



Wirral Local Plan

Strategic Spatial Options Modelling Report 2019

27 December 2019

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Wirral Local Plan

Strategic Spatial Options Modelling Report 2019

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Executive Summary

Wirral Council has appointed Mott MacDonald to conduct modelling assessments of the Wirral Local Plan strategic spatial options, comprising four scenarios. These scenarios consider committed planning applications, Strategic Housing Land Availability Assessments (SHLAA), completions from 2015-present day, windfall housing allocations, demolition numbers, green belt housing and employment supply sites, using data provided by Wirral Council. The output of this study is a determination of the effect of these forecasts on the existing highway network.

The scope of work comprises developing future year highway forecasts that take into account traffic associated with proposed housing and employment scenarios together with any committed network updates.

The forecasts have been developed based on the 2015 calibrated/validated base year Wirral Traffic Model (WTM). The WTM has been developed using SATURN software, which allows the impact of changes in traffic volumes on junction performance to be assessed.

The model scenarios that have been assessed are defined below:

- Baseline 2035.
- Option 1A 2035 – Urban Intensification.
- Option 2A 2035 – Green Belt – Dispersed sites.
- Option 2B 2035 – Green Belt – Sustainable Urban Expansion (SUE) sites.

Model forecasts for the defined scenarios have been prepared for the following time periods:

- AM (08:00 - 09:00).
- PM (17:00 - 18:00).

Inputs

Table 1.1 presents a summary of the housing forecasts for each scenario and Table 1.2 presents a summary of the employment forecasts for each scenario. Note the total jobs is the same in each scenario but the location of the sites included is different.

The baseline scenario was established in August 2019, however since then further information on completions, planning permissions and future proposals have become available meaning that the results for option 1A, 2A and 2B are not directly comparable to the baseline.

Table 1.1: Housing Summary (Additional Housing)

Housing Type (Total Units)	Baseline	Option 1A	Option 2A	Option 2B
Completions	946	2,550	2,550	2,550
Planning Permissions	2,637	3,090	3,090	3,090
SHLAA	3,220	6,032	2,876	2,876
Wirral Waters	4,100	4,534	2,434	2,434
Windfall	900	1,050	1,050	1,050
Greenbelt	0	0	2,933	2,584
Additional 2033-35	1,228	869	746	728

Housing Type (Total Units)	Baseline	Option 1A	Option 2A	Option 2B
Demolitions	-750	-750	-750	-750
Total Additional Housing	12,281	17,375	14,929	14,562

Table 1.2: Employment Summary (Additional Employment)

Employment Type (Jobs)	Baseline	Option 1A	Option 2A	Option 2B
Baseline (trend based)	7,733	7,733	7,733	7,733
Growth Forecast (development based)	8,479	8,479	8,479	8,479
Total Growth	16,212	16,212	16,212	16,212

Results

Table 1.3 summarises the number of junctions with a volume over capacity (V/C) of over 85% in each scenario. A V/C of over 85% indicates that a junction will be experiencing congestion. Table 1.4 shows the number of additional junctions with a V/C greater than 85% in each scenario compared to the base year.

The modelling has not considered any onsite or offsite junction improvements or mitigation measures for any of the sites; it represents the situation on the current network plus committed highway schemes.

Table 1.3: Number of Junctions Approaching or Over Capacity by Scenario (number of junctions)

	Base Year	Baseline	Option 1A	Option 2A	Option 2B
AM	71	143	148	165	160
PM	78	124	128	129	137

Table 1.4: Additional Junctions Approaching or Over Capacity Compared to the Base Year (number of junctions)

	Difference Baseline - Base Year	Difference Option 1A - Base Year	Difference Option 2A - Base Year	Difference Option 2B - Base Year
AM	72	77	94	89
PM	46	50	51	59

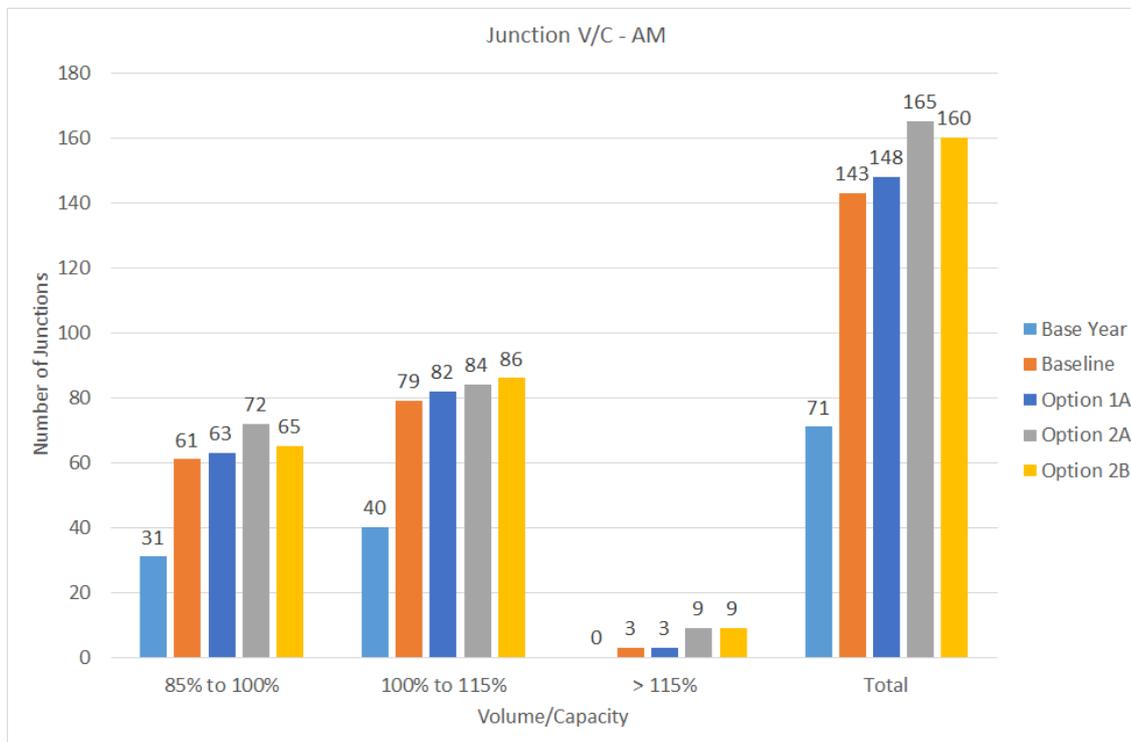
The modelling shows:

- In the baseline there are 72 additional junctions approaching or over capacity compared to 2015 in the AM and 46 in the PM. These are focussed in east Wirral around Birkenhead and the A41 corridor. Approaches to the M53 and M53 junctions become over capacity in both east and west Wirral. There are some increases in junctions over capacity around Heswall and north west Wirral.
- In Option 1A there are 77 additional junctions approaching or over capacity compared to 2015 in the AM and 50 in the PM. These are focussed in east Wirral around Birkenhead and the A41 corridor. Approaches to the M53 and M53 junctions become over capacity in both east and west Wirral. There are some increases in junctions over capacity around Heswall and north west Wirral. The results are similar to the baseline with some extra junctions over capacity which would be expected given the additional housing contained in Option 1A.

- In Option 2A there are 94 additional junctions approaching or over capacity compared to 2015 in the AM and 51 in the PM. There are increases in in east Wirral around Birkenhead and the A41 corridor. Approaches to the M53 and M53 junctions become over capacity in both east and west Wirral. In Option 2A a number of junctions in west Wirral become over capacity especially around Heswall, Barnston and Greasby due to the location of the dispersed green belt sites.
- In Option 2B there are 89 additional junctions approaching or over capacity compared to 2015 in the AM and 59 in the PM. There are increases in east Wirral around Birkenhead and the A41 corridor. Approaches to the M53 and M53 junctions become over capacity in both east and west Wirral. In Option 2B a number of junctions in west Wirral become over capacity especially around Heswall, Barnston and Greasby. Around Heswall in the vicinity of the SUE site three junctions have a V/C of over 115% in the AM.

In all scenarios the AM has a higher number of junctions over capacity than the PM. Therefore, the AM has been used as the basis of the following comparisons to consider the worst case scenario. Figure 1.1 presents the number of junctions over capacity by scenario and V/C band.

Figure 1.1: Junction V/C by Band - AM



The baseline and Option 1A have similar results with Option 1A having five additional junctions over capacity compared to the baseline. The junctions are mostly between 85-115% V/C with three junctions having a V/C of over 115% in the AM in both scenarios.

Options 2A and 2B respectively have 17 and 12 additional junctions over capacity than Option 1A. Both Option 2A and 2B have 9 junctions with a V/C of over 115%: in Option 2A these are spread over west Wirral and in Option 2B these are focussed on the Heswall/Barnston area.

The transport modelling provides a high level indication of the impact on the network of each of the scenarios. In the baseline and Option 1A this is focussed on east and north west Wirral,

Option 2A additionally impacts on west Wirral and in Option 2B the additional impacts are on Heswall/Barnston.

1 Introduction

Wirral Council has appointed Mott MacDonald to conduct modelling assessments of the Wirral Local Plan strategic spatial options, comprising four scenarios. These scenarios have been developed from committed planning applications, Strategic Housing Land Availability Assessments (SHLAA), completions from 2015-present day, windfall housing allocations, demolition numbers, green belt housing and employment supply sites, using data provided by Wirral Council. The output of this study is a determination of the effect of these forecasts on the existing highway network.

1.1 Scope of Work

The scope of work comprises developing future year highway forecasts that take into account traffic associated with proposed housing and employment scenarios together with any committed network updates.

The forecasts have been developed based on the 2015 calibrated/validated base year Wirral Traffic Model (WTM). The WTM has been developed using SATURN software, which allows the impact of changes in traffic volumes on junction performance to be assessed.

The model forecasts have been developed for the future year 2035.

The demand forecasting has been undertaken in the Liverpool City Region Transport Model (LCRTM) to make use of its detailed forecasting mechanisms¹, and the output matrices converted to WTM zones and assigned in WTM.

The model scenarios that have been assessed are defined below:

- Baseline 2035.
- Option 1A 2035 – Urban Intensification.
- Option 2A 2035 – Green Belt – Dispersed sites.
- Option 2B 2035 – Green Belt – Sustainable Urban Extension (SUE) sites.

Model forecasts for the defined scenarios have been prepared for the following time periods:

- AM (08:00 - 09:00).
- PM (17:00 - 18:00).

1.2 Report Structure

The structure of this report is as follows:

- Section 2 – presents a summary of the inputs for each scenario.
- Section 3 – presents a summary of the methodology applied.
- Section 4 – presents the results of the highway assessment for each scenario.
- Section 5 – presents the conclusions from the traffic modelling.

This report is supported by the following appendices:

¹LCRTM2012_v3b_TEMPRO7.2_ForecastingReport_RevA_v1

- Appendix A – presents the housing and employment numbers for each scenario by LCRTM zone.
- Appendix B – presents a full list of the sites included in each scenario.
- Appendix C – presents the methodology for trip generation.
- Appendix D – presents the methodology of the LCRTM demand model.

2 Model Inputs

This section of the report provides details of the inputs for each of the future year scenarios tested.

2.1 Data Sources

This section sets out the data sources for housing and employment.

2.1.1 2035 Baseline

Future year housing for the baseline scenario has come from the following sources:

- Completions from the model base year of 2015 to 2017.
- Planning permissions from 2018-2033.
- Strategic Housing Land Availability Assessment (SHLAA) sites from 2018-2033.
- Windfall sites distributed over the district at a rate of 60 per year.
- Demolition sites distributed over the district at a rate of 50 per year.
- Wirral Waters proposed development.

Housing growth from the end of the Local Plan (2033) to the model future year of 2035 has been calculated from the average houses per year for the period 2015 to 2033 and assuming the same growth for 2033 to 2035.

Future year employment for the baseline scenario has come from two sources:

- Baseline employment growth from the Strategic Housing & Employment Land Market Assessment (SHELMA), distributed using employment supply for Wirral.
- Development based employment growth for major employment sites from the SHELMA ('growth' scenario), updated with the latest proposals for Wirral Waters.

2.1.2 Option 1A Urban Intensification

Future year housing for Option 1A has come from the following sources:

- Completions from the model base year of 2015 to 2019.
- All Housing Planning permissions from 2019-2034.
- Accelerated Strategic Housing Land Availability Assessment (SHLAA) sites from 2019-2034, containing Wirral Waters data.
- Extra Accelerated Potential Housing Allocation Sites from 2019-2034.
- Other Accelerated Potential Housing Allocation Sites from 2019-2034.
- Windfall sites distributed over the district at a rate of 70 per year.
- Demolition sites distributed over the district at a rate of 50 per year.

The accelerated sites have been identified through an examination of a number of potential additional urban housing allocations, which the Council expect will be able to meet the tests of being 'deliverable' and 'developable' within the Plan period, by the time the draft Plan is prepared to be submitted to the Secretary of State. They include sites where a planning application has already been submitted but not determined or where the landowner or developer has indicated that they intend to develop their site at a faster rate. They also include

sites which have been identified as suitable for re-designation as part of the latest review of employment land.

Housing growth from the end of the Local Plan (2034) to the model future year of 2035 has been calculated from the average houses per year for the period 2015 to 2034 and assuming the same growth for 2034 to 2035.

Future year employment for the baseline scenario has come from two sources:

- Baseline employment growth from the Strategic Housing & Employment Land Market Assessment (SHELMA), distributed using employment accelerated sites for Wirral;
- Development based employment growth for major employment sites from the SHELMA ('growth' scenario).

2.1.3 Option 2A Green Belt Dispersed Sites

Future year housing for Option 2A has come from the following sources:

- Completions from the model base year of 2015 to 2019.
- All Housing Planning permissions from 2019-2034.
- Current Strategic Housing Land Availability Assessment (SHLAA) sites from 2019-2034, containing Wirral Waters data.
- Green Belt release options - dispersed sites.
- Windfall sites distributed over the district at a rate of 70 per year.
- Demolition sites distributed over the district at a rate of 50 per year.

Housing growth from the end of the Local Plan (2034) to the model future year of 2035 has been calculated from the average houses per year for the period 2015 to 2034 and assuming the same growth for 2034 to 2035. Future year employment for the baseline scenario has come from two sources:

- Baseline employment growth from the Strategic Housing & Employment Land Market Assessment (SHELMA), distributed using employment supply for Wirral;
- Development based employment growth for major employment sites from the SHELMA ('growth' scenario).

2.1.4 Option 2B Green Belt SUE

Future year housing for Option 2B has come from the following sources:

- Completions from the model base year of 2015 to 2019.
- All Housing Planning permissions from 2019-2034.
- Current Strategic Housing Land Availability Assessment (SHLAA) sites from 2019-2034, containing Wirral Waters data.
- Green Belt release options – Sustainable Urban Expansion sites.
- Windfall sites distributed over the district at a rate of 70 per year.
- Demolition sites distributed over the district at a rate of 50 per year.

Housing growth from the end of the Local Plan (2034) to the model future year of 2035 has been calculated from the average houses per year for the period 2015 to 2034 and assuming the same growth for 2034 to 2035. Future year employment for the baseline scenario has come from two sources:

- Baseline employment growth from the Strategic Housing & Employment Land Market Assessment (SHELMA), distributed using employment supply for Wirral;
- Development based employment growth for major employment sites from the SHELMA ('growth' scenario).

2.2 Inputs

This section presents details of the sites included in each scenario. Appendix B provides a listing of all sites included in each scenario.

2.2.1 2035 Baseline

Table 2.1 and Table 2.2 summarise the housing and employment numbers. Figure 2.1 shows the location of the sites included in this scenario, differentiated by the source and Appendix A.1 details the housing and employment numbers by LCRTM zone.

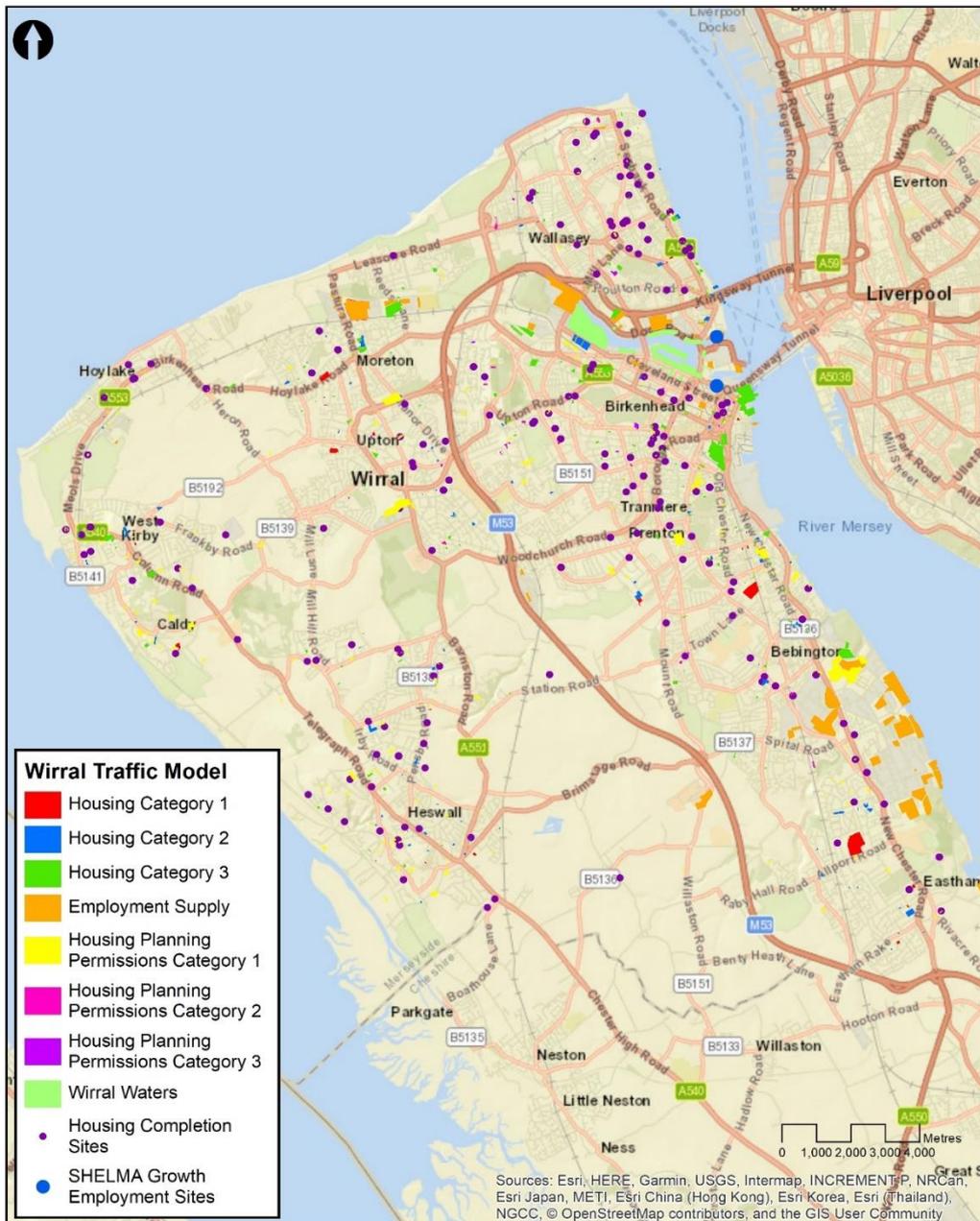
Table 2.1: Housing Summary - Baseline

Housing Type (Total Units)	Baseline
Completions (2015-18)	946
Planning Permissions	2,637
SHLAA	3,220
Wirral Waters	4,100
Windfall	900
Greenbelt	0
Additional 2033-35	1,228
Demolitions	-750
Total 2035	12,281

Table 2.2: Employment Summary - Baseline

Employment Type (Jobs)	Baseline
Baseline	7,733
Growth Forecast	8,479
Total Growth	16,212

Figure 2.1: Baseline Sites



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<p>Title Wirral Local Plan - Location of Baseline Sites</p>				
Date	Drawn	Checked	Approved	Scale at A4
17.12.2019	N.Osborne	S.Pierce	T.Millward	1:150,000
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2.3 Option 1A Urban Intensification

Table 2.3 and Table 2.4 summarise the housing and employment numbers. Figure 2.2 shows the location of the sites included in this scenario, differentiated by the source and Appendix A.2 details the housing and employment numbers by LCRTM zone.

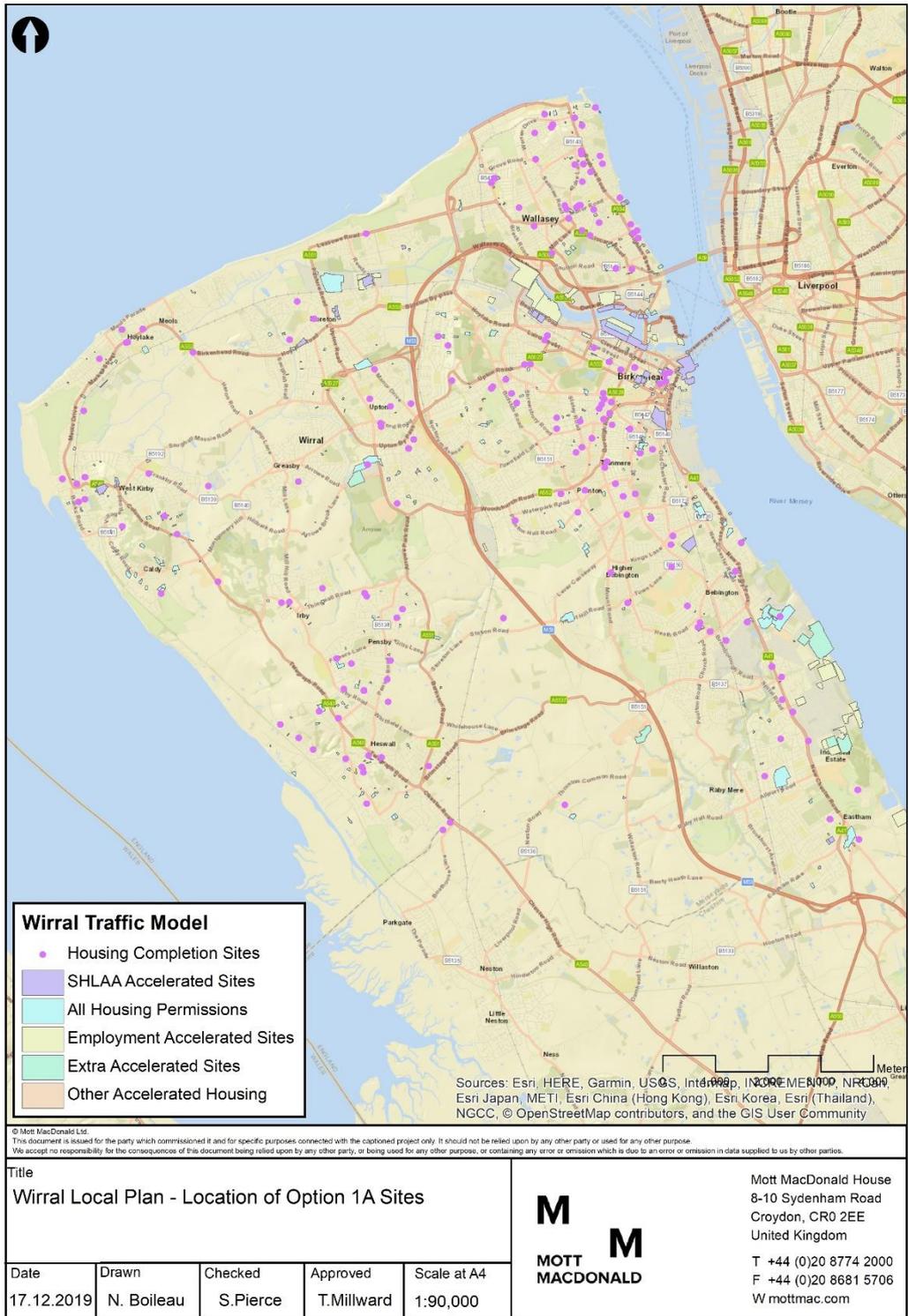
Table 2.3: Housing Summary – Option 1A

Housing Type (Total Units)	Baseline
Completions (2015-19)	2,550
Planning Permissions	3,090
SHLAA	6,032
Wirral Waters	4,534
Windfall	1,050
Greenbelt	0
Additional 2034-35	869
Demolitions	-750
Total 2035	17,375

Table 2.4: Employment Summary – Option 1A

Employment Type (Jobs)	Baseline
Baseline	7,733
Growth Forecast	8,479
Total Growth	16,212

Figure 2.2: Option 1A Sites



2.4 Option 2A Green Belt Dispersed Sites

Table 2.5 and Table 2.6 summarise the housing and employment numbers. Figure 2.3 shows the location of the sites included in this scenario, differentiated by the source and Appendix A.3 details the housing and employment numbers by LCRTM zone.

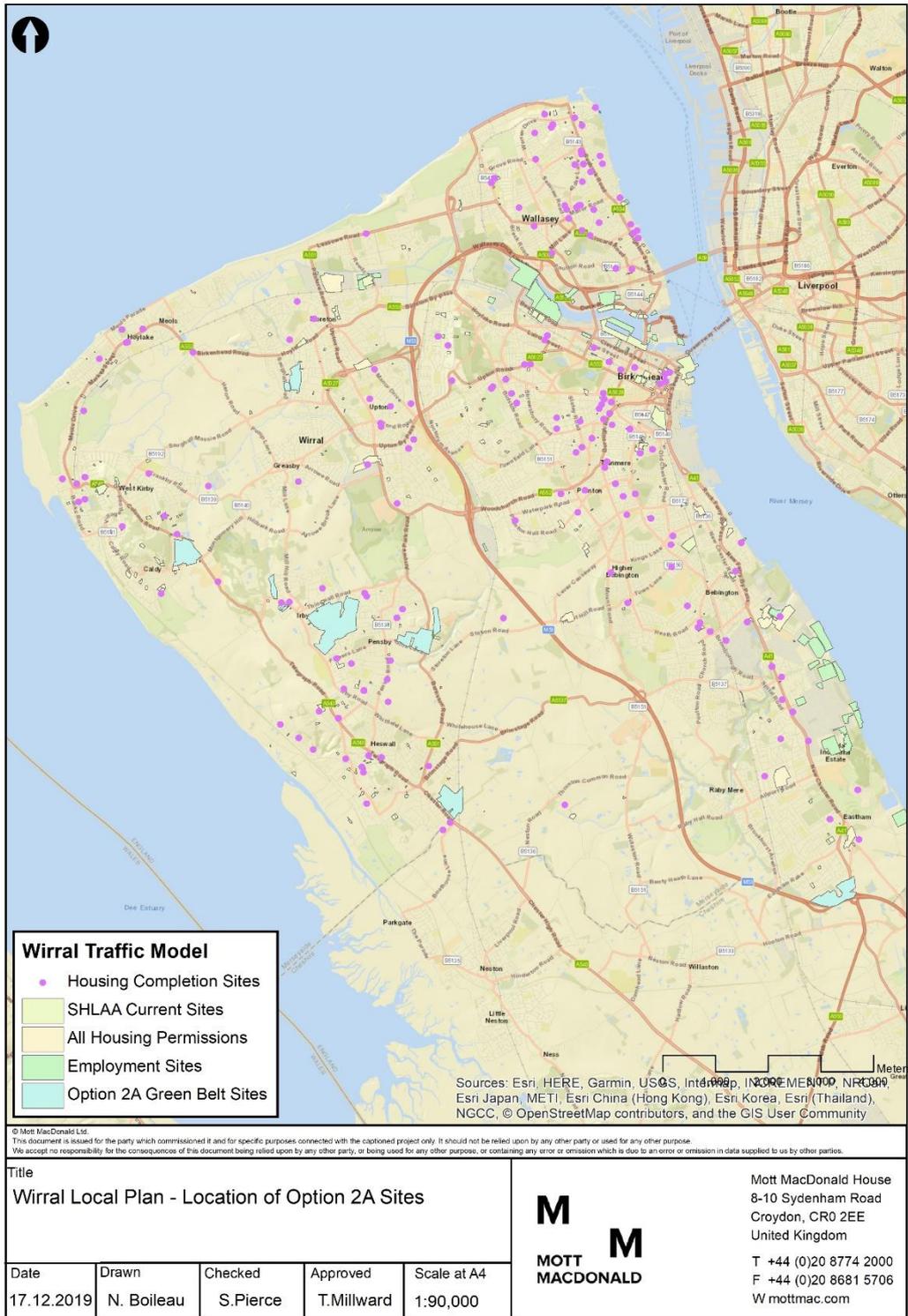
Table 2.5: Housing Summary – Option 2A

Housing Type (Total Units)	Baseline
Completions (2015-19)	2,550
Planning Permissions	3,090
SHLAA	2,876
Wirral Waters	2,434
Windfall	1,050
Greenbelt	2,933
Additional 2034-35	746
Demolitions	-750
Total 2035	14,929

Table 2.6: Employment Summary – Option 2A

Employment Type (Jobs)	Baseline
Baseline	7,733
Growth Forecast	8,479
Total Growth	16,212

Figure 2.3: Option 2A Sites



2.5 Option 2B SUE Sites

Table 2.7 and Table 2.8 summarise the housing and employment numbers. Figure 2.4 shows the location of the sites included in this scenario, differentiated by the source and Appendix A.4 details the housing and employment numbers by LCRTM zone.

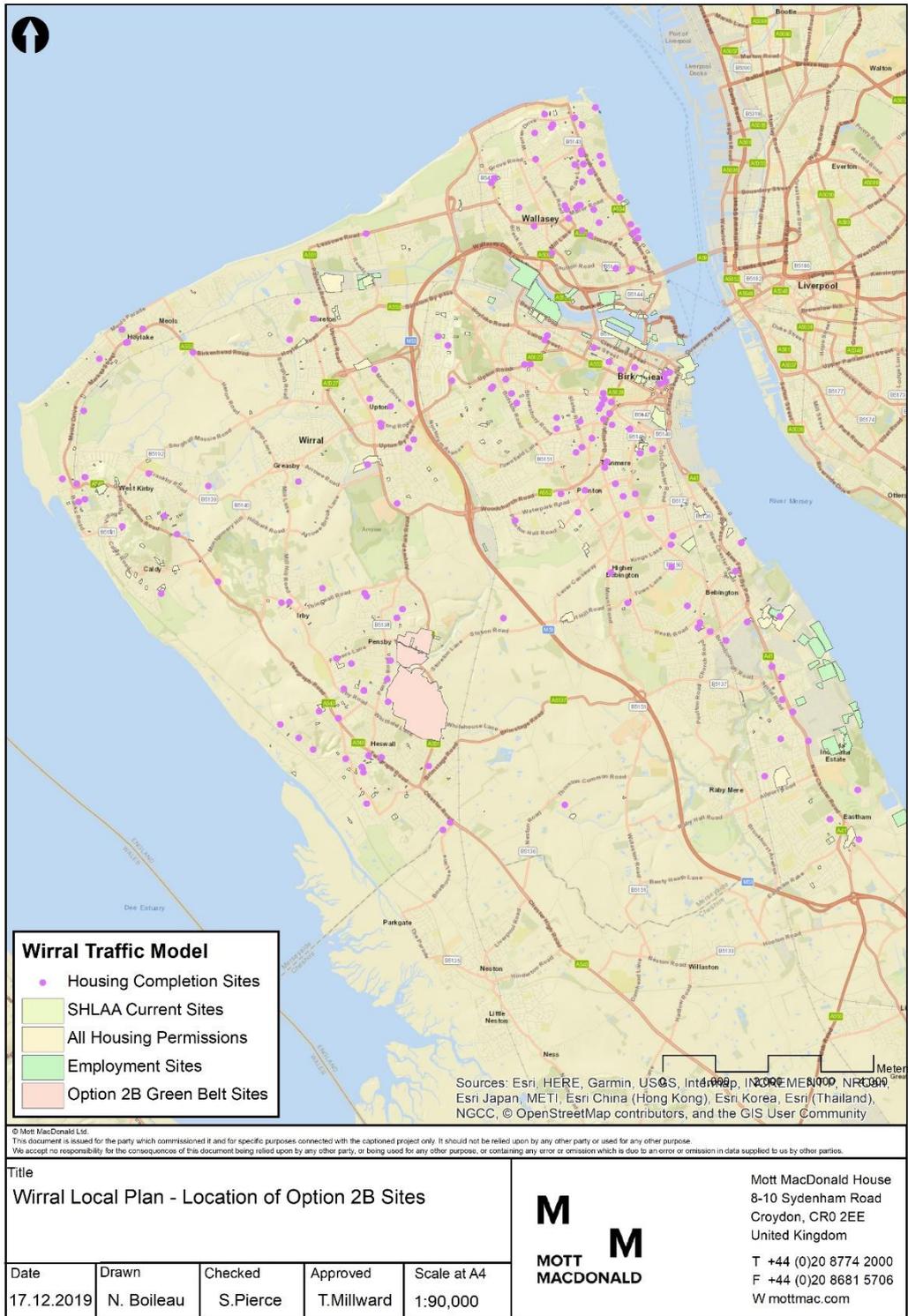
Table 2.7: Housing Summary – Option 2B

Housing Type (Total Units)	Baseline
Completions (2015-19)	2,550
Planning Permissions	3,090
SHLAA	2,876
Wirral Waters	2,434
Windfall	1,050
Greenbelt	2,584
Additional 2034-35	728
Demolitions	-750
Total 2035	14,562

Table 2.8: Employment Summary – Option 2B

Employment Type (Jobs)	Baseline
Baseline	7,733
Growth Forecast	8,479
Total Growth	16,212

Figure 2.4: Option 2B Sites



2.5.1 Summary

Table 2.9 presents a summary of the housing forecasts for each scenario and Table 2.10 presents a summary of the employment forecasts for each scenario. Note the total jobs is the same in each scenario but the distribution is different due to the different sites identified for potential employment use.

The baseline scenario was established in August 2019, however since then further information on completions, planning permissions and future proposals have become available meaning that the results for option 1A, 2A and 2B are not directly comparable to the baseline.

Table 2.9: Housing Summary (Additional Housing)

Housing Type (Total Units)	Baseline	Option 1A	Option 2A	Option 2B
Completions	946	2,550	2,550	2,550
Planning Permissions	2,637	3,090	3,090	3,090
SHLAA	3,220	6,032	2,876	2,876
Wirral Waters	4,100	4,534	2,434	2,434
Windfall	900	1,050	1,050	1,050
Greenbelt	0	0	2,933	2,584
Additional 2033-35	1,228	869	746	728
Demolitions	-750	-750	-750	-750
Total Additional Housing	12,281	17,375	14,929	14,562

Table 2.10: Employment Summary (Additional Employment)

Employment Type (Jobs)	Baseline	Option 1A	Option 2A	Option 2B
Baseline (trend based)	7,733	7,733	7,733	7,733
Growth Forecast (development based)	8,479	8,479	8,479	8,479
Total Growth	16,212	16,212	16,212	16,212