

- Deliver consolidated development in a manner that can avail of existing transport infrastructure, nearby amenities and facilities in the short term to deliver a critical mass of growth in population and employment which can support the transition and sequencing of investment to higher capacity public transport infrastructure and services;
- Consolidated development along public transport corridors should provide for a mix of housing types to suit different households and various stages in a family cycle;
- Land use policies that minimise the requirement to travel longer distances, particularly during peak times, by encouraging mixed-use development. This should include ensuring areas are developed in tandem with the delivery of schools and other amenities to maximise the use of more sustainable modes of transport such as walking and cycling; and
- Land use policies that support the provision and design of new development in locations, layouts and at densities which prioritise walking and cycling and enable the efficient provision of public transport services.





05 STRATEGY DEVELOPMENT & OUTCOMES

Key future growth enabler for Cork: The development of a much enhanced Citywide public transport system.

National Planning Framework 2040

Accommodating the scale of projected growth within the CMA will mean increasing pressure on the existing transport network. This Strategy has been developed and assessed in the context of the following notional scenarios:

- A Business as Usual case that incorporates committed investment in the road network only;
- A second scenario that substantially increases Public Transport Investment; and
- A third scenario, building on the second, that represents the optimal outcome for Land-Use and Sustainable Transport Integration.

Scenario Testing - Transport Choices for Cork

Choice 1 - 'Business as Usual' Scenario

Choice 1 is the 'Business As Usual' scenario. This scenario is based on the historic trend that investment in transport infrastructure in the CMA will continue to be predominantly focussed on adding road capacity to accommodate the growth in travel demand. Committed improvements such as the upgrade to the Dunkettle Interchange and M28 will be realised. However, investment in public transport, walking and cycling networks will remain static. Land use policy and implementation within the CMA will remain relatively unrestricted and dispersed.

The likely outcome will be that the CMA region will continue to grow as a highly car dependent region. The additional capacity in roads will attract more car trips in response. Long-distance commuting will increase as house-holders will be attracted to cheaper land and housing stock in more dispersed settlements.

Traffic congestion will increase on the strategic and local network as longer distance commuters continue to access employment set in dispersed locations throughout the CMA. Congestion on the network will increase costs to business and undermine the region's appeal for inward investment. Pollution and emissions will continue to rise, undermining the region's quality of life and liveability and the competitive advantage of Cork City and Metropolitan town centres.

The case for public transport investment will become increasingly marginalised as the increasingly low density and sprawled distribution of land-use within the region will undermine the business case to provide it. Existing services will be subject to increased delays due to congestion further undermining its viability. Walking and cycling levels may increase in urban areas as a means of avoiding congestion; however, the environment will become less pleasant.

Choice 2 - Improvements to Public Transport and Sustainable Travel

Choice 2 is to prioritise investment in providing a comprehensive public transport network in line with the Strategy proposals. New railway stations will be opened on the existing suburban rail corridor and frequencies on existing routes will be increased. Bus services throughout the CMA will be enhanced.

Bus priority measures will be adopted, significantly improving bus journey time and reliability. Improvements to the pedestrian environment will improve accessibility to local services and the wider public transport network. The cycling network proposed in the Cork Metropolitan Cycle Network Plan will be delivered in full.

The likely outcome is that public transport will become more attractive relative to car travel for a significant number of journeys. The modal shift away from car will result in reduced congestion, 'freeing-up' some capacity on the strategic road network enabling more efficient movement of freight. Reduced emissions and the accompanying health benefits associated with the creation of a safe, accessible, active travel network will reduce health costs to businesses in the region and State, as a result of reductions in absenteeism.



Public health and quality of life will be further improved as emissions from private transport continues to fall and health benefits increase due to the delivery of a comprehensive walking and cycling network, with associated increases in their mode share.

Choice 3 - Better Integration of Land Use with Public Transport and Sustainable Travel

Choice 3 involves better integration of land-use with public and sustainable transport. This scenario builds upon Choice 2 and represents the optimal case of full integration of land-use development with sustainable transport provision.

Within the city and metropolitan towns, the majority of residential, employment and educational uses would be directed to locations that are highly accessible by walking and cycling networks and high frequency public transport corridors. Land use policies and implementation will largely restrict one-off housing and under-planned greenfield development. Growth will be consolidated and intensified around suburban rail, light rail and high frequency bus corridors.

The likely outcomes of this scenario is that the demand for car travel will reduce as people live closer to their workplaces and places of study. Longer distance trips across the CMA will be undertaken, in greater numbers, by public transport and will be supported by linked cycling and walking infrastructure. The business case for continued investment in public transport infrastructure will be enhanced as patronage continues to grow.

The sustainable transport measures proposed later in this report have been developed in line with Choice 3, which aligns with the overarching national, regional and local policy objectives for sustainable transport provision in Ireland.

Developing the Strategy

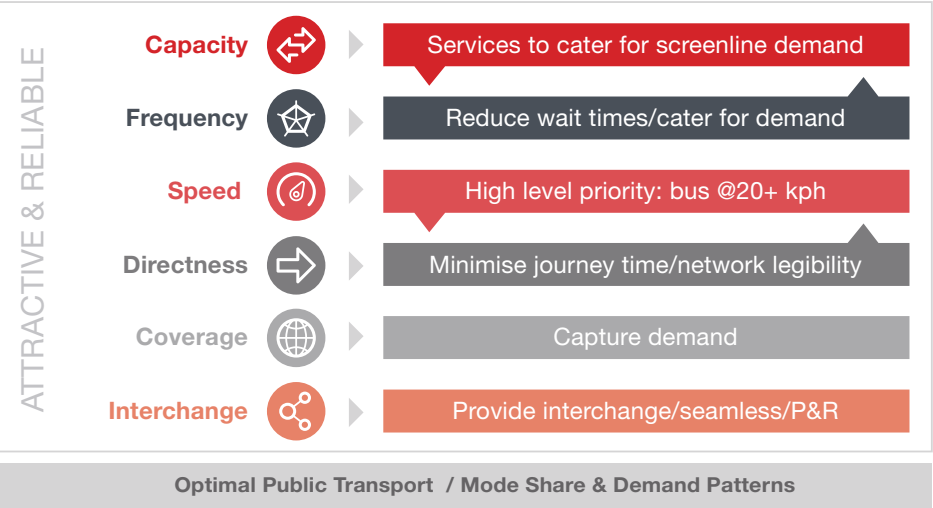
The approach applied in developing and assessing the proposed CMATS 2040 transport measures was as follows:

- Reviewing and establishing relevant policy and guidance;
- Establishing the baseline transport conditions;
- Identifying key challenges to be addressed, in consultation with key stakeholders;
- Developing network options based on guiding principles;
- Testing the transport network options with future land use scenarios including optimisation of land use to align with high performing transport corridors;
- Identification of preferred transport strategy; and
- Public consultation and subsequent finalisation of the Strategy.

The provision of a significantly enhanced public transport network within the CMA was a key priority for the Strategy.

To help in the development and assessment of options, a series of key guiding principles were set out that are inherent in all successful public transport networks:

- Provision of sufficient capacity to cater for demand;
- Suitable frequency to attract and service demand;
- High average speeds to offer a quality service and reliability of journey times;
- Direct services to minimise journey times and increase network legibility;
- High level of network coverage, to ensure the wider CMA population has access to high quality public transport services; and
- Providing seamless Interchange between modes to enhance accessibility and integration. The adoption of the principles outlined above will result in an attractive, public transport service that produces a competitive and in many cases, a more attractive journey time and experience to that of the private car.



CMATS will deliver a package of measures that will **improve all modes of transport in a balanced and integrated manner** to bring about better combined results.

Option Development and Assessment Methodology

To develop options for the future transport network in the CMA, it was important to understand the potential “upper-limit” demand for travel by public transport within each corridor.

For this reason, an “idealised” public transport network model run was undertaken, using the NTA’s South West Regional Model (SWRM).

The “idealised” public transport network was developed based on the six core principles outlined above. The “Idealised” network scenario facilitated an unconstrained analysis of the potential public transport demand within key transport corridors in the CMA.

The individual Strategy transport options could then be developed, refined and optimised along each corridor.

This process is shown below as an iterative process linking the development of the Strategy Options with the pattern of the land use forecasts, which were then assessed using the NTA SWRM. The outcome of this process was the identification of an Emerging Preferred Strategy, with a transport network and recommended land use optimisation that optimises utility of the proposed transport interventions, in achieving the CMATS objectives.

The optimisation of land use and transport proposals will also inform the phasing and implementation plan for the strategy.

Network Options Development Hierarchy

The following lists the order in which the transport network has been developed. Initial stages focused on the development of the public transport network as the demand analysis has shown that the public transport mode has the greatest potential for improvement.

The road, cycling and walking networks were subsequently developed. The overall order of development was:

- Public Transport Network;
- Development of Indicative Overall Public Transport Network;
- Strategic Public Transport Network;
- Corridor Specific Public Transport Network Options;
- Road Network;
- Cycling Network; and
- Walking Network.

Public Transport Network

Development of Indicative Overall Public Transport Network

In order to shape the transport network for the CMA an indicative high level public transport network was developed that provides a context for the overarching transport options and proposals. It identified key strategic public transport routes and corridors, and identified the supporting public transport requirements for the remaining areas of the CMA.

Once a high level indicative network was identified, more detailed analysis and specific considerations for the public transport network were considered at a corridor level.

Strategic Public Transport Network

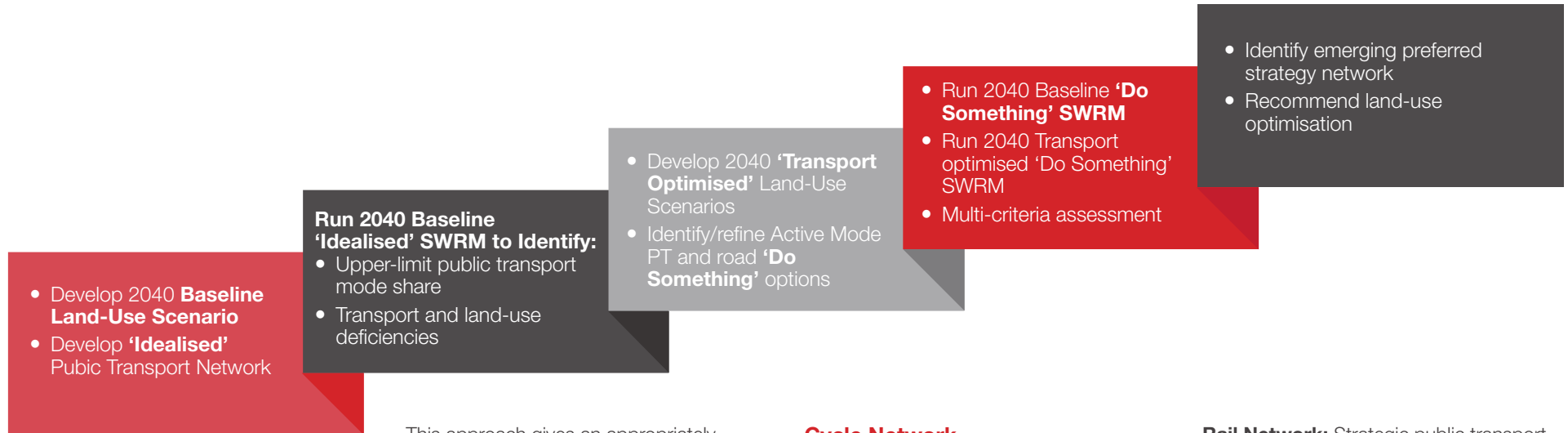
Taking the indicative public transport network as a starting point, the identified strategic corridors were considered in greater detail. This included the scale and type of public transport requirement on the strategic corridors, the route alignment, the level of priority required, the frequency of service, as well as the level of coverage provided by the strategy public transport proposals.

Corridor Specific Public Transport Network Options

Within each specific corridor, the public transport proposals were developed based on the identified public transport demand from the ‘idealised’ network analysis. Further details on the methodology employed can be found in the “Demand Analysis Report” and “Transport Options and Network Development Report”.

The identification of the appropriate infrastructure to service the demand levels, was based on a typical range of public transport capacities, in passengers per hour per direction (pax/hr/dir), that can be achieved by various public transport modes.

It has been shown that bus based public transport can cater for capacities of up to 2,000pax/hr/dir, Bus Rapid Transit (BRT) can cater for capacities between 1,000 and 4,000 pax/hr/dir, Light Rail (LRT) can cater for capacities between 3,000 and 7,000pax/hr/dir, with Metro and Heavy Rail catering for capacities above 5,000pax/hr/dir.



This approach gives an appropriately scaled public transport network that has the flexibility and scalability to adapt to changes in travel demand levels and distribution.

Based on the radial demand and the orbital demand, the proposed route, service type, service frequency and level of priority was developed for each corridor.

Road Network

A review of the road network demand, which includes road network travel demand from beyond the CMA, was undertaken to determine the requirement for road network improvements. National, regional and city road networks were considered.

A review of currently proposed road network infrastructure was undertaken and aligned to policy and demand needs within the CMA. The road network was also reviewed with the aim of aligning road network provision with public transport, walking and cycling provision.

Cycle Network

The cycle network development focused on the Cork Cycle Network Plan 2017, which was reviewed to ensure integration and alignment with the transport proposals within this strategy.

Walking Network

The walking network focused on the Cork City Walking Strategy 2013 – 2018. The Walking Strategy was reviewed to ensure integration and alignment with the proposals for public transport, walking and cycling in CMATS.

Public Transport Network

Based on the analysis of demand, the future public transport network structure will have a number of components that will best provide for future public transport demand within the CMA and ensure enhanced connectivity with the wider region including the 'key towns identified in the RSES and other settlements.

Rail Network: Strategic public transport services along the existing rail lines;

- **East-West Public Transport Corridor:** A strategic east-west public transport corridor from Mahon to Ballincollig via the City Centre;
- **Core Bus Network:** A comprehensive network of high frequency bus services providing radial services to other corridors and orbital services across the network;
- **Public Transport Integration:** Provision for interchange opportunities together with information provision and revised fare structures; and
- **Supporting Measures:** Further measures to support the delivery of the Strategy, including parking management, Park and Ride, demand management, mobility management, behavioural change programmes, etc.



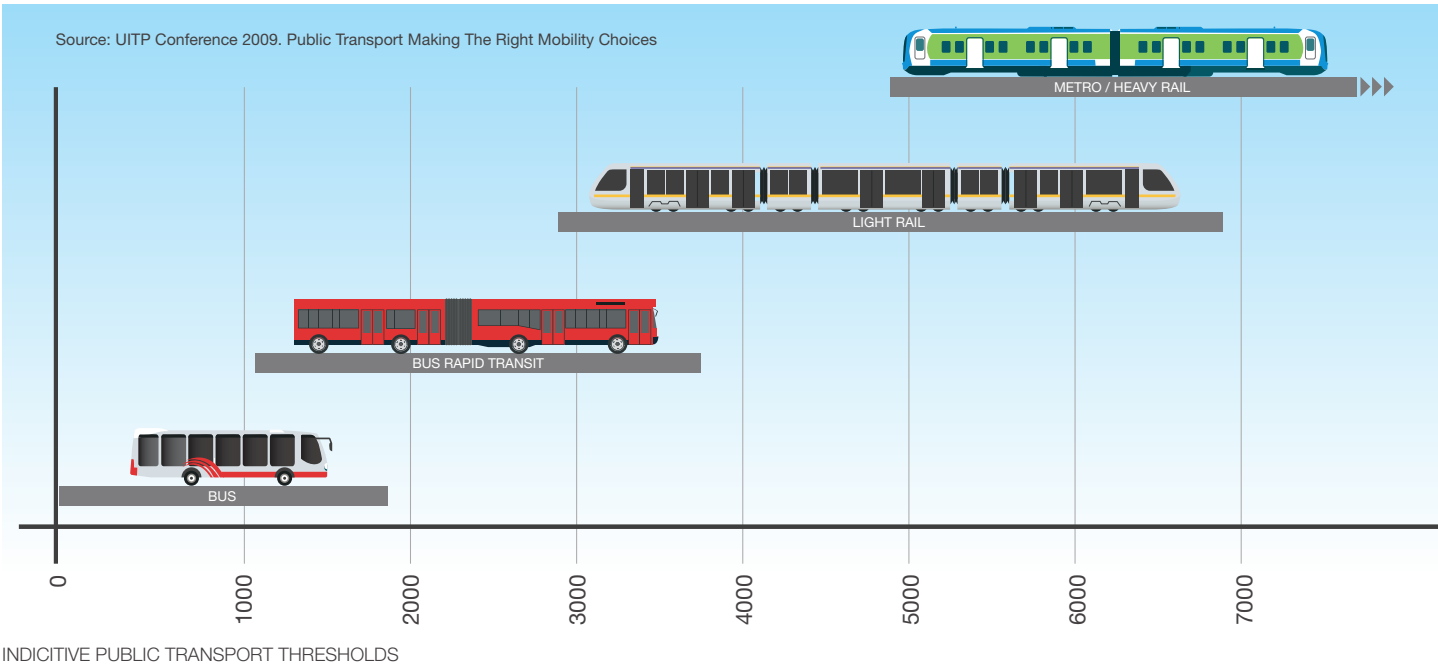
The network approach as outlined above can best meet the current and proposed land use trend in the CMA and would represent an integrated public transport network offering residents of, and visitors to, the CMA access to high quality services and the ability to conveniently access more destinations than a single high capacity line or sticking with the existing network.

The following chapters will outline in detail the required infrastructure and supporting measures needed to deliver the proposed CMATS outcomes. CMATS was developed in an iterative manner to provide a transport network to underpin the ambitious population and employment growth envisaged for Cork under the NPF to 2040 and beyond.

Strategy Outcomes

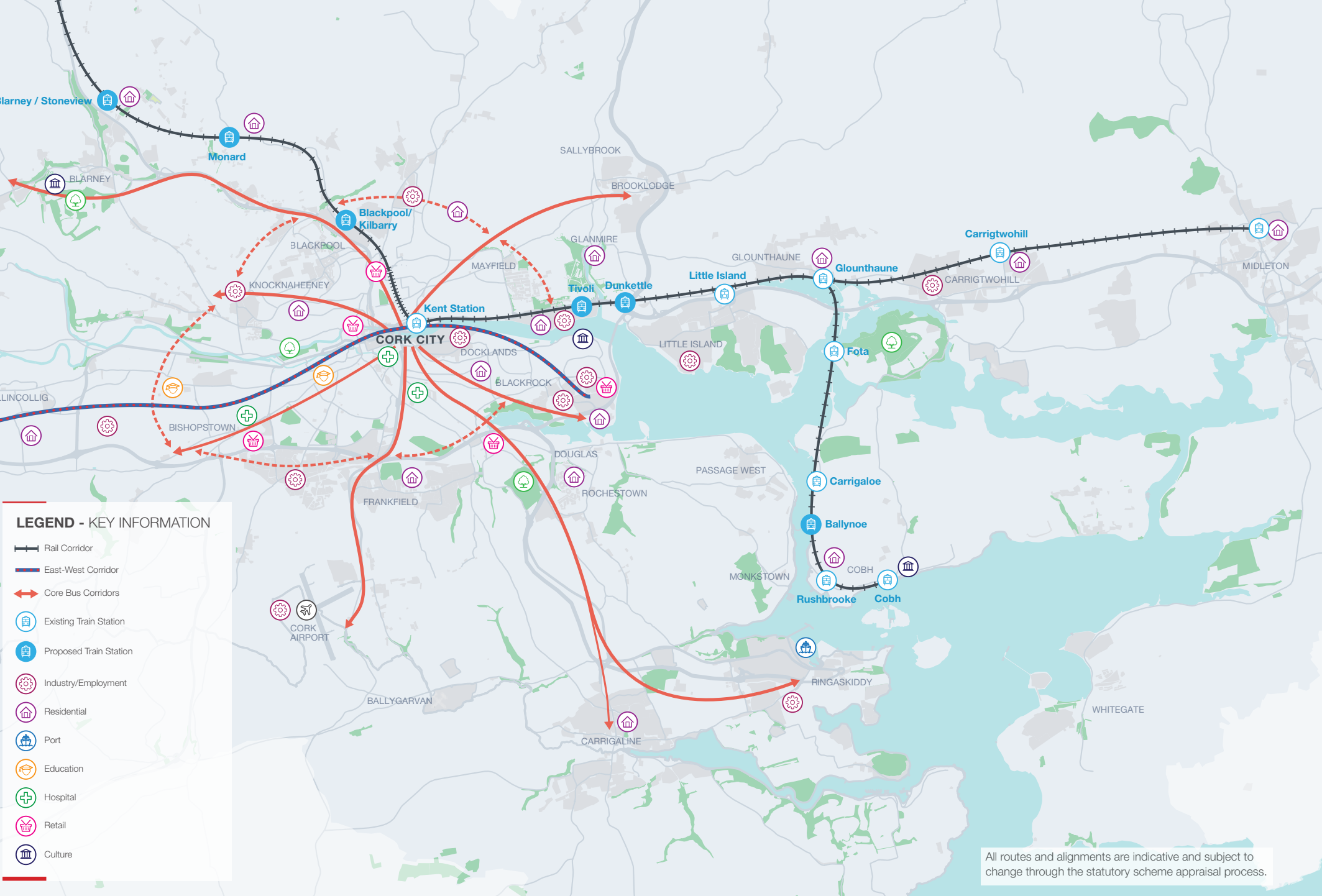
The Strategy goes a significant way to address the following social, economic and environmental challenges:

- Provides a scalable transport network framework to better manage the increased demand for travel resulting from significant population growth;
- Prioritises public transport, walking and cycling in urban areas across the Cork Metropolitan Area;
- Supports social inclusion objectives through the provision of a more equitable transport system and wider public transport accessibility to more areas of deprivation;
- Provides a safer transport network where investment is priority focussed and data led;
- The overall reduction in car use promotes better physical and mental health and wellbeing by incorporating more active travel and incidental exercise in the transport network, either as walking and cycling trips in their own right or as part of linked trips with public transport, and improving local air quality;
- Enhances the region's liveability and attractiveness from a tourism, cultural and economic perspective;
- Supports the actions of the Climate Action Plan 2019 in reducing transport-related emissions through a provision of a cleaner, greener public transport fleet, a reduction in private car use and promotion of sustainable and active travel; and
- Provides a robust economic case for transport investment in the Cork Metropolitan Area producing a significant benefit cost ratio of approximately 2.5:1.





Indicative Public Transport Network



All routes and alignments are indicative and subject to change through the statutory scheme appraisal process.





WALKING



90m
annual
walking trips



63% increase
in walking trips between
2011 and 2040



250% increase
in footfall on
St. Patrick's Street



Additional **24,000**
daily car trips potentially
transferable to walking



>200km
new and upgraded
footpaths



Estimated **€50m**
investment including
elements of BusConnects



Enhanced
Wayfinding
System



140km
of Greenways



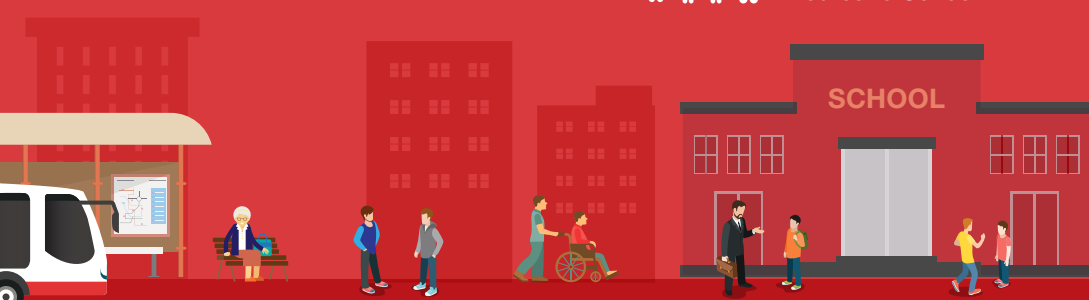
69,000
walking trips made in
the **AM peak period**



Age-Friendly
Town Centres



Safer
Routes to School



20 mins of activity a day
reduces the risk of heart disease,
type 2 diabetes and depression
by **at least 20%**



Improved
accessibility
to public transport



06 WALKING

Cork will be the most walkable city in Ireland, where **people choose to walk as the safe, healthy and attractive alternative to private transport.**

Cork City Walking Strategy 2013-2018

All journeys begin and end by walking irrespective of other modes used. A range of high quality, public realm improvements have been implemented in recent years to include pedestrian priority areas, wider footways and improved crossing facilities in Cork City Centre and Ballincollig Town Centre in particular. However, the quality of the pedestrian environment is inconsistent across the CMA, particularly upon approaches to centres of activity even allowing for changes in topography. A range of barriers to walking are evident including street clutter, insufficient footpath widths, insufficient crossing opportunities, pavement parking and a lack of pedestrian priority across local junctions.

Cork, with its relatively compact city centre and reasonably self-sufficient metropolitan towns, has significant potential to enhance the pedestrian experience.

A successful outcome for the Strategy will result in greater levels of safer walking trips, which can be undertaken more often, either a part of a linked trip with other modes or as a trip in its own right. The public realm will need to adapt in many cases to support a growing population and a wider range of all ages, abilities and needs.

Key outcomes for walking in the Strategy include:

- An increase in walking levels for work, education and leisure across the CMA, particularly for short journeys (less than 2-3km);
- Addressing the safety issues and barriers that prevent citizens and visitors from walking more in Cork;
- Supporting a high quality and fully accessible environment for all abilities and ages by continuing to develop a safe, legible and attractive public realm;
- Facilitate walking's role as part of linked trips, particularly with rail and bus journeys; and
- Promote a higher standard of urban design and permeability in new and existing developments, and in highway design, in a fashion that consistently prioritises pedestrian movement and safety over that of the private car.

Walking Network Improvements

The Cork Walking Strategy 2013-2018 provides a clear vision and implementation plan for increasing the modal share of walking for commuting within Cork City's suburbs.

The Walking Strategy proposed the development of a walking network that connects neighbourhoods, origins and destinations, increases the permeability of the built environment, and creates an attractive, safe environment that prompts more people choosing to walk, resulting in a healthier population, a more liveable and sustainable city, and stronger communities.

Much of the focus areas for improvement identified in the Walking Strategy remain relevant and have been adapted here for the purposes of the wider metropolitan area and the longer-term horizon of CMATS:

- Network Development of the primary pedestrian network throughout the city;
- Neighbourhood infrastructure to enhance the attractiveness, safety and accessibility for all pedestrians;
- Behavioural Change initiatives that promote walking;
- Collaboration between stakeholders;
- Upgrade walking provision in tandem with BusConnects corridor improvements, light rail stations development and Cycle Network Implementation; and
- Upgrade pedestrian network in tandem with those proposed for the cycle network to minimise conflicts in shared spaces such as greenways and quietways.

Commuter Walking Routes

Within Cork City, the Walking Strategy identified that commuter walking levels vary significantly between the existing six administrative wards, with high levels of walking experienced in the south and south-west and lower levels in the northern and eastern wards of the city.

The south-east has the lowest levels of commuter walking, partly attributable to severance caused by the road network (in particular the N27), and gaps in the walking network from the Marina. Creating a continuous safe, legible and permeable waterfront pedestrian route is a priority. Enhancement of crossing facilities at Albert Quay, Albert Road and Marina Terrace will be required as part of the Docklands development. Further detail on proposed sustainable transport linkages between the Cork City Docks, Tivoli Docks and the City Centre will be developed through their respective Local Area Plan processes.

The Walking Strategy identified a number of Strategic Routes that coincided where the City's employment and education areas overlap. These routes were linked with public transport services to identify areas where investment in pedestrian infrastructure would deliver most benefits to modal shift. The Strategic Routes remain relevant over the lifetime of CMATS particularly in the context of planned population growth and residential development on Cork's Northside in the short to medium term, and identified regeneration in other areas.

These Strategic Routes, including their purpose and upgrade proposals, are set out below:

- **Dublin Hill** – to support the planned regeneration of Blackpool and opening of the Blackpool/Kilbarry rail station;
- **Ballyhooly Road** – to support on-going regeneration in the Ballyvolane UEA area and access to increased bus services;
- **Old Youghal Road and Colmcille Avenue** – upgrade the pedestrian route through Mayfield and connecting into St. Lukes, Dillon's Cross and to the City;
- **Lower Glanmire Road** – to support planned regeneration of Tivoli Docks including new rail station and greenway route to Cork City;
- **Blackrock Road** – upgrade the pedestrian route along both sides of Blackrock Road to serve the communities on traffic calming, local junction treatment and footpath widening at Ballintemple village;
- **Ringmahon Road** – upgrade the pedestrian loop at Mahon that serves the local community, links to the amenity routes and also to the Skehard Road towards Douglas;
- **Skehard Road** – provide a strong east-west link from Mahon to both the City Centre and Douglas via the Boreenmanna Road and Well Road respectively;
- **Douglas Road** – provide missing footpaths to support access to substantially increased public transport frequencies;
- **South Douglas Road** – to support existing public transport provision and potential windfall sites;





- **Poluaduff Road** – to support increased public transport provision and local Park and Ride;
 - **Togher Road** – to support improved bus provision and housing regeneration at Togher/ Deanrock;
 - **Curraheen Road** - complete the western part of the Curraheen Road to facilitate links between the city, bus, light rail and the proposed Science and Technology Park;
 - **Model Farm Road** – improve links between schools, employment centres, CIT and bus / future light rail;
 - **Carraigrohan Road** - upgrade pedestrian facilities as an alternative to the Lee Fields amenity route, to include vehicular speed reduction, segregated cycle facilities and crossing points;
 - **Western Road** - traffic calming and speed management to support link between planned expansion of UCC, student accommodation and to create a more inviting link to the city;
 - **Strawberry Hill** - upgrade the pedestrian facility of Strawberry Hill, including opportunities to improve accessibility and safety so as to strengthen the appeal of this link to Sunday's Well and the Mardyke;
 - **Blarney Street** - upgrade the pedestrian infrastructure to provide safe walking facilities, in conjunction with vehicular speed reduction measures to support redevelopment of key sites at Shanakiel within walking distance of the city and the Apple plant;
 - **Pophams Road** – tackling pavement parking and improving access to Blackpool shopping centre and employment;
 - **Harbour View Road/ Kilmore Road** – further upgrade of pedestrian environment including pedestrian crossings on desire lines, improved layout of development and removal of street clutter to support the on-going regeneration of Knocknaheeny and access to local employment and education sites including Apple and St Mary's Hospital; and
 - **Fair Hill** - improvements to the crossing facilities on minor junctions.
- Footway widening on these radial routes would serve a dual purpose in terms of improving the pedestrian comfort levels and a self-enforcing reduction in vehicular speeds as many of the carriageways would require further narrowing to facilitate footpath upgrades.

City Centre Accessibility

Pedestrian priority interventions

Pedestrian access to the City Centre island is inhibited in some areas by a limited number of pedestrian bridges, substandard crossing facilities and high volumes of vehicular traffic and speeds on approach roads. The City Centre Movement Strategy has an over-arching objective to prioritise pedestrian, cyclist and public transport movement and reduce through vehicular traffic volumes and speeds.

The Strategy outlines a number of pedestrian interventions including raised speed tables, kerb build outs and zebra crossings; many of which are currently being implemented on a phased basis. St Patrick's Street has been closed on a time-restricted basis to private vehicles to facilitate pedestrians, cyclists and public transport users since August 2018.

The Walking Strategy additionally identified a number of 'Gateways' for pedestrian upgrades. These include improvements to the pedestrian environment at the North City/Shandon area and South Terrace. The Evergreen Gateway should be prioritised in light of the growing visitor centres of Elizabeth Fort and Nano Nagle Place.

These Gateway areas lie within a 20-minute walking catchment of the City Centre and will be prioritised for public realm improvements. Consideration should be given to the feasibility of providing diagonal or 'X' crossings at key entry points to the city centre island where pedestrian volumes warrant further intervention.

Consideration of pedestrian comfort levels and accessibility in these areas is required to support the planned increase in walking over the lifetime of the Strategy. Walkability Audits will be carried out with a view to assessing footway widths, public lighting, wayfinding, permeability and removing street clutter in the early part of the Strategy.

Further 'walkability' improvements are envisaged over the lifetime of the Strategy. These include further re-allocation of road space in favour of pedestrians in the City Centre and quayside areas, matching crossing facilities with pedestrian desire lines, and the re-timing of signals to reduce pedestrian wait times. Access between the City Centre, Kent Station and the Parnell Place Bus Station will be enhanced through the provision of traffic-free bridges and pedestrian-friendly upgrades to the existing walking network.