

## Kildare National Roads Design Office



# N81 Tallaght to Hollywood Cross

## Scheme Feasibility Report



Wicklow Co. Council



South Dublin Co. Council



Kildare Co. Council

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## 1. INTRODUCTION

The objective of this report is to establish the feasibility of upgrading the N81 between Tallaght and Hollywood Cross incorporating a bypass of the town of Blessington. The report includes information on Journey Times on the current N81 route, an analysis of the traffic volumes and accident data relating to the N81. The background to initiating the study from different policy documents and the population figures indicating the growth in the area are included in the study. All of the information gathered is analysed and recommendations are presented at the end of the study.

The N81 runs from the junction with the N80 in Co. Carlow and terminates in Dublin City and is approximately 85km in length. The section currently under consideration in this report runs from Hollywood Cross to the Embankment in Saggart and is approximately 27km in length, see map 1. Blessington is the only town located directly along the N81 and is connected to Dublin by road only. Blessington is located adjacent to the Pollaphuca reservoir which is a popular tourist location as well as a Special Protection Area. As such any bypass would be restricted in its route to the east of the town.

The road is characterised with a poor horizontal and vertical alignment. The route consists of a single lane carriageway without a hard strip or hard shoulder over lengths of it. The road has limited overtaking capacity and as a result platooning regularly occurs. In addition there are a number of commercial and aggregate industries along this road with slow moving HGVs.

This road was identified in the National Roads Needs Study 1998 as needing a standard 2 lane carriageway as far as Blessington and a reduced 2 lane carriageway beyond. As previously outlined the road does not currently fulfil this requirement.

The speed limit on the N81 is 100kph, reducing to 50kph and 60kph in the urban areas of Blessington and Brittas.

See drawing NRO159/110/11 overleaf showing proposed study area.



## 2. POPULATION GROWTH

The preliminary report of the 2006 Population Census highlighted that the Mid-East region (Kildare, Meath and Wicklow) had the highest population growth between the 2002 and 2006 population census. The population of the Mid East region increased by 15.1%.

Area	2002 Population	2006 Population	% Change
Blessington	3126	3992	27.7%
Hollywood	639	672	5.2%
Baltinglass no. 1 Rural Area	14685	17002	15.8%

Table 1 Population figures

The Baltinglass no. 1 Rural Area encompasses a large part of the district that would make use of the N81 to travel to Dublin. Overall this area has seen a large population growth over the last 4 years. Current population growth estimates predict this increase will continue in the forthcoming years.

## 3. ROAD DEVELOPMENT POLICY

A scheme to upgrade the N81 between Tallaght and Blessington has been identified both directly and indirectly in the following documentation. As part of the NRA's continued assessment of the road needs in Ireland, the scheme boundaries have been extended as far as Hollywood Cross.

### National Development Plan 2000-2006

- *"The strategy for national secondary roads will concentrate on routes which are of particular importance to economic and regional development, including links to the strategic corridors, roads serving key ports, airports, tourist areas, industry and multipurpose roads."*
- *"Among the routes on which improvements works will be carried out are:"  
"Tallaght Blessington (N81)"*

### National Development Plan 2007- 2013

- *"Investment under the Economic Infrastructure Priority of NDP 2007-2013 is indicatively estimated at €54.7 billion..... The key objectives under this Priority will be:*
  - *To create a road network, in line with the timetable in Transport 21, that will see the completion of the major inter-urban routes and will upgrade links generally between the National Spatial Strategy Gateway Centres and improve the non-national road network;"*

### Transport 21

- *“Transport 21 sets out to meet the challenges outlined above. The Government has agreed a total investment framework of €34 billion over the period 2006 to 2015. This unprecedented level of capital investment will be used to transform Ireland’s transport system. In particular it will provide funding to:”*
- *“bring about improvements in the rest of the national road network, focusing particularly on the balanced regional development objectives of the National Spatial Strategy and on the needs identified in the National Roads Needs Study”*

#### National Road Needs Study 1998

- *“Each of the routes on the National Secondary network was examined to establish when the link would fall below level of service D. Similarly, the principal towns on the routes were examined to identify bottle-necks. Economic evaluation was used to ascertain the most attractive capital investment returns and the results were subsequently used to rank the bypass needs on the National Secondary Routes.”*

*N81;N80 Junction to Blessington*

- *“This route only requires upgrading on the section between Blessington and Tallaght where a “standard two lane” road is necessary during Phase 1 needs between Blessington and the N82 junction.”*

#### National Spatial Strategy for Ireland 2002-2020

- *“The National Spatial Strategy supports Dublin’s pivotal role in national economic success. It is essential for balanced regional development that the performance of the Greater Dublin Area (Dublin City, and the surrounding 3 counties Kildare, Meath and Wicklow) be built upon and physically consolidated.”*
- *Towns with populations 1500-5000 – “Towns of this scale in the GDA are also generally located on or near the transportation corridors radiating from Dublin and are relatively close to the larger urban areas. While the primary development centres will be the main focus for responding to future growth in the GDA hinterland, these smaller towns cater for local growth in residential, employment and service functions through enhancing the built environment, water services, public transport links and capacity for development in these centres. Accommodating such additional functions must however be balanced with protecting the character and quality of these towns.*

#### Wicklow County Development Plan 2004-2010

- *“The location of County Wicklow within the Greater Dublin Area and its close proximity to Dublin and international links, has resulted in development*

*pressure in particular within the north of the County. The Plan, therefore seeks to encourage and facilitate the provision of infrastructure services to meet the demand for development and future population increases in an environmentally sustainable manner.”*

- *“The primary objective of policies relating to transport will facilitate the provision of proper road infrastructure in a sustainable manner and the promotion of public and integrated transport networks, in order to ensure the sustainable and economic development of County Wicklow.”*
- *“Policy T1: The Council will, in line with Government and National Roads Authority (NRA) policies, and in accordance with the “Roads Needs Study”, published by the NRA and the National Development Plan, seek to bring national primary and secondary roads up to the appropriate standards.”*
- *“Policy T4: The Council will seek to improve the road links between the national road network and the growth centres of County Wicklow in order to cater for anticipated additional traffic flows and to facilitate the economic development of these settlements. The co-operation of the Town Councils will be sought in the implementation of same where necessary.”*
- *“The Council will provide for road improvements on the National Secondary N81 road at Hempstown to Tinode and preserve alternative road improvement lines and route corridors free of development”*
- *“Policy HL4: The Council will ensure that any development proposal in the vicinity of, or affecting in any way a designated area, provides sufficient information to show how its proposals will impact upon the designated area, and will include proposals for appropriate amelioration. In all such cases, the Council shall consult with the National Parks and Wildlife Section of the Department of Environment, Heritage and Local Government.”*

#### Kildare County Development Plan 2005-2011

- *“Objectives*
  - (4) To improve the capacity of the road infrastructure within County Kildare in accordance with national/regional policy”*
- *“As part of the overall National Road development programme, it is an objective to carry out a number of specific projects during the plan period:*

*It is the policy of the Council:*

*RP 11 To improve the section of the N81 that is contained in County Kildare”*

#### South Dublin County Development Plan

- *“The county is strategically located at a number of important gateway corridors into the Capital City – N4, N7 and the N81. These corridors will be*



*examined (especially the N7, and the area adjoining Belgard Road), re-imaged and re-developed to create a new urban landscape and provide high quality designed corridors within the county and gateway corridors to and from the Capital City. Intensifying and densifying the development within the built up area of the County, will also be in the interests of sustainable development.”*

- *“It is an objective of the Council to initiate works on the roads listed in Table 13.6 as part of a six year programme. Designs have been prepared in respect of some of these proposals”*
- *“The Council may, at its discretion, introduce roads objective other than those listed in Table 13.6 at any time within the currency of the Plan.”*

#### Strategic Planning Guidelines for the Greater Dublin Area 1999

- *“Improved Transportation System. The existing transportation system of the Greater Dublin Area, including both public and private transport, is subject to very heavy pressure. It is necessary to implement measures to alleviate the existing difficulties, many of which are in planning or under construction, as well as a range of measures to facilitate future development.”*
- *“Strategy for the Hinterland Area – Key Points ... ..The existing and potential transportation corridors will be strengthened so as to improve links with the Metropolitan Area.”*
- *“There are no major plans for the N81 (Dublin-Blessington-Baltinglass)”*
- *“Notwithstanding the need to facilitate public transport, it has to be recognised that the private car will continue to play an important role in the future. This is especially so in the Hinterland Area, where the pattern and density of settlement and development limits the potential for public transport. It is also important to recognise the significance of the road system for the transportation of goods.”*
- *“Nevertheless, the towns (in the Hinterland Area) will require to be well linked to Dublin by good road and rail infrastructure.”*
- *“A fundamental function of the transportation system, including both roads and public transport, in the Greater Dublin Area is the linking of the Hinterland and Metropolitan Areas.”*

#### Regional Planning Guidelines for the Greater Dublin Area 2004-2016

- *“Maintaining the distinction between the city and town components within the Greater Dublin Area as envisaged by the Strategic Planning Guidelines for the area, which focus on the metropolitan area, the hinterland and a number of other strategically placed towns as primary or secondary development centres within the hinterland.”*

#### 4. TRAFFIC VOLUMES

Table 2 below shows the Average Annual Daily Traffic (AADT) recorded by the NRA at specific locations along the N81 route between Tallaght and Hollywood Cross. Traffic counts were carried out by KCC NRDO at these and other locations to enable analysis of traffic volume growth on this route. Heavy volumes of traffic were recorded between Saggart and Blessington. Traffic volumes reduced on the southern side of Blessington. The growth in this area is predicted to continue which will result in further journey time delays and inconvenience to road users. Refer to Appendix 2 of this report to see details of traffic counts carried out by KCC NRDO.

Section	RT590 2000 AADT	RT600 2001 AADT	RT610 2002 AADT	RT620 2003 AADT	RT630 2004 AADT
Brittas	8619 (23%)	9144 (17.3%)	9503 (17.25%)	9067 (19.6%)	9520 (17.3%)
Kilbride	9143 (26%)	9699 (19.5%)	10079 (19.5%)	11061 (19.5%)	11646 (19.5%)
Blessington	12318 (9%)	13070 (6.8%)	13581 (6.75%)	14904 (6.8%)	15692 (6.8%)
Hollywood	4545 (13%)	4824 (9.8%)	5009 (9.75%)	3544 (10.6%)	3723 (9.8%)

Table 2 NRA Traffic Volumes for N81 between Tallaght & Hollywood Cross

#### 5. JOURNEY TIME ASSESSMENTS

The target of the “National Roads Needs Study” was to ensure that no section of the National network falls below “Level of Service” (LOS) D. This LOS is defined as an inter-urban travel speed of 80kph. Appendix 1 of this report concludes that the average travel speed is 62kph. This means that the road is not providing LOS D.

A key element of achieving the LOS D is to “eliminate urban bottlenecks by constructing bypasses”. By constructing a bypass of Blessington and upgrading the road eliminating the speed restricted sections, free-flow conditions would be achieved which would save an average of 10 minutes per journey.

Another strategy to decrease journey times would be to increase the overtaking distance on the carriageway. This would eliminate the possibility of “excessive platooning” which is characteristic of roads with a little opportunity for overtaking.



The reduction of journey times is one of the inputs into the Cost Benefit Analysis which is undertaken on all major projects. A reduction of 10 minutes per journey over the design life of the road would lead to a significant cost benefit for the scheme.

## 6. ACCIDENT DATA

Appendix 4 of this report details the accident data relating to this stretch of the N81. As can be seen from this report there has been a total of 169 accidents on this road between 1996 and 2004. The overall accident data is presented in Table 3.

Type	Number	Percentage
Fatal	12	7%
Serious	33	20%
Minor	124	73%

Table 3 Accident Data

Several trends develop when we analyse the accident data provided. The accidents on the road generally occur in dry weather conditions and good visibility. The road conditions are fairly evenly divided between wet and dry surface conditions. All of these trends are consistent with data for national routes throughout Ireland.

The primary collision types for the N81 appear to be single vehicle accidents and head on collisions. Throughout our analysis of the 6 sections of the carriageway the number of these types of accidents is much higher than the national figures. This is as a result of a number of factors which include the poor vertical and horizontal alignment of the N81. In many cases the accidents occur on what are recorded as straight sections of the carriageway, in fact many of the straight sections of the N81 contain hollows or dips in the road which obscure oncoming traffic from view.

The analysis also showed a higher number of rear end shunts. There are a number of junctions on the N81 many of which link up with each other. The presence of these junctions increases vulnerability of road users who are turning right to rear end shunts. This problem is exacerbated by the fact that there is insufficient space to pass on the inside at many of these junctions. In addition the approach to the main carriageway can be deceptive from the minor road and there appears to be a number of rear end shunts from traffic sitting at these junctions.

These accidents represent a significant cost to the economy, the largest of which is the loss of life and permanent injuries caused. The removal of the road hazards and reduced congestion envisaged by this scheme would significantly reduce the number of accidents on the road. Again this would lead to a significant benefit in the cost benefit analysis report.

## 7. SAFETY REVIEW

A Safety Review of the route was commissioned as part of this feasibility study; this report can be located in Appendix 3. The report assessed the road in 6 different sections. It consisted of a desk top review of the accident history of the road and site



inspection of the current road condition & also comprised of a drive through of the road in daytime & nighttime conditions.

The report identified a number of different sections that are in need of improvement in order to reduce the number of accidents. The need for widening of several sections of the road was highlighted as was the need to improve the sightlines at many of the junctions. The report has also indicated that much of the improvements can be undertaken without the need to acquire large amounts of land.

As this road is situated within the “commuter belt” area of Dublin, the current situation is likely to continue to deteriorate with higher numbers of people using the road and increased risks associated with that to vulnerable road users.

## **8. CONCLUSIONS & RECOMMENDATION**

This Report set out to determine the need for an upgrade of the N81 between Tallaght and Hollywood Cross. Under the definitions of journey times, traffic volumes, road safety, this report has highlighted the deficiencies of the existing road network and has highlighted the potential benefits of an upgrade if it were constructed.

In summary, this report has shown that;

- Improvements to the N81 between Tallaght and Blessington is a stated objective of Local and National policy documents including the National Development Plan 2000 – 2006. This road was identified in the National Roads Needs Study 1998 as needing a standard 2 lane carriageway as far as Blessington and a reduced 2 lane carriageway beyond. As previously outlined the road does not currently fulfil this requirement.
- Recent census figures have shown that the population of Blessington, Baltinglass, Hollywood, Brittas and their immediate environs is increasing.
- A Journey Time Assessment along the N81 from Tallaght to Hollywood Cross, which includes 100km/h sections, has shown that the average speed is 62km/h. The target of the “National Roads Needs Study” was to ensure that no section of the National network falls below “Level of Service” (LOS) D. This LOS is defined as an inter-urban travel speed of 80kph. This report concludes that the average travel speed is 62kph. This means that the road is not providing LOS D. A key element of achieving the LOS D is to “eliminate urban bottlenecks by constructing bypasses”. By constructing a bypass of Blessington and upgrading the road eliminating the speed restricted sections, free-flow conditions would be achieved which would save an average of 10 minutes per journey.
- Accidents represent a significant cost to the economy, the largest of which is the loss of life and permanent injuries caused. The removal of the road hazards and reduced congestion envisaged by this scheme would significantly

reduce the number of accidents on the road. Again this would lead to a significant benefit in the cost benefit analysis report.

- A safety review has highlighted deficiencies in the existing N81 infrastructure and recommends improvements that should be made to improve road safety. The provision of a new alignment would eliminate these safety issues.
- The traffic counts carried out by Kildare National Road Design Office have shown that the AADT for the N81 is in excess of 12,000 north of Blessington and an AADT of 7,000 to the south of Blessington. As these AADT figures are likely to increase further with rising population and development in both Baltinglass, Blessington and their environs, table 4 TD 9/07 Volume 6 of the NRA Design Manual for Roads and Bridges would indicate that a category Type 3 Dual or above is required north of Blessington and a standard single to the south of Blessington.
- Urban bypasses are generally regarded as a positive infrastructural improvement, diverting through-traffic away from town centres, relieving traffic congestion and reducing journey times. Research into economic effects on bypassed towns suggests that, after an initial period of adjustment following the opening of the bypass, new shopping and community patterns become established. This can contribute to a more attractive shopping and living environment, which is reflected in increased revenue.
- In the absence of a definitive route, it is not possible at this early stage to prepare a detailed cost-estimate for the scheme.

Taking the foregoing information into account, it can be concluded that the provision of an upgrade to type 3 or above between Tallaght and Blessington and provision of standard single between Blessington and Hollywood Cross is feasible. It is therefore recommended that the findings of this Report be approved by the National roads Authority and that the NRA approval be granted to progress the Scheme to Phases 2 and 3 of the development, namely the Constraints Study and Route Selection Phases.



## **9. REFERENCES**

*National Development Plan 2000-2006*

*National Development Plan 2007- 2013*

*Transport 21*

*National Road Needs Study 1998*

*National Spatial Strategy for Ireland 2002-2020*

*Wicklow County Development Plan 2004-2010*

*South Dublin County Development Plan*

*Kildare County Council Development Plan*

*Strategic Planning Guidelines for the Greater Dublin Area 1999*

*Regional Planning Guidelines for the Greater Dublin Area 2004-2016*

[www.nra.ie](http://www.nra.ie)

*National Roads Authority website.*

[www.cso.ie](http://www.cso.ie)

*Central Statistics Office website.*