Great Yarmouth Third River Crossing

OUTLINE BUSINESS CASE

MARCH 2017

Supporting Document 15 – Urban Design and Landscaping Report

Norfolk County Council

Great Yarmouth Borough Council

NEWANGLIA Local Enterprise Partnership for Norfolk and Suffolk

Great Yarmouth Third River Crossing

Landscape and Urban Design Report

Norfolk County Council

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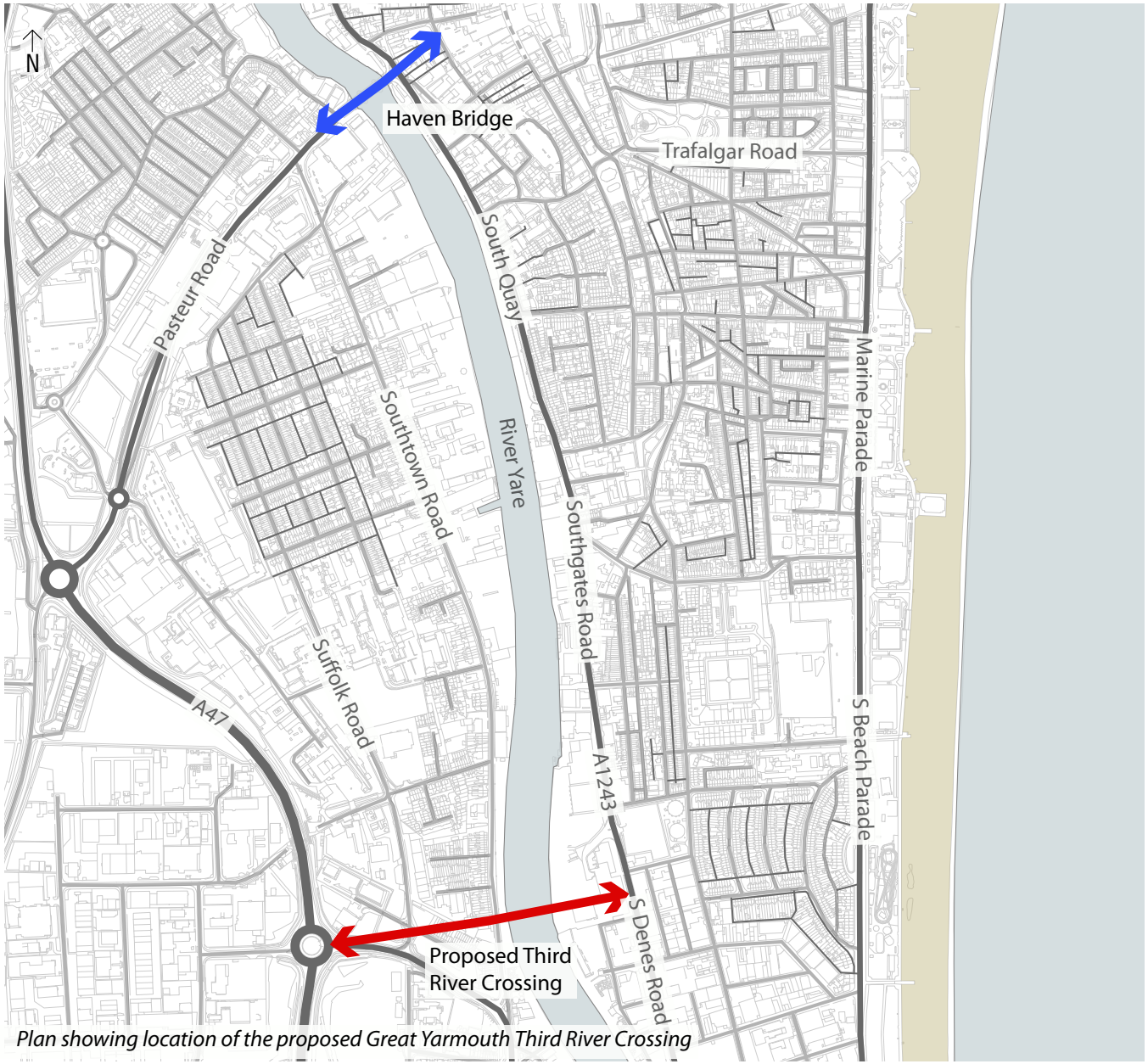


Plan showing location of the proposed Great Yarmouth Third River Crossing

This Urban Design Report has been produced as an appendix to the Great Yarmouth Third River Crossing (GYTRC) Business Case to the Department for Transport. The purpose of this report is to document the process of design development that underpins the placemaking and good design principles proposed as part of the project.

Good Design

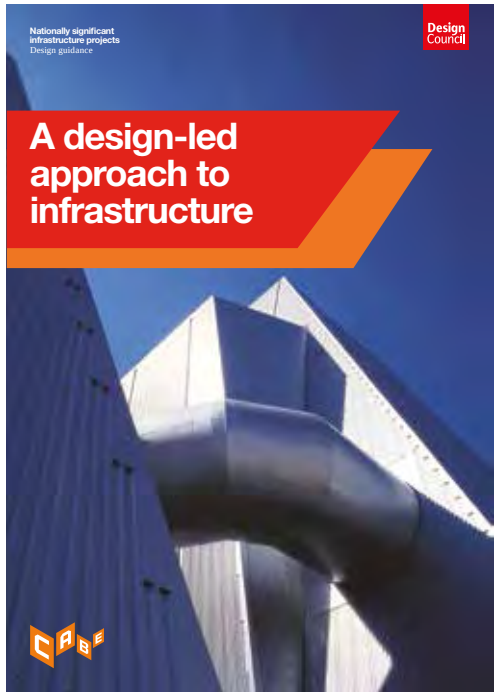
The National Planning Policy Framework (NPPF) acknowledges that good design is a key aspect of sustainable development, is indivisible from good planning and should contribute positively to making places better for people. Criteria published in National Policy Statements describe good design as 'sustainable, attractive, durable and adaptable'. Furthermore the value of design support at an early stage and the design review process provided by bodies such as Design Council CABE (DCC) can help to ensure good quality outcomes.

As a nationally significant infrastructure project it is recognised that such an approach would be valuable to the GYTRC and the design has therefore taken account of DCC's ten design principles set out in their guidance document 'A design led approach to infrastructure':

1. Setting the scene
2. Multi-disciplinary teamwork
3. The bigger picture
4. Site masterplan
5. Landscape and visual impact assessment
6. Landscape design
7. Design approach
8. Materials and detailing
9. Sustainability
10. Visitor centre

The particular influence of this approach influences not only the outputs of the project but the process as well, summarised as follows:

- A multi-disciplinary team working through a collaborative process
- An iterative approach drawing on strengths of individual disciplines to the overall benefit of the project
- Appreciation of local context to ensure the proposals integrate with and are complementary to its setting



Front cover of Design Council CABE Document

The high level objectives for the GYTRC are:

• To support the creation of new jobs especially in the South Denes Local Development Order area and the Enterprise Zone by being a catalyst for investment
• To support Great Yarmouth as a Centre for Offshore Renewable Engineering, and as a port
• To support the regeneration of Great Yarmouth, including the town centre and the seafront, helping the visitor and retail economy
• To improve strategic connectivity, and reduce community severance
• To protect and improve the environment

Scheme Impact Summary

Once the third river crossing is in place it will provide a number of direct benefits:
• Relieving congestion on the existing bridges
• Improving access and connectivity to the LDO area and Enterprise Zone
• Providing walking and cycling routes to the southern part of the peninsula
• Providing alternative route choice and additional network capacity

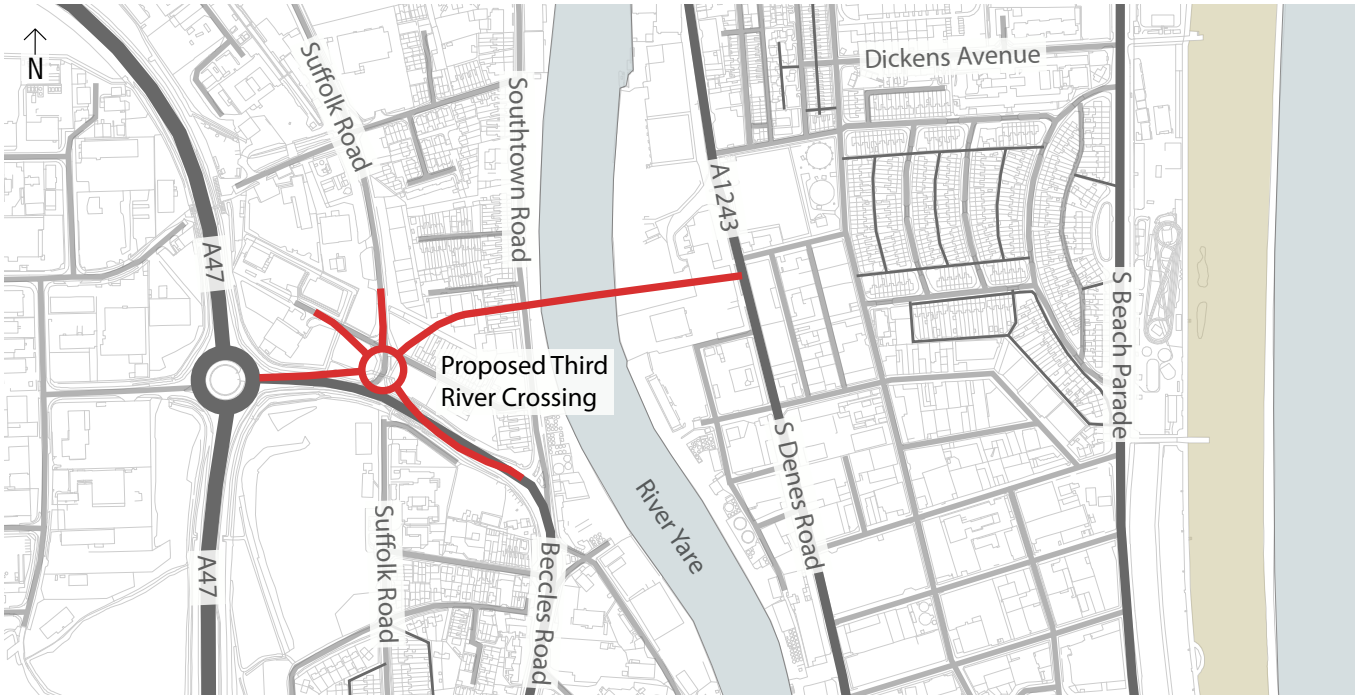
Furthermore, the GYTRC, will indirectly help to support:

• Growth and investment in the LDO area and the Enterprise Zone
• Improved journey times for all modes
• Regeneration and investment in the retail sector
• Wider benefits for the tourism and leisure sectors
• Network resilience
• Additional route options for buses
• Reduced community severance
• Reduced traffic levels in historic areas of the town
• A reduction in road accidents
• Reduced emissions and improved air quality at specific locations

• Objectives of the LEP, NCC and Borough Council for significant housing and employment growth

In support of these key beneficial impacts the project will display high quality design, improve public open and green spaces, enhance local character, reflect maritime/ industrial context and support tourism and this approach is set out within the report below.

Key project constraints
The key constraints arise from Port related activity including:
• accommodating access and berthing for cargo ships – maintaining minimum channel width and height clearance
• associated navigation restrictions – for example no interference with red-green lighting adjacent mixed land-use and ownership – proximity of residential properties, interface with pedestrians and other non-motorised users scale of new infrastructure to accommodate HGV movement



Plan showing location of proposed Great Yarmouth Third River Crossing

The GYTRC Scheme

The GYTRC scheme consists of a new two lane dual carriageway road across the River Yare in Great Yarmouth linking the A47 at Harfrey's Roundabout on the west side of the river to the A1243 South Denes Road on the east side. On the west side the scheme will include a new roundabout on William Adams Way at the junction with Suffolk Road with a spur for the new road. On the east side of the river the road will join South Denes Road at the junction with Sutton Road.

The new road will pass above Southside Road on the west side of the river rising to a new crossing. The new crossing will be a double leafed bascule opening bridge which involves construction of two new 'knuckles' that extend the pier wall into the river. The new crossing will provide a footway on both sides with one side being wider to accommodate a shared use footway and cycleway.

The scheme will also include associated changes to the local highway and path network and new landscape, sustainable drainage and public realm improvements.

Urban Design Interventions

The landscape and urban design-led approach approached the project as new piece of townscape and considered how the new route and associated features would contribute to, integrate and engage with its surroundings and integrate local as well as strategic needs and opportunities with placemaking embedded within the design.

The urban design approach involved the following:

• Strategic review of Great Yarmouth and the local context to understand; planning policy and designations, non-motorised movement including pedestrian & cyclist routes and public transport, land use & character areas, local attractors and heritage.

• Consideration of the impact and improvement opportunities the GYTRC offers in respect of these factors and consideration of the strategic opportunity the scheme represents for the town

• Developing a Vision for the area that considered how the crossing will contribute and integrate with Great Yarmouth as a 'place' not just a piece of infrastructure, with design proposals to positively enhance the environment and experience for all users

• Initiating a combined site masterplan for the project locality with consideration of current policies and aspirations for the area

• Ensuring the proposed design links to the existing networks, considers desire lines and opportunities for future circulation improvements for pedestrians, cyclists, vehicles and public transport to provide sustainable travel choices

• Enhancing streetscape proposals to optimise safety and inclusive access for all

• Consideration of opportunities for public realm improvements to existing and new spaces to improve the user experience, which include providing destinations, viewpoints and rest points for pedestrians and cyclists

• Consideration of design detailing on structures to reflect good design objectives and create identity and quality by ensuring the design responds to the local context, heritage and future aspirations

• Incorporating proposals for a sustainable drainage system (SuDS) that takes account of existing drainage characteristics within the area and, where feasible restores and enhances the natural environment

Photo looking south along Southtown Road

Town Context

Great Yarmouth is a flourishing tourist destination with a historic town centre, a traditional seaside promenade and access to a wide range of natural landscape attractions. It is also a developing centre for energy related industries.

Over the past 35 years, much of Great Yarmouth's rich industrial heritage has retreated. The fishing industry has declined dramatically, industries have closed, and there has been a move away from home-based tourism. Poor infrastructure has hampered attempts to attract new businesses to the area.

The River Yare divides Great Yarmouth between east and west. The two road crossings to the north are inadequate for existing traffic demand. The problem of congestion has blighted the town for years and discourages existing businesses from expanding and discourages new ones from moving into the area. Provision of an extra crossing will reduce the effects of severance and provide vital extra capacity to the road network, reducing congestion and helping Great Yarmouth to attract investment and achieve its full potential as a place in which to live and work.

Photo of Great Yarmouth Port area

Scheme Location

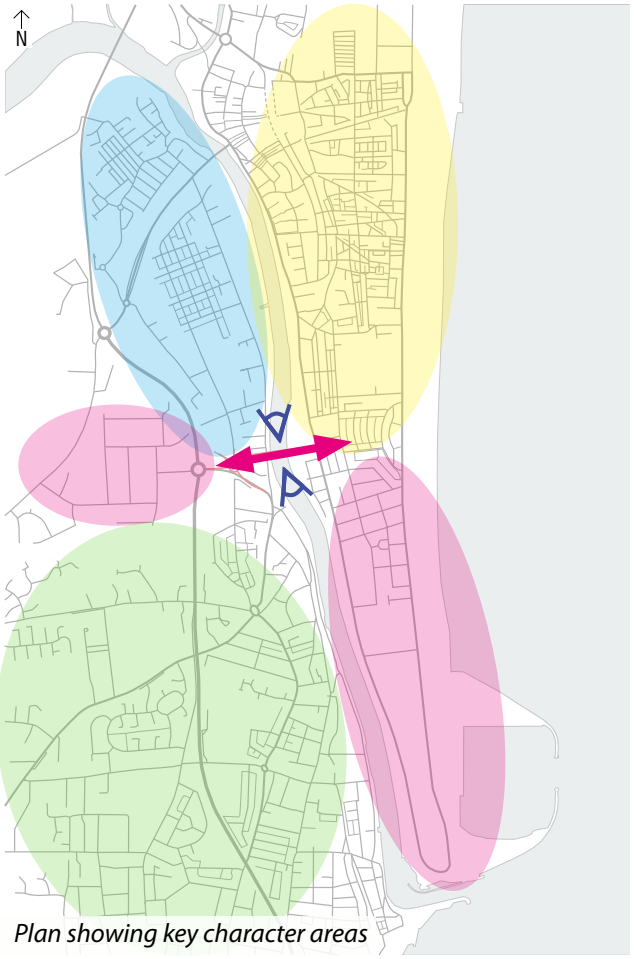
The scheme is located to the south-west of the town centre within an area which, on both sides of the river, is broadly defined by a mixture of commercial and industrial properties, with residential areas beyond; the area on the west quay is mixed-used with some residential streets overlooking the river. The adjacent quays to both sides of the river are active with shipping and port-related business.

There is a network of cycle routes and footpaths in proximity to the proposed scheme that provide links through the town and beyond to the wider countryside and coast, Gorleston to the south and The Broads National Park, to the west.

Character and Land Use

Understanding the town and the role of the bridge. The crossing proposal forms a high vantage point, a landmark and a pivot point which ties the whole town together through a physical link between these areas. It unlocks a number of key foot and cycle links which support the whole of the town future development and with new transport links allows the appropriate rationalisation of land use and activity.

• The Great Yarmouth Waterfront Area Action Plan sets out a regeneration plan for Great Yarmouth's historic quaysides and provides improved linkages between the town centre and its riverfront on both west and east sides of the River Yare in the north of the town broadly between Breydon Bridge and Vauxhall Bridge and extending to the Train Station. This area is a gateway to the Broads, providing considerable tourism opportunity. The AAP area also currently includes dockside utilised by shipping largely associated with the off-shore industry. It is within walking distance of the seafront and town centre retail/cultural/tourism facilities and currently



Plan showing key character areas

Proposed Third River Crossing Location

Key View to enhance

Mixed use with potential development opportunity (AAP)

Industrial and Employment

Heritage and Tourism

Primary residential

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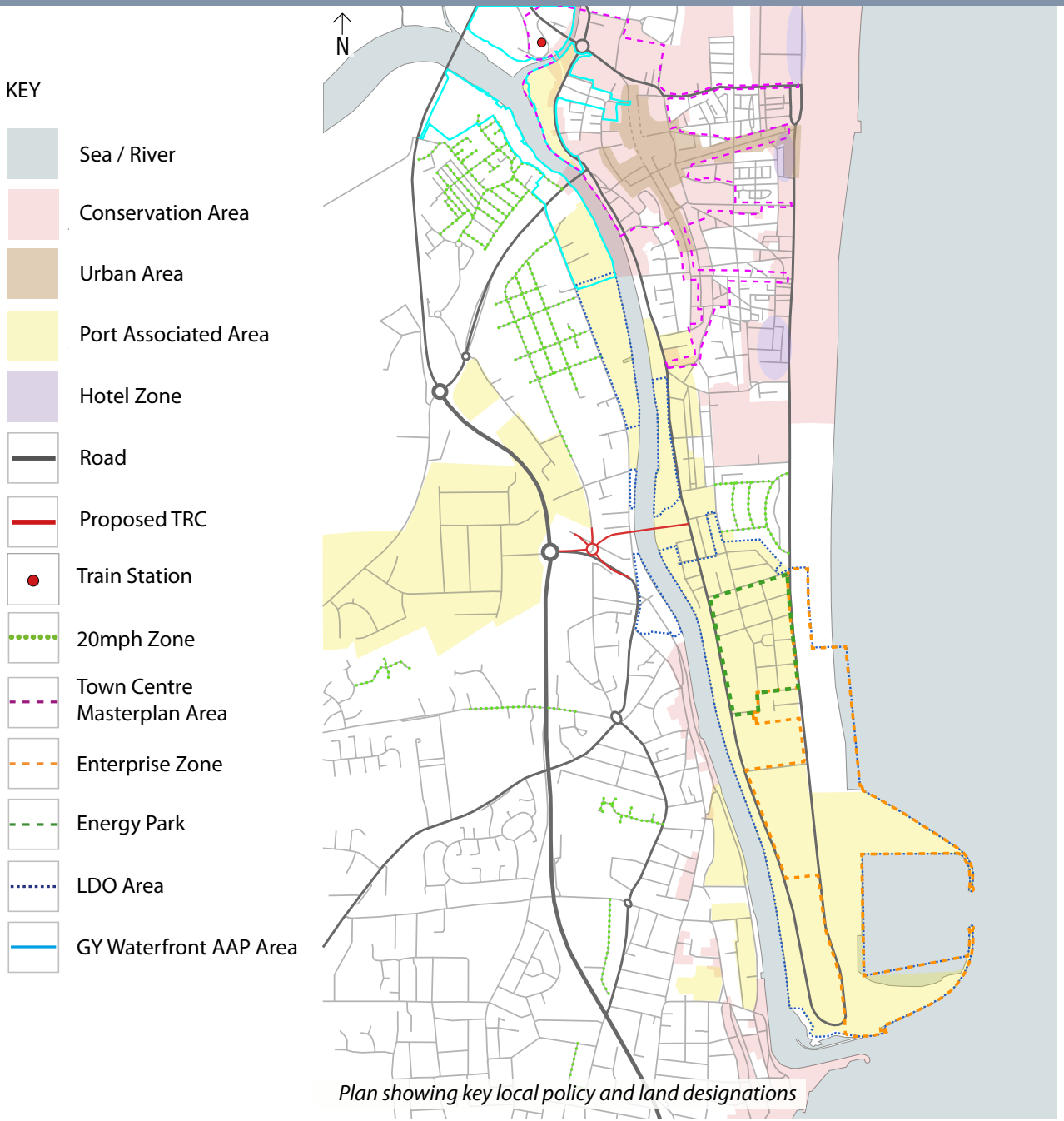
is mixed use dominated by light-industrial uses, port industry plots and high density residential terraced streets. The area has fragmented pattern of land use with very mixed character. The proposal presents a new urban community and 1,000 homes and a range of neighbourhood amenities.

• Tourism is an important industry to the area with over 4 million visitors per year it provides 29.3% of the district's employment. The character and environmental conditions of the historic town centre and the tourist areas which are linked in the north of the town centre are blighted by congestion and incompatible transportation activities. The sea front and town centre area character have undergone considerable recent development which continues with major future plans to diversify Great Yarmouth's tourist facilities to take advantage of changing domestic tourist trends, whilst retaining the traditional seafront character. The greatest opportunities may be provided in the protection and enhancement of the mix of heritage buildings, small-scale historic streetscapes, waterfronts, seafront and natural habitats.

• The South Denes area traditionally associated with the fishing industry port and maritime uses has now been designated an employment area with light industrial, offices, port and offshore uses. This area is reserved for port expansion and port-related and major national renewable energy activities including Great Yarmouth Enterprise Zone, Great Yarmouth Energy Park, the South Denes Business Park and the deep water outer harbour, operated by Peel Ports Great Yarmouth.

• Residential communities across Gt Yarmouth are frequently mixed with some small-scale industrial and retail activities. Much of the existing stock includes late-Victorian terraced housing with larger post-war housing estates to the south. Recent initiatives have sought to replace industrial activities with residential.



Plan showing key local policy and land designations

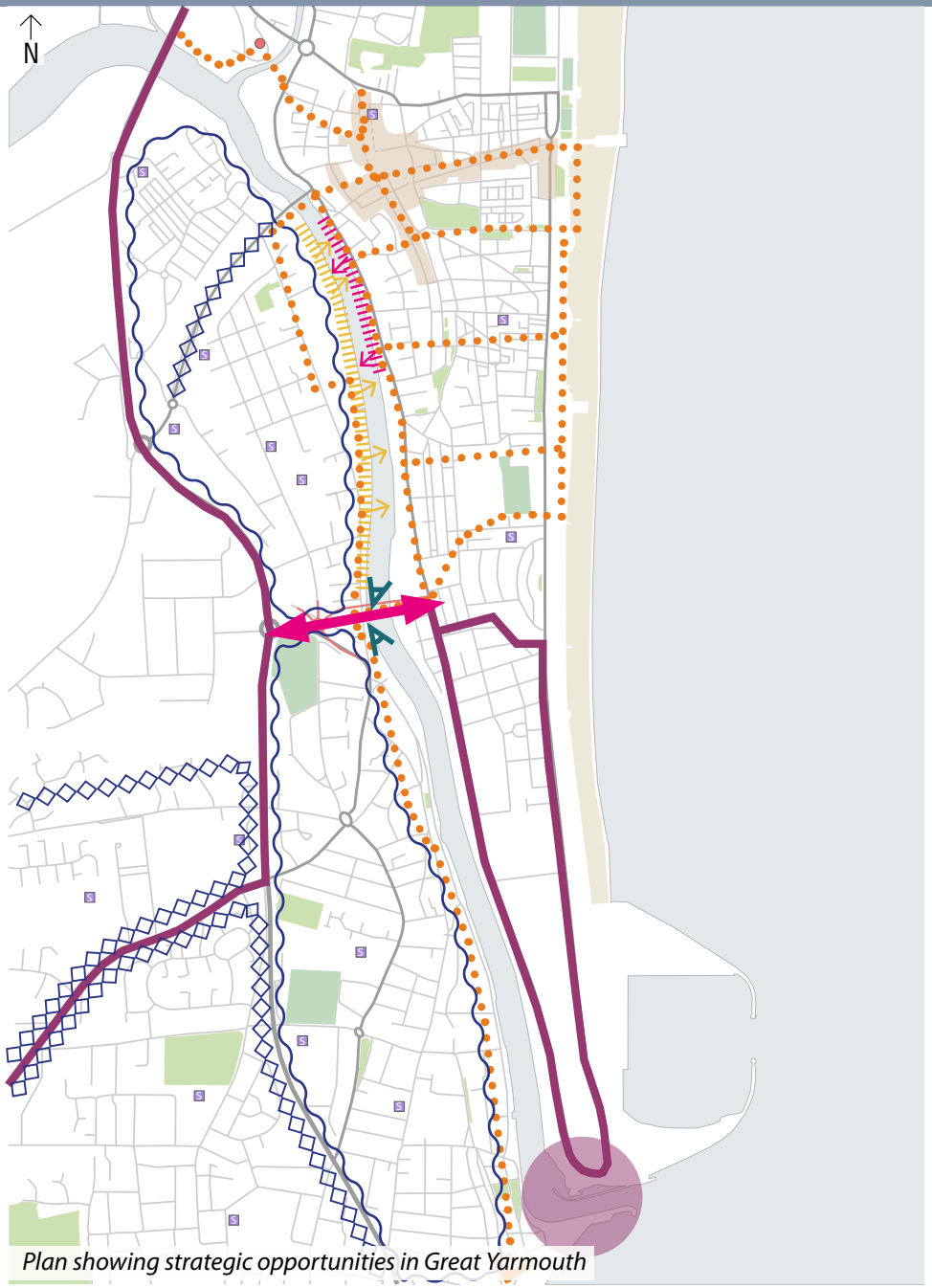
The Strategic Opportunity

The GYTRC will provide a more direct access route for business and industrial traffic to the southern peninsula and redirecting it away from the town centre, tourism, heritage and residential areas. This reorganisation of the local transport and circulation offers strategic opportunities in the future to:

• Develop new direct routes for leisure and commuting that link residential areas to the south and west with the seafront and town centre as well as opportunities for circular routes that could activate both sides of the river.

• Integrate with aspirations for development along the riverside frontage set out in the Waterfront AAP and include pedestrian access along the Quayside, encouraging an organic expansion of the town centre to a new residential and cultural quarter

• Deliver environmental improvements in adjacent residential streets following the focus of through-traffic onto the strategic network resulting in reduced vehicle movement in the area, lower vehicle speeds, safer streets and encouraging greater non-motorised user (NMU) activity in these residential areas.



Plan showing strategic opportunities in Great Yarmouth

Example of integrated public realm in operating port area, Rotterdam

KEY

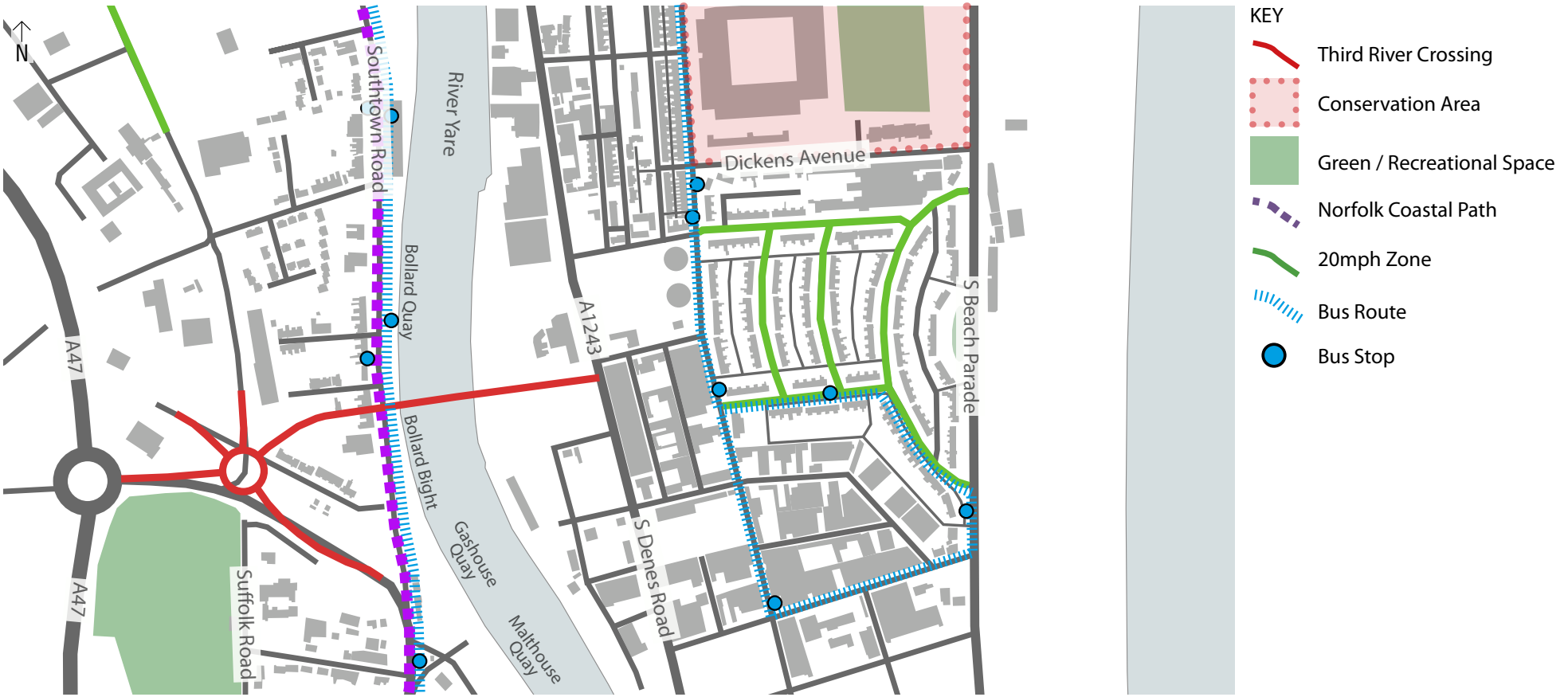
- Third River Crossing
- Owned/operated by GY Port Company
- Conservation Area
- Green / Recreational Space

Local Plan Designations:

- Open Amenity Space (BWLP: REC11)
- Safeguarded Employment Area (LP: CS6)
- Primary Holiday Attraction (BWLP: TR 4,9)
- Main Urban Area and Village Development Limits (BWLP: HOU 7,8,21)
- Bollard Quay & Bollard Bight — Port related activity (BWLP: EMP32)

BWLP: Borough-wide Local Plan 2001
LP: Local Plan Core Strategy 2015

Plan showing key local policy and land designations in site area



Plan showing key movement and access in site area

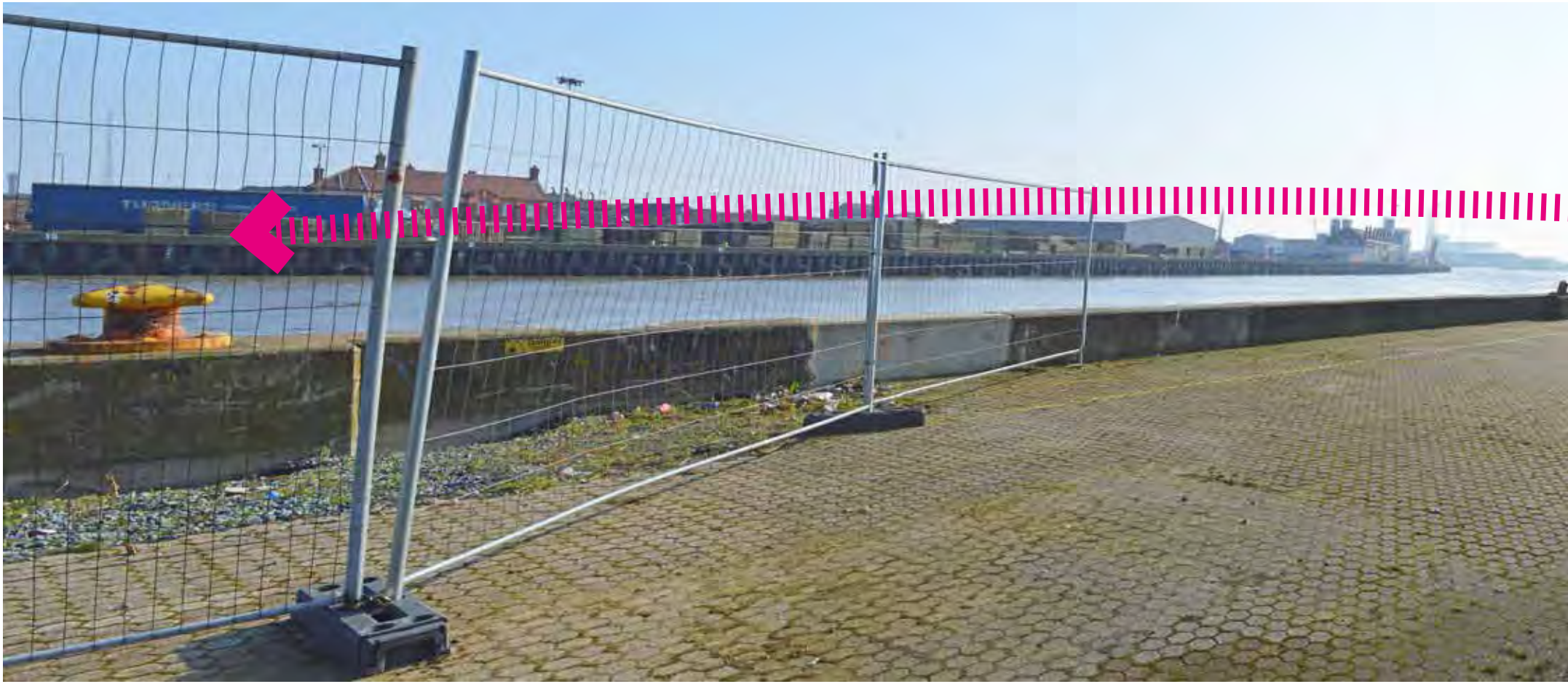


Photo looking south along Bollard Quay towards proposed bridge location

This is a linear scheme with a new roundabout on William Adams Way connecting into the surrounding highway network at Harfrey's Roundabout on the west and a new controlled junction at South Denes Road on the east side.

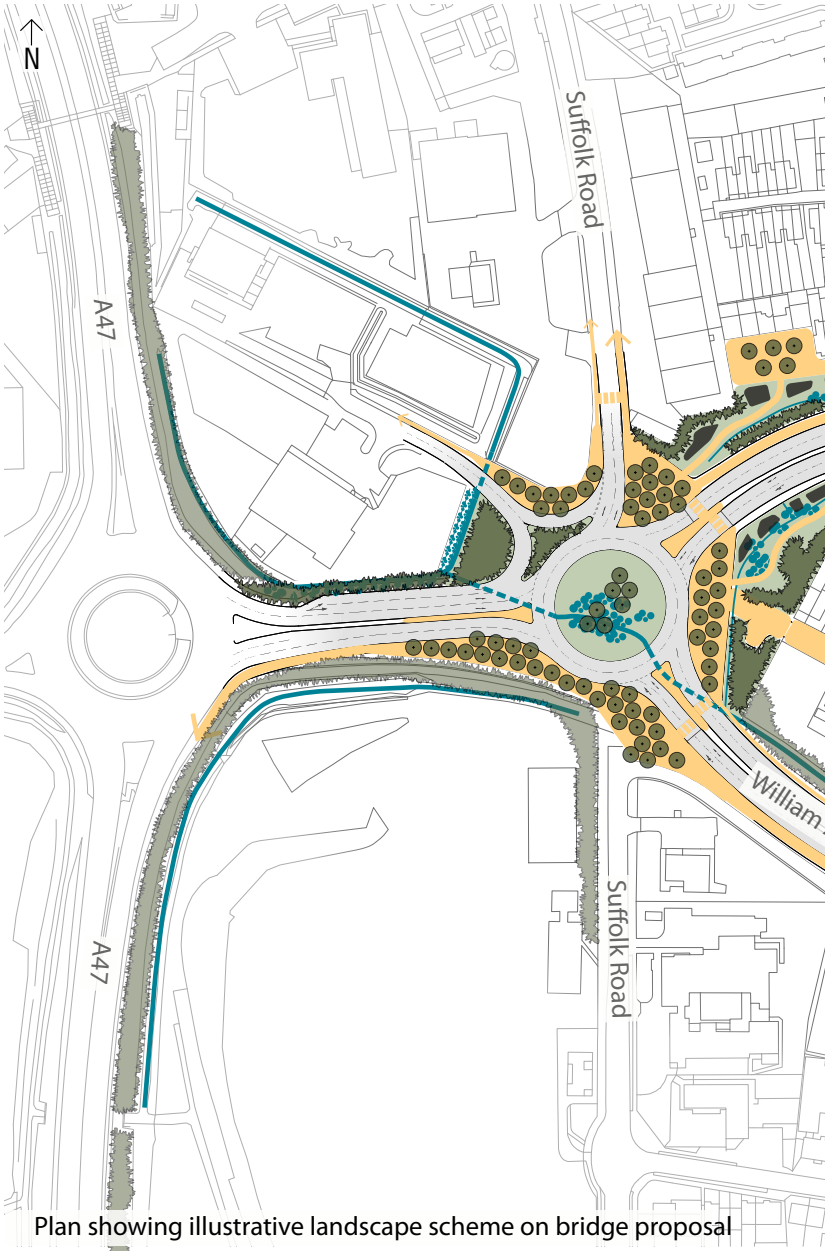
The carriageway rises above the surrounding terrain of approximately 10m above Southtown Road. There is a shared foot and cycle path adjacent to the eastbound carriageway providing a segregated route.

The opening 'bascule' bridge will be constructed in coated steel and supported on each bank by a pier constructed on new 'knuckles' - extended sections of quayside – that reduce the navigable width of the river to 50m at this point.

The elevated bridge approaches on both sides of the river will be supported by concrete retaining walls.

Photo looking west along William Adams Way

Photo looking south from Suffolk Road



Plan showing illustrative landscape scheme on bridge proposal

Design Principles

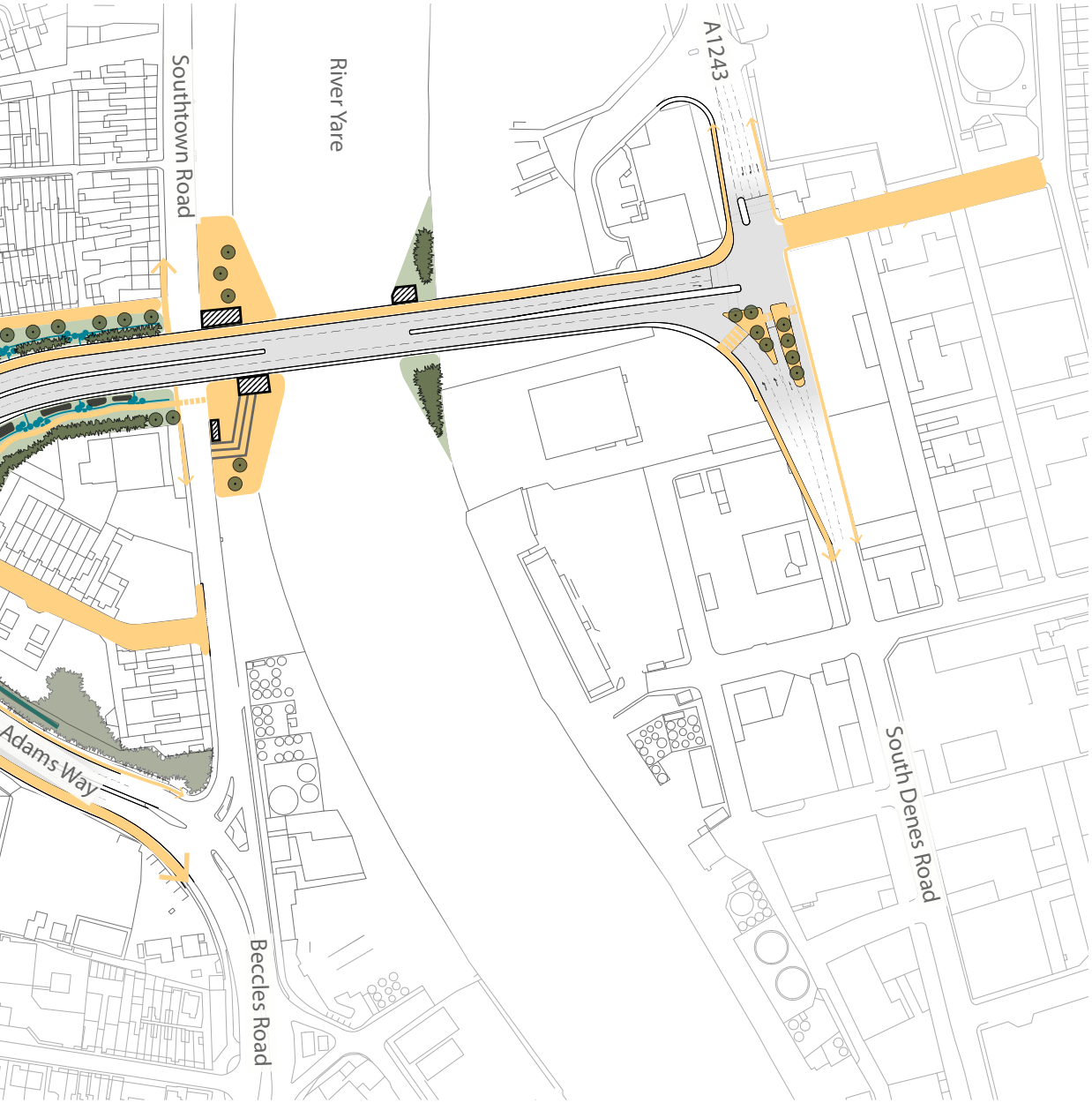
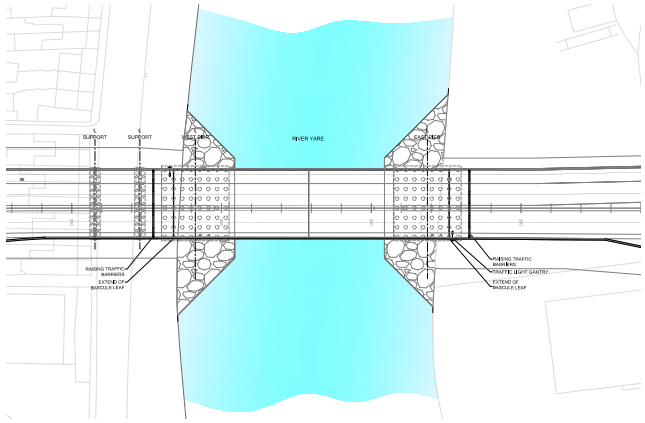
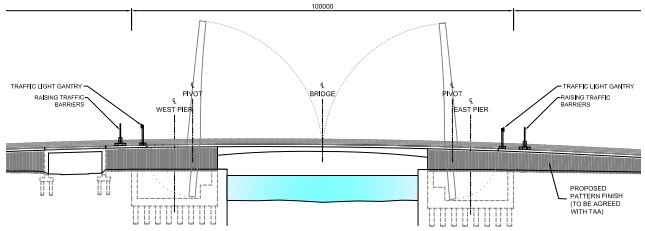


Photo looking east towards Fish Wharf from Bollard Quay



Plan showing proposed bridge layout



Section view of proposed bridge

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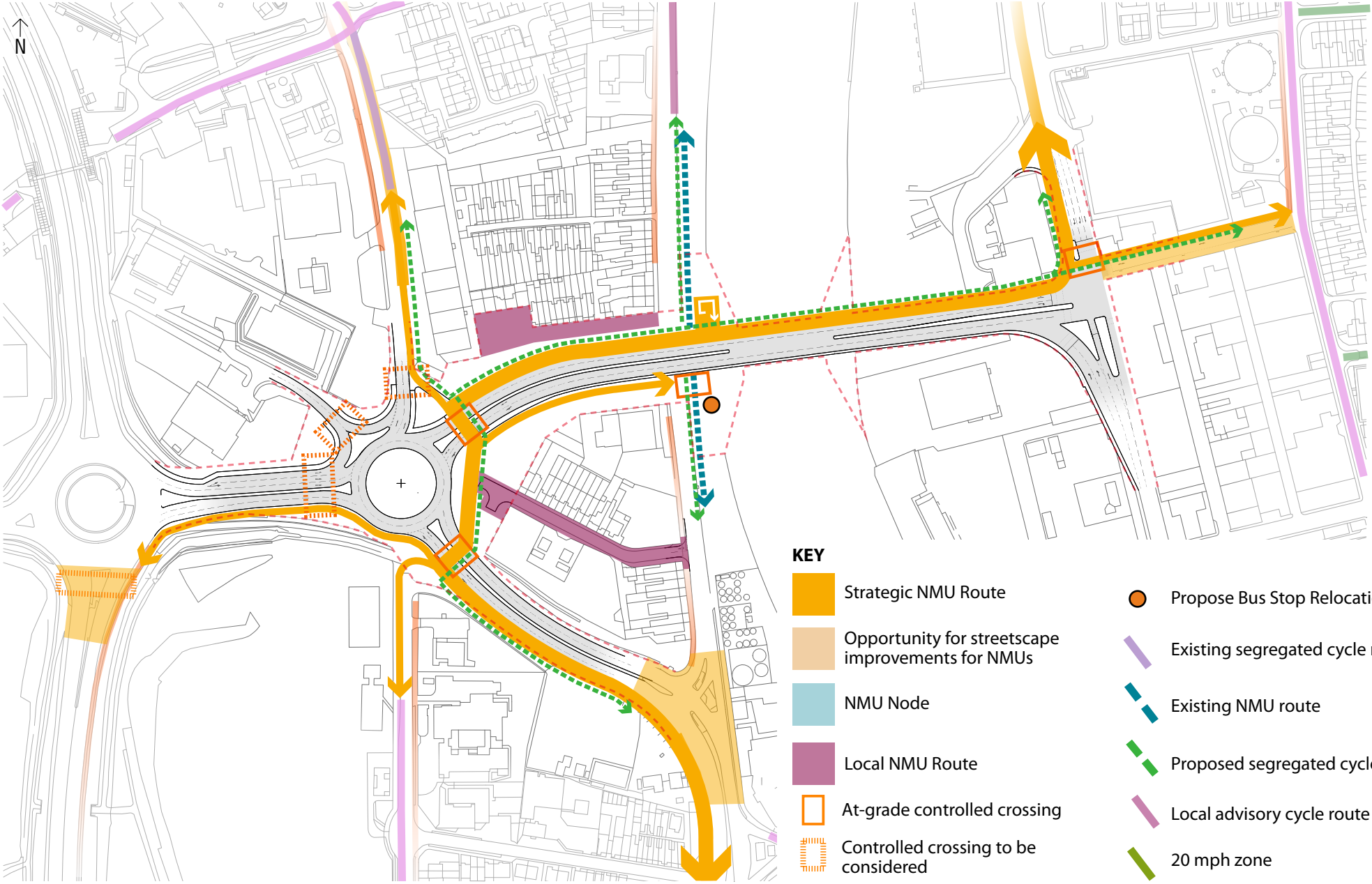


Plan showing access and circulation on bridge proposal

The design intention is to reinforce the proposed strategic highway provision with new legible, comfortable and convenient links for pedestrians and cyclists to increase the non-motorised user network in the area, to benefit the communities on west side of the River Yare by providing direct connections to places of work and recreation, and the town centre.

Proposed new controlled crossings will improve the links In addition to the strategic pedestrian and cycle provision along the north side of the bridge and approaches, further proposed pedestrian and cycle provision includes off-carriageway or segregated cycle routes connecting to:

• the existing National Cycle Route on Southtown Road at Bollard Quay

• local advisory routes on Suffolk Road north and south of the proposed roundabout on the west side of the river

• 20mph zones on the east side of the river via Sutton Road.

The new links tie-into and thereby support the local cycle network and strategies.

Key Proposals

• The existing pedestrian bridge on William Adams Way will be replaced by a controlled crossing point at the new roundabout. Other potential crossings to the south and west of the new roundabout are under review but will link to recreational grounds and residential areas beyond.

• Southtown Road is an important north-south link supporting nine bus routes however current bus stop provision is sub-standard and crossing points are limited.

A new linear pocket park along the south of the bridge will provide a direct link from William Adams Way to Southtown Road and the new riverside space at Bollard Quay. A new controlled crossing will provide at-grade access to the quayside that will incorporate a relocated, fully accessible bus stop and waiting space.

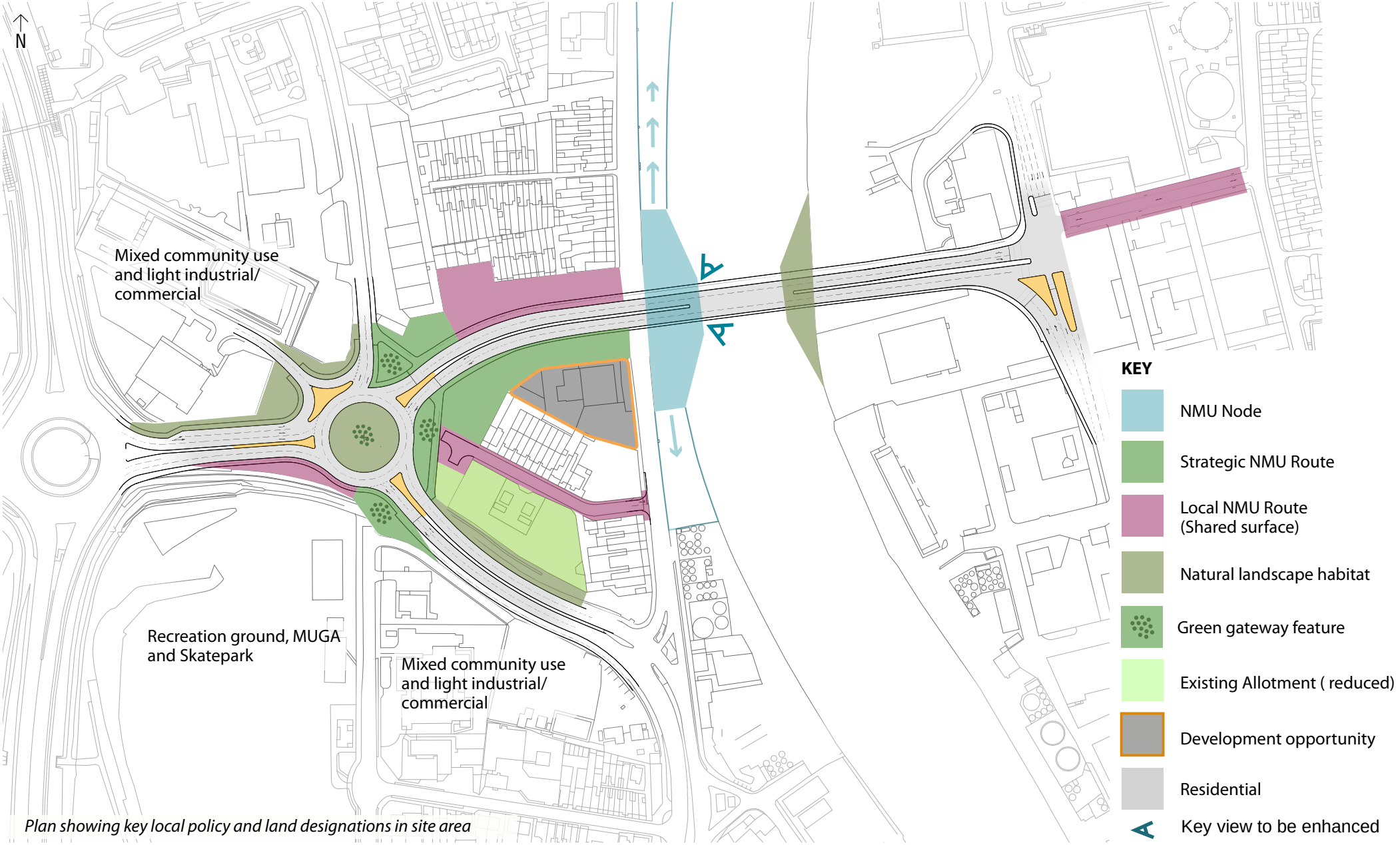
• The quayside at Southtown Road sits above street level. There will be integrated step and ramped access from street level to the new higher level Bollard Quay riverside space.

• All routes will be designed to be fully inclusive with integrated facilities for resting in accordance with good practice.

• The new junction with South Dene Road on the east bank will include cycle facilities on the north side which will provide a direct link to Sutton Road. The proposal is to reverse the one-way at Sutton Road to run eastwards away from the river, rationalise street parking, footways and carriageway to incorporate dedicated cycle facilities and parking. There is further potential for continuation of this link to the 20mph streets and the local cycle network beyond (outside the scope of this project).

Photo showing signage for cycle and pedestrian routes

Photo showing vehicle and cyclist on Southtown Road



Plan showing key local policy and land designations in site area

NMU Node

- re-situated Bus Stop with safe waiting space and at grade access
- interchange dwell space
- improved cycle and walking environment
- off-carriageway cycling and walking route (there are high levels of existing ad-hoc quayside use)




Strategic NMU Link

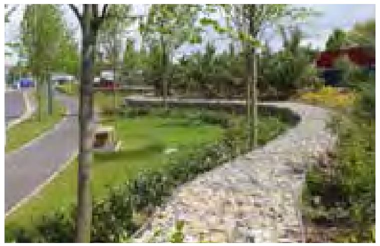
- green gateway space
- integrated SuDs design
- playable space
- enhanced bridge structure
- with playable linear pocket park




Local NMU Route

- residential street shared-surface
- integrated green street parking
- green buffers and screening
- roadside cycle/ped route mitigation and enhancement

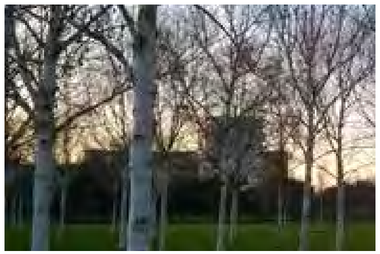


Natural habitat and landscape character

- with employment break out-space
- in verge spaces
- integrated SUDS



Opportunity Areas

- improved crossing points
- improved NMU facilities




Overview

Providing attractive and effective public realm for residents and visitors that link with other NMU movement corridors is an important component of the placemaking approach and fulfills the high level scheme objectives.

The character and setting of both strategic and local routes are enhanced to achieve an integrated design with a singular identity, which creates a legible, good quality walking and cycling network. This will be achieved through judicious choice and consistent application of materials, detailing and lighting.

At the heart of placemaking is the aspiration to optimise the potential for a range of attractive and accessible spaces within the curtilage of the new route. These new spaces will be activated by good connections to NMU routes to support better provision of a higher quality public realm in the area.

The planting character throughout will reflect the coastal/marsh context, with pine and birch trees and easily maintained grasses and shrubs to add seasonal and kinetic interest.

Horizon line and information board/signage will be positioned at key points and junctions to assist access and legibility, and encourage active use of the routes and spaces for leisure and recreation.

The new street edge planting will improve and enhance environmental conditions for NMU's with the aim of encouraging active travel in the area and highlighting the connection made by the new crossing.

Plan showing gateway and western bridge approach

Gateway & Bridge Approach West

To further encourage active transport modes, the new bridge roundabout at the western end of the scheme will be designed as a green gateway linked to a series of safe, attractive, green pedestrian and cycle routes. There will be a sequence of spaces of differing character leading from the roundabout towards the river.

The opportunity for a linear pocket park has been established on the south side of the elevated bridge structure. The park provides an informal recreational space and link to the new riverside space at Bollard Quay. The existing allotment space on Queen Anne's Road, where affected by the scheme will be reallocated locally where possible.

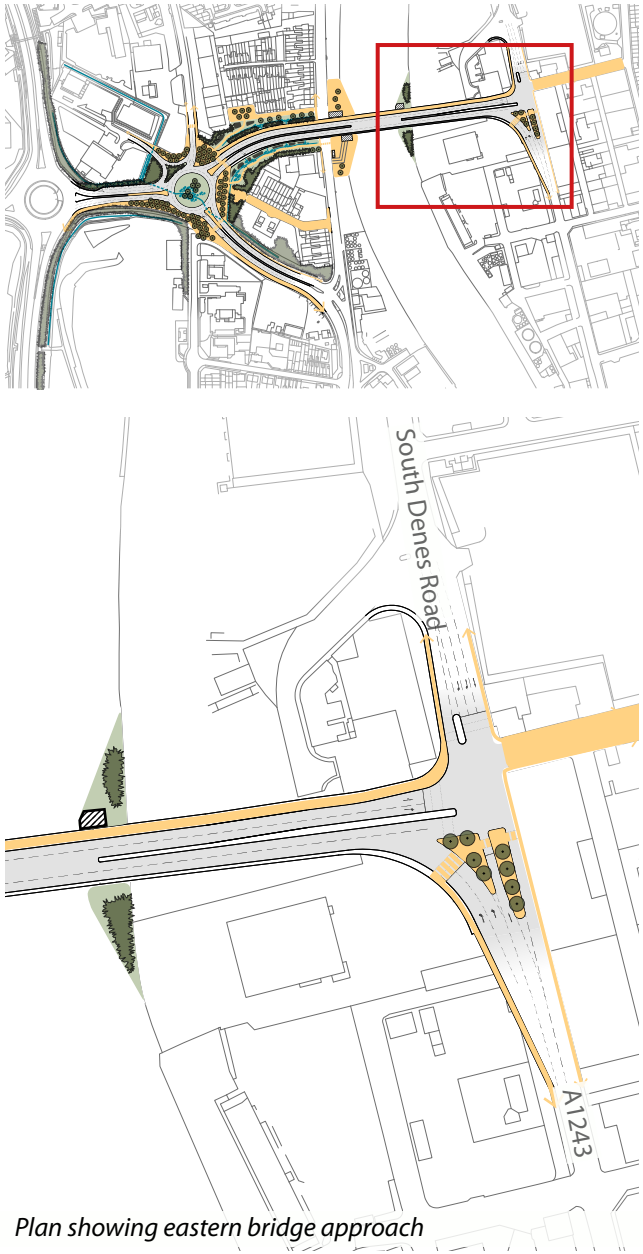
Queen Anne's Road and Cromwell Road will be improved with redesigned parking, surface treatment and buffer planting. Both streets will provide secondary pedestrian and cycle links between the bridge and surrounding networks.

It is hoped the proposed linear park to the quayside riverside space will form a model for green finger access routes to the riverside throughout the planned developments further north in the town where industrial/ port land uses may sit alongside retail and residential.

Example of tree lined pedestrian space

Example of planting in pedestrian area

Example of successful pedestrian space with planting



Plan showing eastern bridge approach

Bridge Approach East

Placemaking opportunities are more limited on the east side of the river due to physical constraints arising from land ownership and anticipated continuation of port-related land-use to the north and south of the bridge approach.

Nevertheless consistent application of materials and detailing in the footways will help to ensure the legible identity of the scheme is continuous along its length. Other opportunities involve new street tree planting where feasible and potential for tree and shrub planting on the new 'knuckle' extension.

Considering the limited accessibility of the eastern 'knuckle', there is potential to provide for new habitat areas that align with the local Biodiversity Action Plan or capitalise on the unique location and opportunity to create intertidal habitat micro-niches.

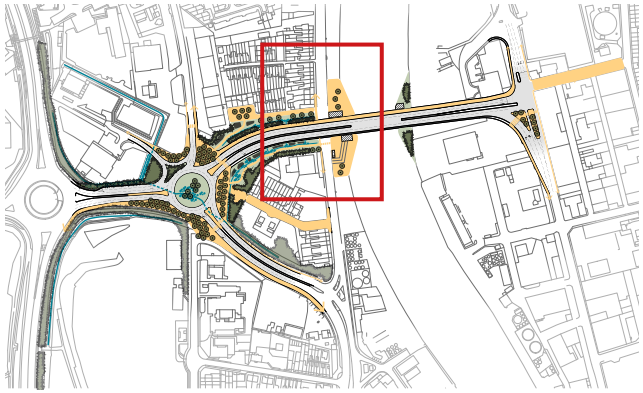
Bridge and Bollard Quay

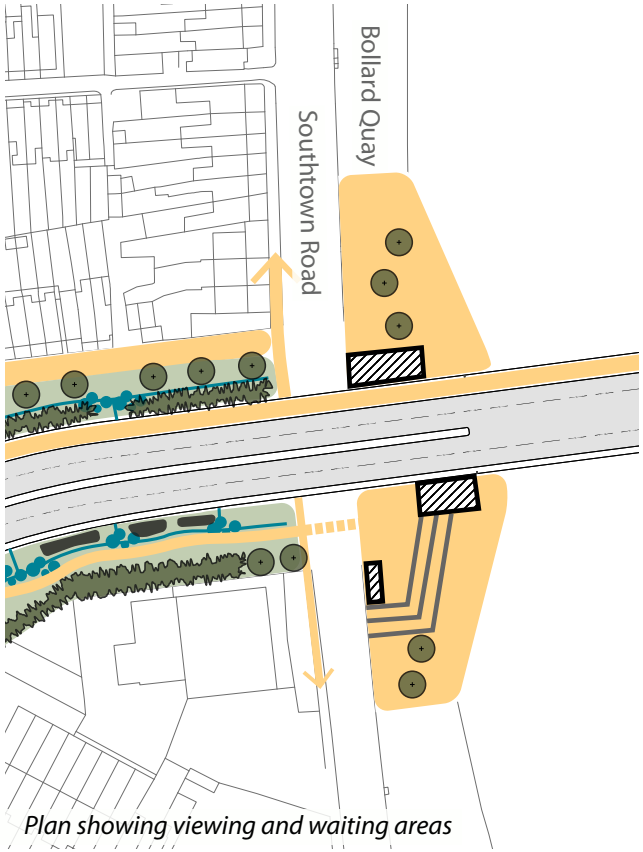
Concept: The design concept for the public spaces and structure refer to the scale, authentic functionality and industrial character of the site and the bridge construction.

The industrial concept is further expressed through consideration of material finishes, surface treatment and detailing throughout the scheme in steps, stairs, seating surface treatment, handrails and lighting.

Photo of notable port features and details

Photo of notable port features and details





Plan showing viewing and waiting areas

Viewing & waiting areas:

There is a need to provide safe waiting spaces for cyclists and pedestrians for peak activity hours when the bridge is opened.

As a significant high point in the town and a new public structure, the views will be new and so the design capitalises on the opportunities to frame them. Cycle and pedestrian waiting areas have been designed to extend from the footway at the 'bascule' hinge. These have been conceived as sculptural 'cubes'.

The 'cubes' reference both the industrial character of the immediate area and the form of local Second World War 'pillboxes'. The narrow window openings continue this theme but also reference bird hides within the marsh and coastal reserves locally. The opening has been rotated to the diagonal to reference the opening bridge deck; at night they will be lit internally to reveal a glowing pattern, designed to be subtle and not interfere with shipping activity. The 'cubes' will have integrated seating and covered areas for the comfort of all users.

A similar approach can be adopted for the control tower that will be required in the proximity of the opening section on the south east of the bridge.

Sketch of how pedestrian space could look

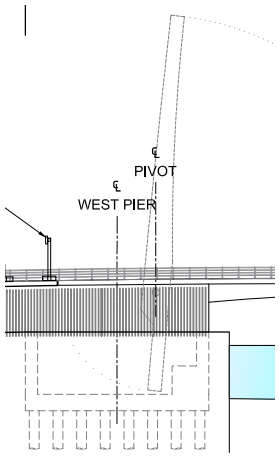
Sketch of how pedestrian waiting space could look

Example of mechanisms displayed as a feature

Bascule Chamber

The intention of the viewing window in the bascule chamber is to make the opening mechanism visible to add drama and interest to the riverside space at Bollard Quay. The Chamber will be lit at night, this will activate the public space and the opening of the bridge becoming an 'event' to enjoy.

The proposed steel steps between quay and bridge level will provide enhanced the views into the depths of the mechanism that is up to five metres below ground level.



Section view of bridge mechanism

Examples of simple but effective concrete finishes

Bollard Quay

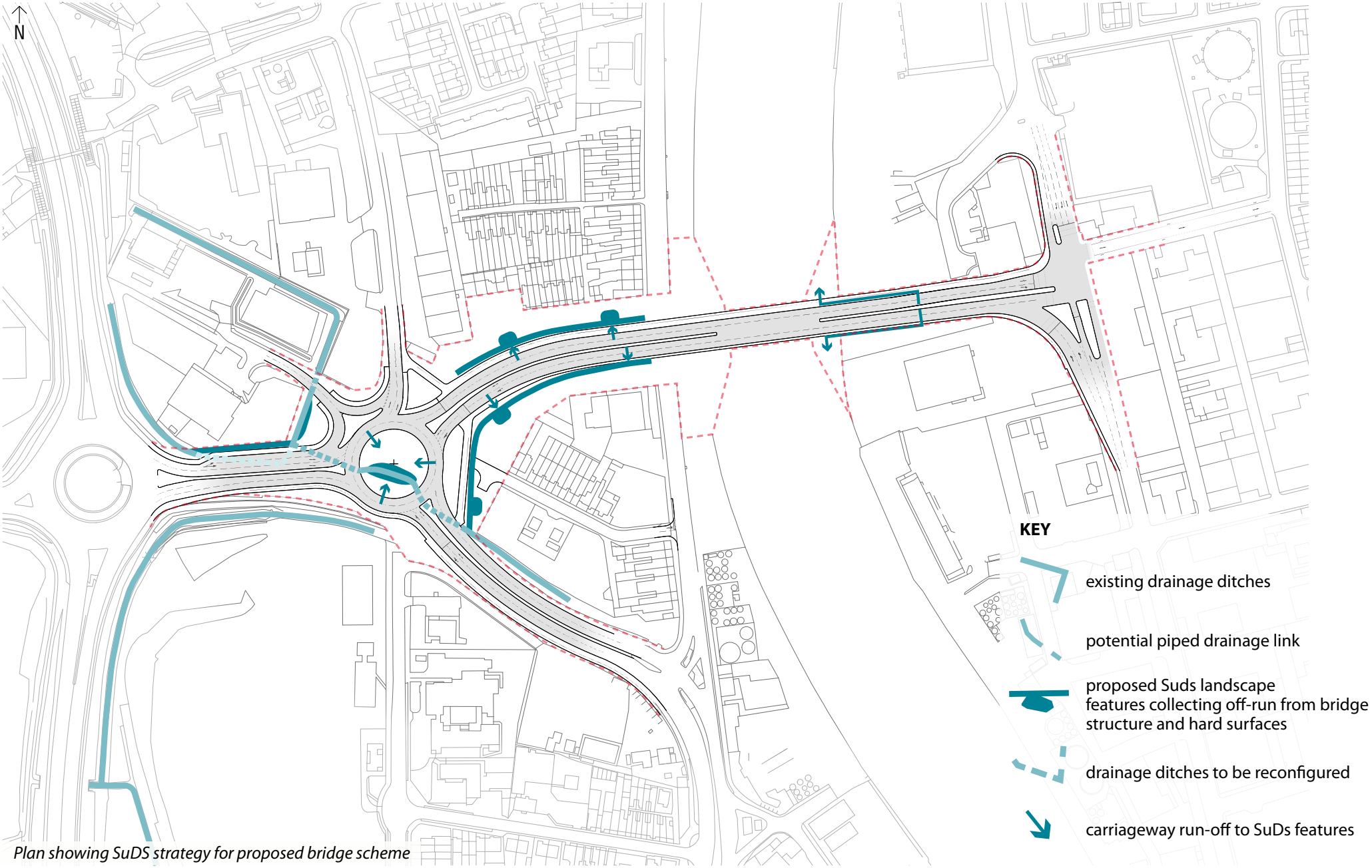
This is an exciting new riverside space that will be a seamless extension of the bridge structure providing a new type of public space in the area and activating the bridge pier areas.

The physical connection between bridge deck and quayside combined with the relocated bus stop and crossing at Southtown Road create a significant NMU movement node.

Planting and seating on the quay side will be scaled to reflect the site and define the cycling and walking space with river viewing points. Tree planting on the both sides of the river in the new 'knuckle' spaces will be informed by views form the opposite banks.

Example of high quality pedestrian space at river edge

Example of public space feature at river edge



Plan showing SuDS strategy for proposed bridge scheme

Other Environmental Considerations

SuDs strategy

The SuDs strategy intends to drain the new highways and bridge structures as directly as possible minimising piped connections. Formal and informal habitat and water features will be developed in-line with the specific character of the adjacent spaces.

There will be a restoration of habitats through planting and surface water design including SuDs techniques at the verges of the new roundabout and the north verge of the southern section of Williams Adams Way. A new habitat area with SuDs is created on the new roundabout and on the east bank 'knuckle'. The east bank site takes advantage of the restricted access to the area but could also include a 'break out' space for employees of the surrounding land uses in that area.

Sustainability

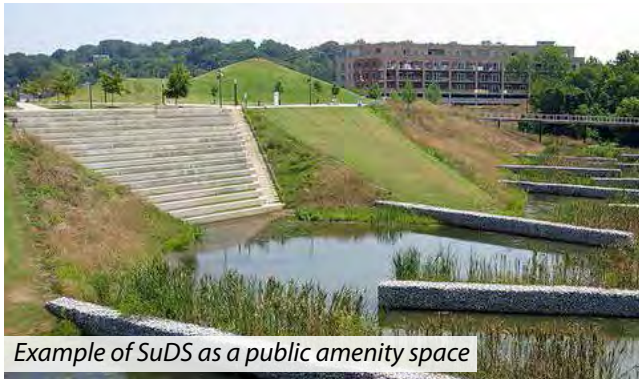
Sustainability underpins the project: reducing congestion, improving air quality, improving journey reliability and providing opportunities for sustainable travel choices, with the overall intention of supporting a sustainable local economy and local communities.

In design terms opportunities that are being explored include; green-blue infrastructure, linking existing and providing new habitats; material choices and designing with the whole life cycle in mind. As the project evolves sustainable approaches to construction will be considered that will include minimising use of virgin materials, and carbon generation through road miles for deliveries and disposal of waste materials and well as ensuring supply chains meet rigorous standards.

Landscape and visual impact assessment

The scheme is located in the centre of Great Yarmouth. The GYTRC will introduce a significant new piece of infrastructure into an area that is both residential and industrial in character therefore likely to be deemed of varying sensitivity. Within the broader context of the town and taking into consideration the low-lying character of the landscape, there is potential for significant effects on townscape and visual receptors.

Opportunities to mitigate these impacts are limited due to the height and scale of the proposed structure. In recognition of this, there is potential for the scheme to have a positive beneficial effect on its setting and to act as a catalyst for improvement to the local streets and economy of the wider town. Opportunities to optimise the design of the bridge structure, approaches and associated public realm will help to achieve this.



Example of SuDS as a public amenity space

Example of planting to form a rich habitat space

Example of SuDS planting

Example of roundabout space with integrated SuDS

Norfolk County Council mouchel