Uttlesford District Council

District Wide Transport Study

Technical Note 7 – Sensitivity Testing - Scenarios 30, 31 and 32

1 Introduction

1.1 This note summarises the latest scenario tests (Scenarios 30, 31 and 32) that have been undertaken to advise the Transport Study work in support of the Uttlesford Local Plan.

1.2 Concerns were raised by adjacent authorities in response to the consultation on the Regulation 18 (Draft) Local Plan regarding assessing potential traffic impacts on the A505 corridor within South Cambridgeshire to the north of Uttlesford. These concerns are summarised in **Table 1** below.

Table 1 – Summary of Concerns Raised

Authority	Concern
Cambridgeshire County Council (CCC)	Additional employment development should be assessed in Cambridgeshire
South Cambridgeshire District Council (SCDC)	Additional employment development should be assessed in Cambridgeshire
Suffolk County Council (SCC)	Additional residential development should be assessed at Haverhill on the A1307 corridor
Hertfordshire County Council (HCC)	Additional residential development should be assessed at Royston on the A505 corridor

1.3 To address these concerns further transport testing has been undertaken to examine the effects of the additional development referred to above. This note summarises the methodology and results of this testing.

2 Additional Development

2.1 Details of the additional development within Cambridgeshire were discussed in a meeting held on 29th November 2017 between CCC, Essex County Council (ECC), SCDC, Uttlesford District Council (UDC) and WYG. Employment details were subsequently agreed with the Cambridgeshire councils and provided by CCC for inclusion in the transport assessment work.

2.2 Details of the residential development at Royston and Haverhill were agreed and provided by Hertfordshire and Suffolk County Councils following telephone and email exchanges.

2.3 A summary of the additional development is provided in **Table 2**, further details can be found in **Appendix A**.

Table 2 – Summary of Additional Development

County	Location	Development
Cambridgeshire	Cambridge and South Cambridgeshire	20,058 Jobs[1]
Suffolk	Haverhill Area	4,164 Dwellings
Hertfordshire	Royston Area	699 Dwellings

2.4 The Uncertainty Log produced to advise preparation of the Local Plan transport study was compiled in accordance with DfT Transport Analysis Guidance (TAG) Unit M4 and used the standard WebTAG definitions to categorise the likelihood of a development proceeding:

- **Near Certain**: The outcome will happen or there is a high probability that it will happen. (e.g. developments under construction, sites with planning permission)
- **More Than Likely**: The outcome is likely to happen but there is some uncertainty. (e.g. sites where a planning application has been submitted or is imminent)
- **Reasonably Foreseeable**: The outcome may happen, but there is significant uncertainty. (e.g. allocated sites)
- **Hypothetical**: There is considerable uncertainty whether the outcome will ever happen. (e.g. possible development sites that are currently unallocated)

2.5 In accordance with TAG guidance all developments categorised as 'Near Certain' or 'More Than Likely' were included in the VISUM model for the Reference Case scenario. This is known as the Core Scenario, and represents the most likely scenario.

2.6 Much of the additional development identified in **Table 2** comprises Local Plan allocations or proposed allocations and therefore, by definition, is not included in the Core Scenario. However, for the purposes of this Sensitivity Testing all the additional development identified in **Table 2** has been included in the updated Reference Case.

2.7 In addition, some of the development identified in **Table 2** was not identified in the original consultation undertaken with the adjacent authorities at the outset of the Transport Study (as summarised in Technical Note 4 – Uncertainty Log) for the following reasons:

- **Cambridge City** – TEMPRO development details were applied for the city as it doesn't directly border Uttlesford. The employment summarised in **Table 2** is additional to the TEMPRO growth originally applied.

- **South Cambridgeshire District** – SCDC were consulted at the outset of the study and provided details of committed/planned development within their district. The employment summarised in **Table 2** is additional to the development assumptions originally supplied.

[1] This is in addition to the 24,042 jobs already assessed, giving a total of 44,100 jobs

- **Suffolk** (Haverhill) – SCC were not consulted at the outset of the study because there are no shared boundaries with Uttlesford and no direct major highway links between St Edmundsbury and Uttlesford (the A505 and A1307 corridors that are the focus of SCC's concerns are both outside the District within Cambridgeshire).

- **North Hertfordshire** (Royston) – HCC were not consulted at the outset of the study because there are no direct major highway links between North Hertfordshire and Uttlesford (the A505 corridor that is the focus of HCC's concerns is within Cambridgeshire).

3 Assessment Methodology

3.1 The additional development summarised in **Table 2** has been included in a revised Reference Case as 'committed development' (i.e. development that is under construction, already has planning permission, or is considered more than likely to occur before the end of the Local Plan period).

3.2 Development trip generation and distribution has been estimated applying the same methodology as described in:

- Technical Note 2 – Trip Rates and Generation
- Technical Note 6 – Modelling Methodology

3.3 For the additional employment development within Cambridgeshire the Middle Super Output Areas that each site is located within were identified and development trips allocated to the respective model zones. The trip generation methodology applied in the transport study only applies separate trip rates for B1, B2 and B8 employment use-classes. Whereas, the breakdown of job information supplied by CCC included the following categories; B1, B1a, B1b, B1c, B2, B8, Construction, Retail, Hotels, Health, Education and 'other'. Therefore, to keep the assessment straight-forward each of these categories has been addressed using one of the three employment categories already considered in the study. The table below details the assumptions applied.

Table 3 – Employment Trip Generation Assumptions Applied

CCC Category	Category Assumed for the Assessment	Jobs
B1 Other	B1 Business Park	3,100
B1a Offices	B1 Business Park	10,700
B1b Research & Development	B1 Business Park	10,500
B1c/B2 Light & Heavy Industry	B2 Industrial Estate	-700
B8 Warehousing & Distribution	B8 Warehousing & Distribution	-400
Construction	B1 Business Park	1,150
Retail	B1 Business Park	3,100
Hotels	B1 Business Park	800
Health & Social Work	B1 Business Park	4,800
Education	B1 Business Park	3,100
Other	B1 Business Park	7,950
Total		44,100

3.4 The employment assumptions already contained within the assessment (24,042 jobs) for Cambridgeshire were removed and replaced with the total of 44,100 jobs as advised by CCC, to avoid any double-counting.

3.5 Local Plan development flows within Uttlesford were then added to the revised Reference Case flows. Three Local Plan development scenarios (30, 31 and 32) were assessed and details of the development assumptions can be found in **Appendix B**.

3.6 The quantum of Uttlesford Local Plan development is the same in each of the three scenarios, with the only differences being the modal shift assumptions applied at the North Uttlesford Garden Community (Great Chesterford) site. Modal splits were adjusted at this site only, to determine the effect on development traffic flows on the A505 corridor.

3.7 Results have also been presented for Scenario 29 for comparison purposes. Scenario 29 applies the previous Reference Case flows (i.e. without the additional committed development summarised in **Table 2**) and the same Uttlesford Local Plan development as Scenario 30.

4 Assessment Results

4.1 In accordance with the methodology applied in the earlier Transport Study work and as described in 'Technical Note 6 – Modelling Methodology' the results of the assessments are presented as 'Stress Plans' which can be found in **Appendix C**.

4.2 These depict network "stress" which is defined as the ratio of the annual average daily traffic (AADT) flow to the Congestion Reference Flow (CRF) expressed as a percentage.

4.3 A link stress level of 100% (i.e. when the demand flow equals the theoretical link capacity) is the critical point at which link flows breakdown resulting in queuing and reduced throughput. Therefore, for the purposes of this note the following stress thresholds have been applied to identify when links are approaching, or exceeding their theoretical maximum capacity:

- Less than 90% stress - the link operates within capacity, although journey times may become less reliable over 75% stress (see below).
- Between 90% and 99% stress - The link is approaching capacity and is increasingly susceptible to flow breakdown.
- Greater than 100% stress - The link operates over capacity and is likely to experience flow breakdown on a regular basis.

4.4 The above thresholds have been applied and colour coded on the plans in **Appendix C** to easily identify when link capacity is approaching critical conditions (i.e. 100% stress). However, it should be noted that 75% stress is generally accepted as the threshold level for adverse effects on journey time reliability. Therefore, links with between 75% and 99% stress will still be operating within capacity but journey times are likely to be less reliable than on links with less than 75% stress.

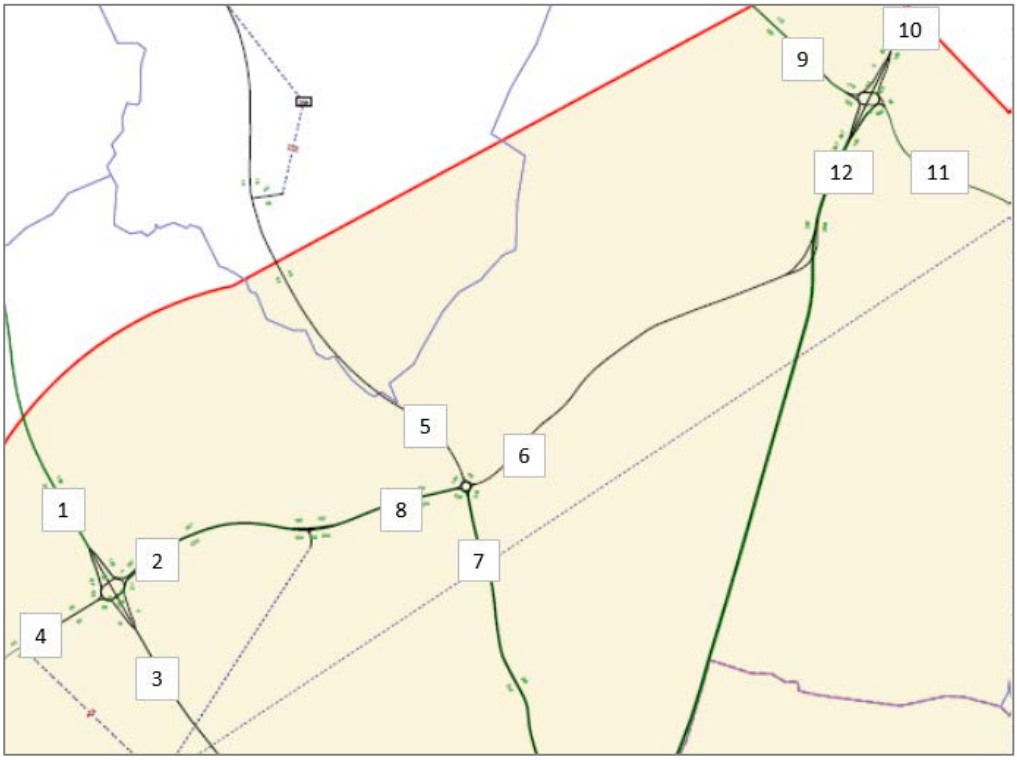
4.5 A summary of the forecast link stress levels on the A505 Corridor for each Scenario is presented in the table below. The additional committed development included in Scenario 30 increases link stress at several locations. Most notably on the A505 and A1307. The modal shift assumptions applied in Scenarios 31 and 32 results in small reductions in link stress, primarily on link references 1,2 and 7.

Table 4 – Summary of Link Stress

Ref	Location Description	% Stress			
		Sc 29	Sc 30	Sc 31	Sc 32
1	M11 North of J10	113	120	120	119
2	A505 East of M11 J10	115	130	130	129
3	M11 South of J10	72	75	75	75
4	A505 West of M11 J10	159	164	164	164
5	A1301 North of A505	69	76	76	76
6	A505 East of A1301	121	132	132	132
7	A1301 South of A505	110	111	109	107
8	A505 West of A1301	159	171	170	169
9	A1307 Northwest of A11	98	128	127	127
10	A11 Northeast of A1307	73	76	76	76
11	A1307 Southeast of A11	157	224	224	223
12	A11 Southwest of A1307	49	52	52	51

Note: See image below for location references

Image 1 – Network Locations for Stress Values in Table 4



4.6 In addition to the stress plans, flow plots have also been produced from the VISUM model used to assign development trips onto the highway network. From these plots traffic flows on the same links in **Table 4** have been summarised as follows.

Table 5 – Traffic Flows on Selected Links

Ref	Location Description	2-Way Flows (PCU)									
		2016/17 Base		Reference Case Old (as used for Scenarios 28 & 29)		Reference Case New (Including Additional Development requested by Adjacent Authorities)		Difference Between Old and New Reference Cases		2016/17 Base + Reference Case (New)	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	M11 North of J10	4,222	4,667	3,701	3,269	4,021	3,444	320	175	8,243	8,111
2	A505 East of M11 J10	3,533	3,192	482	667	618	840	136	173	4,151	4,032
3	M11 South of J10	2,814	2,829	2,084	1,886	2,306	2,015	222	129	5,120	4,844
4	A505 West of M11 J10	2,532	2,382	2,071	1,950	2,254	2,135	183	185	4,786	4,517
5	A1301 North of A505	924	840	526	419	563	468	37	49	1,487	1,308
6	A505 East of A1301	1,770	1,874	631	164	923	729	292	565	2,693	2,603
7	A1301 South of A505	884	916	377	331	398	345	21	14	1,282	1,261
8	A505 West of A1301	2,369	2,472	1,072	844	1,338	1,074	266	230	3,707	3,546
9	A1307 Northwest of A11	1,982	2,035	902	871	1,824	1,641	922	770	3,806	3,676
10	A11 Northeast of A1307	4,113	3,827	621	484	839	678	218	194	4,952	4,505
11	A1307 Southeast of A11	1,914	2,165	1,166	1,061	2,702	2,405	1,536	1,344	4,616	4,570
12	A11 Southwest of A1307	2,458	2,591	1,100	853	1,589	1,018	489	165	4,047	3,609

Note: A505 Links highlighted in Grey

	Location Description	2-Way Flows (PCU)					
		Scenario 30 (All UDC LP Flows)		Scenario 31 (All UDC LP Flows)		Scenario 32 (All UDC LP Flows)	
		AM	PM	AM	PM	AM	PM
1	M11 North of J10	398	347	381	333	366	318
2	A505 East of M11 J10	401	348	379	329	357	309
3	M11 South of J10	111	100	111	100	111	100
4	A505 West of M11 J10	113	100	107	95	101	90
5	A1301 North of A505	80	69	76	65	73	62
6	A505 East of A1301	0	0	0	0	0	0
7	A1301 South of A505	481	416	455	394	429	371
8	A505 West of A1301	401	348	379	329	357	309
9	A1307 Northwest of A11	282	245	267	231	250	216
10	A11 Northeast of A1307	166	141	160	136	155	131
11	A1307 Southeast of A11	200	162	190	154	184	148
12	A11 Southwest of A1307	633	540	602	514	573	488

Note: A505 Links highlighted in Grey

Ref	Location Description	2-Way Flows (PCU)					
		Scenario 30 (NUGC Flows Only - Existing Rural Modal Share)		Scenario 31 (NUGC Flows Only - 68% Car Modal Share)		Scenario 32 (NUGC Flows Only- 62% Car Modal Share)	
		AM	PM	AM	PM	AM	PM
1	M11 North of J10	194	172	177	158	162	144
2	A505 East of M11 J10	264	235	242	216	220	196
3	M11 South of J10	0	0	0	0	0	0
4	A505 West of M11 J10	70	63	64	58	58	52
5	A1301 North of A505	46	40	42	37	38	34
6	A505 East of A1301	0	0	0	0	0	0
7	A1301 South of A505	309	276	284	253	258	230
8	A505 West of A1301	264	235	242	216	220	196
9	A1307 Northwest of A11	197	176	181	162	165	148
10	A11 Northeast of A1307	64	56	57	51	52	46
11	A1307 Southeast of A11	91	78	82	71	74	64
12	A11 Southwest of A1307	352	310	321	283	292	257

Note: A505 Links highlighted in Grey

Ref	Location Description	Percentage Impacts							
		Scenario 30 LP Development as % of 2016/17 Base + Ref' Case (All UDC LP Flows - New Reference Case)		Scenario 31 LP Development as % of 2016/17 Base + Ref' Case (All UDC LP Flows - New Reference Case)		Scenario 32 LP Development as % of 2016/17 Base + Ref' Case (All UDC LP Flows - New Reference Case)		New Reference Case as a % of 2016/17 Base Traffic Flows	
		AM	PM	AM	PM	AM	PM	AM	PM
1	M11 North of J10	5%	4%	5%	4%	4%	4%	95%	74%
2	A505 East of M11 J10	10%	9%	9%	8%	9%	8%	17%	26%
3	M11 South of J10	2%	2%	2%	2%	2%	2%	82%	71%
4	A505 West of M11 J10	2%	2%	2%	2%	2%	2%	89%	90%
5	A1301 North of A505	5%	5%	5%	5%	5%	5%	61%	56%
6	A505 East of A1301	0%	0%	0%	0%	0%	0%	52%	39%
7	A1301 South of A505	38%	33%	35%	31%	33%	29%	45%	38%
8	A505 West of A1301	11%	10%	10%	9%	10%	9%	56%	43%
9	A1307 Northwest of A11	7%	7%	7%	6%	7%	6%	92%	81%
10	A11 Northeast of A1307	3%	3%	3%	3%	3%	3%	20%	18%
11	A1307 Southeast of A11	4%	4%	4%	3%	4%	3%	141%	111%
12	A11 Southwest of A1307	16%	15%	15%	14%	14%	14%	65%	39%

Note: A505 Links highlighted in Grey

5 Conclusions

5.1 The percentage impacts presented in **Table 5** demonstrate that the traffic generated by proposed Local Plan growth within Uttlesford will result in a small increase in two-way traffic flows on the A505 corridor in comparison to the 'Base + Committed' flows (i.e. the situation that will exist without Uttlesford Local Plan development).

5.2 The committed development flows in the Reference Case (i.e. the cumulative traffic from all consented LPA development impacting on the A505 corridor) will increase two-way traffic flows on the A505 Corridor significantly, with increases of over 50% on most links in at least one peak period.

5.3 Forecast link stress on the A505 corridor is therefore predominantly due to existing and committed traffic flows (i.e. a problem that already exists and will get worse without any Local Plan development within Uttlesford).

5.4 The impacts of Local Plan development within Uttlesford should therefore be addressed in a proportional manner through developer financial contributions towards a detailed A505 corridor study and/or proportional financial contributions towards any mitigation measures identified, where the cost of these works is reasonable for a developer to meet.

Appendix A – Additional Development Details

Summary of Additional Housing Growth Assumptions to be applied in the Reference Case

Log Ref	Category	Location	County	Town	Dwellings	Employment (Jobs)
Suffolk						
-	Planning Permission	North East Haverhill	Suffolk	Haverhill	2,500	0
-	Planning Permission	North West Haverhill	Suffolk	Haverhill	1,150	0
-	Planning Permission	Land South of Chapelwent Road	Suffolk	Haverhill	393	0
-	Planning Permission	Hamlet Croft	Suffolk	Haverhill	91	0
-	Planning Permission	Westfield Primary School	Suffolk	Haverhill	30	0
Haverhill Total					4,164	0
Hertfordshire						
RY4	Local Plan Allocation	Land north of Lindsay Close	Hertfordshire	Royston	40	0
RY8	Local Plan Allocation	Land at Lumen Road	Hertfordshire	Royston	14	0
RY10	Local Plan Allocation	Land south of Newmarket Road	Hertfordshire	Royston	300	0
RY11	Local Plan Allocation	Land at Barkway Road	Hertfordshire	Royston	18	0
RY7	Local Plan Allocation	Anglian Business Park, Orchard Road	Hertfordshire	Royston	48	0
RY1	Local Plan Allocation	Land west of Ivy Farm	Hertfordshire	Royston	279	0
Royston Total					699	0

Note: See next tab for employment details for Cambridgeshire

Summary of Employment Growth Assumptions to be applied in the Reference Case

Employment Growth Assumptions within Cambridgeshire:

Location Ref	MSOA	Site	B1 - Other	B1a – Offices	B1b – Research & Development	B1c/B2 – Light & Heavy Industry	B8 – Warehousing & Distribution	Construction	Transport	Retail	Hotels	Health & Social Work	Education	Other	Total
1	Spread across City MSOAs	Wider City Centre	-	6,400	-	-	-200	-	-	1,900	-	-	-	1,400	9,500
2	E02003731 Cambridge 013	Addenbrooke's	-	-	1,500	-	-	-	-	-	-	2,700	-	1,300	5,500
3	E02003777 - South Cambridgeshire 003	Northstowe	2,100	-	-	300	100	400	-	600	200	750	150	900	5,500
4	E02006873 - South Cambridgeshire 020	Cambourne	100	1,400	-	-	-	100	-	100	100	200	50	250	2,300
5	E02003791 - South Cambridgeshire 017	Granta Park	-	-	2,300	-	-	-	-	-	-	50	-	50	2,400
6	E02003791 - South Cambridgeshire 017	Hinxton	-	-	700	-	-	-	-	-	-	-	-	-	700
7	E02003791 - South Cambridgeshire 017	Babraham	-	-	900	-	-	-	-	-	-	-	-	-	900
8	E02003778 - South Cambridgeshire 004	Landbeach	-	700	400	100	100	-	-	-	50	50	-	-	1,400
9	E02003725 - Cambridge 007	West Cambridge (City)	-	-	770	-	-	-	-	-	-	-	-	325	1,095
10	E02003723 - Cambridge 005	North West Cambridge (City)	-	-	230	-	-	-	-	-	-	-	1,350	325	1,905
11	E02003783 - South Cambridgeshire 009	West Cambridge & North West Cambridge (SCDC)	-	600	-	-	-	50	-	50	50	50	50	1,250	2,100
12	E02003721 - Cambridge 003	Northern Fringe (City)	-	-	2,100	-	-100	-	-	-	-	-	-	-	2,000
13	E02003781 - South Cambridgeshire 007	Northern Fringe (SCDC)	-	1,600	200	-	-	-	-	-	-	-	-	-	1,800
14	E02003785 - South Cambridgeshire 011	ARM / Capita Park (City)	500	-	1,000	-	-	-	-	-	-	-	-	-	1,500
15	Spread across City MSOAs	Elsewhere (City)	-	-	-	-	-300	-	-	-	-	-	1,350	50	1,100
16	Spread across SCDC MSOAs	Others (SCDC)	-	-	-	-1,100	-	200	-	50	200	400	50	1,200	1,000
17	E02006873 - South Cambridgeshire 020	Bourn Airfield	400	-	-	-	-	200	-	200	100	300	50	450	1,700
18	E02003778 - South Cambridgeshire 004	Waterbeach	-	-	-	-	-	200	-	200	100	300	50	450	1,300
19	E02003779 - South Cambridgeshire 005	Bar Hill	-	-	400	-	-	-	-	-	-	-	-	-	400
		Total	3,100	10,700	10,500	-700	-400	1,150	0	3,100	800	4,800	3,100	7,950	44,100

Notes:

Jobs already taken into account in the Reference Case include:

Cambridge	12,474
South Cambridgeshire District	11,568
Total	24,042

Therefore the uplift required to the Reference Case is (44,100 - 24,042 = 20,058 jobs)

Appendix B – Local Plan Scenarios

Uttlesford Local Plan Transport Study - Growth Scenarios Tested

Location/AoS	Use-Class	Jan-18		
		Tests in Response to Feedback from Adjacent Authorities		
		30	31	32
		Great Chesterford; West of Great Dunmow; West of Braintree (Car Modal Split of 76% applied to the NUGC site at Great Chesterford) - 2011 Census 'Rural Village and Dispersed Average' Modal Split for the District	Great Chesterford; West of Great Dunmow; West of Braintree (Car Modal Split of 68% applied to the NUGC site at Great Chesterford) - **Realistic Modal Split Assumption**	Great Chesterford; West of Great Dunmow; West of Braintree (Car Modal Split of 62% applied to the NUGC site at Great Chesterford) - **Optimistic Modal Split Assumption**
Committed Developments (Dwelling Numbers)		Committed Developments (Dwelling Numbers)	Committed Developments (Dwelling Numbers)	Committed Developments (Dwelling Numbers)
Committed Developments (Uncertainty Log)	C3	5,916	5,916	5,916
New Settlements (Dwelling Numbers)		New Settlements (Dwelling Numbers)	New Settlements (Dwelling Numbers)	New Settlements (Dwelling Numbers)
M11 Junction 9a East (Gt Chesterford)	C3	1,900	1,900	1,900
Elsenham	C3			
North of Takeley	C3			
Little Dunmow (Chelmer Mead)	C3			
W of Gt. Dunmow (Easton Park)	C3	1800	1800	1800
West of Braintree	C3	970	970	970
Market Towns (Dwelling Numbers)		Market Towns (Dwelling Numbers)	Market Towns (Dwelling Numbers)	Market Towns (Dwelling Numbers)
Saffron (7 sites in Aug & Nov 2016, 4 sites in March 2017)	C3	240	240	240
Gt. Dunmow (6 sites in Aug & Nov 2016, 8 sites in March 2017)	C3	743	743	743
Villages (Dwelling Numbers)		Villages (Dwelling Numbers)	Villages (Dwelling Numbers)	Villages (Dwelling Numbers)
Elsenham	C3	40	40	40
Gt. Chesterford	C3	31	31	31
Newport	C3	0	0	0
Stansted Mountfitchet	C3	62	62	62
Takeley	C3	42	42	42
Thaxted	C3	54	54	54
Clavering	C3	0	0	0
Debden	C3	25	25	25
Hatfield Broad Oak	C3	0	0	0
Henham	C3	0	0	0
Farnham	C3	0	0	0
Felsted	C3	0	0	0
Great Easton	C3	0	0	0
Great Sampford	C3	0	0	0
Quendon&Rickling	C3	19	19	19
Stebbing	C3	0	0	0
Radwinter	C3	0	0	0
Total Dwellings		11,842	11,842	11,842

Name	Use-Class	Employment Growth Scenarios (Sqm)	Employment Growth Scenarios (Sqm)	Employment Growth Scenarios (Sqm)
		30	31	32
Elsenham Meadows (TriSail)	B1	60,000	60,000	60,000
Land north east of Bury Lodge	B8	45,000	45,000	45,000
Land north east of Bury Lodge	B1	20,000	20,000	20,000
Chesterford Research Park	B1	38,000	38,000	38,000
M11 Junction 9a East (Stump Cross)	B1 / B8	31,200	31,200	31,200
Elsenham	B1 / B8	0	0	0
West of Gt. Dunmow	B1 / B8	13,500	13,500	13,500
West of Braintree	B1 / B8	0	0	0
Little Dunmow	B1	0	0	0
North of Takeley	-	0	0	0
Totals		207,700	207,700	207,700

Land West of Braintree (Dwelling Numbers)	Land West of Braintree (Dwelling Numbers)	Land West of Braintree (Dwelling Numbers)
2,500	2,500	2,500

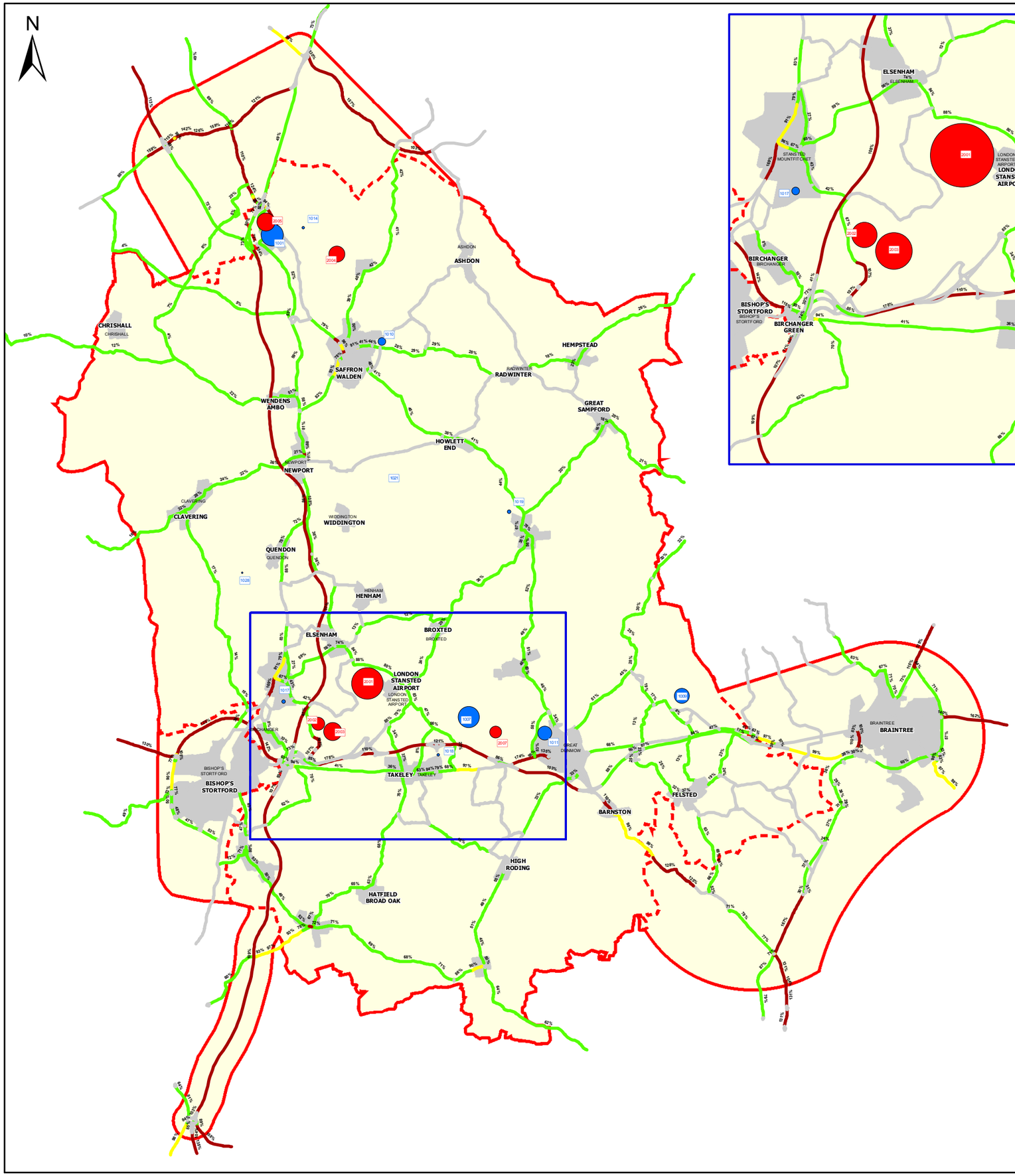
Land at Haverhill, Suffolk (Dwelling Numbers)	Land at Haverhill, Suffolk (Dwelling Numbers)	Land at Haverhill, Suffolk (Dwelling Numbers)
4,164	4,164	4,164

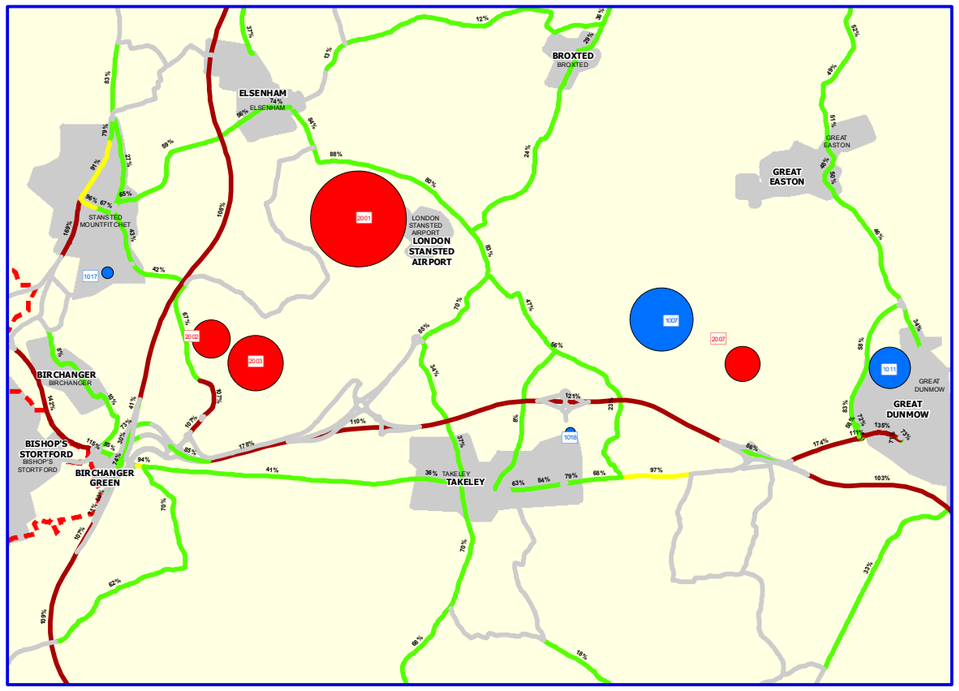
Land at Royston, Hertfordshire (Dwelling Numbers)	Land at Royston, Hertfordshire (Dwelling Numbers)	Land at Royston, Hertfordshire (Dwelling Numbers)
699	699	699

Land at Cambridge (Additional Job Numbers)	Land at Cambridge (Additional Job Numbers)	Land at Cambridge (Additional Job Numbers)
20,058	20,058	20,058

Notes:
1. Reference case development at land west of Braintree is within Braintree District.
2. Additional residential development taken into account at Haverhill and Royston in response to feedback received from Suffolk and Hertfordshire County Councils.
3. Additional employment taken into account within Cambridgeshire in response to feedback from South Cambridgeshire District Council and Cambridgeshire County Council. Job numbers above are in addition to the 24,042 jobs already taken into account to give a total of 44,100 jobs)

Appendix C – Network ‘Stress’ Plans





Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	1900
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	0
1007	North of A120, West of Gt. Dunmow	1800
1008	Little Dunmow	0
1009	West of Braintree	970
1010	Saffron (7 sites)	240
1011	Gt. Dunmow (6 sites)	743
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	31
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	0
1017	Stansted Mountfitchet (southern edge in MGB)	62
1018	Takeley	42
1019	Thaxted	54
1020	Clavering	0
1021	Debden	25
1022	Hatfield Broad Oak	0
1023	Henham	0
1024	Farnham	0
1025	Felsted	0
1026	Great Easton	0
1027	Great Sampford	0
1028	Quendon & Rickling	19
1029	Stebbing	0
1030	Radwinter	0

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1268
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	549
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

0 2.5 5 7.5 10 Km

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REV	DESCRIPTION	BY	CHK	APP	DATE

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Project:
District-Wide Transport Study

Drawing Title:
Figure XX
Scenario 29 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PJ	14/11/17	GD	14/11/17	ASG	14/11/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	0XX	-

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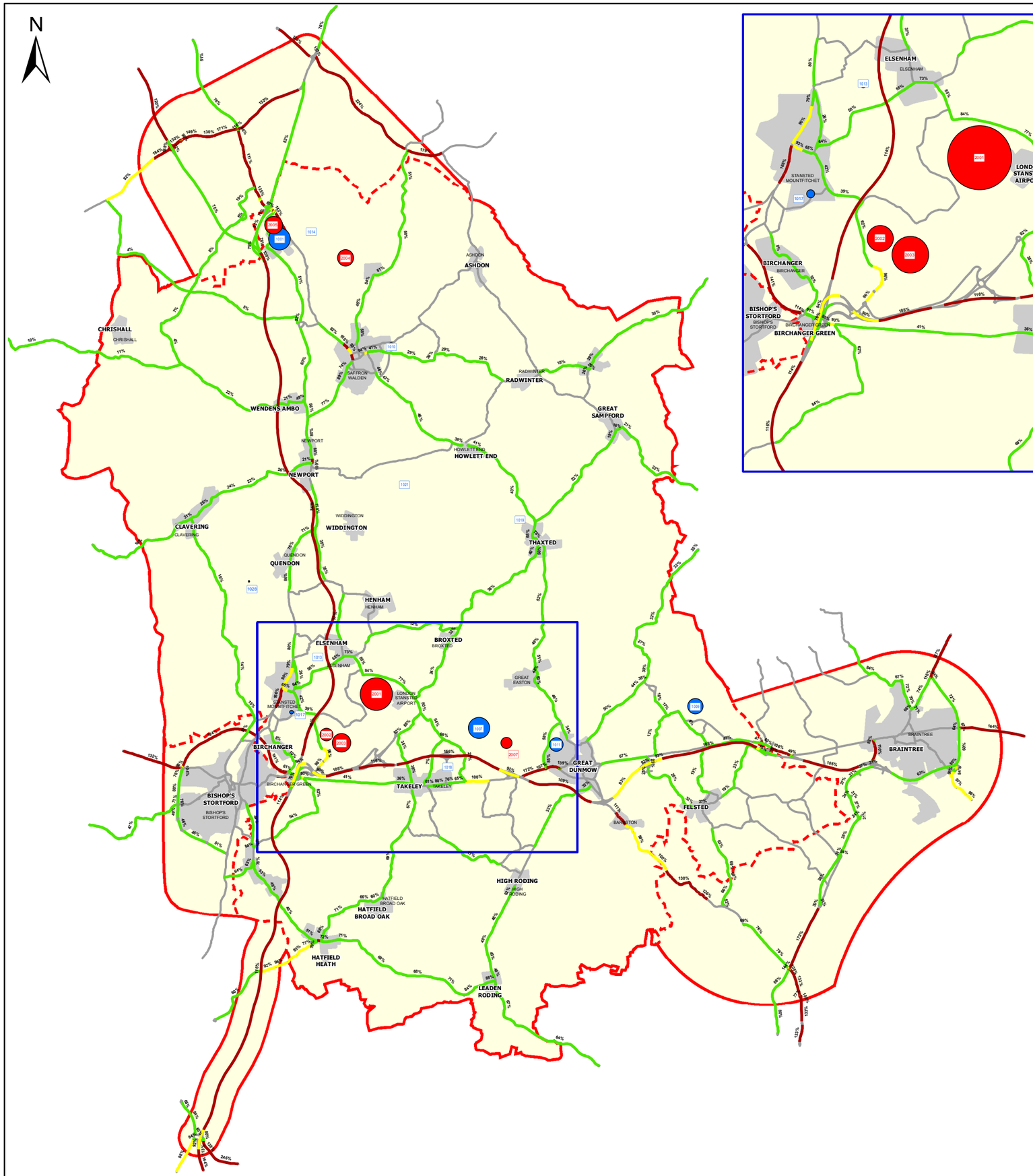

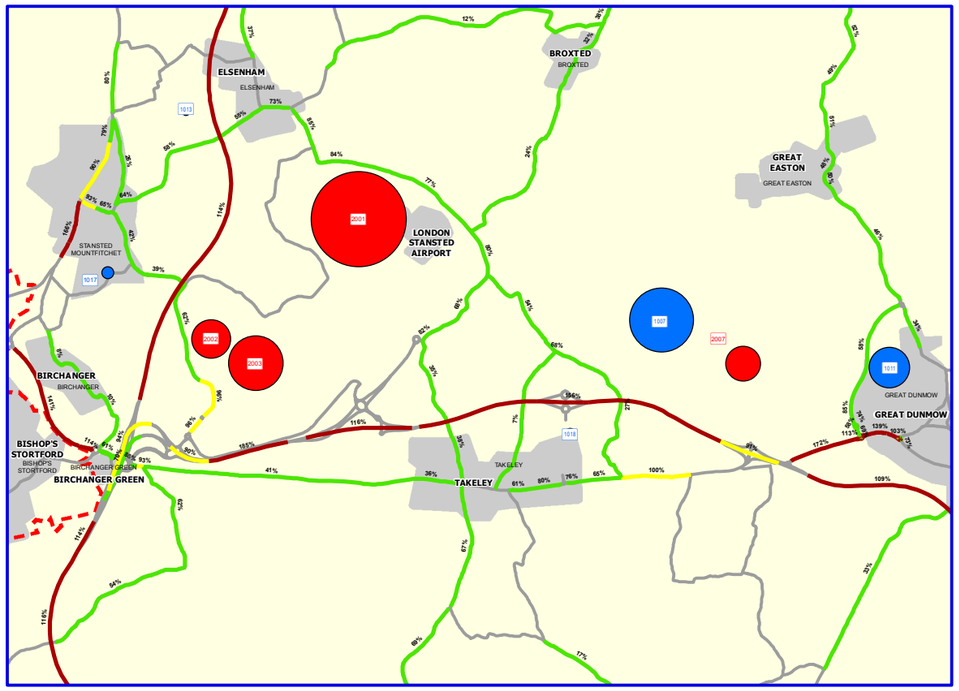

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- Greater than 100%

Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	1900
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	0
1007	North of A120, West of Gt. Dunmow	1800
1008	Little Dunmow	0
1009	West of Braintree	970
1010	Saffron (7 sites)	240
1011	Gt. Dunmow (6 sites)	743
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	31
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	0
1017	Stansted Mountfitchet (southern edge in MGB)	62
1018	Takeley	42
1019	Thaxted	54
1020	Clavering	0
1021	Debden	25
1022	Hatfield Broad Oak	0
1023	Henham	0
1024	Farnham	0
1025	Felsted	0
1026	Great Easton	0
1027	Great Sampford	0
1028	Quendon & Rickling	19
1029	Stebbing	0
1030	Radwinter	0

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1268
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	549
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

0 2.5 5 7.5 10 Km

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REV	DESCRIPTION	BY	CHK	APP	DATE

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Uttlesford District Council

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District-Wide Transport Study

Drawing Title:
Figure XX
Scenario 30 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	22/01/18	GD	22/01/18	ASG	22/01/18

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	055	-

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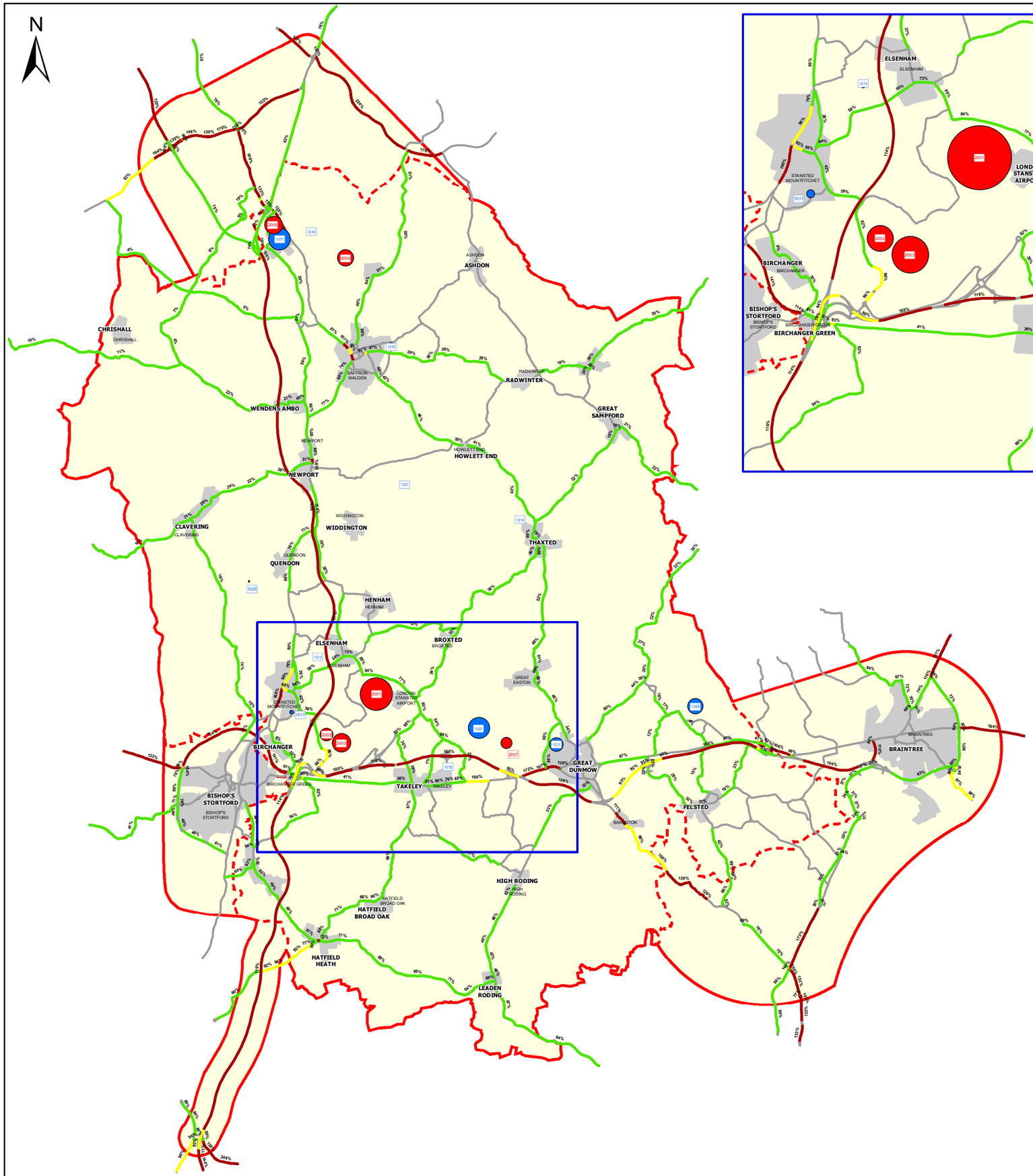

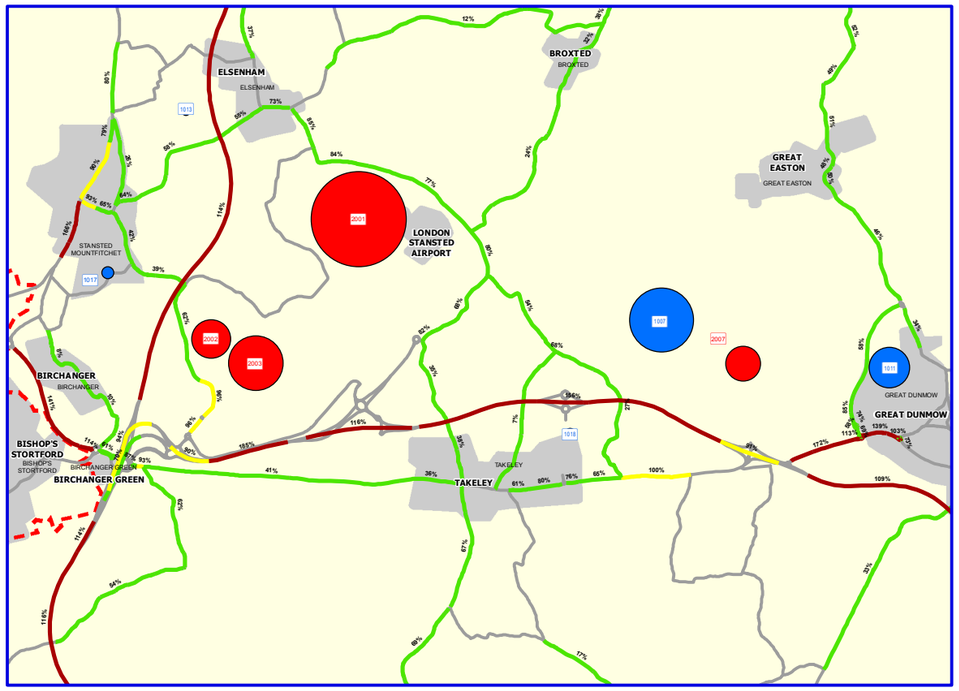

Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	1900
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	0
1007	North of A120, West of Gt. Dunmow	1800
1008	Little Dunmow	0
1009	West of Braintree	970
1010	Saffron (7 sites)	240
1011	Gt. Dunmow (6 sites)	743
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	31
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	0
1017	Stansted Mountfitchet (southern edge in MGB)	62
1018	Takeley	42
1019	Thaxted	54
1020	Clavering	0
1021	Debden	25
1022	Hatfield Broad Oak	0
1023	Henham	0
1024	Farnham	0
1025	Felsted	0
1026	Great Easton	0
1027	Great Sampford	0
1028	Quendon & Rickling	19
1029	Stebbing	0
1030	Radwinter	0

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1268
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	549
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

0 2.5 5 7.5 10 Km

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- Greater than 100%

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REV	DESCRIPTION	BY	CHK	APP	DATE

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Project:
District-Wide Transport Study

Drawing Title:
Figure XX
Scenario 31 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	22/01/18	GD	22/01/18	ASG	22/01/18

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	056	-

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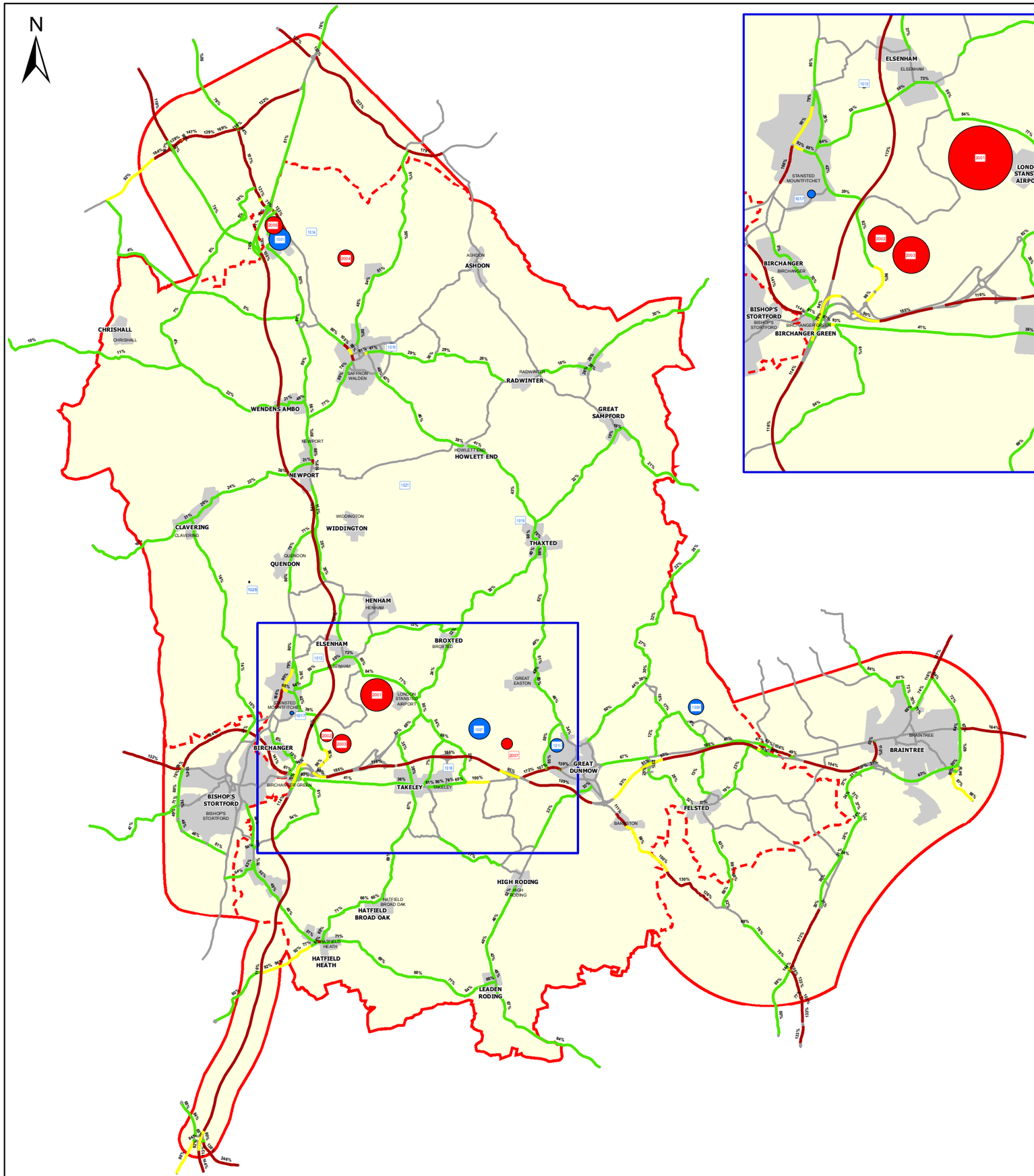

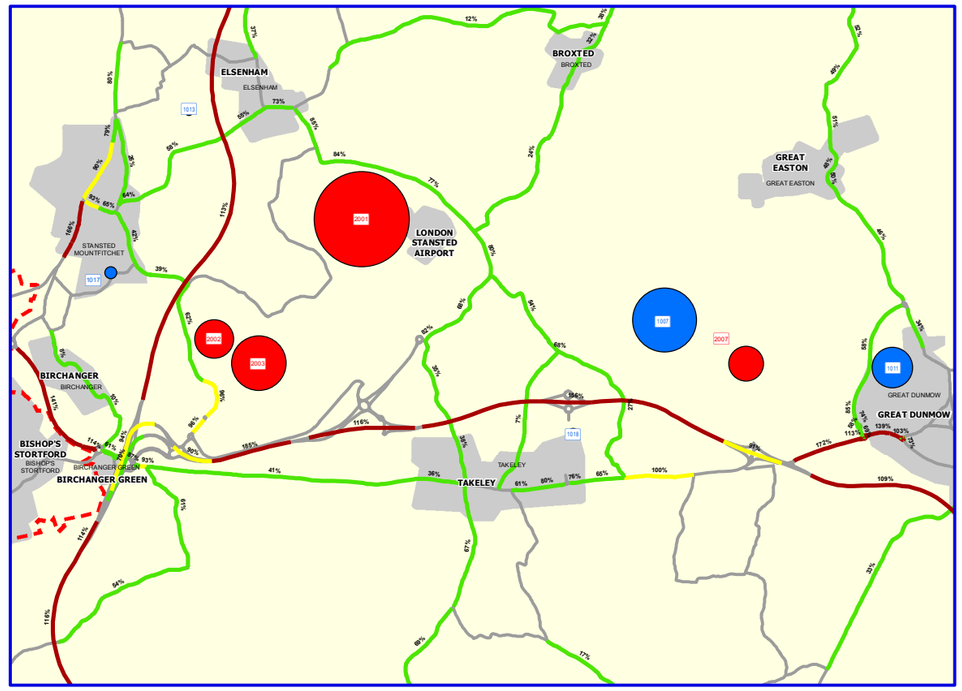

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- Greater than 100%

Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	1900
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	0
1007	North of A120, West of Gt. Dunmow	1800
1008	Little Dunmow	0
1009	West of Braintree	970
1010	Saffron (7 sites)	240
1011	Gt. Dunmow (6 sites)	743
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	31
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	0
1017	Stansted Mountfitchet (southern edge in MGB)	62
1018	Takeley	42
1019	Thaxted	54
1020	Clavering	0
1021	Debden	25
1022	Hatfield Broad Oak	0
1023	Henham	0
1024	Farnham	0
1025	Felsted	0
1026	Great Easton	0
1027	Great Sampford	0
1028	Quendon & Rickling	19
1029	Stebbing	0
1030	Radwinter	0

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1268
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	549
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

0 2.5 5 7.5 10 Km

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Project:
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Drawing Title:
Figure XX
Scenario 32 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	22/01/18	GD	22/01/18	ASG	22/01/18

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	057	-

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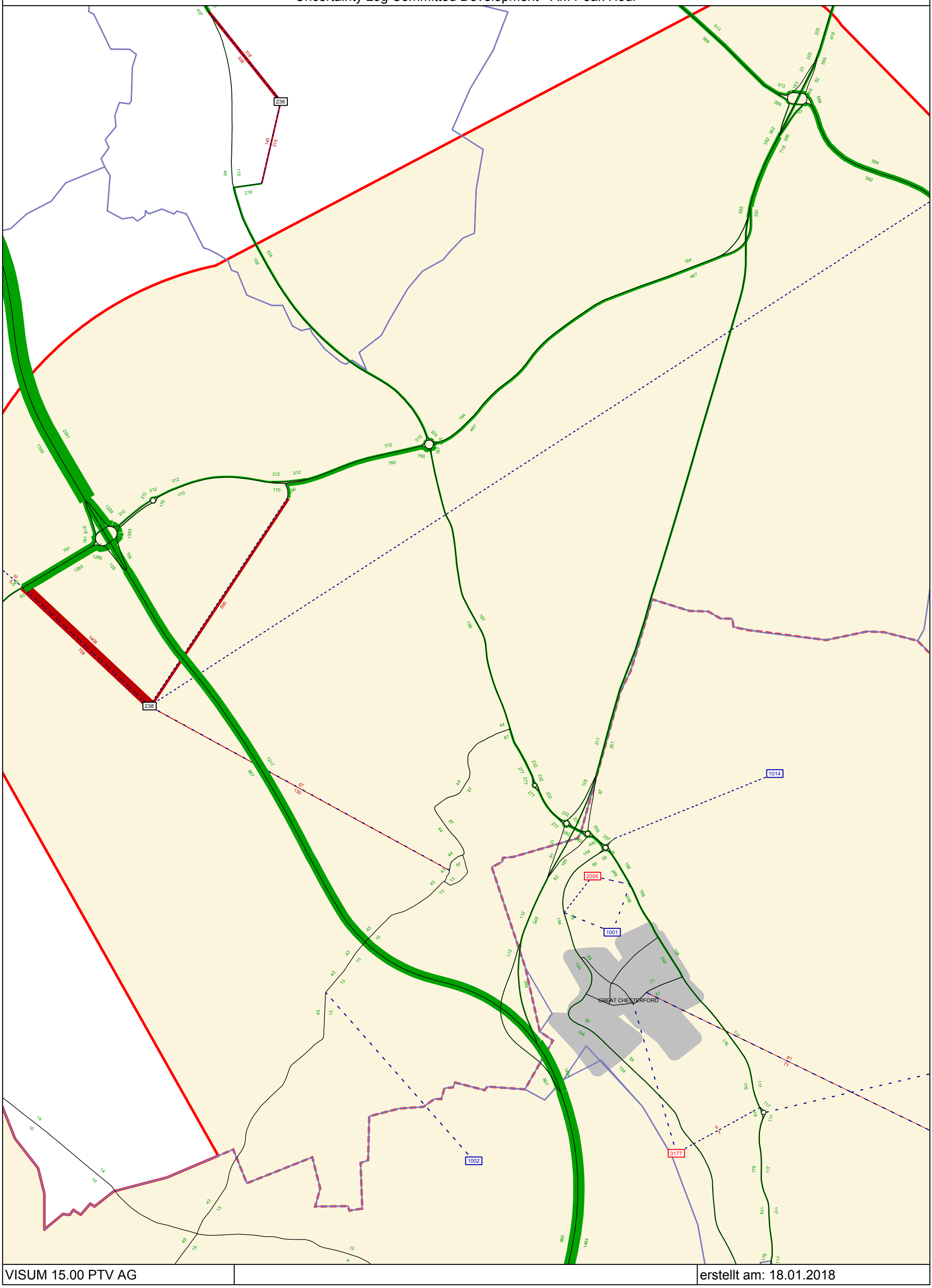
Appendix D – Network Traffic Flow Plots

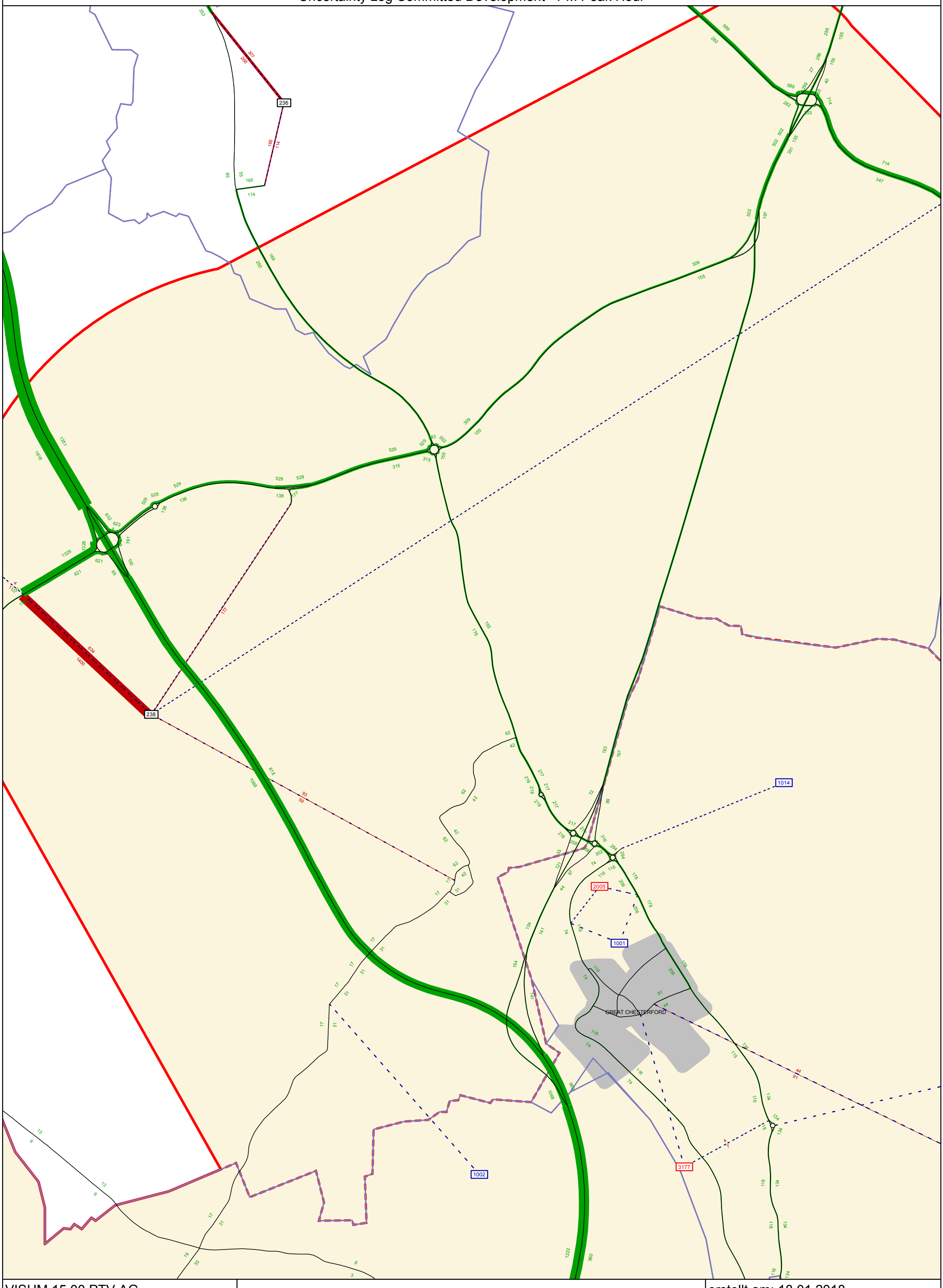
Original Reference Case

Uncertainty Log Committed Development - AM Peak Hour



VISUM 15.00 PTV AG		erstellt am: 18.01.2018

Uncertainty Log Committed Development - PM Peak Hour



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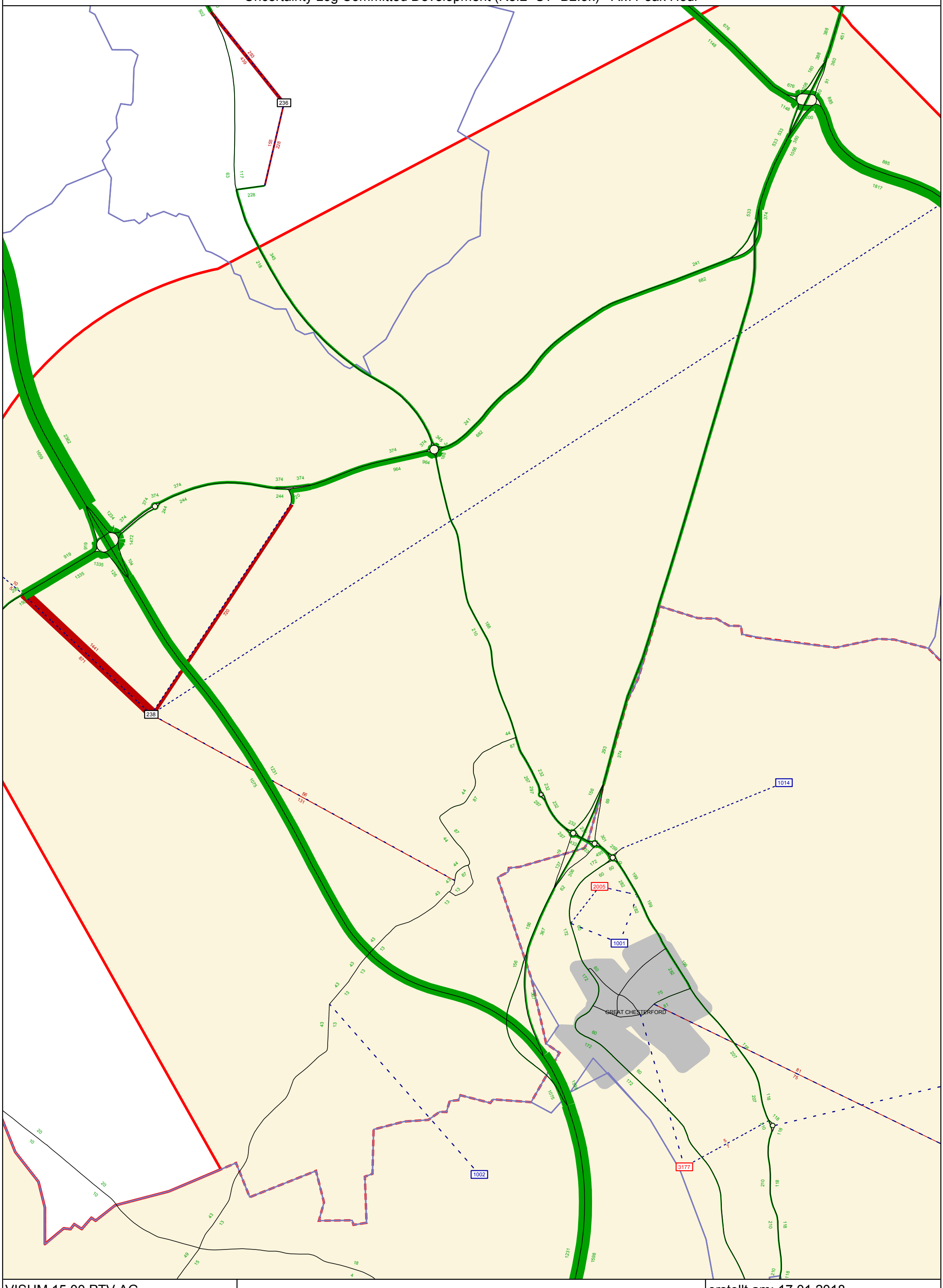
Sensitivity Test Reference Case

Uncertainty Log Committed Development (Ref2+ST+B2.5k) - AM Peak Hour



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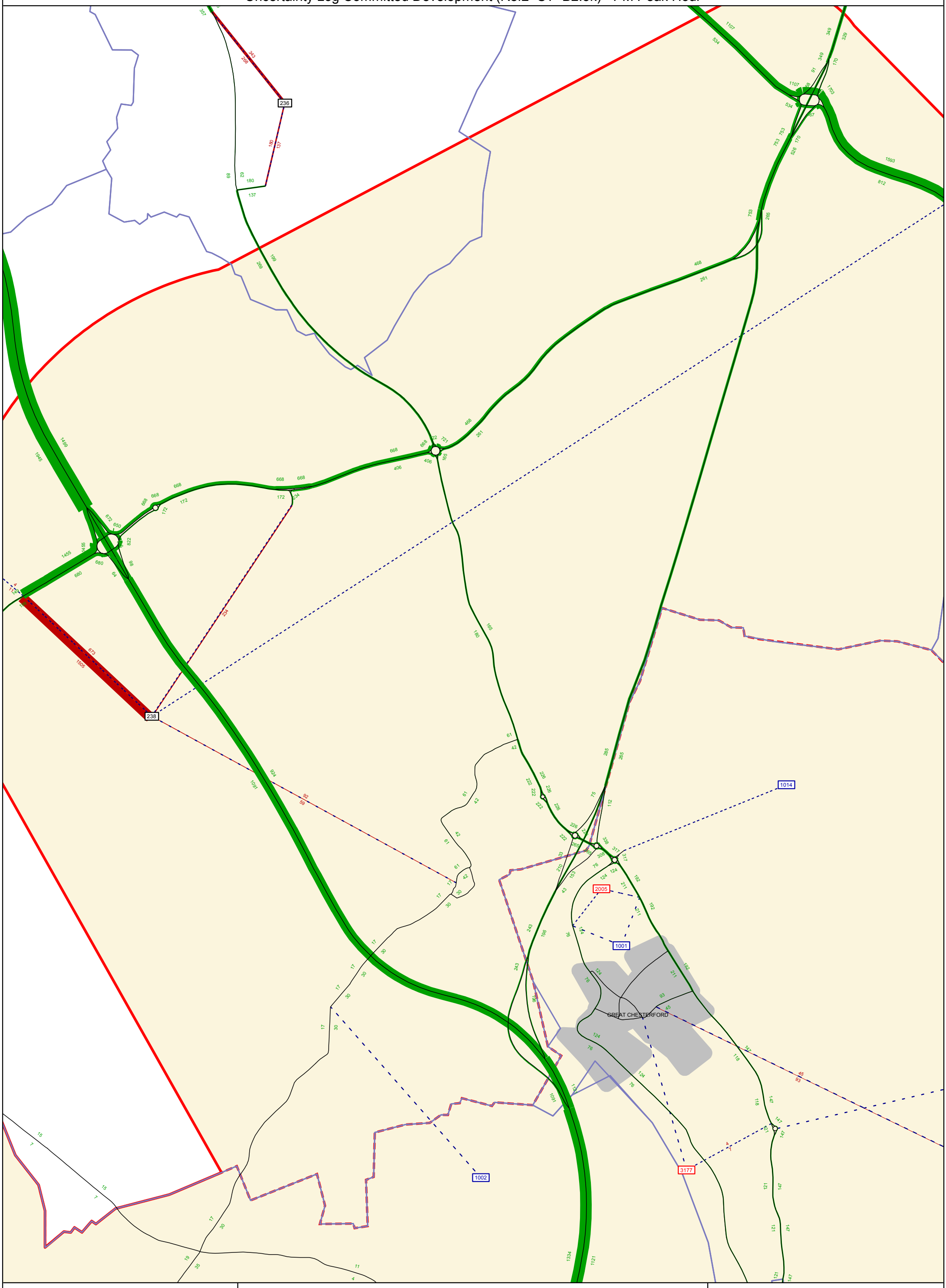
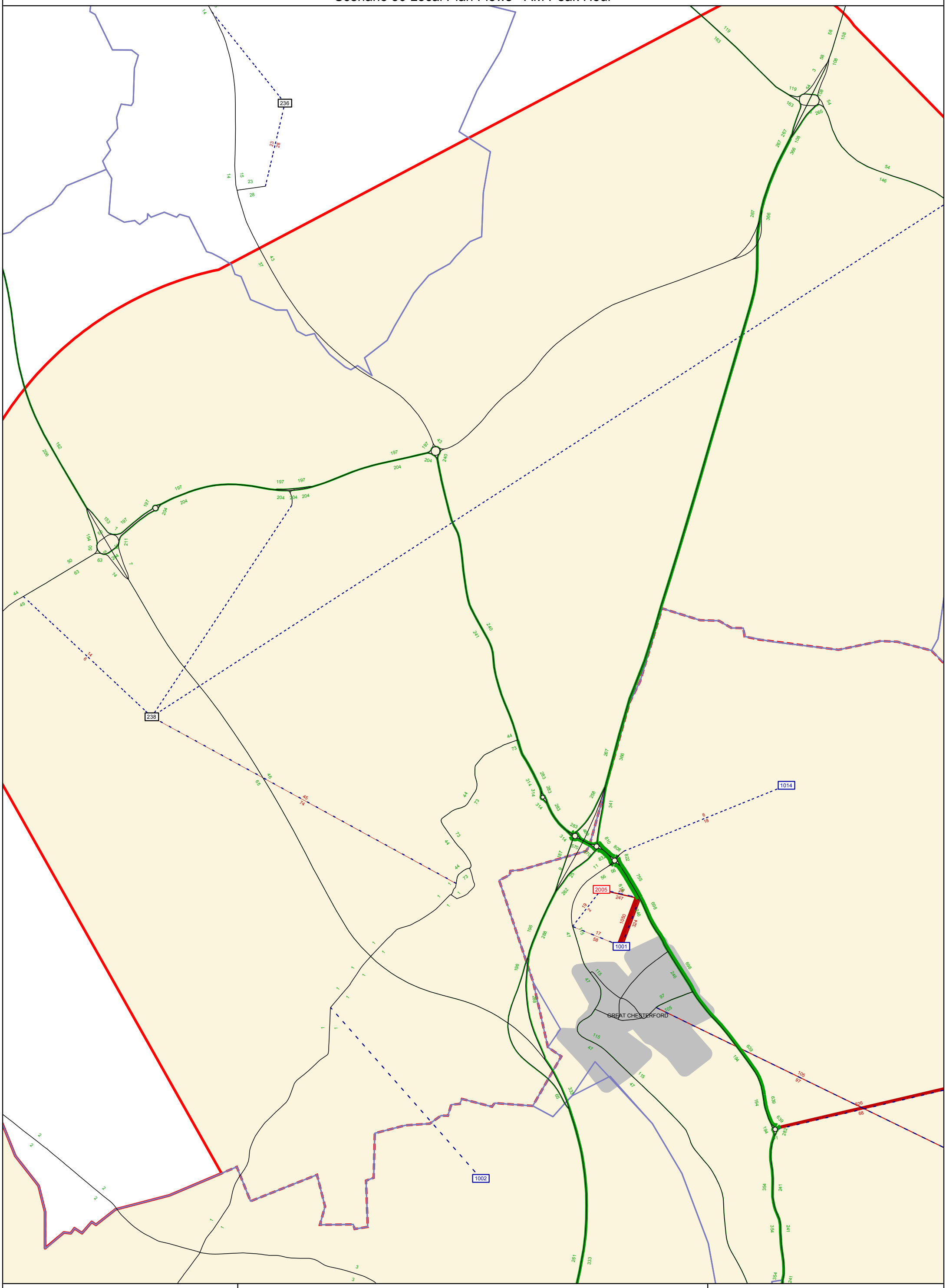
Uncertainty Log Committed Development (Ref2+ST+B2.5k) - PM Peak Hour



VISUM 15.00 PTV AG | erstellt am: 17.01.2018

Scenario 30 – All UDC Local Plan Growth Traffic Flows

Scenario 30 Local Plan Flows - AM Peak Hour



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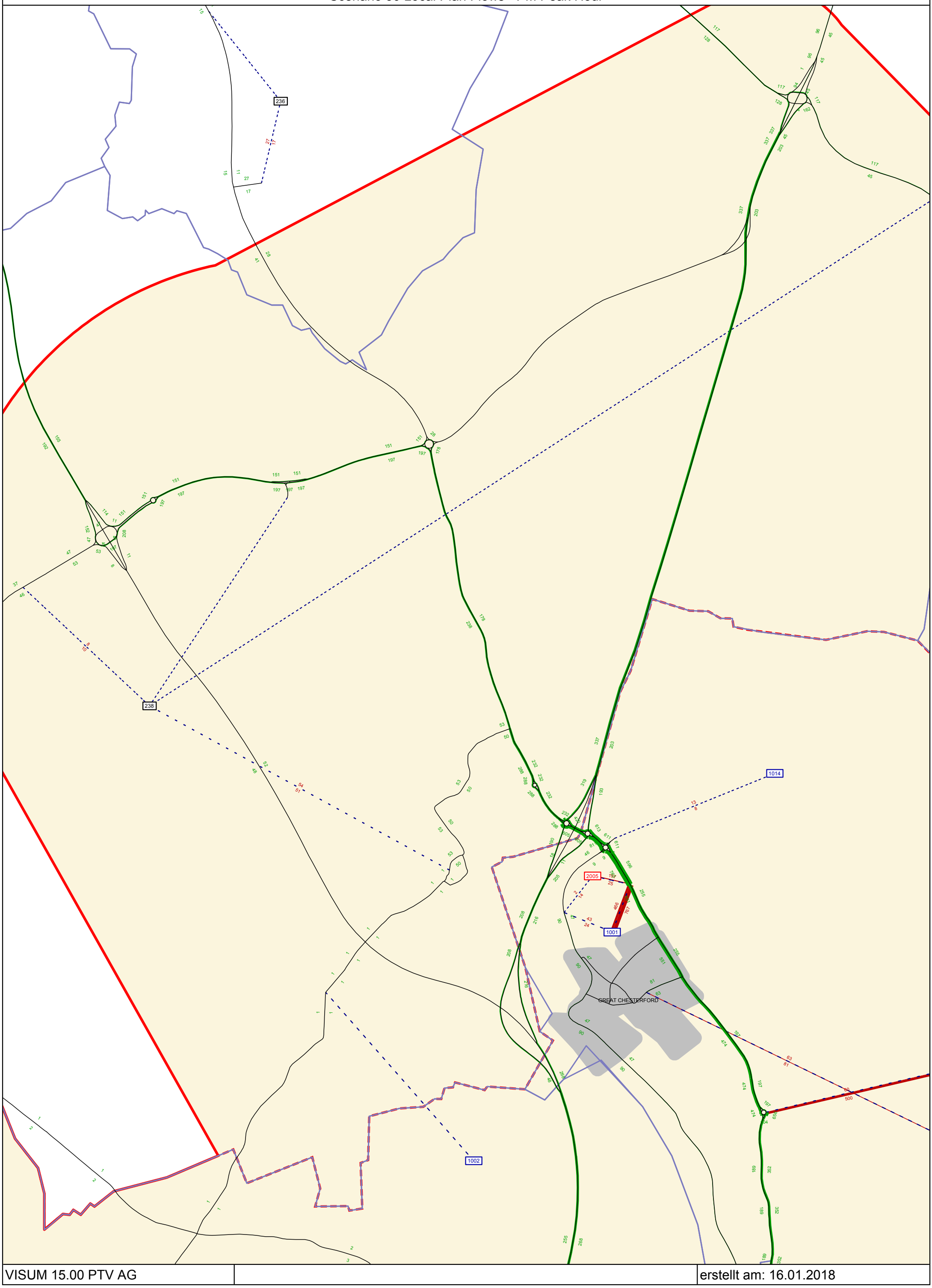
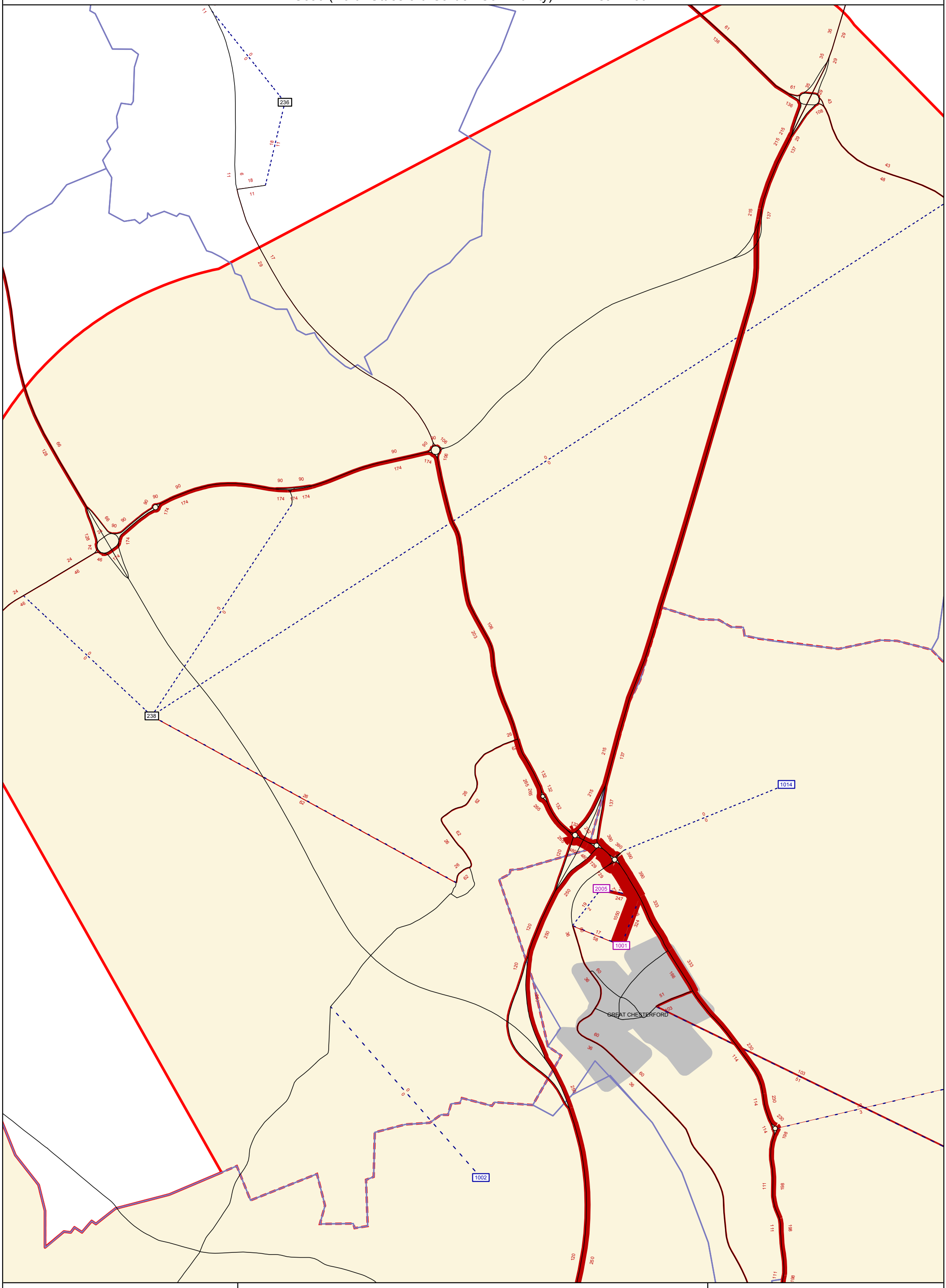
Scenario 30 Local Plan Flows - PM Peak Hour



VISUM 15.00 PTV AG		erstellt am: 16.01.2018

Scenario 30 – NUGC Only Traffic Flows

Sc30 (North Uttlesford Garden Community) - AM Peak Hour



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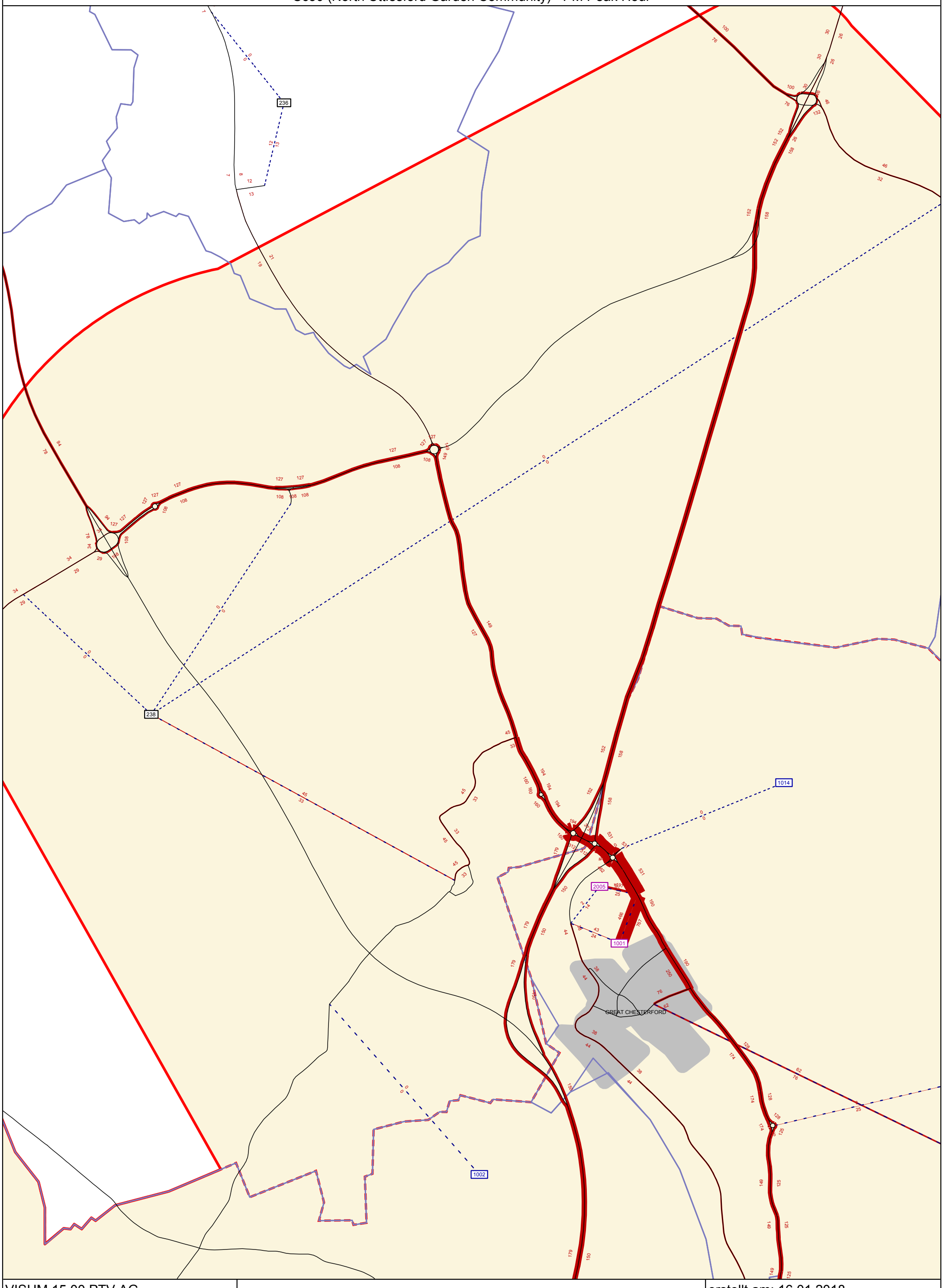
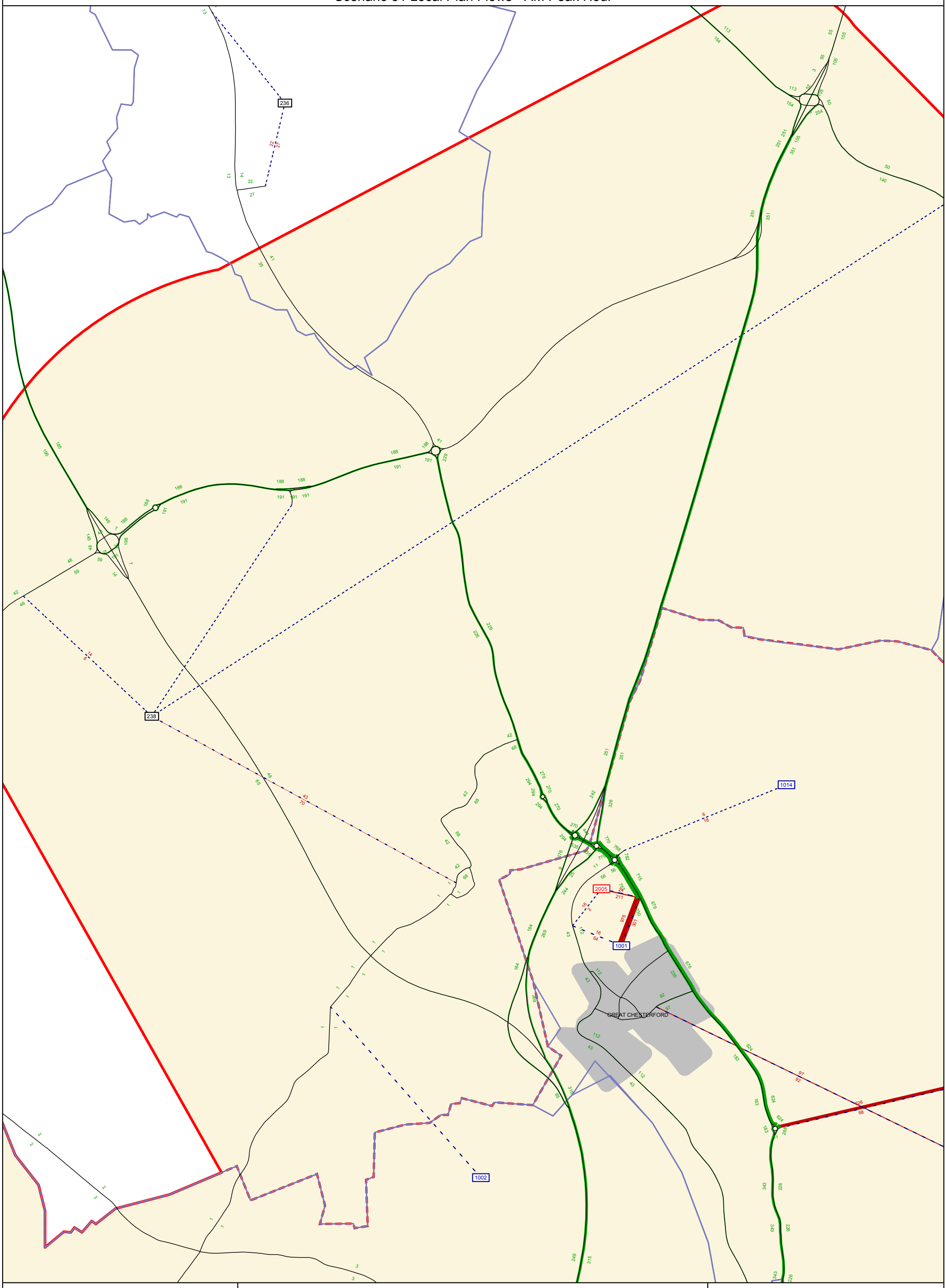
Sc30 (North Uttlesford Garden Community) - PM Peak Hour



VISUM 15.00 PTV AG		erstellt am: 16.01.2018

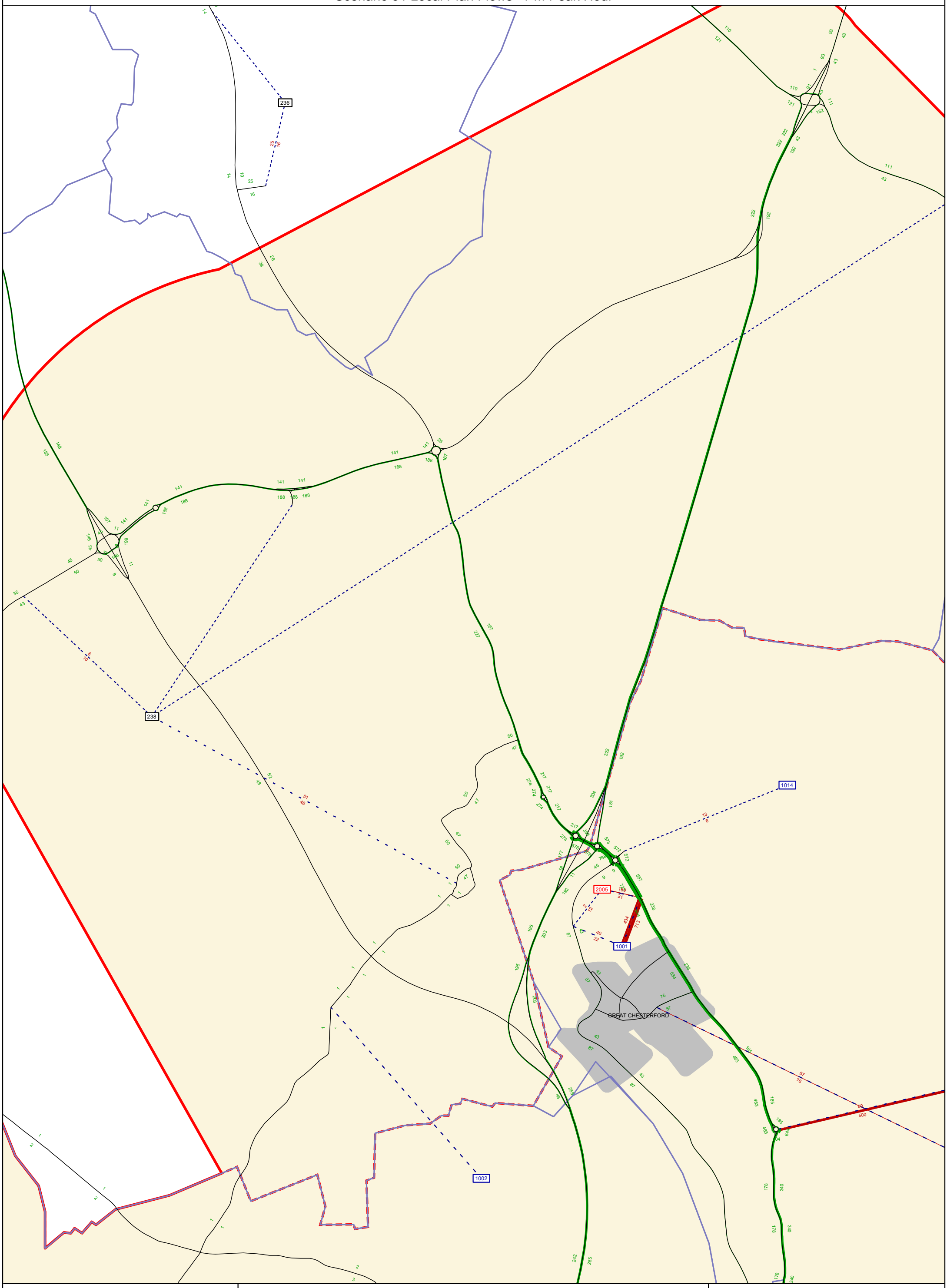
Scenario 31 – All UDC Local Plan Growth Traffic Flows

Scenario 31 Local Plan Flows - AM Peak Hour



VISUM 15.00 PTV AG | | erstellt am: 18.01.2018

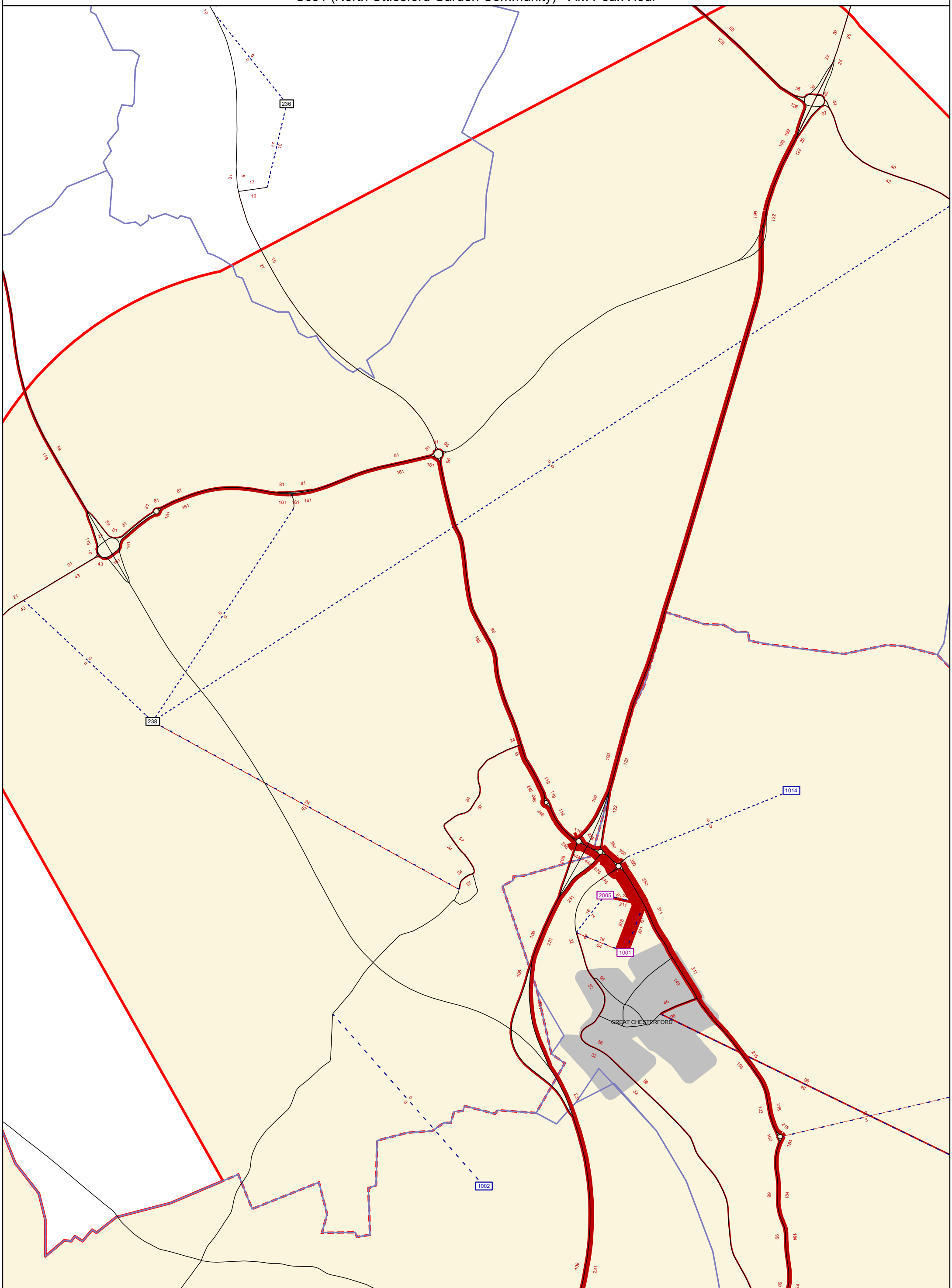
Scenario 31 Local Plan Flows - PM Peak Hour



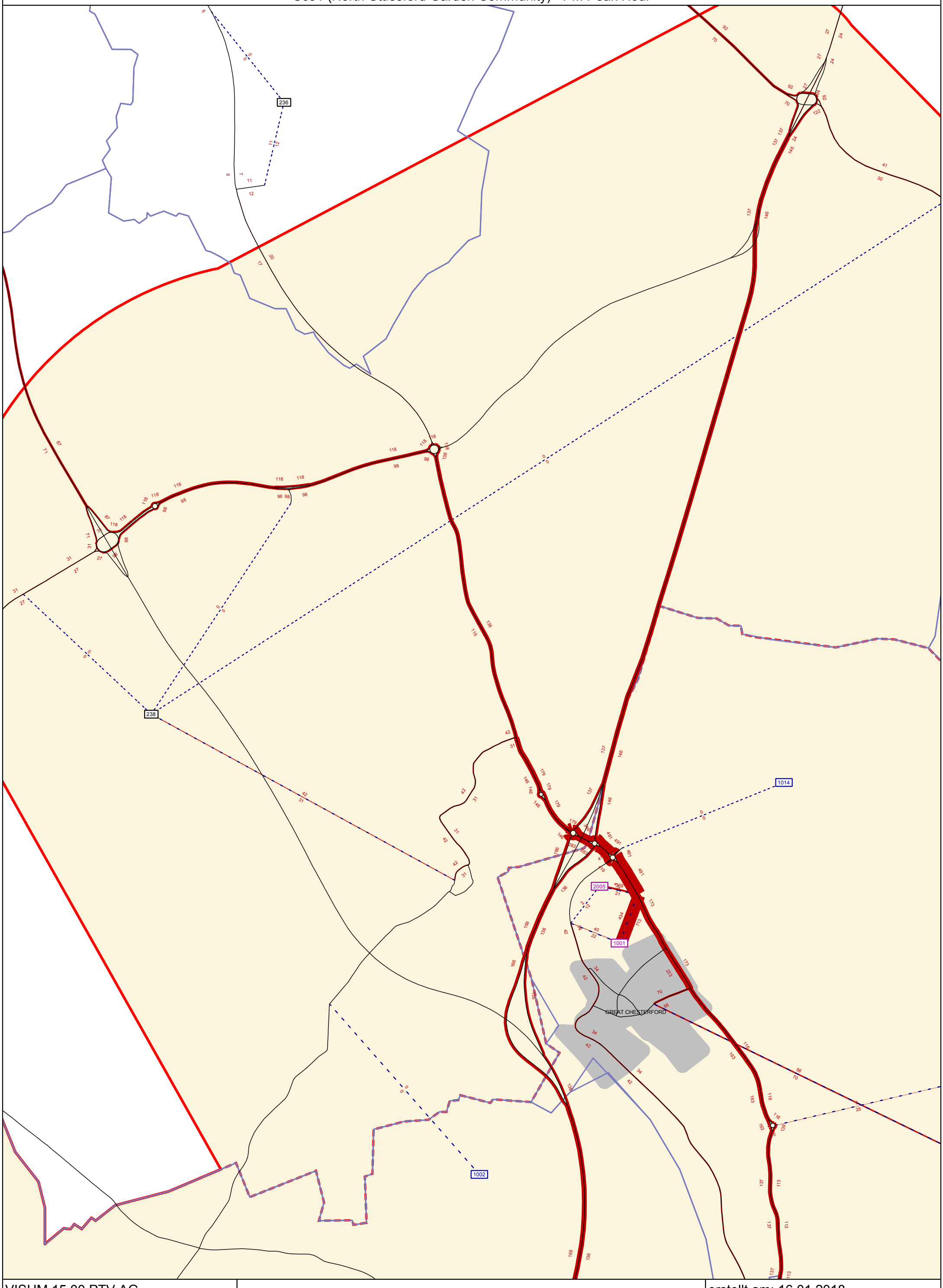
VISUM 15.00 PTV AG		erstellt am: 18.01.2018

Scenario 31 – NUGC Only Traffic Flows

Sc31 (North Uttlesford Garden Community) - AM Peak Hour



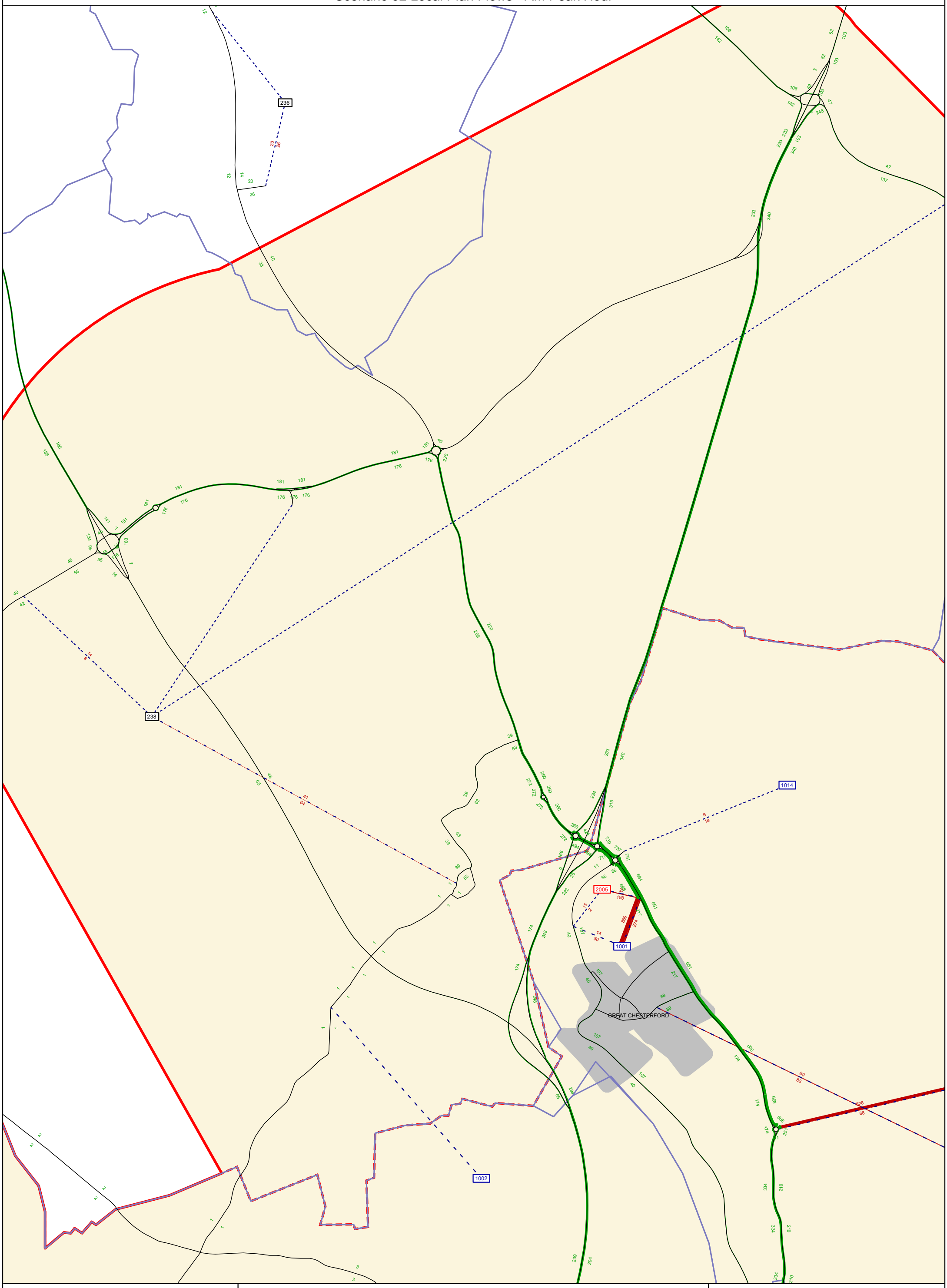
Sc31 (North Uttlesford Garden Community) - PM Peak Hour



VISUM 15.00 PTV AG		erstellt am: 16.01.2018

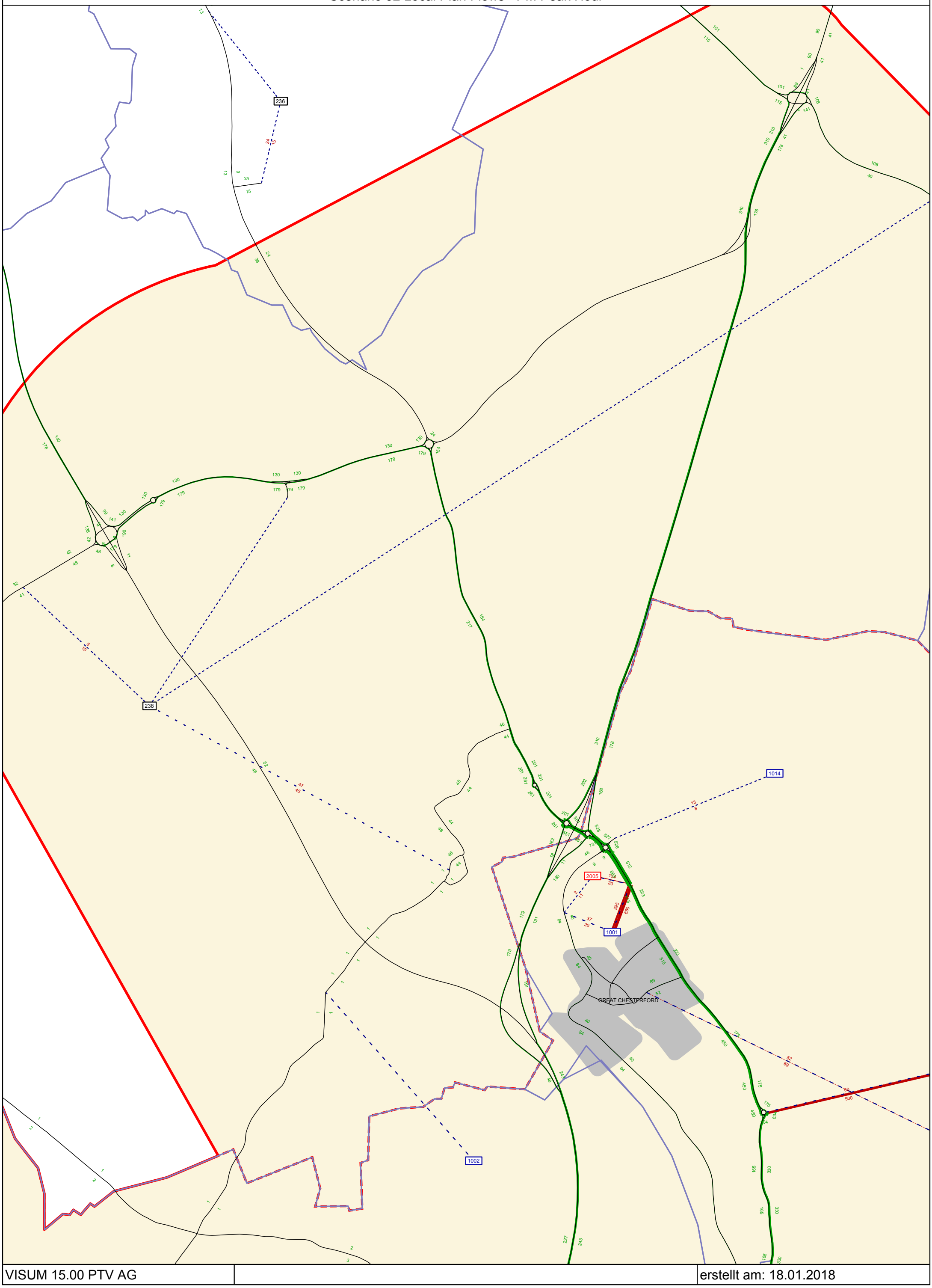
Scenario 32 – All UDC Local Plan Growth Traffic Flows

Scenario 32 Local Plan Flows - AM Peak Hour



VISUM 15.00 PTV AG | | erstellt am: 18.01.2018

Scenario 32 Local Plan Flows - PM Peak Hour



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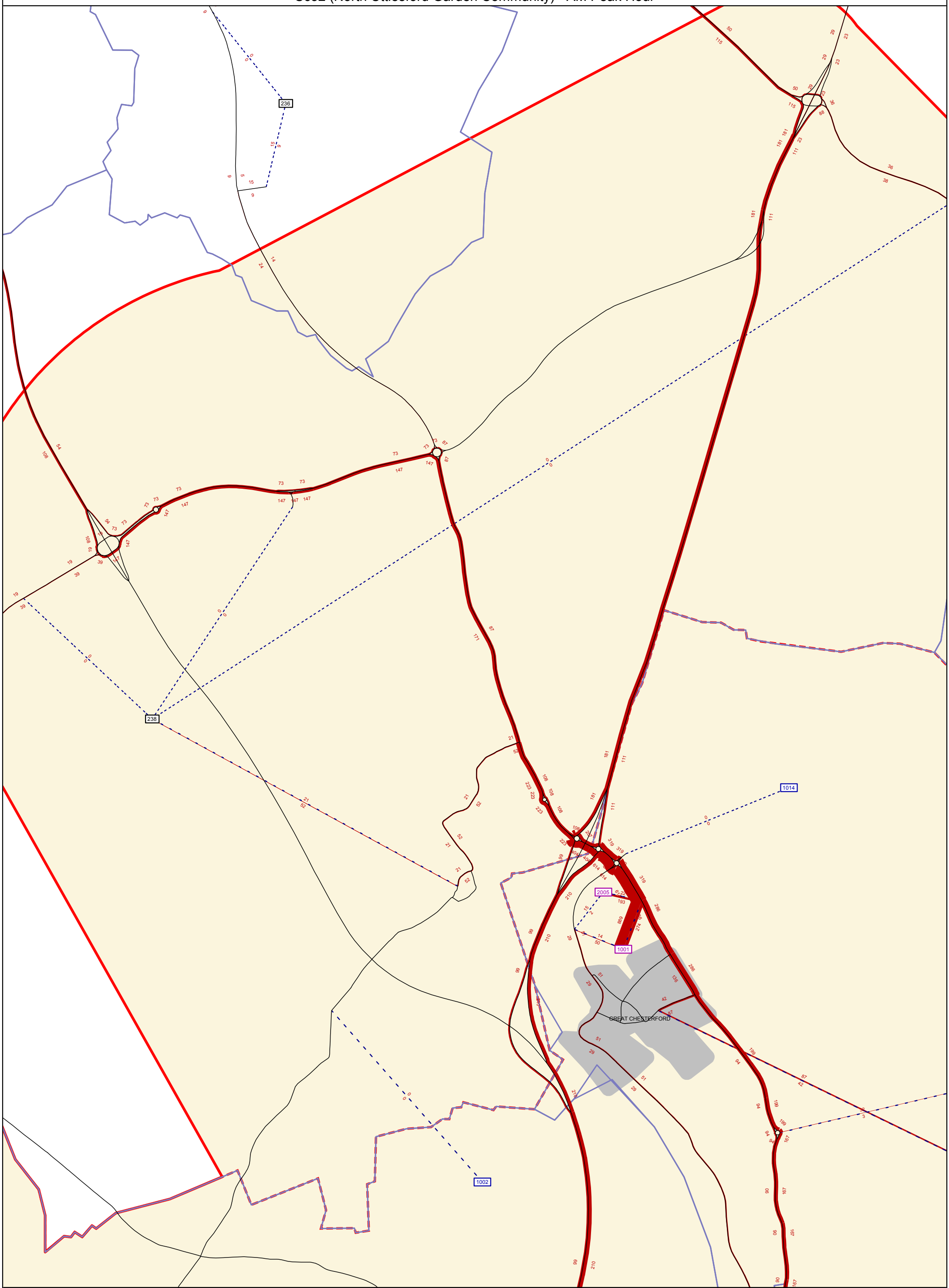
Scenario 32 – NUGC Only Traffic Flows

Sc32 (North Uttlesford Garden Community) - AM Peak Hour



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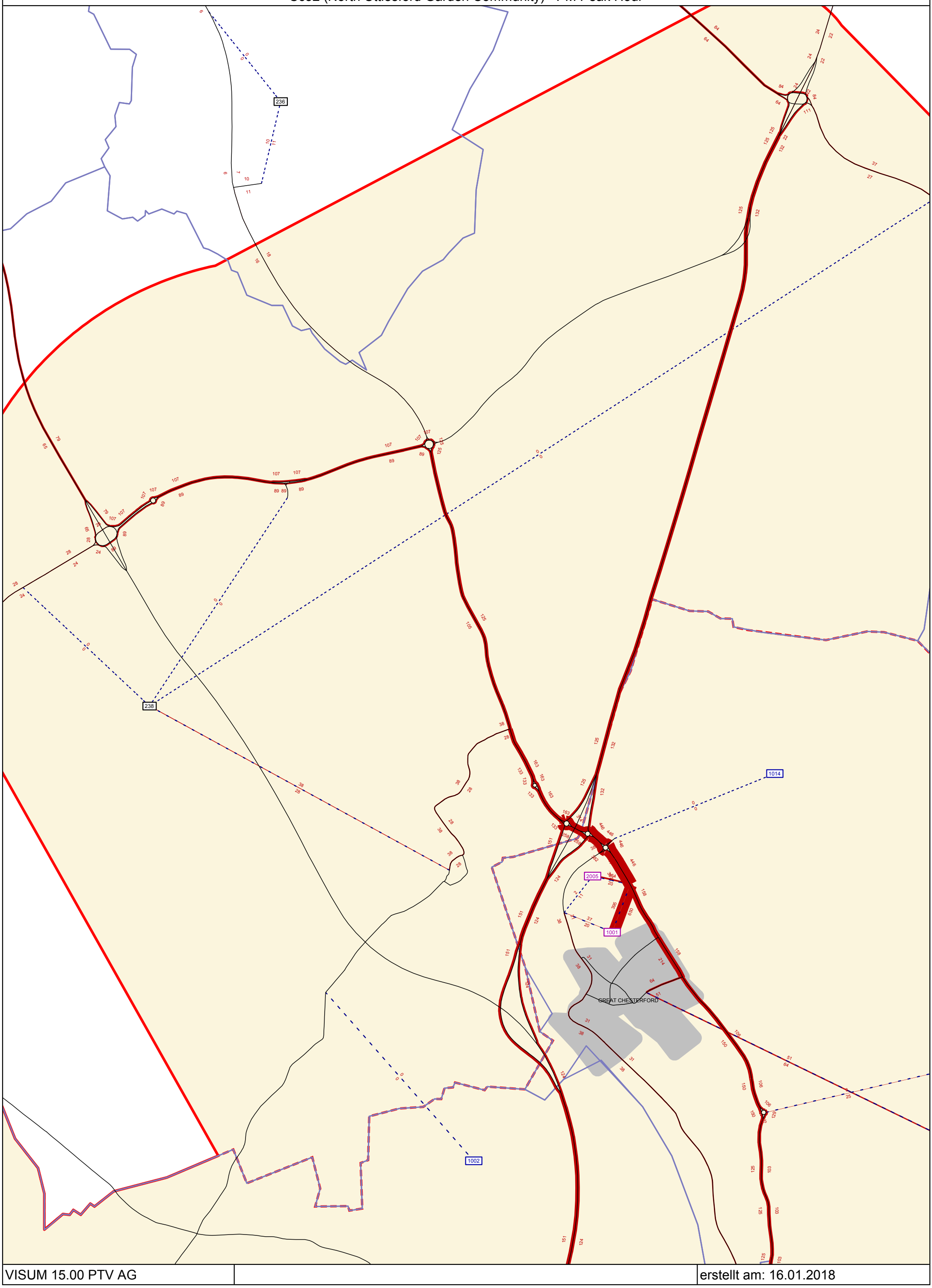
Sc32 (North Uttlesford Garden Community) - PM Peak Hour



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