



Isle of Man
Government

Reiltys Ellan Vannin



Area Plan for the East: Preliminary Publicity Scenario Testing Report

February 2017

Cabinet Office

Contents

	Page No.
1. Introduction	1
2. Policy Context	2
The Scale of Development	2
The Distribution of Development	3
3. Potential Development Sites	5
Housing Land	5
Employment Land	7
4. Developing Scenarios	9
Housing	9
Employment	11
Urban Capacity Assessment	11
5. Methodology for Testing Scenarios	14
Criteria	14
Types of Impacts	15
Applying the Settlement Pattern Criteria	15
Applying the Infrastructure Criteria	17
6. Scenario Testing Results	19
Settlement Pattern Criteria	20
Grey Infrastructure Criteria	22
Social Infrastructure Criteria	26
Green Infrastructure Criteria	30
7. Conclusions	31
Settlement Pattern Criteria	31
Grey Infrastructure Criteria	31
Social Infrastructure Criteria	32
Green Infrastructure Criteria	32
Overall Conclusions	32

1. Introduction

- 1.1 Scenario Testing is a tool to transparently and coherently consider different broad approaches to a plan. It identifies broad pros and cons, interdependencies and opportunities for innovative solutions and mitigation. However, Scenario Testing does not make decisions, it simply supports informed comment and debate.
- 1.2 This report forms part of the Evidence Base for the Area Plan for the East. It assesses the relative merits of different growth distribution scenarios for housing and employment and identifies the likely impacts on infrastructure (listed below) and environmental constraints (availability of brownfield land and presence of flood risk) if future development was to happen in a particular way.
- **Transport** (roads and bus services)
 - **Utilities** (energy, telecommunications, water supply and waste water and sewage treatment and drainage)
 - **Flood defences** (coastal and river)
 - **Social Infrastructure** (Health and Education): Education and Health (including specialist accommodation); community facilities (including libraries, theatres, museums, public halls and places of worship) and recreational/sports facilities (including leisure centres but excluding playing pitches) and emergency services (ambulance, fire and rescue and police).
 - **Sports Facilities and Public Open Space** (noting that green infrastructure is spread across this and several other categories).
- 1.3 The report focuses on certain aspects of each topic where they are most relevant to the issue of growth distribution and can meaningfully be assessed through a high-level scenario testing approach. Separate work has been carried out to understand the relative merits of Potential Development Sites. Scenario Testing is intended to look beyond individual sites and to think about the implications for different levels of growth for different places within the East. In any case, any assessment work carried out as part of either the Scenario Testing or individual Site Assessments does not remove the need to ensure that suitable assessment of impacts take place at the Planning Application Stage.
- 1.4 Throughout this report a number of assumptions have been made. These are to allow the production and testing of scenarios to draw broad conclusions. These assumptions, particularly in relation to the potential amount of housing or employment land which sites may provide, will need to be tested, refined and reviewed as the processes develops.

2. Policy Context

2.1 The Isle of Man Strategic Plan 2016 came into operation on 1st April 2016. This sets the policy background for the preparation of the Area Plan for the East and the scenario testing undertaken to support the Plan. It is important to develop realistic scenarios and avoid, what is often termed 'goldilocks pricing' i.e. where a middle ground scenario is assessed against two alternative and extreme scenarios. Such an approach will nearly always support the middle ground as being a balanced approach which highlights the need to prepare realistic scenarios. The scenarios set out in this paper are therefore based on the Spatial Strategy set out in the Strategic Plan. There are two key elements to this:

- the scale of development; and
- the distribution of that development.

The Scale of Development

2.2 In terms of the amount of development for housing, the Strategic Plan is clear at Housing Policy 1 which states:

"The housing needs of the Island will be met by making provision for sufficient development opportunities to enable 5,100 additional dwellings (net of demolitions), and including those created by conversion, to be built over the Plan period 2011 to 2026."

2.3 Housing Policy 3 goes on to allocate 2,440 of the 5,100 additional dwellings to the East.

2.4 The Strategic Plan does not set out a need figure for employment land, instead at paragraph 9.2.2 it states:

"...The advice of the Department of Trade and Industry will be sought in respect of the amount of land which is likely to be required for industrial purposes within the life of the respective area plan."

2.5 The Department of Economic Development now has responsibility for providing this advice and commissioned an Employment Land Review to provide more evidence on the level of demand for employment land and the level of current supply. The review report was published in 2015. A review and analysis of the Employment Land Review gives the key findings summarised below.

- Total employment demand for the East for the 10 year period from April 2016 up to March 2026 could be estimated at around 10 hectares.
- Current demand appears to be for smaller sites (0.23 Ha or less) with some limited demand for larger sites (up to 0.7 Ha).
- The development of a Technology Park could accommodate some indigenous demand and also stimulate inward investment, elsewhere such parks are often associated with Universities.
- The release of land outside settlement boundaries to accommodate hypothetical inward investment in large sites would need to be carefully managed.

The Distribution of Development

2.6 A key part of the Strategic Plan is the settlement hierarchy. The key points from the Spatial Policies for the Area Plan for the East are summarised below.

- The Douglas main urban area will remain the main employment and services centre for the Island (Spatial Policy 1).
- Onchan is a Service Centre. Outside the main urban area, development will be concentrated on Service Centres to provide regeneration and choice of location for housing, employment and services (Spatial Policy 2).
- Laxey and Union Mills are Service Villages. Area Plans will define the boundaries of Service Villages so as to maintain and where appropriate increase employment opportunities. Housing should be provided to meet local needs and in appropriate cases to broaden the choice of location of housing (Spatial Policy 3).
- Baldrine, Crosby, Glen Vine, Newtown and Strang are Villages. In the Villages development should maintain the existing settlement character and should be of an appropriate scale to meet local needs to housing and limited employment opportunities (Spatial Policy 4).

2.7 The Scenario Testing areas for housing have been developed based on the Settlement Hierarchy. However, given the size of Douglas as a settlement, it has been necessary to break it down into three smaller areas in order to generate meaningful scenarios (see the Map overleaf):

- Douglas (Masterplan) – the area covered by the Central Douglas Masterplan;
- Douglas (North) – the area to the North of the Masterplan Area and North-East of Peel Road);
and
- Douglas (South) – the area to the South-West of Peel Road.

2.8 Although the Settlement Hierarchy provides broad policies in relation to the distribution of employment land. Further detail is provided at paragraph 9.2.2 of the Strategic Plan which states;

“Most of the Island’s industry is located close to major transportation links, particularly in the case of Douglas, Braddan and Ballasalla, which all have convenient access to Ronaldsway airport and Douglas harbour. ... All of these are conveniently accessible to significant pools of labour. In order to minimise excessive transportation of goods and travel for employees, and to promote sustainable development, much of the Island’s future industrial development should continue to be concentrated in these locations, and appropriate areas of land should be made available for such uses in the Area Plans for these parts of the Island. It will also be appropriate, when formulating Area Plans for our smaller settlements, to make provision for the continued operation of small-scale family businesses, particularly those serving local needs such as garages and builders...”

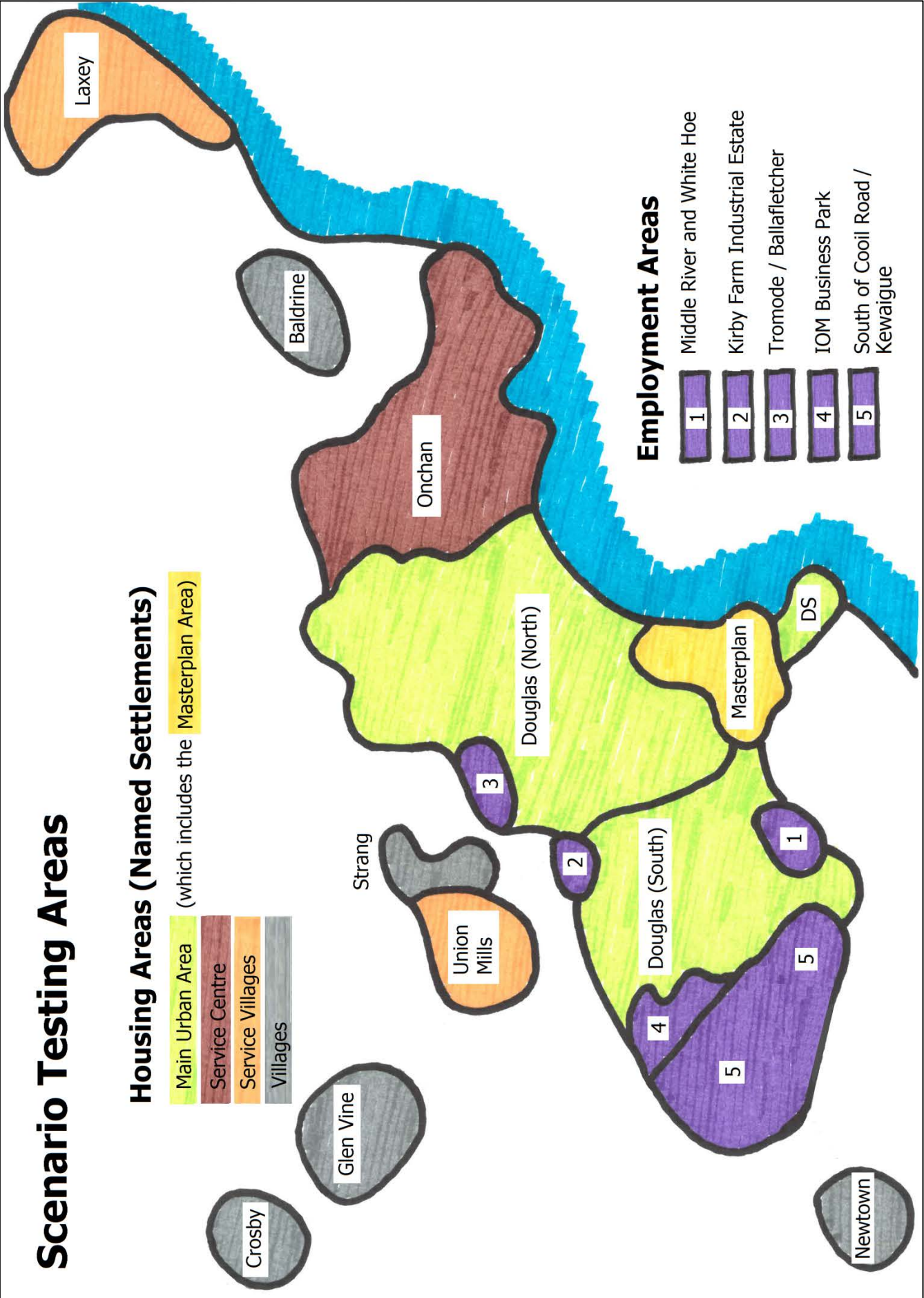
2.9 The majority of the Employment Land put forward (see section 3) is within and around the settlement of Douglas and relates to the expansion of existing areas. Therefore, scenario testing areas have been developed around these (see Map overleaf).

Scenario Testing Areas

Housing Areas (Named Settlements)

Main Urban Area (which includes the Masterplan Area)

- Service Centre
- Service Villages
- Villages



3. Potential Development Sites

- 3.1 A key aspect of developing realistic scenarios is to ensure that there is sufficient land to allow a given scenario to be implemented. A separate Site Identification Report (Annex 1) has been produced which sets out all the Potential Development Sites and divides them into the following categories:
- **Category 1** - Potential Development Sites which do not need to be assessed through the Site Assessment Framework and which can be subsumed within land use designations which reflect the surrounding areas; and
 - **Category 2** - Potential Development Sites which do need to be assessed through the Site Assessment Framework i.e. there are policy decisions to be made about the proposed land use and therefore require a fuller assessment.
- 3.2 An indicative 'yield' has been calculated for site set out in the All-Sites Table in the Site Identification Report (Annex 1) i.e. how many housing units or hectares of employment land could be provided if the site were developed. This allows calculations to be made about the land needed to accommodate development for various different growth scenarios. However, this should be regarded only as a theoretical calculation because ahead of any actual allocation of proposal sites in a draft plan, further analysis will be needed. Questions that will need to be posed include:
- whether Potential Development Sites (or parts of sites) are also being considered for alternative uses (e.g. is the site a potential housing site as well as a potential employment site);
 - whether Potential Development Sites are developable (i.e. acceptable in planning terms, and both available and viable during the plan period);
 - the probability of a Potential Development Sites coming forward during the plan period, and the potential build-out rate during the plan period (i.e. a larger site may not be fully developed out during the plan period); and
 - the possibility of a lower density scheme coming forward (thus reducing housing numbers – although the reverse situation could also occur).
- 3.3 At this stage it is difficult to consider the above in detail, however it would be unrealistic to work on the basis that 100% of the potential yield was available. Therefore only for the purposes of this Scenario Testing report, an indicative 80% figure has been used (i.e. the total yield is reduced by a fifth). In the text and tables below this is referred to as the "adjusted yield".

Housing Land

- 3.4 Analysis of existing housing land supply (based on the Residential Land Availability Study for the period up to 2015) has revealed that:
- the Strategic Plan identifies a need in the East of 2,440 units;
 - of the units approved since the start of the plan period, nearly 150 units have been completed or commenced; and
 - a starting figure for scenario testing should be 2,290 units.

- 3.5 The above analysis has included calculating the existing future supply for each Scenario Testing Area. The existing supply provided by Planning Approvals below the threshold for the Site Identification Report (Annex 1), plus projected conversions, plus Category 1 Potential Development Sites, gives the existing supply as set out in Table 1 below. In producing these figures, assumptions and adjustments have been included to take account of the relevant issues set out in paragraph 3.2 above, therefore no adjusted yield figure is required for the existing supply.
- 3.6 The potential housing yield of the Category 2 Potential Development Sites has also been calculated and attributed to the potential growth areas identified in the Settlement Hierarchy, separate figures are shown for the Potential Development Sites which pass Step 1 of the Site Assessment Framework¹. An adjusted yield figure (80%) has then been calculated based on the total of all the relevant Category 2 Potential Development Sites. This, together with the existing supply gives a maximum scale of growth for each area, as set out in Table 1 below.

Table 1: Maximum Housing Growth Levels

Scenario Testing Area	Existing Supply	Total PDS Yield (Gross)	Total PDS Yield (Adjusted)	Total Supply
Douglas (Masterplan Area)	69	474	379	448
Douglas (North)	103	1602	1,282	1385
Douglas (South)	86	634	507	593
Onchan	43	1197	958	1001
Laxey	23	136	109	132
Union Mills	9	253	202	211
Baldrine	13	93	74	87
Crosby	5	658	526	531
Glen Vine	16	263	210	226
Newtown	7	715	572	579
Strang	9	272	218	227
Overall Total	383	6,297	5,038	5,421
<i>Douglas Total</i>	<i>258</i>	<i>2,710</i>	<i>2,169</i>	<i>2,427</i>

PDS = Potential Development Site

- 3.7 Understanding the supply figures enables each scenario to be reality checked before being tested in detail (a scenario which places a level of growth in an area which exceeds the supply in that area is unlikely to be achievable). The above also highlights that in some areas there is a significant level of supply - for example Douglas (North) and Onchan. It is also interesting to note that for the size of settlement, there is a large supply in Crosby and Newtown. Laxey, despite being a service village, appears to have a limited supply.

¹ Step 1 of the Site Assessment Framework screens out sites which are not within or abutting the Existing Settlement Limits

Employment Land

- 3.8 The Site Identification Report (Annex 1) takes a precautionary approach to identifying those Potential Development Sites which should be considered for full assessment. Existing Local Plan allocations are not automatically 'rolled forward' but instead added to the list of Potential Development Sites to be considered. Similarly, larger sites with unimplemented Planning Approvals are not automatically identified for allocation in the Area Plan for the East. Therefore the 'existing supply' for employment land is limited to Category 1 Potential Development Sites (of which there are few). However, for the purposes of this Scenario Testing exercise, only the potential capacity from Potential Development Sites over 1 hectare has been included. This is because it is considered that responding to the forecast demand by relying on a limited number of small Potential Development Sites may not adequately respond to the need for choice and flexibility. This results in all of the Category 1 Potential Development Sites being discounted for the purposes of Scenario Testing.
- 3.9 Most of the employment Potential Development Sites are within West of Douglas and Braddan - 5 broad areas have been identified to form Scenario Testing Areas². Table 2 sets out the potential yield for each of these areas from the Category 2 Potential Development Sites identified in the Site Identification Report (Annex 1).

Table 2: Maximum Employment Growth Levels

Scenario Testing Area	Total Potential Yield	Adjusted Yield Total
1. Middle River and White Hoe	4.83	3.86
2. Kirby Farm Industrial Estate	2.82	2.26
3. Tromode/Ballaflletcher	2.82	2.26
4. IOM Business Park	10.33	8.26
5. South of Cooil Road / Kewaigue	111.54	89.23
TOTAL	132.34	105.87

Note: All areas in hectares.

- 3.10 Three projects are currently being developed in the short-medium term which could unlock employment land prior to the Area Plan for the East being finalised.
- The Employment Land (Development Order) Project is considering the identification of over 5 hectares of land adjacent to the International Centre for Technology Ltd (land known as "Sangster's Field"). These sites are within the geographical scope of the Area Plan for the East so will also be considered as a single Potential Development Sites (reference DE005) in the interests of completeness, and to avoid prejudging the outcome of the Development Order process. The opportunities provided by site DE004 are unique in being related to the International Centre for Technology. There is some debate as to whether the site would cater

² It is noted that there are some limited opportunities in other areas but for the purposes of this Scenario Testing exercise, the focus is on these 5 key areas.

to a specialised demand and whether this has been reflected in the Employment Land Review figures. Therefore, for the purposes of this Scenario Testing exercise, the site capacity is excluded from Table 2 but 4.25 hectares (i.e. 80% of 5.31 hectares) is added to the total level of development in Scenario Testing Area 1 in each of the scenarios.

- The Airport Technology Gateway Project seeks to establish a world-class development adjacent to Ronaldsway Airport (South Area), including the release of a 8.8 hectare Strategic Reserve Site.
- General Government investment in Jurby (North Area) may unlock potential development land.

3.11 Planning approval has also been granted for a 3.39 hectare car showroom development on land to the South of Cooil Road, Braddan (Potential Development Sites BE019). As this form of development is outside the scope of the Employment Land Review, the site is not included in the figures in Table 2. As the site has planning approval which has been implemented it is envisaged it will be reflected as an existing land use within the draft Land Use maps (see introduction to Site Identification Report). Therefore, the site capacity is excluded from Table 2 but 3.39 hectares is added to the total level of development in Scenario Testing Area 5 in each of the scenarios.

3.12 In terms of potential land supply, a number of potential 'Mixed-Use' Potential Development Sites have been identified within the Site Identification Report (Annex 1). Many of these could provide a mix of residential, retail and office uses. This Scenario Testing report focuses on housing and employment land, therefore the retail element is discounted. The interpretation of the Employment Land Review demand figures provided within this report assumes 100% of office demand is met outside of town centres, therefore the office element is also discounted. However, this is a 'worst case' scenario approach to inform work on scenario testing and understanding overall demand. Therefore any Mixed Use Potential Development Sites with potential to accommodate Office Development would provide additional supply to the Potential Development Sites considered in this report.

4. Developing Scenarios

4.1 The Strategic Plan sets out a Settlement Hierarchy as summarised previously. However, as noted in the Inspector's report on the Strategic Plan Review at paragraph 5.51,

"the Strategic Plan does not actually allocate development locations, that is for Area Plans. These may well in practice adjust the figures for particular settlements upwards or downwards, on detailed examination, but within an overall general indication provided by Draft Housing Policy 3".

4.2 Therefore, 3 scenarios have been developed to help explore and understand the infrastructure and environment implications of different growth distribution patterns within the East. However, the inclusion of a scenario within this document should not be regarded as an indication of any level of support for that scenario moving forwards.

- **Scenario 1: Settlement Hierarchy.** This distributes housing in accordance with the indicative percentages attributed to settlements as set out in the Strategic Plan and Evidence Paper 3. This is explained in more detail below. Employment growth is spread across the potential Employment Scenario Testing Areas.
- **Scenario 2: Urban Expansion.** This scenario is based on urban expansion at the top of the settlement hierarchy (others based on the existing supply figure). Employment growth is focused on urban extension(s) to the South/West of Douglas.
- **Scenario 3: Dispersal.** This scenario is based on increasing housing development along Peel Road (A1) and Castletown Road (A5) within settlements which provide easy access to Douglas. As with Scenario 2, Employment growth is focused on urban extension(s) to the South/West of Douglas.

Housing

4.3 The housing distribution under each scenario is set out in Table 3. As noted above, Scenario 1 is based on the Strategic plan indicative distribution. The Isle of Man Strategic Plan Review Supporting Evidence Paper 3: Future housing requirements and recommended Policy change (January 2016) is the final paper in a set of three which together support the final figures and approach included in the Draft Isle of Man Strategic Plan 2015. It examines the evidence relating to housing demand and supply on the Island and recommends the final figures for inclusion in revised Policies: Strategic Policy 11, Housing Policy 1 and Housing Policy 3 in the Draft Isle of Man Strategic Plan 2015.

4.4 The paper set out four approaches to distributing the Island-wide housing figure between the four Area Plan areas:

- divide total equally between the four Areas (North, South, East and West);
- divide in line with the Isle of Man Strategic Plan 2007;
- divide on the basis of past development levels; and
- divide on the basis of available and potential residential development land.

4.5 The Department judged that approach 3 (divide on the basis of past development levels) was most appropriate. To provide a total for each area, the total number of approvals for all settlements at each tier of the settlement hierarchy was calculated, and then the total distributed equally among the number of settlements within that tier. Based on the number and type of settlements within each of the four areas, an area total can then be calculated. Table 14 of the Evidence Base paper set out the indicative apportionments within each area, which for the East was:

- the Main Centre (Douglas) with 1,676 dwellings (68% of total for the East);
- 1 Service Centre (Onchan) with 416 dwellings (16.9% of total for the East);
- 2 Service Villages (Laxey and Union Mills) with 170 dwellings combined (6.9 % of total for the East) or 85 dwellings each (3.5% each); and
- 5 Villages (Baldrine, Crosby, Glen Vine, Newtown and Strang) with 200 dwellings combined (8% of total for East) or 40 dwellings each (1.6%).

4.6 The above gives 2,462 in total (48% of the All-Island total). In producing Scenario 1 the percentages for each settlement above have been applied to the starting figure for scenario testing of 2,290 units (see paragraph 3.4)

Table 3: Housing Distribution under the 3 Scenarios

Scenario Testing Area	Potential Supply (Adjusted)	Scenario 1: Settlement Hierarchy		Scenario 2: Urban Expansion		Scenario 3: Dispersal	
		%	Units	%	Units	%	Units
Douglas (Masterplan)	448	17%	389	4.4%	100	4.4%	100
Douglas (North)	1385	34%	779	43.7%	1,000	26.2%	600
Douglas (South)	593	17%	389	17.5%	400	10.9%	250
Onchan	1001	16.9%	387	30.6%	700	10.9%	250
Laxey	132	7% in total (3.5% each)	80	1.7% in total	40 in total	10.9%	100
Union Mills	211		80				150
Baldrine	87	8% in total (1.6% each)	183 (35-40 in each)	2.2% in total	50 in total	37.1% in total	50
Crosby	531						250
Glen Vine	226						150
Newtown	579						250
Strang	227						150
TOTAL	5,420		2,287		2,290		2,300
<i>Douglas Total</i>	<i>2,427</i>	<i>68%</i>	<i>1,557</i>	<i>65.5%</i>	<i>1,500</i>	<i>41.5%</i>	<i>950</i>

Notes

- All figures rounded to the nearest 10 (hence 'Total' row may be different to actual totals)
- If the Douglas total under Scenario 1 is equally divided between the 3 Scenario Testing Areas, there is insufficient supply in Douglas (Masterplan Area). Significant Supply is however available in Douglas (North) therefore the Douglas total (68%) is divided a quarter to the Douglas (Masterplan), half to Douglas (North) and a quarter to Douglas (South)
- Scenario 2 assumes only the existing supply sites for everywhere except Douglas and Onchan, and with minimal additional dwellings in Douglas (Masterplan)
- Scenario 3 places more dwellings in those Villages and Service Villages where there is most supply of Potential Development Sites

Employment

- 4.7 The employment land distribution under each scenario is set out in Table 4. There are a limited number of Employment Areas, focused on existing areas around the periphery of Douglas and various potential extensions to the South. It is important that Scenario Testing does not focus on individual sites and, within that context, the extensions to the South have been grouped together (as area 5). At a Scenario Testing Area level, there are therefore limited choices for how growth is distributed, with the key 'choice' being between the development of areas 1-4 or urban extensions to the South/West of Douglas.
- 4.8 There are also questions about how much employment land is needed. The Employment Land Review is currently being updated (as at December 2016) and so there is some uncertainty over whether the 10 hectare figure will change. The figure could increase or decrease, and it is envisaged that the potential contribution that could be made by site DE004 will be clarified. Therefore, for the purposes of Scenario Testing, an overall figure of 15 hectares (plus 4.3 for site DE004 and 3.4 for site BE017) has been used to provide some flexibility.
- 4.9 Scenario 1 distributed growth across all areas, whilst scenarios 2 and 3 have the same distribution – focusing on urban extension(s). Although the level (and therefore potential distribution scenarios) of employment is subject to more questions/assumptions than for housing, it is important nevertheless to include here ensure that the cumulative impacts of housing and employment growth can be considered. This does not represent any policy commitment or assessment that this level of distribution should be reflected in the Draft Plan.

Table 4: Employment Distribution

Scenario Testing Area	Total of Potential Supply (adjusted)	Scenario 1: Settlement Hierarchy	Scenario 2: Urban Expansion	Scenario 3: Dispersal
1. Middle River and White Hoe	3.86	3.8 (+4.3)	0 (+4.3)	0 (+4.3)
2. Kirby Farm Industrial Estate	2.26	2.1	0	0
3. Tromode / Ballafletcher	2.26	2.1	0	0
4. IOM Business Park	8.26	2	0	0
5. New Castletown Road / Cooil Road Junction	89.23	5 (+3.4)	15 (+3.4)	15 (+3.4)
TOTAL (Ha)	105.87	15 (+7.7)	15 (+7.7)	15 (+7.7)

Urban Capacity Assessment

- 4.10 Paragraph 5.27 of the Strategic Plan indicates that,

"It is intended that each new Area Plan prepared will continue to undertake urban capacity assessments as part of a sequential approach to the provision of new housing. This approach will seek to develop within existing settlements, or on previously developed land or by the redevelopment, regeneration and conversion of existing housing. Only then will greenfield sites be brought forward, as extensions to existing settlements".

4.11 For the purposes of this exercise, 'Urban Capacity' is defined as:

- the Existing Housing Supply³; plus
- Category 2 Potential Development Sites which are within the Existing Settlement Boundaries

4.12 The Existing Housing Supply is counted as Urban Capacity for the reasons set out below.

- The element of the Existing Housing Supply made up of sites identified in the RLA comes from smaller sites that are more likely to be within the Existing Settlement Boundaries (the Site Identification Report (Annex 1) takes a precautionary approach to identifying those sites which should be considered for full assessment, and so existing Local Plan allocations are not automatically 'rolled forward' but instead added to the list of sites to be considered and not included within the Existing Housing Supply. Similarly, larger sites with Planning Approval are not automatically identified for allocation in the Area Plan for the East).
- The element of the Existing Housing Supply made up of project conversions will, by definition, come from Brownfield sites and there is more opportunity for conversions within the existing urban areas.
- The Category 1 Potential Development Sites are within the Existing Settlement Boundaries.

4.13 The overall findings in terms of Urban Capacity in terms of Housing are set out below.

- As set out in paragraph 3.4 the net housing figure for the remainder of the plan period is 2,290
- The total Existing Housing Supply is 383
- The gross yield from Category 2 Potential Development Sites within is 962, giving an adjusted figure (80%) of 770.
- Therefore the total Urban Capacity within the East is 1,153 (383+770) – see Table 5 below
- Therefore, even if all Urban Capacity Sites were allocated, there would be a shortfall of 1137 (i.e. sufficient land outside Existing Settlement Boundaries sufficient for 1,137 would be required)
- However, given the need to ensure choice of housing types and locations, take account of infrastructure issues and environmental constraints it is likely that the actual amount of land required outside Existing Settlement Boundaries will be higher.

³ As noted previously, there is no Existing Employment Supply for the purposes of this Scenario Testing Report.

Table 5: Urban Capacity – Housing

Scenario Testing Area	Existing Supply	Category 2 Sites within ESB (Gross)	Category 2 Sites within ESB (Adjusted)
Douglas (Masterplan Area)	69	361	289
Douglas (North)	103	366	293
Douglas (South)	86	24	19
Onchan	43	179	143
Laxey	23	0	0
Union Mills	9	0	0
Baldrine	13	2	2
Crosby	5	0	0
Glen Vine	16	8	6
Newtown	7	0	0
Strang	9	22	18
Overall Total	383	962	770
<i>Douglas Total</i>	<i>258</i>	<i>751</i>	<i>601</i>

ESB = Existing Settlement Boundaries

4.14 The overall findings in terms of Urban Capacity in terms of Employment are set out below.

- As set out above an indicative Employment Land figure of 15 hectares is used for this Scenario Testing Report
- A number of sites have been discounted in contributing towards this figure (although if they were to come forward they would still provide 'employment' arguably they would not address the demand for the types of land as set out in the Employment Land Review)
- The gross yield from the sites which have not been discounted and are within the Existing Settlement Boundaries is 12.04 hectares, and the adjusted yield is 9.64 (see Table 6)
- Therefore, even at the lower range there appear to be insufficient sites within Existing Settlement Boundaries to meet demand.
- However, given the need to ensure choice of site sizes, types and locations, take account of infrastructure issues and environmental constraints it is likely that the actual amount of land required outside Existing Settlement Boundaries will be higher.

Table 6: Urban Capacity - Employment

Scenario Testing Area	Gross Yield Category 2 PDS Within ESB	Adjusted Yield Category 2 PDS within ESB
1. Middle River and White Hoe	4.83	3.86
2. Kirby Farm Industrial Estate	2.82	2.26
3. Tromode/Ballaletcher	2.82	2.26
4. IOM Business Park	1.57	1.26
5. South Cooil Road / Kewaigue	0	0
TOTAL (Ha)	12.04	9.64

Notes: All areas in hectares. ESB = Existing Settlement Boundaries PDS = Potential Development Site

4.15 In light of the above, a 'within Settlement Boundaries' scenario has not been fully tested as it is not considered to be realistic. However, the inclusion of Criteria SP1, "Development takes places within Existing Settlement Boundaries" within the Scenario Testing framework allows consideration of the extent to which each scenario makes best use of the potential Urban Capacity that does exist.

5. Methodology for Testing Scenarios

5.1 A framework has been developed to assess each of the scenarios. This is made up of a series of criteria (informed by the Strategic Plan objectives) and a categorisation of the types of impacts.

Criteria

5.2 Each scenario will be considered against the criteria set out in Table 7 below.

Table 7: Scenario Testing Criteria

<i>Settlement Pattern</i>	
SP1.	Development takes places within existing settlement boundaries
SP2.	Development takes place on brownfield land
SP3.	Development takes place on land which is not within the Fluvial or Tidal Flood Risk Zone
<i>Grey Infrastructure</i>	
GI1.	Minimal additional investment is required (to that already planned) to ensure a safe and efficient road network
GI2.	Development is located and concentrated to generate sufficient potential demand to facilitate viable bus services
GI3.	Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable telecommunications network
GI4.	Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable energy and fuel distribution network
GI5.	Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable water supply/water treatment network
<i>Social Infrastructure</i>	
SI1.	Minimal additional investment is required (to that already planned) to ensure sufficient and accessible educational provision
SI2.	Minimal additional investment is required (to that already planned) to ensure sustainable communities that facilitate health and well-being
<i>Green Infrastructure</i>	
GrI1.	Minimal additional investment is required (to that already planned) to ensure sufficient and accessible formal sports provision and wider opportunities for active lifestyles

5.3 The criteria within the framework have been devised having regard to the objectives within the Strategic Plan, although noting that:

- some objectives relate to more than one topic (and those relating to Human Health and Climate Change flow through a number of the criteria);

- some issues are identified as being considered at an individual site level (and some relate to site-specific design considerations); and
- some relate to the amount and type of development and so influence the type of scenarios to be tested and the amount of development required.

5.4 Resources Objectives c and f are particularly relevant in terms of the overall approach to Scenario Testing and are:

- *“To guide most new development to existing settlements, thus making the optimum use of existing and planned infrastructure and services”* and
- *“To reduce the need for travel, especially by private car, and to make the best use of existing infrastructure, including existing and former railway routes”.*

Types of Impacts

5.5 In applying each of the criteria to each of the scenarios, consideration will be given to the type of impacts as set out in Table 8 below

Table 8: Types of Impacts

Symbol	Impact (Settlement Pattern)	Impact (Infrastructure)
++	Significant Positive	The proposal would make use of infrastructure that would otherwise be underused
+	Positive	There is sufficient capacity
0	No impact	No impact
-	Negative Impacts	There is a shortfall in capacity
--	Not Used	There is a significant shortfall
---	Significant Negative	There is a significant shortfall and potentially significant restrictions (other than financial) on the potential to address the shortfall

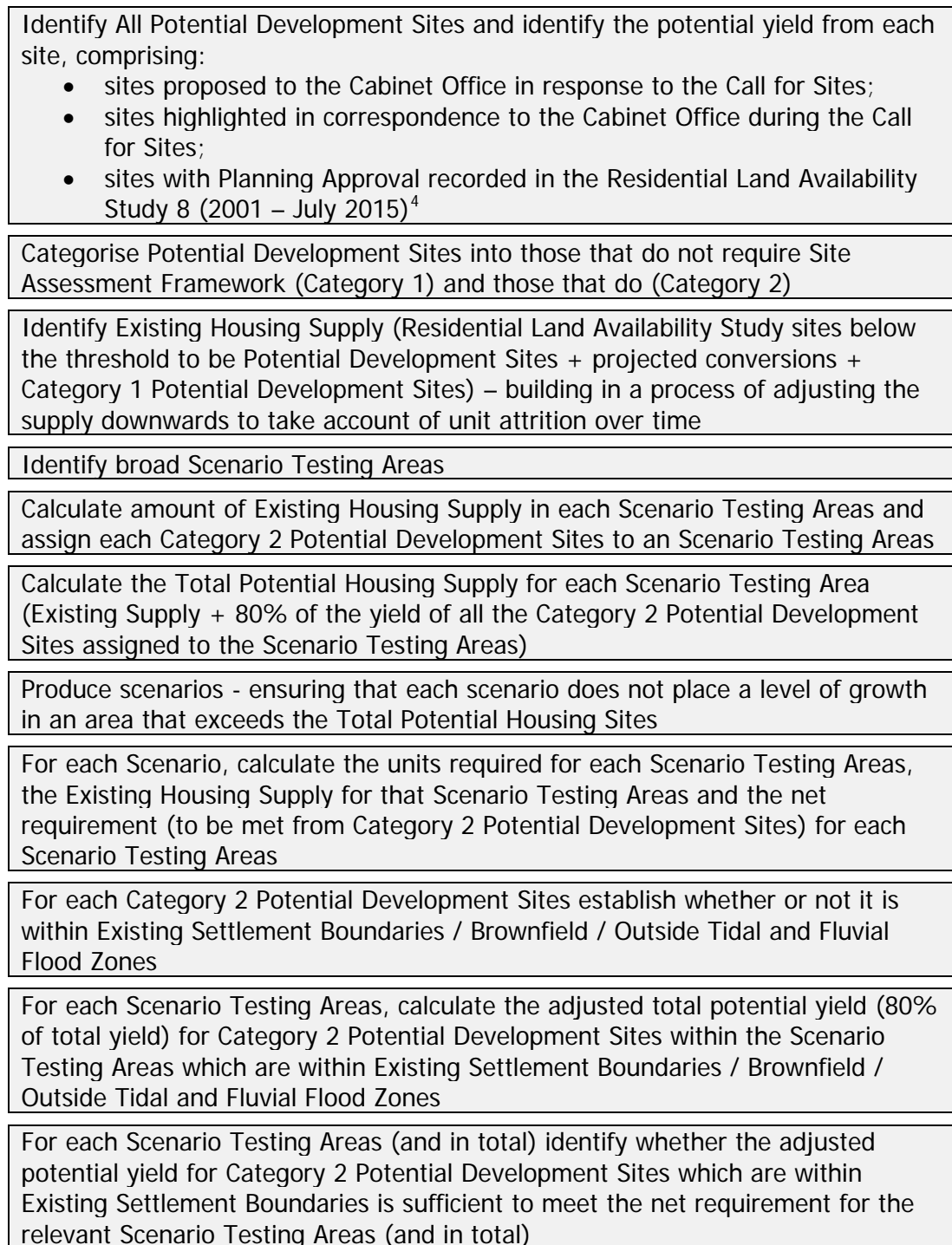
5.6 Where a positive impact is identified consideration is given as to whether there are measures which could increase the significance, duration and/or geographical scope of the impact. Where a negative impact is identified, consideration is given as to whether there are measures which could increase the significance, duration and/or geographical scope of the impact (mitigation). It is assumed that the starting point (pre-mitigation) includes the use of industry-standard measures and practices. Where there is potential for further study, this is also highlighted.

5.7 The results of testing the scenarios are set out in Section 6

Applying the Settlement Pattern Criteria

5.8 Figure 1 illustrates the process that has been undertaken to test the three Settlement Pattern Criteria.

Figure 1: Applying the Settlement Pattern Criteria



Other than: completed sites; sites with unimplemented Planning Approval for less than 3 net units; houses outside areas allocated in existing development plans for development or identified as predominantly residential (existing) or equivalent); and conversions.

- 5.9 In relation to Scenario Testing Criteria SP1, "Development takes places within existing settlement boundaries", as noted in section 4, any scenario will result in a shortfall in terms of land within Existing Settlement Boundaries, and so this process is concerned with relative performance.
- 5.10 Scenario Testing Criteria SP2, "Development takes place on brownfield land" will be applied in light of the Site Assessment Framework results for individual Potential Development Site. Detailed Criteria (DC) 2 of the Site Assessment Framework is "Prioritising Previously Developed Land" and sites score 'Green' which are comprised entirely or predominantly of previously developed land". Therefore, for each scenario it will be calculated whether the total adjusted supply of Category 1 sites plus Category 2 sites which score Green against DC2 are sufficient to meet the housing and employment distribution proposed. The assessment does not take account of site-specific drainage issues or flooding from sources other than tidal/fluvial.
- 5.11 Scenario Testing Criteria SP3, "Development takes place on land which is not within the flood zone" will also be applied in light of the Site Assessment Framework results for individual Potential Development Site. Critical Constraint 6 of the Site Assessment Framework applies where a site is outside the existing settlement boundaries and inside either the Fluvial or Tidal Flood Zones. Sites to which the Critical Constraint do not apply but are a "Greenfield site inside the existing settlement boundaries and inside the Fluvial Flood Zone (irrespective of whether inside the Tidal Flood Zone)" score red against Detailed Criteria (DC) 14. For each scenario it will be calculated whether the total adjusted supply of Category 1 sites which are not within the Fluvial or Tidal Flood Risk Zone are sufficient to meet the housing and employment distribution proposed.

Applying the Infrastructure Criteria

- 5.12 In order to identify the broad impacts against the Infrastructure Criteria a series of discussions took place with the following organisations over January – February 2016:
- Department of Infrastructure (Highways);
 - Bus Vannin;
 - Telecommunications Companies;
 - Manx Gas;
 - Manx Utilities (in relation to power, water and sewage);
 - Department of Education and Children (in relation to School Places and Sports Provision); and
 - Department of Health and Social Care.
- 5.13 In assessing the scenarios against the Scenario Testing Criteria, a number of assumptions have been, as summarised below.
- GI1. "Minimal additional investment is required (to that already planned) to ensure a safe and efficient road network" – It has been assumed that each house will result in 1 car journey during peak times (however this could be less if people work from home and/or travel by other modes of transport, equally some households will have more than one car). It has also been assumed that the majority of residents within the East will be employed within Douglas (the Main Urban Area).

- G15. “Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable water supply/water treatment network” - Planned upgrades to sewage treatment (at Glen Vine, also serving Crosby) and to sewage disposal (for Laxey and Baldrine) are considered to be ‘already planned’ and for the purposes of this assessment. Although an increase in the capacity of Meary Veg is possible, as there is no clear timescale or approved funding it is not assumed to be ‘already planned’ for the purposes of this assessment.
- S11. “Minimal additional investment is required (to that already planned) to ensure sufficient and accessible educational provision”. For each Scenario, it is assumed that every 5 dwellings will result in one extra child. It is also assumed that a new school would only be viable if an additional 200 places were required (i.e. Single Form Entry) which equates to 1,000 dwellings. Given larger catchments areas and capacities, it is assumed that the impacts of growth in terms of secondary schools is less of an issue than for primary.

6. Scenario Testing Results

6.1 The overall score for each scenario against each of the Scenario Testing Criteria is summarised in the Table 9 below. Each criterion is then considered in turn with the explanation for the scoring.

Table 9: Scenario Testing Results

Scenario Testing Criteria	Scenario 1: Settlement Hierarchy	Scenario 2: Urban Expansion	Scenario 3: Dispersal
<i>Settlement Pattern</i>			
SP1. Development takes places within existing settlement boundaries	+	---	---
SP2. Development takes place on brownfield land	+	-	-
SP3. Development takes place on land which is not within the Fluvial or Tidal Flood Risk Zone	---	++	++
<i>Grey Infrastructure</i>			
GI1. Minimal additional investment is required (to that already planned) to ensure a safe and efficient road network	---	---	---
GI2. Development is located and concentrated to generate sufficient potential demand to facilitate viable bus services	+	+	+
GI3. Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable telecommunications network	0	0	0
GI4. Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable energy and fuel distribution network	0	0	0
GI5. Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable water supply/water treatment network	--	---	-
<i>Social Infrastructure</i>			
SI1. Minimal additional investment is required (to that already planned) to ensure sufficient and accessible educational provision	--	--	---
SI2. Minimal additional investment is required (to that already planned) to ensure sustainable communities that facilitate health and well-being	--	-	---
<i>Green Infrastructure</i>			
GrI1. Minimal additional investment is required (to that already planned) to ensure sufficient and accessible formal sports provision and wider opportunities for active lifestyles	+	+	-

Settlement Pattern Criteria

SP1. Development takes places within existing settlement boundaries

SP1	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	+	---	---

- 6.2 As noted in Section 4, any scenario will result in a shortfall in terms of land within Existing Settlement Boundaries, and so this process is concerned with relative performance. However, the distribution of development under Scenario 1 maximises the potential for using Housing Category 2 Potential Development Sites within Existing Settlement Boundaries (i.e. it theoretically would allow all the land within Existing Settlement Boundaries to be allocated). The shortfall (i.e. land which would need to be allocated which is outside Existing Settlement Boundaries) is therefore minimised (1,128 for housing) and 5.43 hectares for Employment.
- 6.3 The distribution of development under Scenario 2 reduces the amount of housing development in the Douglas (Masterplan) and Villages (Baldrine, Glen Vine and Strang) Scenario Testing Areas. This means that there is insufficient potential for all the Category 2 Potential within Existing Settlement Boundaries to be utilised compared with Scenario 1. This means that the overall shortfall increases from Scenario 1 to 1,421. In terms of employment, the same is true in relation to Scenario Testing Areas 1, 2 and 3 meaning that 100% of employment land would be outside Existing Settlement Boundaries (aside from site DE005 associated with the Employment Land Development Order Project).
- 6.4 The distribution of development under Scenario 3 reduces the amount of housing development in the Douglas (Masterplan) Scenario Testing Area means that there is insufficient potential for all the Category 2 Potential Development Site to be utilised compared with Scenario 1. This means that the overall shortfall increases from Scenario 1 to 1,405 (this is a slightly better performance than Scenario 2 as the Urban Capacity in the Villages could theoretically be used, and also noting that the overall target is 10 units higher in Scenario 3). In terms of employment, the same is true in relation to Scenario Testing Areas 1, 2 and 3 meaning that 100% of employment land would be outside Existing Settlement Boundaries (aside from site DE005).
- 6.5 Given the nature of this criteria mitigation/enhancement is not relevant (measures which would reduce the impact of any urban extensions on the countryside may impact the visual impact or seek to provide net gain for biodiversity, but these are separate issues).

SP2. Development takes place on brownfield land

SP2	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	+	-	-

- 6.6 There are insufficient brownfield housing sites to meet the overall demand. Detailed calculations have been carried out to inform this report and the key points are set out below.
- The net housing need is 2,290 and there are 383 units of Existing Housing Supply, giving a net figure of 1,907 units.
 - There is a total adjusted capacity of 510 housing units on Category 2 Potential Development Sites which have been identified as Brownfield sites (adjusted capacity being 80% of total capacity – see section 3). 289 of these units are on sites within the Douglas (Masterplan) Scenario Testing Area.
 - Thus there is an overall shortfall of at least 1,397 units (i.e. at least 1,397 will need to be on greenfield sites).
- 6.7 In light of the above, the question is which scenario minimises the 'shortfall' (i.e. development that would have to take place on Greenfield land). The distribution of development under Scenario 1 gives the best chance to utilise existing brownfield sites as it has the highest number of units within the Douglas (Masterplan) Scenario Testing area, and results in the lowest possible shortfall (1,394 units). In terms of Employment sites, there is a total adjusted supply on Brownfield sites of 2.8 hectares (within Scenario Testing Areas 1 and 2). Again, this distribution gives the best chance to use these sites.
- 6.8 The distribution of development under Scenarios 2 and 3 reduce the amount of housing development in the Douglas (Masterplan) and mean that there is insufficient potential for all the Category 2 Potential Development Sites which have been identified as being Brownfield to be utilised. The shortfall for housing under Scenario 2 is 1,654 and for employment there would be no brownfield sites allocated. The shortfall for housing under Scenario 3 is 10 units higher however this is simply because the housing figure under Scenario 3 is 10 units higher.
- 6.9 Scenarios 2 and 3 are scored Significantly Negative (---) in relation to SP1 but Negative (-) in relation to for criterion SP2. This is because there are far fewer Brownfield sites (the focus of SP1) compared to sites within Existing Settlement Boundaries (the focus of SP2), therefore the 'lost opportunity' is smaller for SP2.
- 6.10 Given the nature of this criterion, mitigation/enhancement is not relevant.

SP3. Development takes place on land which is not within the Fluvial or Tidal Flood Risk Zone

SP3	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	---	++	++

6.11 There are sufficient sites within each Scenario Testing Areas which are not within Flood Zones to meet the housing numbers under Scenario 1, other than within the Douglas (Masterplan) where at least 74 units would need to be on sites within areas at risk of tidal or fluvial flooding. There are sufficient sites within each Scenario Testing Area which are not within Flood Zones to meet the housing numbers under Scenarios 2 and 3. None of the proposed Employment Sites are within areas at risk of tidal or fluvial flooding.

Grey Infrastructure Criteria

G11. Minimal additional investment is required (to that already planned) to ensure a safe and efficient road network

G11	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	---	---	---

6.12 A transport assessment was carried out in 2014 to support the Strategic Plan update. This indicated that there was capacity on the Strategic Links, but that the Quarterbridge and Governors Hill junctions were operating at greater than 85% capacity and increased traffic congestion at these locations was likely.

6.13 The Scenario Testing work reinforces these findings and, overall, the initial work suggests that the level of development proposed may pose challenges for the existing road network (leading to delays and increase risk of accidents) and also potential impacts on local amenity. However, it is noted that given the assumptions involved in this criterion (see section 5) more detailed modelling work may be required to understand the significance of potential impacts. Therefore, the scoring above could be seen as a worst-case scenario.

6.14 The following points are noted in relation to the impacts of the different Scenarios within the different Scenario Testing Areas.

- Residents of the Douglas (Masterplan) Scenario Testing Area are less likely to commute by car (and may even be able to walk to work) however if working at the employment areas travel (potentially by car) would be necessary. In the Douglas (South) Scenario Testing Area, the exact impacts would be influenced by the exact location of sites and the school catchment and employment areas.
- In the Douglas (North) Scenario Testing Area, the scale of development under Scenarios 1 and 2 would be difficult to accommodate within the existing network, significant growth also results

under Scenario 3 and although the level is reduced the impact from traffic other settlements entering into the area would increase.

- In Onchan, the exact location of sites and the potential split between the A2 and King Edward Road may influence the impacts. The junctions at the centre of Onchan have limited capacity. The combination of staggered junctions, limited distance between and topography means improvement/creation of additional capacity is difficult without the demolition of existing buildings.
- There is the potential for development to the North of Douglas and Onchan to use Johnny Waterson's Lane, relieving some of the pressure on the centre of Onchan, although creating pressure onto Ballanard Road and St. Ninnian's Road Junction (which has limited potential to be improved without the demolition of existing buildings).
- Increased growth in Laxey and Baldrine may be problematic but depends on the exact nature/location of the site - although there is capacity on the A2, due to the topography and nature of sites visibility (and so safety) can be a concern. Increased growth in these areas could also increase the traffic on the A2 into Onchan.
- The impact of and in the Scenario Testing areas of Union Mills, Strang, Glen Vine and Crosby is interdependent and cumulative. The two signals at Glen Vine could become overloaded by significant growth in Glen Vine and/or Crosby.
- There are two main junctions from Newtown onto the New Castletown Road so the exact impact would depend on the exact location of development and issues around visibility/safety rather than overall capacity. The level of growth proposed under Scenario 3 would require some highway improvement works.

6.15 The key impacts will therefore be on nodes (i.e. junctions) rather than routes, therefore differences of growth between different areas does not always make a difference to the impacts (e.g. it is assumed that traffic from Crosby, Glen Vine, Union Mills and Strang will all result in pressure at the Jubilee Oak roundabout). Two of the key areas likely to be impacted on are the central Onchan junctions (placed under increased pressure by development in Onchan, Baldrine Laxey and potentially development in Douglas North) and the Jubilee Oak roundabout and Quarterbridge. Therefore, one of the issues may be to consider which distribution(s) of development would locate the pressure in locations where there is the best potential to implement realistic improvements to the highway network (and in particular key junctions).

6.16 More detailed modelling work (perhaps supported by attitudinal surveys) would help to clarify the impacts and also the practicality of actions to reduce car usage (for example improvement of bus services, park & ride etc.). Similarly, more detailed assessment work in relation to employment impacts may be necessary depending on the exact nature of the uses proposed. In taking the Area Plan forwards, consideration will need to be given to fluctuations in traffic levels and route availability during events such as the TT.

G12. Development is located and concentrated to generate sufficient potential demand to facilitate viable bus services

G12	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	+	+	+

- 6.17 There is good coverage of existing bus routes through the named settlements within the Settlement Hierarchy. Whilst new estates can be designed to facilitate bus access, diverting buses into estates results in increased journey times/annoyance factor (passengers feeling it is taking longer to get to their destination) and/or missing existing stops out of the route. However, dependent on the size of the development, early consideration of public transport issues can help ensure that there is convenient and direct pedestrian access to the nearest bus route/stop and also that additional/improved pedestrian infrastructure is provided on the route (i.e. shelters and crossing points) – this is likely to be a particular issue in some of the villages, for example Newtown, if growth is proposed in these areas.
- 6.18 There is some potential for improvements to the existing services, for example bus services for Ballafletcher are limited, but a safe and convenient foot-path from Ballafletcher to the hospital would enable the regular and frequent hospital service to be utilised. Bus services to Kewaigue are limited outside term time. Services to Isle of Man Business Park and Cooil Road are developing.
- 6.19 Overall it is felt that bus services have good coverage and frequency and, although targeted improvements may be required and consideration given to site specific issues, each of the scenarios could broadly be accommodated.

G13. Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable telecommunications network

G13	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	0	0	0

- 6.20 Two companies currently have ‘code powers’ and are therefore able to install physical infrastructure in the ground, carry out works within the highway and have some Permitted Development rights. Other companies are therefore to some extent reliant on this infrastructure for which they pay wholesale rates. There are currently exchanges in the larger settlements, however the quality/speed of service over copper wires over longer distances can fall and so for more remote areas fibre connections to cabinets (which effectively act as local exchanges) may be used.
- 6.21 Concerns have been raised about the overall standard of provision and also discussions exist about the potential need to upgrade to “Fibre to the Home” and a network of infrastructure that supports 5G. However, these pressures and concerns do not result from the level or distribution of growth

proposed in the Area Plan for the East but, at least in part, result from the need to keep pace with technological developments.

- 6.22 Currently it can be more difficult to serve existing urban areas, due to the lack of suitable sites for additional masts. It is clearly easier to plan such infrastructure at the site layout stage, and also to ensure that when other services are laid, telecoms are included (this reduces cost and future disruption).
- 6.23 The potential for overall actions such as shared infrastructure, reviewing the approach to wayleaves and ensuring that for all new developments the inclusion of telecoms is planned from the outset are important considerations. However, overall the issues and potential solutions do not meaningfully differ between the scenarios – as they are general or national issues. The scores represent the need to think about overall upgrades and emerging technology irrespective of the level of growth, and that these issues exist even without the level of growth proposed in the Area Plan for the East – therefore investment is considered ‘already planned’ for the purposes of Scenario Testing.

G14. Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable energy and fuel distribution network

G14	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	0	0	0

- 6.24 In relation to Electricity it is noted that overall demand for power is falling but production is level therefore overall supply is not a concern in terms of accommodating growth. Resilience of supply is good and a key issue (especially electrical power for certain sectors of the economy). As a general rule, power supply is easier on Brownfield sites within Existing Settlement Boundaries. In relation to Employment Scenario Testing Areas 5, the high-pressure pipeline adjacent Cooil Road could perhaps be shown on the constraints map and/or reflected in any site allocation briefs to ensure it is considered as part of any developments, but this is not a barrier to development. The area has good electric power lines, but connections/substations may still be required. Therefore, overall it is considered that there is sufficient capacity within the existing infrastructure, although site-specific investments may be required.
- 6.25 In relation to Gas, Manx Gas has confirmed that they could ensure a suitable form of supply to all of the areas under each of the scenarios. The exact nature of supply could be a mixture of connections to/extensions of the natural gas network, establishing Liquid Petroleum Gas basis and community systems (as exists at Laxey and Newtown) or individual tanks (as is the case in Baldrine currently). Expansion of the network would depend on Cost-Benefit-Analysis, but may include opportunities for connections ‘on the way’ (so a level of growth in Laxey that supports extension would mean that Baldrine could also be connected). Therefore, overall, it is considered that there is sufficient capacity within the existing/planned infrastructure (although site-specific investments may be required) – with the type of solution to be determined based on more detailed consideration.

G15. Minimal additional investment is required (to that already planned) to provide a comprehensive and reliable water supply/water treatment network

G15	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	--	---	-

6.26 The majority of the East is served by Meary Veg Waste Water Treatment Facility and although there is some headroom available, there are no planned expansions/improvements to the facility or the network leading to it (although such improvements are possible, subject to funding of around £10 million). Improvements are planned in relation to some of the villages which have local systems. Therefore, the Scenarios that place growth into the villages score better, although growth would need to be phased to take place after the improvements.

6.27 It is noted that the headroom that does exist at Meary Veg could easily be used up by waste from food industries (as being promoted in the Department of Environment, Food and Agriculture Strategy) – for example a brewery, and it is also noted that there is currently no charge for trade waste. Therefore, for employment uses the exact nature of the use on the final designated sites will include the precise impact and this could have a knock-on impact on the available capacity for housing growth in areas served by Meary Veg (which includes the Main Urban Area and Onchan).

6.28 Overall, water supply is good. It is normally easier to service sites within Existing Settlement Boundaries. Brownfield sites may have an existing water supply that can be accessed. New developments, especially Urban Extensions, may require localised investment. However, the overall scores for G5 are influenced more by water treatment issues as this is where the most significant spatial differences in infrastructure capacity have been identified.

Social Infrastructure Criteria

SI1. Minimal additional investment is required (to that already planned) to ensure sufficient and accessible educational provision

SI1.	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	--	--	---

6.29 Overall, a growth of 2,290 dwellings in the East would mean a need for 1,000 school places (indicatively, 500 primary and 500 secondary). This number of places is not currently available. Therefore, no distribution could be accommodated without the need for additional investment. Scenario 2, and to a lesser extent Scenario 1, would concentrate development in Douglas North and Onchan where potential mitigation has been identified (See below). Scenario 3 would cause significant issues in a number of areas, including Crosby and Glen Vine, and so would be the most difficult to mitigate (see below).

- 6.30 Ultimately the impact of growth could be just as serious for Secondary provision as for Primary. However, the scoring / commentary is based on Primary impact / capacities because this is the area which is usually first effected by new residential development, and more difficult to deal with in the short term. This is due to the smaller and higher number of multiple catchment areas, and the potential for development to take place in one catchment area, without capacity, whilst neighbouring schools may have capacity.
- 6.31 There is capacity at Henry Bloom Noble School, subject to catchment area changes as necessary, to accommodate some growth within the Douglas (Masterplan) Area. There is overall capacity across several schools to accommodate development within the Douglas (South) area, although depending on the exact location of development catchment area changes may be required. There is some limited capacity within Braddan School to accommodate a modest level of growth in Union Mills and Strang.
- 6.32 Development within Douglas North will potentially be within the catchments of Willaston (which is at capacity but there is potential for expansion), Cronk y Berry and – the main school - Scoill yn Jubilee (which also covers part of the Masterplan Area). The Willaston site is at capacity, but there is potential for expansion. Scoill yn Jubilee and Cronk y Berry are both at capacity. However, there may be potential to develop a new school for Scoill yn Jubilee with increased capacity in this area (for example on the Park Road Site) and to redevelop the 2 Scoill yn Jubilee sites for housing (Stoney Road and Laureston Avenue), although there are no current approved plans/funds for this. Any level of growth will be difficult to accommodate without the development of additional school places.
- 6.33 Development in Onchan will potentially be within the catchments of Onchan and Ashley Hill. There is limited capacity and existing significant pressure, which may mean mobile classrooms are necessary and some of the existing facilities need redevelopment. If the employment land at School Road, Onchan were redeveloped for housing (i.e. OH023 - which may be subject to the relocation of a large operation which occupies part of the site the) then the site could potentially be developed for a new Onchan school with additional capacity, and the existing Onchan school site redeveloped for housing. However, there are no current approved plans/funds for this. Therefore, any level of growth will be difficult to accommodate without the development of additional school places. If additional capacity was were created in Onchan then, subject to a catchment change, this could be accessible to residents of Baldrine (who are currently within the catchment of Laxey). This would mean that increasing capacity at Onchan could benefit Laxey School (which has limited potential to expand given the nature of the site/topography) and allow the places at Laxey School to be used to accommodate growth in Laxey.
- 6.34 Marown School, located at Glen Vine, serves both Crosby and Glen Vine. The school is at capacity and there are no plans to expand. The location of the school in relation to the majority of the housing in the area and the resulting need to travel along/cross the A2 at busy times also raised concerns. If sufficient new housing were placed into Crosby to justify a new school this would also have the benefit of allowing all of the Marown school capacity could be used to serve Glen Vine and reduce the numbers travelling along the A1, however this would be significant new investment and so not justify a positive score at this stage. Furthermore, it is estimated that there are less than 200 existing houses in Crosby and so, even if an allocation at the maximum level of supply (531) may be insufficient to justify a new school.

6.35 Ballakermeen school (which serves Douglas (Masterplan), Douglas (South), Union Mills, Newtown and the Strang Scenario testing Areas) is currently circa 100 students over its permanent capacity, with mobile classrooms providing additional temporary capacity. St Ninian's school (which serves Douglas (North), Onchan, Laxey and Baldrine Scenario Testing Areas (although some students in Laxey/Baldrine go to Ramsey Grammar School), there is currently circa 250 spare capacity. This is due to the additional capacity created by the Department in the development of St Ninian's Lower school at Bemahague, which opened in 2012. It is clear that any significant residential development in the East will require the creation of additional capacity at the St Ninian's Lower school site, and depending on where the development occurs, the adjusting of the Ballakermeen and St Ninian's catchments, to transfer more students to the latter.

6.36 No impacts in relation to the Employment Scenario Testing Areas are identified under any scenario.

SI2. Minimal additional investment is required (to that already planned) to ensure sustainable communities that facilitate health and well-being

SI2.	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	--	-	---

6.37 A successful holistic approach to health and well-being should seek to improve health and wellbeing, reduce reliance on health services and to reduce the number of stays in hospital (and the duration of those stays). The overall distribution of growth does not impact the level of provision of hospital services per se (there is one hospital) however the level of success in facilitating healthy lifestyles, delivering Primary and Social Care services and ensuring supportive and engaged communities can impact on whether people need to go into hospital, and the length of their stay. Therefore the impact of growth on community based Health and Social Care has an indirect impact on the availability of hospital places. The overall level of growth cannot be accommodated in terms of community based Health and Social Care services without investment in new community based facilities and additional staff. This is more than a funding issue, as healthcare staff can be difficult to recruit (it also raises questions about the provision of Key Worker housing).

6.38 The average stay in hospital differs between different communities, with generally longer stays from residents of those communities with lower quality housing stock and where local support/facilities are limited. Social inclusion supports many aspects of physical and mental wellbeing. The speed and scale of growth of a settlement has the potential to influence community engagement and interaction, especially where growth is physically located at the edge of an existing, well established community. Although communities can take time to establish, this emphasises the need to consider how the location, layout and design of new developments integrates into the existing settlement and the provision of facilities (both new facilities and improvements to existing).

6.39 The following points are noted in relation to the spatial distribution of existing services.

- Douglas North is quite well provided for in terms of Primary care facilities, but the capacity of facilities (both physically and in terms of staff) is limited. Evidence suggests that many people

moving to the Island first live in Douglas and register with Doctors there and, if they move out of Douglas but remain in the East, they may stay registered with a Douglas practice even if there is a more local practice (dependent on the policies of the relevant practice). This can distort the relative level of pressure on local practices compared to population distribution.

- Similarly, Onchan, in terms of the breadth of most services, however there is limited capacity. The Onchan surgery is costly in terms of rent but underused (upstairs space not used), so more intensive use may make this facility better value for money. There is not a residential care facility (residents using facilities within Douglas) and it is understood that there is an aspiration amongst local residents and the Local Authority to provide a care facility locally, although there are no current plans to do this.
- Residents of Strang and Union Mills benefit from proximity to the hospital and the provision of services on the site (including plans to expand the range of services available), although some residents of Union Mills will choose to access services within Douglas.
- There is a requirement for growth in the number of care beds in all areas

6.40 Scenario 2 would best align development in areas with existing Primary Care facilities (although additional capacity would need to be created). However, Scenario 2 would create significant pressure for new Residential Facilities in Douglas and Onchan (not currently planned but needed). However, the level of growth may make the Cost-Benefit-Analysis argument easier to justify that level of investment.

6.41 A more dispersed pattern of development (Scenario 3 and to a lesser extent Scenario 1) places a more significant burden on non-hospital services in the settlements of Baldrine, Crosby, Glen Vine and Newtown as these settlements do not have local provision of services (meaning a need to travel to access services but also increasing journey times for peripatetic services meaning an increase in the number of staff required due to more time spent travelling). It may require the establishment of new facilities in Crosby and Newtown, as well the expansion of existing facilities. Increased travel times would also have an impact from a more dispersed pattern of growth. There are 4 ambulances which spend much of their time in Douglas. More development outside Douglas will increase response times (due to need to travel) and/or result in need for additional ambulances (and possibly additional ambulance stations). In terms of mental health, social isolation (particularly amongst the elderly) can lead to a significant burden on the health service.

6.42 The demand for Residential homes and extra care facilities in a particular location is largely driven by the convenience of that location for relatives to visit, therefore accessible locations in Douglas that can be visited before/after work may be popular. From a service delivery perspective, the sizing of such facilities to create a critical mass is important, as well as the potential to be supported by nearby Primary Care and Community services. For these reasons, Douglas is likely to be an important location for the development of such facilities.

6.43 A number of Potential Development Sites are being considered for this (working with the Department of Infrastructure and Treasury) – the former Park Road School (DH039), former Victoria Prison (DH046), Summerhill View (DH048 - aka Glenside – which is the subject of a current planning application), Sommerset Road (DH041) and Radcliffe Villas (identified as Predominantly Residential on the draft Existing Land Use maps).

- 6.44 These schemes may have a small element of housing for sale to support viability, but overall may need to be safeguarded for health uses and therefore reduce the availability of land in these areas for general housing (although Extra Care Facilities are intended to provide homes for life).
- 6.45 The link between healthy lifestyles and health and well-being outcomes means that there is some overlap with aspects of SI2 and Gr11.

Green Infrastructure Criteria

Gr11. Minimal additional investment is required (to that already planned) to ensure sufficient and accessible formal sports provision and wider opportunities for active lifestyles

Gr11.	Scenario		
	1: Settlement Hierarchy	2: Urban Expansion	3: Dispersal
Score	+	+	-

- 6.46 A study is to be commissioned during 2017 by Isle of Man Sport which will consider broad sports provision (location including and usage), thus providing additional detail to guide implementation of the Isle of Man Strategy for Sport (2014 – 2024). In the meantime, it is noted that the East of the Island benefits from the central location of the National Sports Centre, which is accessible by both car and nearby bus routes. This is supported by facilities provided within existing schools, and as part of planned schools improvement/development works.
- 6.47 Although the National Sports Centre is potentially less accessible from Laxey and Baldrine, it is noted that Laxey benefits from some local provision. Residents of Newtown, Glen Vine and to a lesser extent Crosby (noting some local provision) may need to travel further than other areas to access facilities, however the road (and bus services) from these areas into Douglas are relatively convenient. Therefore Scenario 3, which places most growth in the Villages, scores lower than Scenarios 1 and 2. Initial work indicates that some of the lower levels of use of the National Sports Centre are within some of the residential areas closest to it, which suggests barriers other than distance which need to be addressed, and are outside the scope of the Area Plan.
- 6.48 It is anticipated that the provision of informal play-space (such as play-grounds) will be incorporated into larger new developments, however a better understanding of local provision will help to inform the detail of what provision would be most beneficial. For the purposes of Scenario Testing however, these are not identified as a key issue at this stage. However, more detailed consideration will need to be given to this important issue as the development of the area plan progresses.
- 6.49 More widely, it is important that new developments facilitate more active lifestyles for people of all ages, especially noting the positive health and well-being outcomes (both physically and mentally) of regular exercise and the resulting reduction in the need for formal health provision. This stresses the need for site layout and design to consider issues such as provision of community greenspaces, footpaths, addressing fear of crime (e.g. through appropriate lighting) and so forth.

7. Conclusions

- 7.1 This section sets out the overall conclusions from the Scenario Testing Work. As the plan progresses, additional work and refining of the assessments may be required.

Settlement Pattern

- 7.2 Although there are insufficient sites within Existing Settlement Boundaries to accommodate the overall level of housing and employment growth (see Urban Capacity Assessment in Section 4), Scenario 1 (Settlement Hierarchy) provides the best opportunity to maximise the amount of development that does take place within the Existing Settlement Boundaries.
- 7.3 There are insufficient Brownfield sites to accommodate the overall level of growth. For housing, there is a total potential adjusted yield of 510 against a figure of 1,907 (net housing need of 2,290 minus 383 units of Existing Housing Supply). For employment, a total potential adjusted yield of 2.8 hectares against a demand of 15 hectares. However, Scenario 1 (Settlement Hierarchy) provides the best opportunity to maximise the amount of development that does take place on Brownfield land.
- 7.4 Overall, there is sufficient land to accommodate the overall level of housing and employment growth on land which is outside areas at risk of tidal/fluviial flooding (although local drainage issues are not considered within this report). However, under Scenario 1 at least 70 housing units would be required within areas at risk of tidal/fluviial flooding. None of the proposed employment land is at risk of tidal/fluviial flooding.

Grey Infrastructure

- 7.5 Improvements will be required to the road network to accommodate the level of growth proposed, if increases in congestion and, in some areas, increases in accident risk are to be avoided. If it is assumed that most of the residents within the East work within Douglas (The Main Urban Area) then there are two main areas for further consideration – the impact of growth along the A2 and within Onchan itself on the junction within central Onchan, and the impact of growth along the A1 on the Royal Oak roundabout.
- 7.6 There is good bus coverage of the named settlements within the Settlement Hierarchy. However, diverting buses into large new estates may not be possible, and so consideration will need to be given at an individual site stage to ensure the exact location and layout allow convenient access to existing bus routes, together with improvements to passenger infrastructure shelters and crossings. Given the quality of the bus services and the comments above in relation to the road network, the development of Park and Ride facilities could be considered.
- 7.7 Irrespective of the level and distribution of growth associated with the Area Plan for the East, investment is required in telecommunications, in part to keep pace with technological developments. There is sufficient reliable generation of electricity and confidence that, through several options, gas supply can be provided. Therefore, for telecommunications, electricity and gas

although consideration is required at an individual site level to ensure that the layout and method of construction allow for these important services, they do not raise issues for the overall level and distribution of growth.

- 7.8 The planned investment in sewage in relation to Laxey, Baldrine, Crosby and Glen Vine could be sized to accommodate additional housing growth. There is some headroom capacity available at the Meary Veg Waste Water Treatment Facility, which serves the remaining areas but this could be used up by growth in the Food Sector. Expansion of Meary Veg (including the network connecting areas to it) is possible, and so funding and timescale issues could be explored to enable growth in areas such as the Main Urban Area and Onchan.

Social Infrastructure

- 7.9 Overall, a growth of 2,290 dwellings in the East would mean a need for 1,000 school places (indicatively, 500 primary and 500 secondary). This number of places is not currently available. Therefore, no distribution could be accommodated without the need for additional investment. Scenario 2, and to a lesser extent Scenario 1, would concentrate development in Douglas North and Onchan where potential mitigation has been identified. Scenario 3 would cause significant issues in a number of areas, including Crosby and Glen Vine, and so would be the most difficult to mitigate.
- 7.10 In terms of health and well-being, the key issue is the impact on non-hospital services (which has an indirect impact on the hospital). Key considerations are on the one hand supporting healthy lifestyles and supportive and engaged communities and on the other ensuring access to a range of services. A more compact distribution of growth maximises the viability of investment in larger new facilities and reduces travel times (and therefore staffing numbers) for peripatetic services. However, the overall level of growth cannot be accommodated in terms of non-hospital services without investment in both new facilities, but also additional staff.

Green Infrastructure

- 7.11 The East of the Island benefits from the central location of the National Sports Centre, which is accessible by both car and nearby bus routes. More local provision is available in other areas, however residents of Baldrine, Newtown and Glen Vine in particular will need to travel to access provision.
- 7.12 Although to some extent site-specific issues, it is important to stress the role of informal play areas (for children) and also safe, attractive and accessible greenspace and footpaths for all adults in supporting health and active lifestyles, noting the positive health and well-being outcomes (both physically and mentally) of regular exercise and the resulting reduction in the need for formal health provision.

Overall Conclusions

- 7.13 There are some key items of infrastructure where the overall level of growth exceeds overall capacity. The implication is that any distribution scenario would result in a need for additional infrastructure. A key consideration moving forwards may be which scenarios best support new investment in terms of the practicalities of delivering infrastructure improvements on the ground,

but also how the level and distribution of growth influences potential Cost-Benefit-Analysis. Further consideration could also be given to methods of funding/delivering infrastructure improvements.

- 7.14 Whilst there are a number of brownfield development opportunities within Douglas, many of them government owned, there may be a number of competing uses on these facilities (education, health, housing etc.) and it will be necessary to ensure that the best use is made of each site.



The information in this leaflet can be provided in large print or audio

Cabinet Office
Government Office
Bucks Road
Douglas
IM1 3PN