

INVERNESS CITY TRUNK LINK ROAD – WEST LINK OPTIONS APPRAISAL

Sam MacNaughton & Tim Stott

Public Meeting

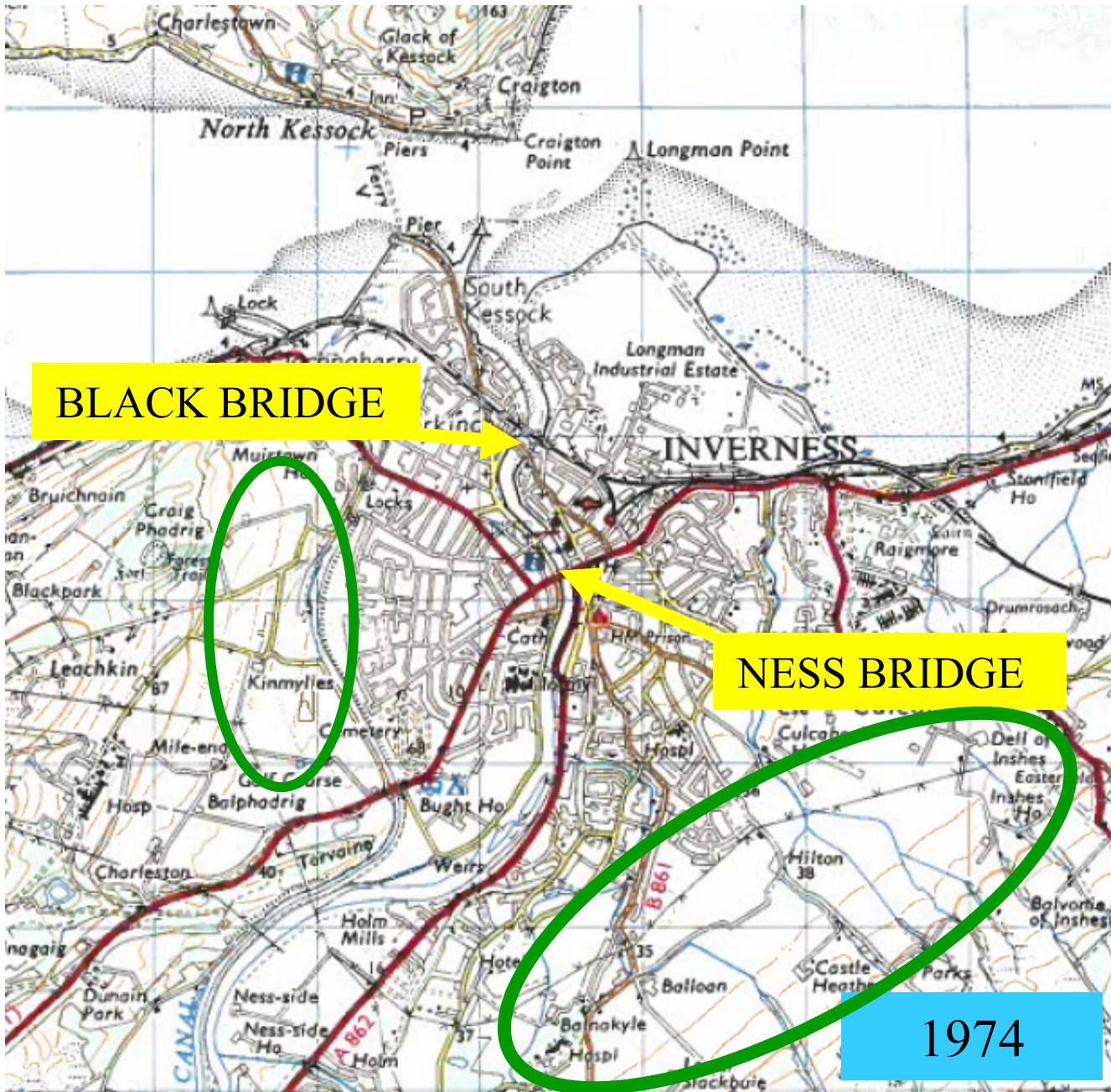
Thursday 1 December 2011



Drivers for West Link



- Traffic Capacity across River Ness and Canal
- Congestion in City Centre
- Land Use Development



BLACK BRIDGE

NESS BRIDGE

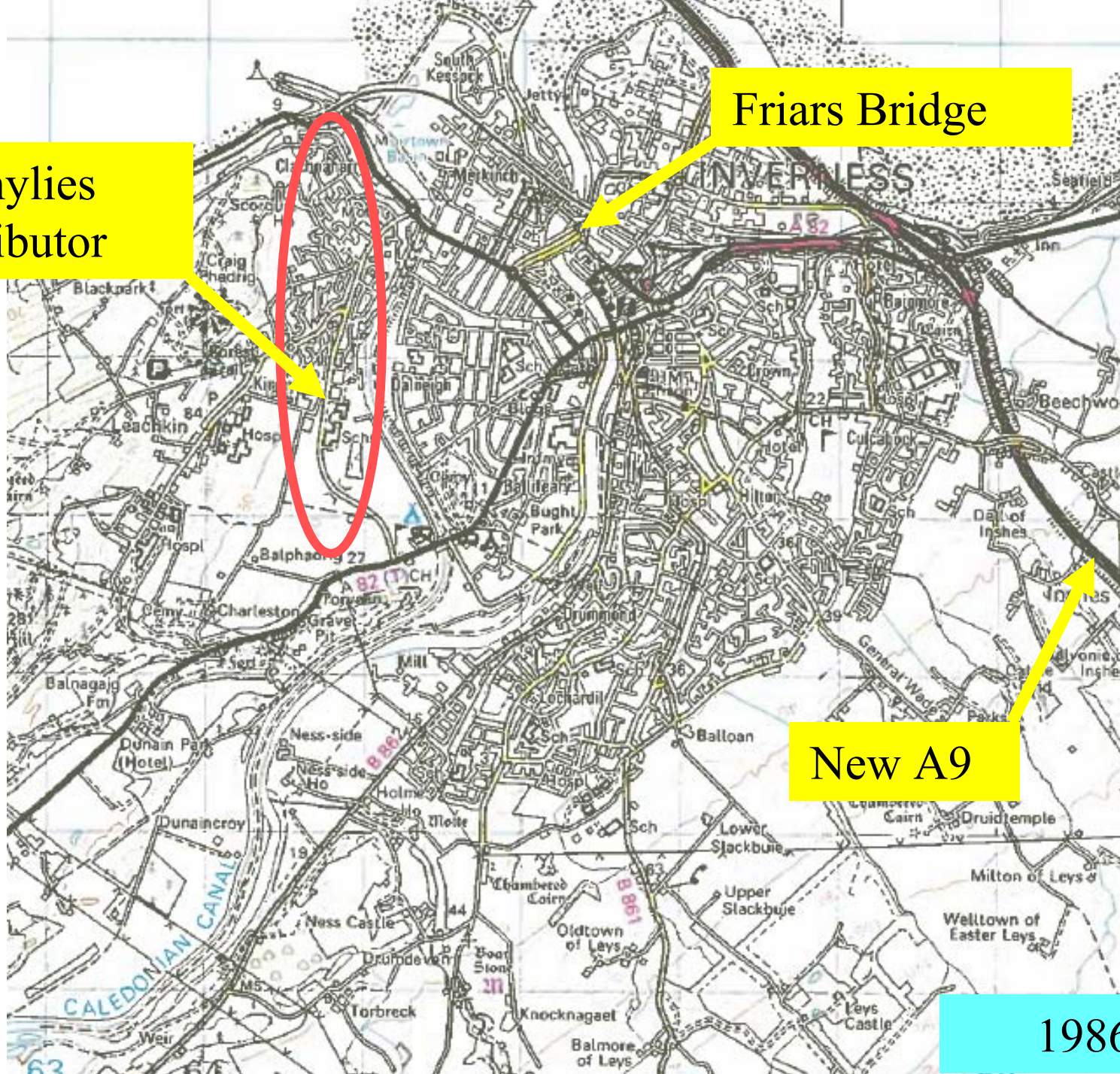
1974

Kinmylies
Distributor

Friars Bridge

New A9

1986



Muirtown Canal Bridge

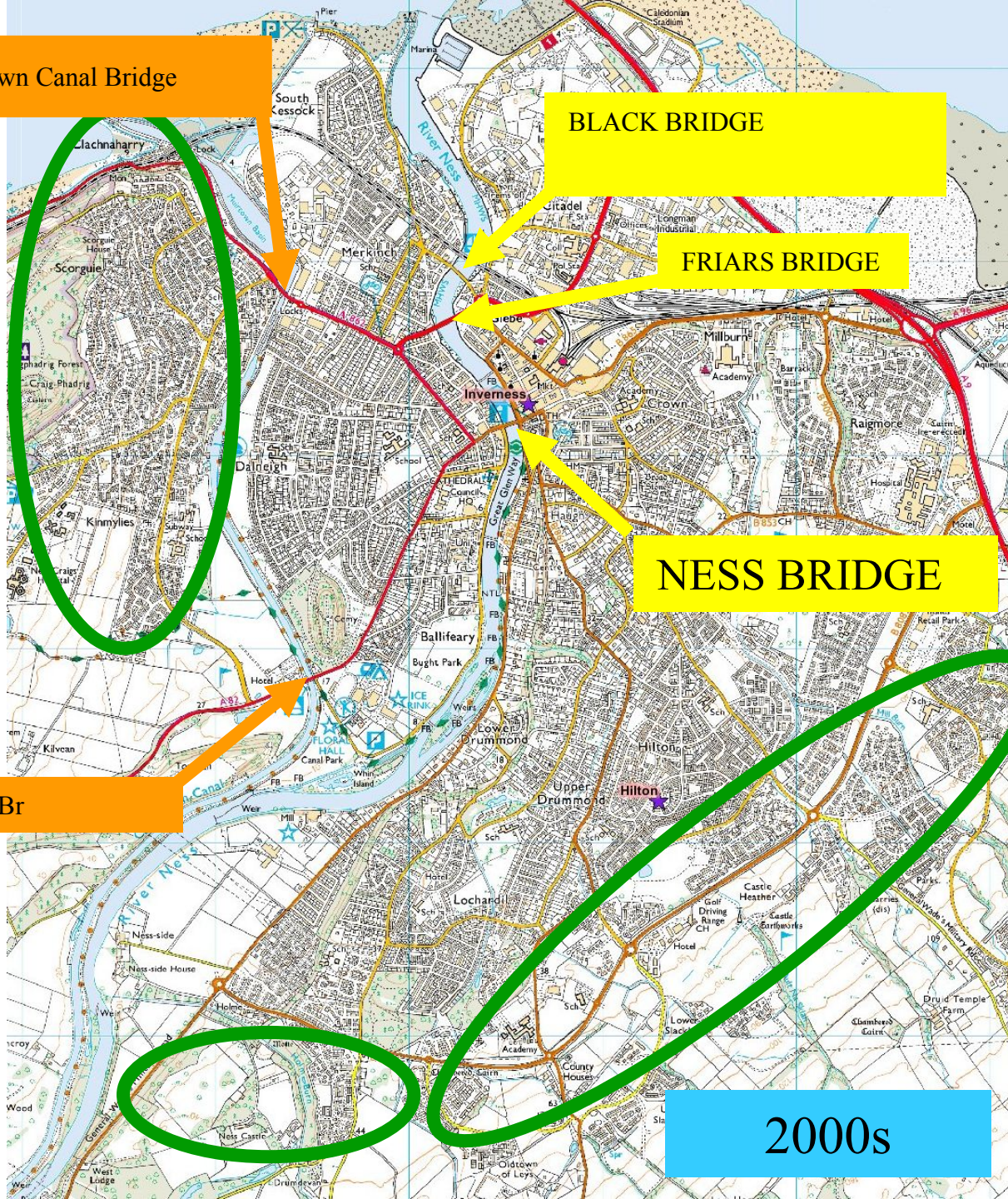
BLACK BRIDGE

FRIARS BRIDGE





NESS BRIDGE

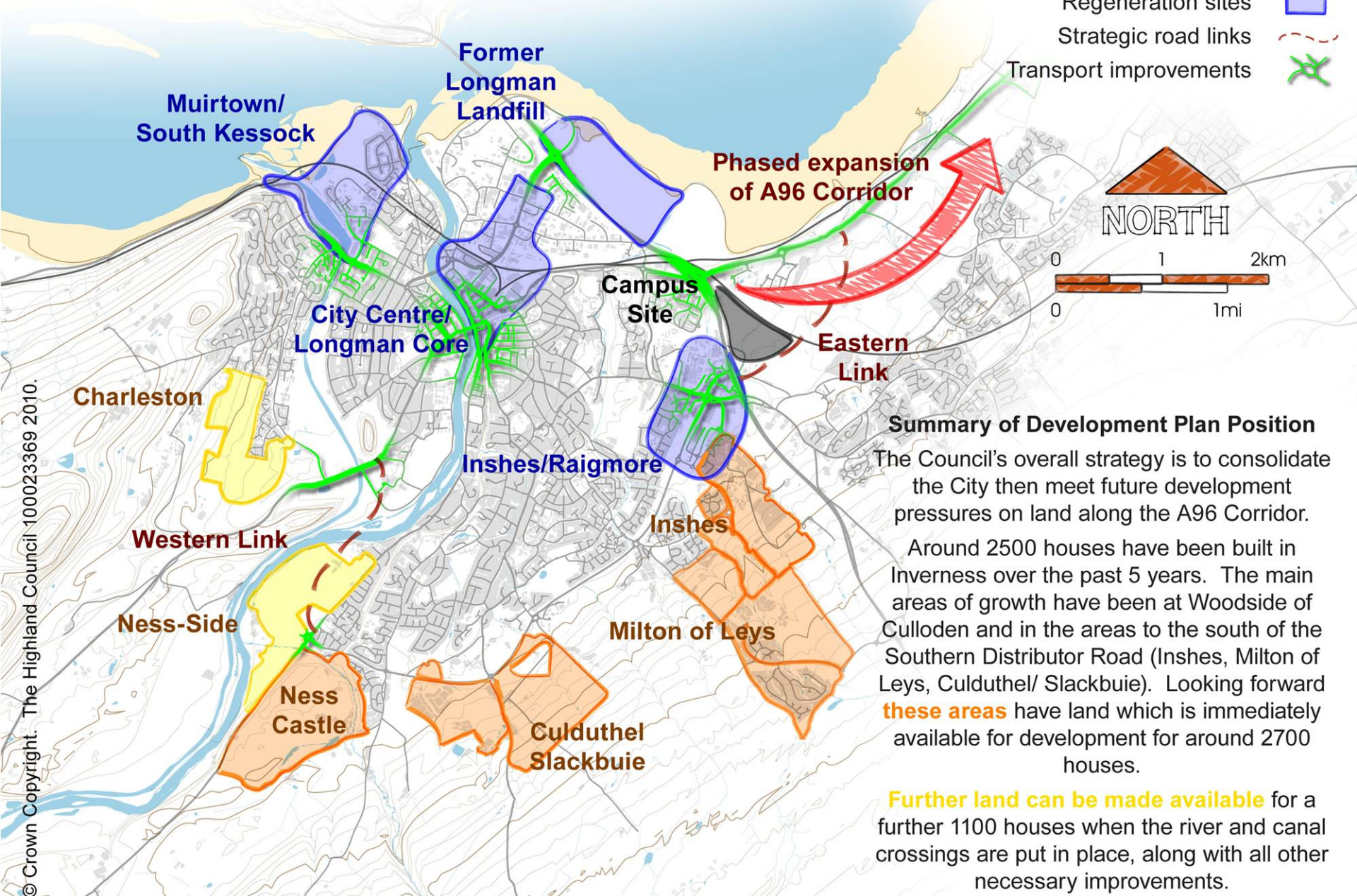
Tonmahurich Canal Br

2000s



Spatial Strategy for Inverness

- Unconstrained expansion sites 
- Constrained future expansion sites 
- Regeneration sites 
- Strategic road links 
- Transport improvements 



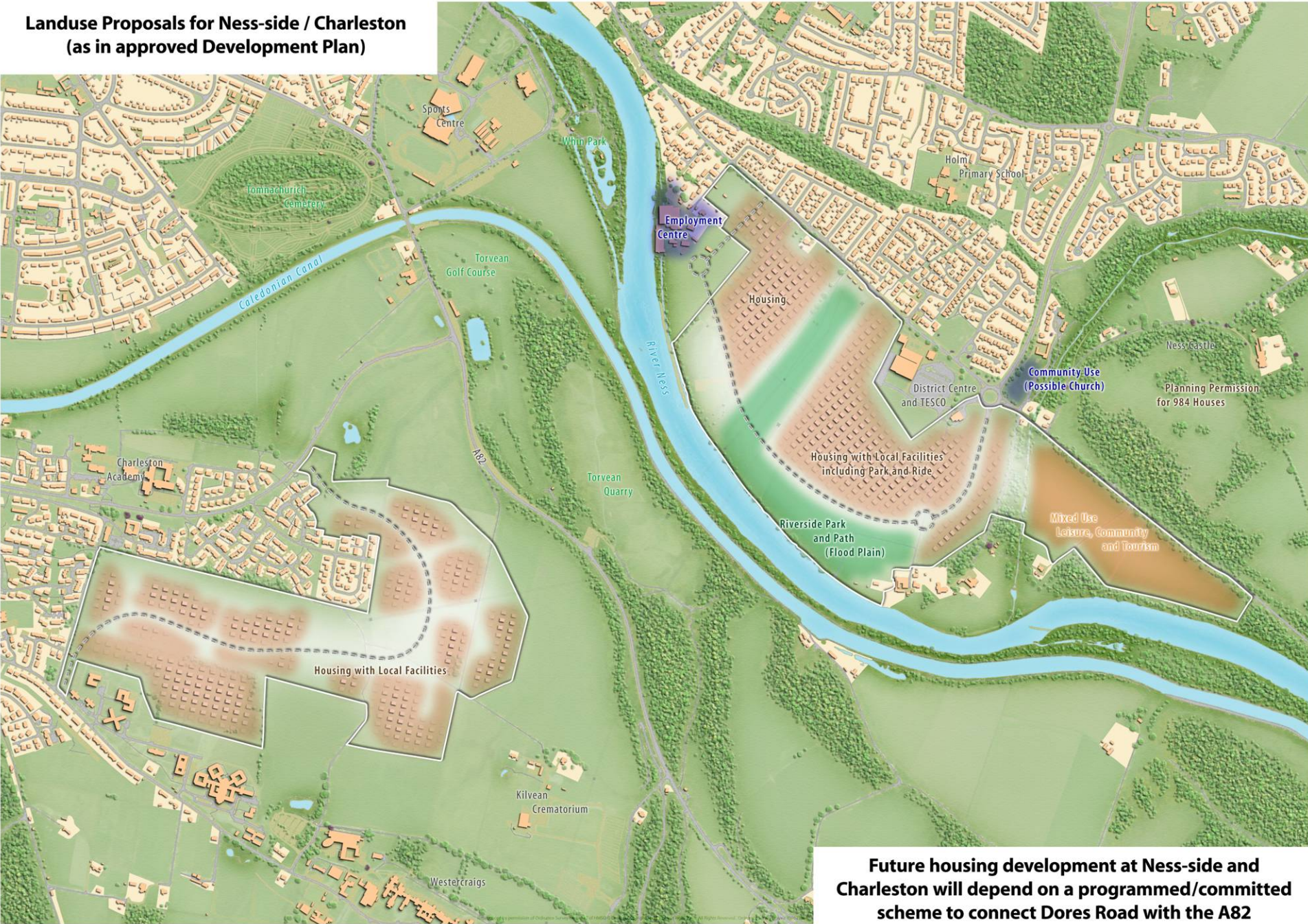
Summary of Development Plan Position

The Council's overall strategy is to consolidate the City then meet future development pressures on land along the A96 Corridor.

Around 2500 houses have been built in Inverness over the past 5 years. The main areas of growth have been at Woodside of Culloden and in the areas to the south of the Southern Distributor Road (Inshes, Milton of Leys, Culduthel/ Slackbuie). Looking forward **these areas** have land which is immediately available for development for around 2700 houses.

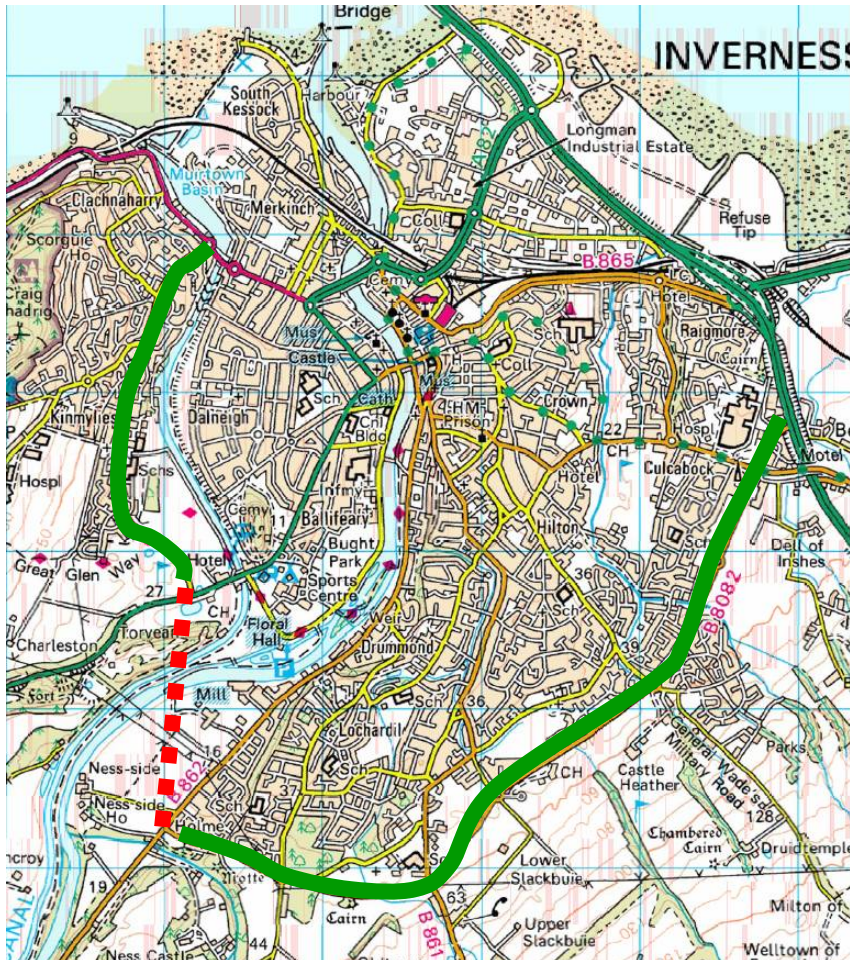
Further land can be made available for a further 1100 houses when the river and canal crossings are put in place, along with all other necessary improvements.

**Landuse Proposals for Ness-side / Charleston
(as in approved Development Plan)**



Future housing development at Ness-side and Charleston will depend on a programmed/committed scheme to connect Dores Road with the A82

Solution



- Multi modal solution
- Completion of Distributor Ring Road
- Southern Distributor to General Booth Road Link
- Distributor
- 2.5m + 7.3m + 2.5m
- Trunk Link Road
- Cycling and Walking and Public Transport

Design Process



Stage I – Option
generation and sifting

Stage II – Options
appraisal

Stage III – Preferred
Option detailed design
and layouts

Design Process



Stage I – Option generation
and sifting

Public consultation No 1

Stage II – Options appraisal

Public Consultation No 2

Stage III – Preferred Option
detailed design and
layouts

Public Consultation No 3

Stakeholder Group



- Historic Scotland
- British Waterways
- SNH
- SEPA
- Transport Scotland
- Highland Council

Strategic Environmental Assessment



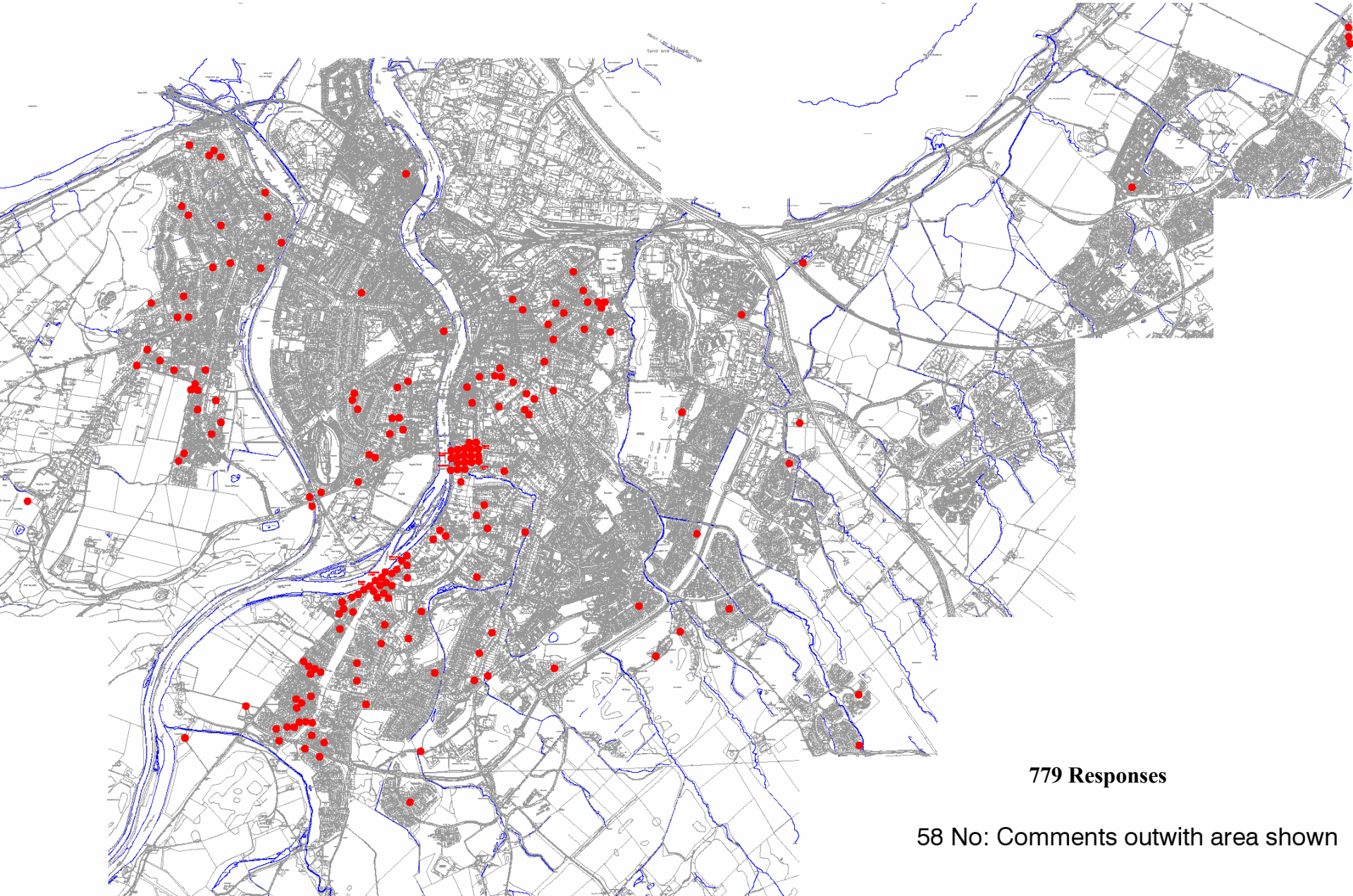
- Biodiversity, flora and Fauna
- Human Health
- Soil
- Water
- Air
- Climatic Factors
- Material Asset
- Cultural Heritage
- Landscape

Stage I



- Problem identification
- Transport planning objectives
- Option Generation and sifting
- Options for consideration (5 options)
- Public consultation (+ 3 Options)
- Final Options for assessment. (8 Options)

Public Consultation No 1 - Public Comments



PRINCIPAL CONCERNS



- Whin Park
- Green space and environmental areas
- Dores Road/ Island Bank Road
- Leisure areas
- Sporting and Recreational facilities
- Increase in traffic on Dores Road
- Timescale for project delivery

ORIGINAL 5 OPTIONS

**TANDEM CANAL
BRIDGE**

**WEIR / PRECAST
YARD RIVER
CROSSING**

**CANAL
CROSSING**

**RIVER
CROSSING A**

**GLENURQUHART
ROAD INTO
INVERNESS**

**ISLAND BANK /
DORES ROAD
INTO
INVERNESS**

**SHORT LINK TO
DORES ROAD**

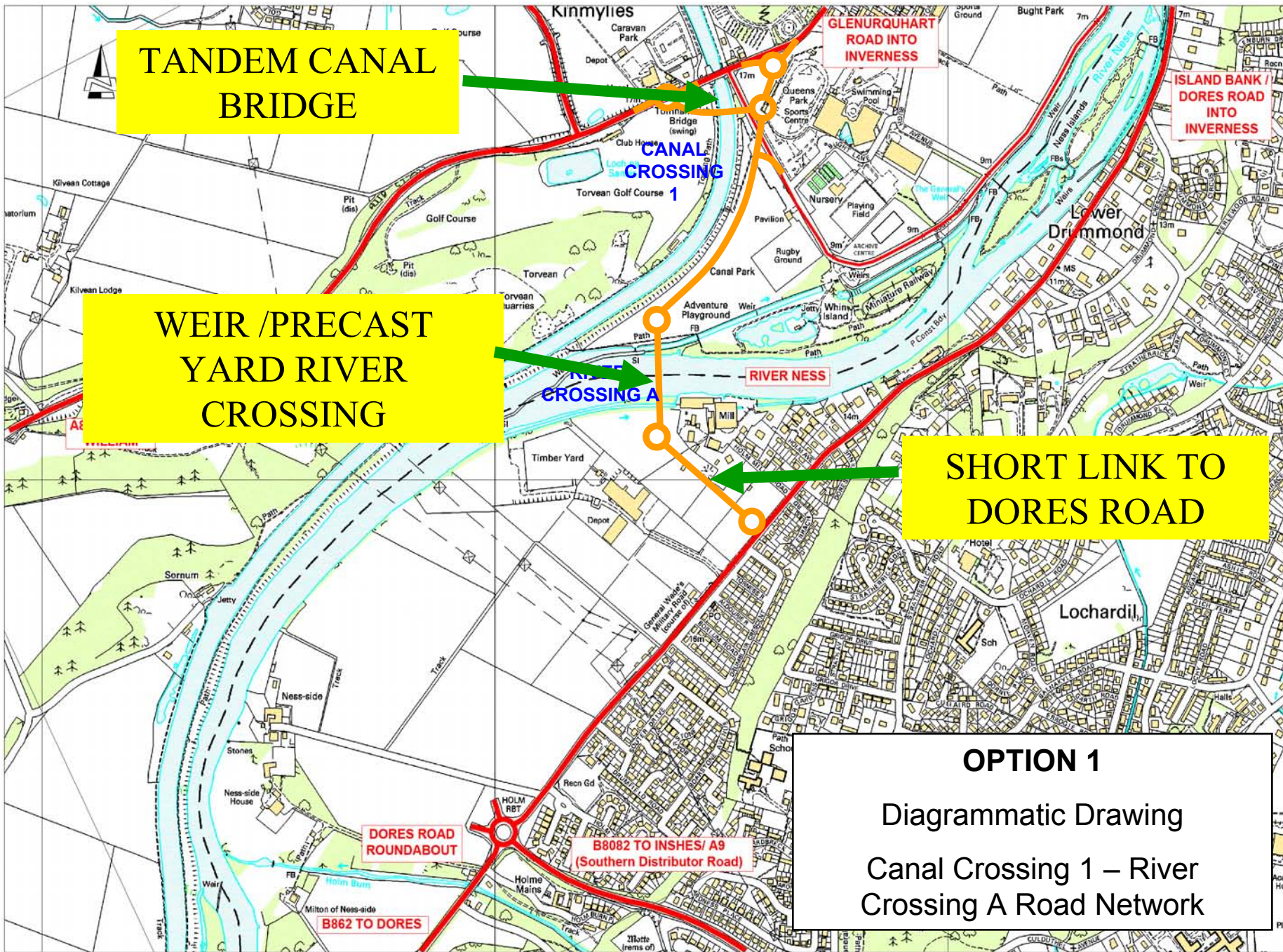
OPTION 1

Diagrammatic Drawing
Canal Crossing 1 – River
Crossing A Road Network

**DORES ROAD
ROUNDBOUT**

**B8082 TO INSHES/ A9
(Southern Distributor Road)**

B862 TO DORES

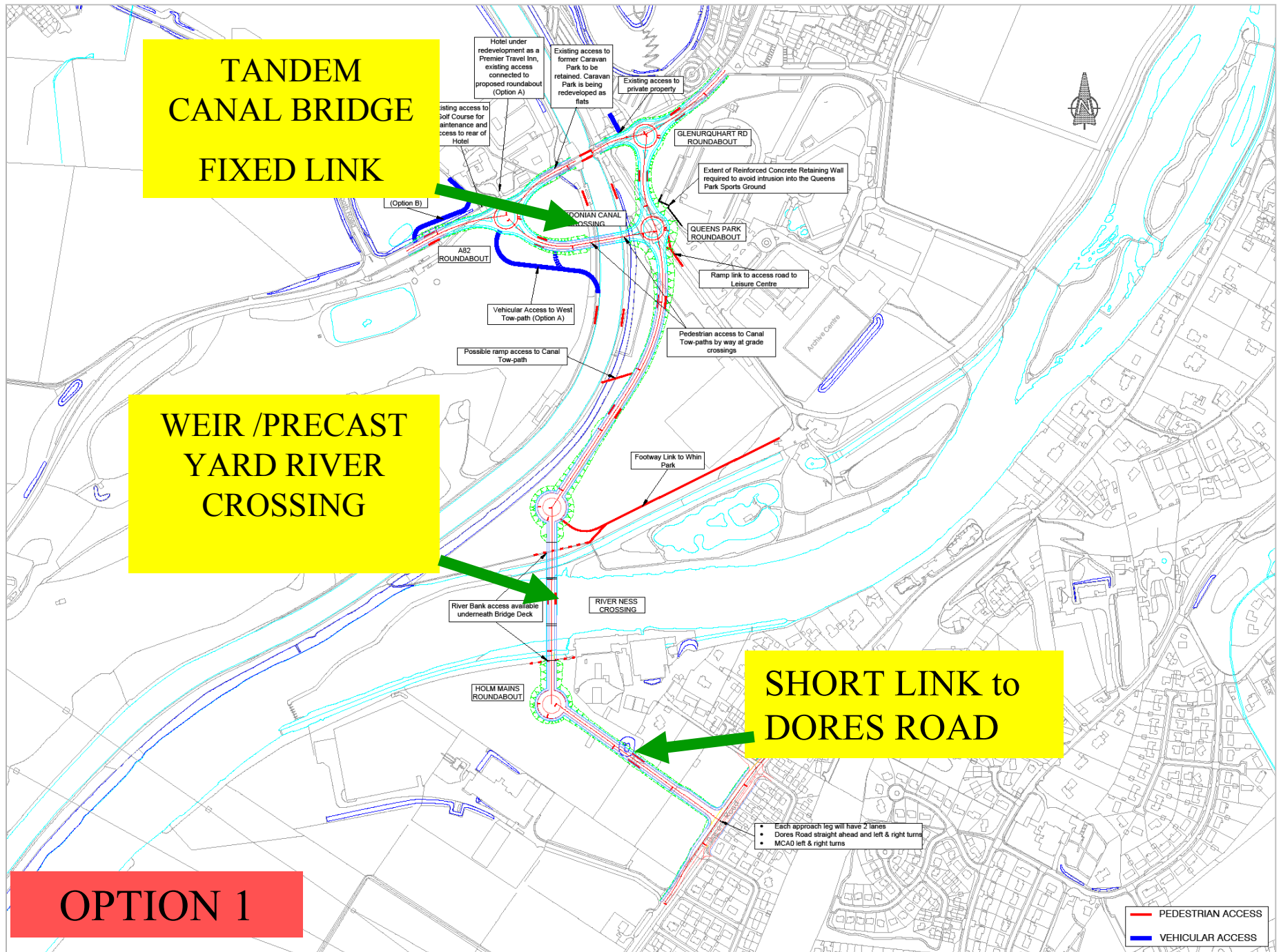


TANDEM CANAL BRIDGE FIXED LINK

WEIR /PRECAST YARD RIVER CROSSING

SHORT LINK to DORES ROAD

OPTION 1



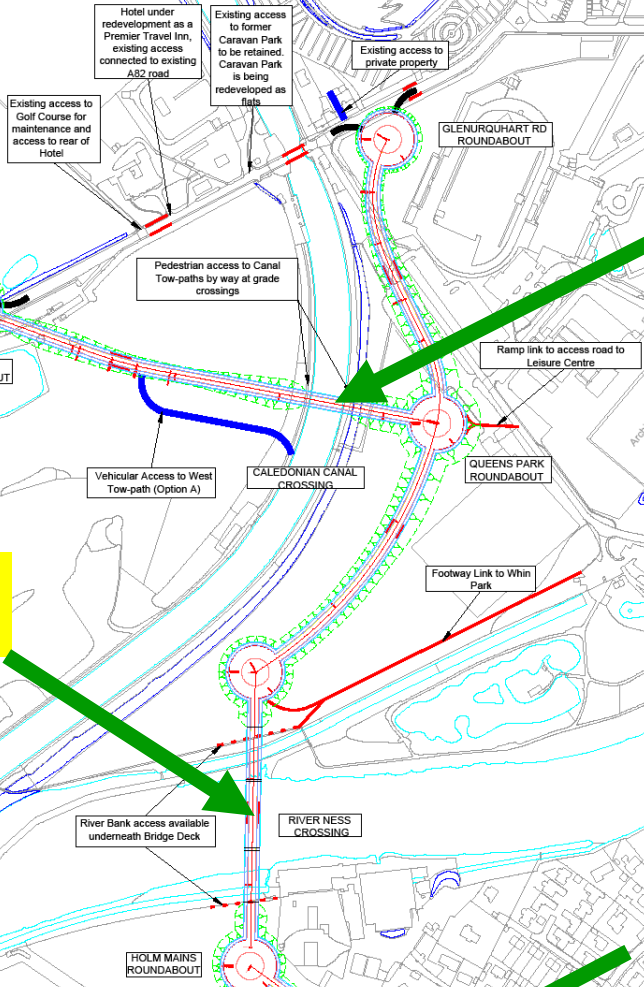


Opening Canal Bridge

WEIR/ PRECAST YARD RIVER CROSSING

SHORT LINK TO DORES ROAD

OPTION 2

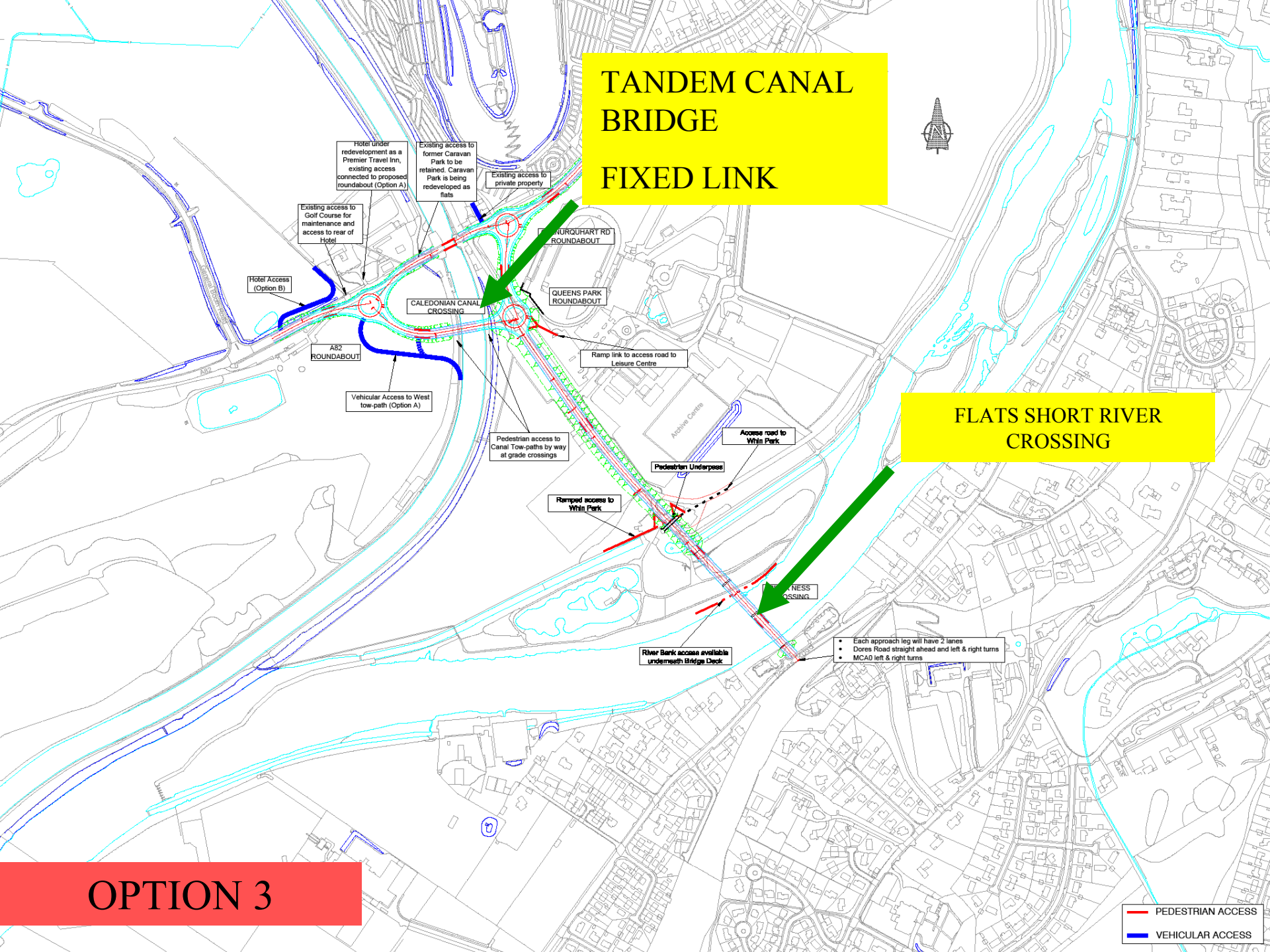


- Each approach leg will have 2 lanes
- Dores Road straight ahead and left & right turns
- MCA0 left & right turns

— PEDESTRIAN ACCESS
 — VEHICULAR ACCESS

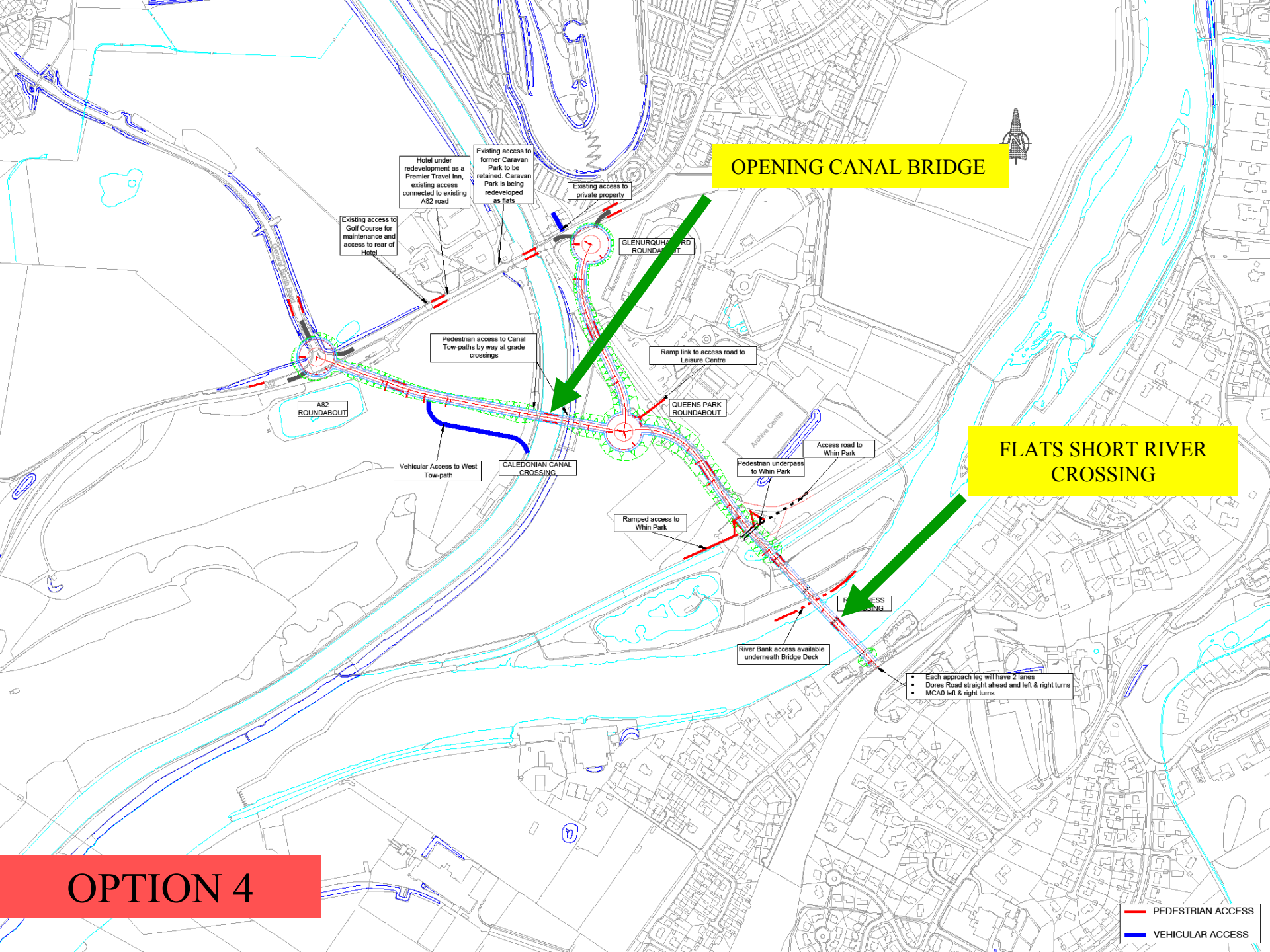
TANDEM CANAL BRIDGE FIXED LINK

FLATS SHORT RIVER CROSSING



OPTION 3

- PEDESTRIAN ACCESS
- VEHICULAR ACCESS



OPENING CANAL BRIDGE

FLATS SHORT RIVER CROSSING

OPTION 4

Hotel under redevelopment as a Premier Travel Inn, existing access connected to existing A52 road

Existing access to former Caravan Park to be retained. Caravan Park is being redeveloped as flats

Existing access to private property

Existing access to Golf Course for maintenance and access to rear of Hotel

GLENURQUHAY RD ROUNDABOUT

Pedestrian access to Canal Tow-paths by way at grade crossings

Ramp link to access road to Leisure Centre

A52 ROUNDABOUT

QUEENS PARK ROUNDABOUT

Vehicular Access to West Tow-path

CALEDONIAN CANAL CROSSING

Access road to Whin Park

Pedestrian underpass to Whin Park

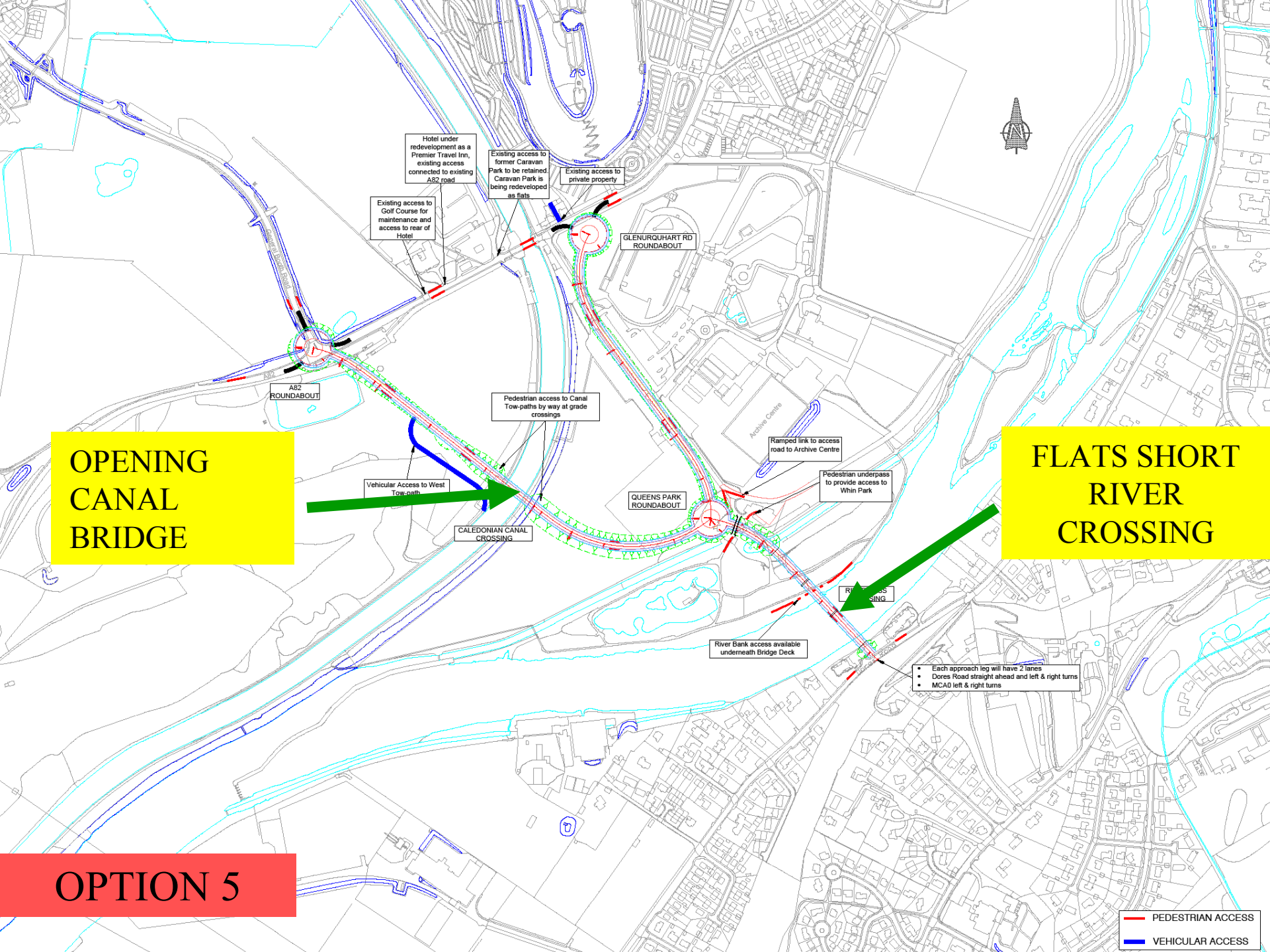
Ramped access to Whin Park

FLATS CROSSING

River Bank access available underneath Bridge Deck

- Each approach leg will have 2 lanes
- Does Road straight ahead and left & right turns
- MCA0 left & right turns

— PEDESTRIAN ACCESS
— VEHICULAR ACCESS



Hotel under redevelopment as a Premier Travel Inn, existing access connected to existing A82 road

Existing access to former Caravan Park to be retained. Caravan Park is being redeveloped as flats

Existing access to private property

Existing access to Golf Course for maintenance and access to rear of Hotel

GLENURQUHART RD ROUNDABOUT

A82 ROUNDABOUT

Pedestrian access to Canal Tow-paths by way at grade crossings

Ramped link to access road to Archive Centre

Pedestrian underpass to provide access to Whin Park

QUEENS PARK ROUNDABOUT

CALEDONIAN CANAL CROSSING

RIVER CROSSING

River Bank access available underneath Bridge Deck

- Each approach leg will have 2 lanes
- Doree Road straight ahead and left & right turns
- MCA0 left & right turns

OPENING CANAL BRIDGE

FLATS SHORT RIVER CROSSING

OPTION 5

— PEDESTRIAN ACCESS
— VEHICULAR ACCESS

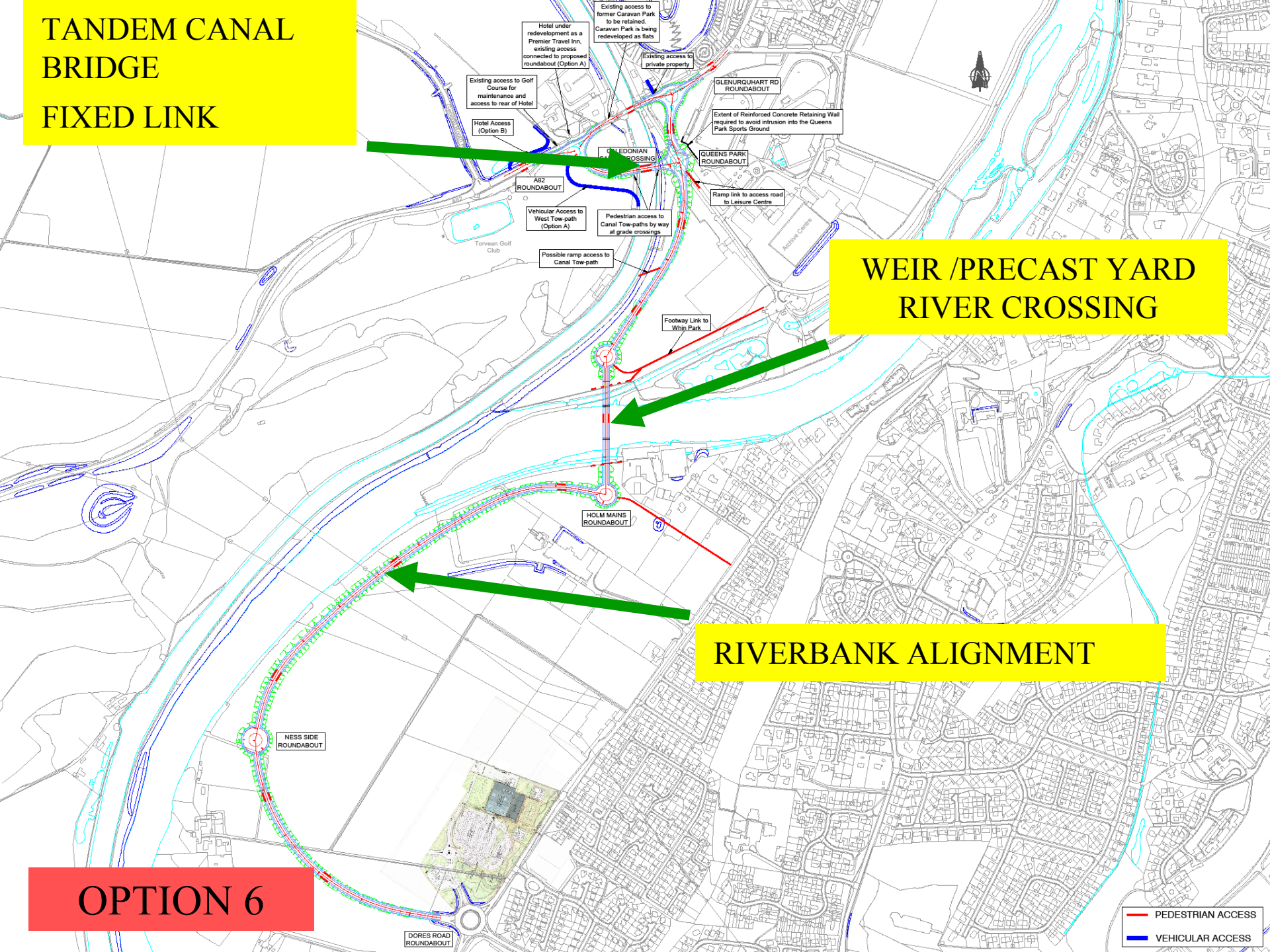
ADDITIONAL 3 OPTIONS

**TANDEM CANAL
BRIDGE
FIXED LINK**

**WEIR /PRECAST YARD
RIVER CROSSING**

RIVERBANK ALIGNMENT

OPTION 6



Hotel under redevelopment as a Premier Travel Inn, existing access connected to proposed roundabout (Option A)

Existing access to private property

Existing access to Golf Course for maintenance and access to rear of Hotel

Hotel Access (Option B)

Extent of Reinforced Concrete Retaining Wall required to avoid intrusion into the Queens Park Sports Ground

GLENURQUHART RD ROUNDABOUT

QUEENS PARK ROUNDABOUT

Ramp link to access road to Leisure Centre

FOOTWAY CROSSING

Pedestrian access to Canal Tow-paths by way at grade crossings

Vehicular Access to West Tow-path (Option A)

Possible ramp access to Canal Tow-path

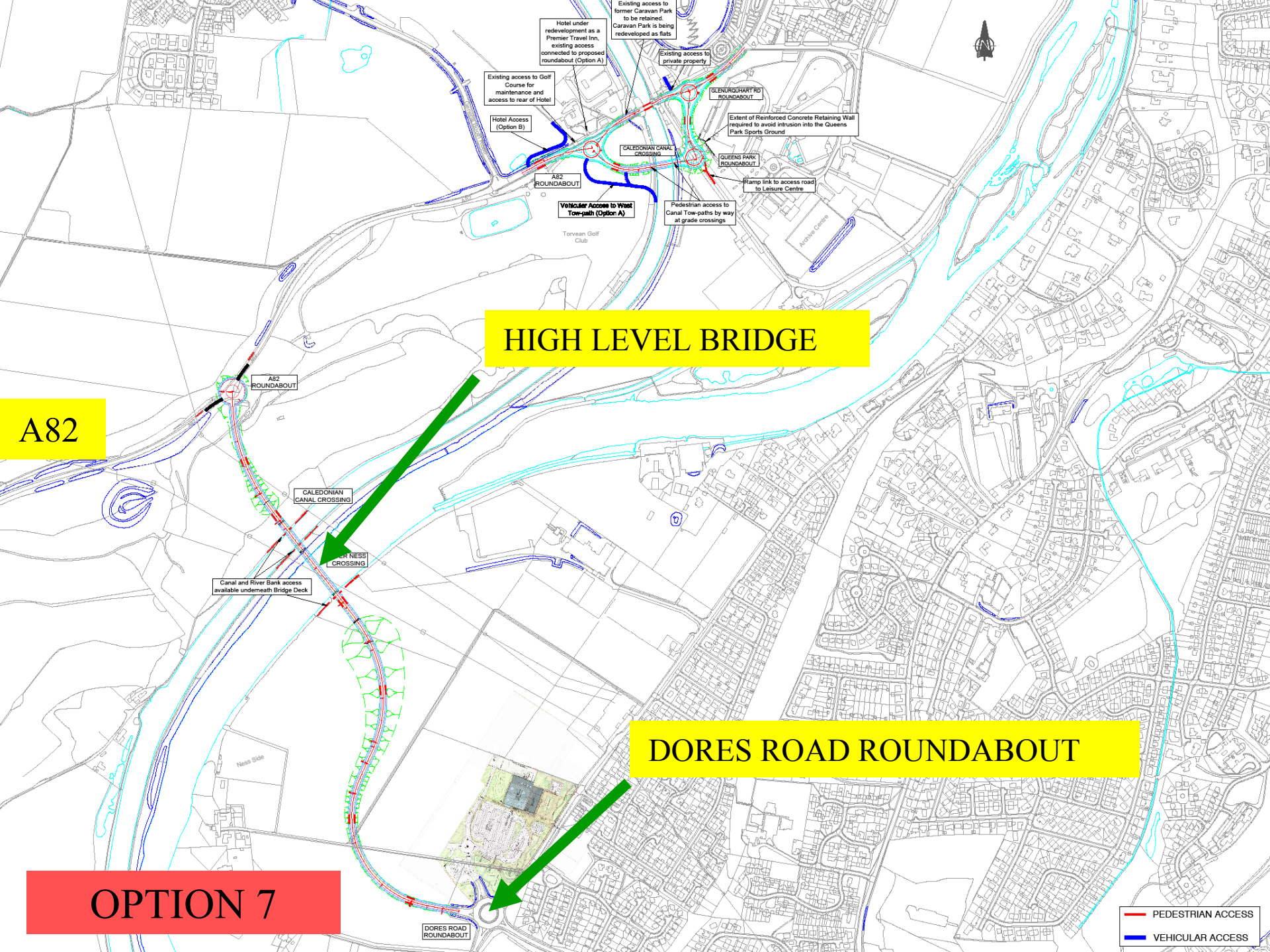
Footway Link to Whin Park

HOLM MAINS ROUNDABOUT

NESS SIDE ROUNDABOUT

DORES ROAD ROUNDABOUT

— PEDESTRIAN ACCESS
— VEHICULAR ACCESS



HIGH LEVEL BRIDGE

A82

DORES ROAD ROUNDABOUT

OPTION 7

— PEDESTRIAN ACCESS
— VEHICULAR ACCESS

Hotel under redevelopment as a Premier Travel Inn, existing access connected to proposed roundabout (Option A)

Existing access to former Caravan Park to be retained. Caravan Park is being redeveloped as flats

Existing access to Golf Course for maintenance and access to rear of Hotel

Hotel Access (Option B)

Existing access to private property

GLENGOURARY RD ROUNDABOUT

Extent of Reinforced Concrete Retaining Wall required to avoid intrusion into the Queens Park Sports Ground

CALEDONIAN CANAL CROSSING

QUEENS PARK ROUNDABOUT

A82 ROUNDABOUT

Ramp link to access road to Leisure Centre

Vehicular Access to West Tow-path (Option A)

Pedestrian access to Canal Tow-paths by way of grade crossings

Tonness Golf Club

A82 ROUNDABOUT

CALEDONIAN CANAL CROSSING

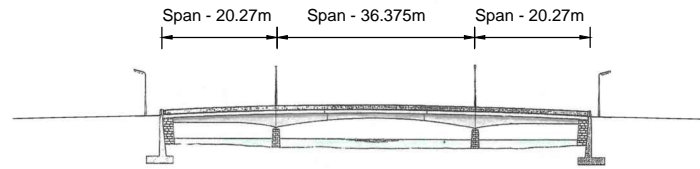
RAILWAY CROSSING

Canal and River Bank access available underneath Bridge Deck

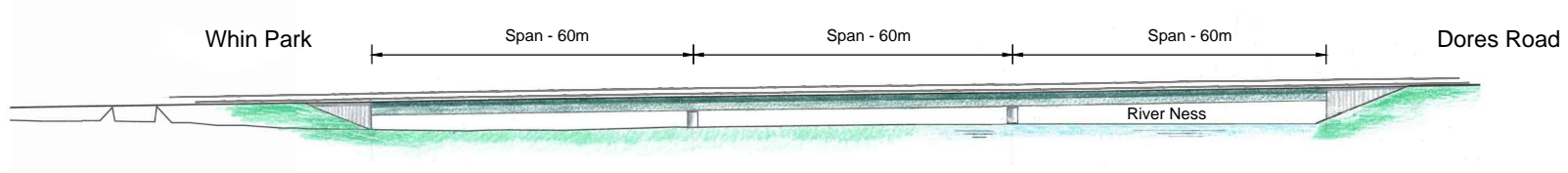
New Side

DORES ROAD ROUNDABOUT

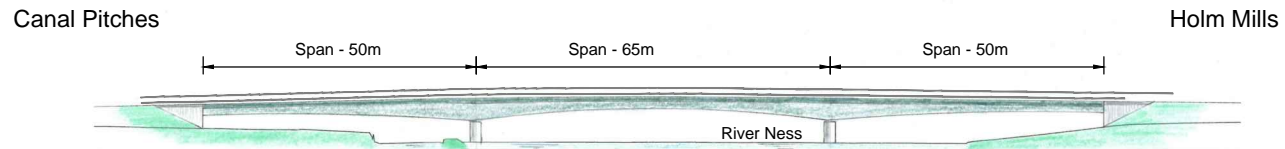
River Crossings



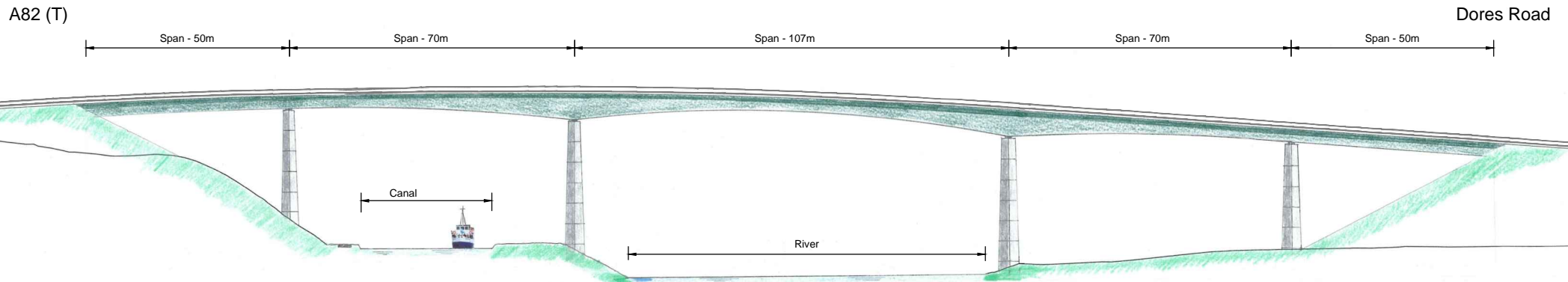
Existing Ness Bridge



Options 3, 4 & 5



Options 1, 2, 6 & 8



Option 7



AQUEDUCT

**WEIR / PRECAST YARD
RIVER CROSSING**

Hotel under redevelopment as a Premier Travel Inn, existing access connected to existing A82 road

Existing access to Golf Course for maintenance and access to rear of Hotel

Existing access to former Caravan Park to be retained. Caravan Park is being redeveloped as flats

Existing access to private property

GLENURQUHART RD ROUNDABOUT

A82 ROUNDABOUT

CALEDONIAN CANAL CROSSING

QUEENS PARK ROUNDABOUT

WEIR ROUNDABOUT

HOLM MAINS ROUNDABOUT

River Bank access available underneath Bridge Deck

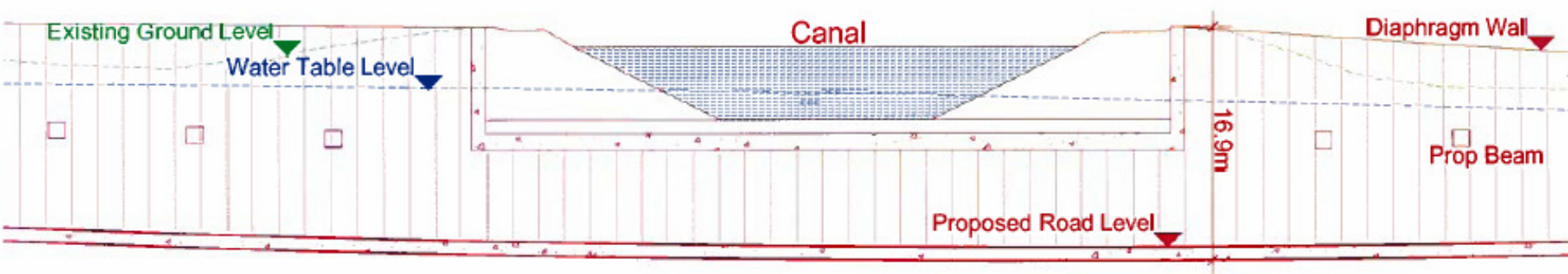
RIVER NESS

- Each approach 15g will have 2 lanes
- Donegall Road straight ahead and left & right turns
- MCA0 left & right turns

— PEDESTRIAN ACCESS

— VEHICULAR ACCESS

OPTION 8



8 Options



- Multi-Modal Solution
- 2 Park & Ride sites
- Cycle / Pedestrian Link to City Centre
- 3 Different River Crossings
- 4 Different Canal Bridge Crossings
- 1 Aqueduct/ Tunnel Canal Underbridge

Fly Through SIMULATION – Option 6



OPTIONS APPRAISAL



- Design Stage II
- STAG Part 2
- Standard Methodology
- 8 Options

ASSESSMENT CRITERIA



- Environment
- Safety
- Accessibility
- Integration
- Economy
- Risk and Uncertainty

ASSESSORS



- Highland Council (road alignment and costing)
- URS Scott Wilson (environment, flood ,structures, costing)
- AECOM (traffic modelling & prediction, economics)
- District Valuer (land value and disturbance costs)

Assessing Magnitude of Impact

Magnitude of impact		Typical criteria descriptors •
Major Benefit		Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Moderate Benefit		Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Minor Benefit		Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible Benefit		Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).
Negligible		Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse).
Minor Adverse		Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse).
Moderate Adverse		Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse).
Major Adverse		Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse).•
No change		No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Environment	Option 1 Weir/Precast Yard	Option 2 Weir/Precast Yard	Option 3 Flats	Option 4 Flats	Option 5 Flats	Option 6 Weir Precast Yard	Option 7 High level bridge	Option 8 Aqueduct
Policies & Plans	Moderate +	Moderate +	Minor -	Minor -	Minor -	Major +	Major -	Minor -
Land Use / Impact on property	Moderate -	Major -	Moderate -	Major -	Major -	Moderate -	Moderate -	Major -
Cultural Heritage	Moderate -	Moderate -	Moderate/ /Major -	Moderate/ /Major -	Moderate/ /Major -	Moderate -	Major - -	Major -
Landscape & Visual	Major -	Major -	Moderate -	Moderate -	Moderate -	Major -	Major -	
Vehicle Travellers	Moderate +	Moderate +	Moderate +	Moderate +	Moderate +	Moderate +	Major +	Minor +
Geology & Soils	Moderate -	Moderate -	Minor -	Minor -	Minor -	Moderate -	Major -	Major -
Ecology and Nature Conservation	Moderate -	Moderate -	Moderate -	Moderate -	Moderate -	Moderate -	Moderate -	Moderate -
Noise & Vibration	Minor -	Minor -	Moderate -	Moderate -	Moderate -	Minor -	Minor -	Minor -
Water Environment	Moderate -	Moderate -	Moderate -	Moderate -	Moderate -	Moderate -	Negligible -	Major -
Flood Risk	Minor /Moderate	Minor /Moderate	Moderate -	Moderate -	Moderate -	Minor /Moderate	Negligible -	Major -
Disruption during Construction	Moderate -	Moderate -	Moderate/ /Major -	Moderate/ /Major -	Moderate/ /Major -	Moderate/ /Major -	Major -	Major -

Safety	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
Improve safety for motor vehicles	Moderate +	Moderate +	Minor +	Minor +	Minor +	Moderate +	Moderate +	Moderate +
Improve safety for cyclists and peds	Moderate +	Moderate +	Moderate +	Moderate +	Moderate +	Moderate +	Minor +	Moderate +

Under the Safety criteria all of the options are beneficial.

Economy	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
Maintain/improve journey time and reliability in SW Inverness	Major +	Major +	Major +	Major +	Major +	Major +	Major +	Major +
Efficiency of Canal network	Minor/ Moderate +	Minor/ Moderate +	Minor/ Moderate +	Minor/ Moderate +	Minor/ Moderate +	Minor/ Moderate +	Minor -	Minor -
Efficiency of Trunk roads	Minor +	Moderate +	Minor +	Moderate +	Negligible +	Minor +	Minor +	Negligible +
Efficiency of local roads	Major +	Major +	Major +	Major +	Major +	Major +	Major +	Major +
SCHEME COST 2011	23.46m	27.28m	29.21m	31.82m	30.55m	27.22m	67.75m	75.48m
PRESENT VALUE COST 2002 (PVC)	14.4m	16.7m	18.1m	19.7m	128.9m	16.2m	44.3m	47.8m
PRESENT VALUE BENEFITS (PVB)	56.5m	59.9m	60.0m	65.7m	65.8m	59.7m	63.9m	58.6m
NET PRESENT VALUE (NPV)	42.1m	43.2m	41.9m	46.1m	46.9m	43.5m	19.7m	10.8m
BENEFIT TO COST RATIO (BCR)	3.931	3.587	3.323	3.341	3.483	3.686	1.444	1.227

Integration	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
Land Use Integration – fit with Planning Development Plans	Major +	Moderate +	Minor +	Negligible +	Negligible +	Major +	Moderate +	Moderate +
Integration with Public Transport (Modal Shift)	Major +	Major +	Major +	Major +	Major +	Major +	Moderate +	Major +

Under Integration Options 1 and 6 provide the most benefits
But all beneficial

Potential Benefits

Opportunities for improvement on what exists

- New, more direct and/or better walking, jogging and cycle routes (some options better than others)
- The attractive views offered by many of these routes
- Safety benefits of moving the golf course on to one side of the A82
- More playing fields / sports pitches at Ness-side
- A park and ride facility at the A82 tourist gateway
- Balance of first 8 holes of golf course available for mixed uses





Accessibility	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
Maintain or improve access to local facilities Whin Park Tow path Leisure facilities fishing	Major +	Major +	Moderate +	Moderate +	Moderate +	Major +	Moderate +	Major +
Maintain or improve access for cyclists and pedestrians	Major +	Major +	Moderate +	Moderate +	Moderate +	Major +	Negligible +	Moderate+

Under Accessibility most Options are beneficial

Risk & Uncertainty	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
Construction Risk	Moderate -	Moderate -	Moderate -	Moderate -	Moderate -	Moderate -	Major -	Major -
Statutory consent risk	Minor -	Moderate -	Major -	Major -	Major -	Minor -	Major -	Major -
Land acquisition risk	Major -	Major -	Major -	Major -	Major -	Major -	Moderate -	Major -
Deliverability against Council programme	Negliable -	Minor -	Moderate -	Moderate -	Moderate -	Minor -	Major -	Major -
Ease of phasing	Major +	Major +	Major +	Major +	Major +	Major +	Major -	Major +

Highest Risk is Option 7 and Option 8

Option 1 (Weir/Precast Yard/Tandam Br)

COST = £23.46m

BCR = 3.931

Advantages

Very good on Accessibility,
Integration and Economy

No significant Technical
difficulty in construction

Fits with Funding

No effect on Whin Park

Retain Rugby club

Disadvantages

Minor adverse on
Environment

Impact on golf club

Option 2 (Weir/Precast Yard/mid opening Canal Bridge)

COST = £27.28m

BCR = 3.587

Advantages

Very good on Accessibility
and Economy,

Moderately good on
Integration and Safety

No significant Technical
difficulty in construction

No effect on Whin Park

Disadvantages

Minor adverse on
Environment

Impact on rugby club
and golf course

Option 3 (Flats/Tandam Canal Bridge Bridge)

COST = £29.21m

BCR = 3.323

Advantages

Moderately good on
Accessibility and
Economy,

Minor benefits in Integration
and Safety

No significant Technical
difficulty in construction

No effect on Rugby Club

Disadvantages

Moderate adverse on
Environment

Impact on Whin Park
and Golf Club

Option 4 (Flats/Tandam Mid opening Canal Bridge)

COST = £31.82m

BCR = 3.341

Advantages

Moderately good on
Accessibility and
Economy,

Minor benefits in
Integration and Safety

No significant Technical
difficulty in
construction

Disadvantages

Moderate adverse on
Environment

Impact on Rugby club

Impact on Golf club

Impact on Whin Park

Option 5 (Flats/ West opening Canal Bridge)

COST = £30.55m

BCR = 3.483

Advantages

Moderately good on
Accessibility and
Economy,

Minor benefits in
Integration and Safety

No significant Technical
difficulty in
construction

Disadvantages

Moderate adverse on
Environment

Impact on Rugby club

Impact on Golf club

Impact on Whin Park

Option 6 (Weir/Precast Yard/Tandam Canal Bridges)

COST = £27.22m

BCR = 3.686

Advantages

Very good on Accessibility,
Integration and Economy,

Minor benefits in Safety

No significant Technical
difficulty in construction

Fits with Local Plan

No effect on Whin Park or
Rugby club

Disadvantages

Moderate adverse on
Environment

Impact on golf club

Option 7 (High Level Bridge)

COST = £67.75m

BCR = 1.444

Advantages

Moderately good on
Accessibility, Integration
and safety,
Minor benefits in Economy

No effect on Whin Park or
Rugby Club

Disadvantages

Major adverse on
Environment
Significant Technical
difficulties in construction

Major cost & high risk in
deliverability

Impact on Golf Club

Option 8 (Aqueduct)

COST = £75.48m

BCR = 1.227

Advantages

Moderately good on
Accessibility, Integration
and safety,
Minor benefits in Economy

Disadvantages

Major adverse on
Environment
Serious/Significant Technical
difficulties and high risk
in construction

Major cost & high risk
indeliverability

Impact on Rugby club, Whin
Park and Golf Club

Impact on Recreational Areas	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
	Precast Yard/ Weir	Precast Yard/ Weir	Flats	Flats	Flats	Precast Yard/ Weir	High Level Bridge	Aquaduct/ Tunnel
Torvean Golf Club	1.87 ha reduction 5.4% loss Minor relocation	3.9 ha reduction 11.4% loss Major relocation	1.87 ha reduction 5.4% loss Minor relocation	3.87 ha reduction 11.36%loss Major relocation	5.65 ha reduction 16.58% loss Major relocatio	1.87 ha reduction 5.4% loss Minor relocation	1.87 ha reduction 5.4% loss Minor relocation	5.48 ha reduction 16.08% loss Major relocation
Highland Rugby Club	Retain but 1.9 ha reduction 26% loss	Relocated	Retain but 0.76 ha reduction 10% loss	Relocated	Relocated	Retain but 1.9 ha reduction 26% loss	No impact	Relocated
Inverness Blitz	Relocated	Relocated	Relocated	Relocated	Relocated	Relocated	Relocated	Relocated
Whin Park	No impact	No impact	0.84 ha 14% loss	0.84 ha 14% loss	0.84ha 14% loss	No impact	No impact	No impact

SUMMARY

Options Appraisal Matrix

	Option 1 WEIR	Option 2 WEIR	Option 3 FLATS	Option 4 FLATS	Option 5 FLATS	Option 6 WEIR	Option 7 HIGH LEVEL Br	Option 8 AQUEDUCT
Environment	X	X	XX	XX	XX	X	XXXX	XXXX
Safety	✓✓✓	✓✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓	✓✓✓
Economy	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓✓	XXXX	XXXX
Integration	✓✓✓✓	✓✓✓	✓✓	✓✓	✓✓	✓✓✓✓	✓✓	✓✓✓
Accessibility	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓✓	✓	✓✓
Risk & Uncertainty	X	X	XX	XX	XX	X	XXX	XXXX

Consultation Process



- Exhibition
- Public Meetings
- Web Site - www.highland.gov.uk
- Views on process
- Nothing missed

West Link Consultation



- Consultation closes on 16 January 2012
- Council Working Group meets 27 January 2012
- Inverness needs a decision and a deliverable solution
- Means development and jobs

INVERNESS CITY TRUNK LINK ROAD – WEST LINK OPTIONS APPRAISAL

QUESTIONS