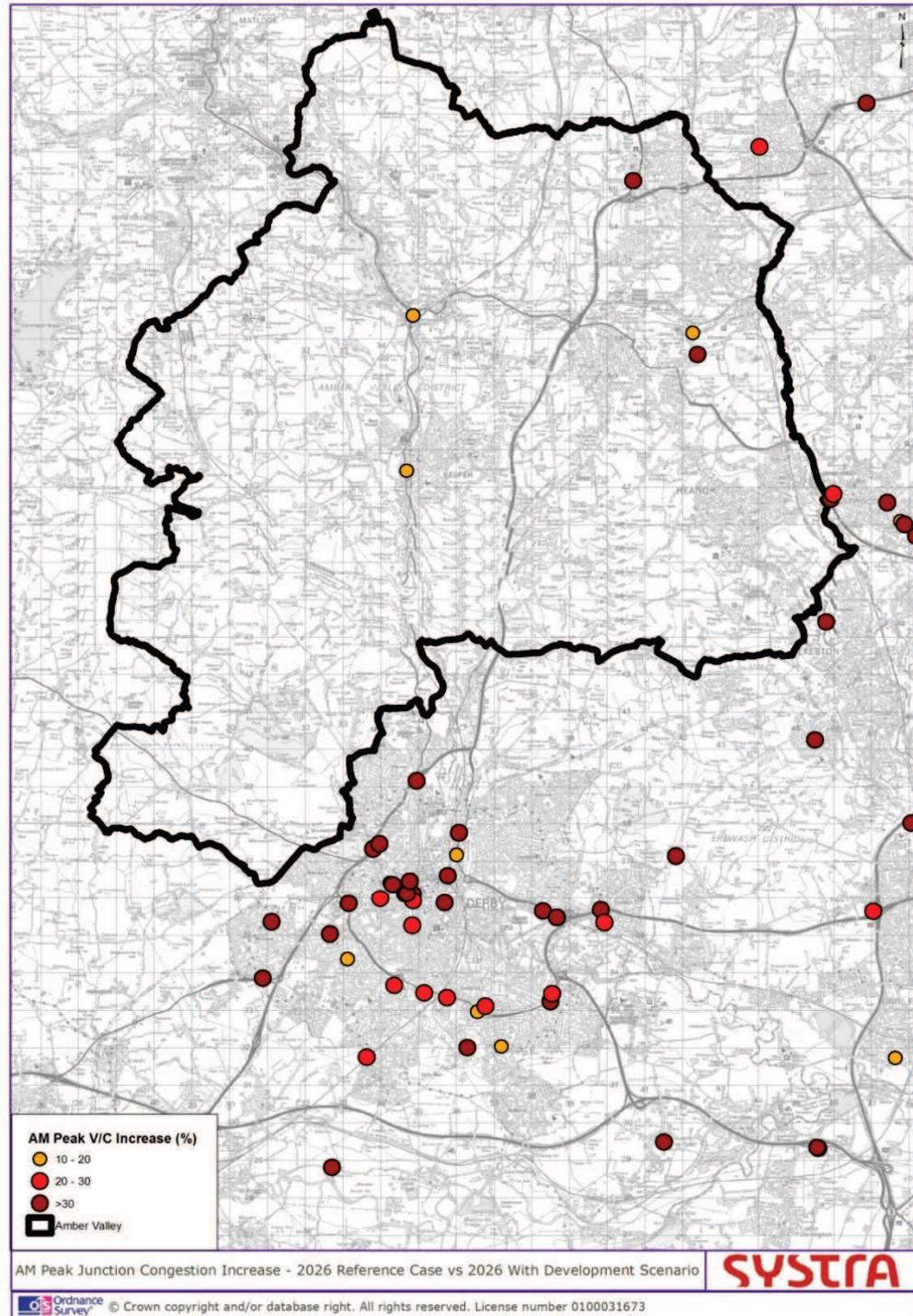


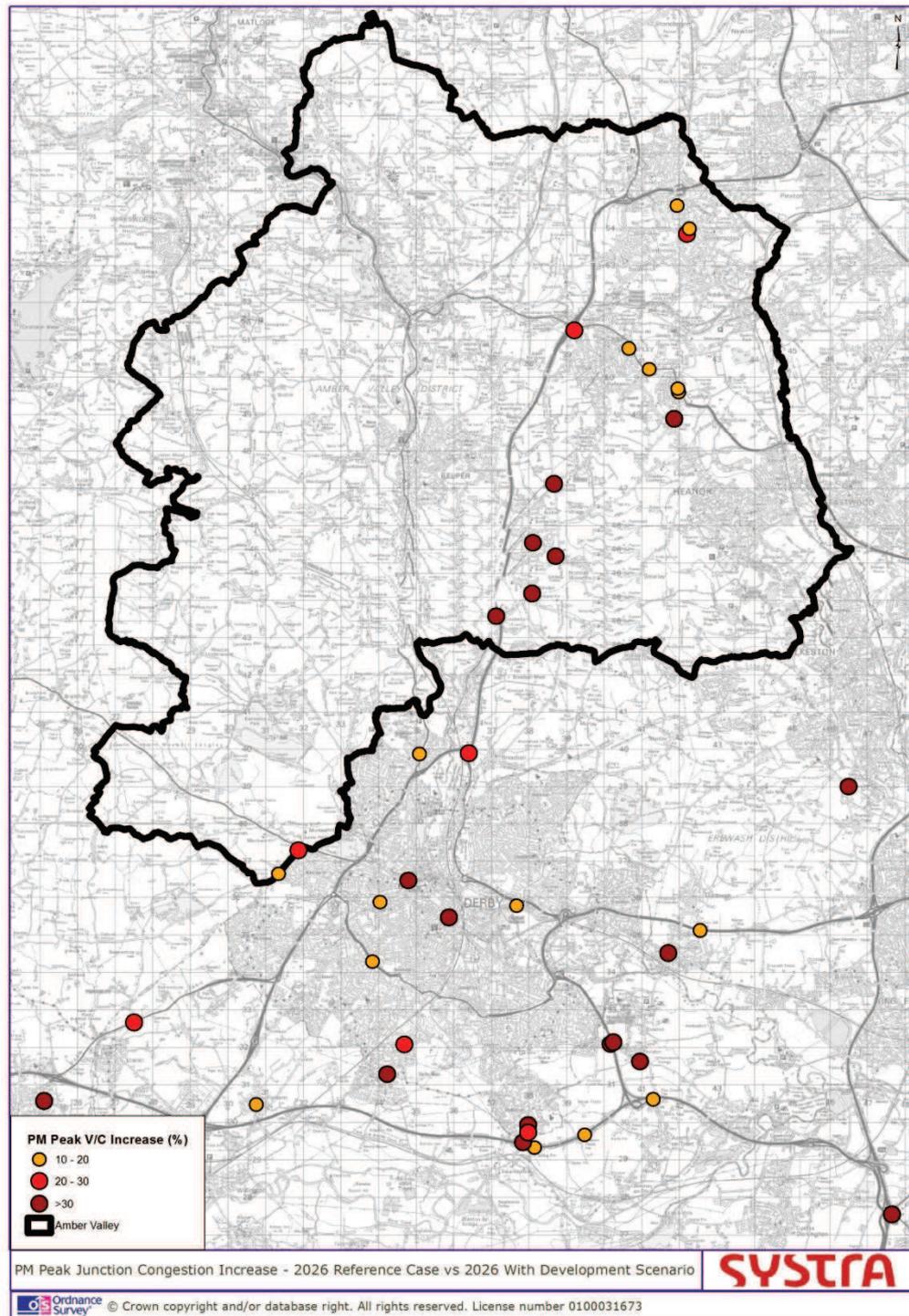


**Figure 7. Increase in Junction Congestion – Reference Case vs With Development Scenario – Amber Valley – Morning Peak**





**Figure 8. Increase in Junction Congestion – Reference Case vs With Development Scenario – Amber Valley – Evening Peak**





### 4.8 Amber Valley - Network Indicators

- 4.8.1 The Network Indicators for the Amber Valley area are presented in Table 9. This indicates that congestion in the area, as indicated by the over-capacity queues indicator, increases significantly as a result of the HMA Core Strategy proposals (134% in the AM peak and 113% in the PM peak).
- 4.8.2 This congestion results in a reduction of up to 7% in the average speed of vehicles in peak hours within the Amber Valley area.

Table 9. Network Indicators – Amber Valley

INDICATOR	MORNING PEAK			EVENING PEAK		
	REFERENCE CASE	WITH DEV.	% CHANGE	REFERENCE CASE	WITH DEV.	% CHANGE
Over Capacity Queues (PCU Hrs)	220	514	134%	171	365	113%
Total Travel Time (PCU Hrs)	6,124	7,206	18%	5,856	6,989	19%
Total Travel Distance (PCU kms)	324,116	354,964	10%	318,540	356,356	12%
Average Speed (km/hr)	52.9	49.3	-7%	54.4	51	-6%



## Derby City

### 4.9 Introduction

4.9.1 This section presents the outputs from the modelling for the Derby City area.

### 4.10 Derby City – Flow Difference

4.10.1 Figures 9 and 10 show the flow difference between the Reference Case and 'With Development' (No Mitigation) scenarios for the morning and evening peak hours respectively. Blue lines indicate roads which are forecast to experience an increase in traffic between the Base and Reference Case, whilst green lines indicate roads which are forecast to experience a decrease in traffic.

4.10.2 Increases are forecast along the following roads:

- A38;
- A50;
- T12 Link Road;
- A6;
- A52;
- A514; and,
- Sinfin Lane.

4.10.3 The majority of the developments inside or adjacent to Derby City are located to the south of the urban area in close proximity to the A50. This results in significant increases in traffic flows on the A50, the A38 and the A514 as these are the major routes accessing these developments.

4.10.4 As these major routes become more congested, traffic diverts onto local routes resulting in increases in flows through Sinfin, Chellaston, Littleover and Alvaston. In addition, traffic finds other routes into the city centre which results in a widening of the traffic flow impacts to other parts of the city including the A52 to the west.

### 4.11 Junction Congestion

4.11.1 Figures 11 and 12 show the forecast increase in junction congestion between the Reference Case and the 'With Development' (No Mitigation) scenarios for the morning and evening peak hours respectively.

4.11.2 Significant increases in junction congestion are predicted during the morning peak in Derby City Centre at the following locations:

- The Curzon Street Junctions with the A601 Mercian Way, Friday Street and Forman Street.
- The A516 junctions with Junction Street, Uttoxeter Old Road, The B5020 Uttoxeter Road.
- The Stenson Road junctions with Oaklands Avenue, Littleover Lane in Sunny Hill south of A5111 and the Village Street junctions with A5111.
- The junctions along Sinfin Lane south of A5111 in Sinfin.
- The junctions along and south of the A5111 in Allenton.



- The junctions along A52 near Spondon and Pride Park.
- The A61 Junctions with A608 near the Racecourse Park.
- The A38 Junctions with Kedleston Road and the A6 Duffield Road in Darley Abbey.

4.11.3 In terms of the evening peak junction congestion, the most affected areas are in the outskirts of the city centre along the A52 to the east, the A38 in the north as well as the A514 and the A5111 in the south of Derby City Centre.

4.11.4 There are wider congestion issues along some of the radial routes leading to the A38 and in the vicinity of the A6/A52 junction. These are likely to be the result of the network wide traffic redistribution caused by the increases in delays and congestion on the routes into the city from the south.

## 4.12 Derby City Network Indicators

4.12.1 The Network Indicators for Derby City area are presented in Table 10. The table shows that congestion in the area, as indicated by the over-capacity queues indicator, increases significantly as a result of the HMA Core Strategy proposals (88% in the AM peak and 78% in the PM peak). The congestion impacts in Derby City are greater than the other two areas, reflecting the significant congestion in the Reference Case and the level of development that is proposed within and adjacent to the urban area.

4.12.2 This congestion results in a reduction of up to 5% in the average speed of vehicles within the Derby City Centre area.

**Table 10. Network Indicators – Derby City Area**

INDICATOR	MORNING PEAK			EVENING PEAK		
	REFERENC E CASE	WITH DEV.	% CHANGE	REFERENCE CASE	WITH DEV.	% CHANGE
Over Capacity Queues (PCU Hrs)	404	759	88%	466	828	78%
Total Travel Time (PCU Hrs)	11,817	13,204	12%	12,097	13,373	11%
Total Travel Distance (PCU kms)	387,553	412,249	6%	392,976	416,365	6%
Average Speed (km/hr)	32.8	31.2	-5%	32.5	31.1	-4%



Figure 9. Flow Difference – Reference Case vs With Development Scenario – Derby City – Morning Peak

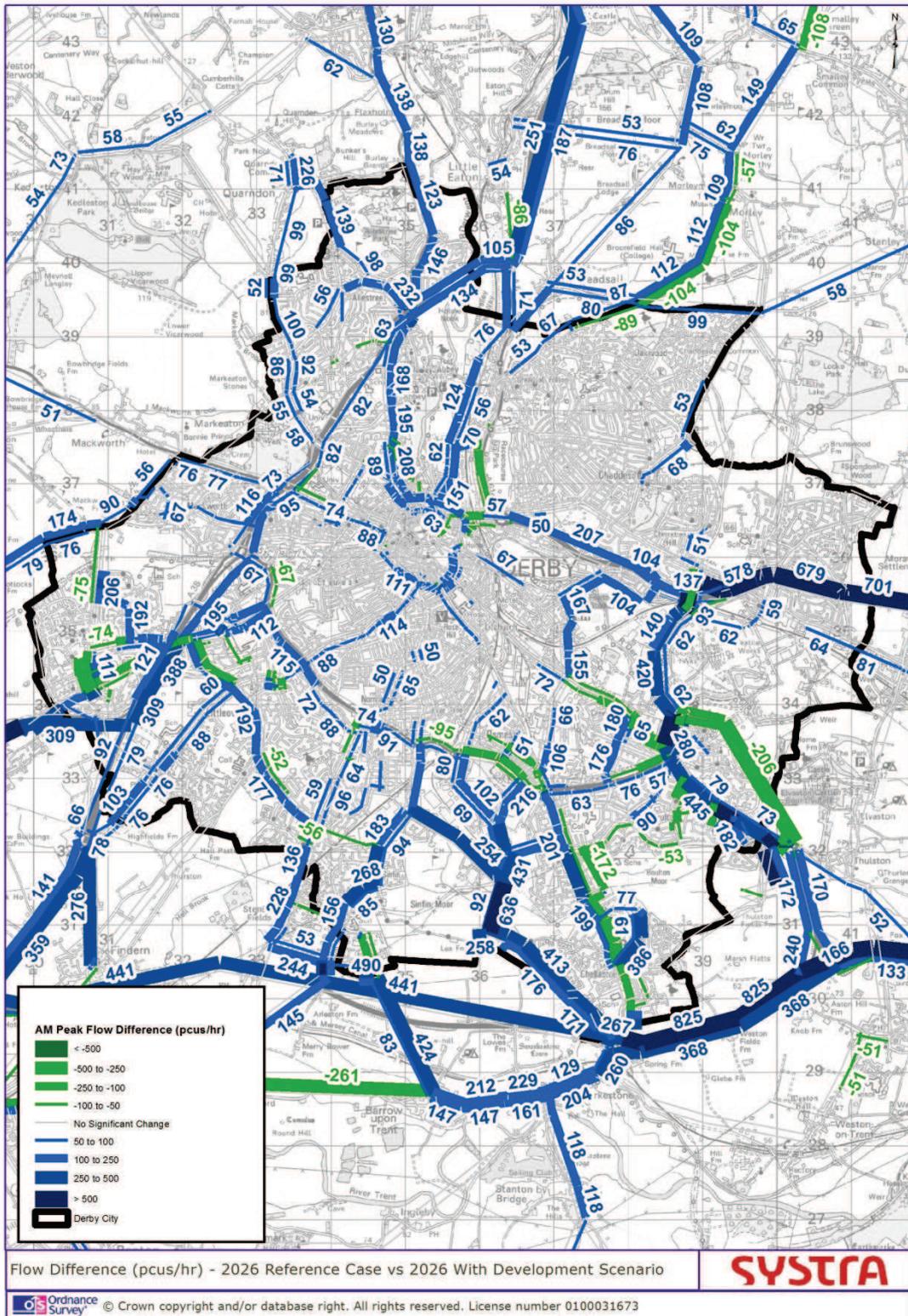
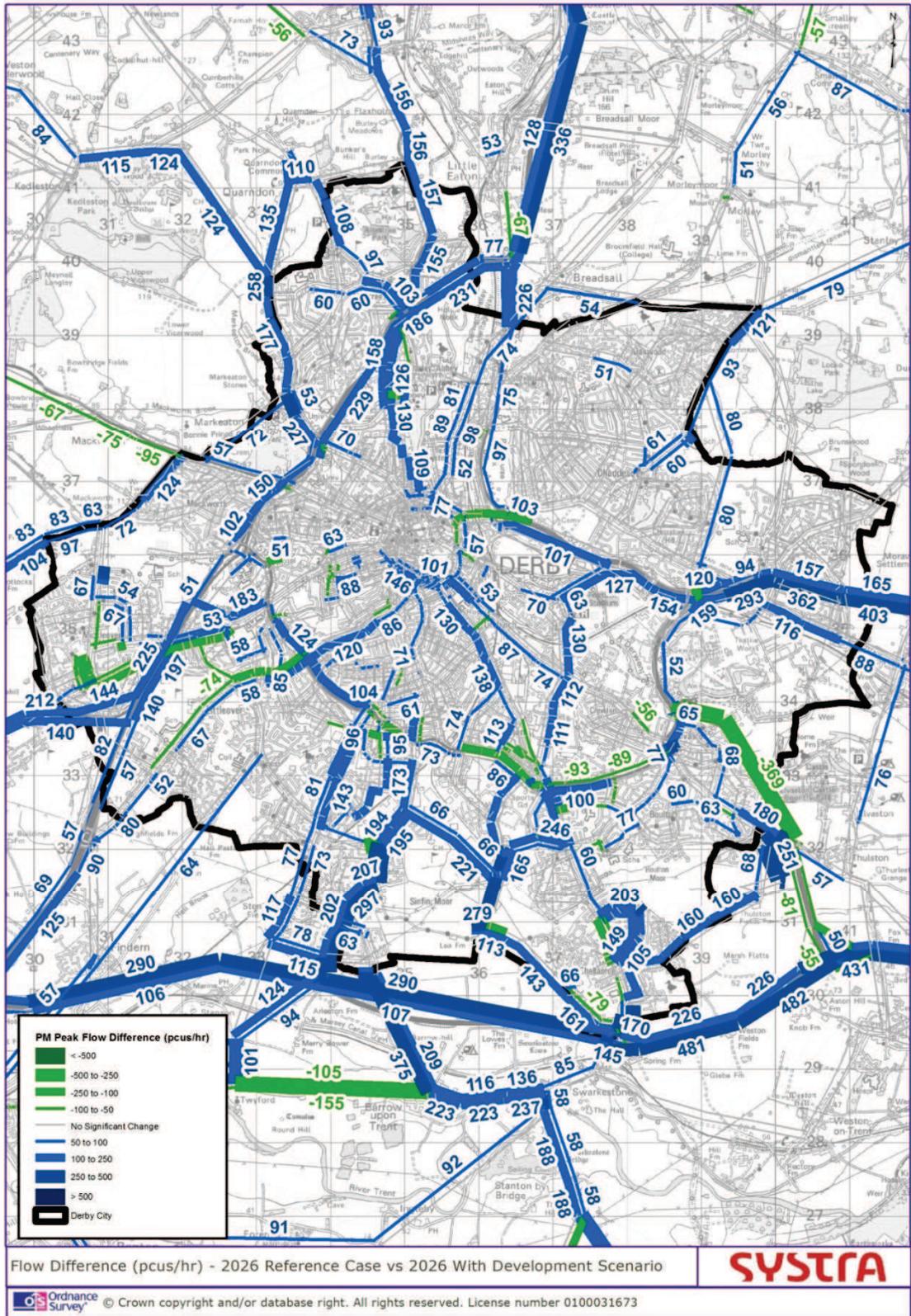




Figure 10. Flow Difference – Reference Case vs With Development Scenario – Derby City – Evening Peak



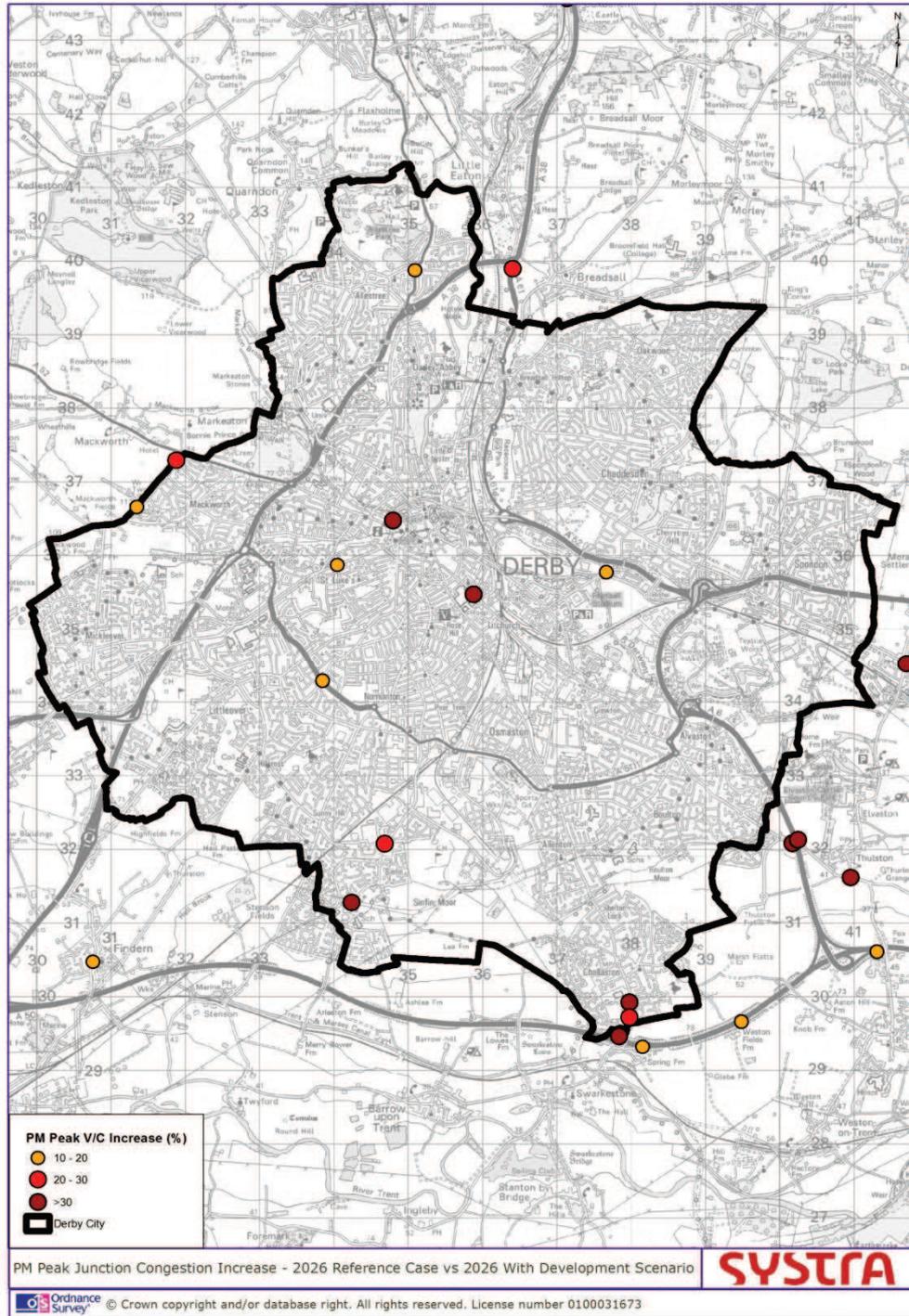


**Figure 11. Increase in Junction Congestion – Reference Case vs With Development Scenario – Derby City – Morning Peak**





Figure 12. Increase in Junction Congestion – Reference Case vs With Development Scenario – Derby City – Evening Peak





## South Derbyshire

### 4.13 Introduction

4.13.1 This section presents the outputs from the modelling for the South Derbyshire area.

### 4.14 South Derbyshire - Flow Difference

4.14.1 Figures 13 and 14 show the flow difference between the Reference Case and 'With Development' (No Mitigation) scenarios for the morning and evening peak hours respectively. Blue lines indicate roads which are forecast to experience an increase in traffic between the Base and Reference Case, whilst green lines indicate roads which are forecast to experience a decrease in traffic.

4.14.2 The following roads are forecast to experience increases in flow:

- A50;
- A516;
- A5132;
- Roads in the vicinity of Aston-on-Trent;
- A444;
- A511.

4.14.3 The majority of the South Derbyshire sites are located on the edge of Derby City and as such the traffic flow impacts are in the city, the A50 and the A38, as described in the previous section of this report.

4.14.4 The developments to the south of the area result in significant flow increases through Burton on Trent and Swadlincote especially on the A38 and the A444. These flow increases are due to both direct generations associated with the developments in and around Swadlincote as well as redistribution effects of congestion within Swadlincote to the A444.

### 4.15 South Derbyshire - Junction Congestion

4.15.1 Figures 15 and 16 show the forecast increase in junction congestion between the Reference Case and the 'With Development' No Mitigation scenarios for the morning and evening peak hours respectively.

4.15.2 The plots indicate that the majority of the increases in congestion are in the vicinity of Derby City especially along the A5132 Twyford Road to the south of the A50 and also within Hilton. These are primarily due to traffic finding alternative routes to the A50. Significant congestion increases have also been identified at junctions near the A444/ Moria Road in Overseal.

4.15.3 There are low levels of congestion increase in Swadlincote and also in Burton on Trent, which is outside of the Derby HMA area in Staffordshire. This includes the A38 junctions to the north and south of Burton, which provide the main access from the Trunk Road network to the area.

### 4.16 South Derbyshire – Network Indicators

4.16.1 The Network Indicators for the South Derbyshire area are presented in Table 11. This suggests that congestion in the area, as indicated by the over-capacity queues indicator, increases



significantly as a result of the HMA Core Strategy proposals (72% in the AM peak and 63% in the PM peak). The congestion impacts around Derby City are greater than the more rural areas as a result of the concentration of development in this area.

4.16.2 This congestion results in a reduction between 6% and 7% in the average speed of vehicles within the South Derbyshire area.

**Table 11. Network Indicators – South Derbyshire Area**

INDICATOR	MORNING PEAK			EVENING PEAK		
	REFERENCE CASE	WITH DEV.	% CHANGE	REFERENCE CASE	WITH DEV.	% CHANGE
Over Capacity Queues (PCU Hrs)	486	838	72%	500	815	63%
Total Travel Time (PCU Hrs)	7,631	8,903	17%	7,593	8,918	17%
Total Travel Distance (PCU kms)	419,974	461,374	10%	418,818	460,159	10%
Average Speed (km/hr)	55	51.8	-6%	55.2	51.6	-7%



Figure 13. Flow Difference – Reference Case vs With Development Scenario – South Derbyshire – Morning Peak

