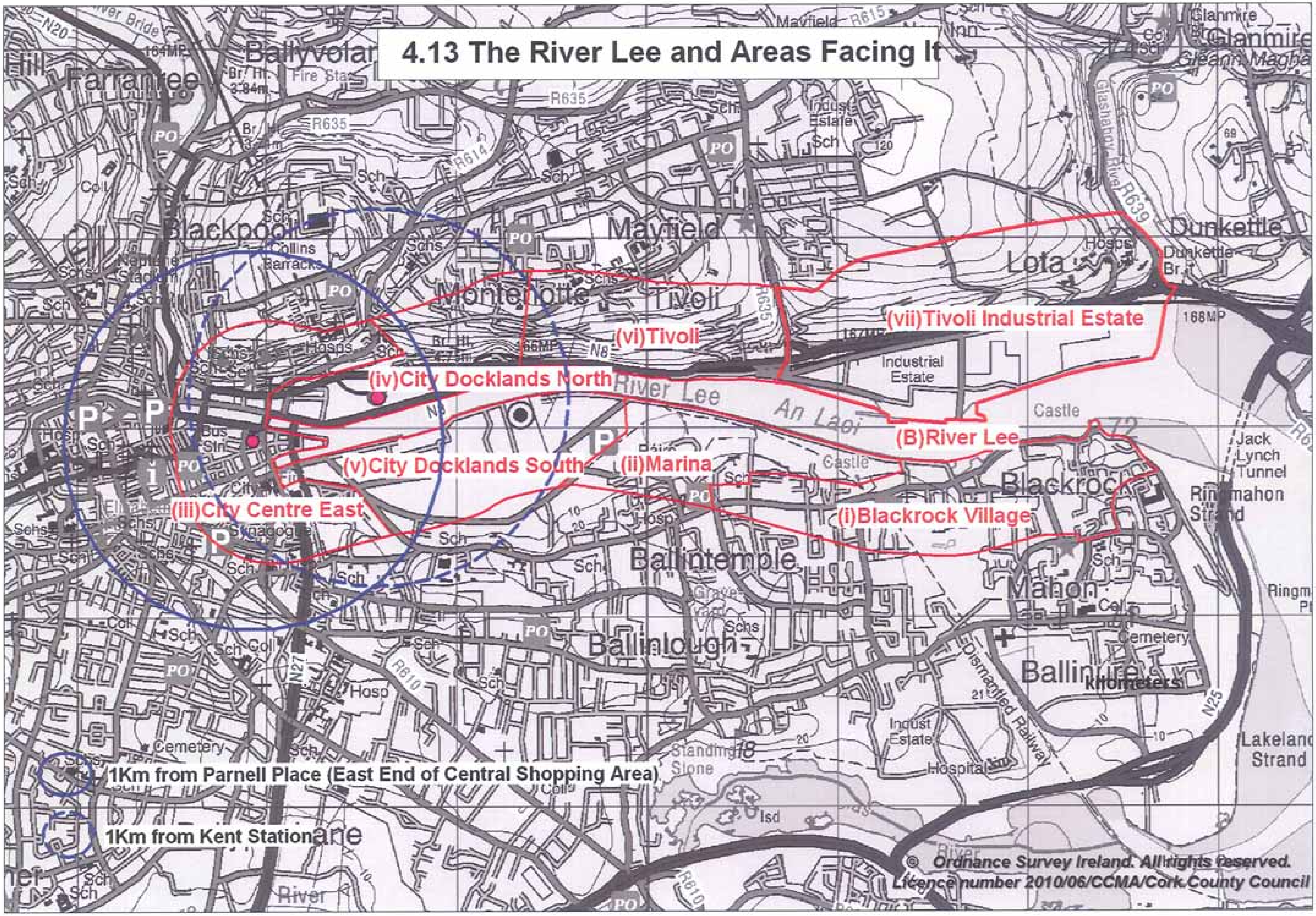
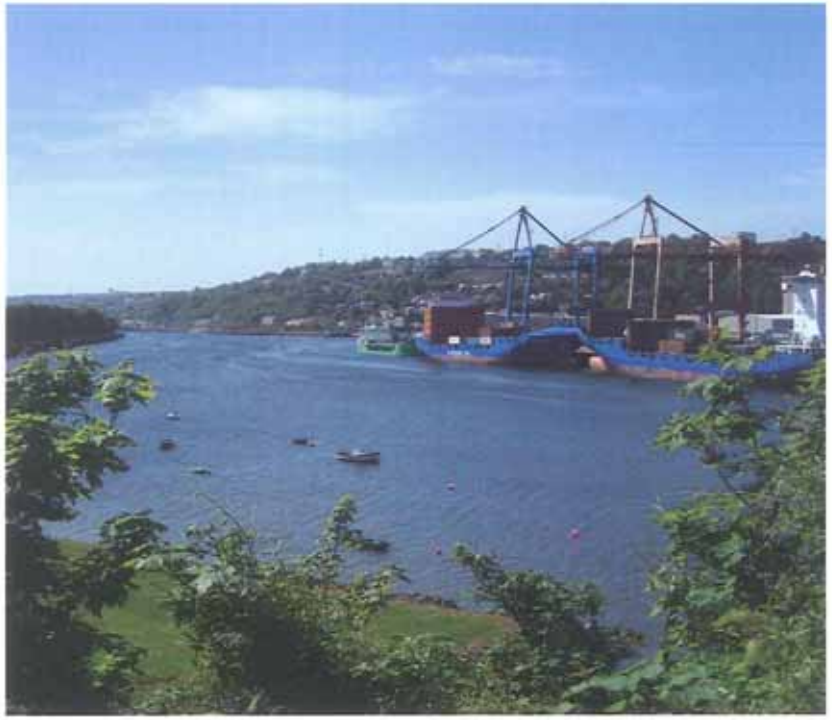
4.13 The River Lee and Areas Facing It



This is being suggested, not as the correct solution, but as a test against which the effects of other proposals for the interchange - on issues other than traffic capacity and speed on the national road system - might be assessed. In so far as proposals for extra traffic capacity at the interchange were judged necessary, the approach outlined in Theme 3 would involve asking how far other various options could provide equally good conditions for items (b)-(f).



(B) The River Lee

With the exception of parts of Lota, the areas overlooking the section of the River Lee between the City Centre and the Jack Lynch tunnel are all within Cork City. The City Council has recent existing plans for the North and South Docks and Blackrock Village, which take account of the river as well as the land areas adjoining them, and also intend to produce a River Use Management Study and a Tivoli Local Area Plan.

To avoid duplication, this section is set out somewhat differently from the other water body based sections, and focuses on a small number of trans-boundary issues:

(i) Flood risk
(ii) Existing Docklands Uses which may relocate in other Harbour areas to facilitate redevelopment
(iii) City – Harbour Connections along the River
(iv) Interaction between Dunkettle and Tivoli Industrial Estate

The City Docklands project also has a broader relevance for the Harbour area as a whole, through its effects on the supply and demand for uses such as apartments and offices. Office markets in particular overlap and interact in the wider Harbour area, as potential sources of supply – from city centre offices to larger floorplate ones in docklands or suburban business parks – are to a considerable extent substitutes for each other from a demand point of view. These effects are relevant to the broader

assessment of the market for development land adjoining the Harbour in Chapter 7.

(i) Flood risk in the City Centre

The city centre is the primary area of flooding risk within the harbour and Lee catchment, subject to both tidal and fluvial flooding. The management plan indicates a current 2% AEP chance of a fluvial event which results in flooding of the majority of the city centre in any one year, or a 1% one of tidal flooding affecting large parts of the city centre. The chance of minor tidal flooding in any given year is up to 50%. The entire central island area from the Western end of South Mall to Custom House Quay is affected by both types of flooding. Flood risk also affects areas N. and S. of the Island (eg St Patrick's Quay, Union Quay, South Terrace, Copley Street).

The Medium Range Future Scenario for both types of flooding within the city centre shows more extensive flooding for events with a higher probability of occurrence. Modelling suggested over 2000 buildings were within the combined flood extent of a 0.5%AEP tidal and a 1% fluvial flood event.

The LeeCFrams Plan proposes a number of options for managing the flood risk within the city:

(a) optimisation of dam operations

(b) localised works to raise or create defences to achieve a consistent standard of protection along the quays, including raising of low defences, strengthening or replacement of existing defences and installation of temporary defences across low points e.g. demountable barriers on road bridges. However, under flood conditions, some quay walls might not be able to cope structurally with additional stresses resulting from raising them. Some localised works could be progressed as stand alone measures.

(c) permanent flood walls and embankments, including whatever rebuilding of raised quay walls was to make them structurally capable of coping with additional pressures. This would cost c. €140m, and may not be affordable.

The LeeCFrams Plan relies where possible on non-structural measures, and where it proposes structural ones, these are largely at local area level. The city centre is likely to be a decisive test of this approach, as it has much the largest quantity of property at risk, and is also complicated to defend through structural measures, because of the length and age of the quays and of culverted watercourses under major streets. While the cost of (c) does not appear to be that much less than the cost of protecting against tidal events through a barrage at Monkstown plus a low cost barrier east of Fota, unlike a barrier it would protect against fluvial as well as tidal events.

Flood risk (mainly tidal) also affects most areas with potential for dockland type redevelopment.

- Much of the S. Docks Area is c.1m above sea level, and is protected from flooding through a dyke and polder system, in which the Marina acts as the dyke. Lower land behind it drains into Atlantic Pond, on the inner side of the Marina, and water is released from the pond at low tide.

- Ground levels in the North Docks are somewhat higher, at around 3m OD in the area around the Lower Road/Water Street junction, similar to higher parts of the central island. The Lee CFrams Study nevertheless identified this area as currently vulnerable to flooding, with the area E. of Water Street subject to a 0.5% AEP tidal event and 1% AEP fluvial event, and tidal flooding risk extending from Penrose quay up to McCurtain Street. Under the MRFS future scenario, these vulnerable areas will increase, particularly along Horgan's quay and the lower half of the CIE station lands.

- Tivoli industrial estate is also at risk from tidal flooding. The triangular W. end of the estate where the predominant land use is storage of oil and gas has a flood risk of 0.5% AEP in the current scenario, and the extent and probability of occurrence increases in the future scenario. The MRFS scenario for the E. end of the estates includes a substantial area at risk of 10% AEP event. Only the central part falls outside the flood hazard area.

The South Docks Plan (2008) envisaged protecting its area from flooding by establishing perimeter defences c.4.5m above Ordnance datum (OD), and requiring floor levels at 3.5m OD, as a secondary precaution against overtopping or breach of the perimeter, or storm sewer blockages. Higher floor levels imply filling to the required level, or structural void space usable for car parking or other underground services. Parking is likely to be a popular option, not only in the City Docks, but in any brownfield redevelopment site beside the Harbour and originally reclaimed from the sea, and could become a large new category of potentially vulnerable property. For instance, a recent planning application for a 240,000m2 development on the 9.5 ha Marina Commercial Park site envisaged 2230 basement parking spaces, and a 2008 one in Passage sought almost 1200[3]. While underground parking is expensive, some costs are unavoidable where proposed ground level is well above existing. Like existing development close to sea level, basement parking will depend primarily on local perimeter defences for flood protection. Both raise the question of whether they need a second line of defence. If they do, there is a choice on whether this is geographically at a more general level, such as a barrage further down the Harbour, or through more decentralised measures at individual building level, such as more flood resistant design and materials.

(ii) Potential for Relocation of Existing Docklands Uses

Much of the Cork Docklands area is within easy walking distance of the city centre, which remains the largest concentration of employment and shopping in the Cork area, and of its public transport foci at Kent Station, Parnell Place and Patrick Street. Replacement of existing low intensity uses with much denser development should greatly increase the number of Cork area residents who live and/or work in areas which are less car dependent because there is a wide range of travel options.

However, to achieve this, many existing uses will need to relocate. Most employment uses in the Docks area do not rely on the quays for delivery of raw materials, and are not tied to a Harbour side location. Some of them may nevertheless relocate

[3] See p.109, 117-8 below

Table 4.2 Trade Expected to be Relocated from the City Quays and Tivoli

Trade	*Comprising*	*From*	*Land Area Required (acres)*	*Facilities / infrastructure required*	*Specific destination*
Cereals		City Quays	2	Bulk Store	Ringaskddy
Animal Feed		City Quays			Ringaskiddy
		Tivoli			Ringaskiddy
Fertiliser	Manufactured	City Quays	15	Blending plant	none
	Crude and minerals	City Quays			none
Coal		City Quays	2	Open Storage	none
Salt			1	Bulk Store	
Bulk Liquids	Crude Chemicals?	City Quays	3	Tanks	none
	Chemical elements and compounds	City Quays			none
					none
Gas		Tivoli	5	Tanks	none
Break Bulk & other cargo	Timber	City Quays	12	Open storage	none
	Machinery	Tivoli			none
	Other				
Alternative fuels	Provision for future trade?	N/A	3	Tanks	none
Cars		Tivoli		open storage	Ringaskiddy
Balance of trade at Ringaskiddy					

Source: RPS *Port of Cork - Strategic Development Plan Review*, June 2010, Table 9.1, p.70

to areas such as Little Island, on the basis of proximity to current location. The site and many of the buildings of the former Ford and Dunlop plants have been reused as the Marina Commercial Park, which contains a wide variety of low rent small-medium industrial and commercial units. The Park has a large private wharf, but most users are not dependent on it.

There is an oil pipe network which crosses Centre Park Road via a bridge and connects the quay to Topaz bulk storage and the National Oil Reserve Agency (NORA). These two uses, together with Gouldings Fertilisers, have been a constraint on redevelopment in the S. Docks, being subject to the Seveso directive, with all planning applications within

- (Topaz Energy Reserve) 400m
- (NORA) 300m
- (Gouldings) 700m.

being referred to the HSA for comment. However, during 2010, planning permission was granted for removal of the Topaz facility and redevelopment of the site, and NORA indicated that it intended to remove all stocks from its site.

There is also a Bord Gais above ground installation (AGI) directly opposite the Marina Power Station, which is connected to a major gas transmission pipe. In addition, there is a complex of inter-dependent, port related grain storage and milling businesses on and behind Kennedy Quay. The Port of Cork owns a number of quays and jetties extending from Albert Quay to the ESB wharf along the riverside.

Negotiations and preparations are underway for relocating some activities. For instance, R&H Hall have a planning permission to extend their existing warehouse at Ringaskiddy Port by 5,350m2. However, until such moves are finalised and implemented, they remain a constraint on redevelopment. Cross-ownership and interdependence may result in coordinated relocation of some groups of users.

In view of the intended relocation of the container port, the CASP Update saw Tivoli as an area with a future strategic role for mixed use development to accommodate the rapid growth in services employment it projected, and also growth in the City's population. The 2009 City Development Plan indicates support for regeneration of Tivoli for more intensive uses, to be outlined in more detail in a future Local Area Plan.

Many of the activities in the estate depend on access to deep water, such as haulage and shipping companies, animal feed, and storage units. Some, such as car imports, are also land intensive. Industrial premises in the estate are noticeably more recent than in the S. Docks area, and appear to be more intensively used. The Tivoli industrial estate has 2 Seveso uses - Calor and Flogas – involving storage of Liquid Petroleum Gas (LPG), and consultation distances of 600m in both cases. The dual carriageway and a substantial though lightly developed area on the far side of it fall within these distances.

Likely relocation needs for Port functions are quantified in the Port of Cork's Strategic Development Plan Review (summarised in Table 4.2), at 43 acres (17.4 ha).

(iii) City – Harbour Connections along the River

Theme 3 (Transport/Spatial Competition in the Coastal Zone – in the previous section) also has some relevance to proposals to facilitate different types of movement along, across, or beside the River Lee. At present, the river is managed primarily to facilitate ship operations, and parallel road and rail corridors to facilitate vehicular traffic. Ships have taken priority up until now over cross river vehicle movement downstream of the Custom House, so any barrier effect applies to movement between the S. and N. banks. Active quays at the S. Docks and Tivoli are laid out and equipped for transfer of cargo from ships to nearby premises, creating barriers to movements along the river bank.

In the city centre, the reverse applies, as improved movement across the river has been achieved at the expense of restricted movement on it. Parnell, Brian Boru and Clontarf Bridges were originally lifting bridges, but this function gradually became disused, well before it was made obsolete by the provision of fixed bridges downstream of them in the 1980s. Low bridge clearance above high tide level effectively terminated the marine activity characteristic of 18th and 19th century pictures of the city centre quays.

Proposed transport and other developments are likely to result in several further changes in priority:

(i) 3 new bridges across the River are proposed for Docklands. They are intended as **opening bridges**, but frequent opening may be disruptive to traffic, and the cost per opening for an infrequently opened bridge may be high. These factors may discourage actual opening.

The issue of clearances under bridges in the unopened position illustrated the potential tension between movements along and across the river in a recent An Bord Pleanála hearing on proposed Dockland bridges. The Board's Inspector accepted Harbour CAT Ferries's case that limited clearance under the proposed Water St. bridge would have a significant effect on their proposed ferry service between the City, Cobh and Crosshaven, even allowing for the City Council's commitment to reduce the thickness of the bridge deck, but did not regard this as sufficient reason for withholding approval. He also cited the adverse effect a higher bridge with a 6% gradient instead of a 5% one would have *"on pedestrians, cyclists, disabled users, and adjacent landowners"* as a supporting reason for this view.

(ii) On the corridors alongside the river, the City Council's plans envisage benefiting from the relocation of shipping from the S Docks, and traffic from Horgan's Quay, to create **continuous pedestrian routes** running from the Beamish and Crawford site to Blackrock Castle and Mahon, and from Camden Quay to Water Street. The presence of pedestrian/cycle routes along the Rochestown-Passage and Carrigaline-Crosshaven sections of the former Passage rail line, together with further opportunities in the Carriagline-Monkstown section, offer the opportunity of a complete cycle route beside the Harbour from Cork to Crosshaven with a connection to Ringaskiddy (see Ch. 5 (A) (iv)-(v), and (B) (ii) below).

(iii) Discontinuation of port activity in the City Docks would also remove the current basis for **dredging** up to them, making it more difficult for larger ships to come there for special events. Restricted dredging as a result of wartime fuel shortages and funding problems led to deterioration in channel depth by 1945 [4].

(iv) Reconfiguration of **Kent station** to face towards the river and the city centre seems likely to involve closure of the loop line which bypasses the main passenger platforms. One consequence of this would be to make it difficult to revive rail freight services to Tivoli or Marino Point[5].

Current proposals thus have quite substantial implications for the potential for movement along or beside the Harbour, sometimes very positive (e.g. (ii)). In some cases, looking for ways to create new connections without closing off the possibility of existing ones, in the manner outlined in Theme 3, might merely lead to the conclusion that one cannot have one's cake and eat it. For instance, the improvement in pedestrian and cyclist facilities in (ii) is contingent on the relocation of shipping from the S. Docks, but this would make (iii) – discontinuation of dredging – more likely. In other cases, the Theme 3 approach could generate some alternatives. For instance:

[4] John J. Horgan "The Port of Cork" Journal of the Statistical and Social Inquiry Society of Ireland, 1955-6 , Vol XVIX, p.48

[5] This point is noted in the Port of Cork's 2010 Review of their Strategic Development Plan (p.32)

- While the loop line referred to in (iii) is at present a barrier between Kent Station and Horgan's Quay, it would not be difficult to extend the existing pedestrian underpass to go under it as well, or to substitute a more general overhead pedestrian connection[6]

- The North and more particularly the South Docks as they currently exist are subject to a number of constraints on movement, represented by the river and the escarpments N. of the Lower Glanmire Road and S. of Monahan's Road[7]. As it is not practical to fully remove these barriers to movement, there is choice on which modes, types of movement and corridors are regarded as offering the best opportunities for improving access. While the discussion is hypothetical at this stage, as a decision has been taken by and Bord Pleanála as well as the City Council, the theme 3 approach would have implied considering as broad a range of options as possible, with a preference (at least initially) for those which would not constrain possible improvements to other modes.

It is normal for expected development backed by substantial demand to take precedence over forms of transport which do not currently and may never exist, even in the absence of obstacles from competing modes. The question is *'what value should be attached to keeping such options open?'* An Bord Pleanála's decision to refuse the container port proposed for Ringaskiddy, partly on the grounds that it could preclude possible future transfer of containers from ship to rail, placed

[6] This issue may considered further in the forthcoming review of the North Docks Local Area Plan

[7] These formed the banks of the River Lee or the edges of its flood plain until the late 18th century

quite a high value on that option. The same argument could apply to closure of the loop line, which could preclude all forms of ship to rail freight transfer on Cork Harbour.

From the somewhat specialised perspective of this Study, focused on activities and movements on or beside the Harbour, the proposal by Harbour CAT Ferries Ltd could improve connections across as well as along the Harbour, and benefit its tourism function[8]. In its current form, it involves 9 landing points, including the Marina (near the junction with Centre Park Road), Blackrock Harbour, and Horgan's Quay (near the junction with Railway Street), and permission has been granted by An Bord Pleanála for almost all of them. The ferry would start from Horgan's Quay. If one assumes 3 boats and the proposed 35 minute travel time between Cobh and Cork, this could support a peak service interval of 30 minutes, which compares reasonably with land public transport.

Cork City centre may not be the most central point of access to the Harbour, but it is the most frequented, and it is important that plans allow good connection between them. Two potential access points which could strengthen connections with possible forms of water transport may be worth protecting on this basis:

(1) Anderson's Quay would have advantages as a possible city centre terminal for marine public transport, being 200m from the bus station, and 500m from St. Patrick's Bridge. Anderson's Quay is well placed for tourists, and has 2 hotels in adjoining blocks, and another 2 within 500m.

(2) The North Docks LAP proposes to reorient Kent Station to face south onto a new 'Station Square' extending down to the River Lee. A square at this location is likely to be an interchange point between rail and other forms of public transport, and could also be a marine public transport stop. The rail platforms are c.150m from the quay at this point, and a jetty visible from and in front of a station entrance would have a high profile. Permission has been granted for a city terminal for the proposed Harbour CAT further east on Horgan's Quay, immediately east of the junction with Railway Street. This is a better location at present, but may not be in future once the proposed Square is in place.

(iv) Interaction between Tivoli and Dunkettle

The Tivoli Industrial Estate is a good example of reclaimed land on the seaward side of a transport corridor on the original shoreline. Current road access to Tivoli Industrial Estate was provided as part of the Silver Springs overpass in the 1980s, replacing an awkward at grade junction W. of the skew bridge. This had the advantage of improving the road junction on the N8 and access to the Tivoli industrial estate in one operation.

The transport corridor acts as a barrier, and there is only one way into the Industrial Estate. This could complicate the CASP Update proposal for docklands type redevelopment there (including a residential component), as it may be difficult to attract a range of uses to an area with only one road access.

Similarly, if in future the possible alternative of gradually upgrading existing uses to business park standard (rather than replacing them completely) was applied, additional entrances

[8] The most successful harbours from a tourism point of view (eg Sydney, Stockholm) have well developed scheduled passenger services.

to the Estate would facilitate this. The E. end of the Estate is not yet built up, and is mainly used for open storage and parking of imported cars. If access to the estate by road and rail could be achieved from the Dunkettle area, as suggested in the previous section, this would make it easier to introduce a new pattern of development at the E. end. This would make redevelopment of the existing industrial estate a less essential precondition to the introduction of new uses, as the way to them would not be through the existing industrial area.

Tivoli Industrial Estate is also affected by barrier effects in relation to public transport. The CASP Update refers to the transport needs arising from more intensive development of Tivoli, including possibilities such as an additional rail station, or a bus or BRT loop connecting Mahon, Docklands, Tivoli and Little Island. However, the Industrial Estate is only 3-400m wide, and it would not be easy to develop such a restricted area intensively enough to justify high quality public transport, by itself. The river, the N8 and the steep hillside to the N. of it form barriers which cut it off from other potential demand. Hence the suggestions in the subsection on Dunkettle

- on combining demand from the E. end of Tivoli with park and ride and other demand from the far side of the N8/N25,.

- on creating a local road connection through to Little Island which could be used by a bus service.

A further reason for seeking to serve demand from several adjoining areas at one suburban station rather than two is that it would make it easier to keep travel time between Kent Station and Cobh/Midleton within the 30 minute time frame necessary for a clockface timetable (see Theme 4).

Theme 4. Stations and Clockface Timetables

Current train times between Kent Station and Cobh and Midleton are 23-24 minutes. The 2002 Faber Maunsell Feasibility Study estimated each extra station would add 2 minutes (allowing for acceleration and deceleration as well as time stopped). Adding one station (eg at Dunkettle) is straightforward, but adding any further stations pushes travel times close to 30 minutes, making it difficult for the same train to achieve a return journey within 1 hour, and so maintain a clockface timetable.

Clockface timetables have promotional value, and any reluctance to sacrifice this by Iarnród Éireann would be legitimate. However, the context assumed by the Feasibility Study may change – through electrification, or more powerful diesel railcars, or more rolling stock, or altered train movements (eg Cork-Youghal). Most such changes would involve extra investment.

There are several locations on the Harbour where land use options could depend on a new rail station. Other things being equal, such options can be regarded as more feasible and robust if they could be implemented without departing from the operating assumptions of the 2002 Feasibility Study. It is thus worth exploring whether this is possible, and what it might involve, without prejudice to the possibility that less stringent constraints may in fact apply.