



Aberdeen Local Development Plan Review

Proposal for a site to be included in the Main Issues Report

The Proposed Strategic Development Plan does not require us to allocate extra housing or employment land in the next Local Development Plan (LDP). Because the 2012 LDP identified a significant number of greenfield sites to accommodate these requirements, we are not looking to allocate any more greenfield housing or employment land in this plan. It is for this reason that we are not asking for greenfield development options this time around. However, we are always keen to identify new brownfield sites for housing or for other uses. Please use this form to provide details of the site that you wish to have included in the Main Issues Report for consideration as a proposal in the next Aberdeen Local Development Plan.

One of the purposes of this form is to inform a public debate on the merits of the different sites being proposed. All information submitted will therefore be made available to the public to promote a transparent and open process.

Please feel free to provide any further information you feel appropriate to support your submission. The City Council has produced a Sustainability Checklist which provides guidance on the issues which will be used to help us judge the merits of competing development options.

This can be found on www.aberdeencity.gov.uk/localdevelopmentplan

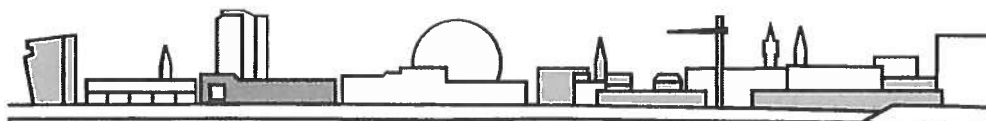
Please ensure your proposal is with us by 14th June 2013.

Using your personal information

Information you supply to Aberdeen City Council (ACC) in this form will be used to prepare the Local Development Plan. The information provided will be made public and will be placed on the Council's website. This will include the name and address of the proposer and landowner.

The Local Development Plan team may also use your contact details to contact you about the information you have provided.

For further information on how your information is used, how ACC maintain the security of your information, and your rights to access information ACC holds about you, please contact Andrew Brownrigg, Team Leader, Local Development Plan Team, Enterprise Planning and Infrastructure, Aberdeen City Council, Business Hub 4 Marischal College, Broad Street, Aberdeen AB10 1AB.



1

Name of proposer: Date:

Address:

Postcode:

Telephone:

Email:

2

Name of landowner:

Address:

The site and your proposal

3 What name would you like the site to be known as?
[The site name could be descriptive or an address]

Have you any information for the site on the internet? If so please provide the web address:

4 Please provide a map showing the exact boundaries of the site you would like considered.

Map Provided

5 Please provide the National Grid reference of the site.

6 What is the current use of the site?

Has there been any previous development on the site?

Yes No

If so, what was it?

7 What do you propose using the site for?

- 8 If you are proposing housing on the site please provide details of what you think would be appropriate, both in terms of the number of dwellings, and their forms (flats, detached houses, terraces etc).

SEE ATTACHED NORTH OF THE DON MASTERPLAN

- 9 It is likely that there will be a requirement for 25% of the housing within the development to be affordable. If applicable, are you considering more or less than this figure?

25% More Less

- 10 If you are proposing business uses please provide details of what you would market the land for? [Please make sure the area of land proposed for business use is shown on the site plan]

Business and offices (Use Class 4) TOWN CENTRE USES
General industrial land (Use Class 5)
Storage and distribution (Use Class 6)
Do you have a specific occupier in mind for the site? Yes No

- 11 If you are proposing uses other than housing or business please provide as much detail as possible on what you propose. [Examples could include retailing, tourism, renewable energy, sports, leisure and recreation, institutions and education.]

SEE ATTACHED NORTH OF THE DON MASTERPLAN

- 12 Will the proposed development be phased? Yes No

If yes, then please provide details of what is anticipated to be built and when.

NORTH OF THE DON SHOULD BE CAPABLE OF DELIVERING 1000 – 2000 NEW HOMES PER ANNUM OVER A 10 YEAR PERIOD

- 13 Has the local community been given the opportunity to influence/partake in the development proposal?

DURING 2012 LDP PROCESS Yes No Not Yet FOR 2016 PLAN

If there has been any community engagement please provide details of the way in which it was carried out and how it has influenced your proposals. **If no consultation has yet taken place, please detail how you will do so in the future.**

IN LINE WITH ACC PLANNING EXPECTATION

Sustainable Development and Design

14 Have you applied principles of sustainable siting and design to your site? The City Council has produced a Sustainability Checklist which provides guidance on the principles of sustainable siting and design and other issues which can be found on www.aberdeencity.gov.uk/localdevelopmentplan

Please provide the following information:

A) Exposure – does the site currently have

- Little shelter from northerly winds
- Some shelter from northerly winds SEE NORTH OF DON MASTERPLAN
- Good shelter to northerly winds

B) Aspect – is the site mainly

- North facing
- East or west facing SEE NORTH OF DON MASTERPLAN
- South, south west or south east facing

C) Slope – do any parts of the site have a gradient greater than 1 in 12?

- Yes

If yes, approximately how much (hectares or %) SEE NORTH OF DON MASTERPLAN

- No

D) Flooding – are any parts of the site at risk of flooding?

- Yes

If yes, approximately how much (hectares or %) SEE NORTH OF DON MASTERPLAN

- No

E) Drainage – do any parts of the site currently suffer from poor drainage or waterlogging?

- Yes

If yes, approximately how much (hectares or %) SEE NORTH OF DON MASTERPLAN

- No

F) Built and Cultural Heritage – would the development of the site lead to the loss or disturbance of archaeological sites or vernacular or listed buildings?

- Significant loss or disturbance
- Some potential loss or disturbance SEE NORTH OF DON MASTERPLAN
- No loss or disturbance

G) Natural conservation – would the development of the site lead to the loss or disturbance of wildlife habitats or species?

- Significant loss or disturbance
- Some potential loss or disturbance SEE NORTH OF DON MASTERPLAN
- No loss or disturbance

H) Landscape features – would the development of the site lead to the loss or disturbance of linear and group features of woods, tree belts, hedges and stone walls?

- Significant loss or disturbance
 - Some potential loss or disturbance
 - No loss or disturbance
- SEE NORTH OF DON MASTERPLAN

I) Landscape fit – would the development be intrusive into the surrounding landscape?

- Significant intrusion
 - Slight intrusion
 - No intrusion
- SEE NORTH OF DON MASTERPLAN

J) Relationship to existing settlements – how well related will the development be to existing settlements?

- Unrelated (essentially a new settlement)
 - Partially related
 - Well related to existing settlement
- SEE NORTH OF DON MASTERPLAN

K) Land use mix – will the development contribute to a balance of land uses, or provide the impetus for attracting new facilities?

- No contribution
 - Some contribution
 - Significant contribution
- SEE NORTH OF DON MASTERPLAN

L) Accessibility – is the site currently accessible to bus, rail, or major road networks?

	Bus Route	Rail Station	Major Road
Access more than 800m away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access between 400-800m	SEE NORTH OF DON MASTERPLAN		
Access within 400m	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

M) Proximity to services and facilities – How close are any of the following?

	400m	400m-800m	>800m
Community facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local shops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sports facilities	SEE NORTH OF DON MASTERPLAN		<input type="checkbox"/>
Public transport networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Primary schools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

N) Footpath and cycle connections – are there any existing direct footpath and cycle connections to community and recreation facilities or employment?

- No available connections
 - Limited range of connections
 - Good range of connections
- SEE NORTH OF DON MASTERPLAN

O) Proximity to employment opportunities – are there any existing employment opportunities within 1.6km for people using or living in the development you propose?

- None
- Limited SEE NORTH OF DON MASTERPLAN
- Significant

P) Contamination – are there any contamination or waste tipping issues with the site?

- Significant contamination or tipping present
- Some potential contamination or tipping present SEE NORTH OF DON MASTERPLAN
- No contamination or tipping present

Q) Land use conflict – would the development conflict with adjoining land uses or have any air quality or noise issues?

- Significant conflict SEE NORTH OF DON MASTERPLAN
- Some potential conflict
- No conflict

If there are significant conflicts, what mitigation measures are proposed?

SEE NORTH OF DON MASTERPLAN

R) Physical Infrastructure – does the site have connections to the following utilities?

- Electricity
- Gas SEE NORTH OF DON MASTERPLAN
- Water and Sewage

If you are proposing housing, is there existing school capacity in the area?

Secondary Capacity
Primary Capacity SEE NORTH OF DON MASTERPLAN

Are there any further physical or service infrastructure issues affecting the site?

SEE NORTH OF DON MASTERPLAN

15 No site is going to be perfect and the checklist above will inevitably raise some potential negative impacts from any development. Where negative impacts are identified, please provide details of their nature and extent and of any mitigation that may be undertaken. Listed below are examples of further information that may be included in your submission;

	Included	Not applicable
Contamination Report	<input type="checkbox"/>	<input type="checkbox"/>
Flood Risk Assessment	<input type="checkbox"/>	<input type="checkbox"/>
Drainage Impact Assessment	<input type="checkbox"/>	<input type="checkbox"/>
Habitat/biodiversity Assessment	SEE NORTH OF DON MASTERPLAN	
Landscape Assessment	<input type="checkbox"/>	<input type="checkbox"/>
Transport Assessment	<input type="checkbox"/>	<input type="checkbox"/>
Other as applicable (e.g. trees, noise, dust, smell, retail impact assessment etc please state)	<input type="checkbox"/>	<input type="checkbox"/>

16 Does the development proposal give any benefits to the community? If so what benefits does the development bring, and how would they likely be delivered?

Community benefits can include new community facilities (such as local shops, health, education, leisure and community facilities), affordable housing, green transport links and open spaces. Include elements which you anticipate may be required as developer contributions from the development. (Please note, specific contributions will have to be negotiated with the Council on the basis of the proposal.)

SEE SUBMITTED NORTH OF DON 2010 MASTERPLAN WITH 2013 UPDATE

17 If you have prepared a framework or masterplan showing a possible layout for the site, please include it with this form.

Masterplan/ Framework attached

If you need help reading this document (for example if you need it in a different format or in another language), please phone us on 01224 523317.

ভাষা/ইন্টারপ্রেটিং এবং অন্যান্য ফরম্যাটের
যোগাযোগ সাহায্যের জন্য দয়া করে
: 01224 523317
নম্বরে যোগাযোগ করবেন।

如果需要語言/傳譯及其他形式的傳訊支援服務
請聯絡: 01224 523317

Если требуется помощь при выборе
языка /переводчика или других
способов общения, звоните по
телефону :01224 523317

للحصول على مساعدة بخصوص اللغة/ الترجمة
و وسائل الاتصال الأخرى، الرجاء الاتصال
بالرقم التالي: 01224 523317

Lai saņemtu palīdzību sakarā ar
valodu/tulkošanu un citiem iespējamiem
komunikāciju atbalsta formātiem, lūdzu
zvanīt 01224 523317

Jei jus turite sunkumu su kalba/ vertimu
ar kitomis bendravimo formomis,
skambinkite 01224 523317

Jeśli potrzebujesz pomocy językowej /
tłumacza lub innej pomocy w
porozumiewaniu się, proszę zadzwonić
pod numer: 01224 523317



Thank you for taking the time to complete this form.
Please return completed forms to:

Local Development Plan Team
Enterprise, Planning and Infrastructure
Aberdeen City Council
Business Hub 4
Ground Floor North
Marischal College
Broad Street
Aberdeen
AB10 1AB

Or email it to: ldp@aberdeencity.gov.uk

March 2013
www.aberdeencity.gov.uk

Development Bid Supporting Statement

North of the Don Masterplan,
Aberdeen

On behalf of Various Landowners

June 2013

Halliday Fraser Munro

Chartered Architects & Planning Consultants

Carden Church 6 Carden Place Aberdeen AB10 1UR
Tel: 01224 388700 Fax: 01224 388777

Aberdeen - Belfast - Dundee - Edinburgh - Glasgow

e-mail: planning@hfm.co.uk

1.0 INTRODUCTION 2013

This report is an update to the 2010 North of the Don Masterplan. The 2010 Masterplan is appended to this document in its entirety, including the AECOM 'High Level Transportation Appraisal'. The North of the Don Masterplan still forms an eminently sensible development framework for the land to the north of the River Don in Aberdeen. The response from the Planning Authority in 2010 was not to dispute the good sense in the masterplan, but to suggest that the North of the Don Masterplan should be resubmitted into the forthcoming development plan cycle. This report [& its annexes] forms that submission – but is also a call that collaborative, partnership working to deliver this Masterplan is necessary and can only be led by the City Council.

To date, the North of the Don Masterplan has been submitted to the current Strategic Development Plan consultation exercise. A copy of the North of the Don Masterplan was also submitted to the Scottish Government & Scottish Ministers as they have the final say on the content of the Strategic Development Plan.

The core justifications in the North of the Don Masterplan remain essentially the same.

Large scale sites to the west of Aberdeen are very constrained until the AWPR is open. The North of the Don area has the capacity to be far more effective at delivering homes, jobs and services over the coming 10 – 20 years. A Public Transport system has to be central to the planning of urban expansions on the scale of Bridge of Don. Bridge of Don as a settlement has to make significant advances in terms of facilities and services, especially in the location of these developments i.e. it has to be in a Bridge of Don Town Centre. Delivery of this urban expansion has to take place incorporating all the services and facilities which were forgotten over the course of the last 30 years since the expansion of Bridge of Don began. They cannot now be delivered as an afterthought or bolt-on.

2.0 WHY A NORTH OF THE DON MASTERPLAN 2013?

This document has been prepared on behalf of a number of land owners across the north of the City (the land areas are listed at the end of this report). Whilst any one land parcel will have development capability in its own right – the jigsaw of several large sites more than warrants this strategic overview. This is because the scale of development required to deliver significant facilities and services in Bridge of Don needs a firm, institutional steering hand in order to deliver. Partnership approaches can succeed in particularly favourable circumstances. However for the very strategic interventions such as schools, public transport and renewable energy – it is likely that a public sector agency approach will be required that can effectively use the statutory powers available to them, to ensure delivery. So this document is not simply a “development bid” – it is a call to view a series of “development bids” covering a substantial part of the City as the best opportunity Aberdeen and North East

Scotland possesses to underpin the next 30 years of growth.



AERIAL VIEW OF BRIDGE OF DON.

3.0 THE UPDATES TO THE 2010 NORTH OF THE DON MASTERPLAN - 2013

In truth, there is little that has substantially changed in the three years since the original North of the Don Masterplan was prepared. However there have been some developments that both underpin and add additional justification to the North of the Don Masterplan as it was originally conceived. These updates are set out under the following headings:-

Economy / Energetica

Infrastructure / AWPR

Services and Facilities in Bridge of Don

Business Land

Housing Land

These factors were all covered in the original submission. The brief updates below simply provide added rationale.



NORTH OF THE DON MASTERPLAN.

4.0 ECONOMY / ENERGETICA

Energetica overlaps with the North of the Don Masterplan – but this is to the mutual advantage of both projects. It is fair to say that since its launch Energetica has encountered a great deal of scepticism, principally concerning “what it is about?” This is unfair, but in some respects understandable. Describing what Energetica will be, what it will look like, what it will do are all fairly straightforward exercises. But explaining how to do it, how to get there, how to deliver is a far more complicated task. That task begins with an acceptance that working with the market, understanding the market and helping the market will form a very large part of the exercise. However it also involves recognising that there are limits inherent in that approach.

At some stage (earlier the better) the use of the statutory powers held by the public sector, including its triple 'A' credit rating and its 'prudential borrowing' capabilities have to be fielded to achieve the outcomes Energetica is seeking. The first stage of that process is the recognition that by enabling the facilities & development at Bridge of Don you are implementing essential precursors to the success of Energetica as a whole. The North of the Don Masterplan offers the route map for those interventions and illustrates how they can be substantially funded through development and through future tax revenues. There is an argument that could easily be made for a TIF approach to the North of the Don Masterplan/Energetica – but at the moment the Government's quotient of TIF projects has been allocated and is largely focussed on regeneration elsewhere in Scotland. However, in Aberdeen it can also be argued that with its buoyant economy – this exercise would be a case of backing a winner and is therefore susceptible to a more straightforward development funding scenario.

In economic terms the arguments for supporting the North of the Don Masterplan have grown considerably. A new axis of business development is emerging stretching from Kingswells/Westhill via the Airport and onward to the present AECC. This 'arc' effectively covers the north of the City and there is little doubt that the economic prospects for all this land will continue to be exceptional. The key limiting factor is (perhaps ironically) the availability of housing for employees.

The North of the Don Masterplan makes sense of all these business parks (see section on Business Land) – through the linkage that the proposed Energetica Boulevard would provide. It makes sense because this offers the opportunity to link housing and business with modern public transport, with cycle routes, with greenspace and with the facilities and services in a Bridge of Don Town Centre. By associating them with housing areas close by and by providing green transport and greenspace links, the North of the Don Masterplan also taps into the fundamental principles underlying Energetica.

5.0 BRIDGE OF DON

The justification for a sub-regional centre serving Bridge of Don grows all the time. The North of the Don Masterplan poses the question about polycentric development v. monocentric development and the stage at which a growing City needs to accept the former, in order to better deal with congestion. What is certain is the addition of another 10,000 homes in Bridge of Don without the facilities and infrastructure set out in the North of the Don Masterplan will at best be an opportunity missed. At worst, the slur of being the biggest suburb in Europe will be confirmed with all the risks inherent in that status.

It is recognised that the Grandhome and Dubford developments have now been masterplanned – but under the auspices of the planning authority, under current planning conventions, the sites have been masterplanned within red lines. At the scale of development under consideration this is an advance on earlier practice. However this is still being done in the absence of a secured wider framework that enhances the area and ensures pitfalls are avoided. A suburb of 50,000 population without modern public transport or an identifiable town centre is simply not credible.

6.0 INFRASTRUCTURE

The AWPR has been beset with delays. Optimistic suggestions about its opening are 2018, but it could be later still. Local funding is necessary for all the junctions and the City Council is concerned about the cost (as is the Shire Council). The City Council has made clear commitments to the 3rd Don Crossing and to the Aberdeen Airport Access Road/Roundabout – which is very welcome. And improvements to Haudagain are being designed. The key infrastructure issue remains ‘uncertainty’. The North of the Don Masterplan sets out a way forward which deals with these infrastructure uncertainties.

It is highly significant that part of the early scepticism about Energetica and the North of the Don Masterplan 2010 was their promotion of an alternative to the Northern Leg of the AWPR. Not that this was in any way an explicit intent. The line of Energetica Boulevard linking from the centre of Dyce to the Murcar Roundabout runs parallel to the AWPR northern leg, but approximately 2km – 3km further south. From the centre of Dyce it is a relatively short 2km link to the Airport AWPR junction of the A90/A96. This route is of huge importance in terms of connectivity across the north of the city and it is our contention that this should be part of the public transport network in the north of the city.

The public transport network options set out in the North of the Don Masterplan – favour a dedicated bus network. Tram transit is unlikely to find much favour anywhere in Scotland following the chequered development path for the Edinburgh Tram. However it is likely that from the moment the Tram opens in Edinburgh it will become very busy, useful and popular. During the time that the Edinburgh Tram has been under construction – the Dedicated Bus Transit system for Lahore has been designed, funded, implemented and opened to huge acclaim. Moreover, it was done for 10% of the cost of the Edinburgh Tram. Dedicated bus route transit is now being promoted across the globe as a far more sustainable and feasible means of introducing mass rapid transit.

It seems to us that if Aberdeen is to grow by a further 20,000 – 30,000 population in the north of the city, then the promotion of an efficient, clean, effective public transport option becomes completely unavoidable. The good

news is that this would not only be good for growth, good for the environment and good for attracting further investment – it can also be funded by the scale of development investment envisaged.

See :

<http://sustainablecitiescollective.com/world-bank-sustainability-blog/154741/bus-rapid-transit-comes-washington-dc>

<http://sustainablecitiescollective.com/urban-sense/125111/putting-rapid-bus-transit-cities>

<http://thecityfix.com/blog/mbs-metro-bus-system-lahore-pakistan-anjali-mahendra/>

We also see a distinct Energetica profile to this approach insofar as the buses could be fuelled by power (electric or hydrogen) from the European Offshore Wind Deployment Centre [EOWDC] in Aberdeen Bay.

There are also direct linkages and advantages for the HyTrEc project. [see: <http://www.hytrrec.eu/>] Initial £multi-million steps have been taken under the Interreg IVb North Sea Region Programme to progress sustainable transport in the North East. AREG are involved and the connection between this project and Energetica are quite plainly manifest. However, actually connecting these two work streams and delivering something of long lasting value has yet to be done. The North of the Don Masterplan offers the ‘vehicle’ for tying these strands sensibly together for mutual benefit.

7.0 BUSINESS LAND

The Airport business land that has recently come on stream, after many years in planning, is clearly of great significance. However, like Westhill before, a key drawback is going to be accessibility and accessible homes for key workers to live in close to their place of work. Aberdeen’s unique structure with significant workplace sites at intervals around the city offers significant planning challenges in terms of overcoming congestion and providing sustainable transport options. With 90,000 jobs in the City – but only half of those located centrally – it is clear that opportunities to provide bus transit systems are going to be key.

Stretching across the north of the city – business park development is now underway at a series of locations including:

Westhill

Kingswells

Dyce Drive South

ABZ 1 and ABZ 2 (Dyce Drive North)

Rowett

Murcar

Berryhill – The Core

Aberdeen Science and Energy Park

AECC

Aberdeen Science Park

The principle obstacles to the successful development & consolidation of all this industrial land (more significant than anything anywhere outside of London) will be the inability for workers to find homes and the lack of public transport for commuting.

8.0 HOUSING LAND

Our contention remains that the north of the City offers significant residential development opportunities in the short to medium term – which are not dependent upon the AWPR being built (unlike the west of the City). The association of housing areas in the north with employment areas in the north also supports the sustainable transport options outlined above.

However, we still believe that the delivery of the necessary housing in the north of the city, thus fulfilling the aspiration in the North of the Don Masterplan, will not happen (or not happen swiftly enough) if simply left to the private sector. Nor is ‘Action Planning’ a panacea for slow build rates. We submitted evidence to the SDP Consultation (and to Government) which shows that the dependence upon large sites in the Aberdeen Housing Market Area actually leads to a 50% under provision of new homes ten years hence in 2023 (and that is based upon the most optimistic assumptions). Table one summarises this position.

It is clear that a far more interventionist strategy is required if the pace of economic development in the North East, so vital to the rest of the Scottish economy, is to be maintained.

Land holdings supporting the North of the Don Masterplan:

Goval Farm

Perwinnes Farms

Bridgefield Farm

Causewayend

Shielhill

Land adjacent to the Old Ellon Road, Murcar

A number of developers also support the North of the Don Masterplan—and it would be good to canvas more opinion via the MIR



HALLIDAY FRASER MUNRO

ARCHITECTS • PLANNING CONSULTANTS • PROJECT MANAGERS

ABERDEEN • BELFAST • DUNDEE • EDINBURGH • GLASGOW

North of the Don Masterplan 2010



North of the Don - Introduction

Planning the future growth of a City is an undeniably complex task. In the past, mistakes have been made. Few in the planning profession would be willing to put their hand up and state that Bridge of Don was “well planned”. The historic planning of the Bridge of Don area has never been a comprehensive affair where strategic masterplans have been set out and then adhered to, so that joined-up sensible urban places are built. Many of the developments came about as a result of appeal decisions and very little has been done as a result of genuine town planning or design in its widest sense.

Since the 1990's there has been a long running debate about the nature of Bridge of Don, about its problems and the dilemmas that face this part of the City going into the future. Bridge of Don (if we take this to mean the area north of the River Don in Aberdeen) already amounts to a settlement of nearly 30,000 population and would easily be the second biggest town in the north east were it to have a more distinct identity of its own. It is the equivalent of adding together Inverurie, Portlethen and Westhill, three other north east towns which have undergone considerable expansion in their own right.

Were we to add together the facilities that exist in these three Aberdeenshire towns it would amount to considerably more socio-economic infrastructure compared to Bridge of Don (though it is acknowledged there are generic faults in all these settlements which result from inappropriate 1960s/1970s design concepts). There are some reasons for this discrepancy; namely the distance these settlements are from Aberdeen; the pre-existence of some historic urban fabric; and the fact that Bridge of Don is seen to have Aberdeen City Centre ‘on its doorstep’. However whilst this debate might be seen as a matter of some town planning interest – if you are a resident of Bridge of Don it might well be viewed differently. Whether manifest in the Third Don Crossing debate, or in other debates about facilities it has led to the campaigning banner headline becoming: “no more development before facilities”. A commonly heard argument has been to describe Bridge of Don as the largest suburb in Europe.

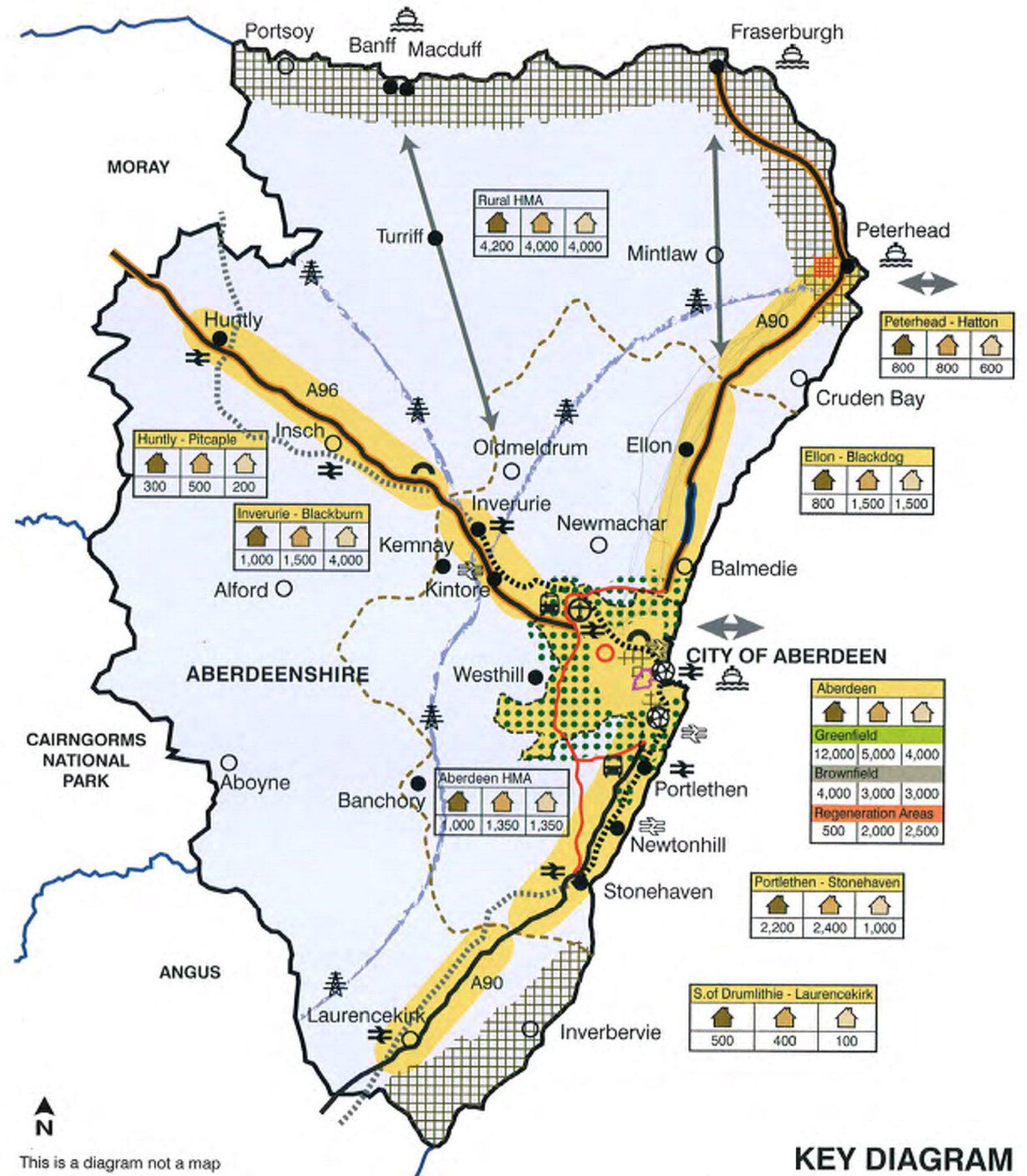
The important question this poses is....


“At what point does it become important for an area of a city to have its own clearly recognised service centre, its own identity, and in parallel, a greater degree of influence over its own destiny going forward?”

It is debatable whether this present proposed Aberdeen Local Development Plan [ALDP] would address this conundrum. It is clear that a significant additional new area of housing is proposed, but is this on its own enough? The Grandhome proposals for circa 7000 houses, the Dubford development for 500, added to several other small schemes means a very significant increase in the size of Bridge of Don is proposed. At average 2010 house occupancy levels this could add 15,000 population to Bridge of Don, increasing the size to 45,000 population. Ayr, the 12th largest town in Scotland is 46,000 population, Perth, the 13th largest town in Scotland is 44,800 population. If one considers the scale of facilities that Perth and Ayr enjoy, even half that amount would be considerably more than Bridge of Don presently has. It is a straight-forward task to assess the scale of facilities, amenities and retail provision in a town like Perth. This is documented for instance through their Town Centre Management projects – who do town centre viability and health checks.

The important conclusion to be drawn is that in planning for the further expansion of development north of the River Don, very substantial investment in infrastructure will be required. It becomes a precondition of any strategic design exercise considering tens of thousands of houses that infrastructure provision has to be considered. And the devil in the detail in that exercise is not the list of facilities, but how to fund those facilities so they are delivered ahead of the housing being occupied. Not only is this important for future residents but the present deficit in Bridge of Don should be a priority for early action.

North of the Don - Structure Plan




 This is a diagram not a map

KEY DIAGRAM

North of the Don - Conceptual Approach

CONNECTIVITY

Airport to AECC on Energetica Boulevard
3rd & 4th Don Crossing
AWPR
Public Transport (see AECOM Annexe)

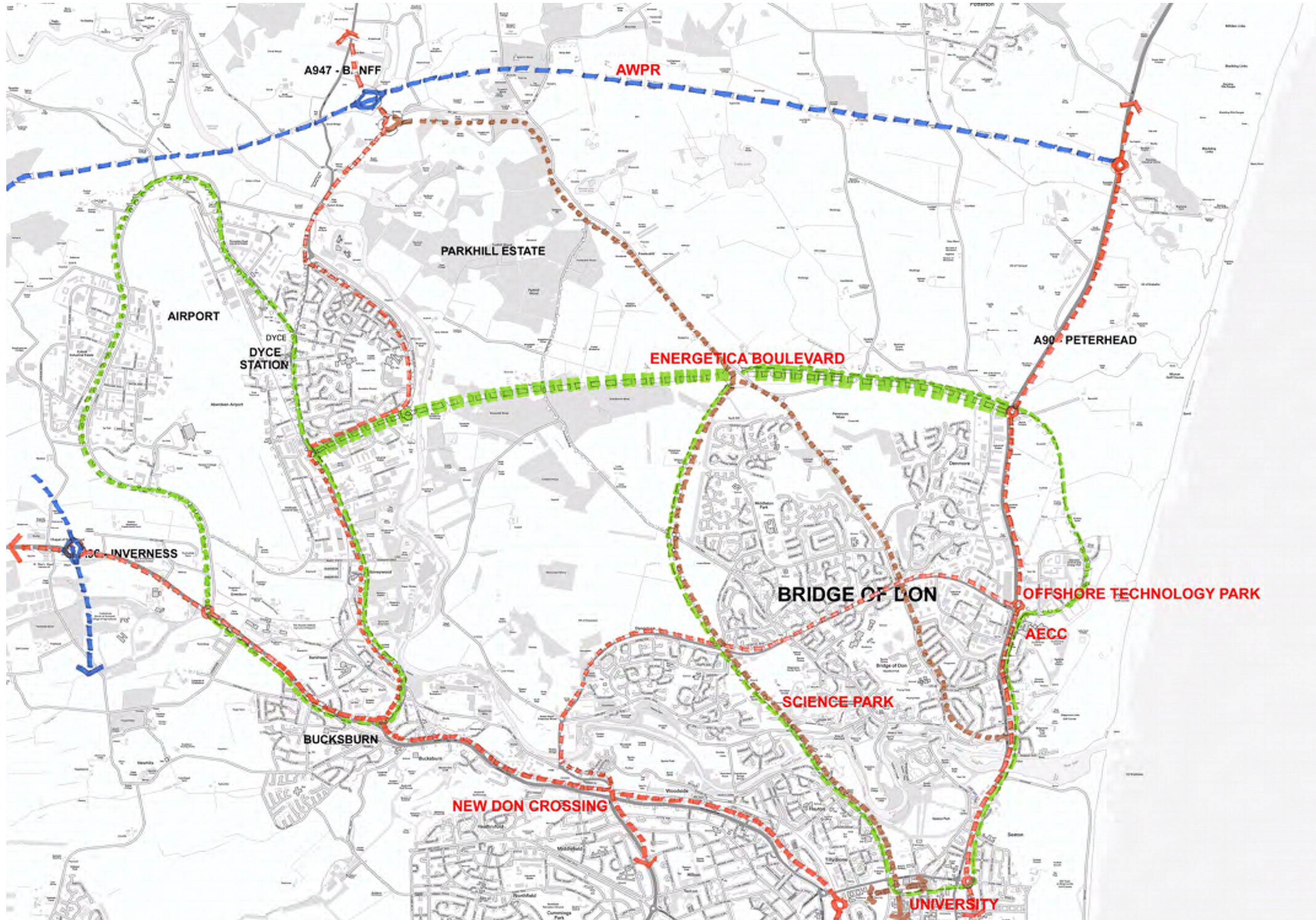
MASSING

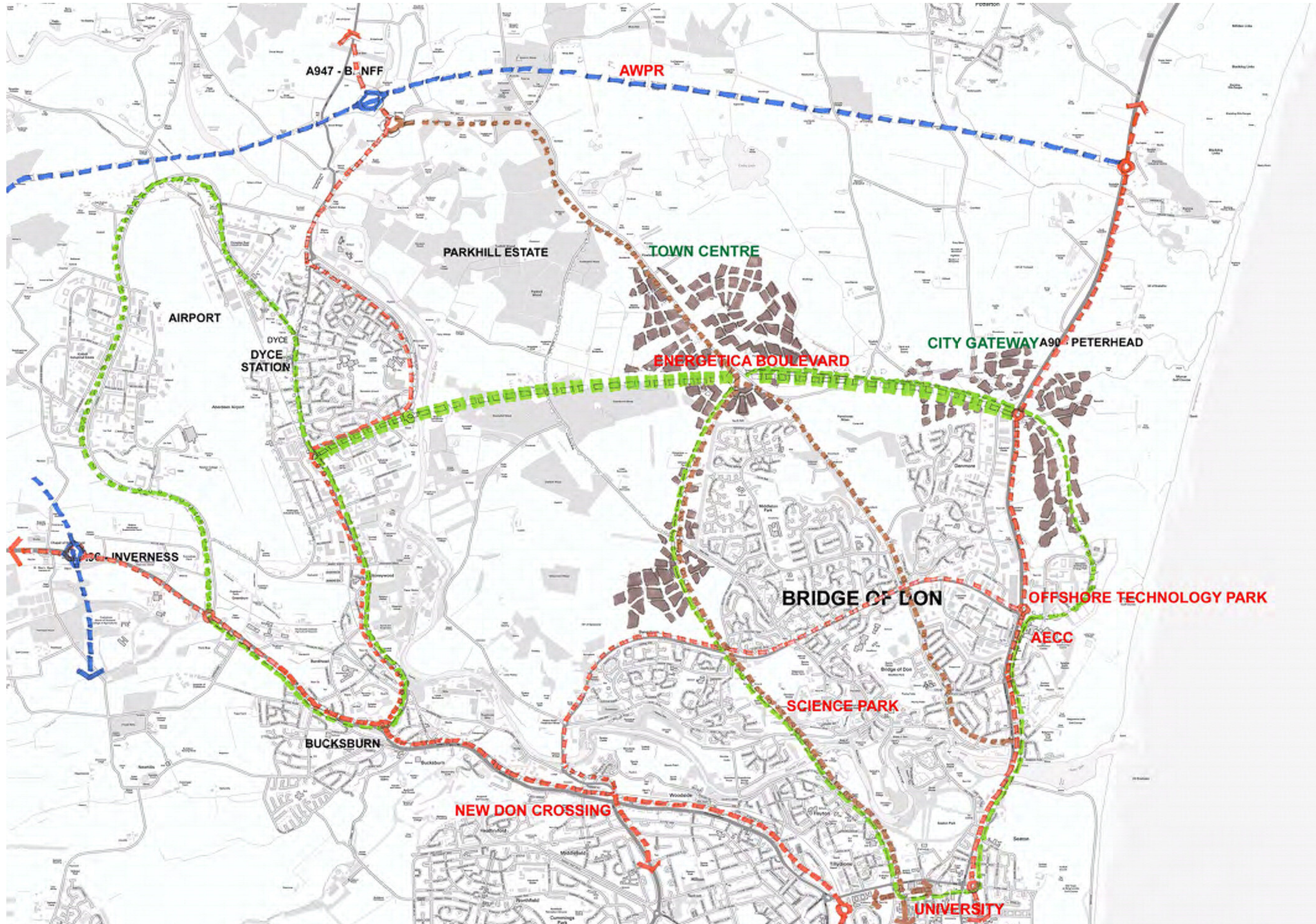
3 development nodes
New town centre

GREEN SPACE

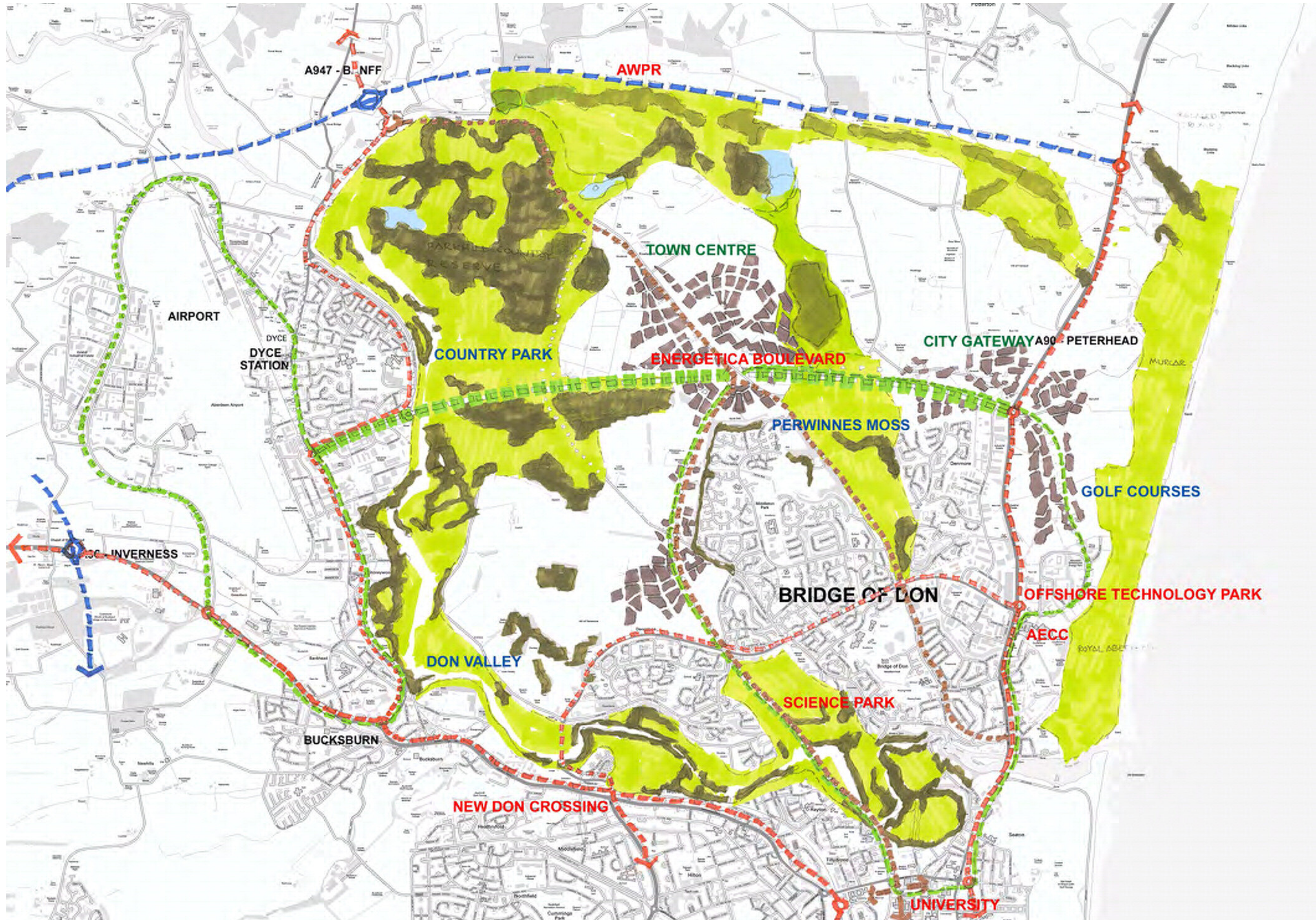
2 green corridors – River Don Valley & Perwinnes Moss
Golf on Coast including Mennie and Murcar

North of the Don - Movement Framework





North of the Don - Green Space



North of the Don - Connectivity Plan



North of the Don - Masterplan



4



- 1. Town Centre
- 2. Town Centre
- 3. Countryside Nature Reserve
- 4. Transport Network



1

3



2





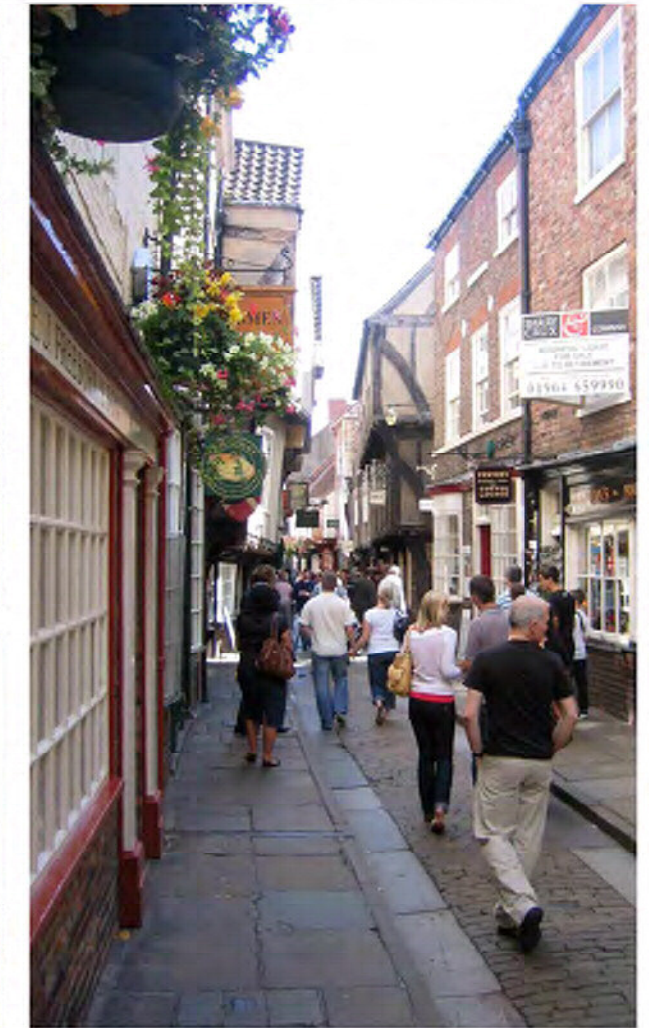
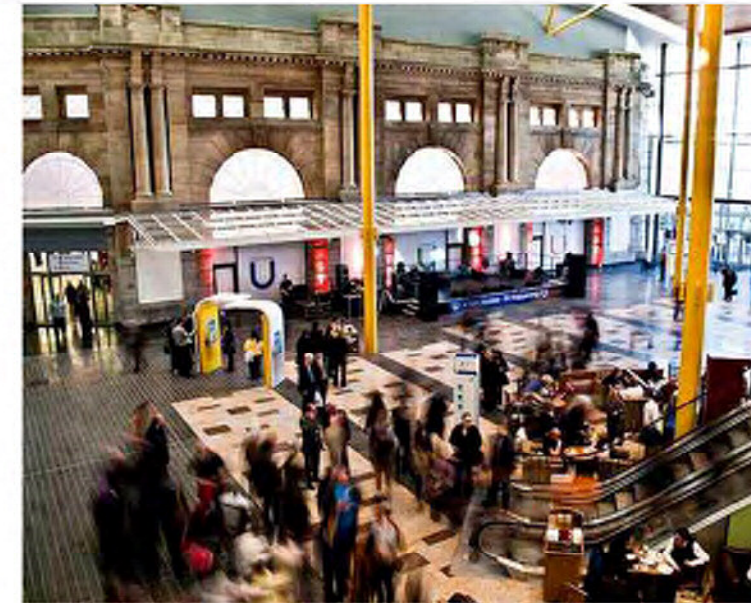
Stonehaven



Inverurie



Banchory



Town Centre

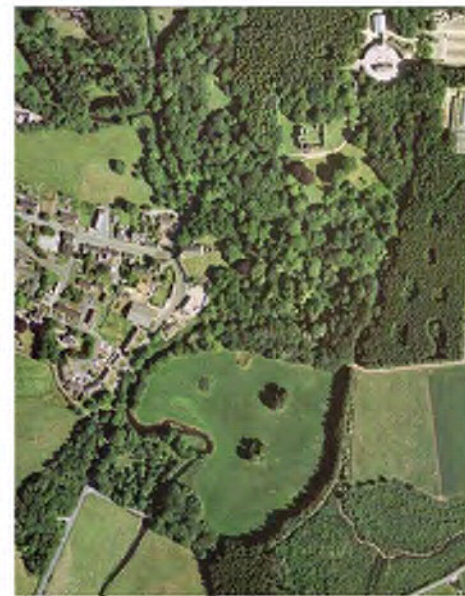
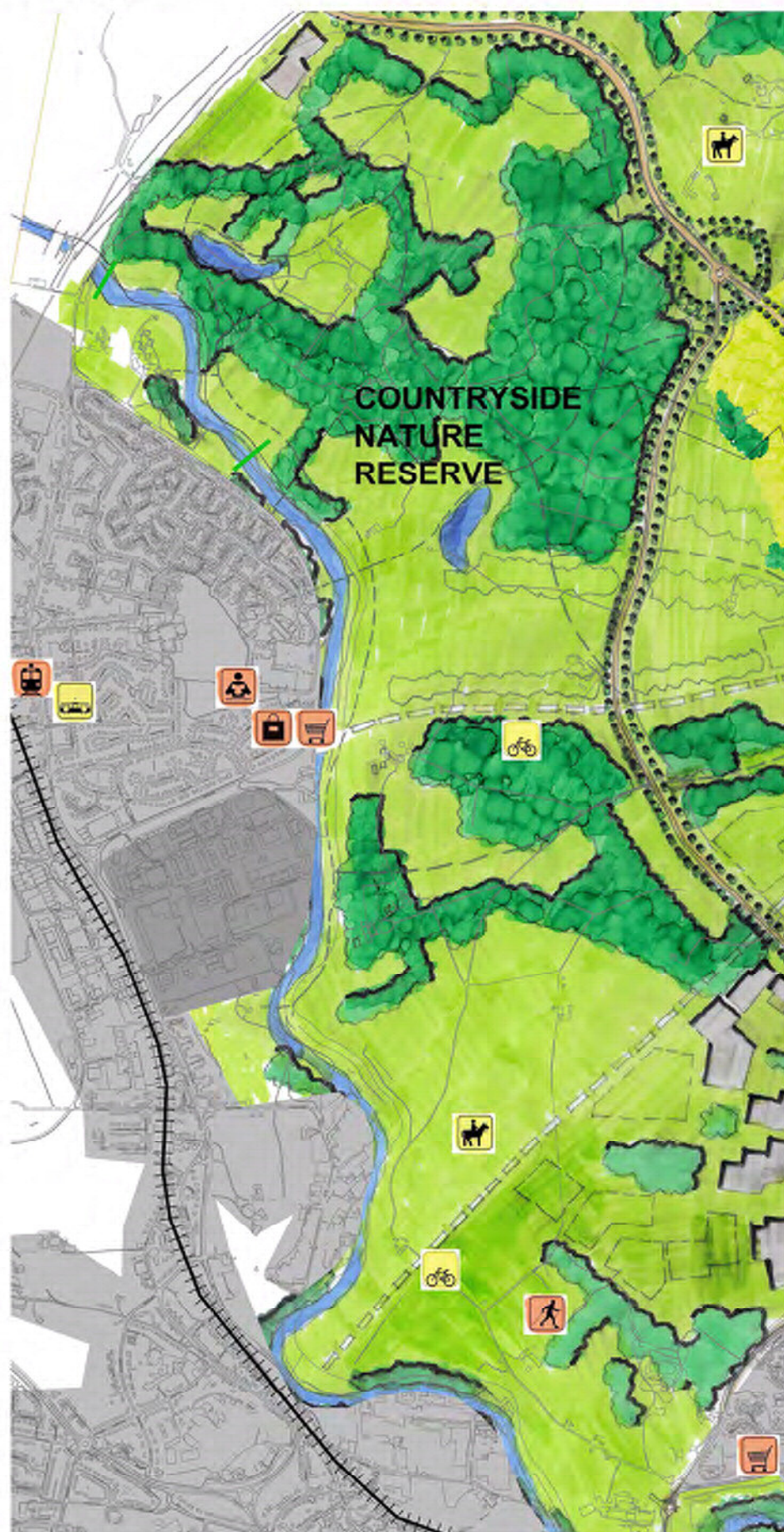
- High Street - Shopping and leisure.
- Public squares and spaces - pedestrian priority.
- To include housing of different densities, decreasing from the town centre.
- Development based around streets, walkable communities and "home zones".
- Town centre uses to include: Health centre, opticians, dentist, banks, hairdressers, post office, pharmacy, florist, offices, housing, education and nursery, hotels, cafes restaurants, pubs, and others.
- Contemporary zero carbon houses and at least 25% affordable housing.
- Balanced community.

Transport

- Pedestrian priority and path networks linking surrounding areas.
- Light rapid transport (LTR) node - bus and trolley bus stops and interchanges.
- Transport option based around Town Centre and Neighbourhood centres.
- Cycle parking and integrated cycle routes.
- CO₂ reduction a core driver

TRANSPORT

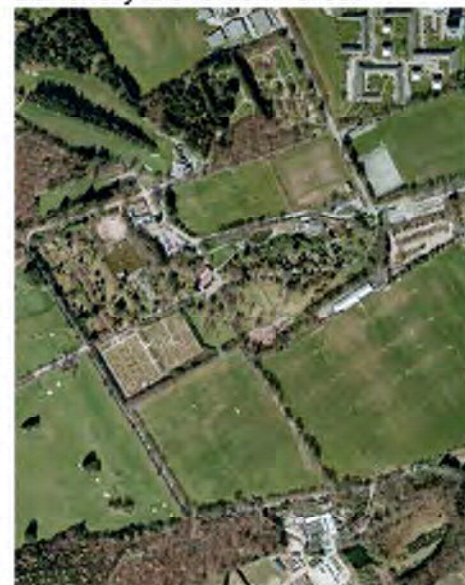




Aden Country Park



Banchory-Devenick Forest



Hazelhead Park



Green Space

- Nature reserve at Perwinnes preserved and enhanced
- Nature reserve at Parkhill Woods fostered and promoted
- Nature reserve based on Lily and Corby Lochs
- Integrated green space network and wildlife corridors providing green links
- Enhanced coastal strip and reinforced green corridor for AWPR
- Local nature conservation benefits, globally significant benefits from renewables research and development.
- Major native woodland planting.

Leisure

- Royal Aberdeen and Murcar Links Golf Courses - both internationally renowned
- Proximity to Trump Menie Proposals
- Informal and formal countryside based Leisure close to all new neighbourhoods

Energetica

- Energetica concept requires greenspace network excellence and fostering of a high quality of life
- "Energetica Boulevard" linking East to West.
- Murcar business land, "Energetica Boulevard" and Airport Business Park connected
- Minimal CO2 emissions - core design philosophy and core economic driver

energetica



North of the Don - Infrastructure

BROAD INFRASTRUCTURE COSTINGS	
	BASE COST
Goval Junction (as approved, or upgraded)	4,000,000
Haudagain Improvements	7,000,000
3rd Don Crossing	14,500,000
Secondary School	35,000,000
Primary School	5,000,000
Primary School	5,000,000
Primary School	5,000,000
Primary Health Centre	2,000,000
Primary Health Centre	2,000,000
Dedicated Bus Route (capital cost)	20,000,000
General Roads Improvements	2,000,000
Water & Drainage	2,000,000
total	103,500,000

RESIDENTIAL INFRASTRUCTURE COST PER UNIT			
Total houses built	Base Cost	Median	Max Cost
5000	20700	28950	37200
10000	10350	14475	18600
15000	6900	9650	12400

There are two ways of looking at the town planning problems experienced by residents of Bridge of Don, now and in the future. You can approach development with a slide-rule, measuring the impacts, counting the numbers and accommodating all the fall-out. Alternatively you can examine the wider requirements of the area and establish whether development can sensibly provide and enable these improvements.

Any settlement of 45,000 population (whether a suburb or not) should clearly be a good place to be, a good place to live. It should be a home town for those that live there, identifiable and tangible. Is it too much to expect that it should have the following characteristics.

•**A central place.** With suitable provision of facilities easily accessible to the local population. In both Glasgow and Edinburgh this has been addressed without any harm to their respective suburban centres. Arguably less congestion results and greater levels of amenity exist in suburban areas.

•**An identity.** A place should be identifiable and be recognisable by what the local centre looks like. There are many satellite centres in the two largest cities in Scotland, all of which have an identity – without detracting from the overall identity of the city.

•**A modern transport system.** A town equivalent to the size of Perth should have a public transport system which assists efficient and sustainable movement within and around that area as well as efficient connection to the neighbouring City Centre. The AWPR remains essential for the North of the Don area.

•**A suitable provision of facilities to serve the local population.** Schools, social facilities, health care, recreation and sport facilities, work place, church and community facilities.

We have examined the range of community facilities that such a centre of population would ordinarily expect to see. It is relatively straightforward to list these and apportion a cost against all of the items. Benchmark figures can be extrapolated from other developments elsewhere in Scotland and locally. Within the Government's budgeting process [Green Book] there are mechanisms for assessing future risk and means of assessing validity and robustness of costs [optimisation bias and risk management]. Applying cautious analysis to the expected costs the range of infrastructure investment could easily be in the range of **£100million to £186million**. When costed out against the levels of development (residual analysis) this results in average costs ranging from an unaffordable £37,000 per new house down to a far more affordable £6,900 per unit -depending upon the numbers of houses built.

Rolling Infrastructure Fund

The problem with residual analysis is that it does not explain how **up-front costs** are to be funded. Novel approaches are required where the Council through its Future Infrastructure Requirements initiative must address means of overcoming up front funding for infrastructure. The Council will have to front-end certain infrastructure costs on the basis of them being apportioned proportionately against development consents through time. There needs to be a means of equalising contributions so that there is a level playing field. Through the course of development delivery of appropriate facilities can move forward hand in hand. Certainty is an absolute prerequisite and the forthcoming ALDP is a clear means of at least establishing some of that certainty. A **rolling infrastructure fund** should be established which broadly takes advantage of Section 75 of the Planning Acts. What clearly must take place alongside this is **large scale partnering** with a multiple set of partners to deliver the benefits.

The drawings on this and the next page clearly set out the **phasing** which should also be agreed (if necessary at Strategic Development Plan level) given the importance of this area – **North of the Don** – to the future of Aberdeen and **Energetica**. The clear differences from what has been proposed in the local plan is firstly the fact that there is a three centre approach which would better enable future roads and communications infrastructure. And secondly there is a recognition that North of the Don can have a far more significant role to play in North East Scotland terms, should it harness and take advantage of what is being considered under the Energetica banner.

North of the Don - Sustainability

A fundamental part of all new development must be an examination of its impact under the new Climate Change (Scotland) Act 2009. This masterplan for North of the Don has taken account this aspect of town planning with serious proposals which mitigate the environmental impacts. There are clear linkages and synergies with the Energetica proposals these are covered in the next section.



Renewable Energy

The Bridge of Don Masterplan capitalises on two key energy developments.

The connectivity plan has already illustrated that by providing a central place for the North of the Don, movement and transport are radically altered. Similarly the connectivity plan illustrates a dedicated public transport route servicing the whole of the area North of the Don. Based upon dedicated bus routes (either guided bus or trolley bus) this is a significant and proven way by which the growing settlement of Bridge of Don can have its own bespoke transport system – both within the town and connecting to Aberdeen City Centre. Buses running on this route could be fuelled by overhead cable or fuel cell – capitalising on energy available from the Aberdeen Bay Wind Farm.

All of the built development will require energy. The connection between Bridge of Don and the adjacent Aberdeenshire farmland offers an unmatched potential to deliver energy via “anaerobic digestion”. This is a tried and tested system used extensively across Northern Europe. The existing landowners are part of a significant strategic farm coop – which provides socio-economic infrastructure of exactly the kind that anaerobic digestion systems require. This does not involve fuel crops, but rather operates on agricultural waste – with outputs in terms of fertiliser at the end of process. One 500kw power station offering combined heat and power requires a footprint of circa 600 acres of farmland to supply it with fuel stock. It is feasible to see an arrangement of 3 or 4 installations supplying local CHP to Bridge of Don. As it is a sealed system, there is no smell, there is no noise and current “off-the-shelf” systems are operating at 94% efficiency. The Scottish Government will be including anaerobic digestion systems within their energy subsidies from next financial year and any built kit presently has a life of 40-50 years. Feed-in-tariffs make this an even more attractive option.



Combining the wind farm with anaerobic digesters – a considerable proportion of the supply of electricity for the expansion of the north of the Don is met from the sustainable approaches proposed.

PRE 2020

AWPR BUILT

AIRPORT LOOP

BRIDGE OF DON LOOP

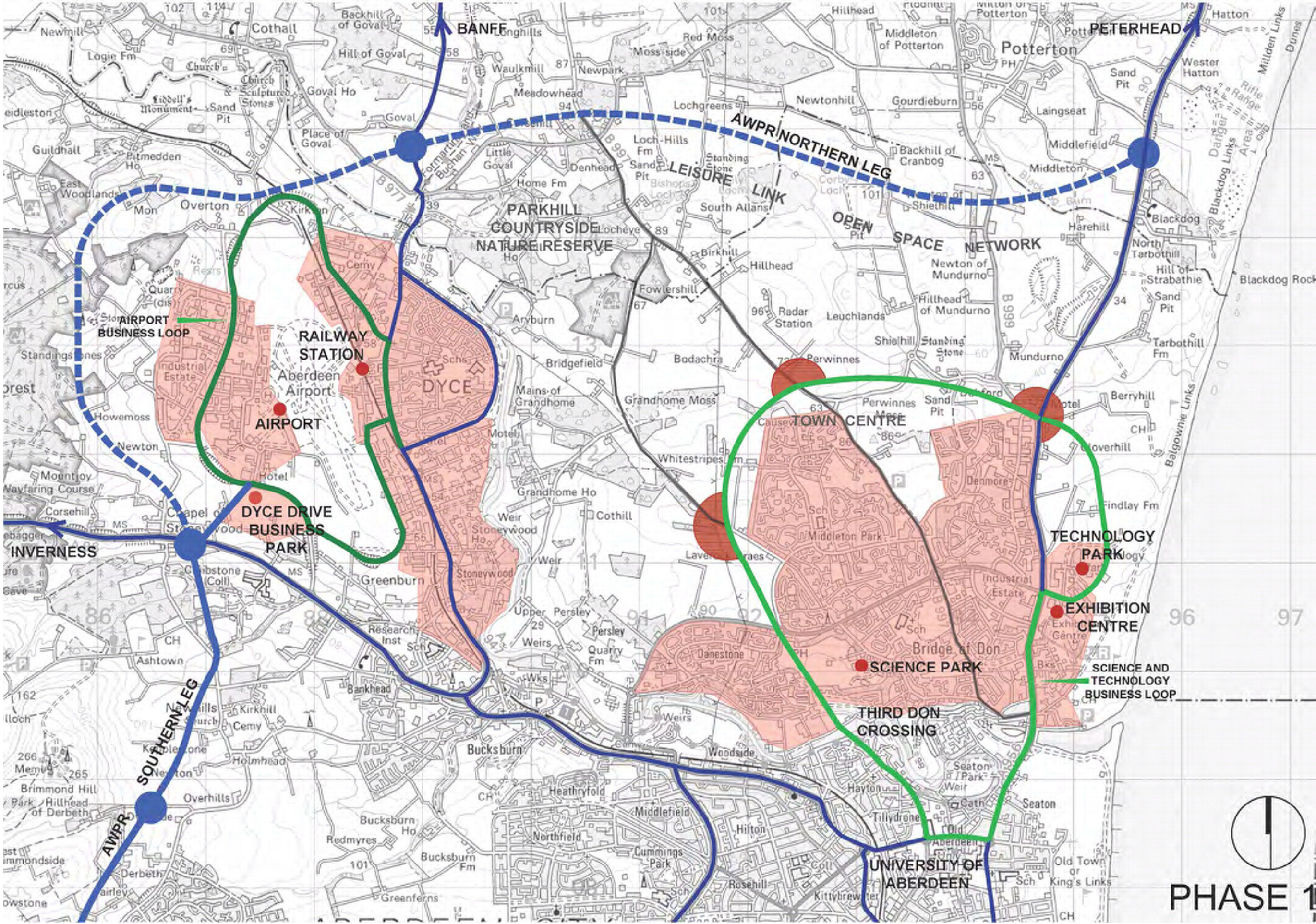
3 NEW CENTRES OF DEVELOPMENT AT BRIDGE OF DON

AIRPORT BUSINESS AND INDUSTRIAL PARKS PROGRESSING

ABERDEEN WINDFARM & DEPLOYMENT CENTRE BUILT

TRUMP MENNIE COURSE OPEN

North of the Don - Structure Plan Phase 1



PRE 2030

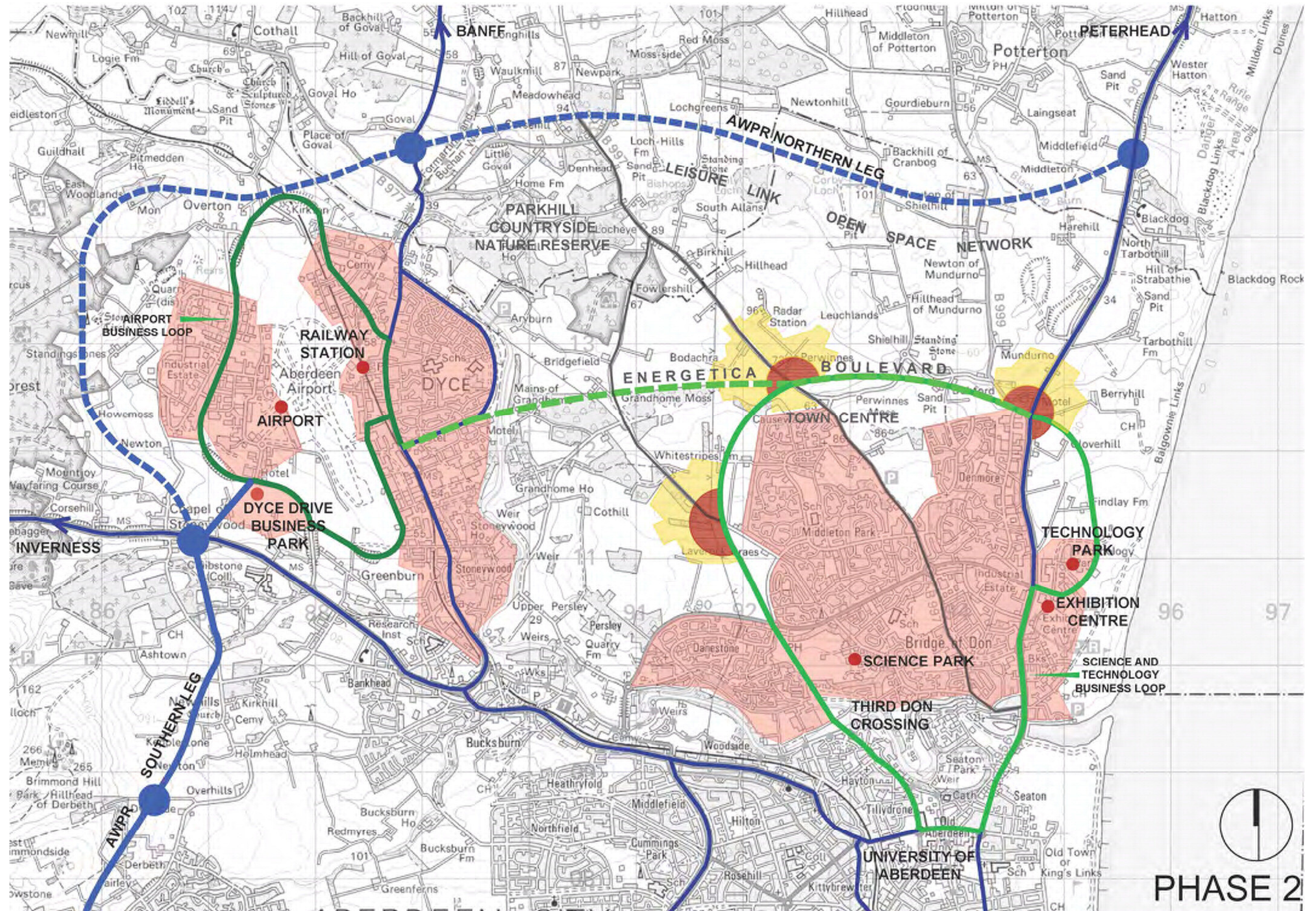
ENERGETICA BOULEVARD BUILT

DYCE AND BRIDGE OF DON CONNECTED AS HUB FOR ENERGETICA

DEDICATED BUS ROUTE(S) OPERATIVE FOR BRIDGE OF DON

NEW TOWN CENTRE BUILT

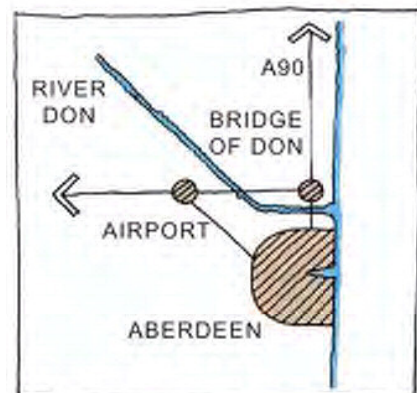
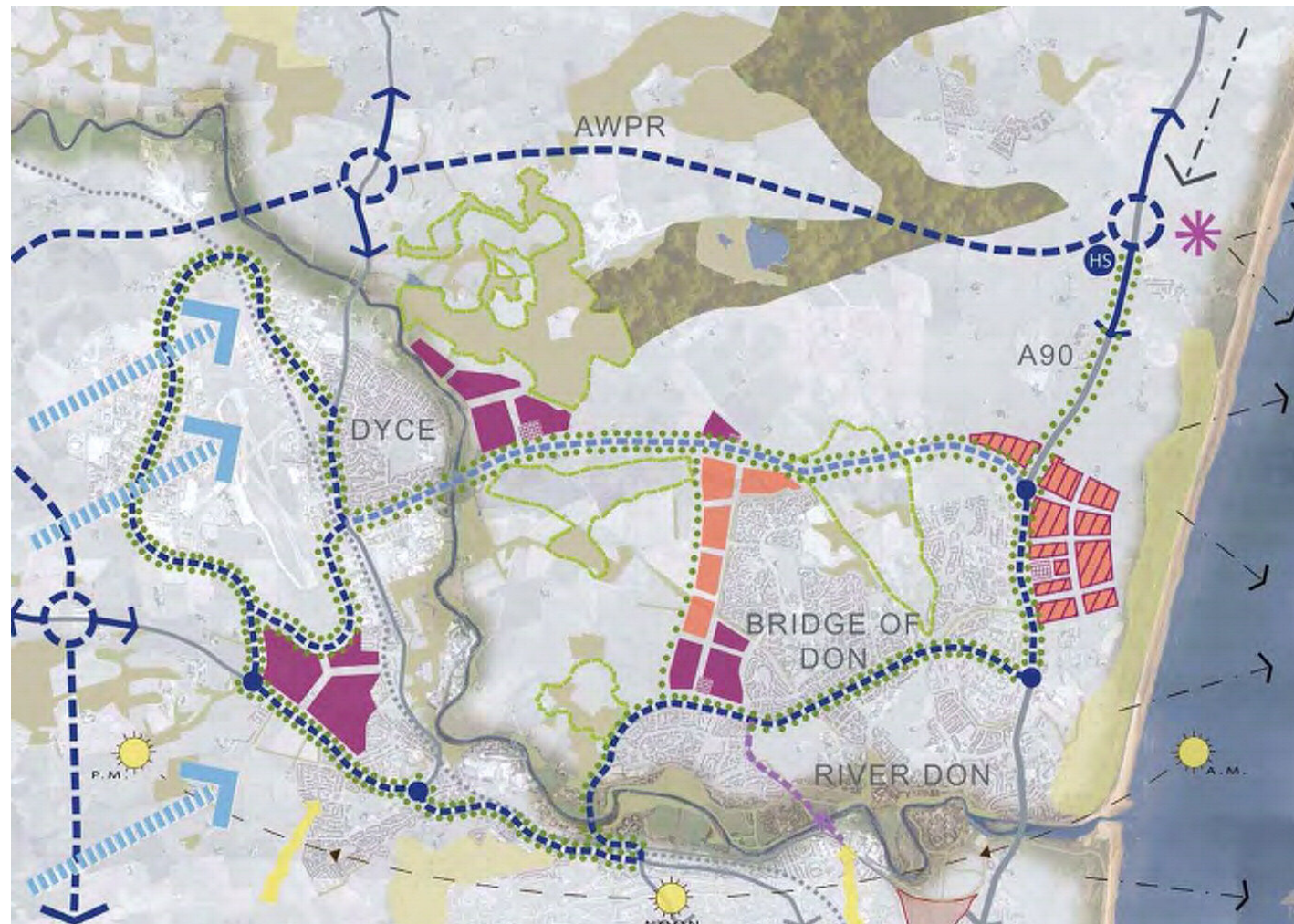
North of the Don - Structure Plan Phase 2



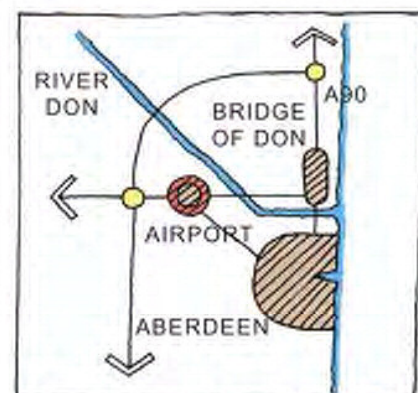
North of the Don - Energetica / Business Land

**STOP PRESS 15.12.2010
EU GRANT CONFIRMATION WELCOMED
BY EUROPEAN OFFSHORE WIND DEPLOYMENT CENTRE
PARTNERS**

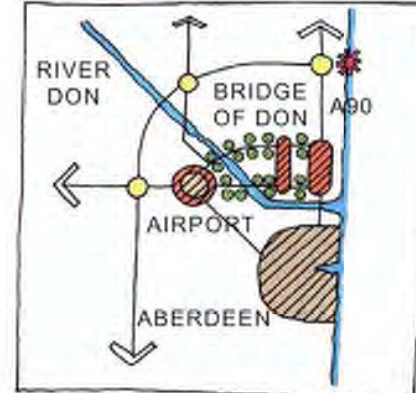
Vattenfall, Technip and Aberdeen Renewable Energy Group have welcomed confirmation from the European Union that a grant award of up to 40m Euros within the European Economic Recovery Plan has been made to the proposed European Offshore Wind Deployment Centre (EOWDC).

Bridge of Don: Existing



Bridge of Don: Planned



Bridge of Don: Proposed

Energetica “A Global Hub for Energy Technology”

The PLDP suggests “Significant land allocations have been made to the area to the North of the River Don to support the Energetica Corridor Concept...” and “The Energetica Concept seeks to improve the economy and promote the energy industry along the Aberdeen to Peterhead growth corridor”.

Energetica, however, is much more than that. It is a private and public sector initiative focusing on opportunities for new investment in infrastructure, leisure and housing. Its strategy is enshrined in national policy (National Planning Framework for Scotland 2), regional strategy (the Structure Plan), local economic agency approaches (Scottish Enterprise and Aberdeen City and Shire Economic Forum – ACSEF) and the PLDP.

“The primary aim for Aberdeen and Aberdeenshire is to grow and diversify the economy, making sure the region has enough people, homes, jobs and facilities to maintain and improve its quality of life. Under the banner of the Energetica project, the economic development community is seeking to build on the energy sector and offshore strengths of the region, diversifying into renewable and clean energy technologies to consolidate its position as a global energy hub.” (National Planning Framework for Scotland 2, paragraph 204)

“Making sure that there is enough of the right type of land for business use, in the right places, will give Aberdeen City and Shire a competitive advantage ... We expect that the ‘Energetica’ initiative will help to deliver this in the Aberdeen to Peterhead strategic growth area ...” (Aberdeen City and Shire Structure Plan, August 2009, Economic Growth Chapter, para. 4.3)

Energetica is a multi-use economic growth strategy based on the existing oil and gas economy and expertise and building it into an all-energy economy and knowledge base. It is about, as the slogan says, creating a global hub for energy technology. To do that and attract inward invest, however, the strategy recognises that the City and Shire need to offer more than just new business land. It needs to offer business land with outstanding quality of place, with stunning outlook and with technology to reflect the exemplary nature of those businesses who choose to locate there – including communications technology and modern public transport that runs on locally-sourced renewable energy.

It also needs to offer the best quality of life, with facilities and leisure or recreational opportunities for those who are relocating their business and life here. Aberdeen, and particularly the North of the Don, has some of the best coastline, golf courses, parks and open spaces in Scotland. Amongst that, however, are areas where new development can take advantage of these benefits for the people who could live and work there. Where else in Aberdeen City is there developable land close to the coast, with sea views, great golf courses, the best quality public parks, and a potential network of open space extending across the northern boundary of the City and along the River Don valley to the sea?

Energetica also offers a unique business environment based on the principles of low carbon dependency. It revolves around a development corridor extending from Aberdeen to Peterhead, linking together key economic and energy assets such as the Aberdeen Science Parks, Aberdeen Airport, OceanLab and the Port of Peterhead. In Aberdeen the key linkages are back to the City, north to Peterhead and, most importantly, strong connections to Aberdeen Airport and resulting international markets. This east-west link (Also called Energetica Boulevard) was formulated in the initial stages of the Energetica Concept but are significantly underplayed in the Proposed Local Development Plan.

Key aims include:

- Attracting businesses founded and inspired by the energy industry, which promote and use renewable technologies.
- Designed using sustainability principles with low energy requirements
- High quality design, low emission, energy efficient buildings
- Sympathetic development that enhances the natural environment
- Radically improved transport arteries that make use of low emission technologies
- Encouraging healthy lifestyles by creating a unified green network of footways and cycleways
- Introducing new neighbourhood centres with high levels of local amenity and good quality, flexible business space will encourage people to live and work in the same area, reducing congestion and general car use

Energetica aims high but it has to be aspirational to be competitive. It is essential that the Proposed Local Development Plan doesn't fall short of Energetica's aspirations risking non-delivery of the prosperous future that Aberdeen deserves. Energetica is the best economic development opportunity in the City and Shire and given the importance of the economy, jobs and future prosperity – far greater profile is fully warranted. North of the Don has the capability of becoming central to the full and effective delivery of Energetica.

North of the Don - Housing Land



The effective housing land supply across the Aberdeen Housing Market Area is well below the 5-year supply required by Scottish Government through their Scottish Planning Policy.

The effective housing land supply in the Aberdeen Housing Market Area is below 2.5 years (half the requirement). Effective supply unlikely to be augmented until the adoption of this Local Development Plan in late 2012 / early 2013. At January 2010 the effective supply was 2.5 years. From 2010 – 2013 there will be an entirely inadequate supply of land and this will continue to decrease until the Local Development Plan can supplement the supply. These problems will be exacerbated by the heavy reliance on large multi-phased development sites and brownfield land, which is historically difficult to develop. A range of sites need to be allocated to help to deliver a choice of housing in compliance with the numbers set out in the Structure Plan. There is a heavy reliance on the timely completion of the AWPR which appears unlikely at this stage due to the current judicial review.

Developers are unlikely to market or deliver more than 150 houses a year on any site. The reliance on larger sites to deliver housing numbers required by the Structure Plan will immediately fall short due to the number of houses that can be delivered by any one developer.

The AHMA housing requirement as set out in the Structure Plan 2007 – 2016 is 19,773 (Figure 8). This is based on forecasts on what will be needed over a set period of time.

Appendix 3 of the 2010 Housing Land Audit shows that there were 3,900 completions in the AHMA between and including 2007 and 2009. This averages 1,300 completions per annum. If this pattern continues through 2010 and beyond up to 2016 then this would provide another 7,800 units. This would mean that during the period 2007 – 16, 11,700 houses would be provided, some 8,073 short of the Structure Plan requirement set out in Figure 8.

The potential for delivery of sites in the AHMA will increase as the City and Shire Local Development Plans progress to a point of adoption. The adoption of these plans are likely to be 2013 and 2012 respectively which means that there will only be around three years to increase to delivery rate of sites.

There are two main issues with regard to housing land in Aberdeen's Housing Market Area. There is a massive shortfall in the effective housing land supply, which will continue to fall until the established sites contained in Local Development Plans are shown as effective. Secondly, there is a significant reliance on the allocation of large sites in both City and Shire PLDP's, which will need significant upfront infrastructure and expenditure and will not deliver the large numbers of houses required during the relatively short lifespan of the plan.

Allocations such as the ones at Grandholm and Countesswells are expected to deliver 2600 homes and 2150 homes respectively during the first phase of the plan (2007 – 16). Whilst these large allocations can be comprehensively planned they are slow to deliver on the ground and can be reliant on key pieces of infrastructure. The Structure Plan clearly states that making land available quickly is a key part of meeting the strategic targets. Local Development Plans are not simply about allocating land on a map, but also about making best efforts to ensure the prompt delivery of that land for development.

Based on the (optimistic) view that the plan is adopted late in 2012 then it will be the end of 2013 before permissions are in place to begin works. Working on the basis that works could start on these sites in early 2014 that leaves two years to deliver over 2000 homes on each site. A developer will only be able to market and deliver around 150 homes a year because it would otherwise saturate the market and wouldn't deliver a choice of housing in the City (not everyone wants to live in the same place in the same kind of house). The delivery of the numbers proposed for the larger sites is simply impossible and will inevitably force un-built allocations back into a later phase of the plan resulting in each review of the plan shifting allocations to later phases and not delivering a much needed choice of development on the ground.

In Bridge of Don (areas A&B) there are 7550 homes allocated across the lifetime of the plan, but only on two allocations. 7000 at Grandholm and 550 at Mundurno/Dubford. This delivers neither choice nor immediately deliverable sites.

Both of these allocations will require to be masterplanned and will have to go through the major applications process delaying their delivery further. A range of sites need to be allocated in Bridge of Don to ensure the timely delivery of new homes in a range of locations where they can be linked into a wider strategic plan for the area creating a sustainable location for living and working.

The wider strategic masterplan concept at North of the Don reflects the Energetica concept promoted through ACSEF and offers choice as well as a joined-up approach to development north of the river.

North of Don, Aberdeen

Initial High Level Transportation Option Appraisal

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Sustainable Transport
Cycling and Walking

AECOM

Walking and cycling - Shared Surface



- Pedestrians, cyclists and motorists share the same surface
- Ease of pedestrian movement
- Reduces traffic dominance
- Improves safety

Chengdu Eastern New Town

August 13, 2013

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Walking and cycling - dedicated paths



- Pedestrians and cyclists share the same surface
- Traffic free zone

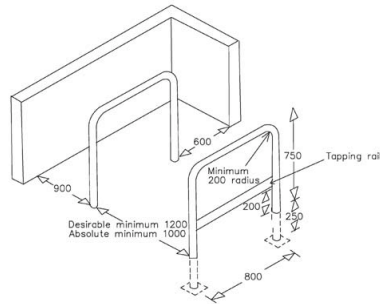
North of Don

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Cycle Parking (racked solutions)

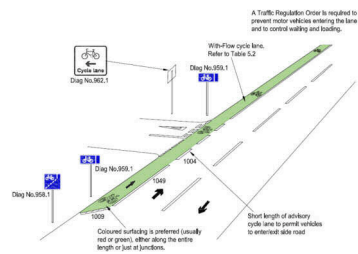


- Sheffield stands
 - Provides good support to the cycle and allows the cyclist to secure both frame and wheels without risk of damage
- Cycle stores
 - Can be used to accommodate high levels of long-term cycle parking

Cycle Lanes



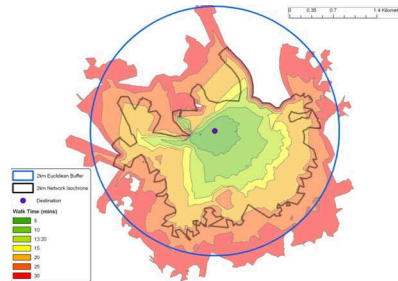
- Dedicated on road cycle lanes can be marked on carriageway
- Generally 1.5m-2.5m kerbside lane
- Advance stop lines increase cyclist safety at traffic lights



Walking and cycling - travel distance and times



- Cycling at 10km/h
 - 5km cycle equates to 30 minute journey



- Walking at 1.2km/h
 - 400m: 5 minute walk
 - 800m: 10 minute walk
 - 1200m: 15 minute walk
 - 1600m: 20 minute walk

Walking and cycling - case study



- Eco-town for Leicestershire
 - Cycleways and pedestrian routes integrated with the internal highways network and residential streets, designed to give priority to pedestrians and cyclists



- Characteristics
 - Covered cycle racks at park and ride site

Public Transport Established Technology

AECOM

Quality Bus Corridors (QBCs)



- Dedicated Bus Lanes
- Bus priority at traffic signals
- Travel time savings for Busses
- Safety benefit

Bus Rapid Transit

Bus rapid transit (BRT) is a term applied to a variety of public transportation systems using buses to provide faster, more efficient service than an ordinary bus line. Often this is achieved by making improvements to existing infrastructure, vehicles and scheduling. The goal of these systems is to approach the service quality of rail transit while still enjoying the cost savings and flexibility of bus transit. The main forms of BRT used in the UK are summarised below:

Bus Only Links

- The use of at-grade exclusive right-of-way. A dedicated bus lane allows the bus to operate separately, without interference from other modes of traffic;



Guided Busways

- Grade-separated routes using a form of guidance such as kerbing, a channel or a dedicated track. These busways are often constructed parallel to existing roads, and allow the promotion of reliable schedules on heavily used corridors even during rush hours.



Bus Only Links

Bus Only links utilises existing road infrastructure, and therefore require no modifications to use this form of BRT system. Advances in technology have however presented attractive new vehicle options for use in such a scheme, some of which are described below:



A **fuel cell bus** is a bus that uses a hydrogen fuel cell as its power source for electrically driven wheels, sometimes augmented in a hybrid fashion with batteries or a supercapacitor. The fuel cell bus represents an environmental benefit over conventional buses due to the lack of harmful vehicle emissions.



A **bendy bus** is usually of single-deck design and comprises two rigid parts linked together by a pivoting joint. This arrangement allows a longer legal overall length, and thus a higher passenger capacity than rigid single-decker buses, while still allowing the bus to be turned within standard roads.



An **FTR StreetCar** is a modified conventional bus with styling similar to contemporary trams and greater distances between axles in order to maximize the low-floor area for easily-accessible seating. On-board information is provided which displays the next FTR stop and information on connecting bus/train routes.

Guided Busway

The most popular form of guided busway in the UK involves the use of a kerb-guided route and specially modified buses, however, there are alternative schemes which have been implemented elsewhere in Europe. A brief description of the kerb-guided vehicle system as well as two of the alternative guided schemes is shown below:



Kerb guided buses are standard buses modified with small guide wheels attached to the front wheels of the bus which run along the vertical face of kerbs on a purpose built busway track. The guide wheels steer the bus whilst it's in the busway. Busways can be used for part or all of a bus route.



A **trolley bus** (also known as trolley coach, trackless trolley or trackless tram) is an electric bus that draws its electricity from overhead wires using spring-loaded trolley poles. Like other electric vehicles, trolley buses are more environmentally friendly than fossil-fuel or hydrocarbon-based vehicles.



A **rubber-tyred metro** is a form of rapid transit system that uses a mix of road and rail technology. The vehicles have wheels with rubber tyres which run on rolling pads inside guide bars for traction, as well as traditional railway steel wheels with deep flanges on steel tracks for guidance. Most rubber-tyred trains are purpose-built for the system on which they operate.

Busway Construction

A guided busway requires the construction of dedicated infrastructure, with most designed to a lane width slightly wider than a standard bus of around 2.6 meters. The most efficient method of constructing a busway involves the use of a process known as Slipforming.

Slipforming allows a busway to be created on site, with ready-mixed concrete poured into the front of a paver (effectively operating as a large, slow moving mould), which places the concrete so that it emerges with the specified busway dimensions from the back of the paver.



Guided Busway -Benefits

- **Cost** – BRT cost schemes in UK range from £1.3M (Edinburgh) to £3.4M (Cambridge) per Kilometre compared to £7M to £25M for LRT.
- **Limited Land Take** – traditional bus lanes are 3.75m or 4m wide. Guided systems are typically 2.6m wide.
- **Self Enforcement** – no obstruction as they deter other traffic from using the guideway.
- **Accessibility** – at bus stops or 'stations' allow easy level boarding
- **Proven mode shift than bus priority measures**
- **High vehicle capacity**
- **Publically acceptable in urban environment**



- **Cambridgeshire case study**
 - Links Cambridge to surrounding towns, new housing development (9,500 dwellings) north of the city and new Park and Ride sites

Light Rail



- Steel tracks and wheels
- Usually electric powered
- Overhead pylons
- Can operate separated from other traffic (off street) or mixed with other traffic (on street)
- AECOM principal designer on Dublin Luas Light Rail Project (pictured)

Light Rail – On Street



- Pros
 - Higher capacity than busses
 - Faster travel time than busses
 - Electric powered
 - Less air and noise pollution

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- Cons
 - Lower capacity than heavy rail
 - Narrower streets
 - High capital cost
 - Tracks can be hazardous for cyclists

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Light Rail – Off Street



- Pros
 - Right of way
 - No speed reduction of other transport modes
 - No delays from road users

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- Cons
 - High Capital Cost
 - Can expose neighboring populations to moderate levels of low-frequency noise

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Light Rail – Case Study



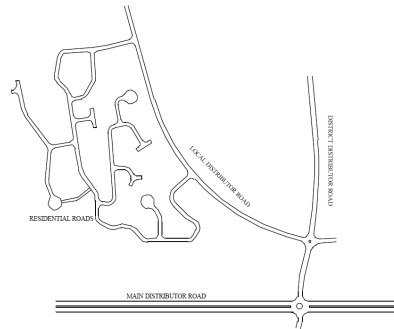
- Madrid case study
 - Opened 2007
 - 3 Lines; 27.8km total length
 - 36 Stations



- Characteristics
 - Light rail connects new developments with the metro network
 - GPS and standard signalling

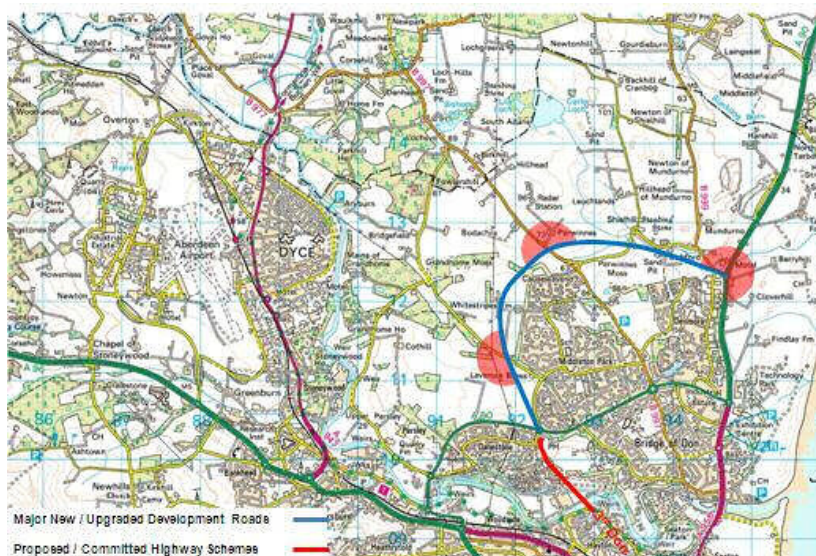
Highway Network

Hierarchy of Roads

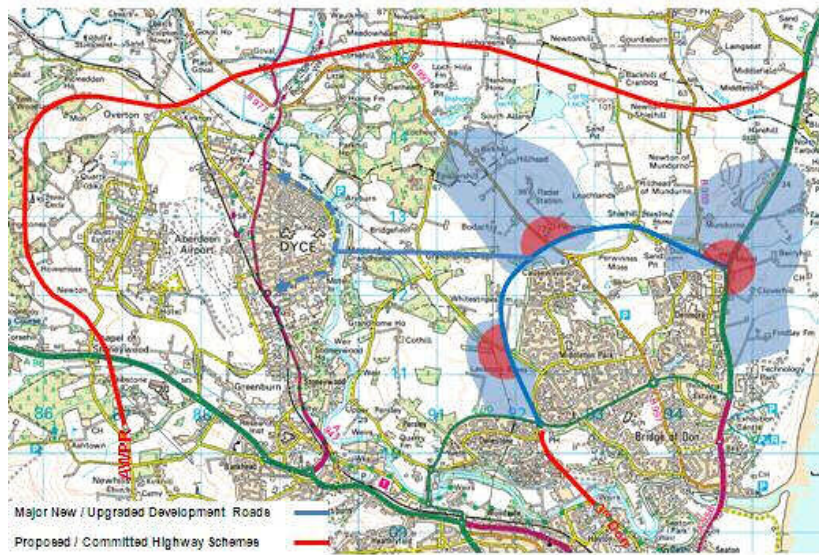


- **Strategic Road**
 - Main road linking large towns and cities
- **Main Distributor Road**
 - Traffic movement into and out of a town and links major Residential and Commercial districts
- **Distributor Road**
 - Major traffic movements within towns or districts
- **Industrial Road**
 - Links Industrial/Commercial premises to Local and District Roads
- **General Access Road**
 - Loop roads serving up to 400 dwellings

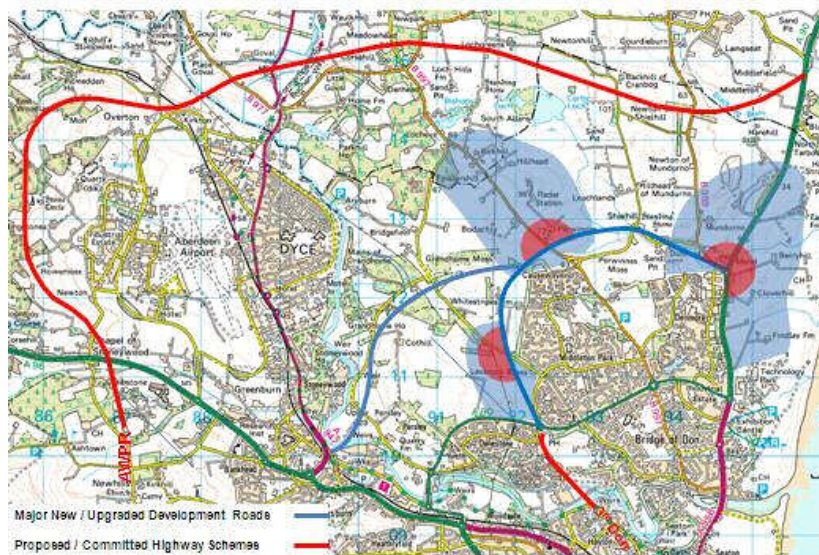
Phase 1 Roads Infrastructure



Phase 2 Roads Infrastructure (Option 1)



Phase 2 Roads Infrastructure (Option 2)



ASAM Modeling



North of Don

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Client logo

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- **Background**
 - Area wide strategic multi modal transport model
 - Controlled by MVA and used to test strategic development and infrastructure
- **North of Don Modeling**
 - Discussions underway to have the development tested
 - Phasing to be agreed
 - Infrastructure upgrades to be agreed
- **Future Timescales**
 - Model runs to be complete by early 2011 and results will be interpreted and reported under separate cover

Developing the Masterplan

AECOM

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