



Design Report

Limerick Smarter Travel

Stage Two Submission

April 2010

smartertravel >>>



Department of Transport
An Roinn Iompair



APPENDIX 1

LIMERICK SMARTER TRAVEL DESIGN REPORT



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Section 1 – Design Report Context

1.0 Introduction

This Design Report and Design Drawings were carried out by the staff of Limerick City Council, Limerick County Council and the staff and students of University of Limerick. All members of the Smarter Travel team and the Design team are enthusiastic walkers, cyclists and public transport users. They are fully familiar with the existing network, the barriers to improving the network and the interventions required to encourage a very significant modal shift. There was also a significant contribution from Limerick Cycling which is detailed in two reports contained in Appendix 6. This is, in effect, an end users report.

The barriers identified and the interventions proposed are not therefore based on a desktop study but carefully designed to meet the requirements for a significant modal shift to walking, cycling and public transport. It is intended to roll out the proposed interventions to complement the other Smarter Travel measures identified in the main report.

There are four key reports which have contributed to this Design Report namely:

- Mid West Area Strategic Plan (MWASP) – due for completion in September 2010
- Cycle Strategy – Draft
- Public Transport Feasibility Study – Draft
- Cycle Audits by Limerick Cycling – 2 reports completed

1.1 Objectives

The key objective is to connect the four key hubs of the City Centre, the Castletroy Super-Hub, the residential suburb of Corbally and the Regeneration Hub including Southill with high quality walkways, cycleways and public transport.

1.2 Drawing Schedule

The design drawings and drawing schedule are set out in three series in Appendix 5.

Series 100 outlines the context of the project and the hubs. It includes the routes and links together with the centres of employment and education. The key statistics associated with each hub are detailed. Contours and bus routes are also outlined.

Series 200 outlines the existing and proposed network for walking and cycling. It includes all the interventions necessary and desirable to conform to the key principles of design.

Series 300 shows before and after photo shoots at key locations along the routes.

1.3 Limerick/Shannon Gateway

The contribution to balanced regional development of the Mid-West (Counties Clare, Limerick and NorthTipperary) will require the enhancement of the performance of the Limerick-Shannon

gateway at the national/international level. This is needed to lever additional investment for the overall region, through its critical mass, strategic location, capacity for innovation and development and connections within the national transport framework. Limerick-Shannon will be supported by Ennis as a hub, taking advantage of the latter's relationship with the Limerick-Shannon gateway and its strategic location between Limerick and Galway.

If balanced regional development is to work, the spatial structure must be supported by policies aimed at enhancing the attractiveness of areas for people. Physical and cultural liveliness will be required to ensure that there is a combination of attractive social and cultural facilities for both people and business. The following are examples for the Limerick Shannon Gateway level:

- The possibilities for enhancing the central part of Limerick as a human-scale, traffic restricted district embracing the city's historical and cultural heritage, thus complementing Limerick's proven capacity for innovation and technological prowess
- Progress towards more successful and attractive larger urban areas will continue to require targeted, area-based measures. These must continue to tackle areas of disadvantage, in the inner city areas and in major concentrations of social housing development on the periphery of cities and towns. In a spatial sense, the aims of such targeted measures must include the achievement of more cohesive and integrated local urban communities. The National Anti- Poverty Strategy sets out measures needed to assist in achieving this objective, and connectivity is one of them
- The effectiveness of education, research and development services provided by third level facilities for the business community is critically important. The potential contributions of third level institutions, through innovation capacity and business linkages, suggests that there is a need to enhance their roles in support of business development this is why our links to the university is key
- There is also a need to look to co-ordinated, integrated and complementary development policies for third-level institutions in Cork, Galway, Limerick and Waterford to support the urban networking options, this is also factored into our bid

Our Smarter Travel measures hope to add to this overall aim by linking up our communities, businesses educational centres and the City through smarter travel investment.

1.4 The Limerick Smarter Travel Area

The Limerick Smarter Travel area is divided into two parts, pilot area A and area B. Pilot area A is the subject of this funding application. Pilot area A is made up of 4 hubs, The **City** and its core, **Castletroy** including the university and the national technology park, **Regeneration** including a large inner city community and extensive employment centre including light industry, and the **Corbally** Hub made up of a largely suburban community, separated from the city by two river crossings and restricted road capacity.

All hubs are largely cut off from one another, even though they are physically very close. The hubs are hugely dependent on the car as the primary mode of transport to get you to, around, and from the hubs. Buses are currently getting caught in the congested roads meaning an unreliable service. The smarter travel initiative hopes to get people from these hubs travelling in a more sustainable manner, and encouraging modal shift, which is possible with investment in alternative modes of transport and its supporting infrastructure, as the majority of car journeys in these hubs are under the 3km.

The Smarter Travel Hubs are unique in their demographic makeup and each Hub is facing very different challenges which are detailed out in the attached document, Appendix 9 Facing the challenge of change: a spatial perspective on Limerick. This document will be key to the measures targeted at each hub and will provide the background knowledge needed to achieve the cultural change and modal shift central to this Smarter Travel plan.

1.5 Hierarchy of Provision

The design measures incorporated in this report are prioritised in accordance with the 'Hierarchy of Provision' as follows:

- Traffic volume reduction
- Traffic speed reduction
- Junction treatment, hazard site treatment, traffic management
- Reallocation of carriageway space
- Cycle tracks away from roads
- Conversion of footways/footpaths to shared use for pedestrians and cyclists

1.6 Key Design Principles

The key design principles of design were adopted in this report:

- Safety, Must be safe and feel safe
- Coherence, Links to all origins and destinations
- Directness, Direct and with the minimum of delay
- Attractiveness, Integrate into surrounding areas and create a high quality public realm
- Comfort, Built to the highest design standards
- Accessibility – Suitable for all levels of users where possible

1.7 Design Process Stages

The design process was set out in the following stages:

1. Network Planning

- Establish cycling and walking needs and requirements, and highlight deficiencies in existing facilities
- Enable cycle desire lines, existing and potential demand, road safety benefits, barriers and costs to be identified
- Determine scheme and funding priorities in the implementation of the cycling strategy for the area

2. Concept/Feasibility Study

- Examination of alternative routes, determination of Function, Shape and Use and how each route meets the needs of the cyclists/walker
- Predicted cycling demand
- Traffic Volumes and speed
- Collision statistics

- Available width
- Barriers to cycling: road hierarchy, roundabouts and junctions, one-way streets, permeability, etc.
- Perceived personal safety

3. Preliminary Design

As below

4. Statutory and Legal Compliance

Refer to main report

5. Detailed Design

To commence at next stage

6. Procurement

To commence at next stage

7. Construction

To commence at next stage

8. Commissioning and Opening

To commence at next stage

9. Maintenance and Monitoring

Refer to maintenance section below

Refer to Department Evaluation Framework

1.8 Setting Priorities

Priority for intervention measures are set out as follows:

- Routes to schools/higher education
- Routes to centres of employment
- Routes to shopping centres
- Routes to leisure facilities
- Recreational routes
- NCN urban
- NCN rural

Section 2 - Traffic Volume & Traffic Speed Reduction

2.0 Traffic Volume Reduction

Traffic volume reduction leads to a safer environment for walking and cycling.

In addition to the measures outlined in the main report the following measures have been taken or are proposed to reduce traffic volumes:

The completion of the Limerick Southern Ring Road Phase 1 and the imminent completion of the Limerick Southern Ring Road Phase 2 (tunnel) provides a Southern Ring Road of Limerick. Intersecting all six National Routes (M7, N24, M20, N21, N16 and N18). 25,000 to 30,000 vehicles per day will be diverted from the city to this new facility.

This scheme will have three main positive effects in the Smarter Travel Study Area.

1. Reduced traffic volumes on R445 (Dublin Road): 20%
This is critical to the Smarter Travel Programme as all the traffic destined for Galway, Ennis, Shannon and the north of the city will use the Limerick Southern Ring Road (Limerick Tunnel) when it is opened in June of this year.
2. Reduced traffic volumes in City Centre: e.g. Shannon Bridge 24%, Sarsfields Bridge 70%
This is also critical to the Smarter Travel Programme as it now frees up space in the city and smarter travel measures such as speed limit reduction, pedestrianisation, bus lane construction, improved pedestrian and cyclists times at traffic signals, advance stop lines, etc. can be introduced without increasing congestion.
3. Reduced traffic volumes on the L1171 (Old Ballysimon Road): 80%
This reduction in traffic volume is as a result of the recently realigned N24 and R527. There is now a great opportunity to implement Smarter Travel measures on the old road, known as the Old Ballysimon Road (11171).

Limerick Northern Distributor Road is a long term project but will eventually to further reduction in traffic volumes. The Minister of Transport has recently authorised phase 1 of this scheme to proceed through the statutory processes of Environmental Impact Statement submission to An Bord Pleanála and commencement of the Compulsory purchase Order process. The construction of phase 1 of this scheme will involve the construction of more than 12km of cycle paths and 12km of footpaths. The construction of phase 1 of this scheme will help to facilitate the Regeneration of the Moyross housing estates on the northside of the city.

The imminent significant reduction in traffic volumes in the study area as a result of the completion of the southern ring road and Limerick Tunnel in 2010 makes it an ideal opportunity to introduce additional smarter travel measures.

The following measures will also contribute to a significant reduction in traffic volumes as outlined in the main report:

- Park and Ride and Mini Park and Ride
- Quality Bus Corridors: Increased bus routes and bus frequencies
- Interchange stations bus/train/cycle/walking
- Cycle parking, Limerick Bike Scheme
- Bike shops and repairs
- Improved infrastructure for walking, cycling and public transport,
- Reduction in traffic volumes due to current recession and completion of the Southern Ring Road
- Excellent time to progress the Smarter Travel programme due to increased awareness of environmental, health and lifestyle factors

Major Road Schemes	Status
M7 Limerick Southern Ring Road Phase 1	Complete
M7 Limerick Southern Ring Road Phase 2 (tunnel)	Completion 2010
M7 Limerick / Nenagh	Completion 2010
M20/N21 Limerick / Adare	Complete
N20 Limerick / Cork (Atlantic Corridor)	EIS / CPO
N20/N21 Adare Bypass	EIS / CPO
N21 Adare to Castleisland	Preliminary Design
N18/M18 Limerick / Ennis / Galway (Atlantic Corridor)	Limerick to Ennis complete Ennis to Gort under construction Gort to Galway CPO/EIS
Limerick Northern Distributor Road Phase 1	Preliminary Design EIS & CPO Stage
Limerick City Orbital Route	Under construction Phase 1 complete Phase 2 at design
Refer to Drawing Number ST-10-101	

2.1 Traffic Speed Reduction

1. Reduction of Speed Limit from 60 kph to 50 kph:

Reduction of speed limit from 60 kph to 50 kph on the R445 (Dublin Road) from Annacotty roundabout to City boundary

Reduction of speed limit from 60 kph to 50 kph on the L1171 and the R527 (Old Ballysimon Road) from Junction with Golf Links Road to City boundary

2. Introduction of 30 kph speed limit at the following locations:

Within the area of the City Centre Orbital Route and on other streets such as the riverside area and adjacent to some schools and colleges.

Residential areas of Castletroy, Monaleen, Milford and Newtown, Rhebogue Road

Some areas of the Regeneration area of Southill

Refer to Drawing Number ST-10-214

3. Driver Feedback Signage

This sign consists of a solar powered driver feedback sign showing 'your speed'. These signs have been used with a mobile unit very effectively in recent years (up to 20% reduction in speed) and feedback from the community has been positive as many drivers are not fully aware of their speed in and about their locality. It is intended to erect a number of permanent signs.

Refer to Drawing Number ST-10-217

4. Tabletop treatment at junctions:

Introduction of tabletop treatment at junctions will have the following effects:

- Reduction in speed
- Cyclists and pedestrians right of way through minor road junctions
- Significantly improve safety
- Highlights conflict areas
- Highlight 30 kph zone
- Increased use of cycle lane
- Improve cycle times and directness
- Refer to Drawing Number ST-10-215/216

5. Major and minor junction improvements:

Major and minor junction improvements as outlined below will contribute significantly to speed reduction and safety.

SECTION 3 - Recent Investment in Smarter Travel Infrastructure

Limerick City Council, Limerick County Council and the University of Limerick have invested significantly in Smarter Travel measures in recent years.

3.1 Limerick County Council - Works completed in recent years in Smarter Travel Study Area:

Refer to Drawing number ST-10-222

Scheme	Year Completed	Cost €M	Comment
Castletroy/Monaleen/Milford Footpath and Cycle lane network Existing cycle lane network in the Castletroy / Monaleen / Milford area connects schools, shopping centres, cinemas, leisure and sporting facilities, University, employment areas, etc. but was developed over a 15 year period by Limerick County Council and in some cases by private developers.			
R445 Dublin Road Kilmurray to Groody (Green Route)	2007/2008	2.2	Complete
Plassey Park Road	2007/2008	3.2	Complete
Monaleen Road	2009	2.1	Complete
Castletroy College Road	2005	2.0	Complete
School House Road	2005	1.1	Complete
Groody Road	2007	3.7	Complete
Annacotty Village and surrounds	2007	1.3	Complete
Total		€15.6M	

3.2 Limerick City Council - Works completed in recent years in Smarter Travel Study Area:

Refer to Drawing number ST-10-222

Scheme	Year Completed	Cost € M	Comment
R527 Mulgrave Street Bus Lane	2010	€1.5	A 900m section of Bus Lane was installed on Mulgrave Street. This was done in conjunction with street improvement works. <i>(Refer to Appendix 7 and Appendix L for more details)</i>
Phase 1 of the City Orbital Route	2010	€1.0	To facilitate the ongoing pedestrianisation of Limerick's City Centre, a new traffic management system called "The Limerick City Orbital Route" is currently under construction. Phase 1 of the project was completed in January 2010. This involved the construction of a new link road with enhanced facilities for pedestrians. The remaining phases will

			<p>be delivered in 2011 and 2012. The completion of this scheme will see most city centre streets fully pedestrianised or given pedestrian priority treatment including the removal of on-street carparking in favour of wider footpaths and cycle and bus facilities.</p> <p><i>(Refer to Appendix 7 and Appendix L for more details)</i></p>
N18 Condell Road Bus lane	2009	€2.2	<p>A 2.2km length of Bus lane (inbound only) and both inbound and outbound cycle lanes (4.4km) were installed on this road as well as providing controlled crossing facilities for pedestrians. This route is the main access road from the city to Shannon Airport for public transport.</p> <p><i>(Refer to Appendix 7 and Appendix L for more details)</i></p>
R857 Ennis Road Bus Lane	2009	€0.4	<p>A section of the Ennis Rd was upgraded to provide 400m of Bus lane giving priority to busses approaching the city centre at Sarsfield bridge as well as providing new footpaths and pedestrian crossing facilities.</p> <p><i>(Refer to Appendix 7 and Appendix L for more details)</i></p>
Old Dublin Road Segregated Cycle Track	2009	€0.15	<p>400m of 2 way cycle track and footpath were installed on the old Dublin Road from the Parkway Roundabout to the City Boundary to the University of Limerick from the City Centre</p> <p><i>(Refer to Appendix 7 and Appendix L for more details)</i></p>
Pedestrianisation of Thomas Street & Catherine Street	2009	€ 3.5	<p>Pedestrian Priority has been provided on these city centre streets by both providing pedestrian only areas and areas where pedestrians have priority by the removal of on-street parking and removing cut-through traffic. The result is a noticeable reduction in Traffic Speeds and a more cycle & walking friendly environment.</p> <p><i>(Refer to Appendix 7 and Appendix L for more details)</i></p>
Clancy Strand Remodelling and Boardwalk	2009	€ 2.8	<p>This project involved public realm improvements along the historic and much visited area of Clancy Strand with the provision of new footpaths, a public park, a plaza area at the Treaty Stone and the provision of a pedestrian boardwalk alongside the River Shannon where appropriate facilities could not be provided on road. These works were facilitated by the removal of on street car parking to facilitate the construction of wider footpaths.</p> <p><i>(Refer to Appendix 7 and Appendix L for more details)</i></p>
Improvement works at O'Callaghan Strand	2009	€2.65	<p>Improvement works at O'Callaghan Strand involved the creation of a wide riverside promenade and high quality public realm improvements. Traffic calming was achieved by the narrowing of the road lane widths and the installation of speed cushions. High quality footpaths were installed along the banks of</p>

			the River Shannon (Refer to Appendix 7 and Appendix L for more details)
Bedford Row Pedestrianisation	2007	€ 3	Bedford Row is a city centre street which prior to the works carried two lanes of traffic with on-street parking on both sides. All through traffic has been removed. Traffic has been limited to service vehicles up to 11am thus providing a more pedestrian friendly environment. Significant public realm upgrade were carried out which have been a catalyst for over €100 million of private sector development in shop units, a hotel and in excess of 80 city centre apartments. (Refer to Appendix 7 and Appendix L for more details)
Childers Road Segregated Cycle Track	2006	€ 1.2	1.5 km of off-road 2 way high quality cycle track and footpaths were installed on the Childers Road in 2006. Segregation is provided from traffic by the provision of wide grass margins or safety railing. (Refer to Appendix 7 and Appendix L for more details)
Limerick Riverside Legibility Scheme		€0.1m	This scheme involved the design and implementation of way finding and information signage along the city centre riverside areas to assist visitors with there interpretation of the area and to help them find there way around. The signage was designed to be easy to use, be off high quality and low maintenance. (Refer to Appendix 7 and Appendix L for more details)
Total Expenditure 2006 -2010		€18.4	

3.3 University of Limerick - Works completed in recent years on campus in Smarter Travel Study Area:

The University of Limerick has invested significantly in Smarter Travel measures in recent years. Works included the provision of cycle lanes throughout the campus, cycle parking and the construction of the 'Living Bridge'.

	Year Completed	Cost €M	Comment
To support Smarter Travel, and to facilitate access to the University other than in cars extensive dedicated cycle paths, cycle parks, bus stops, bus lay-bys, staff car-pooling spaces (conveniently located) have been provided in recent times. Additionally, several buildings contain shower facilities for cyclists.			
Staff car-pooling spaces	2005-ongoing	0.2	
Upgrade to University	2007/2008	0.5	

Entrance incorporating Cycle lanes			
Shower Facilities in: ERB Languages Building Graduate Medical School	2007-ongoing	0.12	
Cycle parking with ERB Languages Building Business School Graduate Medical School Nursing College	2005 – ongoing	0.3	
Cycle routes along internal college road between Schumann Building and Thomond Village	2006/2008	0.2	
Cycle Way across New Vehicular Bridge	2006	0.5	
Total		€1.8M	

Section 4 - Planned Smarter Travel Infrastructure (Matching Funding)

4.1 Limerick County Council - Proposed Works in Smarter Travel Study Area:

Refer to Drawing Number ST-10-222

Scheme Description	Projected construction year	Estimated Cost €M	Funding Source	Comment
Golf Links Road Improvements	2013/2014	2.1	Limerick County Council and DOT	Upgrade of Golf Links Road to include traffic calming, footpaths, public lighting, drainage, signage, junction improvements
R445 Dublin Road, Bus lane / Cycle lane	Construction 2011	2.2	DOT	R445 Newport Interchange to Kilmurray Roundabout, combined bus and cycle lane inbound Detailed design and contract documentation 2010
Park and Ride, Eastern Corridor	Construction 2013 or 2014	2.5	DOT and Private	Detailed design and contract documentation 2011/2012
Towlerton Road (link between Groody Road and Golf Links Road)	2015/2016	2.5	Developer led	Work to be developer led
Total		9.3		

4.2 Limerick City Council – Proposed Works in Smarter Travel Study Area:

Scheme	Year to be Completed	Cost € M	Comment
Phase 2,3,4 & 5 of the City Centre Orbital Route	2012	6.5	To facilitate the future pedestrianisation of Limericks City Centre (O’ Connell Street), a new traffic management system called “The Limerick City Orbital Route” is being delivered. The project involves installation of traffic system around the city centre thus substantially eliminating vehicular traffic from core city centre streets to facilitate pedestrianisation, pedestrian priority works. and the provision of public transport infrastructure. The completion of the project will provide cyclists, public transport users and pedestrians with a much safer and friendlier environment in which to go about their business.
Ballinacura Road & OConnell Avenue	2010/2011	4.5	Installation of 2.0km of inbound Bus Lane from St Nessans Rd to O Connell Avenue with improved

Bus Lane			pedestrian footpaths and pedestrian crossings facilities that will improve travel time on buses and also provide improved facilities for cyclists and pedestrians.
Traffic calming on William Street and Installation of Bus & Cycle Lanes. This scheme will commence in May 2010	2010/2010	6.0	William Street is a very busy shopping area in Limerick. This project involves the widening of footpaths, the removal of on street parking, and the installation of 900m of a combined Bus & Cycle lane (outbound). This work will also involve the creation of a public transport hub on the street with the construction of seven Bus stands which will be provided with high quality shelters and real time information.
Childers Road Widening for Bus Lanes and Segregated Cycle Tracks	2011	7.0	Widening of 2.6km of the Childers Road to incorporate Bus Lanes in both directions and off road Cycle Tracks and footpaths. This scheme currently at design stage will link the Southill area with the University area and also link towards the Raheen area on the southside of the City. This scheme will also see the removal of the roundabouts at Parkway, Tipperary road, Killmallock road and Roxboro Road and their replacement with high quality traffic light controlled junctions with facilities for pedestrians and cyclists. In addition to the road and safety improvements significant landscaping improvements will be carried out to improve the attractiveness of this route. It is expected that these improvement work will be funded by a combination of Public Transport and Regeneration monies.
Roxboro Road Upgrade	2014/2016	5.0	Limerick City Council has commenced preliminary design on the upgrade of the Roxboro road from the Childers Road to the City Centre including the upgrade and widening of the narrow rail bridge. The road will be upgraded to improve access to the city centre from the Southill Regeneration area and for commuters to the city. Priority in this upgrade will be given to the provision of high quality facilities along this route for pedestrians, cyclists and for public transport.
R857 Ennis Road Bus Lane	2011	3.1	Installation of 1.5km of inbound city Bus Lane from the R445, Ivans Junction to the Maternity Hospital and controlled junctions with improved crossing facilities for pedestrians.
O'Connell Street Pedestrianisation	2012	8.5	O'Connell Street which is the premier street in Limerick City is designated a national primary traffic route carrying in excess of 22,000 vehicles per day with a HGV content in excess of 8%. The opening of the Limerick Tunnel will lead to a reduction in this volume of traffic and its

			reclassification and allow the council to introduce pedestrian priority areas on the street with significant public realm improvements. It is hoped that these works will be the catalyst for the regeneration of the city centre. The works will involve the complete removal of on-street parking with the space reallocated to pedestrians and cyclists and to public transport.
Other City Centre Streets	2012 to 2016	10.0	Other City centre streets of the main thoroughfares will also be targeted with pedestrian enhancement works to create a nicer environment for shoppers, city centre dwellers and workers and for browsers.
Limerick City Quays	2010/2011	6.5	Designs have been completed and it is hoped that works will commence during 2010/2011 on improvement works to the City Centre Quays that will involve the removal of on-street car parking and through traffic to create a unique setting for riverside activities and uses. Work will involve significant improvements to the public realm including the provision of boardwalks. This will provide an excellent facility for pedestrians and cyclists and should help to enhance the image and perception of Limerick City centre.
Limerick City Centre Way finding Signage Scheme.		0.1	Wayfinding and information signage for cyclists and pedestrians will be provided in the city centre to assist people to interpret and find there way around the city.
Limerick City Road Re-classification Improvement Scheme		2.0	As a result of the opening of the Southern Ring road monies are been made available by the NRA to Limerick City Council to carry out improvements to the road network including the provision of controlled traffic light junctions and the removal of on-street capacity in the form of second lanes that can be reassigned to cyclists and public transport. The provision of up to 6 additional traffic light controlled junctions with ASLs on approach roads to the city centre will significantly improve safety for pedestrians and cyclists and improvement there enjoyment by reassigning priority from the motor car.
Limerick Regeneration improvements in Southill		500	Considerable state resources will be spent over the next 10 years regenerating large housing estates in the Southill area of Limerick City. These estates will be redesigned to the highest environmental and sustainability standards and significant resources will be put into the provision of walking, cycling and public transport facilities to ensure that the residents of these new estates will have access to opportunities such as education and employment as well as social and sporting facilities so that the

			current failures can be corrected. For more information on this process please refer to Appendix P or log onto www.limerickregeneration.ie
Total		58.8	Excluding €500M Regeneration Programme

4.3 Eirgrid Opportunity

Limerick City and County Council have been approached by Eirgrid to explore the feasibility of laying a high voltage cable from Ardnacrusha Power Station on the north eastern environs of the city to Killronan power station on the southside of the city. Because of the environmental issues of installing high voltage over-head cables the councils have suggested that they lay the cable underground through our smarter travel area and construct a cycle path over it. Eirgrid have shown great enthusiasm for this option and are keen to be associated with the project. They are currently carrying out a detailed analysis of this option. If this option with Eirgrid (National Electricity Distribution Mangers) proceeds matching funding in the order of €1 million to lay a cable and provide cycle paths may be available and this route will link two additional neighbour hoods directly into the centre of the Smarter Travel area.

4.4 University of Limerick – Proposed Works on campus in Smarter Travel Study Area:

It is the intention of the University of Limerick to transform its campus to a Smarter Travel Campus. In the 5 year programme it is intended to spend in the order of €1,920,000

Measures include the following:

Reduction in car parking

Provision of Cycle lanes and cycle parking throughout the campus

Security CCTV

Bike shop, repair, buy back, rental, information,

Sheltered cycle parking, bus shelter

Cycle facilities,

Incentives, penalties,

Location of car parking at a distance with cycle parking up front, public lighting, electric vehicle parking.

SECTION 5 - Existing and Proposed Routes and Links

5.1 Route 1 (Corbally Route) – Long Term Proposal

- **Type:**
On road Cycleways
- **Connectivity:**
Connects the large residential areas of Westbury (County Clare) and Corbally to the City Centre (R463).
Connects with Route 2 (via Link 1) to University of Limerick, National Technological Park and the Castletroy Area.
- **Distances:**
Westbury - City Centre: Distance 2.69Km
- **Description:**
This route runs on the existing road (R463) surface from Westbury in Co. Clare to O’Connell Street in Limerick City Centre. The existing AADT is 14028 with 7% HGV. The existing road surface is 7.5m – 8m wide with 2m footpaths and 2m grass verges on either side of the roadway. This geometry provides scope for installing designated cycle lanes in both directions. A 1.5m wide advisory cycle lane is proposed.

The route will incorporate direct access points to facilities and amenities including the following:

- St Munchins College
 - Link to Route 2 Cycleway
 - Scoil Ide Primary School
 - Grove Island Shopping Centre and Sports Complex
 - Scoil Mhuire Secondary School
 - Residential areas of Westbury, Corbally and Mill Road
 - City Centre
- **Drawing Numbers:**
Please refer to Drawing Numbers:
ST-10-204/205
ST-10-310-315
 - **Quality of Service:**
The existing QOS is rated as D
The proposed QOS is rated as C
 - **Barriers and Interventions:**
The carriageway, footpaths and grass verge widths allow for the construction of cycle lanes at road level between Westbury and O’Connell Street. It is intended to replace the Corbally roundabout with a signal controlled junction. This will allow for the provision of toucan

crossings, pedestrian crossings and advanced stop zones for cyclists. It will also allow bus priority detection loops to be installed.

- Long-term Proposed Interventions:
Construction of on road cycle lanes from Westbury to City Centre
Replacement of Corbally roundabout with a signal controlled junction
New footway & Cycleway beside Athlunkard Bridge
 The Athlunkard Bridge has a narrow carriageway width of 6.1m and a pedestrian footpath on one side (width 1.2m). To provide safer facilities for pedestrians and cyclists, a future pedestrian & cycling only bridge is being proposed at this location.
- Prioritisation of Interventions:
Construction of on road cycle lanes from Westbury to City Centre (R463).
Replacement of Corbally roundabout with a signal controlled junction.

5.2 Route 2 (Shannon and Canal Route)

- Type:
Segregated Cycleway/Walkway & On road cycleway
This route has the potential to be one of the most attractive shared facilities in the country.
- Connectivity:
Connects National Technological Park, University of Limerick and Castletroy Area to City Centre
Connects with Route 1 (via Link 1) to Corbally Area.
- Distances:
National Technological Park - City Centre (Train and Bus Station): Distance 6.1km
University of Limerick - City Centre (Train and Bus Station): Distance 4.1 Km
Corbally - University of Limerick (Via Link1): Distance 1.63
- Description:
The route runs alongside the River Shannon and the Canal for a distance of 3.1km. It is embedded in a Special Area of Conservation. It will incorporate a combined Walkway and Cycleway. The proposed facility will be a minimum of 3m wide, surfaced with bitumen macadam, well lit, well signposted and provided with extensive CCTV facilities to ensure security for users.

On reaching Lelia Street, the route will continue via on road cycle lanes for a distance of 1km. Junctions at Clare Street, New Road, Mulgrave Street and Sexton Street will be provided with Advanced Stop zones and Toucan crossings for cyclists. The route will terminate at Colbert Train and Bus Station where a safe and accessible cycle parking facility will be provided.

Link 1 connects Route 2 and Route 1. It continues along the south bank of the Shannon and intersects with Route 1 and the R463 at Athlunkard Bridge.

The route will incorporate direct access points to facilities and amenities including the following:

- City Centre
- University of Limerick
- National Technological Park
- Milford National School
- University boat club
- Rhebogue, Dromroe, Drominbeg residential estates
- St Patricks GAA Club
- Link to Corbally Cycle track (Link 1)
- Richmond Rugby Football Club
- O'Briens Park (award winning Public amenity)
- Link to Walkway and Cycleway network in Castletroy Area

▪ Drawing Numbers:

Please refer to Drawing Numbers:

ST-10-205

ST-10-208

ST-10-211

ST-10-320-325

▪ Quality of Service:

The existing QOS is rated as C

The proposed QOS is rated as A

▪ Benefits of proposed shared Walkway and Cycleway:

- Only 4 Km from city centre
- No traffic, no HGVs
- Safe and Secure
- Very attractive
- Great community support
- Great buy in by all stakeholders
- Cost effective, i.e. cheaper to provide and maintain
- Environmentally passive
- Requires less maintenance
- More space efficient
- Freedom of movement for cyclists
- Self-enforcing

▪ Barriers and Interventions:

Safety and Security:

The existing facility is only used in daylight hours. It is not considered to be either safe or secure and this is reflected in its underutilisation. The existing route has a poor unbound surface with many obstructions including boulders, narrow bridges and poor gateway facilities. The route is unlit and there is no security coverage. Other problems include litter, antisocial behaviour, poor signposting, few rest areas and lack of connectivity with external cycling facilities. Despite its proximity to the city centre it is a little known route.

It is however only 4 Km from the city centre. The facility has the potential to be both a commuter and tourist route for cyclists and walkers alike.

Consultation has taken place with Waterways Ireland, National Parks and Wild life Service, Shannon Fisheries and Conservation Officers who are all key stakeholders on this route. All are very supportive of the project and have undertaken to work with the Limerick Smarter Travel Team at the detailed design stage to ensure a first class facility that the community can be very proud of.

The following assessments and audits will be carried out:

Appropriate Assessment under Article 6 of the Habitats Directive:

Fencing, embankment repairs/reinforcement, structures and public lighting are the main issues and have already been discussed with Waterways Ireland, National Parks and Wild life Service, Shannon Fisheries and Conservation Officers.

Part 8 Planning process

Safety Audit

Risk Assessment

Mobility and Disability Audit

User Audit

- Summary of Proposed Interventions:

Public Lighting:

Innovative LED Public Lighting will be used focusing on the shared facility and avoiding excessive light spillage and light pollution.

The lighting will be provided by long life low energy LED lanterns (15 Lux /86watts)

CCTV:

CCTV will be introduced at entrances to the shared facility.

Signposting:

An integrated system of signage is currently being designed which will include distance and locations, flora and fauna, places of interest, regulatory and cautionary.

Fencing:

Limited fencing will be erected at in the interest of safety at locations where there are steep inclines.

Landscaping:

Improved rest areas and landscaping will be incorporated into the facility. Measures will be taken to prevent horses and quad bikes from using the facility.

Pavement:

A very high quality base course and wearing course will be provided to ensure a good quality surface. High quality kerbing will be constructed to protect the surface and protect against edge erosion.

Drainage:

High quality drainage will be provided throughout and with the river Shannon and the canal abutting the route it will be very cost effective.

Structures:

- Some sections of the embankment alongside the River Shannon will be reinforced to enable construction of the 3m wide Walkway and Cycleway. A survey of the route yielded the following results for embankment widths:
 - 280m section (3.0m wide)
 - 285m section (3.1m wide)
 - 180m section (3.5m wide)
 - 155m section (3.6m wide)
 - 30m section (3.7m wide)
 - 345m section (no width constraint)
 - There are 4 narrow stone arch footbridges on this route (widths vary 1.5m -1.7m) (span 5m). Additional bridges (box culverts) will be provided to provide separate crossings for cyclists.
 - Steel Pedestrian Bridge crossing the Canal
This pedestrian bridge (1.4 m wide) provides a link to Route 2. However, cyclists cannot negotiate the bridge easily. A second bridge is proposed for cyclists.
 - Canal Bank Road
To provide cyclists with a continuous off road priority route, a 130m section of new cycle and footway will need to be provided alongside Canal Bank Road. Embankment improvements are required over this section to provide the necessary width.
 - Park Road Bridge
The vehicular traffic travelling across this narrow arch bridge is a hazard for cyclists and pedestrians. To ensure the safety of pedestrians and cyclists the Park Road Bridge will be closed to vehicular traffic. The closure will not significantly affect existing vehicular access as a new bridge over the canal was provided in 2006 300 metres away.
 - Black Bridge (pedestrian bridge)
This pedestrian bridge linking the walkway/cycleway on the north and south banks of the Shannon is closed and in need of repair. Underwater surveys will be carried out in late April or early May to determine the extent of damage and the necessary repairs required.
- Prioritisation of Interventions:
It is proposed to carry out all the above works.

5.3 Route 3 (Dublin Road Route) University of Limerick – Limerick City Centre (via Dublin Road)

- Type:
Segregated Cycle Tracks and on road Cycle lanes
- Connectivity:
Connects the National Technological Park, University of Limerick and the Castletroy Area to the City Centre.
- Distances:
National Technological Park - City Centre: Distance 6.1km
University of Limerick - City Centre: Distance 3.4 km

- Description and Barriers:

This route extends from the Cappamore Road junction along the R445 (Dublin Road) to the City Centre. It also includes the proposed cycleway network in the National Technological Park and the existing network on Plassey Park Road. This route has been identified as a key route by Limerick Cycling. The existing AADT on the Dublin Road is 24,100 with 6% Heavy Goods Vehicles.

A combined bus/cycleway will extend inbound from the Cappamore junction to the Groody Roundabout. An inbound bus/cycleway has already been constructed from the Killmurray Roundabout to the Groody Roundabout. An outbound cycleway will also be provided from the Killmurray Roundabout to the Cappamore junction.

The Killmurray and the Groody roundabouts, which both have multiple entry and exit lanes, have been identified as two key barriers to cycling and walking.

This route also includes a two way segregated cycle track from the University of Limerick to the Parkway Roundabout for a distance of 1.5km. Cyclists will not therefore have to negotiate the Groody Roundabout (or proposed traffic signals) on route to the city. This has been identified as a key intervention as cyclists currently use the single lane cycleway as a two way to avoid the roundabout.

From the Parkway to the City Centre the cycle lanes will be installed on the existing road surface where space permits. (2.5km of on road cycle lanes). Unauthorised car parking on the public footpaths on the Dublin Road is a regular occurrence, particularly at school opening and closing times. Most children attending St Patricks Girls Primary School and St Patricks Boys Primary School travel by car.

To enable the provision of on road cycle tracks, restrictions on parking will need to be enforced. Realignment of the existing footpath and the provision of designated parking bays.

The existing carriageway is 8.5m – 11m wide with 2-3m footpaths on either side of the roadway.

Advanced Stop markings for Cyclists will be provided at the signalised junctions at St Patricks Road, Park Road and Pennywell.

The Route will enter the City Centre via O’Sullivan Place, New Road, Cathedral Place, Sexton Street and Parnell Street. The Route will terminate at Colbert Station where secure bike parking facilities will be provided.

Link 2: This link provides an alternative to the busy R445 (Dublin Road) via the Rhebogue Road. The speed limit on the Rhebogue Road will be reduced from 50 kph to 30 kph and tabletop traffic calming will be introduced. Traffic signals with advance stop zones will be erected at the narrow chicane at the rail overbridge. Surveys have shown that there is little or no parking along this route. This route has also been identified by Limerick Cycling as a safe route to the city centre avoiding the high traffic volumes on the R445 (Dublin Road) and the congestion at peak hours.

Link 4: The section of Link 4 north of the Dublin Road (R445) is a private passageway with a right of way to the Sewage Treatment Plant has the potential to provide a dedicated shared walkway/cycleway to the boat club and certain sections of the University thus relieving congestion at the main entrance to the University particularly during peak hours. The section of Link 4 to the south of the Dublin Road (R445) is the Groody Road and off road cycle lanes are provided in both directions along a section of this road. It is intended to complete the cycle lane network on this road. Minor junction improvements are required.

Link 5 Kilmurray Link Road links Routes 3 and 4 and provides connectivity to the University, Technological Park, Schools, Shopping Centres, Cinemas, Milford Hospice and retirement home, residential areas etc. Link 5 has off road cycle lanes and minor improvements are required at junctions as described below.

A Bus/Cycleway/Walkway interchange is proposed at the Newtown Shopping Centre. This is an existing bus stop and serves the neighbouring housing estates

Link 6 Milford Road links the residential area of Golf Links Road to Plassey Park Road and has an on road cycle network in both directions.

A future boardwalk is proposed over the Groody River and Groody Valley which would provide a direct link from the University to Rhebogue Road. This would provide a very attractive route to the city.

The route will incorporate direct access points to facilities and amenities including the following:

- University of Limerick
- National Technological Park
- Castletroy College
- Milford National School
- Milford Church
- Monaleen National School
- Monaleen Gael Scoil
- Monaleen GAA
- Monaleen Church
- St Patrick's Girls Primary School
- St Patrick's Boys Primary School
- Limerick College of Art and Design
- O'Brien's Park
- Tourist Attraction - 150m section of Limericks Wall and Rampart (built during the 1689 – 1690 Siege)
- City Centre
- Colbert Bus & Train Station (Parking Facilities)

- Drawing Numbers:
Please refer to Drawing Numbers:
ST-10-205/206
ST-10-209
ST-10-211

ST-10-213
ST-10-330-335

- **Quality of Service:**
The existing QOS varies though the network and is rated as D
The proposed QOS is rated as C
- **Interventions:**
R445 (Dublin Road):
A combined bus/cycleway inbound from the Cappamore junction to the Kilmurray Roundabout
On road cycle lanes in both directions from the Parkway Roundabout to the city centre.

Plassey Park Road:

Plassey Park Road has already been upgraded. Widening of the embankment adjacent to the Groody Roundabout is required to provide adequate space for the proposed two lane cycleway from the University entrance to the roundabout. Other minor junction improvements are required on the road.

National Technological Park Proposed cycle network:

Shannon Development intend to upgrade the existing road network to include on road cycleways.

Park and Ride:

It is intended to construct a major Park and Ride facility in the vicinity of the Annacotty Roundabout which will reduce traffic volumes on the R445 (Dublin Road). A Quality Bus Corridor will extend from the Park and Ride facility to the City Centre.

Mini Park and Ride:

Mini Park and Ride facilities are provided for major events in the city e.g. Matches or concerts in Thomand Park

Major junction improvements are required at the following locations:

Parkway Roundabout (R445, Dublin Road)
Groody Roundabout (R445, Dublin Road)
Kilmurray Roundabout (R445, Dublin Road)
Annacotty Roundabout (R445, Dublin Road)
Cappamore Junction (R445, Dublin Road)

Parkway Roundabout (R445, Dublin Road):

This roundabout is being replaced in 2011 as part of the Childers Road widening Contract. Toucan crossings, controlled pedestrian crossings and bus priority detection systems will be incorporated into the new junctions design.

Groody Roundabout (R445, Dublin Road) and Kilmurray Roundabout (R445, Dublin Road):

1. Replace roundabout with Traffic Signals (preferred option)
 - Speed limit reduction from 60kph to 50kph
 - Link to City Council Scoot System
 - Remove cyclists from junction for left turns
 - Direct cyclists off roundabout to pedestrian/cyclist crossing facility

- Two-way cycleway to avoid junction
- ASLs for straight through and right turns
- Prioritise phases for walking and cycling Toucan crossings
- Bus priority – further development of the use of transponders

2. Improved safety at roundabout

- Multi-lane roundabouts are not suitable for cyclists and alternative off-roundabout design solutions must be considered to ensure cycling continuity.
- There will be reduced traffic volumes on the R445 Dublin Road but it is still the main entrance to Limerick from Dublin and the east.
- Safety and Quality of Service for vulnerable road users are the overriding design factors for good roundabout design in urban and suburban locations.
- Correctly designed roundabouts have a narrow gyratory, which forces drivers on the approach roads as well as on the roundabout to slow down. In order to reduce traffic speeds, the arms of the roundabout should have narrow entries and exits and a minimum flare.
- Redesign of roundabout to reduce entry widths
- Improve advance warning VMS, speed advisory signs
- Remove cyclists from roundabout
- Direct cyclists off roundabout to pedestrian/cyclist crossing facility (zebra/toucan)
- Two way cycleway to avoid junction

3. Grade separation

Underpass:

Limited space

Poor ground conditions

Cyclists and walkers may not feel safe

Steep gradients

Very costly

Unlikely to get significant use

Could pose additional risks

Overpass:

Limited space

Poor ground conditions

Cyclists and walkers may not feel safe

Steep gradients

Very costly

Unlikely to get significant use

Could pose additional risks

All options considered will include:

Safety Audits

Risk Assessments

Mobility and Disability Audit

User Audits

Annacotty Roundabout (R445, Dublin Road):

It is intended to upgrade this roundabout to traffic signals in conjunction with the proposed expansion of the National Technological Park by Shannon Development.

Cappamore Junction (R445, Dublin Road):

It is intended to upgrade this roundabout to traffic signals in conjunction with the proposed Quality Bus Corridor on the R445 Dublin Road in 2011

Rhebogue Road (Link 2):

Speed limit reduction from 50 kph to 30 kph

Resurfacing

Traffic calming, tabletops

Installation of Traffic signals with advance stop zones at the rail overbridge.

The speed limit will be reduced on the R445 (Dublin Road) from 60 kph to 50kph from the Cappamore Roundabout to the City Boundary at the Groody river.

Proposed Future Rhebogue Meadows Boardwalk over the Groody River and Groody Valley would provide a direct link from the University to Rhebogue Road.

▪ Summary of Proposed Interventions:

R445 (Dublin Road):

A combined bus/cycleway inbound from the Cappamore junction to the Kilmurray Roundabout
On road cyclelanes in both directions from the Parkway Roundabout to the city centre.

Plassey Park Road:

Two lane cycleway from the University entrance to the roundabout. Widening of embankment.
Other minor junction improvements.

National Technological Park Proposed cycle network

Park and Ride

Mini Park and Ride:

Major junction improvements are required at the following locations:

- Parkway Roundabout (R445, Dublin Road)
- Groody Roundabout (R445, Dublin Road)
- Kilmurray Roundabout (R445, Dublin Road)
- Annacotty Roundabout (R445, Dublin Road)
- Cappamore Junction (R445, Dublin Road)

Minor junctions improvements are required at the following locations:

- R445 (Dublin Road)
- Plassey Park Road
- Kilmurray Link road
- Groody Road
- Rhebogue Road
- Milford Road

The speed limit will be reduced on the R445 (Dublin Road) from 60kph to 50kph from the Cappamore Roundabout to the City Boundary at the Groody river.

Proposed Future Rhebogue Meadows Boardwalk over the Groody River and Groody Valley (subject to funding)

Prioritisation of Interventions:

- Rhebogue Road
- Groody Roundabout (R445, Dublin Road)
- Parkway Roundabout (R445, Dublin Road)
- Plassey Park Road:
Two lane cycleway from the University entrance to the roundabout. Widening of embankment.

5.4 Route 4 (Ballysimon Road Route)

R445 (Dublin Road) – Limerick City Centre (via Castletroy, Monaleen, Ballysimon Rd and Mulgrave Street)

- Type:
 - Castletroy College Road: Existing off road cycle lanes
 - Kilmurray Link Road: Existing off road cycle lanes
 - School House Road: Existing off road cycle lanes
 - Golf Links Road: Resurfacing, Footpath construction, Traffic Calming
 - Ballysimon Road: On road cycle lanes
 - Tipperary Road: On road cycle lanes
- Connectivity:
Connects the Ballysimon, Monaleen, Newtown and Castletroy areas to the City Centre
- Distances:
Golf Links Road - City Centre (Train and Bus Station): Distance 4.5 Km
Eastway Business Park (Ballysimon) - City Centre (Train and Bus Station): Distance 3.5 Km
- Description and Barriers:
This route extends from the R445 (Dublin Road) via Castletroy College Road, Kilmurray Link Road, School House Road, Golf Links Road, Ballysimon Road and the Tipperary Road to the City Centre.

There is an existing cycle lane network in both directions on the Castletroy College Road, the Kilmurray Link Road and the School House Road. Minor junction improvements are required as detailed below.

The Ballysimon Road (formally the N24) is an ideal section of road to retrofit cycle lanes in both directions. This section of the route will run via on road cycle lanes from the junction of the Golf Links Road and the Ballysimon Road to the Tipperary Road and the Tipperary Road Roundabout for a distance of 1.5km. The Tipperary Roundabout is being replaced in 2011 as part of the Childers Road widening Contract. Toucan crossings, controlled pedestrian crossings and bus priority detection systems will be incorporated into the new junctions design. Footpath construction is also required on sections of this road.

The existing AADT on the Tipperary Road is 26100 with 4% HGV.

From the Tipperary Road Roundabout to the City Centre the Cycle lanes will be installed on the existing road surface. (2.0km of on road cycle lanes)

The existing carriageway is 9.4m – 10m wide with 2 m footpaths on either side of the roadway. Advanced Stop markings and toucan crossings for Cyclists will be provided at St Patricks Road and Cathedral Place.

The Route will enter the City Centre via Mulgrave Street, Sexton Street and Parnell Street and terminate at Colbert Station where secure bike parking facilities will be provided.

Link 7 Monaleen Road: This road links Route 2 and Route 4. It serves two National Schools, the Church and adjoining housing estates. Major improvements works have been carried out recently on this road in 2009. A feature of the road is the Monaleen hill which has a sharp incline (refer to Drawing No.ST-10-209,212). Cyclists on the north side of the hill are likely to cycle to the city centre via Route 2 and to the south side via Route 4.

Link 8 Golf Links Road: This road links Route 2 and Route 4 and it serves a number of housing estates. A feature of the road is the Castletroy hill which has a sharp incline (refer to Drawing No.ST-10-209,212). Cyclists on the north side of the hill are likely to cycle to the city centre via Route 2 and to the south side via Route 4. One busy pedestrian section of this road is without a footpath. This road is in very poor condition with poor footpaths, poor drainage, poor public lighting and no traffic calming. The road is unfriendly for both pedestrians and cyclists. Road improvements are a priority for Limerick County Council.

Link 9 Towlertown Road: This road is the final phase of the Castletroy Distributor network and links the Golf Links Road with the Groody Road. It will provide better access to the city from the Castletroy and Monaleen areas via Route 4.

The route will promote cycling trips to and from the following employment centres educational facilities and amenities including the following:

- Educational, Business and Sports and Leisure facilities of Castletroy, Monaleen and Newtown.
 - Retail Parks
 - Garryglass Industrial Estate
 - Eastway Business Park
 - Hanover Industrial Estate
 - Childers Road Segregated Cycle Track
 - St Josephs Hospital
 - Limerick Senior College
 - Limerick Prison
 - City Centre
 - Colbert Bus & Train Station (Parking Facilities)
- **Drawing Numbers:**
Please refer to Drawing Numbers:
ST-10-203
ST-10-206
ST-10-210
ST-10-340-345

- **Quality of Service:**
The existing QOS is rated as D
The proposed QOS is rated as B

- **Interventions:**
Castletroy College Road: Minor Junction Improvements
Kilmurray Link Road: Minor Junction Improvements
School House Road: Minor Junction Improvements
Golf Links Road: Resurfacing, Footpath construction, Public Lighting, Traffic Calming
Ballysimon Road: Construction of on road cycle lanes
Tipperary Road: Construction of on road cycle lanes
Tipperary Road Roundabout: Major junction improvement - Replace with Traffic Signals

- **Summary of Proposed Interventions:**
 - Castletroy College Road: Minor Junction Improvements, tabletops at junctions with minor roads
 - Kilmurray Link Road: Minor Junction Improvements, tabletops at junctions with minor roads
 - School House Road: Minor Junction Improvements, tabletops at junctions with minor roads
 - Golf Links Road: Resurfacing, Footpath construction, Traffic Calming
 - Ballysimon Road: Construction of on road cycle lanes
 - Tipperary Road: Construction of on road cycle lanes
 - Tipperary Road Roundabout: Replace with Traffic Signals
 - Towlertown Road: Future works to be Developer led.

- **Prioritisation of Interventions:**
It is intended that the above works other than the Towlertown Road can be completed between 2014, 2015 and 2016.

5.5 Route 5 (Roxborough Road Route) – Long Term Proposal Link 3 - Childers road

- **Type:**
Route 5 - Roxborough Road: On road cycle lanes in both directions
Link 3 - Childers road: Off road cycle lanes

- **Connectivity:**
The route will promote cycling and walking trips between the City Centre and the Southill Regeneration District which is currently undergoing economic and social regeneration. It will also provide a crucial link to the University and the National Technological Park.

- **Distances:**
Route 5: Southhill to City Centre: 1.81 Km
Link 3 - Childers road: 0.85Km

- Description and Barriers:

This is a critical route and will make a significant contribution to the social inclusion of the Southill Regeneration District. There have been ongoing discussion with Limerick Regeneration to provide this connection which complements their Master Plan. Limerick Regeneration have been very supportive of the project.

Link 3 is the priority as it connects the Regeneration Area with the other hubs via the Childers Road.

Route 5 will extend from the Southill Regeneration District to the Limerick City Centre via the Roxborough Road.

The existing AADT on the Ballysimon Road is 19100 with 1.5% Heavy Goods Vehicles.

The Roxborough Road Roundabout is being replaced in 2011 as part of the Childers Road widening Contract. Toucan crossings, controlled pedestrian crossings and bus priority detection systems will be incorporated into the new junctions design.

From the Roxborough Road Roundabout to the City Centre the Cycle lanes will be installed on the existing carriageway where width permits.

The carriageway is 8.5m – 11m wide with 2 m footpaths on either side of the roadway. Advanced Stop markings and toucan crossings for Cyclists will be included in the Construction of the new junction at the Roxborough Road.

The Route will enter the City Centre via Roxborough Road, Sexton Street and Parnell Street and terminate at Colbert Station where secure bike parking facilities will be provided.

There are two hazardous railway under bridges on the Roxborough Road.

Both bridges act as a physical and psychological barrier to walking and cycling into the city.

Both bridges have a 6m wide carriageway and a 1m wide footpath on one side of the road.

Consideration will be given to special treatment at the narrow rail overbridges e.g. signage, traffic calming.

Long term proposal to replace or widen two rail overbridges.

Link 3 extends from the junction of Childers Road and Carew Park Road along Childers Road to the Parkway Roundabout intersecting Route 5 at the Roxborough Road. A two way off-road cycle track has already been constructed from the Parkway Roundabout to Kilmallock Road Roundabout. It is intended to extend this cycle track to the Ballinacura Road junction.

- Drawing Numbers:

Please refer to Drawing Numbers:

ST-10-206/207

ST-10-350-354

- Quality of Service:

The existing QOS is rated as D

The proposed QOS is rated as C

- Interventions:

Route 5:

Replace Roxborough Roundabout with Traffic Signals
Construction of 1.5 Km of on road cycle lanes in both directions from Southhill to City Centre.
Consider special treatment at the narrow rail overbridges e.g. signage, traffic calming.
Long term proposal to replace or widen two rail overbridges.

Link 3:

Construction of 1.9 Km of off road cycle lanes in both directions from Southhill to the Parkway Roundabout

- Summary of Proposed Interventions:
Link 3: Construction of 1.9 Km of off road cycle lanes in both directions from Southhill to Parkway Roundabout
Replace Roxborough Roundabout with Traffic Signals
Route 5: Construction of 1.5 Km of on road cycle lanes in both directions from Southhill to City Centre.
Consider special treatment at the narrow rail overbridges e.g. signage, traffic calming.
Long term replacement of rail overbridges
- Prioritisation of Interventions:
Link 3: Construction of 1.9 Km of off road cycle lanes in both directions from Southhill to Parkway Roundabout
Replace Roxborough Roundabout with Traffic Signals

5.6 City Centre Proposals

Like most urban centres, the centre of Limerick is several hundred years old. Therefore providing wide cycle paths will not be practicable on most streets and therefore our smarter travel intervention will concentrate on making the city centre safer for cyclists and pedestrians and introducing travel planning and promoting smarter travel. To promote cycling, walking and public transport use to and from the city centre we intend through this smarter travel process to :

- (a) Make the city centre safer for pedestrians and cyclists by creating further pedestrian priority areas. This process is being aided by the reduction in city centre traffic that will result from the opening of the Limerick tunnel.
- (b) Introduce measures at traffic light controlled junctions such as allocating additional time to pedestrians.
- (c) Introduce advance stop lines at junctions for cyclists to wait at and provide feeder lanes to these advance zones where space permits.
- (d) Introduce additional areas of high quality cycle parking in the city centre and provide at least one secure parking centre at city centre multi storey car parks. Agreement is in place to advance this should our bid be successful.
- (e) Introduce bus lanes and improved bus shelters at bus stop locations in the city centre. A scheme is already being progressed on William Street that will see seven new bus stands provided.

- (f) Create an interchange area at Colbert Station for all modes of public transport such as rail, bus, cycling and walking that is attractive in appearance and joined to the city centre via an attractive streetscape with priority crossing points.
- (g) Engage with city centre businesses, workers, residents and students to advance workplace, school and individual travel plans.
- (h) Introduce a bike hire scheme similar to the Dublin scheme that will make access to cycling easier.
- (i) Facilitate the roll out of real time public transport information at bus stops via mobile phone and the internet to enhance the user experience and to promote the roll out of smart card technology.
- (j) To reduce the amount of on-street car parking available in the city centre and to re-allocate this space to more sustainable modes of transport.
- (k) To construct and improve safe cycle routes from the suburban areas to the city centre.
- (l) To introduce 30 km/h speed limits on certain streets to improve safety for pedestrians and cyclists.
- (m) To promote sustainable transport policies through the planning process for city centre developments.
- (n) To roll out high quality information and way finding signage in the city centre.
- (o) To develop and maintain a dedicated website as a reservoir of information on all matters related to smarter travel initiatives in the city centre.

CITY CENTRE REMODELLING PHASE 4: WILLIAM STREET:

Sarsfield Street to Newtown Mahon (For more detail refer to Appendix R)

Works are set to proceed with Phase 4 of the City Centre Remodelling of Streets and Open Spaces programme of Limerick City Council.

The overall aim of the strategy is the creation of a first class public realm that will encourage the sustained use of the City Centre as a more pedestrian-friendly place in which to shop, live, work, and pass the time of day.

The proposed Phase 4 improvements comprise footpath resurfacing (with widening where possible); provision of a continuous Bus Lane; defined bus, taxi, parking and loading bays; new street furniture and street tree planting; improved pedestrian crossing facilities; a new public open space at Newtown Mahon; under-grounding of existing services; essential services renewal (water); and provision for broadband.

To facilitate the planned improvements, the City Orbital Route will be developed to provide a high-capacity one-way system (mostly); improved pedestrian access into the City Centre from the surrounding areas; and improved advance signage for access to City Centre car parks.

Tenders for the €6.5m Phase 4 scheme were issued in mid-February and implementation will commence in May 2010, with construction lasting for around 18 months.

The works involve improvements to William Street, from Sarsfield Street to Newtown Mahon, and were approved by Council in 2007 following the Part 8 consultation process and subsequent consultations with local traders.

They follow on the success of the completed Thomas Street and Catherine Street scheme. As confirmed by a recent survey of users and traders, undertaken by the Limerick Co-Ordination Office on behalf of Limerick City Council, an overwhelming 60% of users considered this scheme 'excellent' and 35% 'good'. 64% now spend longer on the streets than before the improvements, while 72% are more inclined to visit the improved streets than before. For the traders, 80% were 'highly satisfied' with the improvements, and 60% reported that the improvements had helped their business. 74% of traders were satisfied with the arrangements in place during construction. Elements most praised by both users and traders were widened footpaths, street furniture, lighting and trees. Lack of on-street parking was the most frequent negative response.

In summary, the main elements of the Phase 4 William Street scheme comprise:

- Resurfaced footpaths (widened where possible)
- Pedestrian crossing and junction improvements
- Continuous bus lane (24 hours)
- Single eastbound general traffic lane
- Defined loading, parking, taxi and bus bays
- High quality street furniture, signage and lighting
- New street trees
- Under-grounding of cables
- Up-grading of essential services (water)
- New IT business infrastructure

5.7 University of Limerick Campus:

It is the intention of the University of Limerick to transform its campus to a Smarter Travel Campus.

Measures include the following:

Reduction in car parking

Provision of Cycle lanes and cycle parking throughout the campus

Security CCTV

Bike shop, repair, buy back, rental, information,

Sheltered cycle parking, bus shelter

Cycle facilities,

Incentives, penalties,

Location of car parking at a distance with cycle parking up front, public lighting, ,

Electric vehicle parking,

Landscaping

Section 6 – Other Measures

6.1 Conflicts

- Conflict between cyclists and pedestrians on shared surfaces. This conflict can be exacerbated if the facility has insufficient width
- Priority and right of way. Unless otherwise stated, pedestrians have priority, and cyclists must always give way
- Crowding of pedestrians and/or cyclists. If one or other mode are significant, it may be better to segregate the modes, as visual delineation by itself is usually insufficient and tends to create false expectations of “ownership”
- Conflict between leisure and commuter interests. Parks and open spaces are primarily intended for leisure use, not paths must be cycle friendly, and commuter requirements may need to be downgraded if there is conflict.

6.2 Managing Conflicts

- Identify conflicts
- Assess the conflict
- Address the conflict
- Avoidance
- Reduction
- Retention
- Management
- Monitor the outcome

6.3 Major Junctions Improvements

- Parkway Roundabout (R445, Dublin Road)
- Groody Roundabout (R445, Dublin Road)
- Kilmurray Roundabout (R445, Dublin Road)
- Annacotty Roundabout (R445, Dublin Road)
- Cappamore Junction (R445, Dublin Road)
- Tipperary Roundabout (R527)
- Roxborough Roundabout (R511)
- Corbally Roundabout (R463)

6.4 Minor Junctions Improvements

- Priority Junctions:
 - Introduction of ‘Tabletops’:
 - Sight triangles, NRA TD 41-42/09
 - Reduce speeds
 - More comfortable and safer for walking and cycling
 - Improves directness and minimise delays for pedestrians and cyclists
 - Shared space, yield to pedestrians and cyclists

Refer to Drawing Numbers ST-10-215/216

With cycle lanes, it is critical to ensure that vehicles turn left at a compatible speed. Narrowing the junction mouth reduces the crossing distance (i.e. risk exposure) for the cyclist. The raised table slows traffic emerging from the side road, benefiting pedestrians and cyclists.

The design of exit treatments for low-volume side roads should clearly reflect the requirement for exiting traffic to yield to all modes on the adjoining main road.

The minimum kerb radius should not be less than 3 metres for side roads having less than 200 turning movements and less than 10% large vehicles per day.

- Other Considerations:
 - Set back the stop or yield line to back of the building line / fence line, or to the rear of the pedestrian crossing desire line.
 - Ensure the side road approach is single vehicle, (i.e. 3m wide traffic lane), single lane approach.
 - Tighten up the kerb radius at the mouth of the side road.
 - Provide a mandatory cycle lane or feeder lane to the stop line on the side road.
- Minor Roundabouts Options:
 - Replace with traffic signals including pedestrian phase
 - Upgrade to Continental- style roundabout
 - Upgrade to Continental- style roundabout with Zebra or Toucan crossing
 - Upgrade existing traditional roundabout
- Upgrade of existing Signalised junctions:
 - Advance Stop Lines (ASLs)
 - Prioritise phases for walking, cycling and public transport
 - Bus priority
- Pedestrian Crossings:
 - Options to be considered:
 - Zebra
 - Pelican
 - Puffin
 - Toucan
- Transitions:
 - Transitions will be designed in accordance with the Draft National Cycle Manual

6.5 Structural improvements

Embankment improvement improvements are required at the following locations:

- Route 2: Banks of the Shannon
- Route 2: Canal
- Route 3: Plassey Park Road

Bridges:

- Route 2: 4 No. box culverts
- Route 2: Steel Pedestrian Bridge crossing the Canal
- Route 2: Black Bridge (pedestrian bridge)
- Route 1: Athlunkard Bridge (long term)
- Link 4: Groody Boardwalk (long term)

6.6 Public Transport

A draft Public Transport Feasibility Study is nearing completion as part of the MWASP Study and will be available shortly. This report will identify the short, medium and long term requirements for public transport and its interface with walking and cycling. The report is based on the principles of Smarter Travel. A summary of this study is attached in the Appendix L.

6.7 Permeability Study

A permeability Study is currently being carried out by University of Limerick and is still ongoing. The study has identified barriers in the study area and is discussed in the main report. Refer to drawing number ST-10-390

6.8 Quality of Service

A Quality of Service study was carried out on each route and link. The existing and proposed Quality of Service was determined in accordance with the Draft Cycle Design Manual.

6.9 Cycle Parking

The following types of cycle parking will be incorporated into the scheme:

Open cycle parking, indoor cycle parking, sheltered cycle parking, Limerick bike scheme (cycle hire)

The absence of suitable parking facilities may be sufficient for potential users from making the switch from private car to bicycle.

Key questions for each location include:

- How easy is it to place the bicycle?
- How easy is it to lock the bicycle?
- What are the risks of the bicycle being damaged?
- Will the bicycle be protected against the weather?
- How resistant is it to theft and vandalism?

The design considerations were as follows:

- Visible
- Accessible
- Safe and secure
- Consistently available
- Easy to use, well managed and maintained
- Attractive

- Coherent
- Linked to other needs
- Room for expansion

Provision of cycle and walking facilities including cycle parking at the workplace, educational centres, sport and leisure centres, community centres and the home will be included in travel plans.

The locations of the different types of cycle parking are detailed in Appendix 5.

6.10 Limerick bike scheme

It is proposed to introduce a Limerick Cycle Hire Scheme similar to the scheme operating in Dublin. The Smarter Travel Team has already been in talks with JC Decaux and has established that such a scheme is viable.

6.11 Interchange Bus / Cycleway / Walkway

The design considerations would include, but are not limited to, the following:

- Functionality
- Desire lines, potential usage
- Room to expand
- Safety
- Security: Well lit, CCTV, Overlooked, Policing, etc.
- Attractiveness and comfort
- Information available: bus times, cycle route maps (distances/time),
- Advertising
- Business buy-in
- Buy-in from commercial/retailers
- Approaches
- Pavement
- Maintenance
- Cost

Cycling conflicts at bus stops:

- Is there conflict with pedestrian access to/from the bus stop?
- Is there conflict with passengers boarding/alighting from a bus?
- Is there conflict with passengers waiting for a bus?
- Is there conflict with buses pulling in and out from the kerb?
- Is there conflict with adjacent parking?
- Has the design included cycle parking?

Design options for bus stops:

- On-road bus cage
- Indented bus bay
- Bus stop island
- Bus stop set back, continuous cycle track

Proposed locations of Interchange Bus / Cycleway / Walkway:

- University of Limerick Campus
- Castletroy Shopping Centre

- Newtown Shopping Centre
- Childers Road Shopping Centre and Retail Park
- Colbert Train and Bus Station

6.12 Interchange Train / Bus / Cycleway / Walkway (Colbert Station)

It is intended through this Smarter Travel initiative that Colbert Station and the area surrounding it will become the major public transport/cycling/walking hub in the city. Planning permission has already been granted for a new Bus Station and significant improvements are planned to the rail station. Limerick City council is proposing through this smarter travel proposal to improve access to the station for all modes of transport by the provision of improved footpaths, bus lanes, cycle lanes and pedestrian and toucan crossings and to enhance the overall appearance of the area surrounding the station so that users can enjoy a more pleasant and secure travel experience. There is a substantial bank of disused or poorly used land surrounding the station and this has been identified through the MWASP study as a hub area in the city for the creation of up to 7,000 jobs on a high-tech office/ICT campus over the next few years. Limerick City Council have commenced a master plan for these lands and one of the criteria for there regeneration is that most workers will access there place of work by rail, bus, cycling or walking as all the lands are within walking distance of the station.

6.13 User groups

- Limerick Cycling
- Local Walking and Cycling groups
- Residents
- University of Limerick staff and students
- Local Authority Staff
- Smarter Travel Team

6.14 Cycle Monitoring

It is intended to include automatic cycle counters and automatic cycle counter stands to monitor and encourage the community to cycle.

6.15 Signage and Road Markings

All signage and road markings will be in accordance with the Traffic Signs Manual, the Draft National Cycle Manual and the Traffic Management Guidelines. Following discussions with the Smarter Travel Unit (Dublin) national standardisation of information signage will be considered. The following signage types will be used throughout the scheme:

- Regulatory Signs
 - 60kph and 30kph
 - Pedal cycles only

Shared route for pedal cycles and pedestrians only
 Segregated track and path for pedal cycles and pedestrians
 Bus/cycle lane
 End signs

- Information Signs
 Driver feedback signs, Speed advisory signage
 Directional and distance, time: minutes cycling, walking
 Information signs at bus stops, bus cycle interfaces
 Limerick Bike Scheme (bike hire) signs
 Places of interest
 Information
 Smarter Travel Signs
- Warning Signs
 Advance warning for tabletops
 Advance warning for pedestrian crossings
 Advance warning for traffic signals
 Advance warning for narrow sections of cycleways and walkways
 Advertising
 Advertising signs will be used as a source of income for the Smarter Travel programme and will be considered carefully at certain locations.
- Major Junction Improvements
 Major junction improvements will include signage and road markings in the detailed design and contract documentation.

Refer to Drawing Numbers ST-10-217

6.16 Schedule of Signage required

Sign Type	Routes and Links							
	Unit Cost	Route1	Route2 Link1	Route3 Links 2,4,5,6	Route 4 Links 7,8,9	Route5 Links 3	City Centre	University of Limerick
60kph and 30kph	230		-	5	5	5	10	Included in proposed works
Pedal cycles only	230		-	20	10	10	-	
Shared route for pedal cycles and pedestrians only	250		20	-	-	-	-	
Segregated track and path for pedal cycles and pedestrians	250		10	20	-	20	-	
Bus/cycle	300	-	-	5	5	5	10	

lane								
End signs	230		2	2	2	2	2	
Information								
Driver feedback signs, Speed advisory signage	4500	-	-	2	2	2	2	
Directional and distance, time: minutes cycling, walking	250	-	10	10	10	10	10	
Information signs at bus stops, bus cycle interfaces	1500	-	-	10	15	10	20	
Limerick Bike Scheme (bike hire) signs								
Places of interest	450	-	5	5	5	5	10	
Information feedback on cycle counts	7500		1	1	1	-	1	
Smarter Travel Signs	1000	-	-	2	2	2	2	
Warning								
Advance warning for tabletops	250	-	-	-	8	-	-	
Advance warning for pedestrian crossings	250	-	-	-	-	-	-	
Advance warning for traffic signals		-	-	-	-	-	-	
Advance warning for narrow sections of cycleways and walkways	250		4					
Total Cost	€186,450	Note: some signage included in junction improvements works						

6.17 Public Lighting and CCTV

Public lighting will be required on Route 2 and Link1. This is the Shannon and canal route and the link along the Shannon to Corbally. It is proposed to use LED lighting to maximise energy efficiency. A number of LED lighting types are being considered.

Public lighting and CCTV have been identified as key requirements for safety and security along this route and they are essential for this route if it is to be successful. CCTV will be provided at entrances to the route.

Consultation has taken place with Waterways Ireland, National Parks and Wild life Service, Shannon Fisheries and Conservation Officers who are all key stakeholders on this route in relation to public lighting. All are very supportive of the project and have undertaken to work with the Limerick Smarter Travel Team at the detailed design stage to ensure a first class facility.

The key considerations in the design of the public lighting along the shared cycleway/walkway are as follows:

- Speed
- Strength of lighting
- Uniformity of lighting
- Maintenance
- Energy efficiency

Additional Public Lighting will be required at cycle parking areas.

6.18 Landscaping

It is the intention of the Smarter Travel team to make each route and link as comfortable and attractive as possible. In this respect Rote 2 and Link 1 provides a great opportunity to showcase the river Shannon.

Consultation has taken place with Waterways Ireland, National Parks and Wild life Service, Shannon Fisheries and Conservation Officers who will work with the Limerick Smarter Travel Team at the detailed design stage to ensure a very attractive facility.

The Horticultural Departments of Limerick County Council and Limerick City Council are working with the Smarter Travel team at other location along the routes. The green areas abutting the existing cycleway network in the Castletroy area provides a very good opportunity for additional landscaping.

6.19 Pavement Design

Pavements will be designed to the highest standards to minimise maintenance and ensure they are as comfortable and attractive as possible.

6.20 Safety

All works will be subject to the following audits and assessments:

- Safety Audits
- Risk Assessments
- Mobility and Disability Audit
- User Audits
- Monitoring
- Consultation

6.21 Maintenance Programme

It is the intention of the design team to ensure all works are constructed to the highest standards and built to last.

An annual Programme of works will be prepared and a dedicated budget for Smarter Travel will be allocated each year.

The maintenance programme will be built in to the roads maintenance programmes of the City Council, County Council and the University of Limerick.

Depots are located as follows:

- Limerick City Council: Rhebogue (in Smarter Travel Project Area)
- Limerick County Council: Annacotty (in Smarter Travel Project Area)
- University of Limerick: On campus

The maintenance programme is set out below.

Issue	Activity	Notes	Frequency	Time of Year
Cycle Track Surface	Winter Maintenance	Consider importance as utility route	As necessary	Winter
	Inspection	Staff undertaking maintenance works to inspect site	Every time site visited. Minimum of 4 visits per year	Early spring, early and late autumn (before and after leaf fall)
	Repairs to potholes etc	Reactive maintenance as a result of calls from public plus programmed inspections	n/a	n/a
	Sweeping to clear leaf litter and debris	Combine with other activities if possible	Site specific	n/a
	Cut back encroaching verges and sweep		Once a year	November also combine with sweeping
	Programme maintenance	The need for resurfacing will depend upon the condition of the cycle track	n/a	n/a
Drainage	Clear gullies and drainage channels		Twice a year	April, November

	etc			
Vegetation	Verges –mow, flail or strim	To include forward and junction visibility splays	n/a	May, July and September
	Grassed amenity areas	Include with verge maintenance	n/a	n/a
	Control of ragwort, thistles and docks etc	See appropriate Legislation. Hand pull, cut or spot treat as necessary	Before seeding	July or as appropriate
	Cut back trees and herbaceous shrubs, and trim trees	If necessary allow for annual inspection of trees depending on number, type and condition. Maintain min. 1m clearance and as required for visibility purposes	As necessary	July
Signs	Repair/replace/clean as necessary	Base on local vandalism problems and location	n/a	n/a
Access barriers	Repair/replace as necessary	Base on local vandalism problems and location	n/a	n/a
Fences	Repair/replace as necessary	Dependent on licence arrangements with landowner	n/a	n/a
Structures including culverts	Inspections		Visual inspection every 2 years and detailed structural inspection every 6 years	n/a
Sculptures seating etc	Maintain or repair	If present	n/a	n/a
Other		Scheme specific issues such as sites of special scientific interest, interpretation and information measures, disability access etc	n/a	n/a

6.22 Phasing

Routes and Links	Year
Route 2 Link 1	2011/2012
Link3	2012
Route 3 Link 2	2013
Route 1	Sections 2014, Post 2015
Route 4 Links 4,5	2014,2015,2016
Links 7,8	2015
City Centre	2012-2014
UL Campus	2010-2014
Route 5	Post 2015
Speed Limit Reductions 30kph zones	2011/2012
Speed Limit Reductions 60kph to 50kph	2011/2012

SECTION 7 - COSTINGS

7.1 Estimated Costs of Routes & Links

The estimated costs are a summary of the construction costs only. An additional 10% is required to cover detailed design, contract documentation, procurement and award. A more detailed breakdown of costs (preliminary Bill of Quantities) is available on request.

ST – Smarter Travel

DOT – Department of Transport

MF – Matching funding

L. Ci. Co. – Limerick City Council

L. Co. Co. – Limerick County Council

7.1.1 Route 1 – Corbally to City Centre – Long Term Proposal

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Cycle lanes	Construction of on-road cycle lanes from Westbury to City Centre 2.69 Km @ €1M/ Km	2,690,000	Future Scheme
Major Junction Improvements	Replacement of Corbally/Grove Island roundabout with a signal controlled junction	200,000	ST
Drainage	Included above		
Signage	Refer to Schedule of Signage	12,000	ST
Road Markings	Included above		
Traffic Calming	Table Top and Pelican Crossing at Scoile Idhe Primary School	100,000	ST
Public lighting	Included above		
Landscaping	Included above		
Structures	Long-term proposal for new footway & Cycleway beside Athlunkard Bridge.	1,500,000	Future Scheme
Bus/Cycleway/Walkway Interchange			
Cycle parking			
Sheltered cycle parking	Westbury Centre (40 spaces)	20,000	ST
Total		4,520,000	

7.1.2 Route 2 and Link 1 - Shared Walkway / Cycleway – Shannon River and Canal

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Pavement Route 2 and Link 1 Shared cycleway	Base course/Wearing course 19,000 m ² @ €35 Kerbing 12,600 m @ €20 Site Clearance/Earthworks Upgrade of existing facilities along the canal section	665,000 252,000 148,000 200,000	ST
Structures	4 No. box culverts @ €30,000 New cycle bridge crossing the Canal Repairs to Black Bridge (pedestrian bridge) Closure to traffic & Repairs to Park Bridge	120,000 180,000 150,000 50,000	ST
Embankment reinforcement	Shannon bank 200 m @ €950 / m Canal 130 m @ €2300 / m	190,000 300,000	ST
Drainage	Item	50,000	ST
Signage	Refer to Schedule of Signage		ST
Public lighting	260 No. @ €1000 Ducting/Commissioning	260,000 233,000	ST
CCTV Review Number and cost	Locations 21 @ €5000 Foundations/columns/draw pits Suggest 6 @ 25000 each check wit Rory	105,000 70,000	ST
Fencing	1200 m @ €120	144,000	ST
Rest areas	10 No. @ €1000	10,000	ST
Landscaping	Item	10,000	ST
Cycle parking	N/A		
Sheltered cycle parking	N/A		
Total		2,937,000	ST

7.1.3 Route 3 Links 2,4,5,6,

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Bus/Cycleway	R445 (Dublin Road): A combined bus/cycleway inbound from the Cappamore junction to the Kilmurray Roundabout 1.6 Km @ €1/ Km	1,600,000	MF, DOT
On-road cycle lanes	R445 (Dublin Road): Parkway Roundabout to the city centre. 1.6 Km @ €10	16,000	ST
	Rhebogue Road improvements for provision of footpaths and cycle paths	200,000	ST
Two lane cycleway	Plassey Park Road: Two lane cycleway from the University entrance to the roundabout including embankment reinforcement 0.45Km @ €700/m	315,000	ST
On-road cycle lanes	National Technological Park Proposed cycle network 2.5 Km @ 300,000/ Km	750,000	MF - Shannon Development
Park and Ride	Major Park and Ride located adjacent to Annacotty Roundabout	2,500,000	MF - DOT
Mini Park and Ride	Mini Park and Ride located at Kilmurray Roundabout	50,000	MF - Private Development
Major junction improvements	Parkway Roundabout (R445, Dublin Road)	300,000	MF - DOT
	Groody Roundabout (R445, Dublin Road)	250,000	ST
	Kilmurray Roundabout (R445, Dublin Road)	250,000	Future works
	Improvements to the Under Bridge at rail Crossing on Rhebogue Road to facilitate pedestrian and cycle movements	150,000	ST
	Annacotty Roundabout (R445, Dublin Road)	250,000	Future works
	Cappamore Junction (R445, Dublin Road)	Included Above Bus/Cycleway	MF - DOT
Minor junctions improvements	R445 (Dublin Road) Plassey Park Road Kilmurray Link road		

	Groody Road Rhebogue Road Milford Road	100,000	ST
	Park Road/Clare Street junction Clare Street/Lelia Street Traffic Light jet	40,000 120,000	ST ST
Structures	Plassey Park Road: Widening of embankment 150 m @ 900/m	Included Above	ST
	Proposed Future Rhebogue Meadows Boardwalk over the Groody River and Groody Valley (subject to funding)	N/A	Possible future scheme
Drainage	Included in works		
Bus/Cycleway/Walkway Interchange	1 No. Bus/Cycleway/Walkway Interchange. Incl. CCTV, Public Lighting, Landscaping, etc.	50,000	ST
Cycle parking	12 No. 20 space units @ 300/unit	72,000	ST
Sheltered cycle parking	N/A		
Signage	Refer to Schedule of Signage		
Road Markings	Included in works		
Public lighting	Included in works		
Landscaping	4 No. locations @ €1000	4,000	ST
Total		7,017,000	

7.1.4 Route 4 Links 7, 8, 9

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Minor Junction Improvements	Castletroy College Road: tabletops at junctions with minor roads Kilmurray Link Road: tabletops at junctions with minor roads School House Road: tabletops at junctions with minor roads €15,000 per unit	150,000	ST
Major Road Improvements	Golf Links Road: Resurfacing, Footpath construction, Traffic Calming Section of footpath abutting R445	2,000,000 100,000	MF - L. Co Co ST
New Road Construction	Link 9 Towlertown Road	3,000,000	Developer
On-road cycle lanes	Ballysimon Road: Construction of on road cycle lanes and footpaths for 2.5 Km @ 50,000/ Km Tipperary Road: Construction of on road cycle lanes and footpaths for 1.5 Km @ 50,000/ Km	200,000	MF - L. Co Co L. Ci. Co. DOT
Major Junction Improvements	Tipperary Road Roundabout (R527): Replace with Traffic Signals	1,800,000	MF - L. Ci. Co. DOT
Drainage	Included in works		
Signage	Refer to Schedule of Signage		
Road Markings	Included in works		
Public lighting	Included in works		
Landscaping	Item	5000	ST
Bus/Cycleway/Walkway Interchange	1 No. Bus/Cycleway/Walkway Interchange	50,000	ST
Cycle parking	40 spaces units @ 350	14,000	ST
Sheltered cycle parking	N/A		
Total		7,319,000	

7.1.5 Route 5 – Longer Term Proposal Link 3 – Childers Road (Regeneration)

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Cycle lanes	Route 5: Construction of 1.81 Km of on road cycle lanes in both directions from Southhill to City Centre.	Future Works	Limerick City Council, DOT, Other
Traffic Calming	Consider special treatment at the narrow rail overbridges e.g. signage, traffic calming.	Future Works	Limerick City Council, DOT, Other
Cycle lanes	Link 3: Construction of 0.85Km of off road cycle lanes and Green Route in both directions from Southhill to Kilmallock Road Roundabout	1,000,000	MF - Limerick City Council, DOT, Other
Drainage	Included in works		Limerick City Council, DOT, Other
Signage	Refer to Schedule of Signage		
Road Markings	Included in works		
Public lighting	Included in works		
Landscaping	Included in works		
Structures	Long term replacement of 2 No.rail overbridges	Future Works	
Bus/Cycleway/Walkway Interchange			
Cycle parking	Included in works		
Sheltered cycle parking	Included in works		
Total		1,000,000	

7.1.6 City Centre

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Train/Bus/Cycleway/Walkway Interchange	Parnell Street/Colbert Station Public Transport Interface	1,500,000	50% ST 50% MF
Secure Sheltered cycle parking	Major Secure Bicycle Park in City Centre Multi Storey Car Park. (300 Spaces)	150,000	ST
Advance Stop lines	Advance Stop lines at Junctions and reconfiguring junctions. 40 junctions	200,000	ST
Cycle parking	Other Cycle Stands at key locations 300 spaces @ 350 each	105,000	ST
Sheltered cycle parking	Sheltered Cycling Parking (5 @ €10,000)	50,000	ST
	Bike Hire Scheme (To be tendered Separately, estimated cost €1,000,000)	1,000,000	MF - Private
Signage	Refer to Schedule of Signage		ST
Total		3,005,000	

7.1.7 University of Limerick

	Year Completed	Cost €M	Comment
It is planned to create a cycle hub at the stables which supports the objectives smarter travel. The cycle hub would include primarily a covered enclosed secure bike parking area, a covered bike parking area at the main bus stop, connections between the UL cycling network and the main Smarter Travel Routes that will connect UL with the City Centre			
Bicycle Hub at the Stables		0.5	
Covered Bicycle Parking at the main bus stop		0.2	
Shower Facilities in: New Building X		0.12	
Cycle parking with New Building X		0.1	
Cycle routes linking main Route 1 and Route 2 from the city centre to the UL cycle network.		1.0	
Total		€1.92M	Of which 0.96 is UL funded, 0.96 is DOT funded.

SECTION 8 - Summary of Smarter Travel Funding

8.1 Route 1 – Corbally to City Centre – Long Term Proposal

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Major Junction Improvements	Replacement of Corbally/Grove Island roundabout with a signal controlled junction	200,000	ST
Drainage	Included above		
Signage	Refer to Schedule of Signage	12,000	ST
Road Markings	Included above		
Traffic Calming	Table Top and Pelican Crossing at Scoile Idhe Primary School	100,000	ST
Public lighting	Included above		
Landscaping	Included above		
Bus/Cycleway/Walkway Interchange			
Cycle parking			
Sheltered cycle parking	Westbury Centre (40 spaces)	20,000	ST
Total		332,000	

8.2 Route 2 and Link 1 - Shared Walkway / Cycleway – Shannon River and Canal

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Pavement Route 2 and Link 1	Base course/Wearing course 19,000 m ² @ €35 Kerbing 12,600 m @ €20 Site Clearance/Earthworks Upgrade of existing facilities along the canal section	665,000 252,000 148,000 200,000	ST
Structures	4 No. box culverts @ €30,000 New cycle bridge crossing the Canal Repairs to Black Bridge (pedestrian bridge) Closure to traffic & Repairs to Park Bridge	120,000 180,000 150,000 50,000	ST
Embankment reinforcement	Shannon bank 200 m @ €950 / m Canal 130 m @ €2300 / m	190,000 300,000	ST
Drainage	Item	50,000	ST
Signage	Refer to Schedule of Signage		ST
Public lighting	260 No. @ €1000 Ducting/Commissioning	260,000 233,000	ST
CCTV Review Number and cost	Locations 21 @ €5000 Foundations/columns/draw pits Suggest 6 @ 25000 each check wit Rory	105,000 70,000	ST
Fencing	1200 m @ €120	144,000	ST
Rest areas	10 No. @ €1000	10,000	ST
Landscaping	Item	10,000	ST
Cycle parking	N/A		
Sheltered cycle parking	N/A		
Total		2,937,000	ST

8.3 Route 3 Links 2,4,5,6,

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
On-road cycle lanes	R445 (Dublin Road): Parkway Roundabout to the city centre. 1.6 Km @ €10	16,000	ST
	Rhebogue Road improvements for provision of footpaths and cycle paths	200,000	ST
Two lane cycleway	Plassey Park Road: Two lane cycleway from the University entrance to the roundabout including embankment reinforcement 0.45Km @ €700/m	315,000	ST
Major junction improvements	Groody Roundabout (R445, Dublin Road)	250,000	ST
Minor junctions improvements	R445 (Dublin Road)	100,000	ST
	Plassey Park Road		
	Kilmurray Link road		
	Groody Road		
	Rhebogue Road		
	Milford Road		
	Park Road/Clare Street junction	€40,000	ST
	Clare Street/Lelia Street Traffic Light jct	€120,000	ST
Structures	Plassey Park Road: Widening of embankment 150 m @ 900/m	Included Above	ST
Drainage	Included in works		
Bus/Cycleway/Walkway Interchange	1 No. Bus/Cycleway/Walkway Interchange. Incl. CCTV, Public Lighting, Landscaping, etc.	50,000	ST
Cycle parking	12 No. 20 space units @ 300/unit	72,000	ST
Sheltered cycle parking	N/A		
Signage	Refer to Schedule of Signage		
Road Markings	Included in works		
Public lighting	Included in works		
Landscaping	4 No. locations @ €1000	4,000	ST
Total		1,167,000	

8.4 Route 4 Links 7, 8, 9

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Minor Junction Improvements	Castletroy College Road: tabletops at junctions with minor roads Kilmurray Link Road: tabletops at junctions with minor roads School House Road: tabletops at junctions with minor roads €15,000 per unit	150,000	ST
Major Road Improvements	Section of footpath abutting R445	100,000	ST
Drainage	Included in works		
Signage	Refer to Schedule of Signage		
Road Markings	Included in works		
Public lighting	Included in works		
Landscaping	Item	5,000	ST
Bus/Cycleway/Walkway Interchange	1 No. Bus/Cycleway/Walkway Interchange	50,000	ST
Cycle parking	40 spaces units @ 350	14,000	ST
Total		319,000	

8.5 City Centre

Work Category	Description / Unit Cost	Cost (excluding VAT)	Source of Funding
Train/Bus/Cycleway/Walkway Interchange	Parnell Street/Colbert Station Public Transport Interface	1,500,000	50% ST 50% MF
Secure Sheltered cycle parking	Major Secure Bicycle Park in City Centre Multi Storey Car Park. (300 Spaces)	150,000	ST
Advance Stop lines	Advance Stop lines at Junctions and reconfiguring junctions. 40 junctions	200,000	ST
Cycle parking	Other Cycle Stands at key locations 300 spaces @ 350 each	105,000	ST
Sheltered cycle parking	Sheltered Cycling Parking (5 @ €10,000)	50,000	ST
Signage	Refer to Schedule of Signage		ST
Total		1,255,000	

8.6 University

€0.96M Smarter Travel Funding

SECTION 9 – SUMMARY OF FUNDING

TOTAL SMARTER TRAVEL FUNDING SOUGHT IN STAGE 2 WILL BE €7,667,000 FOR INFRASTRUCTURE

Construction including signage	€6,970,000
Detailed design, contract documentation, procurement and award	€697,000
Total	€ 7,667,000

The proposal presented in this report by Limerick Smarter Travel consists of a menu of different interventions that the authors believe are required to deliver the proposed modal shift. These proposals can be prioritised to still achieve a significant contribution to modal shift depending on the availability of grant funding and Department of Transport review.

TOTAL MATCH FUNDING LIKELY TO BE AVAILABLE FROM THE THREE PARTNERS AND THE SOURCES LISTED BELOW DURING 2010 TO 2015 WILL BE IN EXCESS OF €50,000,000.

Sources of Matching Funding

Limerick City Council

Limerick County Council

University of Limerick

Department of Transport – Public Transport & Non National Roads

Department of Environment

European Regional Development Fund ERDF

Limerick Regeneration

Eirgrid

JC Decaux or similar company

Shannon Development

Private Development through Planning Conditions

National Roads Authority.

European Funding through Inter-reg programmes