From:

Sent: Wednesday 9 September 2020 17:09

**To:** Planning <planning@GalwayCoCo.ie>; Devcontributions <Devcontributions@galwaycoco.ie> **Subject:** Submission to the County Development Plan

Dear Sir/Madam,

Please find links (EBook and Video) below to submit to the County Development Plan 2022-2028.

I hope this finds you well.

Regards,

Joseph Francis Kelly

An tEachréidh Greenway (Baile Chláir/Eanach Dúin) EBook https://issuu.com/agpireland/docs/eachreidhgreenwaymay2019wbenefitspa

An tEachréidh Greenway (Baile Chláir/Eanach Dúin) Video <u>https://youtu.be/NJUvNBtuDeg</u>

Galway Commuter Rail https://issuu.com/agpireland/docs/gcomreportoct20182

U-N.I.P (Uilleann Bus Nasc Iompair Pobail) Bus Rapid Transit serving both City and County <u>https://issuu.com/agpireland/docs/unippubdraftdec2018</u>

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Cregmore-Baile Chláir-Corrandulla-Annaghdown By Joseph Francis Kelly (Baile Chláir)



## ΔΠ τΕΔCHRĖIDH δREENWΔ

ili Rochan agus Cosán/ Cycleway ano Foocpach



Castlecreevy Cottage







## System length = 27.563km (est)

## Actual new surface required = 11km

Currently surfaced & Roadsharing with Modifications = 16.57 km

Waterford Greenway = 46km @ €15 million

Great Western Greenway(Westport) = 42km @ €5.7million














































































Cregmore-Baile Chláir-Corrandulla-Annaghdown By Joseph Francis Kelly (Baile Chláir)

JARNRÓD COMAICÉARA NA JAILLIMHE

STATE AND INCOMESSION OF



Dear Citizens and County Folk of Galway and The West,

The Galway Commuter Rail Strategy adds another solution to the search for the correct "Mobility Mix" in Galway and it's service hinterland. The enhancement of this already installed infrastructure can benefit many beleaguered and weary commuters in the Galway of 2018 and beyond. With an overbearing 80,000 Vehicle Commuters labouring the City's road infrastructure on a daily basis, the offering of supporting non-road infrastructure has sensible appeal. With this, the issues of environmental protection and socio-economic factors are also guite important to such an installation, taking into account cost of running a commuter vehicle, the emissions exhaled from an accumulation of vehicles and the spaces within cities that are drawn into planning for commuting vehicles such as cars. With the introduction of a daily dedicated set of carriages and schedules for a Commuter Line from Galway to Athenry, and passing loops at strategic points to allow for optimal frequency, The Galway Commuter Rail strategy presents one solution that could decrease the congestion in Galway City. The search for an adequate "Mobility Mix", must also assist an integrated solution which has a satisfactory probability of solving and sustaining commuting life in Galway City and it's environs.

Is Mise Le Meas,







## Line Terminals and Platforms







**Ballyloughane Bridge** 

From this vantage point, we can see that there is already proto-infrastructure displayed which would emulate A functional single platform from this point and continuing along for 528.94 meters to Hawthorn Drive.

To place a single concrete platform between these points is optimal for reasons of access and providing an adequate location to integrate with a Bus Rapid Transit i.e. U-N.I.P and minimally a Bus Éireann supporting line.

There adequate space available to install all of the above mentioned between these locations.





**Murrough Level Crossing** 

At this point at Murrough ,Placing a single concrete platform measuring at 182.75 meters at Murrough level crossing is optimal for reasons of access to walkways that lead off to different points of the Neighbourhood in Renmore and providing an adequate location to integrate with a Bus Rapid Transit i.e. U-N.I.P and minimally a Bus Éireann supporting line. There is adequate space available to install this platform.





Roscam Rail ; a view from the level crossing



Roscam directly adjacent due north from Rail Line

At this Point in Roscam, there is adequate space to install a single concrete platform measuring 212.64 meters long.

Directly adjacent to the rail line, there is also ample space to install a depot for linking Public Transport , ideally a comprehensive Bus Rapid Transit system and some small ancillary services i.e. Kiosk for coffee and snacks. Finding space for parking may also become an issue, as the weather and major road links close by, could prompt this platform to attract the behaviour of a park and ride.

The surrounding population of Roscam/ Doughsika (6,019+), is quite dense in comparison to other areas and would present a regular form of transport for these residents , albeit this would be very successful if there is an integration with a Reliable rapid public transport system i.e. U-N.I.P Bus Rapid Transit (Please view page 16).





Oranmore Train platform built and active since 2011

The Oranmore Train Station and Park and Ride has been installed since 2011, has a seen a rise in Rail passengers using this facility. Rail passenger usage passing through this station has risen by 39% in regard of both Dublin and Limerick chartered services in 2017 from the previous year.

### Table 19: Daily Patronage on remaining Lines outside Cork and the GDA

| Line                                      | 2016  | 2017  | Annual % Change |
|---|-------|-------|-----------------|
| Galway - Athenry/Athlone/Westport         | 716   | 906   | 27%             |
| Galway - Ennis/Limerick/Limerick Junction | 2,083 | 2,329 | 12%             |
| Limerick - Nenagh/Thurles/Ballybrophy     | 163   | 209   | 28%             |
| Waterford - Limerick Junction             | 109   | 119   | 9%              |
| Total                                     | 3,071 | 3,563 | 16%             |
|   |       |       |                 |

\* Graph obtained from the National Heavy Rail Census report 2017 (July 2018)

As presented from the graph above, the clear increase of Rail passengers has been evident over the past two years, along the Galway to Athenry route ranging from Intercity users to Commuters within the Galway Area . This provides further reinforcement of the need to run both a function inter city and commuter service on this line. Implementing such structures would also assist to relative environmental and socio-economic goals i.e. reducing carbon emissions by encouraging Public Transport usage and making a daily commute cheaper for citizens opting for Public Transport before car usage. The social implications of people sharing journeys regularly most often are binding and create a spirit of familiarity. Moreover, the less amount of time commuters spend waiting in traffic congestion may present more positive feedback on commuting in comparison to the status quo in Galway at present.

# An Integrated Approach Linking with a Bus Rapid Transit

#### Uilleann Bus- Nasc Iompair Pobail/U-N.I.P : A Bus Rapid Transit System numbered with Low Carbon Hybrid Bendy Bus Vehicles









Supporting existing Transport Infrastructure of :









Created and Designed by Joseph Francis Kelly, AGP Ireland

## **International Definitions of Bus Rapid Transit**

"A high quality bus based transit system that delivers fast, comfortable and cost effective urban mobility through the provision of segregated right of way infrastructure incorporated with rapid and frequent operations with excellence in Marketing and Customer Service"

Levinson et al, BRT Planning Guides (IDTP,2007)






### Uilleann Bus- Nasc Iompair Pobail U-N.I.P.: Hybrid Bus Rapid Transit (BRT)

The compromising solution for all interests in Galway's Transport debate is perceived as the most optimal , the implementation of N6 Transport Project inclusive of a comprehensive Sustainable Public Transport Solution presents the positive consensus understood from the feedback attained by the majority. With such a compromise, the presentation of a comprehensive BRT system, <u>Uilleann Bus- Nasc Iompair Pobail</u> <u>U-N.I.P</u> aims to satisfy short to medium to Long term objectives with a view to solving the obvious transport challenges of the Western Region's Service Centre, Galway City, and the interconnected County area.

The relative objectives of the N6 Transport Project, concurrent or otherwise, have been considered and U-N.I.P. has aimed to satisfy, in part, the endeavour which is to serve the Public necessity of Sustainable Public Transport.

With the U-N.I.P. BRT system, the Public Transport objectives of the N6 Transport Project would be achieved.



#### technical specifications

| dimensions                       | Exqui.City 24 diesel-hybrid    |
|----------------------------------|--------------------------------|
| length                           | 23 820 mm                      |
| width                            | 2 550 mm                       |
| height                           | 3 350 mm                       |
| boarding height                  | 320 mm                         |
| standing height                  | 2 290 mm                       |
| wheelbase                        | 6 600 mm / 6 710 mm / 6 710 mm |
| front overhang                   | 1 900 mm                       |
| rear overhang                    | 1 900 mm                       |
| approach angle                   | 7*7′                           |
| departure angle                  | 7°7′                           |
| turning radius                   | 12 400 mm                      |
| turning radius between sidewalks | 11 350 mm                      |
| inside turning radius            | 5 200 mm                       |
| curb weight                      | 24 900 kg                      |
| number of access doors           | 4 (2 wheelchair ramps)         |
| tires                            | 12 tires: 275/70 - R 22,5      |
| seating capacity                 | 40                             |
|                                  | 2 wheelchair areas             |
| diesel engine                    | MAN D0836 LOH61 - EEV - 0802   |
|                                  | 184 kW (250 PS)                |
| hybrid electric traction engine  | Siemens PEM 10B2024 + 2 VPM    |
| hybrid generator                 | Siemens 1FV5168                |

#### technology

The heart of the Exqui.City is the **Multi Propulsion Platform**, designed to accommodate the latest and greenest alternative propulsion technologies.

The Exqui.City Design Mettis is a diesel-hybrid version.



### **Reduced Emissions**

Hybrid buses are estimated to cut emissions by as much as 75 percent when compared to conventional diesel buses

### **Reduced Costs**

The hybrid buses are expected to have lower maintenance costs due to reduced stress and maintenance on mechanical components such as brake linings, which may extend brake life by 50 - 100 percent. In addition, the electric drive has fewer parts, therefore requiring less maintenance than a traditional transmission

### Increased fuel efficiency

With less fuel need for operation ,the Electric motor combined with a low amount of diesel used.

### **Flexibility of Use**

Lines have the ability to be modified to suit demands of City's Infrastructure.



## **Advantages and Comparisons of Bus Rapid Transit (BRT)**

- . Routeways Simple more direct than Local Service
- . Improves existing Transport Facilities
- No tearing up of roadways
- Decreasing emissions
- . Frequent Reliable Service
- . Vehicles Euro Style Sleek with Spacious Interior
- . Lower Cost and Low Maintenance (Hybrid Electric)
- . Increased Customer Service to Bus Users
- . Lessening reliance on Fossil Fuel
- Cheaper the LRT (Light Rail) ; 116million (MVA Consultancy, 2010)
- . Routeways are flexible and can be modified
- Quick to Implement
- . Low cost , high capacity alternative to LRT

## Additions to Existing Facilities: Inclusive of the N6 Ring Road

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To achieve optimal unhindered movement there are a few additions required to enable the U-N.I.P Hybrid Bus Rapid Transit system to provide a reliable commuting transport service.

The additions would range from :

- . Added links to routeways for continuity and connectivity
- Widening and slight alteration to add 1.5 metres to 2metres extra road space in some parts of road surface i.e. Mervue to Moneenagisha junction, Roscam, Knocknacarra etc..
  - Designated BRT lanes (where possible)
- Signalling to enhance a BRT Right of Way at Junctions

### Hybrid Bus Rapid Transit (BRT) routeway addition: Mellows Park—Na Duganna



### Hybrid Bus Rapid Transit (BRT) routeway addition:

### Quincentennial (Designated Lanes)



### Hybrid Bus Rapid Transit (BRT) routeway addition: Racecourse to Ballybrit



Hybrid Bus Rapid Transit (BRT) routeway addition:

Western Distributor Road (Park & Ride Installation and Designated Lanes)



| Blue<br>Line    | Headway | Run Time<br>* At Avg.Speed<br>of 40kmphr | Layover | Recovery<br>Time | Spare | Vehicles                                  |
|-----------------|---------|--|---------|------------------|-------|---|
| 11.8km          | 5mins   | 17mins                                   | 5mins   | 2.50mins         | 2     | 9   |
| Red<br>Line     | Headway | Run Time<br>* At Avg.Speed<br>of 40kmphr | Layover | Recovery<br>Time | Spare | Vehicles                                  |
| 6.75            | 5mins   | 11mins                                   | 5mins   | 2.50mins         | 1     | 7   |
| Amber<br>Line   | Headway | Run Time<br>* At Avg.Speed<br>of 40kmphr | Layover | Recovery<br>Time | Spare | Vehicles                                  |
| 8.8KM           | 5mins   | 13mins                                   | 5mins   | 2.50mins         | 1     | 7   |
| Black<br>Line   | Headway | Run Time<br>* At Avg.Speed<br>of 40kmphr | Layover | Recovery<br>Time | Spare | Vehicles                                  |
| 12.9km          | 5mins   | 19mins                                   | 5mins   | 2.50mins         | 2     | 9   |
| Yellow<br>Line  | Headway | Run Time<br>* At Avg.Speed<br>of 40kmphr | Layover | Recovery<br>Time | Spare | Vehicles                                  |
| 13.2km          | 5mins   | 19mins                                   | 5mins   | 2.50mins         | 2     | 9   |
| Sherice<br>Line | Headway | Run Time<br>* At Avg.Speed<br>of 40kmphr | Layover | Recovery<br>Time | Spare | Vehicles                                  |
| 6.8km           | 5mins   | 10mins                                   | 5mins   | 2.50mins         | 1     | 7   |
| Total<br>Length |         |  |         |                  |       | Required<br>Bus Rapid<br>Transit<br>Fleet |
| 60.25km         |         |  |         |                  |       | 48  |

## Proposed and Optimal System Operational Details including :

**Distance:** Length of Journey from start to terminus and all combined.

**Run time** : Amount of time a full single journey should take from start to terminus before the journey is recycled to outbound/inbound (assessed with average speed of 40km per hour)

**Frequency of Vehicles:** The time it should take to wait and receive a BRT Vehicle when present at a stop

Fleet requirements: Optimal amount of vehicles needed so that the system runs adequately in conjunction with users their journey planning time and in accordance with the route length , this is a variable figure which is flexible as some areas may hold more population than others

# Hybrid Bus Rapid Transit (BRT) Recommended Vehicle Type











## **Bus Rapid Transit (BRT) Case Studies**

Europe and the Wider World

# BRT Case Study #1; Jönköping, Sweden



**Population**:

City; 61,559

(Metro; 93,662)

OECD City Classification:

Small



## BRT Case Study # 2 ; Lorient , France (Twinned with Galway, Éire)



## BRT Case Study # 3 ; Douai ,France



Population: 42,796

OECD City Classification: Small



# BRT Case Study # 4 ; Cambridge, England



# Hybrid Bus Rapid Transit (BRT) Costings of Construction

The Costings of Construction based on the MVA Consultancy report (2009) undertaken to assess the feasibility of BRT in Galway , however some of the costings have perplexed the potential accuracy inclusive of high bus stop alterations and their costs (€47,000,000) whereas enhanced road improvements amounted to €18,500,000 , however based on these costings the implementation of the Uilleann Bus - Nasc Iompair Pobail (U-N.I.P) BRT would range from €80,000,000 to €171,500,000 as so ;

MVA Consultancy 2009 BRT@ €116,000,000 for 14.6km inclusive of fleet and road modifications

Based on these preliminary costings the U-N.I.P BRT would amount to €171,500,000 This cost could be potentially renumerated within a 5 year period, please view overleaf for Renumeration strategy

# U-N.I.P Hybrid Bus Rapid Transit (BRT) Substitution Rate, User Projections & Renumeration

Applying a Substitution Rate of 40% of Commuters on to the SUIG BRT system working from the figures 77,048 commuters (available at: http://issuu.com/agpireland/docs/ commuting\_and\_galway\_city\_from\_a\_su),

Using the City's Infrastructure on a daily basis, a 40% share on to the SUIG BRT system is dependent on placement of routes in accordance with frequent Land Use i.e. Industrial, Commercial, Educational, Residential, Recreational and also the interconnectedness to existing transport facilities both public and private.

Using the TUBA Transport Calculating Matrix the workings of use based on these precedents are as so :

```
Daily Commuters 77,048 x 40% = 30,819 commuters as the 40% Daily User Amount
```

```
Full Access Adult Daily Return = €3.00
```

```
30,819 x €3 = €92,458 (Daily Intake of Ticket Sales)
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```
7 Day model of use = €647,203
```

```
Annual Gross Profit = €33,654,566
```

Joseph Francis Kelly, 38, is a native of Galway and has been undertaking independent research themes for over 5 years now. He has studied and graduated from University of Limerick (Business Studies), University College Cork

(geography w/Planning) and NUI Galway (E-Business Analysis/German).

To date, he has aimed to add to the solutions which can solve ongoing problems of Galway's transport crisis by presenting solutions based on Pubic Transport and Cycling Infrastructure and additionally Regional Development, Governance and Local Government, all of which have been unremunerated to date and furthermore, has expressed interest in maintaining a career in this area due to it's *"great degree of job satisfaction, being creative yet measured in serving commercial or public good".* 

He currently resides in Baile Chláir/Claregalway and continues to work in the community with local sports clubs and also still competes at his beloved Soccer whilst learning to coach and achieve badges through Sport Ireland and the F.A.I. He hopes that his contribution can improve the architectural , social and economic life of Galway .



### Supporting existing and proposed Transport Infrastructure











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