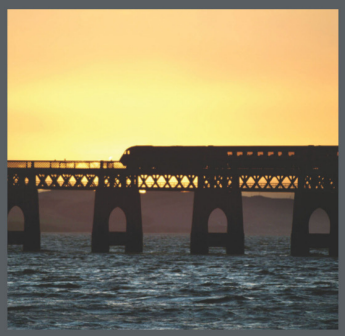


Proposed Dundee Local Development Plan

Transport Background Paper

October 2012

Dundee City Council
City Development
CHANGING FOR THE FUTURE

Dundee City Council - Proposed Dundee Local Development Plan

Transportation Background Paper

Contents

Introduction and Purpose

This Transportation Background Paper supports the Local Development Plan by informing the integration of land use and transportation planning. In doing so it aims to provide a clear assessment of major development sites and their relationship to the existing and future planned transport network.

This document assesses only those sites which are expected to be included in the Local Development Plan. Assessment has been undertaken against a range of issues, including the objectives and outcomes of the Local Transport Strategy (LTS), Regional Transport Strategy (RTS), The Single Outcome Agreement and the Scottish Transport Appraisal Guidance (STAG) criteria. In doing so it seeks to confirm that such developments are acceptable, or have the capacity to be acceptable in both transport and planning terms before land allocations or detailed design work is finally committed.

A number of other sites have been subject to assessment - both for transportation and other planning matters, but are not being taken forward at this time and are therefore not included. Details of sites that were included in the wider site assessment process were published alongside the Main Issues Report consultation.

Some of the sites in this paper have been identified through higher level processes (e.g. TAYplan Strategic Development Plan and Regional Transport Strategy). Delivery of these sites is not only required to meet national and regional planning objectives, but also that of the Single Outcome Agreement and the Council Plan for Dundee.

These documents aim to improve Dundee as a working city through the promotion of economic growth. They support a vision which includes that **Dundee:**

- **will have a strong and sustainable city economy that will provide jobs for the people of Dundee, retain more of the universities' graduates and make the city a magnet for new talent**
- **will offer real choice and opportunity in a city that has tackled the root causes of social and economic exclusion, creating social inclusion and a community which is healthy, safe, confident, educated and empowered**
- **will be a vibrant and attractive city with an excellent quality of life where people choose to live, learn, work and visit.**

Clearly the successful promotion of development sites and wider economic growth is closely linked with the transportation networks which support them. Therefore, even where sites have been identified as a result of non-transportation related priorities, this appraisal seeks to measure against:

The Local Transport Strategy - 3 key objectives:

- **Reducing the need to Travel**
- **Promoting Alternative modes of travel**
- **Restraining the use of the private car**

The Regional Transport Strategy which has 6 overarching objectives and Scottish Transport Appraisal Guidance (STAG) which has similar criteria (with the exception of Health & Well-Being) covering the following topics

- **Environment**
- **Safety**
- **Economy**
- **Integration**
- **Accessibility and Social Inclusion**
- **Health & Well-Being**

In selecting the development sites to be included within this document, consideration was only given to those sites which either individually or collectively are likely to have transportation implications, or have been given increased emphasis through allocations in the Strategic Development Plan or other Government Initiatives.

Seven sites are identified in this report, five of which were identified in the Dundee Local Plan Review 2005 and therefore benefit from having had their transportation impacts assessed previously. In some cases, work has already commenced on site to either deliver the development or deliver the transportation requirements.

The Dundee Context

Dundee acts as a key transport node for both national and regional transportation. Its resident population is in the region of 143,000 with the city covering an area of 24 square miles. Geographically it is the smallest local authority area in Scotland yet serves a regional function with a catchment area extending well into neighbouring authority areas and an estimated catchment population of 400,000 people.

Cross-boundary transportation connections are formed by the A90 Trunk Road entering from Perth to the west and Aberdeen from the north. The A92 Trunk Road connects via the Tay Road Bridge to the south and from Arbroath in the East more localised traffic connects via the A923 from Coupar Angus and a series of minor roads from outlying villages and other settlements.

Dundee benefits from good direct and regular rail connections to Aberdeen, Glasgow, Edinburgh and England. Dundee rail station continues to be very well utilised and is amongst the busiest stations in Scotland, whilst Broughty Ferry station has had service improvements to improve its connectivity.

Inter-city and regional buses are well served by the city's key location on the road network with services utilising both a central bus station and on street facilities.

Dundee Airport plays a key economic role for the city and wider region. It is one of the most convenient fly-in destinations in central Scotland due to its proximity to Dundee City Centre - a distance of only two miles and less than 10 minutes taxi ride from mainline rail and bus stations.

Local transportation connections encompass a wide range of transportation options:

Walking networks are largely formed by the extensive footway provision but also via a system of core paths which continues to be developed. Investment in both continues to improve accessibility over the city via the upgrading of pedestrian crossings, dropped kerbs etc. whilst new developments include these as standard.

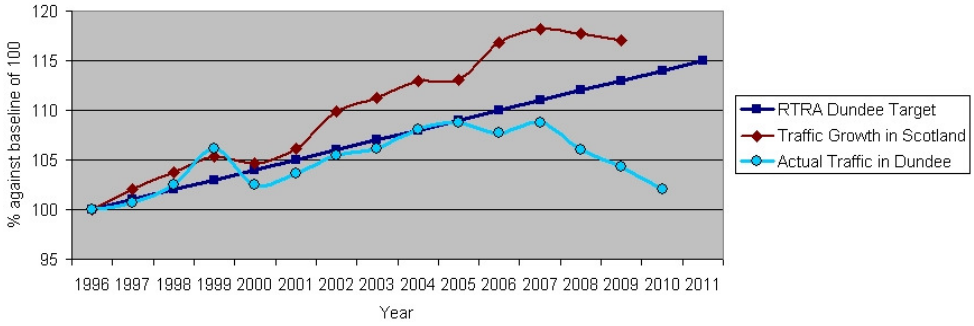
Cycling networks are based on using the Green Circular and Core Paths as spines for additional routes termed Greenways for accessing major locations such as Ninewells Hospital, the University Of Dundee and the city centre. The Dundee Travel Active campaign continues to promote cycling, as well as walking and public transport

Bus transport within the city has been subject to a significant investment, with a 100% low floor entry bus fleet, real time information, CCTV and on-board free wi-fi on some routes. An online journey planner provides information on all of the services across the City, whilst there has been recent investment in low carbon vehicles.

The hierarchy of the road network is largely defined from the regional and Trunk Road routes indicated above which enter the city and form arterial corridors direct to the central waterfront area. Whilst some sections of the wider road network do experience high demand at peak times there are generally few issues of congestion and initiatives such as a liftshare scheme, car club and others assist in seeking to mitigate the effects of growth in traffic.

The trunk road network is under the control of Transport Scotland and therefore the Council's transport interventions cannot be viewed in isolation. A combined appraisal approach which includes both Trunk and local road functions is therefore appropriate. It is acknowledged that the majority of the trunk road network in this area is also utilised for local distribution within the city. Congestion does occur within the road network in Dundee, particularly within the city centre approaches during the morning and evening peak periods and on the Kingsway, typically the congestion lasts for approximately 45 minutes in each peak period. The Council identified this as a key issue in 2000 and set road traffic reduction targets for the city centre to a level lower than predicted growth. To date Dundee has been successful in that aim as demonstrated by the graph below.

Dundee established a baseline for traffic count data in 1996 and has used that to measure the relative increases in traffic flow for the Scottish average, the Road Traffic Reduction Act targets for the city and actual traffic as measured throughout the city. The monitoring of road traffic reduction targets is reported annually to Dundee City Council's City Development Committee.



(Monitoring Of Road Traffic Reduction Act Targets - Committee Report Report No. 264-2011, 22 August 2011)

The Dundee Local Development Plan

The Local Development Plan has been prepared taking into account the current Dundee context, both as existing and that identified but not yet implemented in the Dundee Local Plan Review 2005.

Whilst the proposed spatial strategy remains reflective of the Dundee Local Plan Review 2005, there has been progression in a number of strategic level policy documents since the last Local Plan was published including:

- The publication by Scottish Government of Scottish Planning Policy in 2010 - which recognises the importance of links between land use and transport.
- The publication by Transport Scotland of Development Planning and Management Transport Appraisal Guidance in 2011 - which seeks to support and inform Local Development Plans by considering the impacts of proposed developments on transport networks and services.
- The publication by Tayplan in 2012 of the Strategic Development Plan which identifies various requirements for the City of Dundee and seeks to deliver better quality development and places through the integration of transport and land use.
- The publication by Tactran and partners of the Regional Transport Strategy which sets out a vision and strategy for improving the region's transport infrastructure, services and other facilities for the period to 2023.

Within the Local Development Plan, the following land designations as development sites and proposals have been identified as having potential transportation impacts:

1. Citywide - Brownfield residential development sites
The Plan contains a large number of sites which have been identified as suitable for housing development. These are all on previously used land and are dispersed throughout the city area.

2. Dundee Western Gateway - Residential and business use
These proposals include new and expanded settlements containing approximately 750 houses and a potential future 50 hectare business park located between Liff Village and Invergowrie Village on the western edge of the city

3. Dundee Central Waterfront - Mixed use development
A regeneration project to transform the central waterfront area through enhancement of its physical, economic and cultural assets. The project involves upgrading transport connections including an upgraded railway station concourse, a new road layout and introduction of new development sites which will extend the current city centre down to the waterfront.

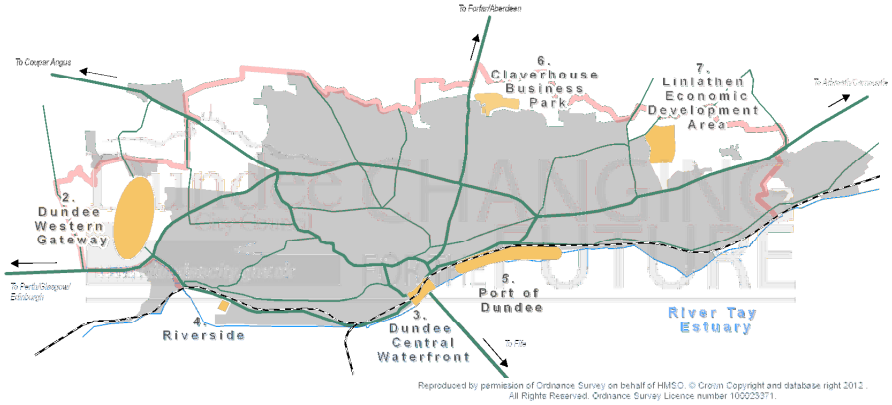
4. Riverside - New rail station and park & ride facility
The relocation of Invergowrie train station to a new location opposite the Riverside Nature Park. A park & ride facility is proposed in the same general area at Wright Avenue.

5. Port Of Dundee: Enhanced capacity and rail freight opportunity
The Port of Dundee has been identified by the Scottish Government as an Enterprise Area whilst being adjacent to the main east coast rail line offers the opportunity to develop a rail freight interchange.

6. Claverhouse Business Park.
Identified by Scottish Government as an Enterprise Area

7. Linlathen Economic Development Area.
Identified by the Strategic Development Plan as a Strategic Development Area

Map 1: Location Of Development Sites

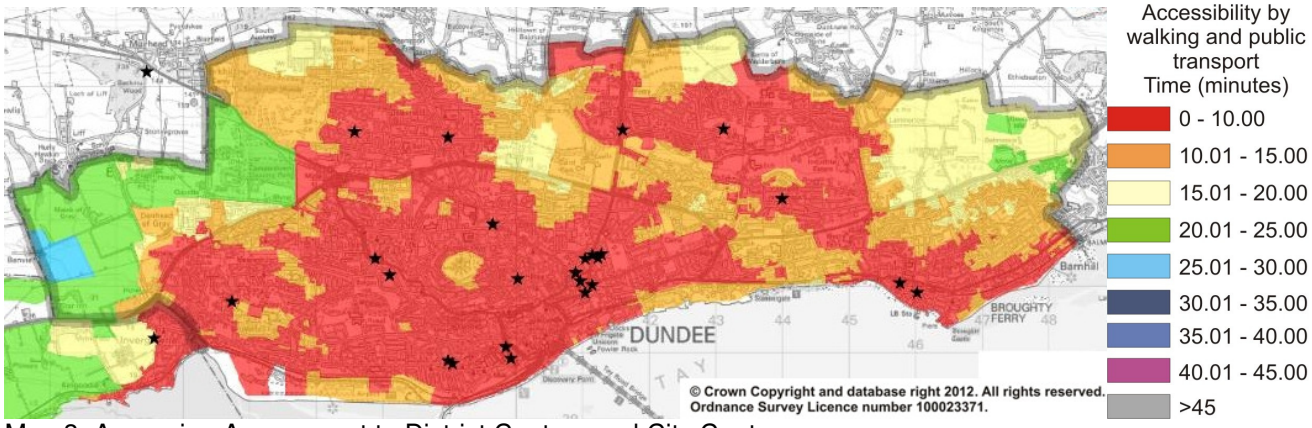


1. Citywide Brownfield Residential Development Sites (Not shown on map)

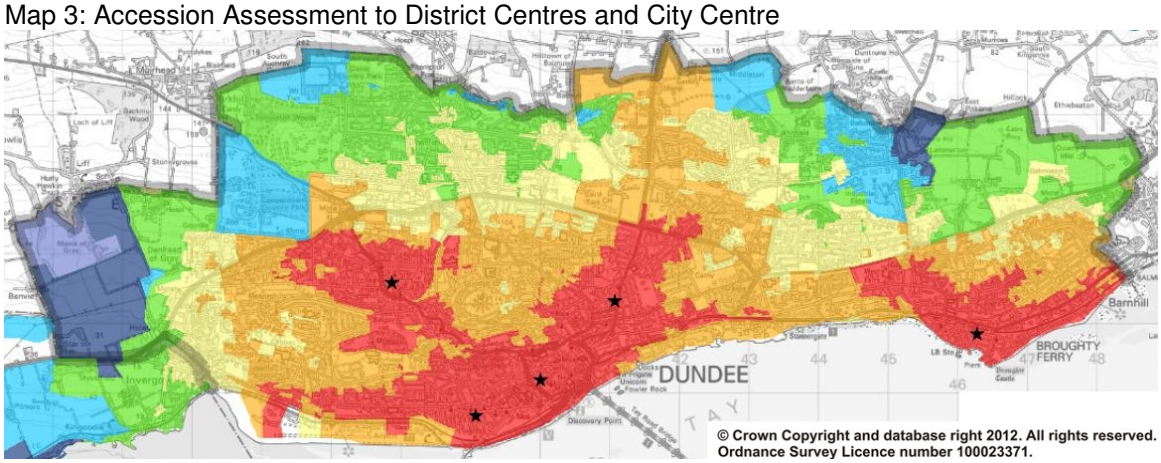
Appraisal of Development Sites:

Site	**1. Citywide - Brownfield residential development sites**
Current situation	Dundee's spatial strategy supports that of the Tayplan Strategic Development Plan in pursuing the reuse of previously developed land and buildings. By concentrating on brownfield land it seeks to ensure the most efficient use of land and in doing so, should minimise impact on the transport network. As part of the preparation of the Main Issues Report all sites known to the Council, or identified by other persons through the call for sites exercise were assessed individually for their current accessibility and future potential. This assessment included the identification of existing facilities for walking, cycling, public transport and private vehicles. Whilst not every site chosen for progression to designation as a housing site benefits from existing high quality facilities all were shown to have accessibility for all modes of transport. They therefore have a high capacity for meeting the Transport Strategy objectives of: Reducing the need to travel; promoting alternative modes of travel and restraining the use of the private car. An access assessment/accession model was undertaken for public transport and walking using a variety of transport demand locations to inform the Plan process. To assess such a large number of brownfield sites in this manner was impractical and therefore a general indicator for accessibility within the city using journey times to General Practitioner surgeries was undertaken (Map 2). The assessment demonstrated that the majority of the urban population and therefore all brownfield sites, are within a 15 minute walk or bus journey time of a GP surgery (red and orange shown below) and is an indicator that the Brownfield sites should be considered highly accessible. This approach was repeated to consider the principal services areas of the District Shopping Centres and City Centre and again the majority of the existing urban population demonstrates a good level of accessibility without reliance on a private vehicle.

Map2: Accession Assessment to GP Surgeries



Map 3: Accession Assessment to District Centres and City Centre



Mitigation proposed	Mitigation to be undertaken on a site by site basis through consideration of planning applications and with reference to the policies of the Local Development Plan. These will include provision of cycle and appropriate car parking, The inclusion of bus facilities or amendment to services where appropriate and opportunities taken to enhance the core path network in some locations.
Effect of mitigation and effect of development on transport network	Whilst brownfield sites are already generally accessible by all modes, the consideration of all sites as they come forward through the planning application process will allow each to either maintain their existing level of accessibility or improve access. No significant impact on the Strategic Road or Rail Network is expected. Of the sites proposed 63% previously contained housing. The remainder include sites which had high peak transport demand such as redundant school sites or former sites of employment.
Further comment	The delivery of improvements to the transportation network affecting these sites is dependent upon the effectiveness of the policies of the Local Development Plan - no specific works are proposed which will affect all sites.
Local Transport Strategy	▪ **Reducing the need to Travel** Brownfield sites offer the greatest opportunity for access to localised services, employment, leisure and education opportunities ▪ **Promoting Alternative modes of travel** Brownfield sites offer the greatest opportunity for undertaking travel by other modes. ▪ **Restraining the use of the private car** A consequence of reduced need for travel and greater opportunity for alternative options would suggest that the need for private car ownership and its use is reduced.
Scottish Transport Appraisal Guidance and Regional Transport Strategy	▪ **Environment** Whilst some specific sites may include impacts on existing open spaces including past demolition sites, school grounds etc it is maintained that their use is of lesser environmental impact than greenfield development. The bringing of redundant land back into productive use and the removal of contamination and unsightly sites has clear local environmental benefits. Care should be taken during the planning application process to identify any site-specific concerns which will require to be assessed. The promotion of walking and cycling at the expense of the car can reduce noise, carbon dioxide and air pollutants. ▪ **Safety** The development of these sites is expected to have a neutral effect on safety. There may be a slight improvement in community safety through the introduction of greater numbers of people in a locality. ▪ **Economy** The increased number of residents living within the heart of the city will aid local business and further support local transport services such as buses and taxi services. ▪ **Integration** The use of brownfield sites permits the increased use of public transport, walking and cycling and combinations in some cases. ▪ **Accessibility and Social Inclusion** Brownfield sites offer the best opportunity to provide housing in easily accessed areas with the lowest transport costs. • **Health and Well-being** Brownfield sites offer the best practical option for reducing the need to travel –this in turn contributes to reduced car use and congestion therefore avoiding air quality impacts. The proximity of housing sites to services encourages the promotion of a culture of active and healthy travel.

Site	**2. Dundee Western Gateway - Residential and Business Uses**
Current situation	The Western Gateway developments were first identified in the Dundee and Angus Structure Plan, thereafter in the Dundee Local Plan Review 2005, as a series of related developments on Land between the A90 Dundee to Perth Trunk Road in the South and Liff Village in the North. Development to date has been concentrated on the grounds of the former Liff Hospital (95 houses completed to date). A road improvement project (Dykes Of Gray Road) which is necessary to enable the remaining housing sites to progress was completed in early 2012 The Strategic Development Area comprises 50 hectares of land for employment uses, Tayplan consider this as a long term opportunity which will occur after the completion of the housing developments. Walking. Facilities in this locality are initially minimal however the recent improvement to The Dykes Of Gray Road includes footway provision which allows for future linkages between the proposed residential areas as well as links to Liff village and Invergowrie. Cycling: Facilities in this locality are initially minimal however the development of this location will include cycleway and reduced speed road provision. Public Transport: The level of existing public transport services in this area is relatively limited, it is acknowledged that the proposed level of growth will support the retention of existing services and act as a catalyst for improvement. Private Vehicles: It is acknowledged that the location is remote from the concentrated urban area of Dundee and that a significant proportion of trips generated will be by car. Development of the new village sites is currently restricted to a maximum of 270 housing units due to limitations on the Swallow junction (trunk road)
Mitigation proposed	Walking: All developments within the area are required to contribute towards a good network of pedestrian footpaths/footways, this includes linkages between village settlements and has commenced with the addition of a footway in the Dykes Of Gray improvement works. Cycling: All developments within the area are required to be designed to include cycling provision, this includes linkages between village settlements and to existing settlement areas, including beyond the A90. Public transport -The village developments are required to design the internal road networks in a manner which permits bus access to the core of the development sites. Road Network: Improvement to the capacity of Swallow Junction is required for full development of all plots and forms part a section 75 agreement to finance such works, due for commencement after 270 houses are built. Dundee City Council will coordinate these works and is in consultation with Transport Scotland as regards design. The Strategic Road Network will be impacted upon as a result of this development. Traffic modelling already agreed with Transport Scotland has indicated that capacity exists for 270 houses prior to improvements being required at Swallow junction. A vehicle for funding and delivering such improvements has been put in place via section 75 planning agreements. These agreements include a financial contribution from the developments with Dundee City Council coordinating the improvement works.
Effect of mitigation and effect of development on transport network	The various mitigation measures are expected to deliver a significant enhancement to accessibility for this area. The inclusion of the southern area as a Strategic Development Site for employment purposes is not expected to have implications for the Strategic Road Network during the lifespan of this Local Development Plan. The development of that site is expected after the completion of the residential elements which will therefore follow after the current Swallow junction improvement. (source: Tayplan Action Programme) Rail Services: No impact on the strategic rail network is expected, however should the railway station be relocated from Invergowrie to Riverside this may potentially benefit from extra patronage from residents in this area.
Local Transport Strategy	• **Reducing the need to Travel** It is accepted that Greenfield developments will introduce a need for travel to access

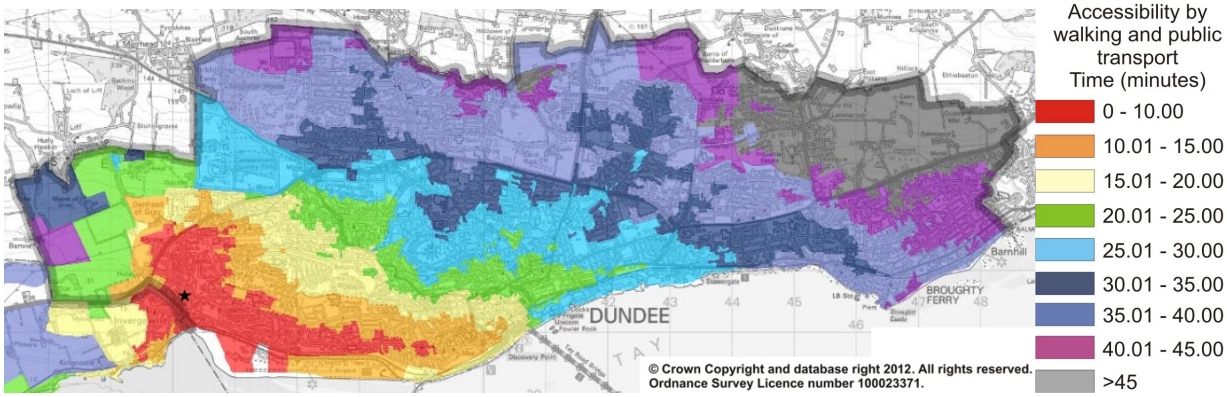
	goods, services and employment. • **Promoting Alternative modes of travel** With and acceptance that travel needs are being generated, a choice of travel modes are to be promoted and designed into the development proposals – this includes walking and cycling routes and road standards suitable for public transport access. • **Restraining the use of the private car** Whilst the promotion of alternative travel modes will be undertaken it is accepted that private car use will remain a dominant choice within this development. However, the Western Gateway development has been chosen due to its proximity to major employment centres including Dundee Technology Park and Ninewells Hospital thus minimising distance travelled and reducing the need for cross-city movement of private cars.
Scottish Transport Appraisal Guidance and Regional Transport Strategy	• **Environment** The transportation elements of the Western Gateway are designed to minimise impact on the environment by avoiding designated sites and including sustainable drainage etc to reduce resultant pressure on watercourses. The promotion of walking and cycling at the expense of the car can reduce noise, carbon dioxide and air pollutants. • **Safety** The junction and road improvements are designed to reduce conflict and improve general safety performance. The inclusion of facilities for cycling and walking should further improve safety performance • **Economy** The development will benefit the economy of Dundee City. Whilst being a Greenfield development it exists on the edge of the Dundee urban area and therefore is within a close commute to the city services and employment locations. Road and Junction works will improve journey time reliability • **Integration** The development seeks to include good integration of walking cycling and public transport throughout the development. • **Accessibility and Social Inclusion** The development seeks to include good integration of walking cycling and public transport throughout the development. • **Health and Well-being** The spatial benefits of developing housing in the west include a reduction of cross city traffic and congestion which will be of benefit to air quality in the city. An undertaking to provide facilities and a general design which supports active and healthy travel will result in positive benefits to future residents.

Site	**3. Dundee Central Waterfront - Mixed Use Development**
Current situation	Dundee Central Waterfront was identified in the Dundee Local Plan Review 2005 as a major regeneration project. A Masterplan was developed in 2001 and has guided a series of developments in the area which include significant impacts upon the transport network, including: ▪ the complete removal of the original road network and building layout and replacement with a grid layout ▪ the realignment of the Tay Road Bridge access arrangements ▪ the redevelopment of Dundee Rail Station ▪ the realignment of and improvements to cycling and walking routes through the area. Walking. Prior to the commencement of the project walking routes were peripheral in nature and utilised overhead walkways. The project introduces a significant quantity of new footways to all locations within the development area. Cycling: Prior to the commencement of the project cycling routes were limited to a single route alongside the southern edge which form the Green Circular and National Cycle Network . The project introduces a significant quantity of new cycleways and cycle parking facilities. Public Transport: Prior to the commencement of the project, bus facilities were limited to a few services adjacent to the train station. The new road network permits the enhancement of the bus services to provide a greatly increased level of accessibility to service the new developments. The main east coast railway runs through the site - mostly underground, with Dundee's main station in the west of the area. Private Vehicles: The combination of central location, Tay Road Bridge landfall, and trunk road is such that a high quantity of traffic is concentrated in this area and acts as a major hub for both local and regional routes.
Mitigation proposed	As part of the overall masterplan for the Central Waterfront a comprehensive redesign of the transport network was undertaken. This includes realignment of the road network, an upgraded railway station concourse, improved pedestrian access and cycle and bus facilities. The detailed design of each element is planned out at each phase of the works but retains the emphasis set out in the Waterfront Masterplan
Effect of mitigation and effect of development on transport network	Walking - the development will deliver a significant increase in the overall provision of footways and public spaces in the area. Cycling - the development will deliver a realigned waterfront portion of the Green Circular cycle route. Improved access to the new development sites and cycle parking is to be included. Public Transport - the improved road network will permit bus access to all development sites within the Central Waterfront Area. Whilst no guarantees can be given as to the level of service that private bus companies will choose to provide to this location it is considered reasonable to suggest that it will benefit from a similar level of accessibility to that of the existing city centre. Private vehicles - vehicle circulation within and through the area will be remodelled throughout the period of the plan to improve vehicular through routes and accessibility of the various development sites, including for freight deliveries. In the short term it is to be expected that there will be disruption to the Strategic Road network whilst construction takes place. Earlier phases of the development works includes realignment of most roads within the area, including new access arrangements for the Tay Road Bridge and the access to the Trunk Road. When complete the road network is expected to deliver a more controlled traffic flow in the area. Rail Services: The operation of the rail network will remain unaffected throughout the construction period with the development construction being planned to avoid disruption. Rail facilities are however to be improved: the railway tunnel and associated bridges are being upgraded and strengthened, whilst the railway station is also to be upgraded as part of the works through a major financial investment in that facility.
Local Transport Strategy	• **Reducing the need to Travel** The project seeks to provide a mixed use development which includes employment

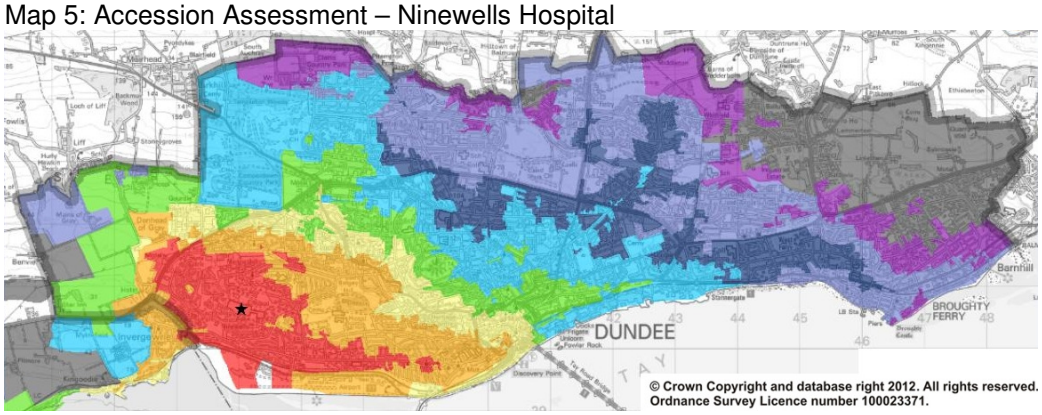
	leisure and residential uses. • **Promoting Alternative modes of travel** The project includes work to enhance walking and cycling facilities. Bus services will be significantly improved and rail services are to be improved through an improved/redeveloped rail station. The inclusion of Park & Ride facilities elsewhere will also raise the profile of alternative options. • **Restraining the use of the private car** Whilst the project will seek to improve conditions for road transport it is intended to restrain private car use through control of parking measures servicing the development. There will be limited parking facilities provided within the Central Waterfront Area and all parking will be within the controlled parking zone. Park & Ride facilities proposed elsewhere will assist in reducing the need for private car travel to this location.
Scottish Transport Appraisal Guidance and Regional Transport Strategy	• **Environment** The Central Waterfront project is seeking to significantly improve traffic flow and reduce the dominance of the road network in this area. In doing so it is expected that air quality will improve. The promotion of walking and cycling at the expense of the car can reduce noise and carbon dioxide. Measures have been taken to mitigate the effect of surface water run-off. • **Safety** A completely redesigned road network is expected to have a positive influence on the creation of a safer environment. • **Economy** The project is expected to deliver substantial economic benefit for the City Of Dundee, the wider city region and Scotland • **Integration** The project allows for multi-modal journeys involving walking, cycling and public transport. • **Accessibility and Social Inclusion** The central waterfront area seeks to become the most accessible location within Dundee. The location of goods and services here represents the most directly accessible and cost-effective option for non-car users. Parking for Private Cars is to be included and conform with the Council's strategies for central area parking • **Health and Well-being** The Central Waterfront area is to be the most readily accessible location within Dundee, with good transport connections including cycling and pedestrian connectivity and an integrated transport hub at the rail station. Whilst the area is not designed to be car free – it can be argued that with the good transport connections the need to bring a car to this location is greatly reduced therefore encouraging active and healthy travel choices. Where vehicle traffic has to come into this area (such as accessing the Tay Road Bridge) measures are in place to control its impact such that air quality is not adversely affected.

Site	**4. Riverside - rail station and park & ride facility**
Current situation	This area is a key transport corridor accommodating road, rail, cycle and walking. Visually it is dominated by a single carriageway road which acts as a main arterial route to Dundee City Centre. Alongside the road is a shared use cycleway/footway which forms part of the Green Circular and National Cycle Network. A railway line (Dundee-Perth) exists but the nearest stations are Dundee (in the city centre, 4.5km to the east) and Invergowrie (1.8km to the west). A new train station is proposed, which would be formed by the relocation of the existing Invergowrie Station. The potential location for the rail station has been identified by Tactran which would lie to the north of the riverside Nature Park. (Preliminary Design – on page 3 of that document) The preferred location for the park & ride facility has been identified as adjacent to the Riverside Nature Park and serves a dual function in providing car parking and bus services to the park as well as the Park & Ride. The Accession model assisted in identifying the preferred locations on the rail route and is shown below. In order to achieve maximum benefit the rail station would require the potential ability to serve both Ninewells Hospital (Map 4) and the Technology Park employment area (Map 5) whilst offering a rapid access to the City Centre (Map 6). From this it is sensible to conclude that the specific location for the rail service should be situated within the red area on Maps 4 & 5 and orange area of Map 6.
Mitigation proposed	Tactran identified both relocation of Invergowrie Rail Station and the Park & Ride site and both have subsequently been accommodated and identified within TAYplan Strategic Development Plan. Design studies have yet to be concluded but it is likely

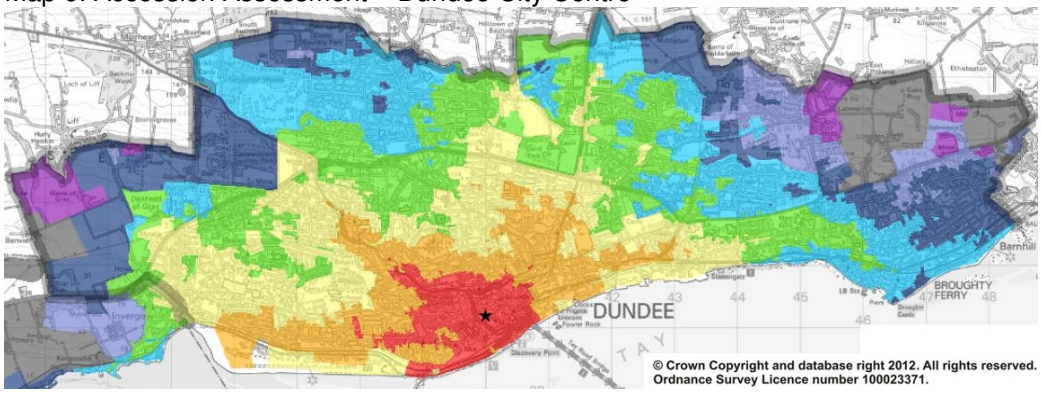
Map 4: Accession Assessment – Technology Park



Map 5: Accession Assessment – Ninewells Hospital

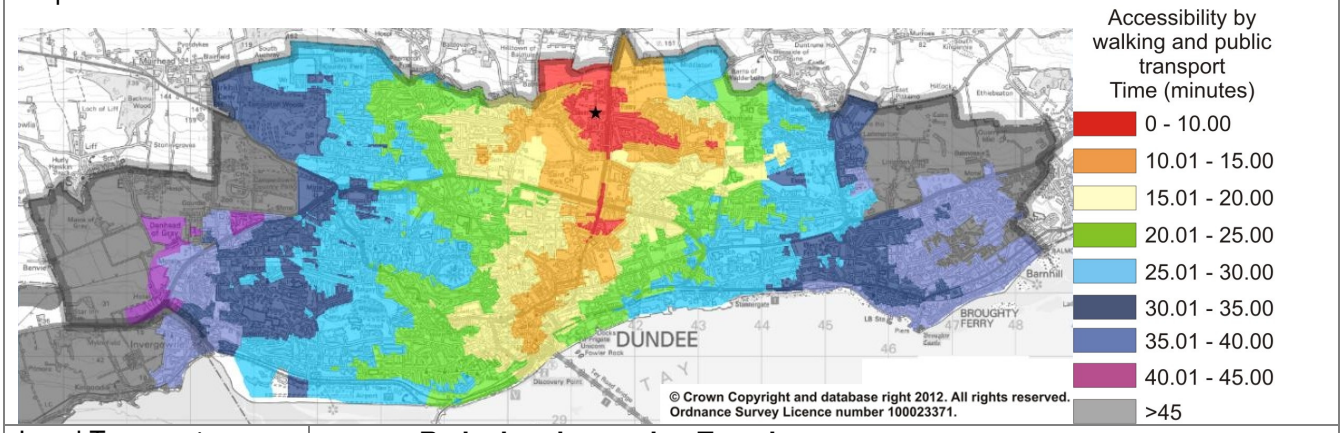


Map 6: Accession Assessment – Dundee City Centre

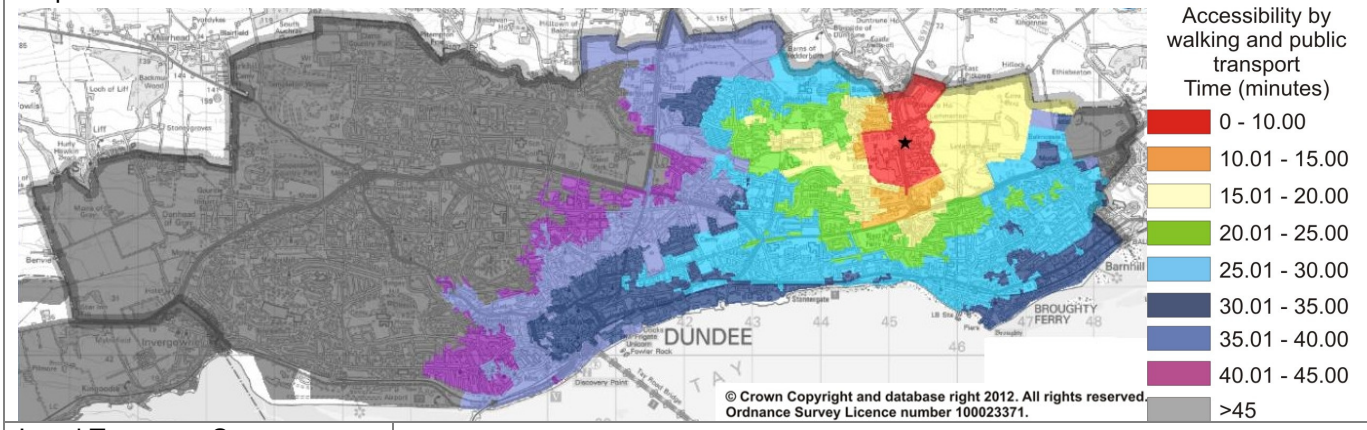


	that road junction improvements will be required and potential upgrading of cycleways and footways in order to realise maximum benefit from such a development.
Effect of mitigation and effect of development on transport network	The inclusion of a redesigned and improved road junction will interrupt traffic flow in this locality, however its detrimental effect is currently expected to be minimal and may bring benefits in other forms - e.g. road safety for turning traffic, reduced congestion and improvements to the City Centre environment etc. Such impacts will be assessed prior to approval of the development as will a business case to demonstrate the likely patronage of such facilities The effect of rail traffic has been assessed via the Tay Estuary Rail Study, the full appraisal report is available via the Tactran Website.
Further comment	Tactran have produced the following documents for Dundee West Park & Ride: Final STAG Report Detailed Design and Appraisal Technical Report Detailed Design & Appraisal Business Case Report Tactran have produced the following documents concerning the establishment of a new station in West Dundee and relocation of Invergowrie rail station: Tay Estuary Rail Study It is expected that Tactran will progress a business case report for the rail service.
Local Transport Strategy	• **Reducing the need to Travel** The nature of this development is that it addresses a need for travel – in doing so it seeks to offer a choice of travel mode for those journeys • **Promoting Alternative modes of travel** The purpose of this proposal is to promote alternative modes – principally bus and rail, but also walking and cycling for onward travel or to access the facilities • **Restraining the use of the private car** This development acknowledges that private car use exists and seeks to restrain its use by offering a viable alternative
Scottish Transport Appraisal Guidance and Regional Transport Strategy	The following is a summary of the findings of a formal STAG appraisal that was undertaken for this park & ride proposal – the full document may be found here: • **Environment** The proposal would have moderate beneficial impacts for local air quality but is considered to have a minor detrimental effect on biodiversity and habitats. The inclusion of a park & ride car park has a benefit of enhancing access facilities for the recently opened Riverside Nature Park. Both facilities have capacity to impact upon the use of the private car, reducing its negative effects including congestion on this approach to the City Centre, traffic noise and air quality. • **Safety** The proposal is expected to have a beneficial impact upon safety by reducing the quantity of vehicles and congestion within the city centre. The introduction of new traffic junctions to serve the facilities will assist in the management of traffic speed in this location. • **Economy** The economic benefit of a park & ride alone is relatively minor; however the anticipated usage will ease central area congestion and potentially permit long stay parking supply to be reduced. There is a potential role for the Park & ride to support access to the V&A@Dundee. The inclusion of a rail station would increase patronage of both facilities and introduce a multi-modal option for journeys. • **Integration** The inclusion of both a rail station and park & ride offers potential for a fully integrated multi-modal transport hub • **Accessibility and Social Inclusion** This proposal represents an opportunity to improve the availability of public transport, not only for car owners but all persons who may wish to access the City Centre, Riverside Nature Park and other facilities in western Dundee such as Ninewells Hospital. • **Health and Well-being** These proposals would have a beneficial impact by contributing to reduced congestion which in turn results in lower emissions and improved air quality. The park & ride facilities will also be suited to cyclists and pedestrians.

Site	**5. Port Of Dundee: Enhanced capacity and rail freight opportunity**
Current situation	The Port Of Dundee is a fully operational area. As part of the consideration being afforded to the needs of the offshore renewables industry there is potential for improvements being required to the access and wharf arrangements of the Port. This includes a potential addition of a rail freight facility which would permit tri-modal shipment of goods (Sea/Rail/Road).
Mitigation proposed	Significant enhancements to the Port access at Stannergate has been completed. To further support the renewable industries, works will be required to on the route between Claverhouse and the Port. This is required to ensure that the transportation of large equipment is not adversely affected by road restrictions such as tight turns at roundabouts etc.
Effect of mitigation and effect of development on transport network	Mitigation works on road access routes shall be designed to have no lasting impact upon the use and operation of the routes. Some disruption is however inevitable during construction phases. Mitigation on the trunk road is expected to be largely limited to treatments at junctions and overbridges to permit larger vehicles to negotiate the turns involved. Dundee City Council is committed to working with Transport Scotland and other partners to ensure the best possible delivery of these measures.
Local Transport Strategy	• **Reducing the need to Travel** The works proposed seek to enhance to operational capacity of the port and has no measurable effect on the need for travel. • **Promoting Alternative modes of travel** The emphasis of this project is to enhance the offshore renewables industries requirements which has no option but to use sea transport. Enhancement of Sea Transportation options, road and rail access will benefit all users of the Port and provide for modal choice. • **Restraining the use of the private car** The emphasis on this project is freight transportation. Increased use of the port may have an effect of encouraging growth in employment, however the port area is well located within the Dundee waterfront area and as such is suitable for access by other means.
Scottish Transport Appraisal Guidance and Regional Transport Strategy	• **Environment** No identifiable changes to the City environment is expected as a direct result of this works. There may be benefits in terms of air quality if goods are transferred to sea or rail rather than road. The development works must be mindful of the need to protect nature conservation interests on route and in the river Tay which may be impacted upon by these works • **Safety** The project involves improvements to a number of road junctions. In project has potential to reduce the number of vehicles on the public roads • **Economy** The delivery of renewables industries is a key driver for economic growth in Dundee. The improvement of the Port facilities has positive benefits for the attraction of further inward investment in the local economy. • **Integration** The project allows for the integration of land sea and rail transport • **Accessibility and Social Inclusion** The transportation interventions in this project will improve general accessibility to the port for operational purposes with the increased employment having potential to generate or protect bus service provision. Travel Plans would be appropriate for workforce travel. • **Health and Well-being** The more efficient use of the Port area will result in less road transport being required thus avoiding air quality issues associated with heavy vehicles, congestion and general road based freight movement. The port is already accessible by active and healthy travel modes and future developments will build upon this.

Site	**6. Claverhouse Business Park**
Current situation	The continuation of development at this location was proposed in the Dundee Local Plan Review 2005 and a long term land allocation was made for an additional 20 hectares to the east of the existing business park (Proposal 3). In January 2012 the Scottish Government identified this location as an Enterprise Area for Low Carbon and Renewable technologies. Site preparation works have been undertaken through the extension of an access road and associated footway/cycleway to the centre of the site
Mitigation proposed	The junction with the Trunk road is to be improved as part of the larger range of works as stated in relation to item 5 (Port Of Dundee)
Effect of mitigation and effect of development on transport network	As with item 5 (Port of Dundee) Mitigation works on road access routes shall be designed to have no lasting impact upon the use and operation of the routes. Some disruption is however inevitable during construction phases. Mitigation on the trunk road is expected to be largely limited to treatments at junctions and overbridges to permit larger vehicles to negotiate the turns involved. Dundee City Council is committed to working with Transport Scotland and other partners to ensure the best possible delivery of these measures.
Further comment	The Accession Model, measured to Claverhouse West identifies that the site is immediately accessible to a limited area and is concentrated on the principal arterial of Albert Street/Forfar Road. Modelling Claverhouse east was impractical due to the complete lack of development in that location. Claverhouse West provides a good example of an employment area that was established on a Greenfield site and the penetration of public transport services to the western site are expected to be replicated for the eastern site. Given the increased demand from employees it is reasonable to expect that public transport services would improve over time from their current level of provision.
Map 7: Accession Assessment - Claverhouse West	
Local Transport Strategy	• **Reducing the need to Travel** The site identified is on the edge of the Urban area of Dundee and as such is expected to generate travel demand. The site is adjacent to a residential area from which it is possible for residents to access on foot. • **Promoting Alternative modes of travel** The site is located in close proximity to a residential area, with opportunity to provide good quality walking and cycle access. The promotion of bus services would be challenging due to its road access arrangements however the roads standards applied to the site would permit access by buses. Travel plans and car sharing schemes could be encouraged to reduce car dependency. • **Restraining the use of the private car** Given its peripheral location it is accepted that the private car is likely to be a dominant mode however there is an opportunity to negotiate workforce travel plans with any future operator.
Scottish Transport Appraisal Guidance and Regional Transport Strategy	• **Environment** The site would be wholly reliant on road transport for freight and goods. It does however benefit from direct access to the strategic road network. The expected emphasis on renewables developments would result in the movement of such goods through the urban area of Dundee. The promotion of walking and cycling at the expense of the car for staff travel can reduce noise, carbon dioxide and air pollutants, whilst site-specific travel plans and car sharing schemes could reduce overall levels of traffic associated with development at this location. • **Safety** The site does not require, nor generate traffic movements on roads other than the strategic road network to which it has direct access and which is the safest option for large vehicles. The redesigned road junctions that may be required would be subject

	to a full safety audit and would seek to improve existing conditions wherever possible. • **Economy** The development of the renewables industries is a key economic development sector for the City of Dundee. The road improvements associated with this proposal would improve the reliability of journey times and enable employment generating development to take place. • **Integration** The site has capacity for good walking and cycling access to adjacent residential areas and to routes alongside the Trunk Road. The site is currently unoccupied and as such has no existing bus services, however the roads infrastructure is capable of accommodating such uses. DCC is committed to working with developers and bus operators to promote public transport accessibility. • **Accessibility and Social Inclusion** The transportation measures applied to this location are not expected to have influence on Accessibility and Social Inclusion. The development of the site will however have economic benefits in the form of new job creation which would be to the benefit of Dundee. • **Health and Well-being** The site has ready access to the Trunk Road network which would represent the most efficient option for the movement of road based freight vehicles. By avoiding the need to access the site from residential areas it therefore contributes to a general reduction in emissions and will assist in improving Dundee's air quality. Whilst road vehicles must access via the Trunk Road, the inclusion of active and healthy travel options from nearby residential areas is of great benefit.

Site	**7. Linlathen Economic Development Area.**
Current situation	The site was identified in the Dundee Local Plan Review 2005 principally for use as a single-user site as required by Scottish Government Planning Policies. The reservation of large sites for a single user is no longer a Scottish Government requirement and the site has subsequently been identified as a Strategic Development site within the Strategic Development Plan indicating the potential for multiple business operators to occupy the site. The site is currently open countryside but has road access to the west and south. A number of core path routes exist on all boundaries of the site. The Strategic Development plan expects this site to be developed in the longer term and therefore towards the end of the plan period or during the following plan.
Mitigation proposed	No mitigation has been proposed at this stage due to this being a long term allocation. Any development proposal will be assessed via the planning application process
Effect of mitigation and effect of development on transport network	It is to be expected that development of this site would utilise the existing access points but that upgrading to walkways and cycleways (Core Paths) would be encouraged as part of a wider travel plan for development.
Further Comment	The accession Assessment for West Pitkerro (the nearest developed location) indicates clearly the difficulty in cross-city travel for public transport which has underpinned a planning strategy which seeks to balance development by promoting an increase in employment uses in the east, an area which has seen significant housing developments in recent times.
Map 7: Accession Assessment: West Pitkerro 	
Local Transport Strategy	• **Reducing the need to Travel** A key element of Dundee's spatial strategy is to redress a balance between East and West Dundee, where West Dundee is seen to have a concentration of the city's larger employment uses. By promoting employment use in the east it will potentially contribute to a reduction in cross-city travel. • **Promoting Alternative modes of travel** With the site being Greenfield there are no existing services or facilities. The development of the site does have potential to include an enhancement to the existing core paths provision and increase the likelihood of a bus service being introduced in this locality. • **Restraining the use of the private car** This location has a limited bus service provision, whilst this development may encourage a bus operator to provide services this cannot be guaranteed. The Greenfield nature of the site is such that private vehicles are likely to be the dominant method of transport, however there is an opportunity to implement workforce travel plans with any future operator

Scottish Transport Appraisal Guidance and Regional Transport Strategy	• **Environment** The site is greenfield and involves the use of land currently in agricultural use. Being peripheral it is acknowledged that the majority of transportation access will initially be by motorised road vehicle. However this does not imply that other modes should be ignored and improved provision for walking, cycling and public transport should be included in any development of this site to assist in reducing noise, carbon dioxide and air pollutants. • **Safety** The Road network in this location is considered suitable in this respect for servicing the development without further enhancement, however a full appraisal of the roads requirements will be necessary when the scale of any future occupier is known • **Economy** The development of this site will have economic benefits to the City. Its location adjacent to large residential areas will offer a potential reduction in commuting times and distances to the benefit of the workforce. • **Integration** No transportation interventions are proposed which would directly affect the integration of transport modes due to the long term nature of this proposal. The development of the site would however offer opportunities for enhancement of walking, cycling and public transport routes to the benefit of the site and wider general area. DCC is committed to working with developers and bus operators to promote public transport accessibility. • **Accessibility and Social Inclusion** There is potential for an upgrading of adjacent core paths which would afford improved access to the area for both cycling and walking • **Health and Well-being** The site is situated close to residential areas and a number of core paths – this location therefore has a high potential for the promotion of active and healthy travel options. The site benefits from direct access to a key distributor road with good connection to the Trunk Road network which would represent the most efficient connectivity for vehicle based journeys.

		Site 1 City-wide Brownfield Residential	Site 2 Western Gateway	Site 3 Dundee Central Waterfront	Site 4 Riverside Rail / Park & Ride	Site 5 Port Of Dundee	Site 6 Claverhouse	Site 7 Linlathen
Appraisal against General Transportation Criteria								
Active Travel - Walking	Relationship to existing footways and footpaths	Good	No existing provision	Adequate	Adequate	Limited (Security Controlled Zone)	Adequate	No existing provision
	Relationship to future planned footways and footpaths or ability to include within new development	**Good**	**Good**	**Good**	**Good**	**Limited (Security Controlled Zone)**	**Adequate**	**Good**
Active Travel - Cycling	Relationship to existing on/off road cycle routes	Varies due to widespread locations	No existing provision	Poor	Good	Limited (Security Controlled Zone)	Adequate	No existing provision
	Relationship to future planned on/off road cycle routes or ability to include within new development	**Good**	**Improved Provision**	**Good**	**Improved Provision**	**Limited (Security Controlled Zone)**	**No change proposed**	**Good**
Public Transport - Bus Travel	Relationship to existing Public Bus services	Good	Poor	Adequate	Poor	No existing provision	Poor	No existing provision
	Relationship to future planned bus networks or ability to include within new development	**Good**	**Improved Provision**	**Good**	**Good**	**No provision proposed**	**No change proposed**	**No provision proposed**
Public Transport - Passenger Rail Travel	Relationship to existing rail stations	Varies due to widespread locations	No existing provision	Good	Poor (*) (*Invergowrie)	No existing provision	No existing provision	No existing provision
	relationship to future rail stations	No change	No change	**Improved provision**	**Good**	**No provision proposed**	**No provision proposed**	**No provision proposed**
Strategic Road Network	Impact on existing Trunk Road Network with no interventions	No Impact	Negative Impact	Negative Impact	No Impact	Adequate for existing uses	Negative Impact	No Impact
	Impact on existing Trunk Road network (after any agreed interventions)	**No Impact**	**No Traffic Impact / Improved Junction**	**No Traffic Impact / Improved Junction**	**No Impact / General Traffic Reduction**	**Improved access**	**No Traffic Impact / Improved Junction**	**No Traffic Impact**
Local Road Network	Relationship to existing	Good	Adequate	Good	Adequate	Limited	Adequate	Adequate

	local road network. Relationship to the future local road network (after any agreed interventions)	**Improved Provision**	**Improved Provision**	**Improved Provision**	**Good**	(Security Controlled Zone) **Limited (Security Controlled Zone)**	**No Change**	**Improved provision**
Freight Transport	Relationship to existing freight interchanges / current freight access arrangements	No existing provision	No existing provision	No existing provision	No existing provision	Good Road-Sea Interchange	Adequate	No existing provision
	Relationship to future freight interchanges / future freight access arrangements	**No provision proposed**	**No provision proposed**	**No provision proposed**	**No provision proposed**	**Potential Good Road-Sea-Rail Interchange**	**Good**	**Good**
Summary Of Appraisal Against Local Transport Strategy Objectives		**Site 1 City-wide Brownfield Residential**	**Site 2 Western Gateway**	**Site 3 Dundee Central Waterfront**	**Site 4 Riverside Rail / Park & Ride**	**Site 5 Port Of Dundee**	**Site 6 Claverhouse**	**Site 7 Linlathen**
Reducing The Need To Travel		+++	+	+++	**0**	**0**	**0**	**++**
Promoting Alternative Modes Of Travel		++	+	+++	+++	++	**+**	**0**
Restraining The Use of the Private Car		++	**--**	++	++	**0**	**0**	**0**
Summary Of Appraisal Against STAG Criteria and Regional Transport Strategy Objectives		**Site 1 City-wide Brownfield Residential**	**Site 2 Western Gateway**	**Site 3 Dundee Central Waterfront**	**Site 4 Riverside Rail / Park & Ride**	**Site 5 Port Of Dundee**	**Site 6 Claverhouse**	**Site 7 Linlathen**
Environment		++	0	++	0	0	+	-
Safety		**0**	++	++	+	+	++	0
Economy		++	++	++	+	+++	++	+
Integration		++	++	++	+++	++	+	+
Accessibility and Social Inclusion		+++	+	+++	+++	+	0	+
Health & Well-Being		+++	++	+++	++	++	++	++

Scottish Transport Appraisal Guidance uses a seven point measure to highlight likely impacts of transport projects. These are interpreted by a series of + or – symbols as described below. In some documents referring to the above proposals the + may be substituted with a tick.

Major Benefit	+++
Moderate Benefit	++
Minor Benefit	+
No Benefit Or Impact	0
Minor Impact	-
Moderate Impact	--
Major Impact	---