Sligo Western Rail Corridor Assessment of Options

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Executive Summary

Approximately 35.5km of the former Great Southern Railway line, referred to as the Western Rail Corridor in more recent times, is located in County Sligo, between Bellaghy and Collooney. Closed to rail traffic since 1963, this disused piece of public infrastructure is an important asset to the local areas as its development offers the potential to deliver positive economic and social benefits to the region, and more specifically to Tubbercurry and its environs. This document sets out the case for each of the three more appropriate and viable development options currently available to the State and an assessment of each option based upon cost, potential benefit, and return on investment.

The three identified options for the future development of the line are as follows:

- Reopening of the line to rail traffic
- Development of a single-use greenway
- Development of a shared-use greenway, i.e. reopened railway and cycling/walking trail operating side-by-side

Option One, Reopen the Line

The most beneficial option is the reopening of the line to rail traffic as this offers the greatest potential for economic, social and environmental benefits to the wider community. From a strategic perspective the reopening of the line would be a significant achievement in facilitating balanced regional development as it would provide greater connectivity within and between the regions leading to new economic and social opportunities in isolated rural communities throughout its length. Furthermore, given the use of more sustainable technologies, e.g. electric trains, this option provides for a more environment-friendly approach to transport within the regional.

Though the line is not currently in use, it is fully intact and remains in the ownership of Irish Rail, thereby facilitating its future development as no other landowners are involved. Given that the line has not been in regular use for half a century, and the demands of modern rail traffic, this is the most expensive option as previously published reports and more recent experiences suggest a capital investment of €100 million, or more, will be required.

Option Two, Single-use Greenway

There is a growing demand for the development of a cycling/walking greenway on the line, especially as it is likely that its reopening will not occur in the short to medium-term. Promoters of this option point to the economic, social and other benefits arising from successful initiatives such as the Great Western Greenway in County Mayo and the potential boost a Sligo greenway would deliver to the region, and to Tubbercurry in particular.

This is potentially the least expensive and simplest option as a greenway can be constructed on the existing track bed and this, despite such development, should not impact upon a future decision to

reopen the line to rail traffic. It should be noted that in similar situations Irish Rail licensing requirements stipulate that the decision to reopen a line will necessitate the removal of any greenway infrastructure. Based upon other greenway experiences, the estimated construction cost of 35.5km is likely to be in the region of €5 million, depending upon project specifications, with a corresponding potential payback return on capital investment of 4 years approximately.

Option Three, Shared-use Greenway

A shared-use greenway is one where a train line is co-located with a cycling/ walking trail. These tend to occur where there are existing parallel tracks or adequate space for the development of a side-by-side greenway amenity. In the Sligo context, a shared-use amenity could allow for the development of a greenway without affecting the future development of the line for rail traffic.

As only one line is present along the Sligo section, the cost of improving adjoining land to accommodate a greenway is projected to be considerably greater than a single-use amenity, and will increase the payback and return on investment. Based upon similar projects, the projected cost of a 35.5km shared-use greenway in Sligo has been estimated to be in the region of €13 million, with a payback period of 8.5 years. For this reason, a single-use greenway is a better option as it uses existing line infrastructure, offers potentially lower costs and a shorter timeframe for development.

Recommendation

Though the reopening of the line to rail traffic offers significant benefits to the wider region, the cost of this makes it unlikely to occur in the short to medium term. Given this, a single-use greenway offers considerable return on investment potential in the short term and, as a result, is the recommendation of this Assessment with Option One, the reopening of the line, remaining as a the primary longer-term objective. This can be ensured by the inclusion of a clause in any licence agreement with Irish Rail that requires the revocation of the licence if the line is reopened at any stage.

1 Introduction

Historical Context

By the early part of the 20th century the island of Ireland possessed in excess of 5,000km of railway line. Today, almost a century later, approximately half, 2,300km, is still in use. Within only a few short decades from this peak, starting mid-century, primarily economic and political factors led to the closure of many less viable and smaller lines across the entire island. Included in the list of closed lines are those that once linked Sligo and Limerick, a route more commonly referred to in recent years as the Western Rail Corridor (WRC). This route encompasses elements of railway line constructed by several rail companies during the mid-late 19th century and is today paralleled for much of its length by the N17 and N18 National Primary Roads and the M18 Motorway.

The approximately 35.5km section of the WRC located in County Sligo, stretching from Bellaghy to Collooney, was the last and northern-most extension of a route initially started by the Waterford and Limerick Railway (WLR) in the mid-19th century. Following the completion of earlier extensions this last section of the route running from Swinford, County Mayo to Collooney, opened to traffic in 1895. An agreement with the Midland Great Western Railway (MGWR) to use six miles of their main Dublin-Sligo line connected Collooney and Sligo by rail thereby completing a 223km Limerick-Sligo rail link. In the 20th century, this northern section of this line was to become popularly known locally as the 'Burma Road' due to its setting and to its extensive number of level crossings which resulted in much reduced rail speeds along its length (e.g. 55mph for passenger trains and 35mph for freight trains (10mph over bridges)).

Reflecting its extended reach of 342 miles across eight counties, the WLR was re-titled the Waterford, Limerick and Western Railway (WL&WR) in 1896, and in 1901 it amalgamated with the Great Southern and Western Railway (GS&WR), the largest railway company in Ireland. Following the establishment of the new state, Dáil Éireann in 1924 passed an Act merging the GS&WR and other railways operating wholly within the Free State to form the Great Southern Railway, later the Great Southern Railways. Following the passing of the Transport Act of 1944 and the subsequent establishing of Córas Iompair Éireann (CIÉ), further amalgamation and later nationalisation of the railways occurred. Since 1987, CIÉ's rail services have been operated as a subsidiary company by Iarnród Eireann (Irish Rail).

Passenger rail service between Claremorris and Collooney ceased in 1963, and between Limerick and Claremorris in 1976 though freight services continued for a time thereafter, up until the 1990s. Today Claremorris is served by the Dublin-Westport line and Collooney by the Dublin-Sligo line. A new limited passenger service between Limerick and Ennis commenced in 1988 and, following a much publicised and widely supported campaign by West on Track, a community-based organisation, the Ennis-Athenry line reopened in 2010 thereby re-establishing direct train travel between Limerick and Galway.

Western Rail Corridor

The reopening of the Ennis-Athenry line is seen by its supporters as the first phase in re-establishing railway service along the entire route of the WRC from Limerick to Sligo. In a 2005 an expert working group was established to review the potential for the WRC. The so-called McCann Working Group, named after its Chairman Mr. Pat McCann, consisted of representatives of West on Track, CIÉ, the Department of Transport, the Railway Procurement Agency, Regional Authorities and Local Authorities. In its report to the then Minister for Transport Martin Cullen, the Working Group concluded that there was 'a strong case for the restoration of significant sections of this line. Furthermore, given projected usage levels and the capital costs involved, the Group recommended that the reopening of the entire route should be undertaken on a phased basis, as depicted in the following table.

Section	Distance	Capital Cost	Cost/ Km
Ennis to Athenry	58km	€75 million	€1.3m
Athenry to Tuam	25km	€35 million	€1.4m
Tuam to Claremorris	27km	€59 million	€2.2m
Claremorris to Collooney	74km	€197 million	€2.6m
Total	184km	€366 million	€2 m

As shown above, the more northerly sections of the WRC were projected to be more costly to re-instate due to the fact that the last section was originally constructed as a light railway and would therefore require considerable rebuilding to bring it to heavy rail standard. Also, there are 290 level crossings on this section, including two major crossings that, at the time of the report, it was estimated would cost €24m to address.

The McCann Report presented a favourable view of the viability of the initial Ennis to Athenry section and recommended that a feasibility study be undertaken with a view to the line being reopened. Should the re-establishment of services along this section be successful, the report recommended that the potential for extending a commuter rail service to Tuam should then be considered. Furthermore, the extension of the line to Claremorris should also be considered 'in the medium to longer term'. However, in relation to the final section, Claremorris to Collooney, McCann noted that the capital cost of re-establishing services was projected to be in the region of €197.4m (an average of €4.3m per mile) and stated that:

'*It is clear that this section would be extremely expensive to restore. It accounts for 54% of the restoration costs of the entire line. Expenditure of this order would be very difficult to justify and I have to say that the case for its restoration, as things stand, is weak except on the grounds of balanced regional development*.'[1]

[1] Report to the Minister for Transport from the Chairman of the Expert Working Group on the Western Rail Corridor (WRC) Mr Pat McCann Chief Executive, Jurys Doyle Hotel Group plc, May 2005, (www.dttas.ie)

Transport 21

In late 2005, the then-Government published Transport 21, a ten-year plan for transport that called for the investment of €34 billion on road, rail and light rail projects over the period up to 2015. The Plan included the recommendations of the WRC working group for the phased reopening of the rail corridor as far as north as Claremorris as follows:

Section	Opening
Ennis-Athenry	2009
Athenry-Tuam	2011
Tuam-Claremorris	2014

In relation to the northern-most section, Claremorris to Collooney, Transport 21 stated only that the line should be protected. In 2006 the entire length of this section was cleared of debris and vegetation.

Progress of works

In 2007 construction commenced on renewing the railway line between Ennis and Athenry and after a gap of more than 30 years the train link between Galway and Limerick was re-established in 2009. The reopened Ennis-Athenry line serves Limerick, Ennis, Athenry, and Galway with new stations at Sixmilebridge, Gort, Ardrahan, and Craughwell. The project entailed the relaying of 58km (36miles) of new track along with new signalling systems, stations and level crossings. It was delivered at a total cost of €106.5m[2], or €1.8m/km, a figure 40% higher than originally estimated by the working group.

Photo 1 Ennis-Athenry Line (copyright: West=on=Track)

There are presently up to six trains running daily between Athenry and Ennis and according to Irish Rail approximately 50,000 passengers used this service in 2014. The average total journey time from Galway to Limerick is approximately two hours and, using numbers for the entire line (Galway-Athenry, Athenry-Ennis, and Ennis-Limerick) West on Track notes that in excess of 220,000 passengers travelled the line in 2014.

In 2011, with the installation of the new Government, Transport 21 was put in abeyance and presently there are no plans to reopen any additional sections of the WRC. However, the Western People newspaper reported in January 2015 that the Taoiseach Enda Kenny was on record as saying that he saw some potential for the WRC being used for freight transport.

[2] Irish Times, Jan 6 2015 (www.irishtimes.com/business/transport-and-tourism/train-of-thought-what-next-for-the-western-rail-corridor-1.2056514)

In their meeting with representatives of Irish Rail in September 2015 Sligo Greenway Co-operative were informed that the railway line remains part of the CIÉ subsidiary's corporate infrastructure. Though presently closed to traffic, the line has not been abandoned and is 'required for future use', however Irish Rail has 'no immediate plans to reopen any or all of (this section of line).'

Northern Section of the WRC

The northern section of the WRC is the 74km stretch from Claremorris, County Mayo to Collooney, County Sligo, and on to Sligo city via the Dublin-Sligo railway line. The route passes through a number of towns as shown in the following table.

Location	Population
Claremorris, Co. Mayo	3,412
Kiltimagh, Co. Mayo	1,127
Swinford, co. Mayo	1,435
Charlestown-Bellaghy, Mayo/Sligo	914
Tubbercurry, Co. Sligo	1,747
Curry, Co. Sligo	c.100
Coolaney, Co. Sligo	866
Collooney, Co. Sligo	1,369
(Sligo city)	(19,452)

Other towns and villages within easy reach of the northern section of the WRC include those shown in the table below.

Location	Population	Nearest station (distance)
Ballaghaderreen, Co. Roscommon	1,822	Charlestown (16km)
Foxford, Co. Mayo	1,326	Charlestown (24km)
Swinford, Co. Mayo	1,435	Charlestown (11km)
Westport, Co. Mayo	6,063	Charlestown (54km)
Castlebar, Co. Mayo	12,318	Charlestown (37km)
Castlerea, Co. Roscommon	1,985	Charlestown (37km)
Ballina, Co. Mayo	11,086	Tubbercurry (32km)
Enniscrone, Co. Sligo	1,223	Tubbercurry (38km)
Boyle, Co. Roscommon	2,588	Tubbercurry (32km)
Ballymote, Co. Sligo	1,539	Coolaney (13km)
Ballisadare, Co. Sligo	1,344	Collooney (6km)

Sligo Section

County Sligo (pop. 65,393) is an Atlantic coastal county rich in cultural and heritage amenities as well as a varied range of landscapes including sandy beaches, mountains, lakes and rivers. Designated by Fáilte Ireland as an Adventure Hub due to its physical and infrastructural assets (i.e. access to water and land-based activities, transport, accommodation, and other visitor-friendly services), Sligo's reputation is growing as a centre for outdoor recreation activity.

The County Sligo section of the route from Bellaghy to Collooney is approximately 35.5km in length and passes through the settlements identified in the table presented above and described briefly below. There are five overbridges along this section and ten underbridges/ culverts

Sligo City

The administrative centre for the County, Sligo city (pop. 19,452) is situated on the western Atlantic seaboard half-way between Galway and Derry cities. Sligo is a designated *Gateway City* and the '*capital of the North West*' due to its being the primary economic and social centre for the surrounding regions and the regional headquarters for many governmental agencies and multi-national businesses. It is the largest transport node in the North West being the terminus for the Dublin-Sligo rail line (3 hours journey time), base for regional Expressway and Intercity Bus Éireann services and accessible by National Primary Road from Dublin (N4, 2.5 hours), Derry (N15/A5, 1.5 hours), Galway (N17, 2 hours), Belfast (N16/A4/M1, 2.5 hours) and many other urban centres.

Figure 1 Map Showing Location of Sligo

Located along the route of the Wild Atlantic Way, Sligo is an Active Travel Town with designated cycling routes and is the start/end point for the planned Sligo Leitrim and Northern Counties (SL&NCR) Greenway link with Enniskillen. As a designated Adventure Hub, Sligo possesses the full range of infrastructure and services required for supporting significant tourism activity including, for example, transportation, accommodation (in excess of 800 hotel rooms alone in the Sligo area), food and beverage outlets, post offices, banking facilities, medical and police facilities, and a varied range of shops and services. Within 8km of Sligo city visitors can avail of golf courses, birding sites, angling facilities, swimming pools, surfing beaches, horse racing, hillwalking and sailing, kayaking and stand-up paddle board facilities. Relaxed activities are also widely available in the immediate area and these include archaeology, Yeats-related and other cultural events, theatre, art exhibits, country estates, festivals, etc.

Collooney

Located 12km from Sligo city Collooney (pop. 1,369) is larger rural village positioned adjacent to the junction of the N4 (Dublin-Sligo) and N17 (Sligo-Galway) roads. Due to its proximity to Sligo city it has been designated as a Rural Area under Urban Influence in the County Development Plan (CDP). The village is an important economic and social centre for the population over the wider predominantly rural area and as such is also identified as a Principal Gateway Satellite in the Settlement Structure in the CDP.

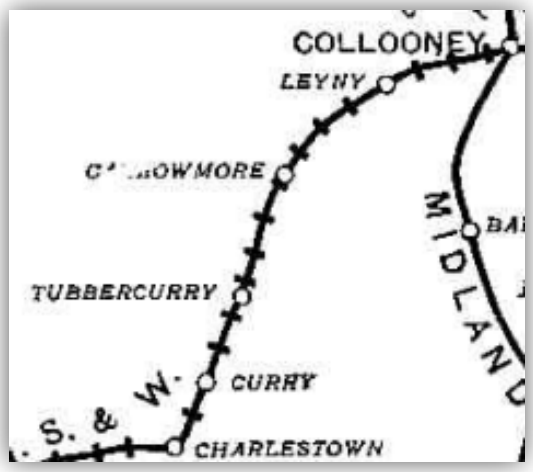

Photo 2 Charlestown To Collooney Section of WRC

Collooney is somewhat unique in Irish rail history as for a time between 1895 and 1957 it was served by three separate railways each with its own station; the Midland Great Western Railway (MGWR) on its Dublin-Sligo line, the Great Southern and Western (GS&WR) on its Limerick/Claremorris-Sligo Line, and the SLNCR by its Enniskillen-Sligo line which linked to Belfast via the Great Northern Railway. As a result Collooney was connected to almost every part of the island served by rail and, by way of an agreement with the MGWR, both the SLNCR and the GS&WR connected to Sligo via spur lines.

Sligo, Leitrim and Northern Counties Greenway Project

Local Authorities on both sides of the Border have proposed the development of a greenway along the route of the former Sligo, Leitrim and Northern Counties Railway (SL&NC) between Enniskillen, County Fermanagh and Sligo city, via Collooney. The Sligo section of this route linking Collooney to Ballintogher was the subject of an unsuccessful Sligo County Council funding application to the National Cycle Network Seed Funding Scheme in 2013. In early 2016 Leitrim County Council announced its intention to apply for cross-border funding under the INTERREG V programme to construct the section of the proposed greenway between Manorhamilton, County Leitrim, and Enniskillen.

Coolaney

Coolaney is a small rural village of approximately 866 residents situated on the banks of the Owenbeg river at the foot of the Ox Mountains, 23km from Sligo city. Designated in the County Development Plan as being Rural Area under Urban Influence, the area has been identified as a Secondary Gateway Satellite in the Settlement Structure due to the extent of residential development in recent decades. The route of the disused WRC railway line runs through the centre of the village as does the Sligo Way a 74km walking trail from Lough Talt in the Ox Mountains west of Tubbercurry to Dromahair, County Leitrim. The 5km Coolaney Road and River Walk is also located in the village.

Photo 3 Leyney Station (Source: NIAH)

Coolaney National Mountain Bike Trail Centre

A world-class National Mountain Bike Trail Centre consisting of 80km of primarily single track cycling trail and related facilities is proposed for the Coillte-owned Coolaney Forest adjacent to Coolaney village on the Ox Mountains. This is the only such facility planned for the Northwest region and one with potential to be the largest, most exciting mountain biking centre on the island. Funding for the first phase of the project is currently being sought.

Tubbercurry

Approximately 35 km (22 miles) south of Sligo town Tubbercurry (pop. 1,747) is the County's second largest settlement. A traditional rural market town strategically located at the junction of the N17 Galway-Sligo road and the R294 Boyle-Ballina road, the population of the town and its immediate environs, Tobercurry Electoral Division (ED), is 2,538 persons. It is designated in the Sligo CDP as one of the three Key Support Towns in the County as it serves as the economic and social centre for the south Sligo area.

Photo 4 Freight Train Arriving at Tubbercurry Station
(©Copyright TheTurfBurner and licensed for reuse under this Creative Commons Licence)

As a Support Town Tubbercurry is the location of many businesses, schools, health facilities, and related support services. The town is home to the Western Drama Festival, South Sligo Summer School and the Old Fair Day, annual events that draw large numbers of visitors to the region. Another annual event, the South Sligo Walking Festival occurs around the Lough Talt area approximately 10km from Tubbercurry. Located only 20km from Ireland West Airport Knock, the town possesses tourist accommodation in the form of two hotels and several B&Bs. There are three recreational walks located in Tubbercurry: the on–road Lovers Lane (4km) and Tullycusheen (12.5km) walks; and the off-road Rathscanlon Forest Walk (3km) both of which are in close proximity to the route of the disused railway.

Curry

The small rural village of Curry is located on the route of the N7/ WRC midway between Tubbercurry (6 km) and Charlestown-Bellaghy (5km). Designated Rural Area in Need of Regeneration, Curry is also identified in the Sligo CDP Settlement Structure as a village supporting the rural community. The village is reportedly home to approximately 100 persons and little housing or other development has occurred in the area in recent years.

Photo 5 Underbridge at Curry
(source: sligotrails.ie)

The disused railway line lies to the east of the village parallel to the N17 where it crosses the Owengarve River, a tributary of the River Moy. There is a small hotel located in Curry between the N17 and the disused railway line and the village is the start/end point for the 21.5km Curry Nature and Historical Trail (www.sligowalks.ie/?pagid=curry-nature-and-historical-trail).

Bellaghy

Bellaghy is the southernmost settlement located on the Sligo section of the WRC and is located immediately to the north of Charlestown, County Mayo. Given this proximity Bellaghy is often linked to its nearest neighbour and thus referred to as Charlestown-Bellaghy.

Charlestown-Bellaghy

With a combined population of just under 1,000 residents, Charlestown-Bellaghy is the southern-most settlement on the Sligo section of the WRC. Charlestown is located at the junction of the N17 (Sligo-Galway) road and the old Dublin-Westport road, the more recently constructed N5 Dublin-Westport road by-passing the town to south. Ireland West Airport Knock is 8km further south of the town, just off the N17. Identified in the National Spatial Strategy (NSS) as being located along a 'National Transport Corridor', Charlestown is also a designated Key Town in the Regional Planning Guidelines (RPG) for the West Region primarily because of its strategic location along the N5/N17 and proximity to Ireland West Airport Knock.

Photo 6 Route of Former Railway Line at Bellaghy (source: google.ie)

2 Current Infrastructure

As noted, the present Government has previously stated that they do not envisage the reopening of additional sections of the WRC in the foreseeable future. Given this situation, it is highly unlikely that the Claremorris to Sligo section of the line will reopen in the near term given the capital expenditure required to bring it up to present day standards, and the justification for such expenditure as noted by the McCann working group.

Rail Corridor

According to Irish Rail sources, the width of the rail corridor along this 35.5km length is not 'readily ascertained' due the fact that the land is unregistered. However, local sources state that the width is approximately 18-20m for much of the route, though this varies and is affected by 'pinch points' including bridges and culverts. For most of its length the corridor passes through primarily undeveloped agricultural lands.

Photo 7 Aerial View of Carrowleam Underbridge (source: Irish Rail)

Unlike many former railway lines throughout Ireland the rail track, sleepers and ballast along the WRC were left in situ by Irish Rail as it is classified as a 'closed line' as opposed to an abandoned line. In this case, service along the route has been discontinued but it remains in the operational property of Irish Rail. As a result, the physical presence of track has curtailed any significant encroachment along the route of the line since its closure in the 1960s. Where encroachment has occurred this can be attributed in many cases to the need to facilitate vehicular traffic, e.g. locations where the N17 crosses the line, etc.

Despite the fact that Irish Rail, and its parent CIÉ, retains full ownership of the rail corridor along its entire length, physical and aerial photography-based research indicates that encroachment has also occurred at other locations. In those instances identified to date encroachment appears to be related directly to domestic and, or agricultural activity occurring in the immediate area as depicted in the sample image shown below. In each of these instances encroachment onto the existing rail corridor will need to be resolved prior to any development commencing.

Photo 8 Example of Possible Railway Line Encroachment (source: google.ie)

Rail Track

Irish Rail states that the track along this entire section is 'completely intact…although it is not connected to the Iarnród Éireann network at either Collooney or Claremorris.' The presence of track facilitates Irish Rail's use of rail-mounted equipment ('Engineer's Trains') to travel the route to carry out maintenance and to 'protect the alignment', i.e. to preserve ownership of the line. Such equipment was used in 2007 when clearance and fencing works were last carried out and the track remains in-situ for similar activities in future. However, given their age and condition the rails are deemed by Irish Rail to be 'obsolete and therefore only have value as scrap'. They will need to be removed and replaced in their entirety if rail services are to be re-established.

The existing ballast, or track bed on which the rails and sleepers was constructed more than a century ago and designed for light rail use. The ballast along this section of line has endured weather and uncontrolled vegetation growth that has resulted in the degrading of the track bed as little or no maintenance has been carried out for more than half a century. In some locations ballast has been intentionally removed or displaced for various reasons such as road development, ease of access, etc. For the line to reopen to rail traffic ballast and rail embankments along the entire route will have to be substantially upgraded to accommodate the weight of modern rail carriages.

Should the line be developed for recreational purposes such as a greenway, and where such a facility is built on top of the existing alignment, i.e. track bed, the ballast may require only repair and top dressing to accommodate users. However, in this case rails and sleepers should also be removed in their entirety to facilitate the construction of a safe and comfortable trail bed. Removal and disposal of this material would result in additional costs for any project and further assessment is required in this regard. Some of this cost, however, may be reclaimed if the material is salvageable and has realisable market value.

Line Maintenance

In its presentation to the Joint Committee on Transport and Communications in March 2015[3], a representative of Irish Rail stated that due to current underfunding 'there is no provision for funding the maintenance of abandoned, disused or closed lines.' A prepared statement submitted to the Joint Committee by Irish Rail stated that due to financial constraints the organisation was unable to care for and maintain non-operational lines, thus no 'vegetation control, maintenance of bridges, boundaries, fencing, culverts and cuttings and embankments' was being carried out along these routes.

Bridges and Crossings

According to Irish Rail records, the Sligo section of the line includes eight overbridges, where non-trail traffic is carried over rail traffic, and thirteen underbridges, where non-rail traffic or water passes underneath the rail line, as shown in the images below. Bridges are of both masonry and steel construction and in the case of non-rail traffic can be found on both public and private roads/property.

Photo 9 Railway Overbridge (copyright West=on=Track)

Photo 10 Railway Underbridge at Tubbercurry

In addition, there are 32 culverts of various sizes recorded along this section of railway line (West on Track has counted a total of 64 culverts). With few exceptions, the majority of bridges and culverts are of late 19th century construction and the structural condition of each must be investigated and assessed. Due to need to upgrade the line for modern rail traffic, the reopening of the line will most likely necessitate the rebuilding of many if not all of existing bridges and culverts.

3 oireachtasdebates.oireachtas.ie/

Photo 11 Map and Street Views of Level Crossings and Structures at Cloonarara (source: OSI and google.ie)

Field and desktop research has also identified the presence of a considerable number of level crossing points, both old and new, including two major crossing points along the route of the N17. Irish Rail records dating to the time the line closed in the 1960s indicate the presence of 120 crossings including public and 'private' crossings. The majority of crossings, 77 'field crossings' and 28 'occupational crossings', were originally provided to accommodate access to private lands and dwelling by local residents. The remaining 15 were recorded at the time as being 'attended' or level crossings located along the route of the line where it crossed public roads. Though no longer 'attended' the location of most of these level crossings is still evident due primarily to the survival of many former gate-keeper cottages. The number of still extent field and occupational crossings is less certain given the changes that have occurred in the area over the past half century and will need to be determined on the ground.

Photo 12 Level Crossing at Curry South (source: google.ie)

Structures

As indicated earlier, in addition to bridges and culverts, etc., numerous former railway structures remain in existence along the entire length of the Sligo section of the line. These include waiting platforms, water towers, stores buildings, and gate-keeper cottages the majority of which have passed into private possession (details at Appendix I Heritage).

3 Future Plans

For many years community-based groups and others coming together as West on Track have campaigned for the reopening of the entire route of the WRC to passenger and freight services. However, given strategic priorities and economic factors the likelihood this occurring in coming years is questionable if not unlikely.

Development Options

Sligo County Council and other interested parties have identified three possible options for the future development of the former railway route, as follows.

Option	Description
Option A - Rail Service	Reopening of the line to passenger and, or freight traffic
Option B - Greenway	Development of a recreational greenway along the route
Option C – Side-by-Side	Development of a recreational greenway alongside rail track

These three development options will be described in the sections following.

Photo 13 Looking Northeast towards Carrowloughan (copyright West=on=Track)

4 Option One, Reopen the line

Long campaigned for by local communities, the reopening of the WRC and specifically the Sligo section of this route could deliver considerable economic, social and environmental benefits to the region. The advantages of reopening this route, for either passenger and, or freight traffic have been clearly stated by West-on –Track and others in recent years. In brief, the reopening of rail services would greatly improve access to and from the region and connectivity with other regions thus enhancing the attractiveness of this rural area to inward investment and tourism activity. It would have the potential to deliver economic and social benefits and improve the viability of communities along the route.

Figure 2 Claremorris to Sligo Section of the WRC (copyright West=on=Track)

Costings

As previously noted, the northern most sections of the WRC were originally built for light railway use and therefore considerable investment is necessary if they are to be upgraded to serve the needs of modern rail traffic. The McCann Report established preliminary costings in the region of €2.6 million per kilometre for this work along the Claremorris to Collooney section. The Report also identified costings of €1.3 million per kilometre for the Ennis to Athenry section, though actual costs were approximately €1.8 million per kilometre, or roughly 40% higher than originally projected.

Using projected costings identified in the McCann Report for this section of the WRC and the increased costings incurred in reopening the Ennis-Athenry line, the following table provides a summary of indicative capital costing of reinstating the 35.5km county Sligo-based segment.

Cost Basis	Cost/ Km	Distance	Capital Cost
Projected costs	€2.6m	35.5km	€92.3m
Projected costs plus 40%	€3.64m	35.5km	€129.2m

In their presentation to the Joint Oireachtas Committee on Transport and Communications in March 2015, West on Track stated that the Ennis-Athenry project cost €96 million equating roughly to €1.7m per kilometre reflecting only a 30% increase on McCann Report projections. On this basis the following capital costs would apply.

Cost Basis	Cost/ Km	Distance	Capital Cost
Projected costs plus 30%	€3.38m	35.5km	€120m

As these costs are based only upon the 35.5km segment ending at Bellaghy, the continuation of the renewed railway to Claremorris will give a total length of 74km as identified in the McCann Report. Based on this total length, the following table presents the McCann Report projected capital cost and an increased costing reflecting the Ennis-Athenry experience.

Cost Basis	Cost Basis	Cost/ Km	Distance	Capital Cost
Low	Projected costs	€2.6m	74km	€192.4m
Medium	Projected costs plus 30%	€3.38m	74km	€250.1m
High	Projected costs plus 40%	€3.64m	74km	€269.36m

These figures more accurately reflect the projected capital costs of re-instating a rail service between Collooney (Sligo-Dublin) and Claremorris (Westport-Dublin), two stations currently served by passenger rail service.

Rail Passenger Numbers

In their March 2015 presentation West on Track noted that passenger projections prepared by consultants Faber Maunsell (now AECOM) in 2005 predicted 169,000 annual trips on the Galway-Limerick route. As previously noted, Irish Rail reported 2014 total passenger numbers for the entire route to be in excess of 220,000, however only a fraction of this number, approximately 50,000 passengers, travelled the Ennis-Athenry section. It should also be noted that this route connects Ireland's third and four most populated cities, Galway (city pop >75,000) and Limerick (city pop >95,000), and serves the several large settlements located along the line: Ennis (urban pop >25,000), Athenry (pop 4,000), and Gort (pop 2,600). Furthermore, the line is also accessible to those living in the catchment areas for these urban centres, e.g. those living within a 30 minute drive of the city or town. In the case of Galway City, for example, the estimated catchment population is approximately 60,000 persons and this, combined with the city population, provides a total of 135,000 (75,000 + 60,000) potential train users living in the Galway area.

Local representatives of Irish Rail confirmed that they do not keep records of local passenger numbers, e.g. numbers travelling between Sligo and Ballymote, Collooney, etc., but only total passenger numbers along the Dublin-Sligo line.

Figure 3 Irish Intercity Rail Network showing WRC Route (Source: Wikimedia Commons)

Cost Benefit Analysis

Unlike other options assessed in this document, reopening a railway on the existing line incurs a level of investment, capital infrastructure requirements, socio-economic benefits and costs so significant that they cannot be measured purely in terms of capital costs and anticipated expenditure arising from use.

The 2030 Rail Network Strategy Review states that when preparing a cost-benefit framework for investments by Irish Rail it was necessary to use cost benefit calculations that:

"followed the guidelines for this type of appraisal issued by the Department of Finance and the Department of Transport. In each case the relevant, incremental, costs and benefits of the investment over a thirty year planning period were identified and quantified. Money values were placed on non-monetary costs and benefits using standard parameters. The present value of these monetary values was calculated using a standard discount rate. These present values were used to calculate the net present value and the benefit cost ratio of each investment. Where possible an Internal Rate of Return for each investment was calculated."

In addition, the *"cost benefit calculations prepared for the potential investments included monetary values for each of the following costs and benefits:*

- *Capital Costs;*
- *Operating Costs;*
- *Time savings and other improvements in service for existing passengers on the rail service in question;*

- *Time savings and other improvements in service for additional passengers on the rail service in question;*
- *The reduction in congestion on roads as a result of diverting travellers from road to rail;*
- *Additional fare revenue for Iarnród Éireann;*
- *The reduction on emissions from cars and buses as a result of diverting travellers to rail; and*
- *The reduction in road accidents as a result of diverting travellers to rail."*

Bearing in mind that the decision to invest in the WRC is entirely within the auspices of Irish Rail, and or the Government, cost benefit framework analysis would be considerable and would need to be carried out and assessed by Irish Rail in accordance with guidelines established by the Departments of Finance and Transport.

Strategic Decision

The reopening of the WRC to passenger rail, and potentially freight traffic could have potentially significant benefits for the region. While the full financial benefits are difficult to quantify, the social and environmental benefits of rail transport are more discernible and are summarised in the table below.

Benefit	Explanation
Reducing CO2 Emissions	Trains are more energy-efficient[4] and less-polluting than other modes of transport especially when using alternative and cleaner sources of energy, such as electricity. By reducing car dependency, and existing levels of road haulage, train travel provides the potential for decarbonising transportation in the region, thereby: • Supporting Ireland's international commitments to reduce greenhouse gas emissions • Improving the quality of the local environment and the health and well-being of local communities
Regional Development	Access to rail services facilitates and enhances the potential for balanced regional development and increases the attractiveness of the wider area to inward investment.[5] It also provides improved opportunities for spatial planning and better land use in areas adjacent to rail lines, e.g. commercial zoning, residential and retail development, etc.
Reducing Costs	Train transport offers the ability to move large quantities of freight quickly, to schedule, and reliably, with rail connectivity to all major ports. This provides the potential for reducing freight transport costs, and corresponding reduced costs to the end user.
Improving Connectivity	Rail lines linking cities and towns, e.g. Sligo, Limerick, Galway, etc., facilitate greater connectivity and activity in the region for inhabitants and businesses. Where linked to other transport hubs, e.g. Shannon and Ireland West Airport Knock, etc., trains improve access by visitors to peripheral regions.

4 Electric train emissions of CO2 per passenger/Km are, on average, approximately half that of travel by car1 (Friends of the Environment, www.foe.co.uk/sites/default/files/downloads/travelling_rail_better.pdf).

5 'National Spatial Strategy 2002-2020'

Benefit	Explanation
Improving Travel Safety	Train travel is inherently safer, and a more comfortable mode of transport than car travel. According to a US study[6] cars are one of the most deadly means of travelling with a fatality rate 17 times higher than that for trains.
Combating Social Exclusion	Train transport has the potential to combat social exclusion experienced by older people, low-income households, people with disability and the unemployed, especially those living in rural communities. Affordable public transport improves access to affordable accommodation, employment and educational opportunities, health and basic services, and social networks. [7]
Reducing Noise Pollution	Road noise affects the quality of life of those living in areas that experience high levels of traffic and the 'the cost of noise damage from road traffic…is 25 times that of rail.[8] Train travel reduces levels of car dependency, and a significant cause of road noise pollution.
Rail Tourism	A fully linked rail network offers considerable potential for enhancing the existing tourism product, both as a means of transport and also as an attraction itself. Rail tourism, e.g. train-based holiday packages, is an increasingly popular activity and services are easily accessible to tourists there is potential to develop new products and services for this sector. A linked rail network provides visitors connectivity with major cities, and offers improved access to many of the smaller centres which are, or could be visitor destinations including Sligo, Knock, Tuam, Tubbercurry, etc.

6 www.washingtonpost.com/news/wonk/wp/2015/05/14/the-safest-and-deadliest-ways-to-travel/

7 'Investing in our Transport Future' (Department of Transport Tourism and Sport)

8 Friends of the Environment, op. cit.

In addition to the above, the benefits arising out of an investment are supported by the 2030 Rail Network Strategy Review, which highlighted the following as among the benefits of the ICN:

Cost Efficiency

The ICN has the potential to contribute to a reduction in the cost of doing business to the extent that it offers reduced journey times for business travellers. More generally, where roads are congested moving travellers from road to rail travel has benefits not only for the travellers who switch to rail but also for the travellers who continue to use the roads. All road travellers will enjoy reduced journey times as a result of reduced congestion on the roads. With regard to business travellers, these constitute a maximum of 22 per cent of all mainline rail users (See Section 5). However, this figure includes commuters, so that those travelling in the course of work are likely to fall short of 20 per cent of all rail users. Thus, increasing benefits to the business sector will require a change in the profile of rail users to promote increased business use. With regard to congestion alleviation, this is predicated on attracting car owners. At present at least 60 per cent of rail users are car-owning. This means that the rail system has the potential to contributing significantly to congestion alleviation, where these car owners would have otherwise travelled on congested networks. With the advent of motorway links between Dublin and Belfast, Cork, Galway, Limerick and Waterford, the congestion alleviation benefits of the rail system are likely to be focused, in the short term, on the environs of these cities where networks are more congested. Congestion alleviation potential on other routes is likely to be greater, as these are largely served by two lane low capacity roads.

Productivity

Rail offers a significant advantage to the business user in terms of the capacity to undertake work on a rail journey and to travel directly between central business districts. Studies of high speed rail systems show that the white collar business users in high-value service industries form the bulk of users and that these value the opportunity to work and conduct meetings on trains and to access centrally located urban stations. Rail is a naturally competitive mode for journeys between city centres.

Studies of the values put on travel time show that the disutility associated with rail travel is low by comparison with other modes. The low disutility derives from the additional comfort afforded by rail travel and the opportunity to be productive. This explains why the rail mode attracts users even when it does not offer better journey times.

Summary of Assessment of Option 1

Pros

- From a strategic perspective, there are substantial arguments for reopening the line, based upon its potential to deliver significant social, economic and environmental benefits to the region
- The route of the former line remains in the ownership of Irish Rail/ CIÉ and little encroachment has occurred that would deter development
- There is widespread support for the reopening of the line among the public, community-based groups and other bodies in the region
- Irish Rail have stated on numerous occasions that, with the use of a licensing system, this Option will not be restricted by the interim use of the line for another purpose, i.e. if the Option is being pursued by Irish Rail at a future date then any project using the line, e.g. a Greenway, would have to be removed.

Cons

- Reopening the line is not currently an objective of Irish Rail, CIÉ, or the State and no funding has been allocated for this purpose
- The requirements of modern trains will require the complete reconstruction of the entire line and the capital cost of doing so will be significant with any payback period likely to be many times that for other options, e.g. a Greenway
- The decision to reopen the line lies with Irish Rail and, unlike other options discussed in this document, is unlikely to be directly influenced by local organisations or bodies in the short to medium-term
- With the significant capital investment, the decision to reopen the line is most likely to be based upon long-term strategic outcomes, as opposed to short and medium-term economic outputs that are easier to measure

5 Option Two, single-use Greenway

The opening of the Great Western Greenway in 2011 mirrored the 'mothballing' of Transport21, a side effect of the economic downturn and subsequent change in Government. With the reopening of more northern sections of the WRC less likely, and the favourable public response to the GWG, local interest in the potential for developing greenway amenities in Sligo and elsewhere began to gain momentum. Former railway lines are ideally suited for greenways, i.e. recreational paths for walking and cycling, as they were originally built straight and with little change in gradient along their length. Following the alignment of an existing railway line is cost effective as an appropriately firm sub-base and drainage system is in most circumstances already in place with little construction work necessary.

Greenways are increasingly popular with visitors and local residents alike as they offer a safe, comfortable and in most instances enjoyable travel experience for recreational walkers and cyclists as well as sustainable travel alternatives for commuters. While the reuse of railway lines for such purposes has been a common practice in other jurisdictions for many years, this has really only become popular in Ireland with the opening of the GWG. This increasing interest in greenways led to the establishing in 2015 of Sligo Greenway Cooperative Society Ltd., a community-based organisation promoting the development of a cycling/walking trail along the Sligo section of the WRC.

Recreational Trails

Cycling and walking trails can be classified as off-road, on-road and shared use, as described in the following sections below.

Off-road trails

These include paths through parks, forestry lands, etc., that are designated for walking and or cycling and where vehicular traffic is prohibited. Also, specifically designed mountain bike trails.

On road trails

These are generally waymarked touring trails on public roads, e.g. sections of the Sligo Way. The public roads designated for walkers and cyclists are typically those with low traffic volumes.

Shared-use/ greenways

Trails catering for different users such as walkers and cyclists, and sometimes horse riders, are referred to as 'shared-use trails', or greenways. This type of trails is designed to ensure that the width is sufficient and the trail finish appropriate to the needs of the various authorised users. The National Trails Office's Classification and Grading for Recreational Trails recommends shared-use trails be at least 2-3 metres in width to allow for other users and have sealed or compacted surfaces with minimal loose material (<20mm). Trails may have both a hard surface suitable for cyclists and a softer compacted surface for walker comfort.

Since the opening of the Great Western Greenway in County Mayo there has been increasing interest in and demand from local communities throughout Ireland for the development of similar 'greenway' products for tourism, health and recreational purposes. Presently, there are many such projects across the island in planning stages, under development, or completed included some designated as stages of the two EuroVelo routes planned for Ireland.

EuroVelo

A proposed network of 14 long distance cycling routes, the aim of EuroVelo (www.eurovelo.com) is to connect the European continent for cyclists by 2020. In Ireland, the Atlantic Route (EuroVelo 1) envisages a signposted cycling route from the ferry port of Rosslare along the Western seaboard through Sligo to Donegal and from there through Northern Ireland to the ferry port of Belfast. A separate EuroVelo 2 route will eventually link Moscow to Galway via Dublin (see Dublin-Galway Greenway section) and all other points along the route between these two destinations. Currently, only small sections of the EuroVelo 1 route in the Republic have been signposted including approximately 200km of rural roads in Donegal that link with the North West Cycle Trail at Sligo City and from there continues on to Enniskillen, County Fermanagh. Much of the remainder of EuroVelo 1 has yet to be developed.

Costings

There are many examples of greenways in Ireland, some in planning, some under construction and others completed. While this should provide accurate costings for projecting capital costs, the experiences of delivered projects especially has shown that each greenway provides its own requirements and therefore its own costings. For example, the average price per kilometre for the Great Western Greenway, according a Mayo County Council representative involved with the project, ranged widely from €180k to as much as €250k depending upon route specifications, e.g. accommodation with local landowners, new construction, drainage, surface treatment, etc.

Officials involved with the construction of the Waterford Greenway, a 48km linear park linking Dungarvan to Waterford, similarly reported wide variances in estimated and actual per kilometre construction costs again due to local requirements, accommodation works (for landowners) etc. However, the most recent (1/2/2016) estimated costing for the entire project is €10,405,860 incl VAT, or €216,788 per kilometre.

Carried out by consultants WSP Group in 2012 for Cork County Council, the Cork to Kinsale Greenway Desktop Feasibility Report provided indicative costings for the conversion to greenway status of approximately 37km of former railway line. Where the greenway is to be constructed on top of the actual route of the former line, what they term 'on rail alignment', the projected capital cost was €67,000 (€76k incl VAT) per kilometre. This figure was identified taking advantage of existing embankments, drainage ditches, railway ballast (stone track bed), etc., and is exclusive of design fees, gradient changes, property ownership issues, level crossings, archaeology, etc.

The projected cost for constructing the planned Navan-Kingscourt Greenway, a 30km trail located on a former railway line where rails and sleepers also remain in situ, is estimated to be in the region of €2.4m, or almost €79k per kilometre of trail (excluding the cost of removing rails, etc.). Similarly, Sligo County Council estimated the cost of developing 19km of the planned Sligo, Leitrim and Northern Counties Greenway to be approximately €2.1m, or €111k per kilometre if built on the former rail alignment.

As a guide when working on projects in Ireland, engineers employed locally by international consultancy firm RPS Group use a figure of €120,000/km (€136k incl VAT) when projecting build costs for 3m-wide paths. This figure is based upon their experiences with similar projects especially where a suitable track bed, e.g. a railway line, tow path, etc., is present and adequate to the needs of the greenway. Two recently completed RPS Group designed projects are the Shannon Fields near Limerick City and the Clonmel to Carrick-on-Suir Greenway in Tipperary. The Shannon Fields is a 1.4km, 4m-wide tarmac walking and cycling path with lighting and CCTV that cost an average of €250,000/km to construct whereas the Clonmel to Carrick-on-Suir Greenway is a 19km, 2m-wide riverside walking and cycling trail constructed on the former River Suir towpath which cost €114,000/km. RPS engineers working on the Clonmel project stated that the lower build cost for this project was achievable due to the presence and condition of the former towpath, and the simplicity of the greenway design.

Photo 14 Clonmel to Carrick-on-Suir Greenway (source: RPS Group)

Despite any degradation of the ballast and railway embankments that may have occurred along the Sligo section of the WRC, the existing alignment provides a more than adequate base for the construction of a greenway. In correspondence with Sligo Greenway Co-operative, Irish Rail confirmed that it has no issue with the existing ballast being used as a base for a greenway as it is of 'no value to Irish Rail for any future rail development and would have to be replaced in the event of any such development.'

Using the actual and projected costs identified above, the following table provides a range of capital cost scenarios for the development of 35.5km of greenway along the Sligo section of the WRC.

Cost Basis	Source	Cost/ Km	Distance	Capital Cost
Low	Cork average (WSP projections)	€76k	35.5km	€2.7m
Low	Kingscourt Greenway (projected)	€79k	35.5km	€2.8m
Medium	SL&NC Greenway (projected)	€111k	35.5km	€3.9m
Medium	Clonmel Greenway (RPS actual)	€114k	35.5km	€4.0m
High	Great Western Greenway (actual/segment)	€180k	35.5km	€6.4m
High	Waterford Greenway (actual/projected)	€217k	35.5km	€7.7m

As in the case of Option One, the development of the line as a greenway will necessitate the removal of all rails and sleepers. Whereas with greenway projects undertaken on abandoned lines without rails and sleepers, in this instance the need to remove this material will result in additional costs that will most likely be borne by the project promoters and not Irish Rail. This cost will need to be determined in consultation with Irish Rail and included in capital cost estimates for the project.

In summary, while the route of the WRC is a simpler matter as it is owned by one party, the development of greenways on former railway lines, and the costing of such projects, needs to be treated on a case by case basis.

Economic Analysis for a Greenway

The business case for greenways in Ireland is based upon the number of likely visits[9] to the greenways by:

- Local visitors, not staying overnight
- Domestic visitors, with overnight stays
- Overseas visitors, with overnight stays[10]

Each of the above visitor categories are allocated a daily spend, based upon existing research into the economic impact of other greenways[11], as well as Fáilte Ireland's own statistics[12] regarding the behaviour of each type of visitor, e.g. domestic, overseas and specific target groups. In addition to the above, for the purposes of this study, the economic analysis was also informed by economic impact studies carried out internationally regarding cycling activities[13].

Existing Greenways

The Great Western Greenway, Economic Impact Case Study, 2011, carried out by Fáilte Ireland and Fitzpatrick Associates identified the direct spend made by visitors to the Great Western Greenway as €7.2million per year; as detailed below:

Category	Visits	%	Persons	Days	Daily Spend	Total Spend
Local visitors	34,400	43%	34,400	1	€27.31	€ 939,464
Domestic visitors	29,600	37%	14,800	4.8	€49.85	€ 3,541,344
Overseas visitors	16,000	20%	8,000	6.8	€50.71	€ 2,758,624
Total	**80,000**	**100%**	**57,200**			**€ 7,239,432**

Based upon the above findings, as well as a review of the total number of trips per year on the Great Western Greenway, a separate study carried out by Trinity College Dublin[14], measured the payback period for the greenway at 6 years and stated that the investing the facility was 'very worthwhile to the local economy' and is a 'very worthwhile investment.'

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9 The reference here is to visits as opposed to trips. Visits refer to people who are making day or part-day visits to the area and do not use the greenway on a regular basis for travel to work, school or for daily recreation and leisure. They are regarded as 'visitors' due to the fact that they are likely to spend money in the locality on subsistence. All visits are trips, but not all trips are visits.

10 The Great Western Greenway, Economic Impact Case Study estimated that, during their stay, Domestic and Overseas visitors make an average of 2 visits to the greenway.

11 For example, Great Western Greenway, Economic Impact Case Study, 2011, Fáilte Ireland and Fitzpatrick Associates; Measuring the success of the Great Western Greenway in Ireland, Trinity College Dublin; Millard Brown, Research on Biking Trails, 2012; Report to Sligo County Council Presenting the Recreational and Business Case for Sligo, Leitrim Northern Counties Greenway, EMG Solutions, 2013.

12 For example, CSO, Household Travel Survey 2012, June 2013, average number of nights per trip for holiday visits; Tourism Ireland, Overseas Visitors, Facts & Figures, average number of nights per Overseas Visitor

13 For example, EKOS Limited, Economic Value of Mountain Biking in Scotland, Report for Scottish Enterprise, 2009; Outdoor Recreation NI, Mountain Bike Strategy for Northern Ireland, 2014-2024, Creating a World Class Destination, 2014; Tourism Intelligence Scotland, Biking Tourism in Scotland, 2011; Economic Appraisal of Local Walking and Cycling Routes, Sustrans, 2005; European Cycle Route Network EuroVelo, Challenges and opportunities for sustainable tourism, European Parliament.

14 Measuring the success of the Great Western Greenway in Ireland, Trinity College Dublin.

Payback period for the potential greenway

By determining the average of the Low, Medium and High project costs identified earlier, average cost scenarios for the construction of a greenway on the Sligo section of the WRC can be summarised as follows:

Cost Average	Total € cost
Low average cost	€ 2,751,250
Medium average cost	€ 3,993,750
High average cost	€ 7,046,750

Taking each of the above costs, it is possible to identify a potential timeframe for the payback and return on investment of the construction of a greenway on the Sligo section of the WRC, based upon potential usage, number of visitors, daily spend by visitors and the number of days spent in the locality.

For initial discussion purposes, a conservative estimate will be used for this calculation, i.e. 40% of the total number of visitors to the Great Western Greenway.

Category	GWG visitors	% allocation to Sligo WRC	Sligo WRC
Local visitors	34,400	40%	13,760
Domestic visitors	14,800	40%	5,920
Overseas visitors	8,000	40%	3,200
Total	57,200		22,880

This is regarded as a conservative projected estimate for a greenway on the Sligo section of the WRC, based upon:

- The total number of visitors to events at locations in the immediate vicinity of the potential greenway
- The projected visitor numbers for a greenway between Sligo City and Ballintogher, with a target of 32,057 visitors[15]
- The number of visitors projected by submissions for other greenways in Ireland[16]

[15] Report to Sligo County Council Presenting the Recreational and Business Case for Sligo, Leitrim Northern Counties Greenway, EMG Solutions, 2013. It should also be noted that the An Post Tour of Sligo recorded participant numbers of 2,500 in 2013.

[16] For example, the proposed Boyne Valley to Lakelands County Greenway projects 152,100 users, while the proposed Cork to Kinsale Greenway projects 222,179 users.

The economic impact of the visitor numbers is analysed further in the table below. As an added note of conservatism, the number of days spent in the area by domestic and overseas visitors has been halved from the original figure identified by the Great Western Greenway Economic Impact Study.

Visitors	Persons	Days	Daily Spend	Total Spend
Local visitors	13,760	1	€ 18.50	€ 254,560.00
Domestic visitors	5,920	2.4	€ 49.85	€ 708,268.80
Overseas visitors	3,200	3.4	€ 50.71	€ 551,724.80
Total	**22,880**			**€ 1,514,553.60**

Based on the above, the potential payback return on capital investment for a proposed greenway on the Sligo section of the WRC can be illustrated as follows:

Average cost	Construction	Visitor Spend	Payback years
Low average cost	€ 2,751,250	€ 1,514,554	1.82
Medium average cost	€ 3,993,750	€ 1,514,554	2.64
High average cost	€ 7,046,750	€ 1,514,554	4.65

The low and medium average costs projected above, in conjunction with a conservative number of users, gives rise to a payback period that would be considered "worthwhile."[17]

Net Visitor Expenditure

The figure provided in the previous section, i.e. €1,514,554 represents the total Gross Expenditure projected for 11,440 visitors to the potential greenway on the Sligo section of the WRC. For discussion purposes, this section of the document will provide further analysis of this figure, to generate a Net Expenditure for the visitors' spend.

Net Expenditure reflects the adjustments to the Gross Expenditure figure, taking into account other factors that can increase or decrease the impact of the expenditure by visitors in the region. The main factors to take into account in this regard include the following:

- Deadweight
- Substitution
- Leakage
- Displacement
- Multiplier Effects

Each of these factors is discussed below, with the overall impact of all factors calculated at the end of the section.

[17] Measuring the success of the Great Western Greenway in Ireland, Trinity College Dublin.

Deadweight

Deadweight refers to the likelihood of the project going ahead without public funding, i.e. if the project is likely to go ahead without funding, it reduces the impact of the public investment. This factor does not come into play with the potential greenway, because the project certainly could not go ahead without public funding, i.e. due to the level of investment required, as well as the commitment from the local community, including landowners, towards the development of a public asset.

Leakage

Leakage refers to benefits from expenditure that 'leave' the region, e.g. level of imports, spending on items outside the North West region, etc. However, for a region such as the North West, the impact of such leakages has already been incorporated into the 'Regional Tourism Multiplier' discussed below, i.e. the impact of leakage results in a lower regional multiplier than would be the case nationally.[18]

Displacement

Displacement reduces the impact of visitor expenditure to reflect the loss of expenditure that would, otherwise, have occurred elsewhere in the region, e.g. in scenarios where the visitors have merely swapped one type of tourism visit or activity for another in the region. However, there is no other comparable product in the area and, as a result, the expenditure to be generated by the product is relatively new and innovative, reducing significantly the displacement factor for the visitor numbers. For the purposes of this economic assessment, the displacement factor for the potential greenway will be calculated at 50% for Local Day Visitors, 45% for Domestic Visitors and 10% for Overseas.[19]

Displacement	%
Local Day Visitors	50%
Domestic Visitors	45%
Overseas Visitors	10%

Regional Tourism Multipliers

The economic impact of tourism spending in a region must take into account the direct, indirect and induced effects of such spending.

- **Direct effects** refer to the actual total expenditure by visitors on goods and services in the region;
- **Indirect effects** occur when businesses and individuals involved in the tourism industry use the income from visitors to spend on additional goods and services;

[18] See also West Cork LEADER's, Perspectives on the West Cork Regional Brand, for the impact of leakage on the tourism multipliers for regional areas.

[19] The EKOS report uses a displacement factor ranging from 98% for Domestic Day Visitors, 90% for Domestic Overnight Visitors and 10% for Non-Domestic Visitors. However, this should be viewed in light of the significantly greater development currently of the Mountain Bike Trail tourism sector in Scotland, contrasted with "infancy" of the Irish market.

- **Induced impacts** refer to additional spending that takes place as a result of both direct and indirect effects, described above.

Gross Expenditure is increased by the Multiplier, to take account of all of the above. Typical multipliers being used differ in terms of the industry and region with, for example, regional multipliers often being much lower than national multipliers, thereby taking account of leakages and loss of expenditure outside the region. For the purposes of a greenway, the Regional Tourism Multiplier to be used is based upon that used by the Socio-Economic Marine Research Unit (SEMRU), NUIG, as part of its Socio-economic Study of Marine-based Water Activities in the West of Ireland. In this case the Multiplier was used for a similar region to the North West, based upon a tourism market cohort comparable to the cycling sector.

Regional Tourism Multipliers	Multiplier
Direct Impact	1.00
Indirect Impact	0.38
Induced Impact	0.10
Total Multiplier Effect	**1.48**

Net Additional Expenditure

Net Additional Expenditure refers to the Gross Expenditure adjusted to take account of all the additional factors discussed above, including displacement, regional tourism multiplier, etc. In summary, the Gross Expenditure is reduced to take account of displacement and increased to take account of the direct, indirect and induced benefits, i.e. the regional multiplier. This is **new expenditure** in the region.

Net Additional Expenditure	€
Total Gross Expenditure	€ 1,514,554
Less Displacement	€ 501,173
Net Direct Expenditure	€ 1,013,380
Regional Tourism Multiplier	1.48
Net Additional Expenditure	**€ 1,499,802.64**

Net Additional Employment

Based upon Fáilte Ireland, Tourism Facts 2012, October 2013, each additional €1million expenditure by tourists supports 34 jobs. As result, the Net Additional Expenditure arising from the greenway has the potential to support 25.5 new jobs.

Impact of Net Expenditure on Employment	Total
Net Additional Expenditure	**€ 749,901.32**
New Tourism Jobs	**25.5**

New to the Economy - Net Additional Expenditure

Based on the calculations above, the influx of non-domestic day and overnight visitors has the potential to attract new additional income to the region that would not be generated within the economy without the greenway. The Gross and Net Additional Expenditure, exclusive of all domestic expenditure, that is **new to the economy** is summarised below:

Expenditure from outside Irish Economy	Total
Gross Expenditure of Non-Domestic Visitors	€ 551,725
Less Displacement	€ 55,172.48
Net Direct Non-Domestic Expenditure	€ 496,552
Regional Tourism Multiplier	1.48
Net Additional Non-Domestic Expenditure	**€ 734,897.43**

In terms of impact upon employment of such expenditure, as mentioned earlier, Fáilte Ireland, Tourism Facts 2012, October 2013, states that each additional €1million of expenditure by tourists supports 34 jobs. On a pro-rate apportionment of the new additional non-domestic expenditure, the impact upon employment is 12.5 new jobs.

Impact of Non-Domestic Expenditure	Total
Net Additional Non-Domestic Expenditure	**€ 734,897.43**
New Tourism Jobs	**25**

Phased Development

Single-stage development of the full 35.5km project is a preferential option that would result in an amenity of a scale and quality that would instantly attract domestic and overseas visitors, especially if linked with other planned developments in the Sligo region, e.g. the National Mountain Bike Trail Centre in Coolaney, etc. However, recognising that funding for capital projects is limited, the phased development of a single-use greenway can occur if required. Given a Medium Average Cost of €3,993,750, as identified earlier, a potential proposed construction scenario is as follows:

- **Phase 1** (2018) – 25km (approximately) of greenway constructed between Collooney and Tubbercurry at a cost of €2.8m, or €112,500/km (including Vat)
- **Phase 2** (2019) – 10.5km (approximately) of greenway constructed between Tubbercurry and Bellaghy at a cost of €1.2m, or €112,500/km (including Vat)

The reputation of the greenway will be determined by the extent and quality of the cycling and walking amenity, and by the locations which are accessible along its route, i.e. scenic areas, towns and villages with basic facilities, e.g. food, accommodation, bike rental, transport, etc. For this reason, any decision to

undertake phased development should ensure that established settlements, e.g. Coolaney, Bellaghy, etc., should be start and end points for each section.

Funding Sources

Though the Great Western Greenway was part-funded by Failte Ireland, funding for greenways and cycleways, generally speaking, is provided by Local Authorities, i.e. County Councils, using their own resources and, or funding from the Department of Transport, Tourism and Sport Department. Current funding from the Department for these types of projects is fully committed at present, though given the popularity and success of greenway-type projects nationally, there is the possibility that funding may become available again in future periods. Local Authorities are also able to secure funding under various EU Programmes, and communities from the Rural Development/LEADER Programme.

Local greenway campaigners have noted that the portion of funding allocated for the Galway section (approx. 140km) of the proposed 276km Dublin-Galway Greenway, development of which has been paused to due to landowner concerns, could potentially be re-allocated for a greenway in Sligo.

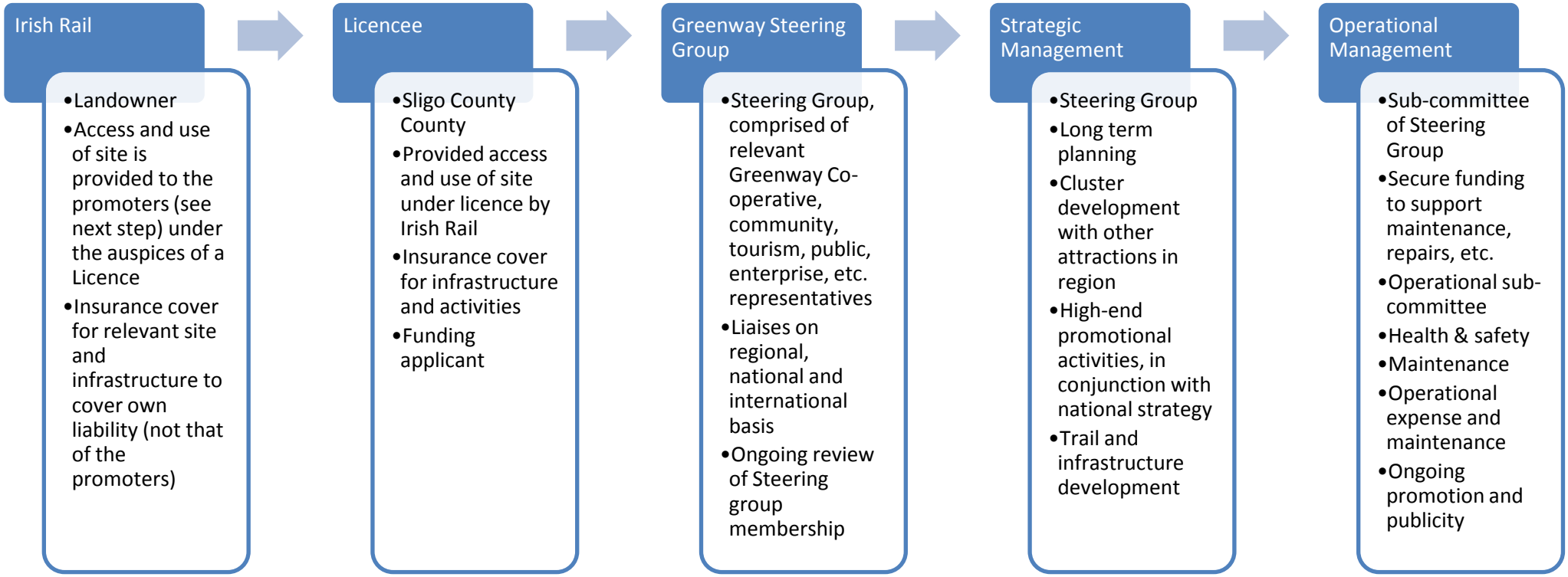
Maintenance

Where greenways are developed on publicly-owned land the relevant State body, Local Authority, etc., is generally responsible for maintaining the amenity. In the case of greenways developed on privately-owned land it is usually the promoters of the project, e.g. local community group, etc., that assumes responsibility for ongoing upkeep and maintenance. In this instance, it is most likely that a licencing agreement between Irish Rail and Sligo County Council will be the basis for the development of a greenway, with the Local Authority assuming responsibility for maintenance of the completed project.

In the case of the Great Western Greenway, the Mayo County Council official responsible for the amenity has stated that since its opening in 2011 maintenance work has been minimal and where required this has been carried out by Council staff supported by Rural Social Scheme (RSS) and TUS Scheme operatives.

Management Structure

The sustainability of the Greenway will depend primarily upon the management structure to be implemented to oversee the long-term promotion, maintenance and development of the facility. A sample management structure for the project is illustrated below.



Staffing

The Greenway is unlikely to be in a position to employ full-time staff in the near future and will be managed almost exclusively by the Operational Sub-committee above. It is likely, however, that the project will seek support through programmes such as RSS for staff to assist in the maintenance of the facility.

Summary of Assessment of Option 2

Pros

- There is an existing line, upon which the greenway can be developed, thereby reducing the initial capital cost for a greenway
- There are examples of similar greenways in Ireland, with demonstrated levels of performance regarding visitor numbers and economic impact
- There is a direct and indirect economic impact arising from the proposed greenway, terms of both new expenditure and jobs
- There is demonstrated support for a greenway in the locality
- Irish Rail have stated that they are in a position to consider the granting of a licence to such a project, as long as additional costs are met by the promoters and funding is secured
- The potential return on investment for the project is very positive, providing payback within a relatively short period of time, even when based upon conservative user numbers
- The payback period for the project is sufficiently short enough to generate a "worthwhile" investment, even if the licence had to be revoked by Iarnrod Éireann for the project within 10 to 15 years
- There is potential for the development of links and partnerships between the greenway and other tourism, recreational and activity-based amenities and businesses in the region

Cons

- There is a perception that the installation of the greenway and removal of the existing line would significantly lessen the future potential return to use of the WRC
- If the greenway and return to use of the WRC are seen as mutually exclusive, support for the project may be limited, thereby affecting its ability to attract users and maintain a quality tourism product
- Funding for all aspects of the project would need to be secured prior to the granting of any licence by Irish Rail
- If funding and a licence is secured, it must be acknowledged by all that there is a possibility that, if there is a return to use of the WRC, Irish Rail have stated that they will certainly revoke the licence and cease the use of the facility as a greenway

6 Option Three, shared-use Greenway

As noted, there are many disused and abandoned railway lines located throughout Ireland and greenways are planned for or have been developed along a number of these routes. However, in a small number of instances greenway-type facilities been constructed alongside railway lines that have been left in situ, i.e. with rails and sleepers left in place. Two of these are the Waterford Greenway and the Athlone-Mullingar Greenway.

In cases where both amenities, i.e. trails and track, are accommodated the area given over to each has to be widened to ensure a safe environment for walking and cycling alongside rail traffic. Unless it already exists, groundwork will be required to ensure that a suitable base is in place for the recreational trail which will increase project costs. This may entail the extending of existing track bed, rail embankments, e.g. ballast, drainage, etc., and specific responses at bridges and level crossings as well as fencing to prevent injury. These interventions will add to the overall capital cost of the project, though they would also alleviate the need and cost of removing rails and sleepers.

Examples of Shared Use of Railway

Athlone-Mullingar Greenway

With an overall length of approximately 41km, the Athlone-Mullingar Greenway is a shared cycleway and footway recently constructed alongside a disused railway line, and which forms a segment of the planned greenway linking Dublin and Galway. The railway corridor was initially designed to accommodate two sets of rail track, however only one remains in situ as the other was taken up in 1926. The presence of the former track bed facilitated the development of a 3m-wide greenway trail alongside the remaining railway line without any physical barrier separating the two amenities.

Photo 15 Athlone-Mullingar Greenway (source: Athlone.ie)

As shown (Photo 15), overbridges along the route were wide enough to accommodate both rail track and the greenway, however the width of ten underbridges was more restrictive and limited to rail track only. To facilitate cycle and foot traffic using underbridges, 'bridge decks' were constructed alongside three of these located between Moate and Mullingar at a cost of €15-18k each. In the case of the remaining seven underbridges, to facilitate travelling the rail track was covered with tarmac and the line of the greenway diverted onto the track for a short distance, and new side railings were erected to afford greater safety for greenway users.

The 41km tarmacadam-finished Athlone-Mullingar Greenway was completed at a cost in excess of €7.2m, roughly €176k per kilometre, and opened to public use in October 2015. The capital cost of the project was met primarily by grant aid and direct labour supplied by Westmeath County Council staff. Given the availability of the former track bed upon which a greenway could be built, costs were initially projected to be lower than actually achieved, however the removal of vegetation showed significant degradation had occurred over nine decades due to 'ballast robbing' for repairs to the adjoining line, and to erosion. This resulted in an additional cost of €1m for the importation of stone to prepare the line for the construction of the greenway. Other expenditure that increased the overall project cost included:

- 12km of improved drainage works
- The laying of 4inch fibre optic[20] ducting along the entire route (€10/linear metre)
- Tarmacadam finish of the entire route

In granting a licence for the greenway, Irish Rail also made it a requirement that should the rail line reopen the Council is responsible for removing the trail and returning the route to its original state.

Waterford Greenway

The Waterford Greenway is a 48km trail being constructed on the disused former Waterford, Dungarvan & Lismore Railway line, however the Kilmeaden to Bilberry section of the line is currently used by the Waterford & Suir Valley Railway for the operating of a tourist/ heritage train. Due to the needs of the Railway, this 9.6km section of the greenway has been constructed adjacent to the operational railway line at an estimated cost of €375,638 (incl VAT) per kilometre. This total reflects the cost of constructing a suitable base for the construction of a greenway, boundary fencing, and other associated works.

Figure 4 Kilmeaden to Bilberry Section (in blue) of the Waterford Greenway (source: Waterford Co.Co.)

For safety reasons 'separation fencing' was erected between the greenway and the railway at a cost of €15k/km (incl VAT). To accommodate bicyclists and walkers using the greenway six existing bridges and

[20] This was a requirement of the licencing agreement with Irish Rail

culverts had to be widened and extended at a cost of €1m (incl VAT). This work consisted of the construction of 2 to 3m-wide galvanised steel footbridges adjacent to existing railway bridges and of 165m of galvanised steel boardwalk.

Projected costings for shared use

A summary of the range of capital cost scenarios (inclusive of VAT) for the development of 35.5km of greenway along the Sligo section of the WRC can be provided using the actual/ projected costs identified for the two shared-use projects described above. However, given that the entire length of the Athlone-Mullingar Greenway was built upon a former track bed, which does not exist on the Sligo section of the WRC, costings based upon the experience of this project are not applicable in this instance.

The Kilmeaden to Bilberry section of the Waterford Greenway was, however, a primarily greenfield project, and required additional fencing due to the presence of the operating tourist railway. As no such safety barrier will be required along the Sligo section of the WRC, initially at least, the capital cost scenario shown in the table below is exclusive of this specific cost.

Cost Basis	Cost/ Km	Distance	Capital Cost
Athlone-Mullingar Greenway	€176k	35.5km	N/A
Waterford Greenway average (excluding fencing)	€361k	35.5km	€12.8m

Economic Analysis for shared-use greenway

The business case for shared use of the line is very similar to that of the single-use greenway described in the previous section, i.e. based upon the:

- Local visitors, not staying overnight
- Domestic visitors, with overnight stays
- Overseas visitors, with overnight stays

In summary, without duplicating in detail the information provided in the previous section, a conservative estimate for the number of people visiting the greenway has been projected as follows:

Category	Sligo WRC visitors	Total Spend	Net Expenditure	Additional Employment
Local visitors	13,760	€ 254,560.00	--	--
Domestic visitors	5,920	€ 708,268.80	--	--
Overseas visitors	3,200	€ 551,724.80	--	--
Total	**22,880**	**€ 1,514,553.60**	**€ 734,897.43**	**25 jobs**

This is regarded as a conservative projected estimate for a greenway on the Sligo section of the WRC.

Payback period for the shared-use greenway

As the Waterford Greenway cost is the most applicable in this instance, as identified earlier in this document, the potential construction cost for a greenway on along the 35.5km Sligo section of the WRC is estimated to be in the region of €12.8m (€361/km). This figure has been used to identify a potential timeframe for the payback and return on investment of the construction of a shared-use greenway on the Sligo section of the WRC, based upon potential usage, number of visitors, daily spend by visitors and the number of days spent in the locality.

Desccription	Construction	Visitor Spend	Payback years
Sligo Greenway (35.5km)	€12.8m	€ 1,514,554	8.45

The return on investment under the above scenario is greater than that of the single-use greenway, due to the increased costs.

Phased Development

As with a single-use greenway, single-stage development of the full 35.5km project is a preferential option as it would similarly result in a shared-use amenity of a scale and quality attractive to both domestic and overseas visitors. Given the higher cost of €12.8m estimated (€361k/km including VAT) for a shared-use greenway, funding needs may require a phased approach to development. In this case, a potential construction scenario is as follows:

- **Phase 1** (2018) – 25km (approximately) of greenway constructed between Collooney and Tubbercurry at a cost of €9m.
- **Phase 2** (2019) – 10.5km (approximately) of greenway constructed between Tubbercurry and Bellaghy at a cost of €3.8m.

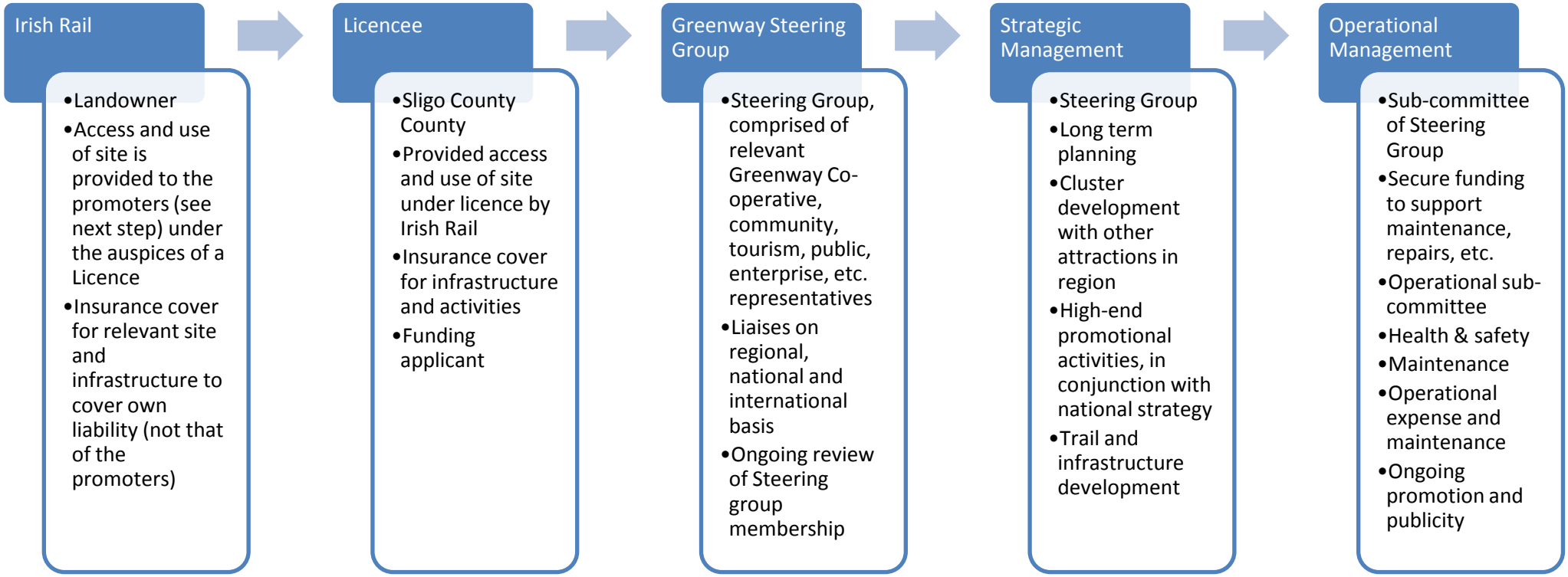
It should also be noted, however, that a phased development approach offers the potential for increased overall project costs and reduced return on investment as the payback period is further extended.

Funding Sources

Sources of capital funding for a dual-use greenway are similar to that of a single-use amenity, e.g. the Local Authority and the Department of Transport, Tourism and Sport Department, as discussed earlier. Given the cost of a project of this scale, it is most likely that significant funding will need to be secured from a variety of sources.

Management Structure

As with the single-use Greenway, sustainability of Option Three will depend primarily upon the management structure to be implemented to oversee the long-term promotion, maintenance and development of the facility. A sample management structure for the project is illustrated below.



Staffing

The dual-use Greenway is unlikely to be in a position to employ full-time staff in the near future and will be managed almost exclusively by the Operational Sub-committee above. It is likely, however, that the project will seek support through programmes such as RSS for staff to assist in the maintenance of the facility.

Maintenance

Similar to single-use greenways, maintenance activities should be minimal and locally available resources, e.g. Scheme operatives, Council staff, volunteers, etc., used effectively to carry out works at little or no financial cost. Those responsible for developing greenways and trails, both public and community-based organisations, are expected, if not required, to have a formal maintenance programme in place to ensure the amenity they are responsible for is adequately maintained. This is especially true where large capital costs are involved and the funding partner(s) want to ensure their investment is protected.

For both single and shared-use amenities, it is recommended that a local committee be established with responsibility for ensuring that an annual maintenance programme is carried out. In addition to the Local Authority, this body should include representatives of key stakeholders such as the local community, greenway users, landowners, etc.

Single-use versus Shared-use

As a result of the above increase in the payback period, any recommendation for the shared-use option above that of a single-use greenway would need to take into account:

- The actual negative impact of a single-use greenway upon Irish Rail's potential reopening of the track
- Any potential savings that may, or may not, arise, in the long-term, from shared-use, i.e. if the line is reopened, does the construction of a dual-use greenway alleviate any costs at a later stage if the single-use greenway had to be removed from the existing line
- Irish Rail's commitment towards the actual implementation, or not, of the clause in the potential greenway licence for the revocation of the licence if a decision is made to reopen the line

As stated by West on Track, there is significant concern that the development of a single-use greenway would adversely impact upon the strength of the argument for the reopening of the Sligo WRC. However, for the purposes of this study, the information given by Irish Rail, relevant to this issue, needs to be given serious consideration and, in communications with the body, and other greenway projects, there has been reference to:

- The absolute requirement of a clause in the licence, with the potential to revoke the greenway use if the line is reopened
- The requirement for all development work on a greenway to take into account the likelihood of the licence being revoked, including additional construction costs to ensure future proofing
- The potential removal of a shared-use greenway if the line is reopened, thereby negating any potential cost savings in the long run above that of a single-use greenway

The recommendation for choosing between these two options is provided in Section 7, Conclusions.

Summary of Assessment of Option 3

Pros

- The dual-use greenway provides almost all of the same economic benefits as those of the single-use greenway[21]
- The dual-use greenway is more acceptable to West on Track as a development option that will not adversely affect the potential for the reopening of the line
- If the WRC is reopened and the greenway does not have to be removed, this option provides cost-savings in the long run and the potential to secure the long-term future of a greenway

Cons

- The costs are significantly higher than that of a single-use greenway
- The payback period is longer than that of a single-use greenway
- As a result of the increased costs, in comparison to the available alternative, it is likely to be more difficult to secure funding for the dual-use greenway
- This is not regarded as a likely option, due to the probable delay in the development of the new cycle path, relative to the single-use greenway, which will be built upon a readily accessible infrastructure
- There is a possibility that the track may have to be removed as part of any reopening of the WRC line, negating any long-term cost savings above the single-use track

Photo 16 View North from Curry (copyright: West=on=Track)

[21] To avoid duplication, these are available for reference in the previous section and are not repeated here.

7 Conclusions

The disused former GSR line is a valuable piece of infrastructure existing in the immediate vicinity of the Tubbercurry REDZ. Currently lying dormant, this important strategic asset has as a result a negative cost to the region. All three of the development options identified in this Assessment seek reverse this situation and to take advantage of this asset for the betterment of the wider community.

Which option has the greatest potential impact upon the region?

It is evident that the option with the greatest potential for having a positive impact upon the region, the optimal solution to re-imagining this strategic asset, is the reopening of the Sligo section of the WRC to rail traffic. From a strategic perspective, the reopening of the line would be a significant achievement, facilitating balanced regional development and providing a wide range of economic, environmental and social benefits to local communities. It would offer the potential for greater connectivity within and between the regions, its inhabitants, businesses, and visitors, leading to considerable new economic and social opportunity.

Is the reopening of the Sligo section a realistic possibility?

While the current line is not in use, it is classified as a 'closed line' by Irish Rail, as opposed to an abandoned line and there remains a potential, as demonstrated by West on Track and the experience of other lines, of a reopening in the long-term.

Does this possibility exclude the potential for a greenway?

No, the possible reopening of the line and the development of a greenway are not mutually exclusive options. Realistically, the reopening of the line will not occur in the short to medium-term. As a result, there remains a significant asset in the form of the line infrastructure, e.g. ballast, that can be used to the benefit of the region, as demonstrated by the development of greenways in other counties.

Would a greenway be a good investment?

Based upon the experience of other greenways, the greenway would provide economic, cultural, social, environmental and health benefits to the region. Based upon conservative visitor numbers, this would also be the case for a potential greenway on the Sligo section of the WRC. It also offers the potential for further linkages with other facilities and businesses in the tourism and recreation leisure throughout the West, North West and North. Should the line be reopened to rail traffic at a future date an existing greenway could be relocated as part of what would be a considerably larger capital investment project.

Which greenway provides the best option, the single or dual-use greenway?

The single-use greenway is recommended as the best option. By using the existing line infrastructure, it offers the potential for a lower cost option that can be funded, agreed upon (with Irish Rail) and commenced in a shorter timeframe. As a result, the payback period for the investment is much shorter than that of a dual-use greenway, which would require extensive work and cost relative to the construction of a greenway on the existing ballast.

What about the potential reopening of the line?

Communication with Irish Rail and other greenway projects has repeatedly highlighted the absolute requirement of a clause in the greenway licence that requires the revocation of the licence if the line is reopened at any stage. This is strictly enforced and reemphasised by Irish Rail, who also require, where necessary, additional costs to be incurred in the development of the greenway to ensure future-proofing in the event of a reopening of the line.

What is the final recommendation?

The final recommendation is that Option Two, the single-use greenway should be pursued in the short-term, however Option One, the reopening of the line to rail traffic should be the longer-term objective.

Appendix I
Heritage

Heritage

Any development along the route of the WRC will impact upon both the built and natural heritage of the area and appropriate studies will need to be undertaken to identify the potential for and minimisation of any negative impact. However, development of the line will facilitate greater access to the area, especially the rural towns and villages in close proximity to the route. The resulting opportunities for economic activity such as accommodation, bike rental, cafes, etc., will not only provide employment but also the potential justification for further investment in the region. This may result in positive impacts where, for example, heritage structures such as former railway cottages, station buildings, etc., are conserved and adapted to new uses, and where wildlife habitats are identified and safeguarded, etc.

Built Heritage

There is considerable built heritage extent on and alongside the route of the railway line however only four structures are currently included in the Department of Arts, Heritage and the Gaeltacht's National Inventory of Architectural Heritage (NIAH), as follows:

Description	Location
Stone railway bridge	Curry
Former water tower	Tubbercurry
Railway station building	Coolaney
Railway warehouse/stores building	Coolaney

Railway Warehouse at Coolaney, c.1870

Only one structure, the stone railway bridge at Curry, is included in the current Sligo County Development Plan 2011-2017 Record of Protected structures (RPS). There are, however, many former railway structures located along the route, mostly former railway cottages that are neither 'listed' on the County's RPS nor included in the NIAH though all date from the same period, i.e. the late 19th century.

Railway Bridge at Curry, c.1890 (source: NIAH)

The more substantial Tubbercurry railway station buildings were demolished in the 1980s to facilitate road construction and, in 2006, a signal cabin was removed due to safety concerns. All that remains is the former water tower and waiting platforms.

Water Tower at Tubbercurry (source: NIAH)

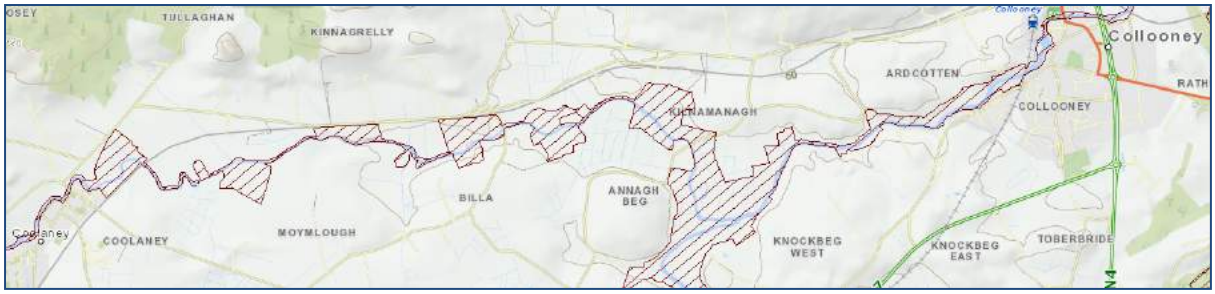
In addition to structures of more recent vintage, National Monuments Service (NMS) records indicate that there are approximately nine sites of archaeological significance on the route of the railway line including at least seven ringforts/raths and two souterrains. The line passes directly through NMS 'zones of notification' for all nine sites.

Heritage Features Located along WRC, Coolaney-Collooney Section (source: webgis.archaeology.ie)

Former Gatekeeper's Cottage at Rathscanlan (source: google.ie)

Natural Heritage

At several locations along its route, the railway line passes through two Natura 2000 sites: the River Moy (Site Code 002298) and Unshin River (Site Code 001898) Special Areas of Conservation (SAC). It is a requirement of the EU Habitats Directive that Appropriate Assessments (AA) be carried out where there is the potential for a project to impact upon a Natura 2000 site. An AA may therefore be required if development of the route is planned. If not, it would be advisable that at a minimum a survey/study be conducted to identify and assess existing habitats and wildlife along the route of the railway line, e.g. rivers, hedgerows, bat roosts, scrub, etc., that could be affected by future development of any type. Where identified, proper mitigation measures will most likely have to be agreed and put in place prior to the commencement of any works.



Coolaney-Collooney Section of the WRC Showing Proximity to the Unshin River SAC (source: webgis.npws.ie)

Hydrology

As the railway line crosses a number of rivers and streams there may be a need to ensure that mitigation measures are put in place to ensure that the water quality of all adjoining and crossed watercourses is maintained where any development occurs.

Appendix II
Greenways

Greenways

There are numerous 'greenway'-type projects built, under construction or in planning throughout Ireland, north and south, and the list is growing daily. These include short (e.g. <1km) commuter and recreational trails found in urban areas, as well as considerably longer cycling/walking amenities such as the Great Western Greenway. Some seek to emulate the success of more successful greenways, whereas others are primarily targeted at improving recreational opportunities and commuting options for local residents. Though popularly associated with former railway lines, greenways have also been constructed on towpaths, forest trails, etc., as well as on greenfield sites. The following is a sample listing of some of the many greenways built, under construction and in currently being planned.

Great Western Greenway

The Great Western Greenway is a 42km (26 mile) off-road, shared-used cyclist and walking trail running between Westport and Achill, County Mayo, the Greenway passes through the towns of Newport and Mulranny running along the shores of Clew Bay. Constructed at a cost of approximately €6 million, the route follows that of a former railway line that closed in 1937 and was made possible by agreement with approximately 160 local landowners who gave permissive access for the public to cross their land. It is the longest off-road cycling trail in Ireland and forms part of the National Cycle Network. It was reported by Mayo County Council that approximately 265K persons travelled all or portions of the trail in 2014.

Route of Great Western Greenway

Initial development work on the Greenway entailed the removal of vegetation from the former railway line, clearing of existing drains and installation of new ones where necessary. Construction then commenced on the 3m wide cycle/walking path consisting of a gravel sub-base, further layers and geotextile fabric topped with a limestone dust finish layer (in some more heavily trafficked areas the finish layer was bound with macadam for strengthening). Additional costs occurred where separated paths had to be constructed due to proximity to public roads, where stabilisation measures were necessary, and other infrastructure, e.g. trail furniture, signage, etc. was required.

While no land was purchased in developing the Greenway, Landowner permission was required for most of the route. This resulted in increased costs per kilometre, up to €250,000 in some cases, where private ownership necessitated adjusting the route from the railway line, e.g. rerouting, relocation of structures,

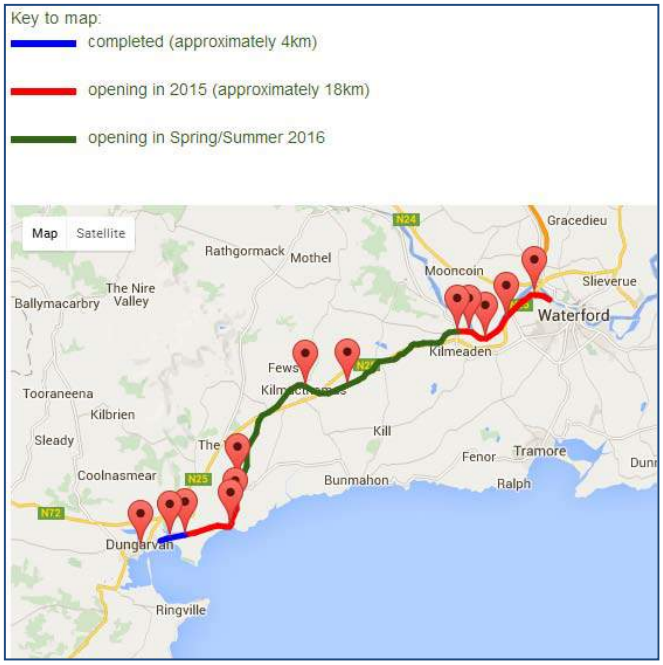
etc., and additional expense was incurred. Funding for construction was sourced from Failte Ireland, the Department of Transport, and the Department of Community, Gaeltacht and Rural Affairs, and Mayo County Council's own resources.

Castlebar Greenway

Located along the banks of the Castlebar River, the new 8.8km Castlebar Greenway connects the town of Castlebar to the National Museum of Country Life at Turlough. The cycling/walking trail is directly linked to local sporting and recreational facilities, schools, residential areas, and tourism accommodation. The Greenway was constructed at a cost of almost €1.5million with National Cycle Network funding and matching funds and labour costs provided by Mayo County Council (€165K/km).

Waterford Greenway

When fully complete, the Waterford Greenway (www.deisegreenway.com) will form a 48km linear park linking Waterford and Dungarvan via the route of the former Waterford, Dungarvan & Lismore Railway line. Train service along the line ceased in the 1980s and following this the tracks were removed. Having obtained a licence from CIÉ to develop a greenway, Waterford City and County Council began construction of a 4m-wide trail incorporating a tunnel, 18 level crossings including three of a National Primary road (the N25), and twenty bridges. Initial work entailed the removal of vegetation, clearing of drains, surfacing, etc., which was facilitated by the fact that railway ballast remained intact along most of the route. Though there was little unauthorised encroachment on the line, the project was delayed due to a number of objections mostly from landowners with land adjoining the line. It is anticipated that the entire route will be open by summer 2016.



Map of Waterford Greenway (source: www.deisegreenway.com)

West Cork Abandoned Rail Line Greenway

This is the proposed redevelopment in two phases of 188km of long abandoned Cork, Bandon and South Coast Railway line as a greenway by Cork County Council. When completed, the finished Greenway will provide a dedicated off-road walking and cycling route linking many of the towns and villages throughout West Cork. To this end the Council has commissioned Feasibility Studies for two sections: Cork to Kinsale; and Ballinscarthy to Courtmacsherry.

Cork to Kinsale Greenway

This initial phase of the proposed flagship project will link the city of Cork to the popular tourist town of Kinsale via 36km of off-road cycling and walking trail. This section incorporates several impressive built heritage features such as the Chetwynd and Halfway Viaducts and the railway tunnel at Ballinhassig, as well as kilometres of trail through some of the area's most scenic landscapes. The completed Feasibility Study identifies potential costs of €67,000/km for the development of a walking/cycling trail on former track bed where railway ballast remains intact, i.e. 'On Rail Alignment', as opposed to new routes through open fields, etc.

West Clare Railway greenway

In August 2015 Clare County Council announced that works had commenced on the planned development of a 42km greenway on the route of the former West Clare Railway. When complete, the greenway linking Ennis to Lahinch, via Corofin and Ennistymon will form part of the National Cycle Network connecting to existing and planned routes such as the Wild Atlantic Way and the EuroVelo 1 Atlantic Route. A budget of €4,744,000 was identified for the greenway, or €118,600/km, and initial funding was provided to Clare County Council by the Department of Transport, Tourism and Sport to construct the first phase of greenway project, a 3km linking trail in Ennis town.

Great Southern Trail

Located on the route of the former GS&WR line between Limerick and Tralee, the Great Southern Trail (GST) will eventually be an 85km (52m) long off-road cycling/walking trail, of which approximately 35km (22m) has been constructed between Rathkeale and Abbeyfeale, County Limerick. Developed over several decades by the Great Southern Trail Ltd, a local voluntary group, the cost for the initial 35km is estimated to be approximately €1 million. In November 2015 it was announced that Limerick City and County Council had signed a licence agreement with CIÉ thereby assuming responsibility for the management, maintenance, promotion and development of the greenway.

Dublin Galway Greenway

A phased project involving Local Authorities in six counties, the so-called Dublin-Galway Greenway will when complete provide a 276km cross-country cycling and walking trail linking Galway and Dublin cities using former railway line, towpaths and new trails. The greenway will form the Irish section of the EuroVelo 2 route. Sections of the national route east of the Shannon such as the Athlone-Mullingar

Greenway have been completed, however the route west of the Shannon has yet to be finalised as much of this will cross privately-owned land and their have been considerable objections to its development.

Figure 5 Route of the Dublin-Galway Greenway (source: irishcycle.com)

Athlone-Mullingar Greenway

A recently opened section of the Dublin-Galway route, the 41km Athlone-Mullingar Greenway is a 3m-wide cycling/walking trail constructed on the alignment of a former track bed, alongside a disused railway line still in-situ.

Connemara (Galway) Greenway

Still in planning, the Connemara or Galway Greenway is a Galway County Council proposal to develop a 78km walking and cycling trail between Galway city and Clifden, County Galway along the route of the former Connemara Railway (1895-1935). The first phase of the project will see Oughterard linked to Clifden and the second phase will complete the trail south to Galway city. While most agree that the greenway will benefit communities and local economies, many landowners affected by the plans have raised concerns about a lack of consultation especially where plans are for the trail to run across privately owned property.

Figure 6 Route Map of Proposed Connemara Greenway (source: connachttribune.ie)