

INFORMATION NOTE

JULIANSTOWN TRAFFIC RELIEF PROJECT

ACCEPTABLE TRAFFIC LEVELS

IDENTIFICATION TABLE

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Project	Julianstown Traffic Relief Project
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TABLE OF CONTENTS

1.	INTRODUCTION	2
2.	ROAD CAPACITY	2
3.	COMPARISON WITH OTHER VILLAGES	3
4.	NOISE POLLUTION	4
5.	CONCLUSION	4

1. INTRODUCTION

Julianstown, a small village in County Meath situated on the R132, is experiencing disproportionately high traffic levels compared to similarly sized towns in Ireland. This is causing congestion during peak hours, and leads to the level of service of this road to drop to critical levels. Furthermore, high traffic volumes result in a number of negative impacts on the local population, including noise pollution. Excessive noise, particularly from transport, poses health risks to residents, especially children attending the local school.

SYSTRA were commissioned by Meath County Council to develop a Project Outline Document (POD) for the Julianstown Traffic Relief Scheme. The POD is the first in a series of steps that are necessary to take an infrastructure proposal from concept to completion¹. The POD has been reviewed by the Department of Transport's Regional and Local Roads and Strategic Research and Analysis Divisions (SRAD). As part of this review, SRAD recommended that an acceptable level of traffic should be considered, to provide context for the issues in Julianstown. It is clear what the level of traffic currently is, traffic volumes through Julianstown have been consistently above 20,000 Average Annual Daily Traffic (AADT). However, it is not immediately clear what level of AADT should be targeted, what level is common on similar roads, or would be an acceptable level.

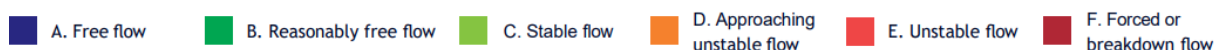
Therefore, this note will examine the traffic levels in Julianstown from the perspectives of road capacity, comparisons with similar settlements, and noise pollution, with a view to exploring acceptable levels of traffic for the village.

2. ROAD CAPACITY

The R132 in Julianstown currently experiences an AADT of over 20,000² (with an AADT of 21,201 recorded in 2024³), significantly exceeding the design capacity of the road.

According to Transport Infrastructure Ireland (TII) guidance⁴ from 2017 on rural road link design, a Type 2 Single Carriageway - which describes the R132 in Julianstown with its 7-metre-wide carriageway with 0.5-metre hard strips - has a maximum capacity of 8,600 AADT for maintaining Level of Service (LOS) D⁵. LOS is a measurement used to evaluate road performance in terms of traffic flow and speed. It considers factors such as vehicle speed, mobility and safety. LOS D represents the point at which traffic density and flow conditions begin to degrade noticeably, leading to increased congestion.

Level of Service



With an AADT of over 20,000, the R132 in Julianstown faces traffic levels that are 130% over the limit to maintain LOS D conditions, which are already at the upper limit of acceptable traffic flow. Exceeding this threshold, as is the case in Julianstown, means that the road operates at LOS E or F, especially during peak hours when the road faces traffic levels of 1,150 per hour in the peak direction and long queues become prevalent.

¹ As per the Department of Public Expenditure, NDP Delivery and Reform's Infrastructure Guidelines Project Lifecycle

² https://trafficdata.tii.ie/sitedashboard.asp?sgid=XZOA8M4LR27P0HAO3_SRSB&spid=4E30484E302E

³ <https://trafficdata.tii.ie/publicmultinodemasp>

⁴ <https://cdn.tii.ie/publications/DN-GEO-03031-10.pdf>, page 54/110

⁵ <https://www.tii.ie/media/dzrgu0gk/tii-national-roads-network-indicators-2023-1.pdf>

This level of congestion has a considerable negative impact on Julianstown and the wider region, as the R132 serves as a primary access route to the M1 for residents and businesses in south Drogheda, Laytown, and Bettystown. Commuters from these towns, as well as the residents of Julianstown face prolonged and unpredictable journey times, affecting economic productivity and quality of life. Furthermore, the constrained road space affects public transport reliability, making buses susceptible to the same delays as private vehicles, ultimately discouraging modal shift towards more sustainable transport options.

In summary, the R132 in Julianstown is significantly over capacity, with actual traffic volumes far exceeding the 8,600 AADT limit required to maintain LOS D. This results in congestion, extended journey times, and negative socio-economic impacts. A reduction of traffic to a level within the acceptable threshold of 8,600 AADT is essential to restore the functionality of this key transport corridor and support efficient regional connectivity.

3. COMPARISON WITH OTHER VILLAGES

A comparison of Julianstown with other similar settlements has been undertaken examining traffic levels and the results are outlined in Table 1. The settlements were selected based on the following criteria:

- Similar population to Julianstown (500 – 900 residents);
- Located on a national road or a major regional road; and
- Availability of AADT data through nearby traffic counters

Table 1 TII Fixed Traffic Count Data for Comparable Towns (2024 data)

Town	Population	County	Major road	AADT ⁶
Julianstown	701	Meath	R132	21,201
Kinvara	721	Galway	N67	5,244
Delvin	714	Westmeath	N52	6,886
Dunmore	664	Galway	N83	4,593
Mountcharles	652	Donegal	N56	11,654
Castlefinn	730	Donegal	N15	5,002
Termonbarry	699	Roscommon	N5	5,576
Emyvale	638	Monaghan	N2	6,864
Frenchpark	572	Roscommon	N5	5,954
Ringaskiddy	575	Cork	N28	10,710
Cappoquin	778	Waterford	N72	5,310
Borris-In-Ossory	629	Laois	R445	3,799
Ballyhooly	610	Cork	N72	3,069
Rathmore	766	Kerry	N72	6,483

Julianstown's traffic levels are four to five times higher than comparable settlements. The village is not designed to handle such high traffic volumes, leading to congestion, noise pollution and a diminished public realm.

A balanced approach to traffic management should ensure that Julianstown's AADT is reduced to levels consistent with other settlements of similar scale, preserving the village's quality of life and public realm while maintaining reasonable access for traffic.

⁶ <https://trafficdata.tii.ie/publicmultinodemap.asp> (data for 2024)

4. NOISE POLLUTION

Current noise levels along the R132 in Julianstown are greater than 70 decibels on average (dB)⁷, which is considered to be harmful for prolonged exposure, especially for children.

In Julianstown, the local school is located directly on the main road, exposing children to elevated noise levels daily. According to the European Environment Agency (EEA)⁸, prolonged exposure to high noise levels in children can lead to:

- Impaired cognitive development, affecting concentration and learning abilities.
- Increased stress and anxiety levels.
- Higher risk of sleep disturbances and associated health issues.

Moreover, adults in the village can also experience negative effects of noise pollution, including sleep disturbances, which can lead to chronic fatigue, decreased productivity, and overall reduced well-being. Noise pollution has been linked to increased levels of stress hormones such as cortisol, which can contribute to long-term health complications if left unaddressed.

In terms of the perception of noise, the following thresholds of perception were identified by the Design Manual for Roads and Bridges (DMRB, UK)⁹:

- A 3 dB(A) decrease represents the threshold to a perceptible improvement, as changes below 3db(A) are generally not perceptible.
- A 5 dB(A) decrease represents a significant improvement.

Noise pollution correlates directly with traffic levels. As per the DMRB guidance, the relationship between AADT and noise levels follows a logarithmic pattern, rather than a linear one. Therefore, the following applies:

- To reduce noise by 3 dB → AADT must be cut by +-50%.
- To reduce noise by 5 dB → AADT must be cut by +-70%.

Therefore, in order to achieve a perceptible to significant reduction in traffic noise in Julianstown, AADT's would need to be reduced to 6,000 to 10,000 through the village, down from over 20,000 currently.

5. CONCLUSION

Julianstown experiences disproportionately high traffic volumes, significantly exceeding the capacity of the R132. The road's design capacity for maintaining an acceptable Level of Service (LOS D) is 8,600 AADT, yet the current traffic flow is over 20,000 AADT. This excessive traffic, which leads to congestion and delays, impacts both local journeys and the accessibility to the M1 motorway for south Drogheda, Laytown, and Bettystown.

⁷

<https://tii.maps.arcgis.com/apps/StorytellingSwipe/index.html?appid=f721e0edc1bb420b8d2f926a7c7f41f6>

⁸ <https://www.eea.europa.eu/en/analysis/publications/the-effect-of-environmental-noise-on-children>

⁹ Design Manual for Roads and Bridge (DMRB) Volume 11 Section 3 Part 7 HD 213/11.

A comparison with other villages of similar population size highlights the extent to which Julianstown is an outlier. While comparable towns experience AADT levels below 10,000, Julianstown faces more than double that amount.

In addition to congestion, the high traffic volume contributes directly to excessive noise pollution, with recorded levels exceeding 70 dB in Julianstown. According to the European Environment Agency (EEA), prolonged exposure to noise pollution at these levels can lead to health risks, particularly for children, including cognitive impairment and sleep disturbances. Guidance from the UK Design Manual for Roads and Bridges (DMRB) confirms that in order to achieve a meaningful reduction in noise levels, traffic volumes would need to be reduced significantly—by approximately 50% to 70%—bringing Julianstown's AADT within a range of 6,000 to 10,000 AADT.

Combining all of these factors leads to a conclusion that the AADT on the R132 through Julianstown should be reduced to under 8,000 AADT in order to restore the function of the corridor, ensure traffic levels consistent with similar villages and improve the quality of life for residents.

APPROVAL

Version	Name		Position	Date	Modifications
1					
2					
3					