Country were also assessed. The modelling tool used for this assessment was PRISM (Policy Responsive Integrated Strategic Model).

PRISM is the strategic transport model for the West Midlands. It is based on state-of-the-art disaggregate modelling techniques which derive the travel behaviour from individual characteristics of people such as household income, marital status, age, sex and working status. PRISM has detailed highway and public transport networks, for which trip matrices have been estimated and validated using 2001 West Midlands Transport Surveys. More details about PRISM can be obtained from [www.prism-wm.com](http://www.prism-wm.com).

### 1.2 Further Developments – RSS2 and HA Transport Evidence

In December 2007, the West Midlands Regional Assembly (WMRA) submitted the West Midlands Regional Spatial Strategy (WMRSS) Phase Two Revision Draft – Preferred Option to the Secretary of State. Following the submission of the Preferred Option, the Highways Agency (HA) commissioned Mott MacDonald, JMP and GVA Grimley to undertake a study of the transport and infrastructure implications arising from the Preferred Option including the proposed level and distribution of new housing and employment land allocations across the region.

The study focuses on the RSS Phase 2 (RSS2) revision housing and employment options and the identification of the network development/demand management policies and proposals required for their delivery.

As part of this study, a set of core options have been modelled in PRISM with the detailed land-use and transport assumptions having already been agreed with the WMRA. Using different planning and transport network assumptions, these option tests identify how the

strategic road network (SRN) might perform against a series of network-wide congestion level indicators, and provide a basis for considering the future policy and transport infrastructure interventions required to support the delivery of the RSS 2 Preferred Option. For the purpose of this study the future model years include 2016 and 2026 to reflect the timescales for the RSS.

### 1.3 Purpose of the Report

The four Black Country Local Authorities (Dudley, Sandwell, Walsall and Wolverhampton) have agreed to work together to produce a Black Country Joint Core Strategy (BCJCS).

“This will be a ‘spatial planning document’ (dealing not only with land use but also environmental, economic and social issues) that will set out the vision, objectives and strategy for future development in the Black Country to 2026. The Core Strategy will be a Development Plan Document and will form the basis of the Black Country Local Authorities’ Local Development Frameworks.” (<http://blackcountrycorestrategy.dudley.gov.uk/>).

In order to inform the preparation of the BCJCS, the Black Country Local Authorities have commissioned Mott MacDonald to review the transport impacts both of changes in spatial planning and transport provision. This report assesses the impacts of the emerging RSS2 preferred option on the proposed Black Country transport network. This report provides the transport evidence required for such an assessment.

Specifically the report provides consideration of the performance of the transport networks developed during the 2005-2006 BCS against the land use changes collected and processed as PRISM inputs for the HA RSS2 transport evidence study. In addition a variation on the RSS2 land-use changes has also been assessed.

### 1.4 Format of the Report

Following this introduction, Section 2 of the report explains the data input to the PRISM model and Section 3 describes the scenarios tested. Section 4 summarises the key results whilst conclusions are offered in Section 5.

Appendix A summarises the network changes which are assumed to be Committed, and Appendix B summarises the additional network improvements envisaged in the Black Country Study.

## 2 MODEL INPUTS

The National Trip End Model (NTEM) provides a set of predictions of growth in car-ownership and car-traffic with associated planning data projections at any geographical level down to local authority districts. NTEM forms part of the same forecasting system as the 1997 National Road Traffic Forecasts (NRTF97) and works by relating the number of trip origins and destinations in each area to a range of demographic (characteristics of human populations such as size, growth, density, distribution and vital statistics) and land-use factors. It provides a starting point for local forecasting procedures<sup>1</sup>.

The NTEM forecasts are released in the form of a computer program called TEMPRO, and so when we refer to 'TEMPRO Land-Use' assumptions, we actually refer to the data collected from NTEM for that particular year.

The following tables are summaries of the planning data (Population and Households) used as inputs for the TEMPRO, RSS Phase 2 and BCS preferred land-use scenarios for the Black Country.

**Table 2.1 Black Country 2016 housing data for the various land-use scenarios**

	TEMPRO		RSS		BCS PREF.	RSS GROWTH OVER:		BCS PREF. GROWTH OVER:	
	Pop	HH	Pop	HH	HH	TEMPRO		TEMPRO	RSS
						Pop	HH	HH	HH
Dudley	303,604	137,221	309,200	133,112	133,784	1.84%	-2.99%	-2.50%	0.51%
Sandwell	288,622	124,293	293,405	129,555	130,834	1.66%	4.23%	5.26%	0.99%
Walsall	262,161	111,607	261,106	111,093	112,090	-0.40%	-0.46%	0.43%	0.90%
Wolverhampton	246,438	106,516	239,148	106,290	106,902	-2.96%	-0.21%	0.36%	0.58%
<b>BC Total</b>	<b>1,100,825</b>	<b>479,637</b>	<b>1,102,859</b>	<b>480,050</b>	<b>483,610</b>	<b>0.18%</b>	<b>0.09%</b>	<b>0.83%</b>	<b>0.74%</b>

**Table 2.2 Black Country 2026 planning data for the various land-use scenarios**

	TEMPRO		RSS		BCS PREF.	RSS GROWTH OVER:		BCS PREF. GROWTH OVER:	
	Pop	HH	Pop	HH	HH	TEMPRO		TEMPRO	RSS
						Pop	HH	HH	HH
Dudley	311,887	147,067	317,071	138,619	141,041	1.66%	-5.74%	-4.10%	1.75%
Sandwell	294,262	131,516	301,243	140,024	144,627	2.37%	6.47%	9.97%	3.29%
Walsall	273,300	120,037	270,862	119,257	122,846	-0.89%	-0.65%	2.34%	3.01%
Wolverhampton	257,061	114,428	247,865	111,300	113,503	-3.58%	-2.73%	-0.81%	1.98%
<b>BC Total</b>	<b>1,136,510</b>	<b>513,048</b>	<b>1,137,041</b>	<b>509,200</b>	<b>522,017</b>	<b>0.05%</b>	<b>-0.75%</b>	<b>1.75%</b>	<b>2.52%</b>

<sup>1</sup> DMRB Volume 12 Section 2 Part 3 - The National Trip End Model

### 3 **MODEL SCENARIOS**

The following table shows the models tested as part of the study.

**Table 3.1 Model Run Scenarios**

		Network Assumptions and Policies	
		'Core' network assumptions	'Core network' + BCS assumptions
Land Use Assumptions	<b>TEMPRO</b>	2016 and 2026 (Do Minimum 1)	
	<b>RSS phase 2 revision proposals</b>	2016 and 2026 (Do Minimum 2)	
	<b>BC JCS District proposals</b>	2016 and 2026 (Do Something 1)	2026 only (Do Something 2)

#### **Do-Minimum 1 ('Core' schemes + TEMPRO land-use assumptions)**

The Do-Minimum 1 run comprises of the 'core' network with schemes identified as per the HA major scheme programme (MSP) and the West Midlands Regional Funding Allocation (RFA) network assumptions along with the TEMPRO land-use assumptions. Appendix A shows the list of schemes included in the 'core' network, which have been modelled in PRISM. This represents the transport impacts of the nationally proposed land-use distribution on the network with committed or provisionally committed schemes. Both 2016 and 2026 scenario years are modelled. This Do Minimum definition is the same as that used in HA RSS2 study hence the results generated for the HA study were used.

#### **Do-Minimum 2 ('Core' schemes + RSS2 land-use assumptions)**

The Do-Minimum 2 run comprises of the 'core' network assumptions (Appendix A) along with the RSS2 Preferred land-use assumptions which provide a target of 365,000 households to be built in the entire WM region between 2006 and 2026. This represents the transport impacts of the RSS2 land-use distribution on the network with committed or provisionally committed schemes. Both 2016 and 2026 scenario years are modelled. This Do Minimum definition is the same as that used in HA RSS2 study hence the results generated for the HA study were used.

#### **Do-Something 1 ('Core' schemes + BCJCS land use assumptions)**

As part of the data collection exercise for the HA study, Black Country districts have provided information about household allocation that exceeds the RSS2 targets. The allocation for the rest of WM districts have been kept the same as in the RSS2 scenario. This Do-Something test involved testing the impact of the BC districts planning data assumptions on a network which only included committed schemes similar to the Do Minimum networks. This scenario is used to assess the impacts of the BCJCS land use assumptions on the network with committed schemes in the future years 2016 and 2026.

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### **Do-Something 2 (BCS networks + BCJCS land use assumptions)**

This Do-Something test involved testing the impact of the BC districts planning data assumptions on a network which included BCS schemes in addition to the Do Minimum network. This scenario is used to assess the impacts of the network interventions as proposed by the BCS (**Appendix B**) in the BCJCS land use conditions. The year tested for this scenario was 2026 only. The 2016 forecast year for this scenario can be tested as an additional option at a later stage. The assessment was carried out at a network-wide level as well as at a district level.



## 4 MODEL RESULTS

Following the model runs, the outputs were analysed to assess the impact of the different options on the transport network of Black Country. As discussed earlier, these are for two modelled years, 2016 and 2026. This section discusses the key outputs.

The analyses conducted cover the following:

- **Mode wise (car vs. public transport) changes in all trips as compared to the PRISM base year (2001).** This demonstrates the impacts on the total number of car and PT trips. For car trips, it also demonstrates the purpose for which these trips are being made;
  - Average Weekday Black Country Total Trips (2016 and 2026)
  - Mode Share for the Black Country Centres (2016 and 2026 AM Peak)
  - Car Destination Trips in Black Country Centres and Sectors (2016 and 2026 AM Peak)
  - PT Destination Trips in Black Country Centres and Sectors (2016 and 2026 AM Peak)
  - Car Destination Trips in Black Country Centres (2016 and 2026 AM Peak)
  - PT Destination Trips in Black Country Centres (2016 and 2026 AM Peak)
- At a regional and sub-regional level, the **growth in veh-hrs and veh-kms.** This tells us whether people are making longer or shorter trips as a result of these policies as well as the impact different policies are having on the time spent whilst making car trips;
  - Growth in Car Trips over Base Year Having Origin and Destination in the Black Country (AM Peak Hour) - Trip Distance Analysis
  - Growth of Average Length of Car Trips with Origin and Destination in the Black Country over the 2001 Base Year (Average Weekday) - Trip Distance Analysis
  - Growth of Total Trip Time and Delay for Trips with Origin and Destination in the Black Country over the 2001 Base Year (Average Weekday)
- Network wide congestion level indicators have been presented, e.g. **link saturation, veh-delay/journey time and average speeds on the motorway network at a regional and sub-regional level.** These give an indication as to whether there are certain sections on the network which require special attention as not to hinder the growth potential envisaged in the policies. These images are provided as \*.pdf plots for each district separately to the respective authorities;
- Network plots identifying pressure points on the network;

Table 4.1 Total Black Country Trips for a Weekday in 2016

Base Year 2001		Car-Business	Car-Commute	Car-Education	Car-Others	Bus	Metro	Train	Total
Peak Period									
AM	0700-0930	45,471	220,415	33,210	49,239	65,692	2,917	7,968	424,912
IP	0930-1530	118,199	97,040	28,880	395,577	193,070	6,714	8,182	847,662
PM	1530-1900	54,771	188,674	12,227	193,373	58,336	2,547	9,073	519,001
OP	1900-0700	28,933	58,631	2,192	275,887	33,245	1,099	1,242	401,228
<b>Total</b>		<b>247,373</b>	<b>564,759</b>	<b>76,508</b>	<b>914,077</b>	<b>350,343</b>	<b>13,277</b>	<b>26,465</b>	
Net				Highway	1,802,719		PT	390,084	
Total trips PT share <b>2,192,803</b> 17.8%									

Do Minimum 1 (Tempo)		Car-Business	Car-Commute	Car-Education	Car-Others	Bus	Metro	Train	Total
Peak Period									
AM	0700-0930	44,923	258,702	35,632	55,387	73,473	4,677	10,761	483,555
IP	0930-1530	136,827	123,364	31,998	455,096	190,972	8,336	12,761	959,354
PM	1530-1900	56,601	220,655	13,978	225,410	66,480	4,133	12,414	599,672
OP	1900-0700	33,707	76,039	2,487	352,111	37,537	1,621	2,150	505,652
<b>Total</b>		<b>272,058</b>	<b>678,760</b>	<b>84,096</b>	<b>1,088,004</b>	<b>368,463</b>	<b>18,766</b>	<b>38,085</b>	
Net				Highway	2,122,919		PT	425,314	
Total trips PT share <b>2,548,233</b> 16.7%									

Do Minimum 2 (RSS)		Car-Business	Car-Commute	Car-Education	Car-Others	Bus	Metro	Train	Total
Peak Period									
AM	0700-0930	45,884	252,822	35,893	55,535	72,118	4,732	10,458	477,442
IP	0930-1530	137,560	119,235	31,940	454,405	182,015	7,204	12,234	944,592
PM	1530-1900	57,147	215,527	13,949	229,817	64,933	4,182	11,994	597,550
OP	1900-0700	33,272	74,777	2,457	344,294	34,244	1,296	2,073	492,413
<b>Total</b>		<b>273,863</b>	<b>662,361</b>	<b>84,239</b>	<b>1,084,051</b>	<b>353,310</b>	<b>17,414</b>	<b>36,759</b>	
Net				Highway	2,104,513		PT	407,483	
Total trips PT share <b>2,511,996</b> 16.2%									

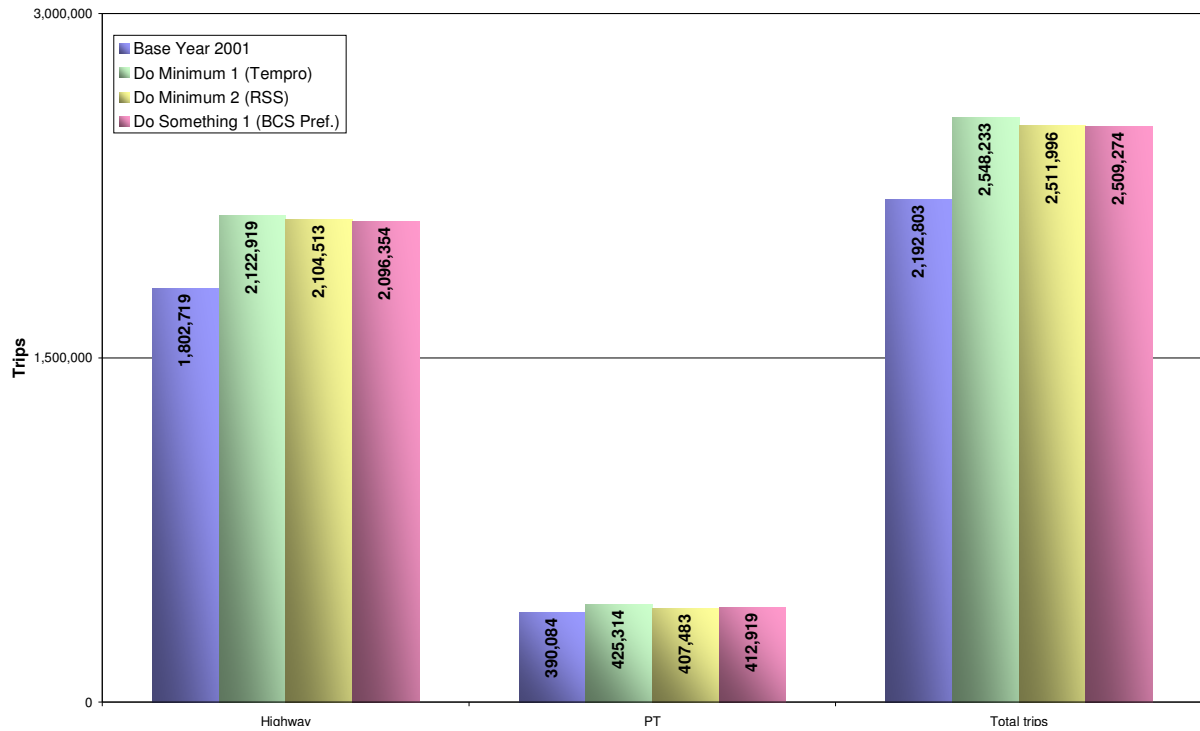
  

Do Something 1 (BCS Pref.)		Car-Business	Car-Commute	Car-Education	Car-Others	Bus	Metro	Train	Total
Peak Period									
AM	0700-0930	45,855	247,699	36,136	55,741	73,204	4,728	10,561	473,925
IP	0930-1530	137,561	116,817	32,268	455,130	184,548	7,152	12,438	945,914
PM	1530-1900	57,251	212,397	14,140	231,289	65,907	4,169	12,050	597,203
OP	1900-0700	33,103	73,056	2,478	345,433	34,809	1,267	2,085	492,232
<b>Total</b>		<b>273,770</b>	<b>649,969</b>	<b>85,022</b>	<b>1,087,593</b>	<b>358,468</b>	<b>17,316</b>	<b>37,135</b>	
Net				Highway	2,096,354		PT	412,919	
Total trips PT share <b>2,509,274</b> 16.5%									

**Key observations:**

- Overall, the number of trips predicted for 2016 is higher than 2001, with RSS2 predicting a lower growth on trips than TEMPRO.
- While the total PT trips are increasing, the mode share shows a decrease in the share of PT trips in 2016 as compared to 2001.

**Figure 4.1 Total Black Country Trips for a Weekday in 2016**



- Figure 4.1 shows the highway and PT trips predicted for 2016 as compared to that observed for 2001 in the Black Country.

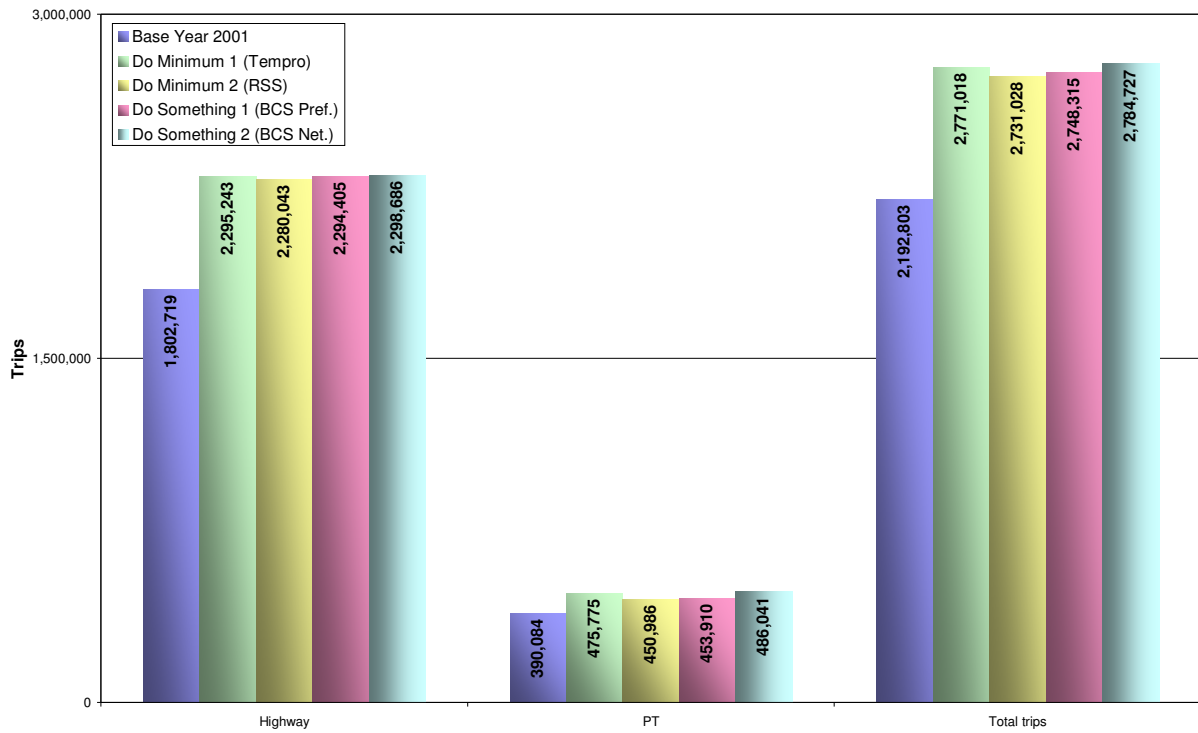
Table 4.2 Total Black Country Trips for a Weekday in 2026

Base Year 2001		Car-Business	Car-Commute	Car-Education	Car-Others	Bus	Metro	Train	Total	
Peak Period										
AM	0700-0930	45,471	220,415	33,210	49,239	65,692	2,917	7,968	424,912	
IP	0930-1530	118,199	97,040	28,880	395,577	193,070	6,714	8,182	847,662	
PM	1530-1900	54,771	188,674	12,227	193,373	58,336	2,547	9,073	519,001	
OP	1900-0700	28,933	58,631	2,192	275,887	33,245	1,099	1,242	401,228	
<b>Total</b>		<b>247,373</b>	<b>564,759</b>	<b>76,508</b>	<b>914,077</b>	<b>350,343</b>	<b>13,277</b>	<b>26,465</b>		Total trips
Net				Highway	1,802,719		PT	390,084		2,192,803
PT share 17.79%										
Do Minimum 1 (Tempo)		Car-Business	Car-Commute	Car-Education	Car-Others	Bus	Metro	Train	Total	
AM	0700-0930	45,011	262,963	39,462	59,444	81,651	6,292	14,118	508,942	
IP	0930-1530	139,654	130,043	35,927	496,898	204,253	10,213	15,606	1,032,595	
PM	1530-1900	57,065	228,581	15,722	247,791	74,021	5,542	16,428	645,150	
OP	1900-0700	35,815	81,172	2,773	416,921	42,728	2,182	2,740	584,332	
<b>Total</b>		<b>277,545</b>	<b>702,759</b>	<b>93,885</b>	<b>1,221,055</b>	<b>402,653</b>	<b>24,229</b>	<b>48,893</b>		Total trips
Net				Highway	2,295,243		PT	475,775		2,771,018
PT share 17.17%										
Do Minimum 2 (RSS)		Car-Business	Car-Commute	Car-Education	Car-Others	Bus	Metro	Train	Total	
AM	0700-0930	45,996	255,711	39,012	59,937	77,598	5,838	13,626	497,717	
IP	0930-1530	140,010	125,926	35,197	497,045	193,524	9,088	15,707	1,016,497	
PM	1530-1900	57,299	230,330	15,293	251,212	70,858	5,177	15,731	645,900	
OP	1900-0700	35,262	79,414	2,700	409,699	39,340	1,802	2,698	570,914	
<b>Total</b>		<b>278,567</b>	<b>691,381</b>	<b>92,202</b>	<b>1,217,893</b>	<b>381,320</b>	<b>21,904</b>	<b>47,762</b>		Total trips
Net				Highway	2,280,043		PT	450,986		2,731,028
PT share 16.51%										
Do Something 1 (BCS Pref.)		Car-Business	Car-Commute	Car-Education	Car-Others	Bus	Metro	Train	Total	
AM	0700-0930	45,847	258,058	39,056	60,107	78,325	5,912	13,710	501,015	
IP	0930-1530	140,159	127,560	35,260	498,763	194,207	9,116	15,751	1,020,816	
PM	1530-1900	57,161	235,008	15,313	251,372	71,510	5,248	15,835	651,446	
OP	1900-0700	35,355	80,386	2,708	412,292	39,755	1,823	2,721	575,038	
<b>Total</b>		<b>278,523</b>	<b>701,012</b>	<b>92,336</b>	<b>1,222,534</b>	<b>383,796</b>	<b>22,098</b>	<b>48,016</b>		Total trips
Net				Highway	2,294,405		PT	453,910		2,748,315
PT share 16.52%										
Do Something 2 (BCS Net.)		Car-Business	Car-Commute	Car-Education	Car-Others	Bus	Metro	Train	Total	
AM	0700-0930	46,948	259,434	38,500	61,503	78,932	10,990	19,075	515,381	
IP	0930-1530	140,622	126,499	34,590	500,352	191,012	15,082	20,896	1,029,053	
PM	1530-1900	57,595	233,441	15,045	253,339	71,870	10,140	21,344	662,773	
OP	1900-0700	35,833	79,527	2,670	412,789	39,547	3,153	3,999	577,520	
<b>Total</b>		<b>280,998</b>	<b>698,901</b>	<b>90,804</b>	<b>1,227,983</b>	<b>381,361</b>	<b>39,365</b>	<b>65,314</b>		Total trips
Net				Highway	2,298,686		PT	486,041		2,784,727
PT share 17.45%										

Key observations:

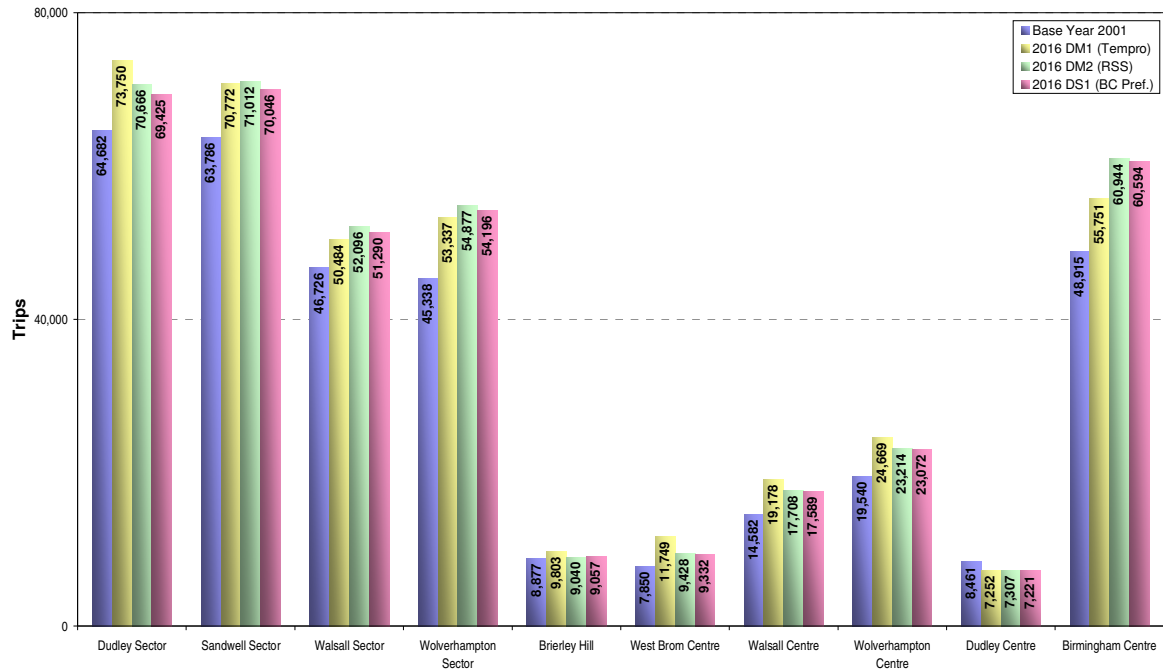
- The observations for 2026 are similar to that observed for 2016
- For the preferred network option, there is a significant increase in PT trips due to a number of PT schemes.
- This has also resulted in an improvement in the PT mode share as compared to the other options tested.
- Metro trips in the Black Country grows by nearly 2 times much as that predicted by the other scenarios due to the introduction of a number of metro schemes.

**Figure 4.2 Total Black Country Trips for a Weekday in 2026**



- Figure 4.2 shows the over all growth by modes. From this we note that there is a significant increase in trips predicted with the BC preferred network, and the growth is coming primarily from increase in PT trips.

**Figure 4.3 Car Destination Trips to Black Country Centres and Sectors in the AM Peak Period for a Weekday in 2016**

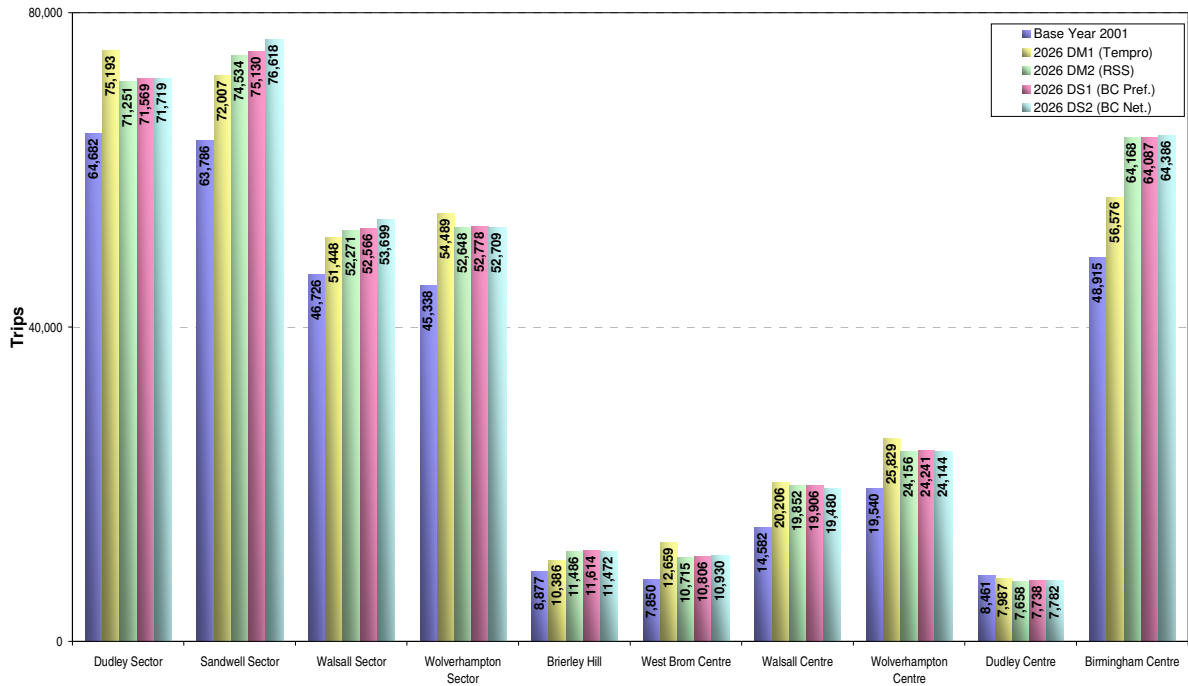


**Key observations:**

This section compares the impacts of the schemes tested in different sections of the Black Country.

- The trend in trip growth from 2001 is repeated here in the comparison in Figure 4.3.
- The difference in TEMPRO and RSS2 growth is a result of the distribution of housing and employment targets under the two land use options. The sectors seem to attract a bigger share of trips in case of RSS2, while the growth in the centres is greater in TEMPRO.

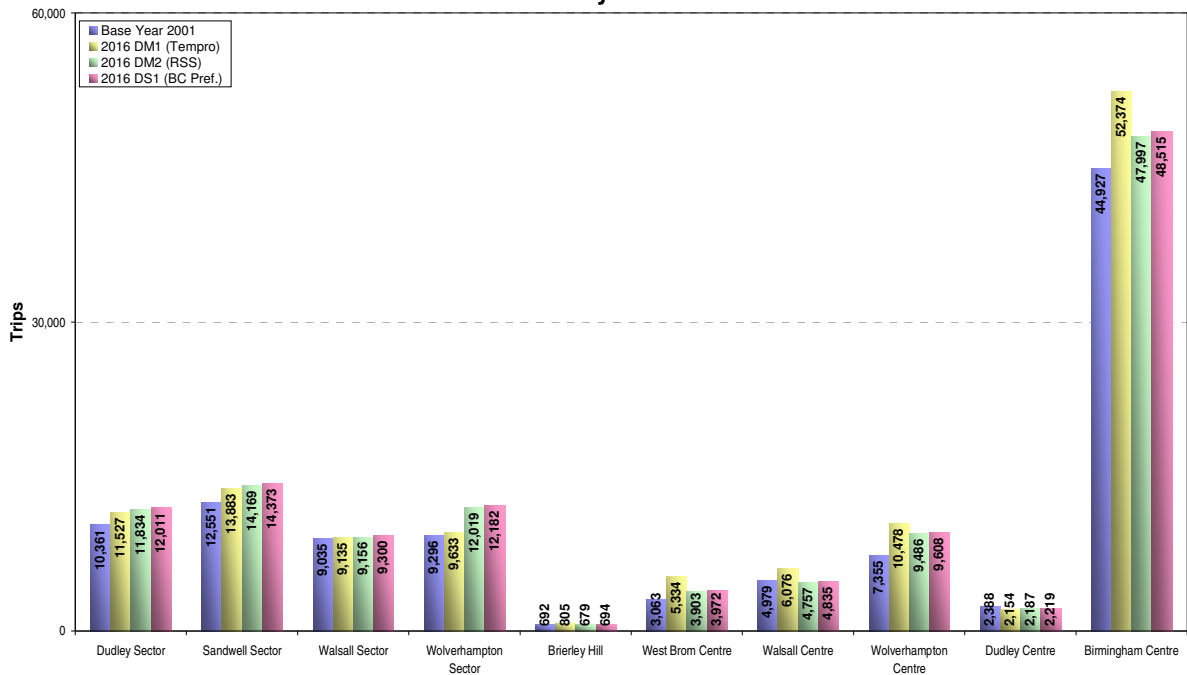
**Figure 4.4 Car Destination Trips to Black Country Centres and Sectors in the AM Peak Period for a Weekday in 2026**



**Key observations:**

- For 2026, we again note that there is no a consistent trend in the comparison between TEMPRO and RSS2
- For the BC preferred network option, the biggest benefactor in terms of car-trips is Sandwell due to a number of Highway schemes.
- Schemes such as Bandon Way and Trinity Way increase accessibility in Sandwell by allowing the traffic to avoid the West Bromwich centre.
- The number of car destination trips remain almost the same in the other centres and sectors

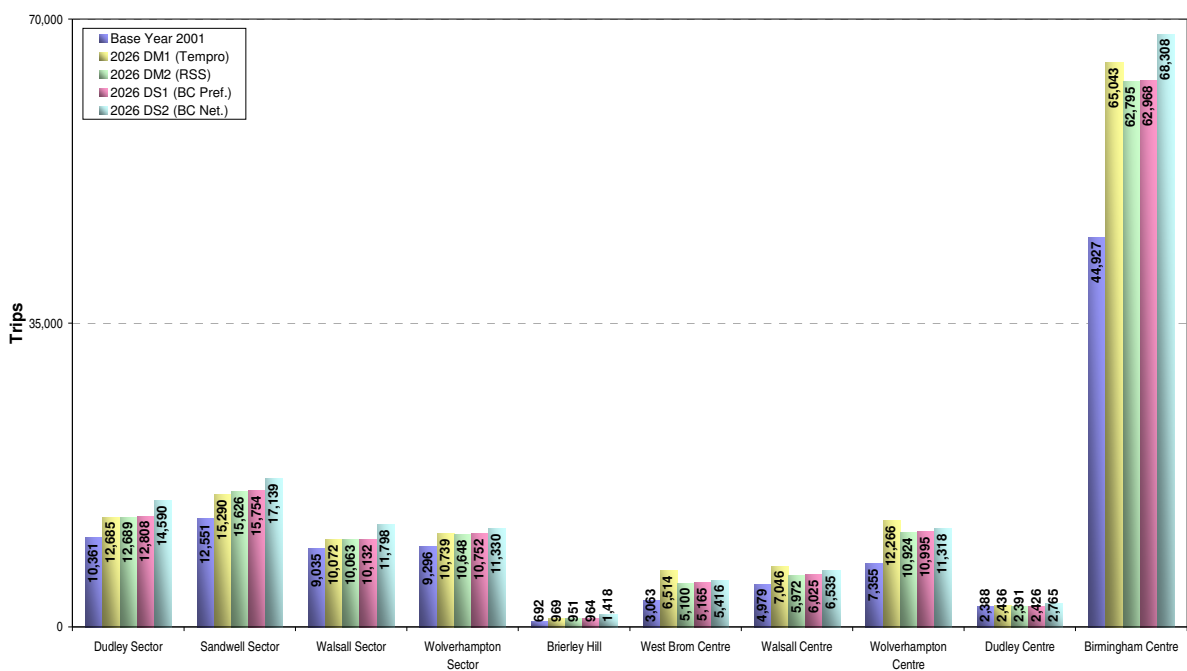
**Figure 4.5 PT Destination Trips to Black Country Centres and Sectors in the AM Peak Period for Weekday in 2016**



**Key observations:**

- For 2016, the PT growth follows the same trend as that observed for car destination.

**Figure 4.6 PT Destination Trips to Black Country Centres and Sectors in the AM Peak Period for a Weekday in 2026**



**Key observations:**

- For 2026, the PT growth follows the same trend as that observed for car destination.



- For the BC preferred network, as expected we note a significant increase in the PT trip destinations. This is especially evident in the sectors.

**Table 4.3 Mode Share for the Black Country Centres (2016 AM Peak)**

**Base Year 2001**

	Car		Bus		Metro		Train	
	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share
Brierley Hill	8,877	92.8%	681	7.1%	0	0.0%	11	0.1%
West Bromwich Centre	7,850	71.9%	2,649	24.3%	223	2.0%	192	1.8%
Walsall Centre	14,582	74.5%	4,802	24.5%	4	0.0%	173	0.9%
Wolverhampton Centre	19,540	72.7%	6,676	24.8%	425	1.6%	254	0.9%

**2016 DM1 (Tempo)**

	Car		growth over base		Bus		growth over base		Metro		growth over base		Train		growth over base	
	Trips	Mode Share			Trips	Mode Share			Trips	Mode Share			Trips	Mode Share		
Brierley Hill	9,803	92.4%	-0.4%		785	7.4%	0.3%		0	0.0%	0.0%		19	0.2%	0.1%	
West Bromwich Centre	11,749	68.8%	-3.2%		4,613	27.0%	2.7%		383	2.2%	0.2%		338	2.0%	0.2%	
Walsall Centre	19,178	75.9%	1.4%		5,788	22.9%	-1.6%		18	0.1%	0.1%		270	1.1%	0.2%	
Wolverhampton Centre	24,669	70.2%	-2.5%		9,100	25.9%	1.1%		587	1.7%	0.1%		790	2.2%	1.3%	

**2016 DM2 (RSS)**

	Car		growth over base		Bus		growth over base		Metro		growth over base		Train		growth over base	
	Trips	Mode Share			Trips	Mode Share			Trips	Mode Share			Trips	Mode Share		
Brierley Hill	9,040	93.0%	0.2%		662	6.8%	-0.3%		0	0.0%	0.0%		17	0.2%	0.1%	
West Bromwich Centre	9,428	70.7%	-1.2%		3,329	25.0%	0.7%		324	2.4%	0.4%		250	1.9%	0.1%	
Walsall Centre	17,708	78.8%	4.3%		4,533	20.2%	-4.4%		18	0.1%	0.1%		205	0.9%	0.0%	
Wolverhampton Centre	23,214	71.0%	-1.7%		8,304	25.4%	0.6%		467	1.4%	-0.2%		715	2.2%	1.2%	

**2016 DS1 (BC Pref.)**

	Car		growth over base		Bus		growth over base		Metro		growth over base		Train		growth over base	
	Trips	Mode Share			Trips	Mode Share			Trips	Mode Share			Trips	Mode Share		
Brierley Hill	9,057	92.9%	0.1%		677	6.9%	-0.2%		0	0.0%	0.0%		17	0.2%	0.1%	
West Bromwich Centre	9,332	70.1%	-1.8%		3,389	25.5%	1.2%		329	2.5%	0.4%		255	1.9%	0.2%	
Walsall Centre	17,589	78.4%	3.9%		4,609	20.6%	-4.0%		18	0.1%	0.1%		208	0.9%	0.0%	
Wolverhampton Centre	23,072	70.6%	-2.1%		8,426	25.8%	1.0%		466	1.4%	-0.2%		716	2.2%	1.2%	

**Key observations:**

The above table compares the modal share of trips to the centres. Note that this does not compare the actual number of trips, but compares the share of modes, giving the choices commuters are making to access different centres.

- In 2016, car continues to be the main mode for access the centres, as is observed in the base year.
- Brierley Hill is heavily car dependant. A very small proportion of travellers use buses to access this centre.
- Walsall and Wolverhampton have the highest levels of public transport use at around 30%.
- Buses remain by far the dominant mode of public transport.
- Over the time period between 2001 and the 2016 forecasted periods, there is very little variation in terms of mode choices.
- The differences between the RSS2 and Black Country spatial distributions are modest but the latter slightly reduce car dependency to the centres.

**Table 4.4 Mode Share for the Black Country Centres (2026 AM Peak)**

**Base Year 2001**

	Car		Bus		Metro		Train	
	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share
Brierley Hill	8,877	92.8%	681	7.1%	0	0.0%	11	0.1%
West Bromwich Centre	7,850	71.9%	2,649	24.3%	223	2.0%	192	1.8%
Walsall Centre	14,582	74.5%	4,802	24.5%	4	0.0%	173	0.9%
Wolverhampton Centre	19,540	72.7%	6,676	24.8%	425	1.6%	254	0.9%

**2026 DM1 (Tempro)**

	Car		Bus		Metro		Train		growth over base	
	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share
Brierley Hill	10,386	91.5%	939	8.3%	0	0.0%	29	0.3%	0.1%	0.1%
West Bromwich Centre	12,659	66.0%	5,466	28.5%	543	2.8%	504	2.6%	0.8%	0.9%
Walsall Centre	20,206	74.1%	6,629	24.3%	23	0.1%	395	1.4%	0.1%	0.6%
Wolverhampton Centre	25,829	67.8%	10,349	27.2%	808	2.1%	1,108	2.9%	0.5%	2.0%

**2026 DM2 (RSS)**

	Car		Bus		Metro		Train		growth over base	
	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share
Brierley Hill	11,486	92.4%	921	7.4%	0	0.0%	29	0.2%	0.1%	0.1%
West Bromwich Centre	10,715	67.8%	4,194	26.5%	503	3.2%	403	2.6%	1.1%	0.8%
Walsall Centre	19,852	76.9%	5,597	21.7%	24	0.1%	351	1.4%	0.1%	0.5%
Wolverhampton Centre	24,156	68.9%	9,257	26.4%	647	1.8%	1,019	2.9%	0.3%	2.0%

**2026 DS1 (BC Pref.)**

	Car		Bus		Metro		Train		growth over base	
	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share
Brierley Hill	11,614	92.3%	934	7.4%	0	0.0%	29	0.2%	0.1%	0.1%
West Bromwich Centre	10,806	67.7%	4,251	26.6%	510	3.2%	404	2.5%	1.2%	0.8%
Walsall Centre	19,906	76.8%	5,651	21.8%	24	0.1%	351	1.4%	0.1%	0.5%
Wolverhampton Centre	24,241	68.8%	9,322	26.5%	653	1.9%	1,020	2.9%	0.3%	2.0%

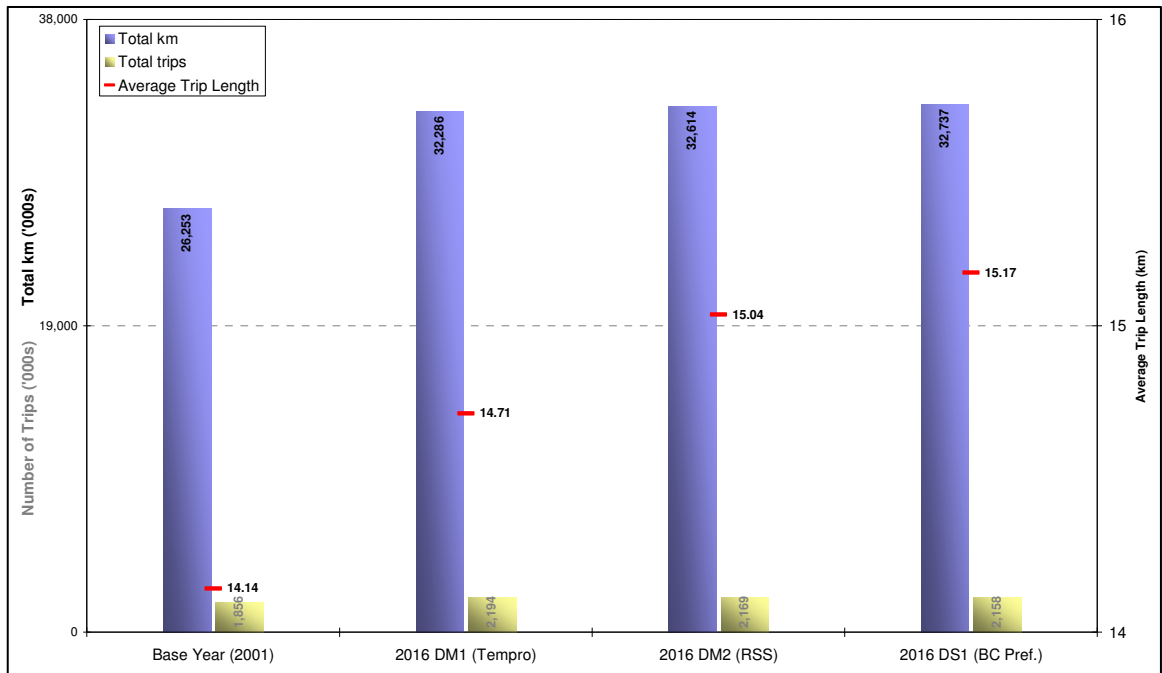
**2026 DS2 (BC Net.)**

	Car		Bus		Metro		Train		growth over base	
	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share	Trips	Mode Share
Brierley Hill	11,472	89.0%	1,118	8.7%	163	1.3%	137	1.1%	1.3%	1.0%
West Bromwich Centre	10,930	66.9%	4,129	25.3%	711	4.3%	577	3.5%	2.3%	1.8%
Walsall Centre	19,480	74.9%	5,374	20.7%	357	1.4%	805	3.1%	1.4%	2.2%
Wolverhampton Centre	24,144	68.1%	9,111	25.7%	976	2.8%	1,232	3.5%	1.2%	2.5%

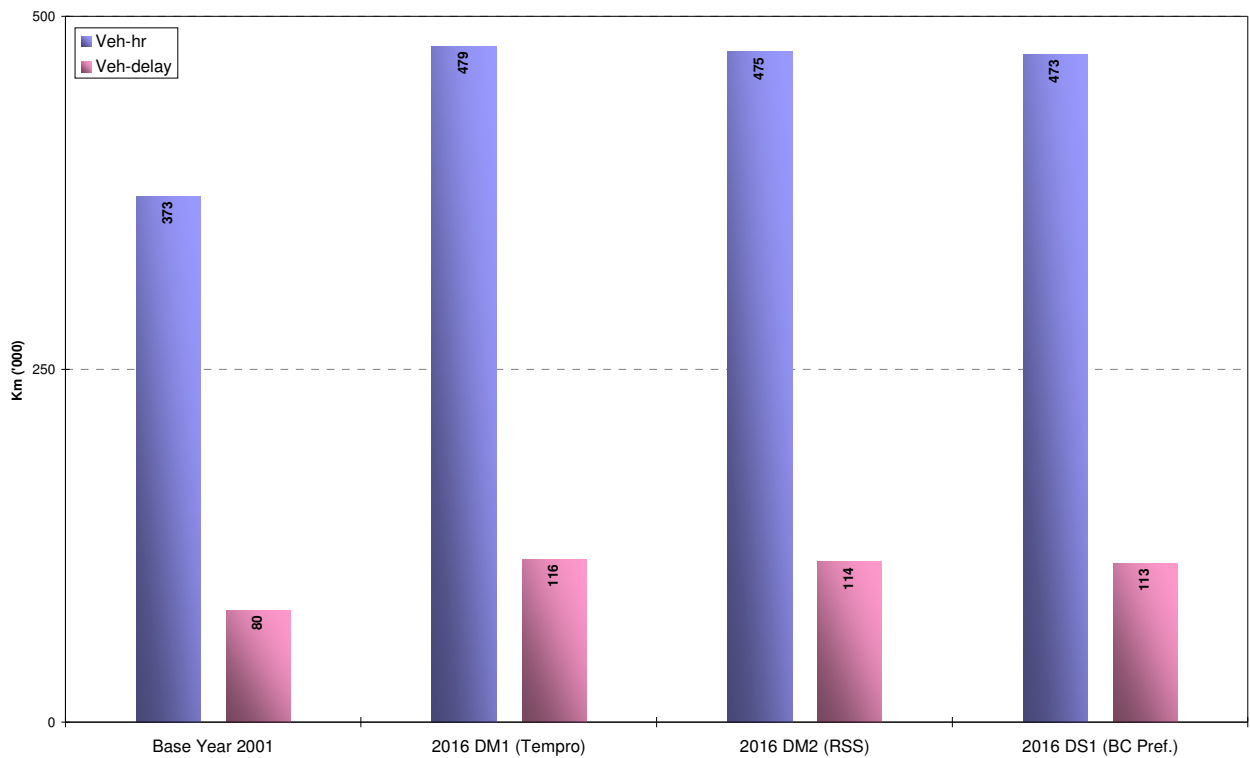
**Key observations:**

- In 2026, similar to 2016 car is still the main mode for access the centres
- However we note that the share of car trips reduces in 2026 as compared to 2001, as the actual number of car trips to the centres is seen to increase.
- Again, the differences between the RSS2 and Black Country spatial distributions are modest but the latter slightly reduce car dependency to the centres.
- The metro and train trip share is noted to increase further with the Black Country network improvements. While in percentage terms these are small gains, they are significant in actual terms, as seen in the increase in metro trips, especially to Brierley Hill and Walsall.
- Also a point to remember here is that the main benefit of the PT schemes is for the rest of the district.

**Figure 4.7 Total Car Trip Distance in the Black Country for an Average Weekday in 2016**



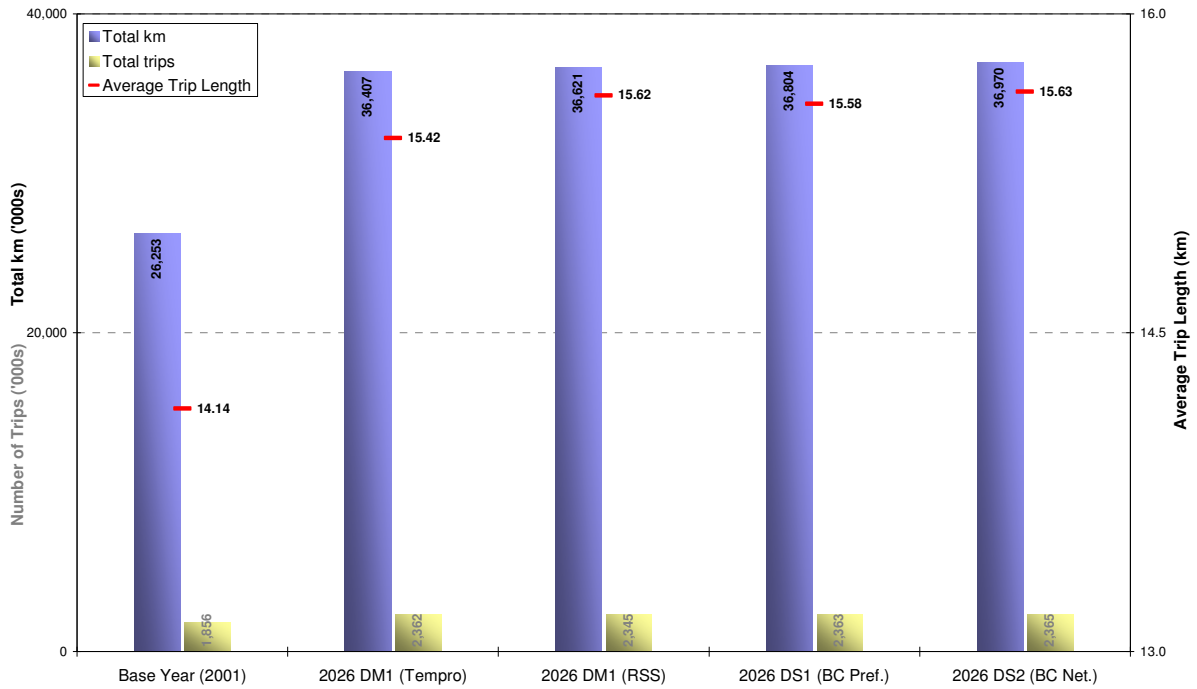
**Figure 4.8 Average Car Trip Time and Delay in the Black Country for a Weekday in 2016**



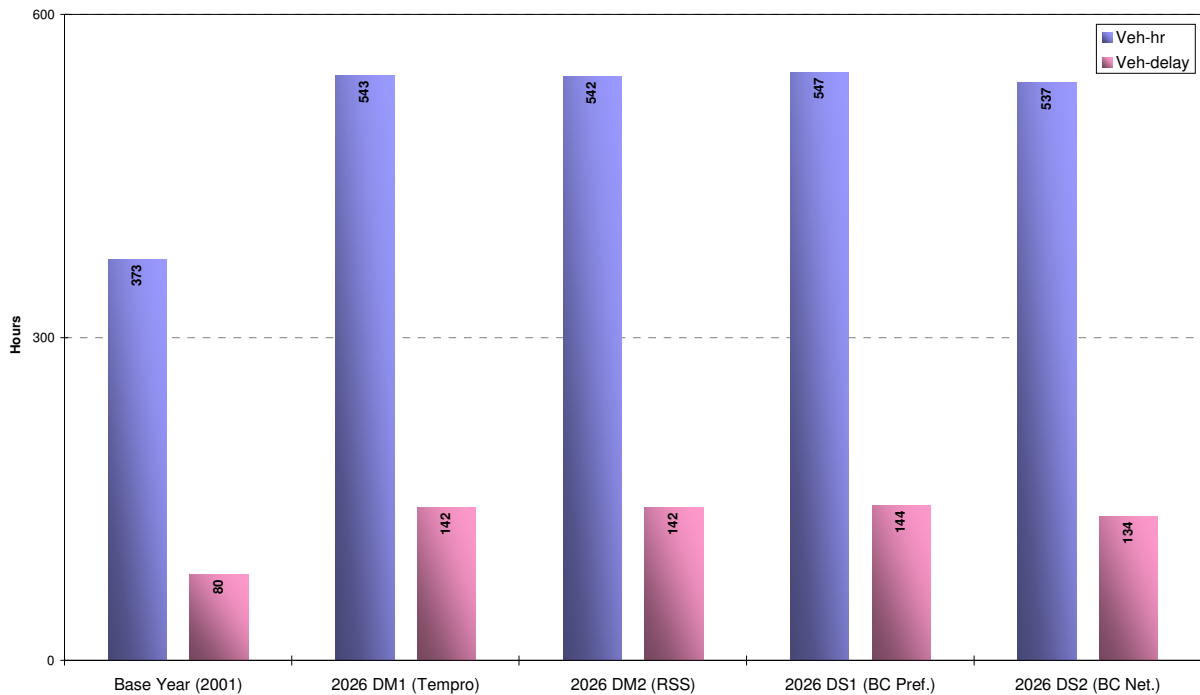
**Key observations:**

- The total vehicle kilometres traversed on the Black Country network increases from 2001 to 2016. This is in line with the actual growth in the total trips in the sub-region.
- The models also predict an increase in the average trip length an individual is going to make in 2016 as compared to 2001. This is a combined effect of an increase in employment, workforce and welfare in the region causing an increase in car ownership and also due to the land use distribution suggested.
- While RSS2 predicts a greater increase in the average trip length as compared to TEMPRO, Figure 4.8 shows that there are no adverse impacts in terms of increase in delay on the network or increase in time spent driving on the network.

**Figure 4.9 Total Car Trip Distance in the Black Country for a Weekday in 2026**



**Figure 4.10 Average Car Trip Time and Delay in the Black Country for a Weekday in 2026**



**Key observations:**

- The total vehicle kilometres on the Black Country network for 2026 follows similar trends to that observed for 2016.

**While the average trip length is predicted to be the longest for the BC preferred network,**

- Figure 4.10 shows this scenario to have the least delay and time spent for cars on the network. This suggests a significant improvement in network flow due to the initiatives suggested in the schemes.

## 5 CONCLUSIONS

The conclusions from the study are as follows:

### *Implications of RSS2 Growth*

- RSS 2 options results in a reduced number of car trips in the Black Country as compared to the TEMPRO distribution.
- While TEMPRO predicts a greater increase in the number of trips for centres in the Black Country, RSS2 predicts higher growth in trips for the rest of the district.
- The share of public transport (PT) trips for the Black Country is noted to reduce from 2001 – though the absolute level of patronage is increasing.
- The average trip length under the RSS2 and Black Country preferred housing options are greater than TEMPRO. However, this is not resulting in adverse impacts in the form of increased delay and time spent by car drivers on the network.

### *Implications of Alternative Black Country Spatial Scenario*

- The Alternative spatial distribution results in a slight reduction in car dependency for trips to the Black Country centres.

### *Implications of Transport Investment*

- The Black Country preferred network options enable an increase in over all trip-making, especially for PT, indicating an increased level of activity.
- The delay on the network reduces with the introduction of Black Country preferred network options.
- There are local adverse impacts on the network noted due to the housing and network interventions. On the whole there are no major strategic concerns due to the proposed development scenarios. However with the Black Country preferred network option there are less negative impacts of higher housing allocation.

Study presentation with the results as presented on 17<sup>th</sup> September, and subsequently updated with comments are shown in Appendix C.

Plots showing the network impacts for 2016 RSS2 for each district are shown in Appendix D.

## Appendix A.

### 'Core' network scheme included in the PRISM networks

Proposed Schemes :	Coded in PRISM as part of		Comments	
	Scenario Year	Scenario Year		
A41 Expressway/All Saints Way Junction improvements	2011	2021	Phasing to be finalised	
A4123/A461 Burnt Tree Island	2011	2021		
A45/A46 Tollbar End	2011	2021		
ATM on M'way Box	2011	2021		
BIA and NEC Enhanced Public Transport Access	2011	2021		
Birmingham Outer Circle Junction Improvements (Route 11)	2011	2021		
Brierley Hill Sustainable Access Network	2011	2021		
Burntwood Bypass	2011	2021		
Bus Showcase Corridors	2011	2021		Routes to be finalised
Chester Road Access Improvements	2011	2021		
Coleshill Multimodal Interchange	2011	2021		
Coventry Quality Bus Network	2011	2021		
Coventry Station Interchange	2011	2021		
Cradley Heath Town Centre Strategy	2011	2021		
Darlaston SDA Access Project	2011	2021		
Hagley Road Bus Routes	2011	2021		
Northfield Regeneration	2011	2021		
Owen Street Level Crossing Relief Road	2011	2021		
Red Routes Packages 1 and 2	2011	2021	Routes to be finalised	
Selly Oak Access Road	2011	2021		
Walsall Town Centre Transport Package	2011	2021		
Wolverhampton Centre Access Interchange	2011	2021		
Wolverhampton I54 Access	2011	2021		



## Appendix B.

### BCS Schemes

#### A. Dudley

- i. Road network improvements to improve access of the Dudley town centre
- ii. Junction Improvements on key congested junctions
- iii. Improvements to the Brierley Hill road network primarily by junction. Improvements to main access points to Brierley Hill
- iv. A461 Corridor/ Burnt Tree Island Improvement
- v. A4101 Corridor and Junction Improvements - Checked
- vi. High Volume Bus Corridor between Dudley and Wolverhampton
- vii. High Volume Bus Corridor between Dudley, Oldbury and Birmingham
- viii. Dudley – Pensnett – Brierley Hill Corridor: Improvement in Bus priority and reliability

#### B. Sandwell

- i. Improved access to the motorway at the key motorway junctions (M5 junction 1)
- ii. Improved access to the motorway at the key motorway junctions - Birchley Island (M5 junction 2)
- iii. Brandon Way and Trinity Way Improvements
- iv. New access to Hill Top Employment Corridor
- v. A41 Expressway/All Saints Way Junction Improvements

#### C. Wolverhampton

- i. Wolverhampton A449 - M54 Junction 2 to Wolverhampton Ring Road.
- ii. Neachells Lane Corridor and Junction.
- iii. Wednesfield Way Corridor and Junction.
- iv. I54 Employment Area Improvement.
- v. High Quality Bus Access/ Quality Bus Corridor (Wolverhampton City Centre; Stafford Road Technology Corridor)/ Red Routes
- vi. Rail based P&R at north of Wolverhampton

#### D. Walsall

- i. Bradford Place Bus Station
- ii. M6 Junction 10 hamburger solution
- iii. Darlaston Development Area Link Roads
- iv. Brownhill Bypass and Clayhanger Link
- v. Improved rail connections to Birmingham
- vi. Walsall to Cannock Rail Showcase, including parking facilities.
- vii. PT enhancements between Walsall and Brownhills
- viii. BRT scheme between Walsall Town Centre and Birmingham City Centre, with a park and ride at M6 Jcn 7.
- ix. 5W's metro route 2026

#### F. Brierley Hill/Merry Hill

- i. Merry Hill parking management regime
- ii. Stourbridge to Brierley Hill Metro Extension (high volume public transport corridor)
- iii. Pear Tree Island Improvement (PT looking at Cinder Bank to Pedmore Rbt)
- iv. Quality Bus route network

**G. Highway Agency Schemes**

- i. M54 (J1) to M6(T) Link Road
- ii. Birmingham Box ATM (only AM and PM)

**H. Others**

- iii. Enhanced rail service between Walsall and Wolverhampton
- iv. L3 – Metro (Birmingham to Brierley Hill)
- v. L4 – Metro (Wolverhampton to Brierley Hill)



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**Appendix C. Study Presentation**



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**Appendix D. 2016 RSS2 District Network Plots**