

Project Appraisal – Updated Guidance

23rd June 2016

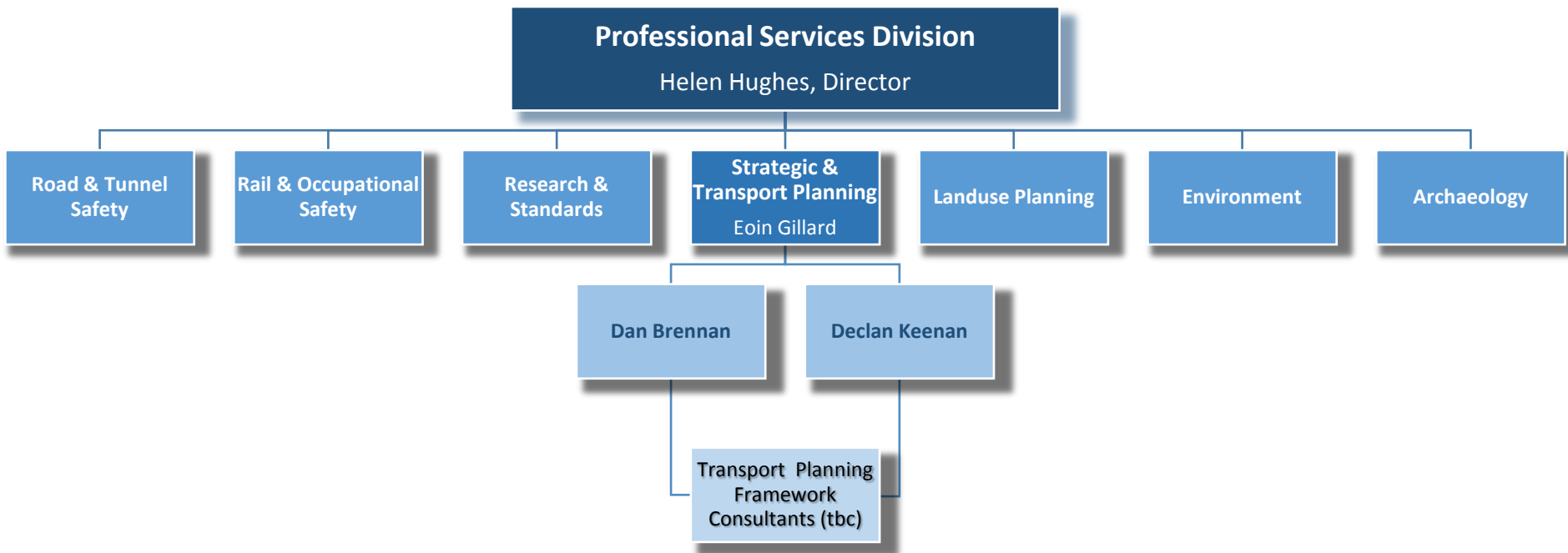
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Strategic & Transport Planning Section

Who are we?

- Merging of the NRA Strategic Planning Unit and RPA Transport Planning Department
- Transport Planners & Engineers supported by consultancy framework

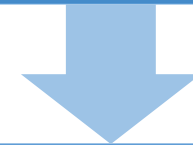


Hierarchy of Project Appraisal Guidance?

Public Spending Code, DPER (September 2013)
Rules for appraisal of all capital and current public expenditure



Common Appraisal Framework for Transport Project & Programmes, DTTaS (March 2016)
Guidance document



Project Appraisal Guidelines, NRA (2011)
Guidance document for all NRA projects

Update due Oct 2016



The Public Spending Code

Expenditure Planning, Appraisal
& Evaluation in the Irish Public Service:
Standard Rules & Procedures

CEEU

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COMMON APPRAISAL FRAMEWORK FOR TRANSPORT PROJECTS AND PROGRAMMES

March 2016



Project Appraisal Guidelines Unit 2.0 Project Management

February 2011

Public Spending Code

- Best Practice across all sectors
 - Basic Need for appraisal
 - Doing the right thing
 - Doing it right
 - Requires Sanctioning Authority to draw up their own procedures for management and appraisal of programmes and projects
 - Sets central parameters for all appraisals
 - Discount Rate: 5%
 - Shadow Price of Public Funds: 130%
 - Shadow Price of Labour: 80-100%
 - Shadow Price of Carbon: €6.58/tCO₂
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Common Appraisal Framework

What's in the Updated CAF Guidance?

New approval processes

- Adherence to PSC
- New governance roles

Updating of existing parameters

- Value of Time, Vehicle Operating Costs, Emission Values, Collision Costs

New areas of appraisal

- Active Travel Parameters
- Fleet Forecasting (VOCs/emissions)

CAF Appraisal Thresholds

All schemes regardless of value require appraisal – level to be proportionate to value

Estimated Project Cost	Scale of Appraisal Required
Below €0.5 million	Simple assessment
Between €0.5 million and €5 million	Single appraisal incorporating elements of a preliminary and detailed appraisal
Between €5 million and €20 million	At a minimum, a Multi Criteria Analysis (MCA)
Over €20 million	Detailed Economic Appraisal - Cost Benefit Analysis (CBA) (or Cost Effectiveness Analysis (CEA))
Current expenditure (with an annual spend of at least €5m)	Detailed Economic Appraisal - Cost Benefit Analysis (CBA) (or Cost Effectiveness Analysis (CEA))
Capital Grant Schemes with an annual value in excess of €30 million and of 5 years or more duration	Detailed Economic Appraisal prior and at mid-point of each 5 year cycle or as may be agreed with the Department of Public Expenditure & Reform

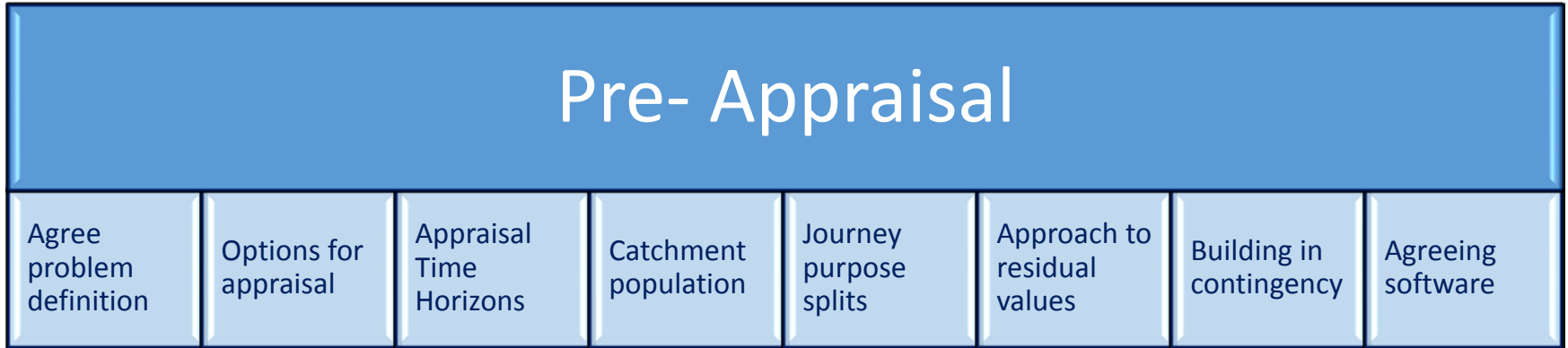
*Source: Table 1 CAF

CAF - Appraisal Interface with DTTAS / DPER

Estimated Project Cost	Pre Appraisal	Detailed Appraisal
Below €0.5 million		
Between €0.5 million and €5 million		
Between €5 million and €20 million	Consult with DTTAS EFEU	
Over €20 million	Consult with DTTAS EFEU	Submit appraisals to DTTAS / DPER for review (CBA, MCA, Financial Appraisal)
Current expenditure (with an annual spend of at least €5m)	Consult with DTTAS EFEU	Submit appraisals to DTTAS / DPER for review (CBA, MCA, Financial Appraisal)
Capital Grant Schemes with an annual value in excess of €30 million and of 5 years or more duration	Consult with DTTAS EFEU / DPER	Submit appraisals to DTTAS / DPER for review (CBA, MCA, Financial Appraisal)

CAF - Pre- Appraisal Discussions

- What do EFEU require?



- Majority of information produced in Project Appraisal Plan and / or Project Brief
 - TII have agreed the principles of PAG to reduce need for pre-appraisal
 - TII have agreed protocol for interface with EFEU
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CAF Preliminary Appraisal - New Concept??

- Covers Phase 0, 1 & Phase 2
- Problem focus not project focus
- Alternatives & options
- Alternatives must cover all ways to solve the problem
 - Incremental Options
 - Management Vs Investment
 - Options falling outside the agency remit
- EFEU require CBA of alternatives

Q: When does a roads project become a roads project?

CAF Other Updated Parameters

Annex 1 of CAF provides a full set of parameters

- Price base year 2011
- Not necessary to discount all costs and benefits to 2011
- Appraisal period is construction period plus 30 years of operation

Value of Time (market prices)

Trip purpose	2009 CAF €/hr	2016 CAF €/hr
In-work	€26.50	€34.33
Leisure	€7.30	€12.75
Commuting	€8.10	€14.03

- DTTaS have committed to undertaking further research on methodology for VOT
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TII Project Appraisal Guidelines

What is PAG?

- A set of “how to” appraisal guidelines to ensure consistency of approach across all TII projects
- Includes detailed guidance on transport modelling, economic appraisal and MCA
- Standard parameters for model inputs
- Publication of CAF and user feedback have necessitated an update

Objective of PAG:

To ensure consistent appraisal of all TII projects and compliance with DTTAS and DPER requirements

Structure & Contents of Updated PAG

Unit*	Topics discussed	Detailed Info	
1.0	Introduction		
2.0	Appraisal Deliverables		
3.0	Project Brief	PB Template	
4.0	Consideration of Alternatives		
5.0	Transport Modelling	<ul style="list-style-type: none"> • Construction of Models • Data Collection 	<ul style="list-style-type: none"> • Forecasting • Sample TM Report
6.0	CBA	<ul style="list-style-type: none"> • Scheme Costs • TUBA & COBALI • Sample CBA • Service Areas 	<ul style="list-style-type: none"> • Wider Impacts • Reliability & Quality • National Parameter Values
7.0	Multi-Criteria Analysis	MCA Guidance	PABS Template
8.0	Business Case	BC Template & Sample	
9.0	Post Project Review		
10.0	Current Expenditure		
12.0	Minor Projects (€5m-€20m)	Simple Appraisal Tool	
13.0	Walking & Cycling Facilities		
14.0	Minor Projects(€0.5m-€5m)	Minor Project PABS Template	
16.0	Data Analysis Techniques	Estimating AADT Expansion Factors for Short Period Counts	

*Numbering of units subject to change

Linking Project Management & Project Appraisal

- PAG seeks to align appraisal deliverables with project deliverables
 - Project Management Guidelines set out hold points for approval of Sanctioning Authority
 - Changes to governance in PSC / CAF require update to PMG and hold points
 - TII currently undertaking update of PMG
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Major Projects - Current Submissions / Hold Points

TII Project Management Guidelines Phase	Department	Purpose
Phase 0 / 1: Feasibility Scheme Concept	NDFAs	Advice on project financing
	DTTAS - EFEU	Agree inputs and assumptions
Phase 2: Option Selection	DTTAS	Preliminary Appraisal Report submitted to DTTAS (cost >€5m)
Phase 3: Planning & Design	DTTAS - EFEU	Review / Audit Draft Business Case
	DPER - CEEU	Review Draft Business Case
	Sanctioning Authority*	Delivers Approval in Principle
	Sanctioning Authority*	Seeks Approval to proceed
Phase 4: Statutory Processes	Sanctioning Authority*	Seeks Approval to proceed

***For all schemes > €100M government is Sanctioning Authority**

PAG Deliverables

National Roads Project Management Guidelines - Project Phase	PAG Deliverable							
	PAP	PB	TMR	CBA	PABS	PBC	DBC	PPR
Phase 0: Programme Overview and Requirements Definition / Phase 1: Scheme Concept & Feasibility Studies	Y	Y		Y*				
Phase 2: Option Selection		Y	Y	Y	Y	Y		
Phase 3: Planning & Design		Y	Y	Y	Y		Y	
Phase 4: EIA/EIR and the Statutory Processes							Y**	
Phase 5: Advance Works & Construction Documents Preparation, Tender & Award		Y	Y	Y	Y		Y	
Phase 6: Construction & Implementation							Y	
Phase 7: Handover, Review & Closeout								Y

***Certain projects will require some cost benefit analysis at Phase 1.**

****If the scope of a project is significantly changed then the Business Case may need to be updated**

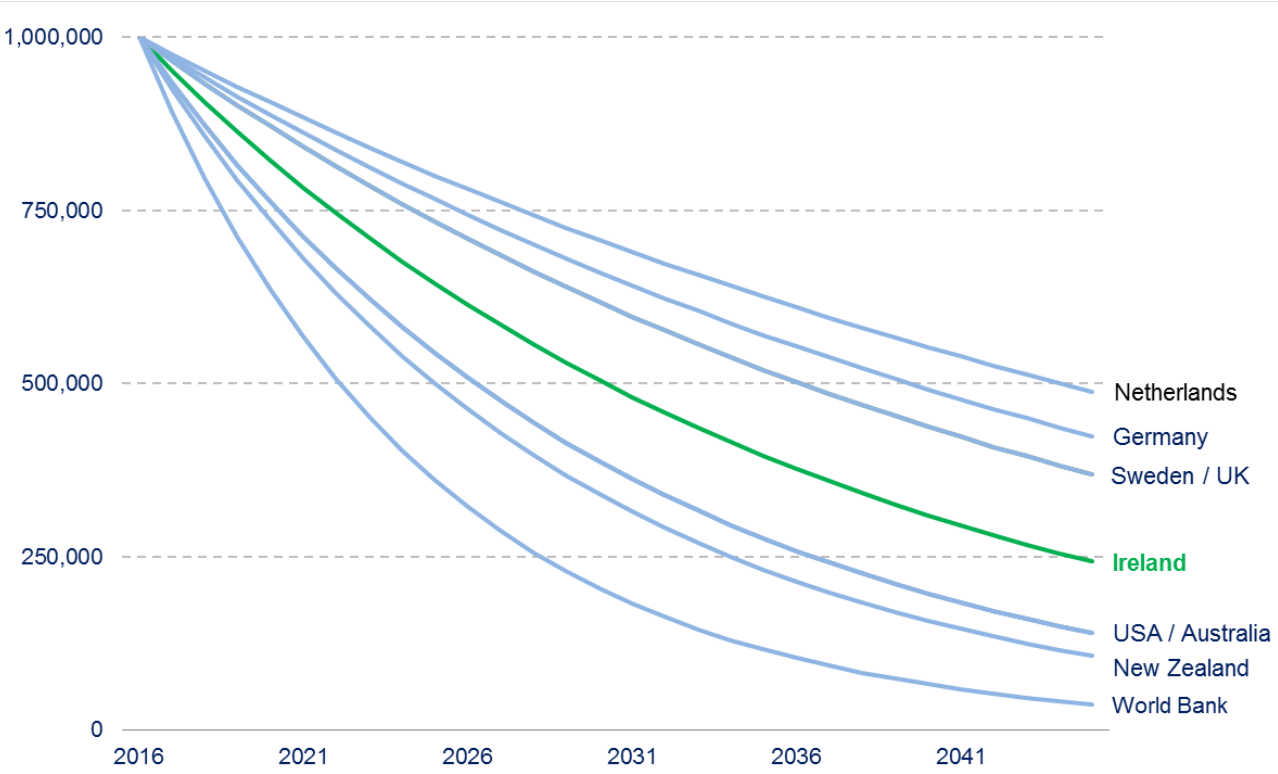
Summary

- PSC requires the appraisal of all projects and programmes
 - TII updating PAG to reflect PSC, CAF and lessons learned
 - Stronger focus on problem solving and alternatives
 - New parameters and nature of new schemes will need to consider monetising additional benefits
 - STP undertaking research in consultation with other agencies into monetisation of additional benefits
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Some Issues & Future Work

Discount Rates – International Comparison

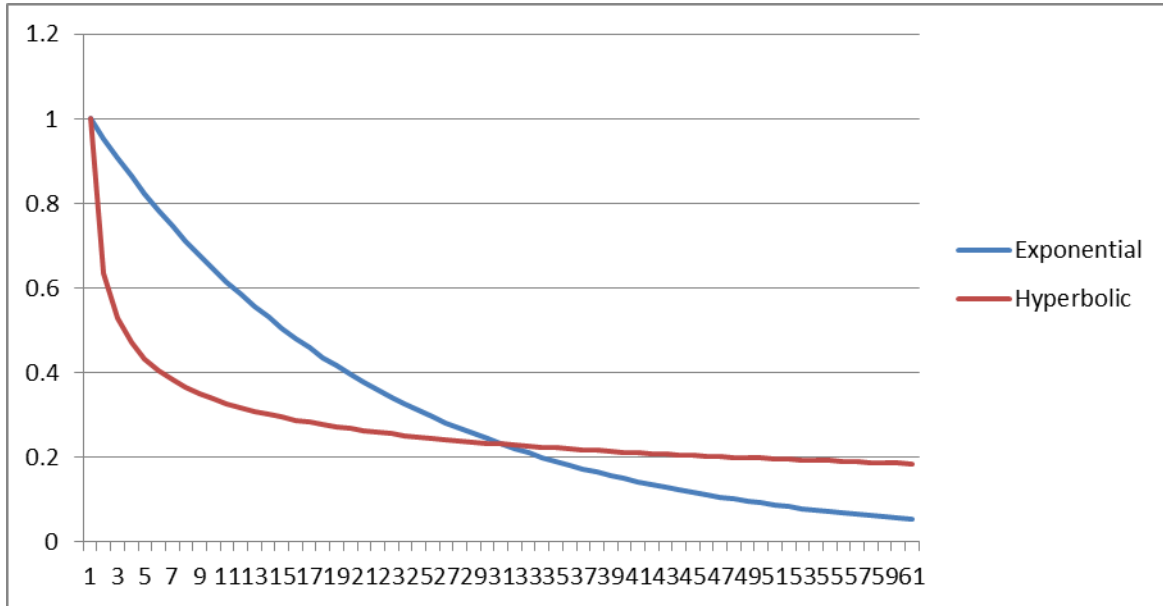
What is the value of €1M in 30 years?



Country	Discount Rate	Value
World Bank	12.0%	€37,383
New Zealand	8.0%	€107,328
Australia	7.0%	€140,563
USA	7.0%	€140,563
Ireland	5.0%	€242,946
Sweden	3.5%	€368,748
UK	3.5%	€368,748
Germany	3.0%	€424,346
Netherlands	2.5%	€488,661

Discount Rates – Alternative for Road Schemes?

TII research on the use of hyperbolic discounting as transport projects have a longer lifecycle



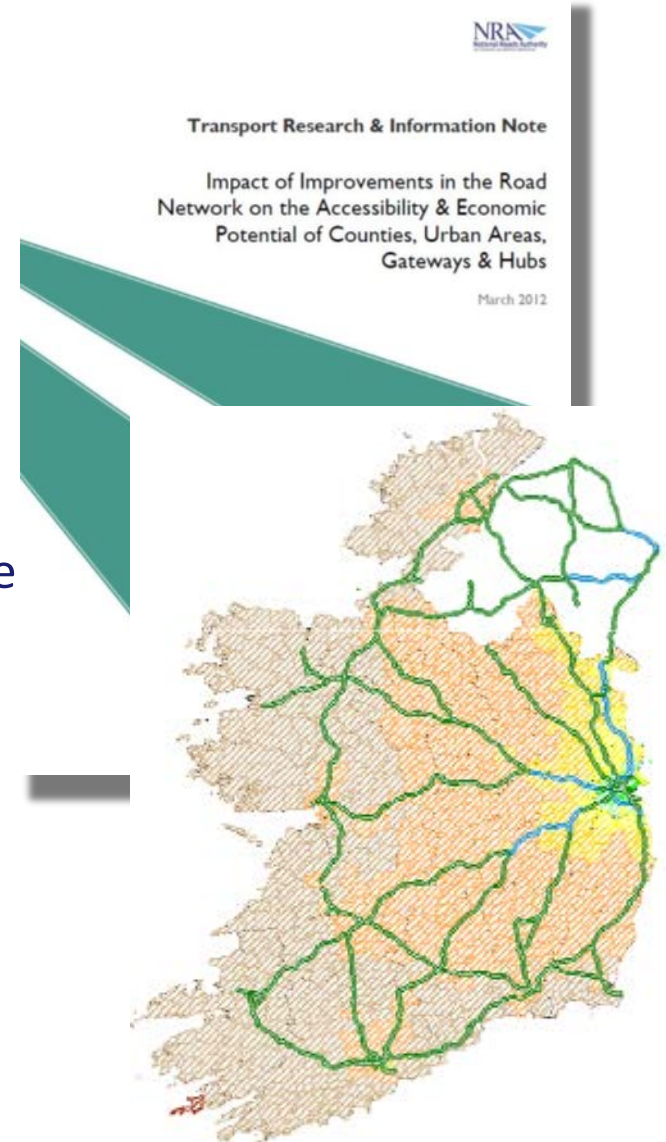
M4/M6 Worked Example	Exponential 30 years	Exponential 60 years	Hyperbolic 60 years	Combined 60 years
PV Benefits	1,357	2,846	2,959	3,576
PV of Capital Costs	1,490	1,490	1,490	1,490
NPV	-133	1,356	1,469	2,086
BCR	0.91	1.91	1.99	2.40

Wider Impacts / Wider Economic Benefits

- Future schemes may not have high travel time savings
 - Growing need across transport projects to monetise other benefits
 - Areas under consideration
 - Accessibility & Agglomeration
 - Revised Value of Time based on Willingness to Pay
 - Health Benefits
 - Reliability
 - Key concern - potential double counting
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Initial Research – TRIN Note

- Mechanism to measure agglomeration impacts of road investment
- “Effective Density” of employment for zone = measure of economic activity / measure of accessibility
- Based on 2006 Census Data
- Compared accessibility of Road Network 2006 & 2010
- Accessibility score relative to most accessible zone i.e. south Dublin city centre
- Increase productivity potential by 0.35%
- Annual benefit in GDP terms - €525m
- Present Value over 30 years - €9.5bn
- Increased need to measure Wider Economic Impacts as part of project justification



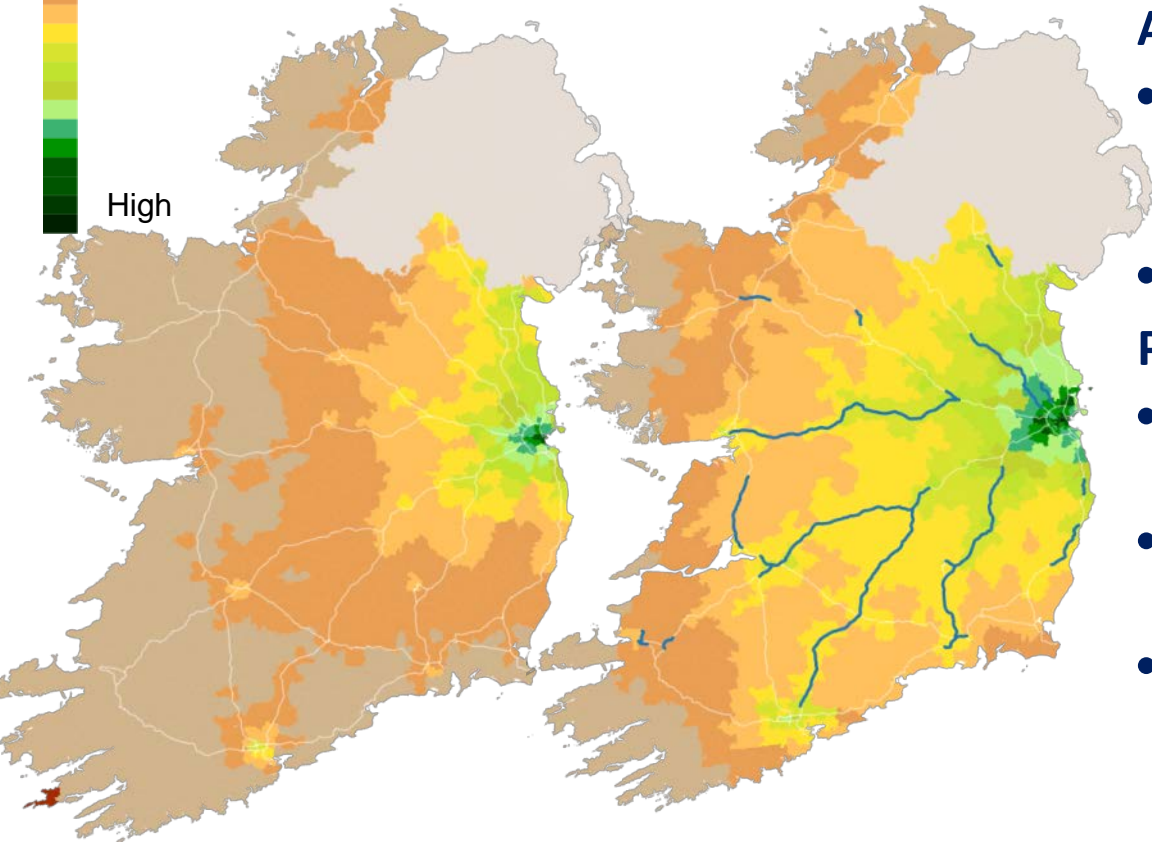
Impact of MIUs

Accessibility score



Low

High



2006 Road Network & Employment – as per TRIN

2015 Road Network & 2011 Employment

Accessibility Analysis

- Model used to assess the impact of investment in road network on access to employment

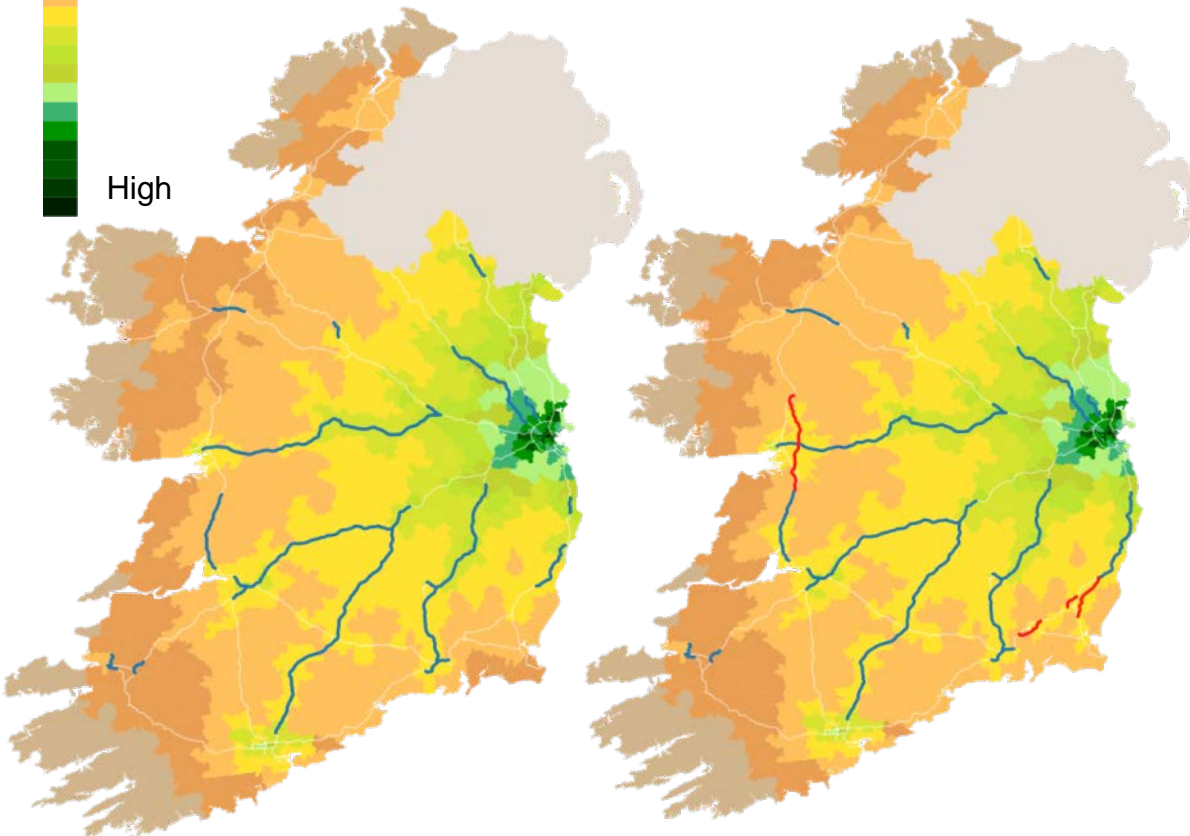
- Based on 2011 Census data

Previous Investment 2006-2015

- Major Inter Urban Routes delivered
- Significant improvements in access to employment
- Reduction in ‘peripherality’

Impact of Major Projects in Construction

Accessibility score



2015 Road Network

Completion of schemes
in construction

Schemes Included

- N25 New Ross
- N11 Enniscorthy
- M17/M18 Gort Tuam

Accessibility Impacts

- Clear improvements around each scheme
- Large projects linking / improving links to significant urban areas

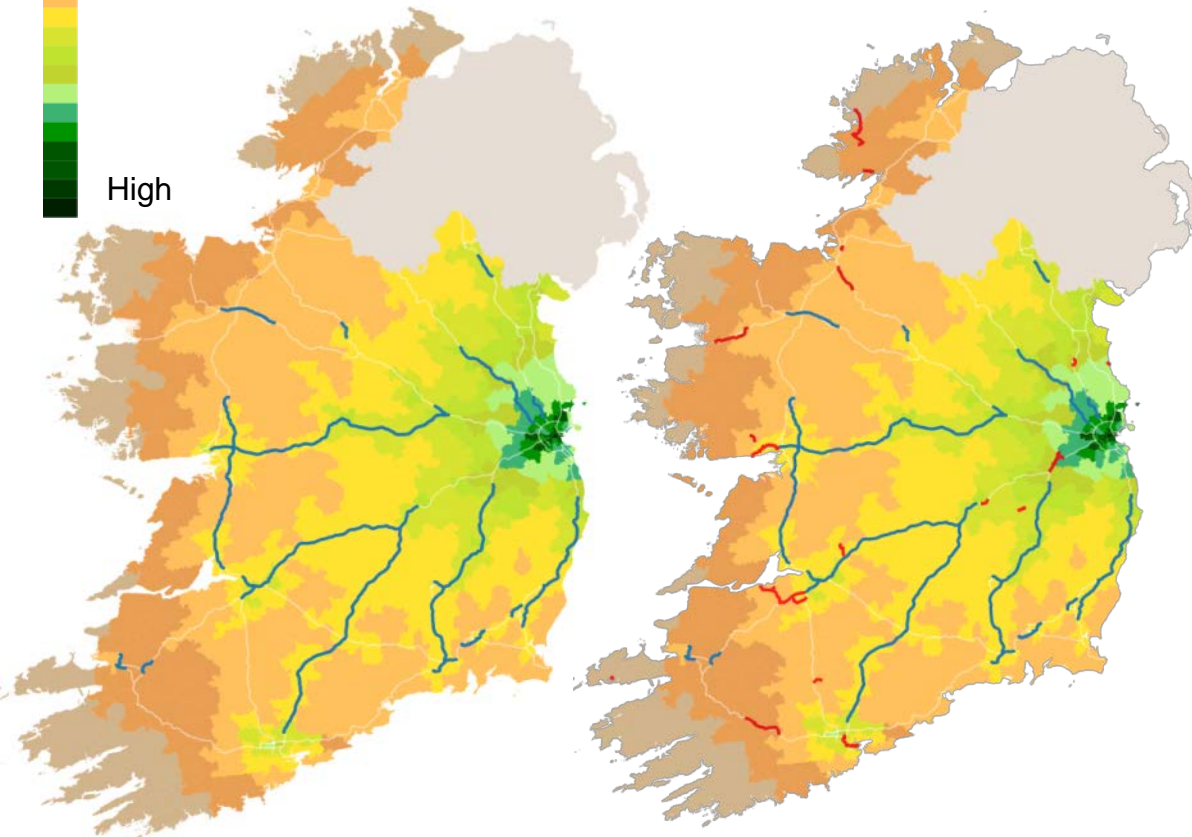
Impact of Building On Recovery Schemes

Accessibility score



Low

High



Completion of schemes
in construction

Completion of all Building
on Recovery Schemes

Schemes Included

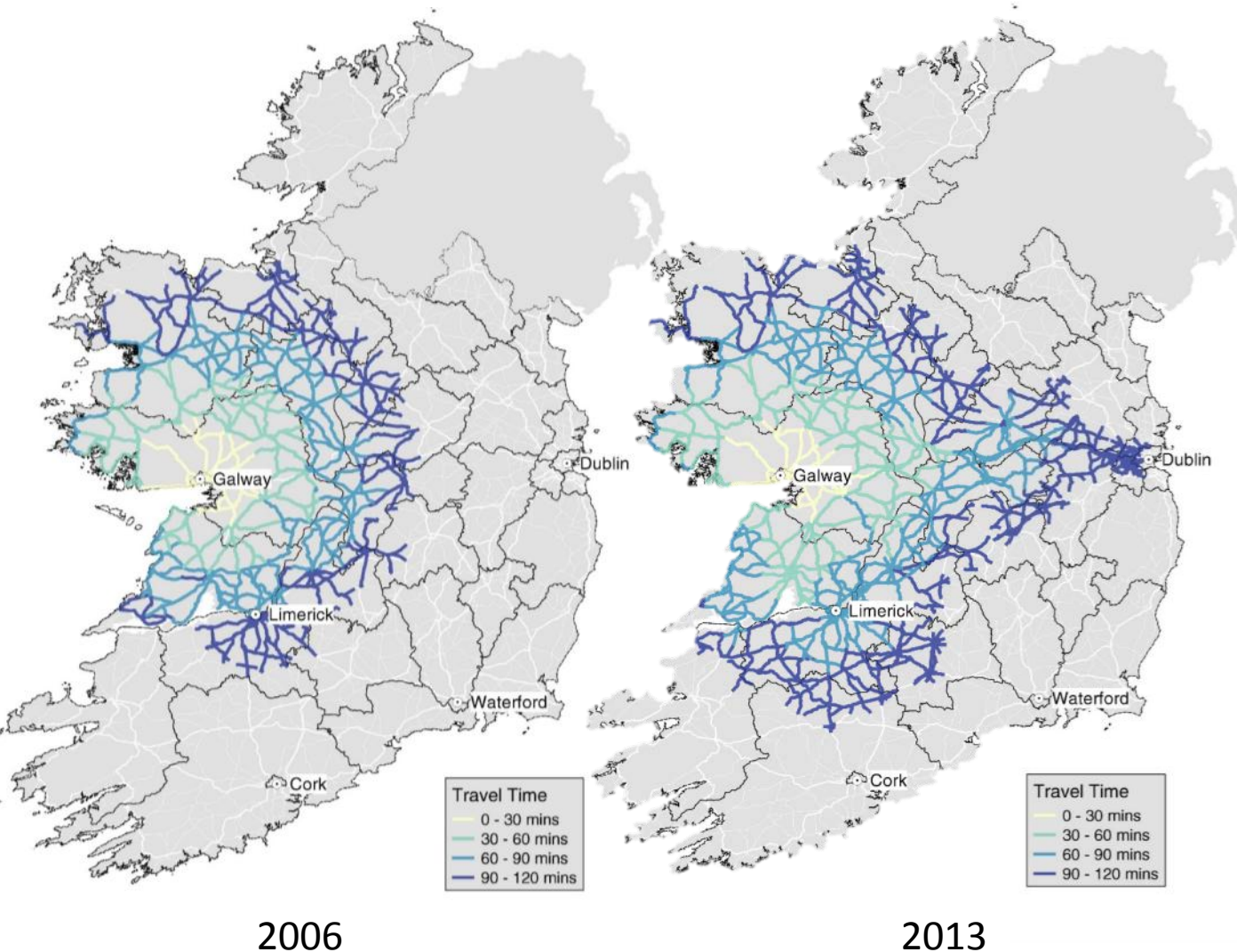
- N7 Naas Newbridge
- M8/N40/N25 Dunkettle
- N4 Collooney to Castlebaldwin
- N22 Ballyvourney to Macroom
- N5 Westport to Turlough
- N20 Mallow Relief Road
- N2 Slane Bypass
- N6 Galway City Transport Project
- N21/N69 Adare to Foynes
- N28 Cork to Ringaskiddy
- N59 Moycullen Bypass
- N56 Mountcharles to Inver
- N56 Dungloe to Glenties

Accessibility Impacts

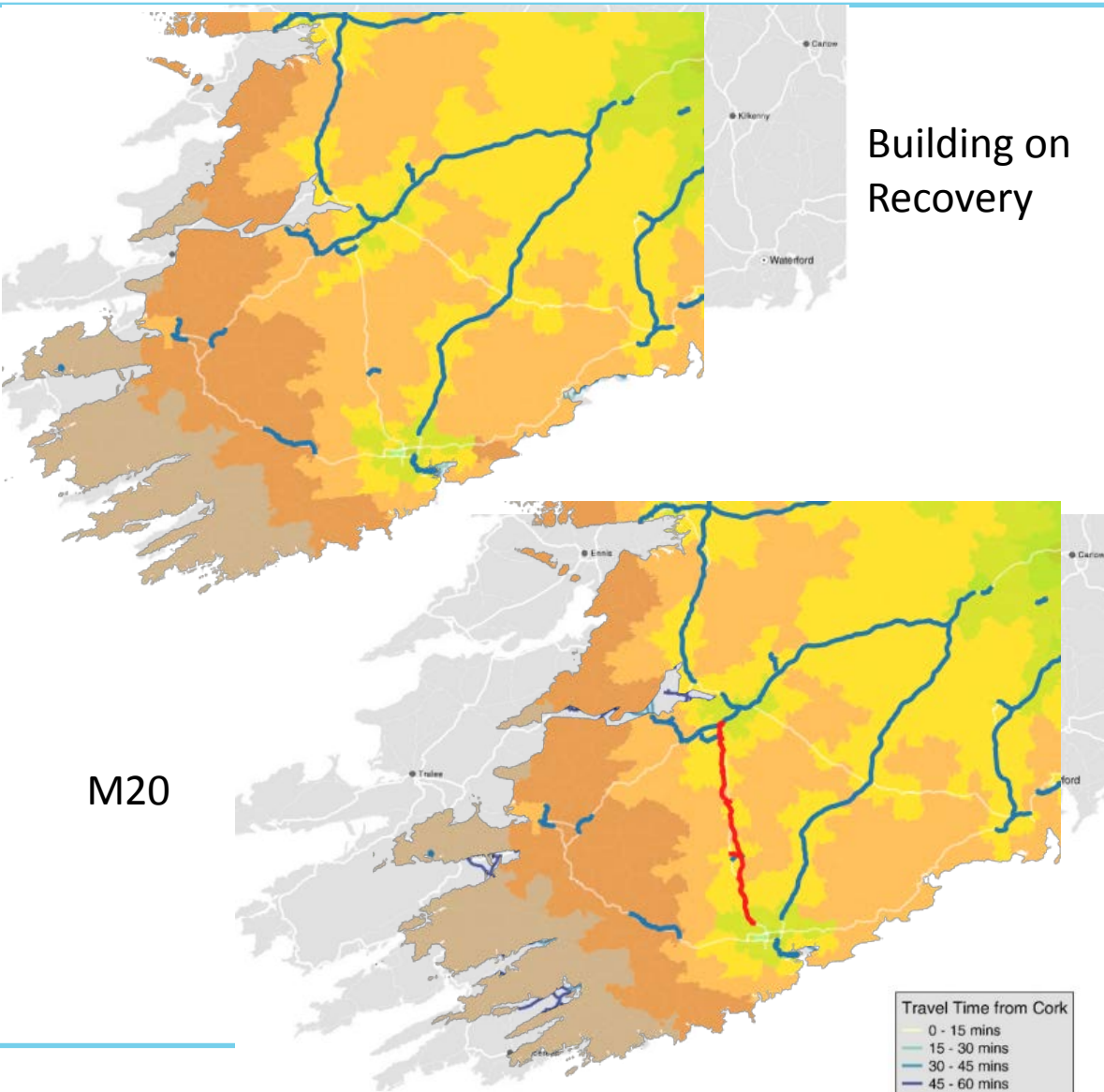
- Scale of impacts generally not sufficient to change rating category

Impacts on journey time

- Supplementary Analysis
- Using model data catchment areas can be defined
- Visual representation of how geographic areas have been “brought closer together”



What can be done next?



- The approach adopted in this study could be applied to project appraisal
- DTTAS accept the merits of agglomeration impacts
- M20 Cork to Limerick Scheme displays significant potential benefits due to agglomeration
- Impacts along corridor but also extend northwards towards Galway
- Significant journey time benefits

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Thank You
Any Questions?

