

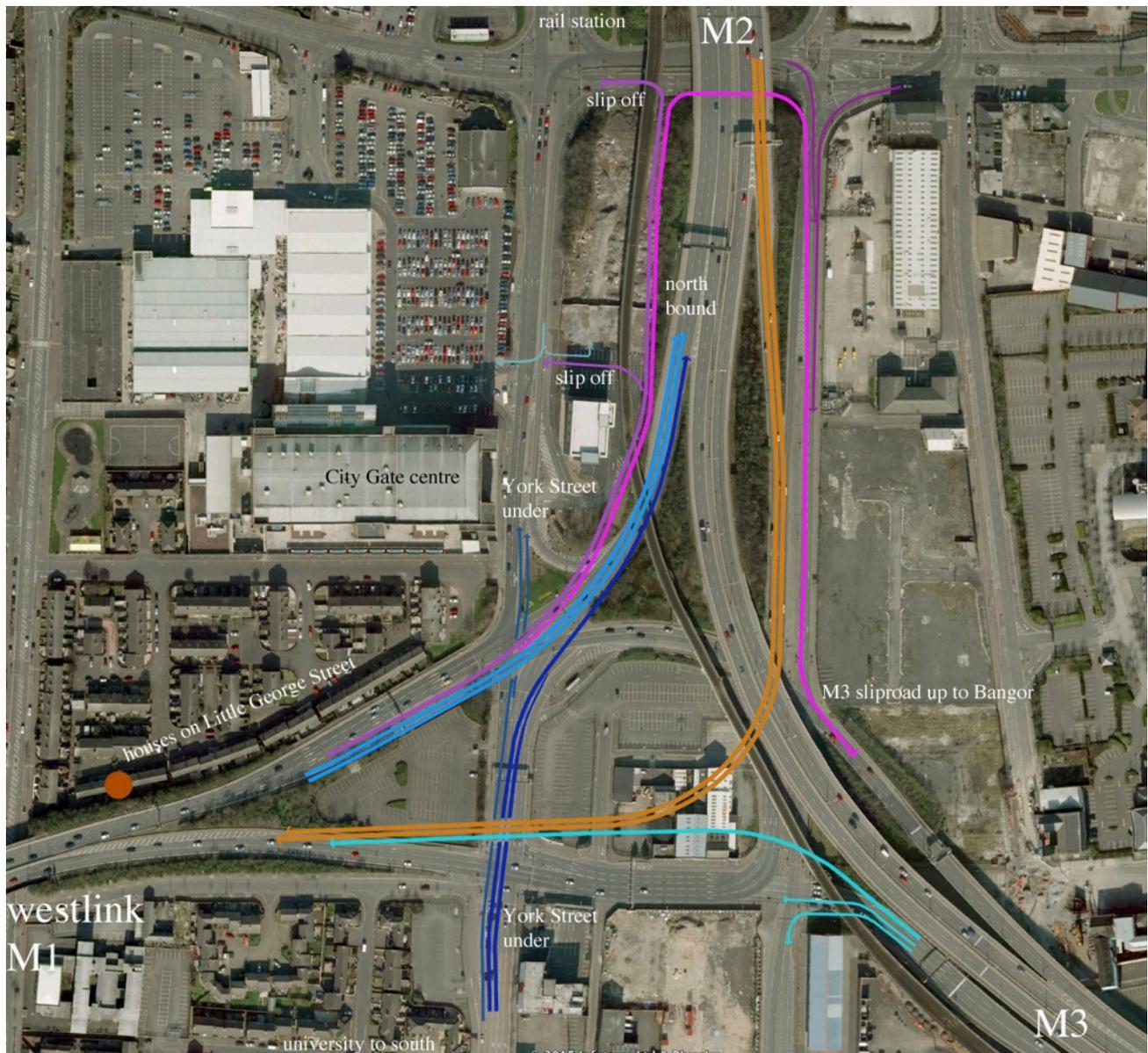
# York Street Road Interchange

## Alternative Design proposal 23th Oct 2015

City Reparó - Mark Hackett architect

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City Reparó is a multidisciplinary consultancy focused on city transformations. Some of its architect and planning directors were in Forum for Alternative Belfast CIC, a non profit think tank that has looked at the Interchange project since 2010. It published '6 Links', a document on 'urban restitching' around the Interchange that is referred to in Council investment plans and has been presented to Belfast City Council Committee.

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The alternative scheme presented here is generated in reaction to the detail development of the YSI project during 2014-5. The scheme advanced to Public Inquiry is not only very expensive, it has many permanent negative impacts on residents and the city fabric.

Four options were presented back in 2011 - but all of these were 'motorway engineering only' solutions, they did not, in any strategic way address urban repair. A multi-disciplinary and co-design approach would have delivered a better project.

Instead of growing more efficient the peripheral effects of the project have mushroomed with many negative effects.

We propose this value engineered design for the following reasons - it provides:

- maximum free traffic flow at a much reduced cost
- greatest potential for good pedestrian and cycle connectivity
- greatest potential for good urban repair
- higher value building site assets
- maximises the number of sites for the public purse
- maximises city benefit for business and civic connectivity
- minimised impact on residents and improves some aspects.
- retention of landscape and improves planting to residents

In short it provides the best balance of benefits to the maximum number of city stakeholders and needs.

## URBAN CONTEXT

The prime function of a city is urban life for people. That collectivity of people generates connections, civic life, innovation and intellectual progress, that in turn drives our economy.

Sometimes we forget the obvious, ***cities are made for people who need buildings*** to live, work and drive our economy. Ultimately we access those buildings by foot, the higher value buildings tend to be dense and close together - they best generate more commerce, ideas, industry and economy.

Highly dense cities such as New York, London, Berlin, Paris evolved before mass motorised transit and largely the centres of these cities have remained the same, These cities then only go to prove the lie

that we need to allow vehicles primacy in the city to make the economy work.

We do need motorways, but most cities build them on the periphery to connect the region and then disperse and control the flow of traffic through the dense patterns of streets, and so the car has been intergrated into these cities.

Belfast made some strategic mistakes with its urban motorway, we use it as city distributor and it runs too close to the centre.

The Belfast Urban Motorway was evolved around 1962-5, with the YSI completion it will have taken over 55 years to complete 4 km of roadway, over half a century.

The YSI needs solved in the simplest manner to allow all the other aspects of the city to re-emerge, and for the North Belfast economy to gradually recover and connect into the city.

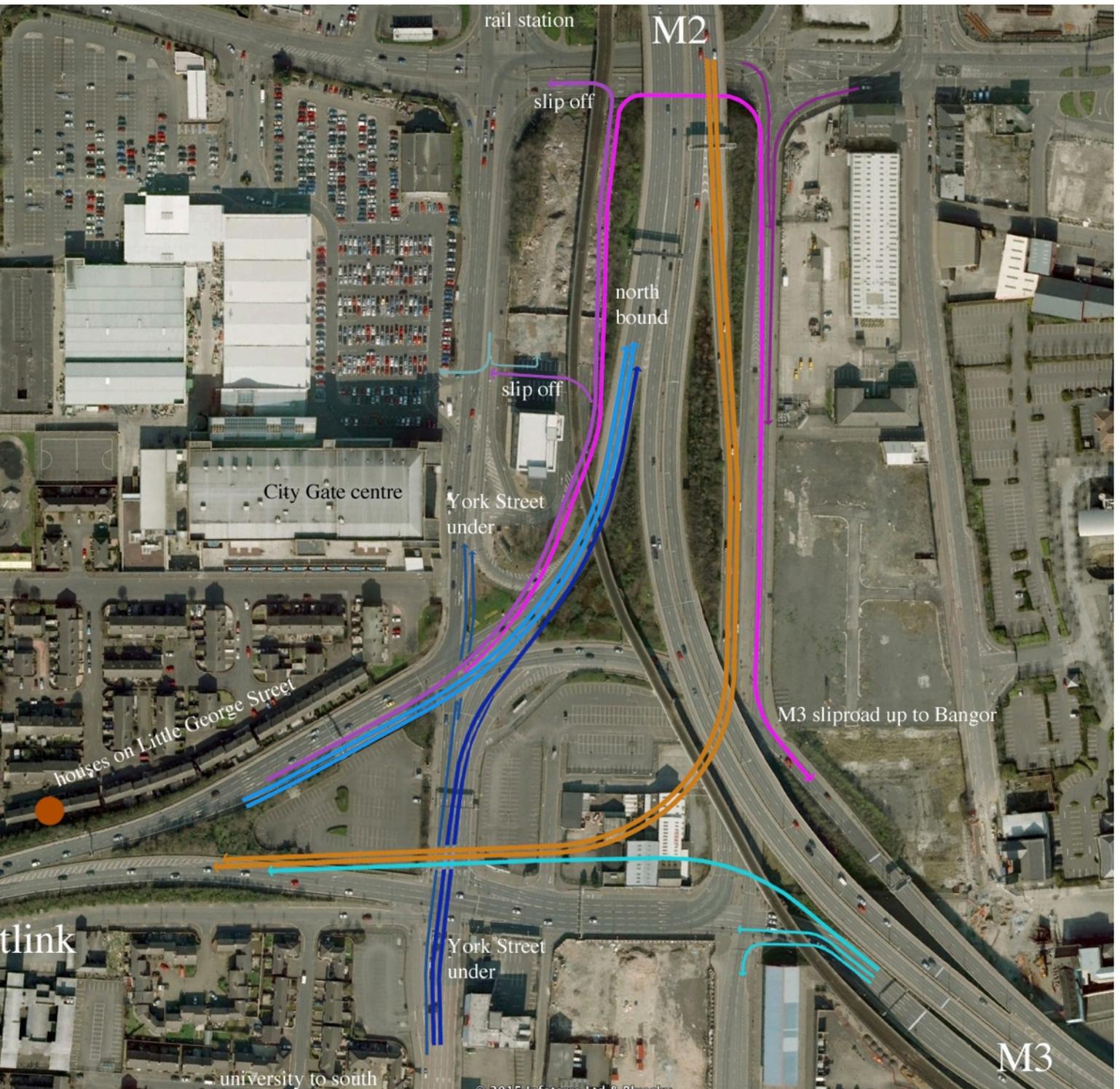
### **OBJECTIVES - what should they be?**

The objective of the project should be to clear traffic blockages for two reasons, one for the regional economy, but secondly to reduce congestion and pollution in the middle of the city. The project should solve all the other urban problems, solve all other road users blockages, those of pedestrians and cyclists, and do all of these things at a cost that represents greatest value for money for the public purse.

This holistic approach is what taxpayers expect to get a real measure of value for money.

Therefore, in seeking to resolve all the issues brought before the Public Inquiry, we suggest this alternative will deliver a better scheme, for much less public funds that will meet more users needs better. That will cause least urban damage and facilitate most urban repair potential in restitching the city around the roadways.

## Our Proposal



In short: to utilise and optimise most of the existing layout, two narrow bridges over York Street, which continues at grade level with the carriageway slightly depressed. M1-Bangor traffic is routed seamlessly around Dock Street utilising space near the railway line. York Street is recovered as a good street that can be regenerated.

## **ADVANTAGES**

- less cost
- achieves same connectivity and improvement to motorway network
- avoids deeply sunken roads
- less movements through decent and climbing
- more simple layout and choices for drivers, assists flow/safety
- less danger of driver confusion (current East bound splits into tunnels)
- less land take
- no pumping station
- no flood risk and concern on tidal floods
- much less bridge construction and adaption
- less time, phasing and disruption
- uses existing roads to best advantage
- easier working space for train line upgrade at later date
- air quality should be better, less climbing/decent
- more distant to existing residents/less risk of NOX failure post 2023
- less maintenance ongoing
- no cutting of existing landscape
- allows more landscape screen planting to occur
- greater connectivity and regeneration potential
- York Street can be repaired as a street, safer environment
- York Street easier for pedestrians and cyclists on grade (level)
- better connection from York St station to Ulster University
- More land assets of higher value
- City to M2 evening peak traffic cleared with two less sets of lights
- less site extent, less impacts on Environmental statement
- less urban severance and impact on Dock Street
- Corporation street can be fully regenerated.

A much more simple scheme, can reduce requirements on all aspects of design, procurement and process (the reworking of process can be faster)

Aspects of the project can be enacted more quickly and be in use earlier in a phased manner.

## ROUTE DESCRIPTION

### Cyan - Westlink to M2

follows the existing road line passing over York Street as 2 lanes at 4.5m relative to current ground, this represents a much more simple flow than the current 3 diverging paths which descend and curve into deep cuttings.

### Magenta - Westlink to Bangor/M3

takes a slip road off routed behind the train line and utilising the Dock Street bridge underpass. Here it has a dedicated lane with the pedestrian pavement in the underpass moved outwards and screened. The route is unimpeded and rejoins the M3 at Nelson Street as existing. As the lesser flow this 'compromise' allows the rest of the routes to be optimised and vastly simplified.

### Purple - Westlink off slip to York Street

As above, this slip-road is routed more discreetly behind the train line, it allows the flows to dissipate in a manner that improves York Street and enables its direct northward passage. This rerouting offers great improvements to pedestrian and cycle routes and allows a new screen of trees to residents.

### Blue - City to M2

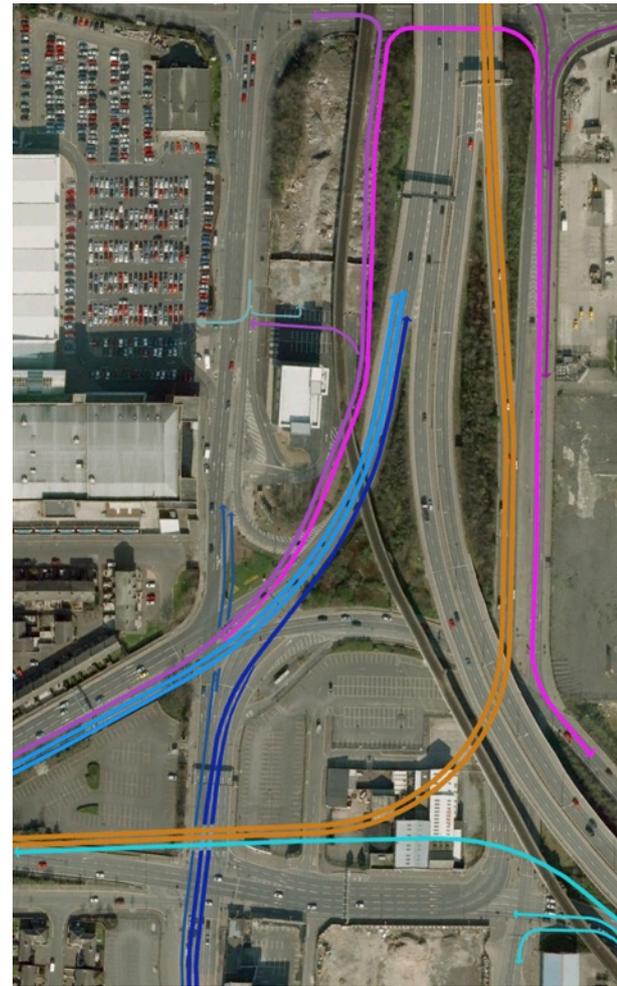
This route now flows directly from Dunbar Link onto the M2 with no lights required. It flows to the M2 with its own dedicated lane-way. It gently dips 1.5 - 2 metres to allow the overpass of M2-M1 Westlink traffic. Pedestrian and cycle connections occur on a wide and level pavements

### Orange - M2 to Westlink M1

This follows its current off slip but has no traffic merging onto it, a new radii of 127m allows a steady speed reduction at 30mph that will aid maximal flow in peak time. It is much simpler than the 14 m fall and rise of the curved proposal, omits one large bridge at Dock Street and saves land.

### Green Bangor M3 to Westlink

This follows the existing proposal but rises gently to merge with M2-Westlink. The speed reductions allow this merge to occur safely and smoothly, minimising the impact of the York Street overpass.



## KEY ADVANTAGES FOR ROAD USERS

All routes take a smoother vertical path of greater simplicity, and we would argue, safety for drivers.

Currently all the routes are rising and **descending to rise again by up to 14 metres**. This occurs in relatively narrow highly curved disorientating underpasses. These have been designed to allow for some breakdowns and by passing - but one should consider that the Westlink / M1 frequently blocks to a halt in evening rush hour all the way to Sprucefield like a coiled spring of disruption - the notion of fast smooth speed flow is an illusion when its most needed.

We suggest this scheme allows worst case scenarios to be dealt with more driver safely, especially for insecure drivers who have never encountered curved tunnel like roads in this confined complicated urban setting.

The omission of gradients and cutting will offer large savings in fuel and emissions.

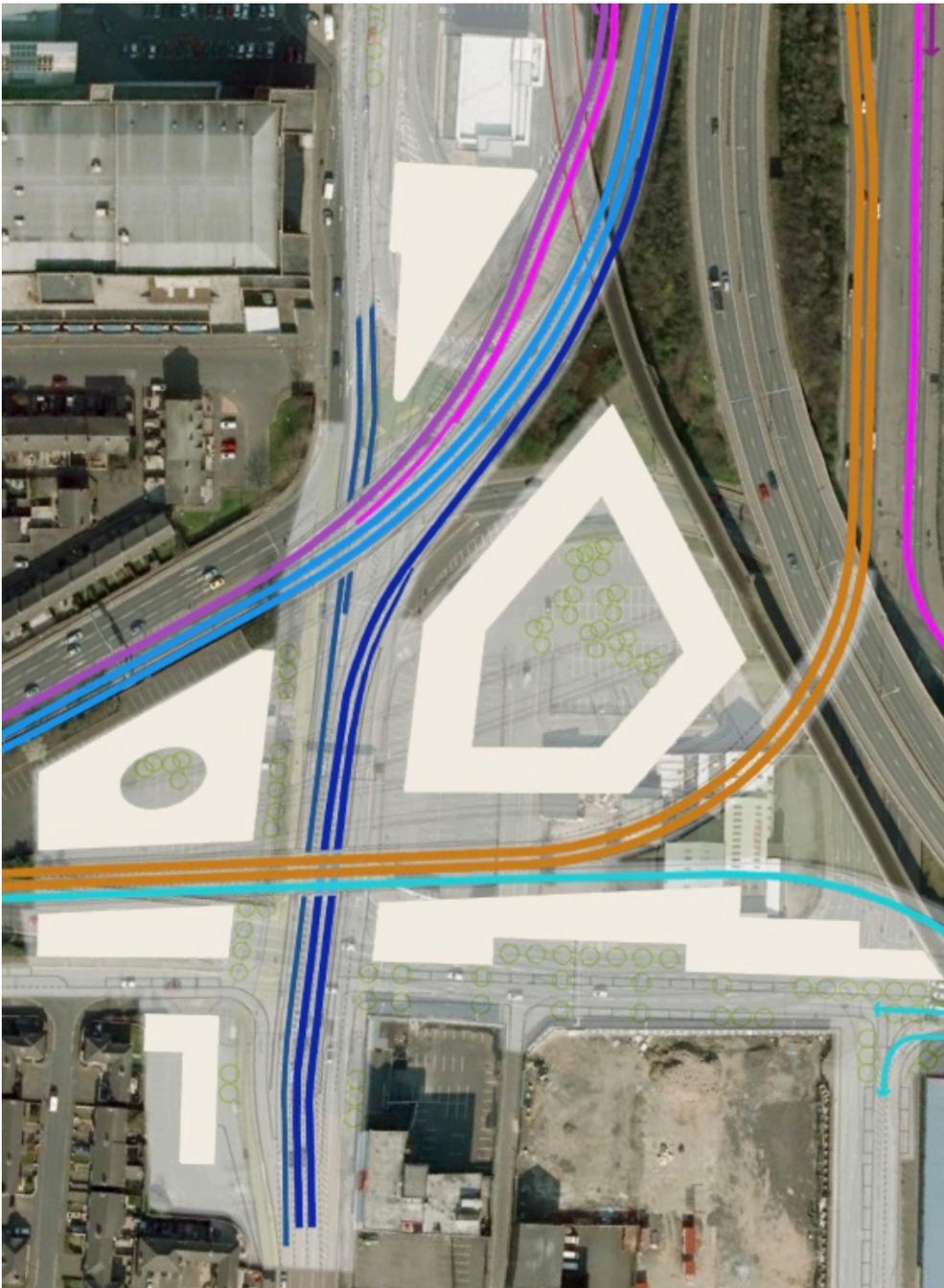
We draw particular attention to the current DRD proposal as Westlink traffic passes downhill to M2/M3 Bangor routes. Here in quick succession are three diverging routes, two descend into curved tunnels (as driver reads them) Many will know the intimidating and dangerous experience of taking the Clifton Street slip-road to cut across to M3 Bangor route, it involves 2-3 right transition maneuvers in heavy traffic. The current proposal does not improve this, but our alternative does.

Our proposal allows more orderly clear flows at much less cost and complication. DRD may argue our 127m radii on the M2-Westlink as 2 steps below recommendation - but DRD themselves have signed off very many step downs from DMR&B in their scheme. Engineers are permitted to reduce standards by designing the roadway in a manner that controls speed and 'conditions' the driver. One of the benefits of lower controlled speeds (30mph through the 127m bend) is that more actual traffic flow will be achieved at peak times. DRD figures do accept this - the YSI has evolved downwards from 50mph top design speed to 40mph over the years, it can be reduced further to 30mph on one route to better control flow at peak times, rather than off peak, and in the process save a large part of the project £130m+ cost.

It is important to state that the Westlink is not a proper motorway, rather it is used as a city distributor not a through route, this is the main reason for the overloaded conditions, there are simply too many on/off slip-roads and choices. This undermines the oft-stated

strategic objective, of getting commercial traffic from Larne to Dublin and beyond.

**What is important to most people is actual flow, safety and smooth peak traffic speed.** More traffic would flow if all the traffic could be encouraged to move at constant lower speed and separation distances. Our proposal, we argue, allows this to occur, it simplifies merging and driver experience, it strings out other routes and slip roads to better disperse into the city, with this can come smoother peak flow.





## KEY ADVANTAGES FOR PEDESTRIANS AND CYCLISTS

Currently the York Street overpass offers a raw deal for both these users, both have to ascend and descend 6 metres on an exposed, desolate, traffic dominated bridge.

Our proposal allows York Street run at grade / current level with two relatively narrow overpasses taking all the through traffic above at two points. The York Street road carriageway will gently drop, as it does at North Queen Street underpass currently. This arrangement allows the 5.1 to 5.5 m clearance required on the road, and road and footpath users are separated but are still visually connected. (considered better for safety in emergencies) Cyclists and pedestrians can feel more secure and empowered in this arrangement.

We take users to the left side going northwards because there are no strategic connections on the right side further on. This intensification of users is of course beneficial for social safety and footfall. Therefore a wide and generous pavement is provided, over 10 metres wide with trees, cycleways and hedge planting. There are

two key opportunities for buildings alongside, and as the sections demonstrate, key opportunities for making the footway vibrant and safe, lit and visually policed. These buildings and features offer 'stepping stones' to heal the urban severance and bleakness of York Street.

Whilst DRD, TNI, and this Public Inquiry will say that these buildings and 'urban design' aspects are not within its remit, it has been accepted and admitted that the YSI should not hinder good urban design repair.

Our proposal demonstrates, in very detailed and clear built terms how this improvement will work for York Street. If the building design does not achieve these aims, then the future architects, planners and developers will be culpable, but what is needed at this juncture is to allow the potential clearly demonstrated in the drawings to emerge. It is not the job of TNI to make all of this route - but it is a necessity not to hinder it once its potential has been made explicit.

## **BUS ROUTE**

In addition - we illustrate an addendum option to integrate a bus route on York Street as per the current TNI proposal - in addition this underpass for the bus only would allow grade separation and clear running - one key advantage to our proposal is the omission of extra traffic lights. However with the urban repair of Corporation street our design allows, arguably the bus route is better to remain on that route.

## **URBAN ADVANTAGES**

Our proposal allows much more developable land, and allows it to be designed and developed in a much higher value urban manner. As much of the land is in public ownership this will result in greater receipts to DRD and the public purse in disposal.

For the city it allows large stitching projects and some valuable office sites, a key requirement in the city at the moment.

For City Gate it offers a longer term walking and urban connection to the centre and UU with the footfall to York St station directed to its side (with better pedestrian crossings in the mid sections of York Street) Currently City Gate is not considered city centre - in this proposal it can be, especially as it will in a decade require renewal, a renewal that might now be much more outward looking to York Street with windows and entrances.

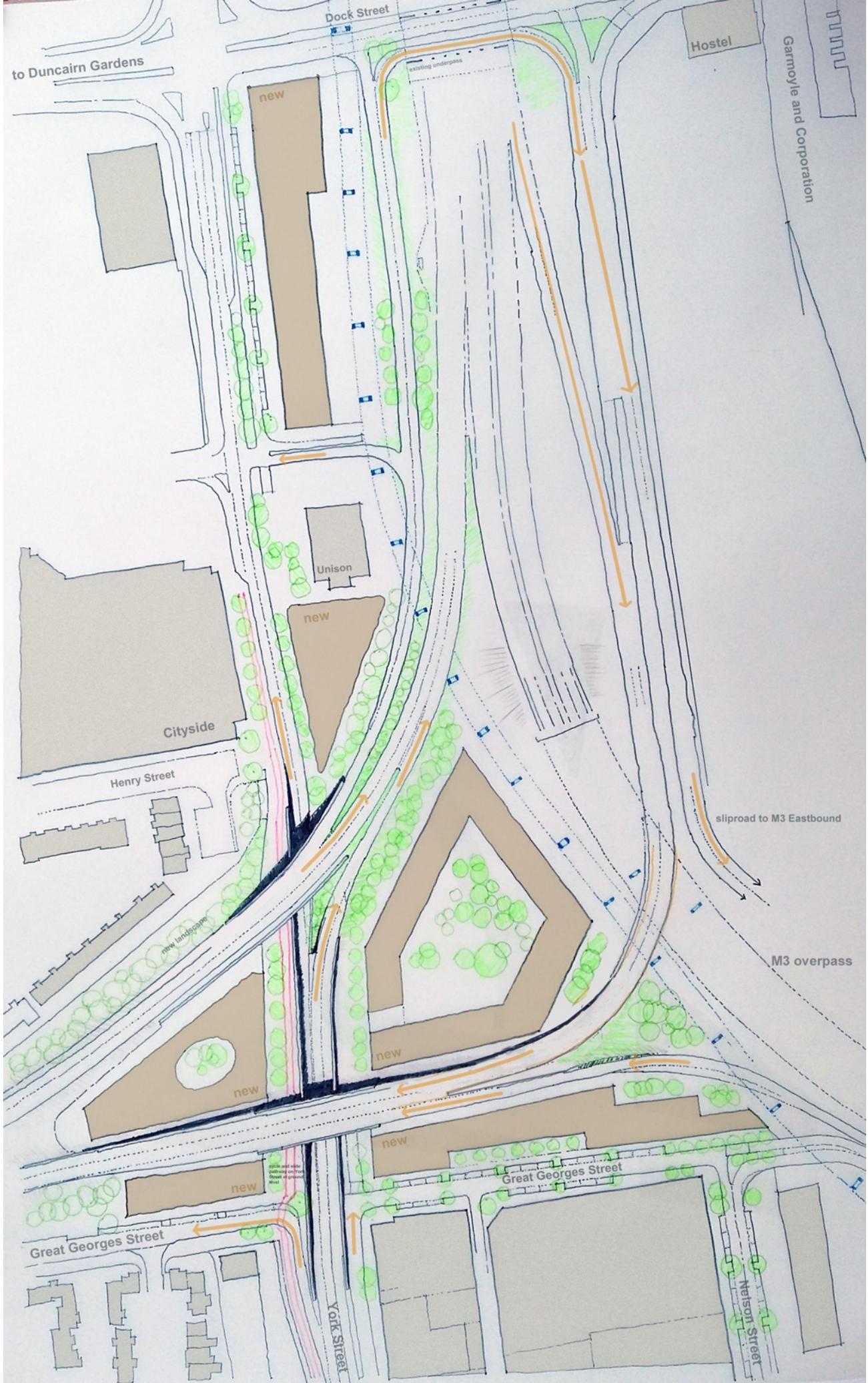
For residents there are significant benefits for all of North Belfast if walking and urban stitching repair of more vibrant safe streets can

occur. There is great potential for Corporation Street to repair without the sweeping tunnel and proposed Dock Street bridge. There will be no need for bridge widening at North Queen Street, and this route will significantly benefit from this option.

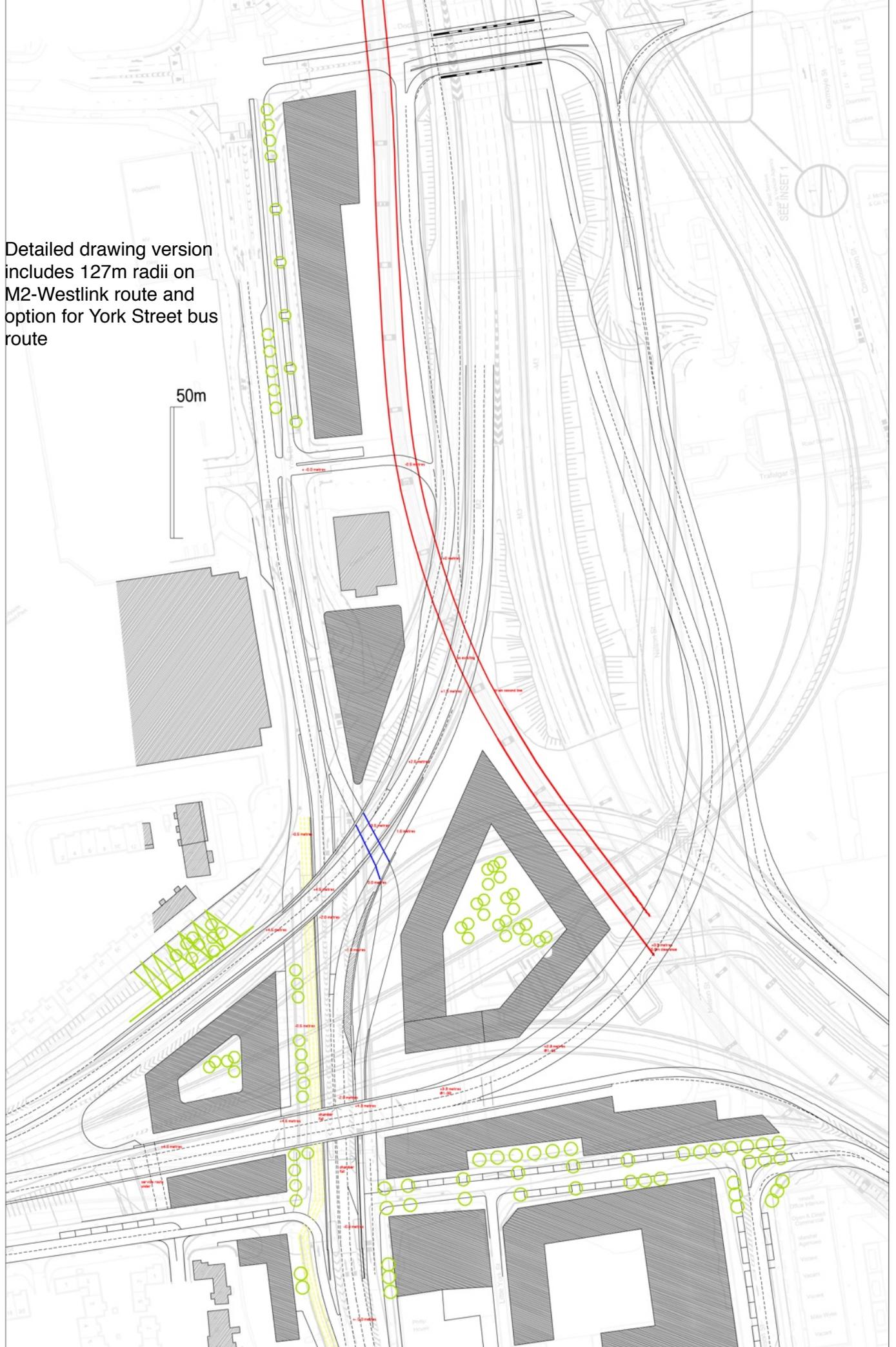
We will further illustrate the urban benefits at the Public Inquiry.

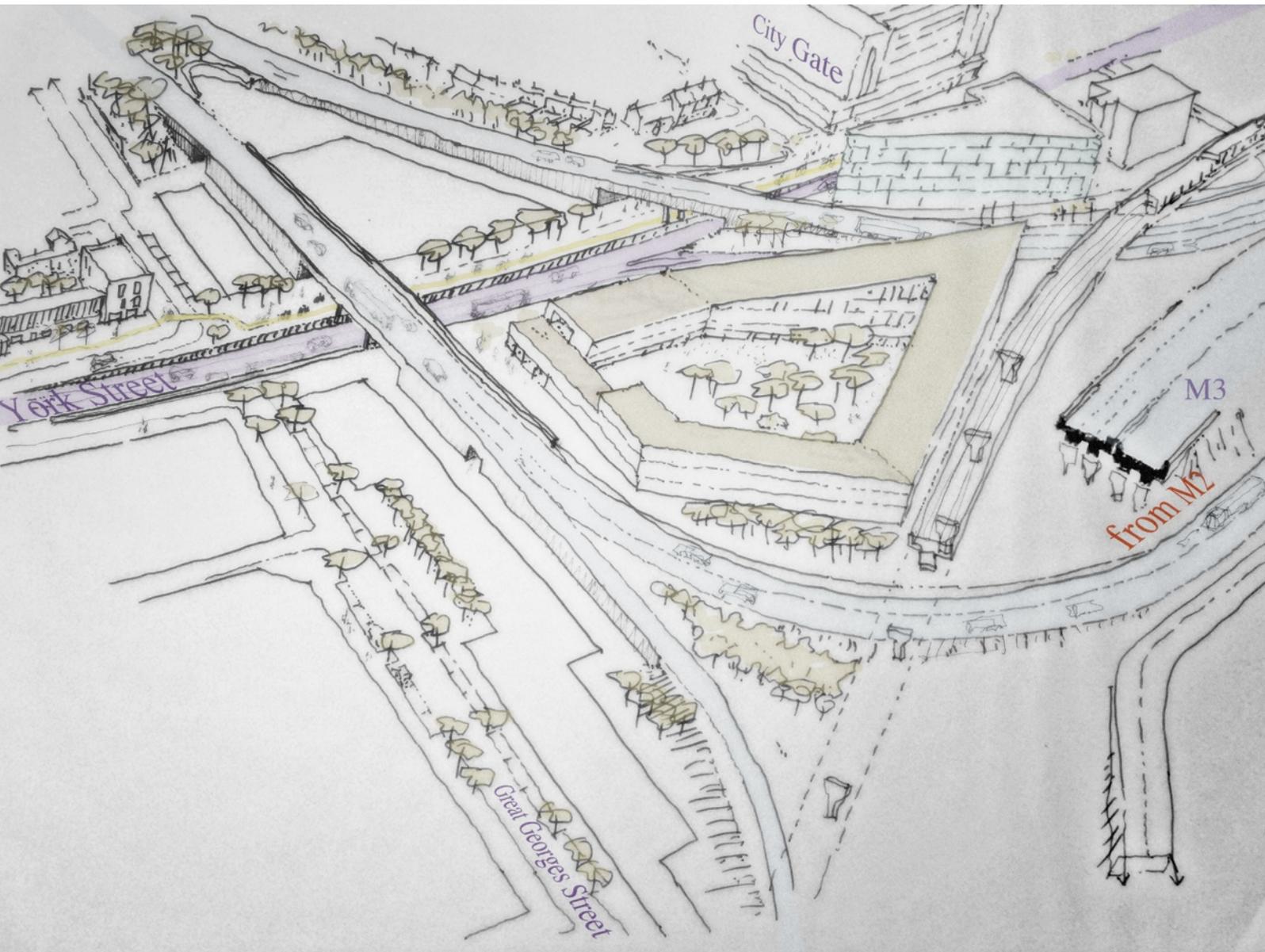
We have checked all the key dimensions and gradients and the proposal is drawn to scale and in detail, we believe all of the technical issues can be resolved.





Detailed drawing version includes 127m radii on M2-Westlink route and option for York Street bus route





A sketch view with some buildings and landscape omitted for clarity



The extent and service re-routing of the DRD proposal



The much reduced footprint of our proposal also saves on underground works. Phasing and 3 years of disruption are vastly simplified. Very large cost savings will accrue.



A-A Section along York Street



B-B Section thro' York Street

