BIRMINGHAM HOUSING AND ECONOMIC DEVELOPMENT NEEDS ASSESSMENT

Final Report – Appendix 3 – Sensitivity to 2042 and Detailed Employment Assumptions

Iceni Projects Limited on behalf of

Birmingham City Council

April 2022

CONTENTS

APPENDICES

A1.   SENSITIVITY TO 2042

A1.1   The main body of this report looks at a range of issues for the 2020-40 period. This period was chosen as reflecting the most likely Plan period at the start of the project. However, it is possible that a longer end date will be used and so the analysis below provides a series of tables where data is rolled forward for a further two years (to 2042) – the start date of 2020 has been retained. Not all analysis needs to be rolled forward (for example data about prices, rents and incomes is as of now and has not been projected forward) and it should be noted that adding an additional two years to the data does not change any of the conclusions of the report.

A1.2   In all cases the findings set out below use the same methodology as the main body of the report but across a longer period. For more detailed explanation of the methodology please refer to the main report.

Demographic Trends and Projections

A1.3   The series of tables below show information from Section 6 of the report (where this would be changed by adding an extra 2-years). This is mainly in relation to projections where a further Demographic Assessment based projection has been developed by adding an additional two years of population projections – this shows an annual housing need of 4,235 dwellings per annum, slightly lower than the figure of 4,326 dpa for the 2020-40 period; the slightly lower figure reflects a general slowing down of projected population growth the further the projections look into the future.

A1.4   The table below is the equivalent of Table 6.19 in the main report.

Table 1.2   Projected population growth (2020-2042) – Birmingham – range of SNPP releases

	Population 2020	Population 2042	Change in population	% change
2018 (principal)	1,152,785	1,247,361	94,576	8.2%
2018 (alternative internal)	1,158,041	1,296,423	138,382	11.9%
2018 (10-year trend)	1,156,486	1,284,323	127,837	11.1%

Source: ONS

A1.5   The table below is the equivalent of Table 6.20 in the main report.

Table 1.3   Projected population growth (2020-2042) – 2018-based SNPP (alternative internal migration assumptions)

	Population 2020	Population 2042	Change in population	% change
Birmingham	1,158,041	1,296,423	138,382	11.9%
West Midlands	5,979,590	6,618,052	638,462	10.7%
England	56,678,470	61,549,624	4,871,154	8.6%

Source: ONS

A1.6   The table below is the equivalent of Table 6.21 in the main report.

Table 1.4   Population change 2020 to 2042 by broad age bands – Birmingham (2018-based SNPP – alternative internal migration assumptions)

	Population 2020	Population 2042	Change in population	% change
Under 16	262,032	276,124	14,091	5.4%
16-64	745,258	818,267	73,009	9.8%
65 and over	150,751	202,032	51,282	34.0%
Total	1,158,041	1,296,423	138,382	11.9%

Source: ONS

A1.7   The table below is the equivalent of Table 6.26 in the main report.

Table 1.5   Projected housing need – range of household representative rate assumptions – Birmingham (linked to 2018-based SNPP)

	Households 2020	Households 2042	Change in households	Per annum	Dwellings (per annum)
2018-HRRs	426,999	495,598	68,599	3,118	3,212
2014-HRRs	448,074	534,666	86,592	3,936	4,054
2014-PRT	448,074	542,886	94,812	4,310	4,439

Source: Demographic projections

A1.8   The table below is the equivalent of Table 6.40 in the main report.

Table 1.6   Population change 2020 to 2042 by broad age bands – Birmingham (Demographic Assessment)

	Population 2020	Population 2042	Change in population	% change from 2020
Under 16	257,118	271,209	14,091	5.5%
16-64	733,995	803,704	69,709	9.5%
65 and over	149,412	199,186	49,774	33.3%
Total	1,140,525	1,274,098	133,573	11.7%

Source: Demographic Projections

Affordable Housing Need

A1.9   With affordable housing, there is really very little difference to the figures. However, adding an extra 2-years does mean annualising the current need over a 22-year period rather than 20-years. The tables below revise the findings for the 2020-42 period, and it should again be stressed that there are no changes to conclusions as a result of adding an extra 2-years. The table below is the equivalent of Table 7.16 in the main report.

Table 1.7   Estimated Need for Social/Affordable Rented Housing by sub-area (per annum) – Birmingham

	Current need	Newly forming house-holds	Existing house-holds falling into need	Total Gross Need	Relet Supply	Net Need
Central	225	947	384	1,556	654	902
Edgbaston	74	437	161	672	271	402
Erdington	78	524	220	823	350	472
Hall Green	103	368	67	538	112	425
Hodge Hill	125	600	209	935	319	616
Northfield	56	526	250	831	402	429
Perry Barr	158	625	140	924	222	702
Selly Oak	70	513	167	750	256	494
Sutton Coldfield	36	379	59	474	98	375
Yardley	80	488	159	727	250	477
TOTAL	1,006	5,409	1,815	8,230	2,935	5,295

Source: Range of sources as discussed

A1.10   The table below is the equivalent of Table 7.22 in the main report.

Table 1.8   Estimated Need for Affordable Home Ownership by sub-area (per annum) – Birmingham

	Total Gross Need	LCHO supply	Net need
Central	255	8	248
Edgbaston	148	5	143
Erdington	57	7	50
Hall Green	148	2	146
Hodge Hill	4	5	-2
Northfield	58	7	50
Perry Barr	37	2	35
Selly Oak	42	7	35
Sutton Coldfield	231	2	229
Yardley	80	3	77
TOTAL	1,060	49	1,011

Source: Range of sources as discussed

Housing Mix

A1.11   Again, with the mix of housing, adding an extra 2-years makes very little difference to the findings and has no impact on conclusions. Indeed, the modelling of mix does not change at all with the inclusion of an extra 2-years of data. The table below is the equivalent of Table 8.8 in the main report.

Table 1.9   Projected Change in Household by Age of HRP in Birmingham – linking to the Demographic Assessment

	2020	2042	Change in Households	% Change
16-24	26,807	30,323	3,516	13.1%
25-29	34,893	41,504	6,610	18.9%
30-34	41,375	54,219	12,844	31.0%
35-39	41,066	48,312	7,246	17.6%
40-44	40,643	46,466	5,823	14.3%
45-49	39,254	46,179	6,925	17.6%
50-54	39,582	43,819	4,236	10.7%
55-59	37,008	39,529	2,520	6.8%
60-64	30,756	36,476	5,721	18.6%
65-69	26,852	32,307	5,454	20.3%
70-74	24,210	33,369	9,159	37.8%
75-79	19,144	27,957	8,813	46.0%
80-84	15,913	21,935	6,022	37.8%
85 & over	15,925	21,503	5,578	35.0%
Total	433,430	523,896	90,466	20.9%

Source: Demographic Projections

Table 1.10 **The table below is the equivalent of Table 8.13 in the main report.**Modelled Mix of
Housing by Size and Tenure in Birmingham (combining methodologies)

	1-bedroom	2-bedrooms	3-bedrooms	4+-bedrooms
Market	3%	22%	55%	20%
Affordable home ownership	19%	36%	35%	10%
Affordable housing (rented)	30%	34%	32%	4%

Source: Housing Market Model

A1.12 As a result of the modelled outputs being the same it would also be reasonable to conclude the same suggested mix by broad tenure would also be appropriate. This is set out in the table below which is identical to 8.25 in the main report.

Table 1.11 - Suggested Mix by Broad Tenure

	1-bedroom	2-bedrooms	3-bedrooms	4+-bedrooms
Market	5%	35%	40%	20%
Affordable home ownership	20%	40%	30%	10%
Affordable housing (rented)	20%	35%	25%	20%

Source: Iceni Projects based on Modelling

Older People and People with Disabilities

A1.13 The set of figures below (which is the equivalent of Table 11.3 of the main report) are an updated assessment in relation to older people and people with disabilities. As with other analysis the differences from adding an additional 2-years are not great but the tables do show some very small shifts in numbers and estimates of need/disability.

Table 1.12 Projected Change in Population of Older Persons, 2020 to 2042 – Birmingham (based on demographic assessment)

	2020	2042	Change in population	% change
Under 65	991,113	1,074,913	83,800	8.5%
65-74	77,941	96,459	18,518	23.8%
75-84	49,454	71,648	22,194	44.9%
85+	22,017	31,079	9,062	41.2%
Total	1,140,525	1,274,098	133,573	11.7%
Total 65+	149,412	199,186	49,774	33.3%
Total 75+	71,471	102,727	31,256	43.7%

Source: Demographic Projections

A1.14 The table below is the equivalent of Table 11.12 in the main report.

Table 1.13 Projected Changes to Population with a Range of Disabilities – Birmingham

Disability	Age Range	2020	2042	Change	% Change
Dementia	65+	12,336	17,199	4,862	39.4%
Mobility problems	65+	32,055	43,767	11,712	36.5%
Autistic Spectrum	18-64	8,689	9,648	959	11.0%
Disorders	65+	1,574	2,123	549	34.9%
Learning Disabilities	15-64	22,979	25,107	2,128	9.3%
	65+	3,536	4,709	1,173	33.2%
Challenging behaviour	15-64	417	456	39	9.4%
Impaired mobility	16-64	40,224	43,948	3,724	9.3%

Source: POPPI/PANSI and Demographic Projections

A1.15   The table below is the equivalent of Table 11.14 in the main report.

Table 1.14 Specialist Housing Need using adjusted SHOP@Review Assumptions, 2020-42 – Birmingham

		Housing demand per 1,000 75+	Current supply	Current demand	Current shortfall/ surplus (-ve)	Addition-al demand to 2042	Shortfall /surplus by 2042
Housing with Support	Market	29	2,177	2,101	-76	919	843
	Affordable	113	10,298	8,090	-2,208	3,538	1,329
Total (housing with support)		143	12,475	10,191	-2,284	4,457	2,172
Housing with care	Market	13	1,322	961	-361	420	59
	Affordable	38	1,175	2,708	1,533	1,184	2,717
Total (housing with care)		51	2,497	3,669	1,172	1,604	2,776
Residential care bedspaces		46	2,431	3,261	830	1,426	2,256
Nursing care bedspaces		51	3,058	3,669	611	1,604	2,215
Total bedspaces		97	5,489	6,930	1,441	3,031	4,471

Source: Derived from Demographic Projections and Housing LIN/EAC

A1.16   The table below is the equivalent of Table 11.16 in the main report.

Table 1.15   Estimated number of wheelchair user households (2020-42) – Birmingham

	Prevalence rate (per 1,000 population)	Household population 2020	Household population 2042	Wheelchair user households (2020)	Wheelchair user households (2042)
Under 60 years	5	924,713	1,000,949	4,985	5,396
60 - 74 years	37	126,209	152,290	4,689	5,658
75 - 84 years	85	48,111	69,447	4,101	5,920
85 years or over	164	19,621	27,990	3,225	4,601
TOTAL		1,118,654	1,250,676	17,001	21,575

Source: Derived from a range of sources

A1.17   The table below is the equivalent of Table 11.19 in the main report.

Table 1.16   Estimated need for wheelchair user homes, 2020-42

	Current need	Projected need (2020-42)	Total current and future need	Housing need (2020-42)	% of Housing Need
Birmingham	4,177	4,574	8,751	95,177	9.2%

Source: Derived from a range of sources

Student-age Population

A1.18   One further analysis in the HEDNA report (Section 12) was to look at projected changes in the population of people aged 18-24 (chosen to reflect the age group from which most students will come). The analysis below shows that this age group is projected to continue falling from 2040 to 2042 and is the equivalent or Table 12.4 in the main report.

Table 1.17   Projected change in number of people aged 18-24
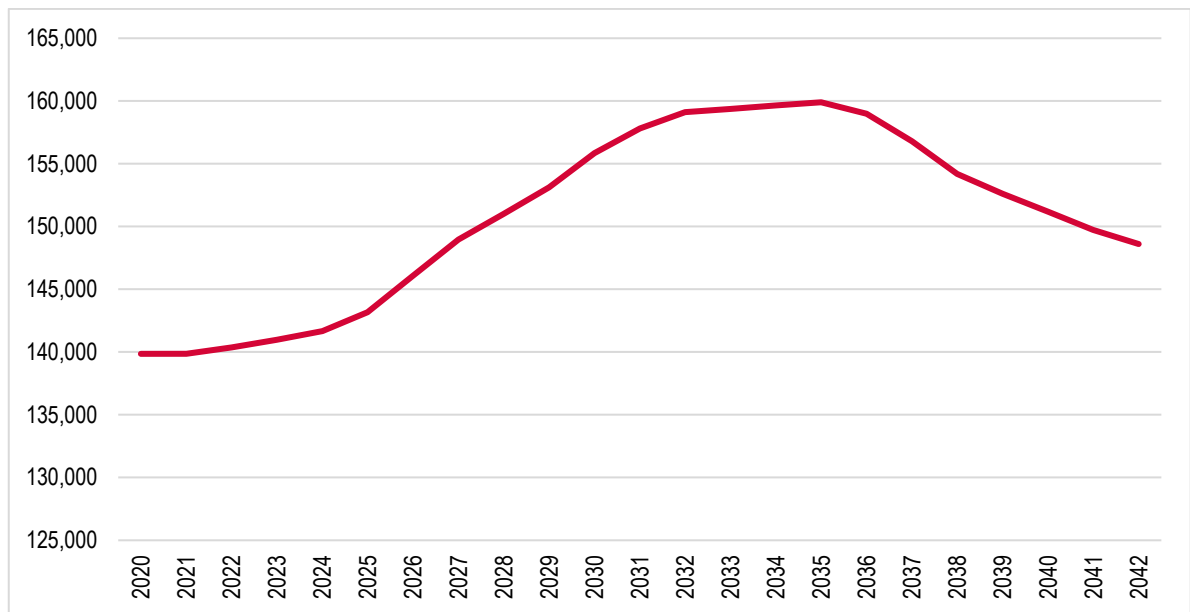
Source: Demographic Projections

Economic Growth

A1.19   The final series of tables below relate to the analysis of economic growth and population projections, this includes the likely changes to the number of people who are economically active and the number of additional jobs that might be supported. The main HEDNA analysis can be found in Section 13 and the table below is the equivalent of Table 13.2 in the main report.

Table 1.18   Projected changes to economic activity rates (2020 and 2042) – Birmingham

	Males			Females		
	2020	2042	Change	2020	2042	Change
16-19	32.3%	31.7%	-0.6%	32.9%	32.4%	-0.5%
20-24	69.2%	69.9%	0.6%	61.8%	62.6%	0.8%
25-29	87.5%	87.5%	0.0%	73.4%	73.4%	0.0%
30-34	88.6%	88.4%	-0.2%	69.5%	70.0%	0.4%
35-39	88.6%	88.0%	-0.6%	71.4%	73.7%	2.3%
40-44	87.9%	86.6%	-1.3%	74.0%	77.4%	3.4%
45-49	85.4%	84.8%	-0.6%	76.0%	80.8%	4.7%
50-54	83.5%	82.1%	-1.4%	72.2%	75.5%	3.3%
55-59	77.6%	76.9%	-0.7%	68.2%	70.2%	2.1%
60-64	60.3%	67.9%	7.6%	54.6%	64.7%	10.1%
65-69	26.2%	39.7%	13.5%	18.8%	36.3%	17.5%
70-74	13.3%	16.0%	2.6%	8.4%	15.2%	6.7%
75-89	5.5%	6.7%	1.2%	2.4%	5.8%	3.4%

Source: Based on OBR and Census (2011) data

A1.20   The table below is the equivalent of Table 13.3 in the main report.

Table 1.19 Estimated change to the economically active population (2020-42) – Birmingham

	Economically active (2020)	Economically active (2042)	Total change in economically active
Demographic Assessment	540,985	618,034	77,049

Source: Derived from demographic projections

A1.21   The table below is the equivalent of Table 13.7 in the main report.

Table 1.20   Jobs supported by demographic projections (2020-42) – Birmingham

		Total change in economically active	Allowance for net commuting	Allowance for double jobbing (= jobs supported)
Demographic Assessment	Census commuting	77,049	88,777	91,534
	1:1 commuting	77,049	77,049	79,442

Source: Derived from a range of sources as described

A1.22   The table below is the equivalent of Table 13.8 in the main report.

Table 1.21   Change in Economically Active Persons– Birmingham 2020-42 (Persons - Rounded)

Scenario	Economically Active Growth 2020-2042
Demographic Assessment (4,326 dpa)	77,000
BDP Housing Need (4,450 dpa)	80,800
Standard Method LHN (6,750 dpa)	150,200

Source: Iceni Modelling

A1.23   The table below is the equivalent of Table 13.9 in the main report.

Table 1.22   Labour Supply through Reductions in Unemployment Change

	Change in Economically Active	Reduction in Unemployment	Total Potential Labour Supply (Persons)
Demographic Assessment (4,326 dpa)	77,049	36,700	113,749
BDP Housing Need (4,450 dpa)	80,784	36,700	117,484
Standard Method LHN (6,750 dpa)	150,219	36,700	186,919

Source: Iceni Modelling based on DWP information

A1.24   The table below is the equivalent of Table 13.10 in the main report.

Table 1.23   Jobs which could be supported by Housing Need Scenario

	Potential Jobs Supported, 2020-42 (Jobs - Rounded)
Demographic Assessment (4,326 dpa)	117,300
BDP Housing Need (4,450 dpa)	121,100
Standard Method LHN (6,750 dpa)	192,700

Source: Iceni Modelling based on DWP information

A1.25   The tables below expand upon the information in Table 18.6 of the main report.

Table 1.24   Baseline Employment Forecast ('000s)

	2020	2025	2030	2035	2040	2042	2045
Manufacturing	38.9	37.7	35.5	33.7	32.1	31.5	30.6
Construction	36.7	36.8	37.1	37.5	37.8	37.9	38.0
Retail	77.8	78.0	78.1	78.4	78.5	78.5	78.4
Transport	30.4	31.9	32.2	32.4	32.6	32.6	32.7
Food and accommodation	35.9	40.0	44.6	48.5	51.4	52.2	53.3
ICT	17.1	17.5	18.0	18.3	18.6	18.7	18.9
Professional	138.7	143.5	147.0	150.3	153.5	154.6	156.3
Public Administration & Defence	26.3	26.3	26.7	27.1	27.6	27.7	28.0
Education	55.6	56.5	57.8	59.7	61.7	62.5	63.7
Health	55.2	56.2	56.0	56.0	55.8	55.7	55.6
Residential & social	30.3	33.0	34.7	36.3	38.1	38.8	40.0
Arts	5.9	4.7	4.7	4.8	4.9	4.9	4.9
Recreational services	7.2	7.1	7.3	7.5	7.7	7.7	7.9
Other services	15.3	15.0	14.9	15.0	15.0	15.1	15.2
Total	576.8	589.7	600.3	611.1	620.5	623.9	628.8

Source: Cambridge Econometrics (exc Agriculture, Mining, Utilities)

Table 1.25 Aspirational Employment Forecast ('000s)

	2020	2025	2030	2035	2040	2042	2045
Manufacturing	38.9	38.2	36.7	35.7	35.0	34.7	34.5
Construction	36.7	40.3	42.0	43.7	45.5	46.0	46.7
Retail	77.8	78.0	78.1	78.4	78.5	78.5	78.4
Transport	30.4	32.7	33.2	33.5	33.6	33.7	33.7
Food and accommodation	35.9	40.6	45.3	49.2	52.0	52.8	53.9
ICT	17.1	18.5	19.6	21.0	22.3	22.7	23.5
Professional	138.7	147.8	154.4	160.9	167.1	169.5	173.3
Public Administration & Defence	26.3	26.3	26.7	27.1	27.6	27.7	28.0
Education	55.6	56.5	57.8	59.7	61.7	62.5	63.7
Health	55.2	57.9	59.3	61.3	62.9	63.6	64.7
Residential & social	30.3	33.0	34.7	36.3	38.1	38.8	40.0
Arts	5.9	5.7	6.0	6.4	6.7	6.9	7.0
Recreational services	7.2	7.1	7.3	7.5	7.7	7.7	7.9
Other services	15.3	15.0	14.9	15.0	15.0	15.1	15.2
Total	576.8	603.2	621.6	641.0	659.0	665.6	676.0

Source: Cambridge Econometrics (exc Agriculture, Mining, Utilities)

A1.26 The table below is the equivalent of Table 19.15 in the main report although it also provides a greater breakdown across different periods.

Table 1.26 Gross Recommended Employment Land Needs Employment Forecast sqm / ha

	2020-25	2025-30	2030-35	2035-40	2020-2040	2020-2042	2020-2045
Office sqm	120,600	111,000	111,700	110,700	453,900	469,000	524,700
Industrial sqm	335,900	335,900	335,900	335,900	1,343,500	1,477,900	1,679,400
Total sqm	456,500	446,800	447,500	446,600	1,797,400	1,946,800	2,204,100
Office ha	6.0	5.5	5.6	5.5	22.7	23.5	26.2
Industrial ha	67.2	67.2	67.2	67.2	268.7	295.6	335.9
Total ha	73.2	72.7	72.8	72.7	291.4	319.0	362.1

Source: Iceni Projects NB completions trend distributed evenly, office influenced by growth projections

A2. DETAILED ECONOMIC ASSUMPTIONS

A2.1   The table below sets out our assumptions in converting total jobs to Full-Time Equivalent jobs (FTE).

Table 1.27   Jobs: FTE Ratio

Sector	BRES 2 digit SIC	Jobs:FTE ratio
Agriculture, forestry & fishing	01-03	94%
Mining & quarrying	05-09	100%
Food, drink & tobacco	10-12	87%
Textiles etc	13-15	86%
Wood & paper	16-17	96%
Printing & recording	18	90%
Coke & petroleum	19	100%
Chemicals	20	99%
Pharmaceuticals	21	100%
Non-metallic mineral products	22-23	97%
Metals & metal products	24-25	95%
Electronics	26	90%
Electrical equipment	27	100%
Machinery	28	96%
Motor vehicles	29	99%
Other transport equipment	30	100%
Other manufacturing & repair	31-33	95%
Electricity & gas	35	99%
Water, sewerage & waste	36-39	93%
Construction	41-43	96%
Motor vehicles trade	45	92%
Wholesale trade	46	93%
Retail trade	47	71%
Land transport	49	89%
Water transport	50	100%
Air transport	51	92%
Warehousing & postal	52-53	91%
Accommodation	55	75%
Food & beverage services	56	68%
Media	58-60	83%
IT services	61-63	96%
Financial & insurance	64-66	95%
Real estate	68	92%
Legal & accounting	69	88%
Head offices & management consultancies	70	90%
Architectural & engineering services	71	93%
Other professional services	72-75	95%
Business support services	77-82	91%
Public Administration & Defence	84	80%
Education	85	91%
Health	86	84%
Residential & social	87-88	80%
Arts	90-91	79%
Recreational services	92-93	73%
Other services	94-96	79%

Source: BRES 2019

A2.2   The table below presents our assumptions on the percentage of each job in each sector that takes place in each use class.

Table 1.28   Sector By Use Class

Sector	Home work Adjustment	Office	R&D	Industrial	Warehouse	Other
Agriculture, forestry & fishing	85%					100%
Mining & quarrying	90%					100%
Food, drink & tobacco	95%			100%		0%
Textiles etc	95%			100%		0%
Wood & paper	95%			100%		0%
Printing & recording	95%			100%		0%
Coke & petroleum	95%			100%		0%
Chemicals	95%			100%		0%
Pharmaceuticals	95%		10%	90%		0%
Non-metallic mineral products	95%			100%		0%
Metals & metal products	95%			100%		0%
Electronics	95%			100%		0%
Electrical equipment	95%			100%		0%
Machinery	95%			100%		0%
Motor vehicles	95%		10%	90%		0%
Other transport equipment	95%		10%	90%		0%
Other manufacturing & repair	95%			100%		0%
Electricity & gas	95%					100%
Water, sewerage & waste	95%			97%		3%
Construction	95%	5%		5%	5%	85%
Motor vehicles trade	95%				25%	75%
Wholesale trade	95%				75%	25%
Retail trade	95%					100%
Land transport	95%				25%	75%
Water transport	98%					100%
Air transport	98%					100%
Warehousing & postal	98%				50%	50%
Accommodation	98%					100%
Food & beverage services	98%					100%
Media	98%	25%		25%	0%	50%
IT services	85%	90%	5%			5%
Financial & insurance	85%	80%				20%
Real estate	95%	60%				40%
Legal & accounting	88%	95%				5%
Head offices & management consultancies	88%	95%				5%
Architectural & engineering services	88%	95%				5%
Other professional services	88%	85%	15%			0%
Business support services	88%	25%		15%		60%
Public Administration & Defence	95%	60%				40%
Education	98%					100%
Health	95%					100%
Residential & social	95%					100%
Arts	95%					100%
Recreational services	90%					100%
Other services	90%					100%

Source: ONS 2019 (Homeworking), Iceni (Use Classes)