

# TII National Roads Conference 2019

## Update to TII Cost Management Procedures

27/09/19



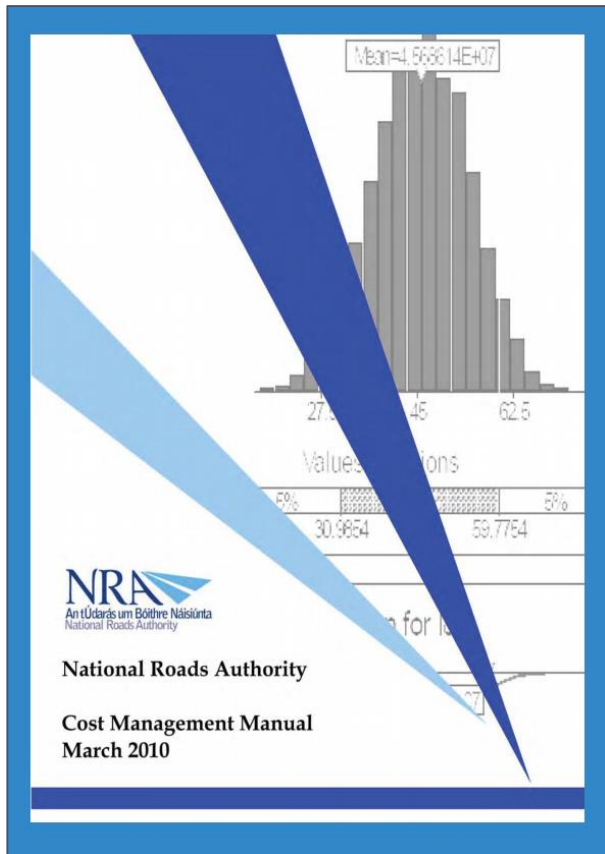
# AGENDA

## CHANGES TO COST MANAGEMENT MANUAL

1. ESTIMATING PROCESS

2. GENERAL UPDATE

3. REFERENCE CLASS FORECASTING



# ESTIMATING PROCESS



**An Roinn Caiteachais  
Phoiblí agus Athchóirithe**  
Department of Public  
Expenditure and Reform

**The Public Spending Code**









# CHANGES TO ESTIMATING PROCESS

1. ESTIMATE SUMMARY BACKUP SHEET
2. ESTIMATE PREPARATION CHECKLIST
3. BACKUP TRACKER SHEET
4. ESTIMATE TRACKER SHEET

# TII Level 3 Estimate Summary Template - DRAFT



Insert Scheme Title:	n78
Insert Date of Estimate:	
Insert Current Phase:	
Insert Consultants Name:	
Insert Name of Estimator:	
Insert Base Date for Rates:	

1 Main Construction Contract (MCC) - See Back up Summary Sheet for further breakdown		Total (€)
Series 100	Preliminaries	
Series 200	Site Clearance	
Series 300	Fencing and Environmental Noise Barriers	
Series 400	Road Restraint Systems (Vehicles and Pedestrian)	
Series 500	Drainage and Service Ducts	
Series 600	Earthworks	
Series 700	Pavements	
Series 1100	Kerbs, Footways and Paved Areas	
Series 1200	Traffic Signs and Road Markings	
Series 1300	Road Lighting Columns and Brackets	
Series 1400	Electrical Work for Road Lighting and Traffic Signs	
Series 1500	Motorway Communications	
Series 1600 - 2300	Structures	
Series 2500	Special Structures	
Series 2700	Watermain Utilities and Accommodation Works	
-	Landscaping	
-	Utilities Cost Estimates (Statutory Undertakers and Associated Civil Works)	
-	Other Costs	
Total Base Cost for Main Construction Contract (Excluding VAT)		€0
Add Project Specific Risk Contingency	%	
Sub-Total exclusive of VAT		€0
Add VAT at	%	
Total MCC Base Cost plus Project Specific Risk Contingency and VAT		€0

2 Land and Property		Total (€)
Base Cost Total from attached summary (to be compiled as per Appendix F Template)		100000
Add Project Specific Risk Contingency	20%	
Total L&P Base Cost plus Project Specific Risk Contingency		€100,000

3 Planning and Design		Total (€)
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		
Add Project Specific Risk Contingency		
Total P&D Base Cost plus Project Specific Risk Contingency		€0

4 Archaeology		Total (€)
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		
Add Project Specific Risk Contingency		
Total Archaeology Base Cost plus Project Specific Risk Contingency		€0

5 Advance Works and Other Contracts		Total (€)
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		
Add Project Specific Risk Contingency		
Total Advance Works and Other Contracts Base Cost plus Project Specific Risk Contingency		€0

6 Main Contract Supervision (Employer's Costs)		Total (€)
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		
Add Project Specific Risk Contingency		
Total MC Supervision (Employer's Costs) Base Cost plus Project Specific Risk Contingency		€0

7 Residual Network (Provision to be subject to the approval of the TII Regional Manager)		Total (€)
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		
Add Project Specific Risk Contingency		
Total Residual Network Base Cost plus Project Specific Risk Contingency		€0

<b>TOTAL LEVEL 3 ESTIMATE INCLUSIVE OF VAT</b>		<b>€100,000</b>
Mainline Length	km	Rate per km

N.B. Figures above are INCLUSIVE of VAT unless otherwise specified.  
 Figures above are EXCLUSIVE of provision for Inflation - base date to be stated if different from date of estimate.  
 Total base costs to include for ALL qualifying costs under each cost heading.  
 Refer to the TII Cost Management Manual and TII Requirements for Measurement and Pricing (RMP) for information on coverage and format of back-up.  
 See attached Back up to Summary Sheet for Further Scheme Information.

# TII Estimate Back Up Summary Sheet - Draft



Scheme Name		Drawing Library Reference	TII Ref.	Estimate Date	
Road Authority		Project Status		Region	
Define any Project Specific Requirements in all rows below					
Scheme Size	Metre	%			
Carriageway		%			
Location Type					
Advanced Works carried out					
Proposed Contract Type					
Anticipated Works programme duration					
Interconnectivity					

Project Specific Information		Define any Project Specific Requirements in all rows below	
<b>Series 300 - Site Clearance</b>			
Work Type	Road Type 3 Single Carriageway (M20/M200)		
Side Works			
Grade Required Junction			
Other			
<b>Series 300 - Site Clearance</b>			
General Site Clearance			
Description of Individual or Groups of Buildings or Structures			
Other			
<b>Series 300 - Fencing and Environmental Noise Barriers</b>			
Boundary Fencing			
Other			
Environmental Noise Barriers			
<b>Series 600 - Road Restraint Systems (Vehicles and Pedestrian)</b>			
Safety Curbs			
Retention Curbs			
Anti-Climb Systems			
<b>Series 600 - Drainage and Service Ducts</b>			
Off-road drainage			
Attenuation areas			
Gullies			
Concrete Channels			
<b>Series 600 - Earthworks</b>			
Earthworks cut: 10 metres		Cut Quantity approx. m <sup>3</sup>	Reinforce Quantity approx. m <sup>3</sup>
Ground Conditions		Deposited Quantity approx. m <sup>3</sup>	Imported Fill m <sup>3</sup>
Trench			
Capping requirement			
Imported Granular Material			
Disposal of Material			
Unsuitable Material			
Risk			
U1 / Pwd			
<b>Series 700 - Pavement</b>			
Wearing course		specify layer depth	
Binder Course		specify layer depth	
Base Course		specify layer depth	
<b>Series 1100 - Signs, Signals and Road Works</b>			
Proposed & Fixed Signs			
Consignage			
Other			
<b>Series 1200 - Traffic Signs and Road Markings</b>			
Traffic Signaling			
Other			
<b>Series 1300 - Road Lighting Columns and Brackets</b>			
Public Lighting Columns			
Other			
<b>Series 1400 - 2100 - Structures</b>			
Paved Columns			
Box Columns			
Castings			
Pedestrian Footbridge			
Underpasses			
Signature Structures - Span			
Other			
<b>Series 2700 - Watermain, Utilities and Accommodation Works (except Drain)</b>			
Access Road Length to be specified			
Access Road Width to be specified			
Other			
<b>Landscaping</b>			
Landscaping including topsoil grading			

**Series 600 - Earthworks**

- Earthworks cut / fill balance
- Ground Conditions
- Terrain
- Capping requirement
- Imported Granular Material
- Disposal of Material
- Unsuitable Material
- Rock
- U1 / Peat


Cut Quantity approx.   m3  
 Disposal Quantity approx.   m3

Re-usable Quantity approx.   m3  
 Imported Fill   m3


**Series 700 - Pavement**

- Wearing course
- Binder Course
- Base Course


mm specify layer depth  
 mm specify layer depth  
 mm specify layer depth

**Series 1100 - Kerbs Footways and Paved Areas**

- Footways & Paved Areas
- Cycleways
- Other


m2  
 m2


**Series 1200 - Traffic Signs and Road Marking**

- Traffic Signalling
- Other


Nr


**Series 1300 - Road Lighting Columns and Brackets**

- Public Lighting Columns
- Other


Nr


**Series 1600 - 2300 Structures**

- Piped Culverts
- Box Culverts
- Overbridges
- Pedestrian Footbridge
- Underbridges
- Signature Structures - Span
- Other


no  
 no  
 no  
 no  
 no  
 no




## TII Guidelines for checking a Level 3 MCC Estimate - DRAFT



Main Construction Contract (See attached for breakdown presented to Level 3 detail)		Series Section Priced	Cost back up information provided	Item Included Yes/No	Item measured in accordance with the RMP	2019 TII Schedule of Rates Used	Other Basis of Rate Formulation (If so please define in comments section)	Standard Construction Detail (SCD) used	Comments
<b>Series 100</b>	<b>Preliminaries</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No						
	Preliminaries calculated on a percentage basis			<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	Preliminaries calculated based on a indicative Programme			<input type="checkbox"/> Yes <input type="checkbox"/> No					
	Preliminaries costed on the basis of a priced resourced schedule			<input type="checkbox"/> Yes <input type="checkbox"/> No					
	if Yes have the following elements been considered:								
	a. Mobilisation			<input type="checkbox"/> Yes <input type="checkbox"/> No					
	b. Temporary Accommodation			<input type="checkbox"/> Yes <input type="checkbox"/> No					
	c. Staffing Levels			<input type="checkbox"/> Yes <input type="checkbox"/> No					
	d. Services and Resources for the Engineer			<input type="checkbox"/> Yes <input type="checkbox"/> No					
	e. Demobilisation			<input type="checkbox"/> Yes <input type="checkbox"/> No					
	f. Temporary Works			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No				
	g. All other Preliminaries Costs			<input type="checkbox"/> Yes <input type="checkbox"/> No					
	Other items not included above, please define and schedule in comments column			<input type="checkbox"/> Yes <input type="checkbox"/> No					
<b>Series 200</b>	<b>Site Clearance</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No						
	General			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	Demolition of individual or groups of buildings or structures			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	Partial demolition of individual structures			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	Other items not included above, please define and schedule in comments column					<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<b>Series 300</b>	<b>Fencing and Environmental Noise Barriers</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No						
	Fencing, Gates and Stiles			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Walls and Environmental Noise Barriers			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Other items not included above, please define and schedule in comments column					<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<b>Series 400</b>	<b>Road Restraint Systems (Vehicles and Pedestrian)</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No						
	Safety Barrier System			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Vehicle Parapet Systems			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Pedestrian Parapets, Pedestrian Guardrails and Handrails			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Other items not included above, please define and schedule in comments column			<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<b>Series 500</b>	<b>Drainage and Service Ducts</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No						
	Drains, Sewers, Piped Culverts and Service Ducts (Excluding Filter Drains, Narrow Filter Drains & Fin Drains)			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Filter Drains			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Low <input type="checkbox"/> Med <input type="checkbox"/> High	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Level 1 Estimate Rev 1				Level 1 Estimate Rev 2				Level 1 Estimate Rev 3			
<b>Scheme Name</b>				<b>Scheme Name</b>				<b>Scheme Name</b>			
<b>Drawing Library References</b>				<b>Drawing Library References</b>				<b>Drawing Library References</b>			
<b>Estimate Date</b>				<b>Estimate Date</b>				<b>Estimate Date</b>			
<b>Project Status</b>				<b>Project Status</b>				<b>Project Status</b>			
<b>Section Scheme</b>				<b>Section Scheme</b>				<b>Section Scheme</b>			
Road Type			km	Road Type			km	Road Type			km
Side Roads			km	Side Roads			km	Side Roads			km
Grade Separated Junctions			km	Grade Separated Junctions			km	Grade Separated Junctions			km
Other			km	Other			km	Other			km
<b>Series 200 - Site Clearance</b>				<b>Series 200 - Site Clearance</b>				<b>Series 200 - Site Clearance</b>			
General Site Clearance			ha	General Site Clearance			ha	General Site Clearance			ha
Demolition of Individual or Groups of Buildings or Structures			km <sup>2</sup>	Demolition of Individual or Groups of Buildings or Structures			km <sup>2</sup>	Demolition of Individual or Groups of Buildings or Structures			km <sup>2</sup>
Other			km <sup>2</sup>	Other			km <sup>2</sup>	Other			km <sup>2</sup>
<b>Series 300 - Fencing and Environmental Noise Barriers</b>				<b>Series 300 - Fencing and Environmental Noise Barriers</b>				<b>Series 300 - Fencing and Environmental Noise Barriers</b>			
Boundary Fencing			km	Boundary Fencing			km	Boundary Fencing			km
Other			km	Other			km	Other			km
Environmental Noise Barriers			km	Environmental Noise Barriers			km	Environmental Noise Barriers			km
<b>Series 400 - Road Restraint Systems (Vehicles and Pedestrians)</b>				<b>Series 400 - Road Restraint Systems (Vehicles and Pedestrians)</b>				<b>Series 400 - Road Restraint Systems (Vehicles and Pedestrians)</b>			
Safety Barrier	Yes	100	km	Safety Barrier			km	Safety Barrier			km
Pedestrian Counters			km	Pedestrian Counters			km	Pedestrian Counters			km
Anti-Climb Systems			km	Anti-Climb Systems			km	Anti-Climb Systems			km
<b>Series 500 - Drainage and Service Ducts</b>				<b>Series 500 - Drainage and Service Ducts</b>				<b>Series 500 - Drainage and Service Ducts</b>			
Off-road drainage			km	Off-road drainage			km	Off-road drainage			km
Alleviation areas			km	Alleviation areas			km	Alleviation areas			km
Outfalls			km	Outfalls			km	Outfalls			km
Concrete Channel			km	Concrete Channel			km	Concrete Channel			km
<b>Series 600 - Earthworks</b>				<b>Series 600 - Earthworks</b>				<b>Series 600 - Earthworks</b>			
Earthworks incl 10% balance			km <sup>3</sup>	Earthworks incl 10% balance			km <sup>3</sup>	Earthworks incl 10% balance			km <sup>3</sup>
Cut Quantity approx			km <sup>3</sup>	Cut Quantity approx			km <sup>3</sup>	Cut Quantity approx			km <sup>3</sup>
Disposal Quantity approx			km <sup>3</sup>	Disposal Quantity approx			km <sup>3</sup>	Disposal Quantity approx			km <sup>3</sup>
Re-usable Quantity approx			km <sup>3</sup>	Re-usable Quantity approx			km <sup>3</sup>	Re-usable Quantity approx			km <sup>3</sup>
Required F <sub>2</sub>			km <sup>3</sup>	Required F <sub>2</sub>			km <sup>3</sup>	Required F <sub>2</sub>			km <sup>3</sup>
Ground Conditions			km <sup>3</sup>	Ground Conditions			km <sup>3</sup>	Ground Conditions			km <sup>3</sup>
Terrain			km <sup>3</sup>	Terrain			km <sup>3</sup>	Terrain			km <sup>3</sup>
Capping requirement			km <sup>3</sup>	Capping requirement			km <sup>3</sup>	Capping requirement			km <sup>3</sup>
Imported Granular Material			km <sup>3</sup>	Imported Granular Material			km <sup>3</sup>	Imported Granular Material			km <sup>3</sup>
Disposal of Material			km <sup>3</sup>	Disposal of Material			km <sup>3</sup>	Disposal of Material			km <sup>3</sup>
Unsuitable Material			km <sup>3</sup>	Unsuitable Material			km <sup>3</sup>	Unsuitable Material			km <sup>3</sup>
Rock			km <sup>3</sup>	Rock			km <sup>3</sup>	Rock			km <sup>3</sup>
UT / Final			km <sup>3</sup>	UT / Final			km <sup>3</sup>	UT / Final			km <sup>3</sup>
<b>Series 700 - Pavement</b>				<b>Series 700 - Pavement</b>				<b>Series 700 - Pavement</b>			
Wearing course		specify layer depth	km <sup>3</sup>	Wearing course		specify layer depth	km <sup>3</sup>	Wearing course		specify layer depth	km <sup>3</sup>
Binder Course		specify layer depth	km <sup>3</sup>	Binder Course		specify layer depth	km <sup>3</sup>	Binder Course		specify layer depth	km <sup>3</sup>
Base Course		specify layer depth	km <sup>3</sup>	Base Course		specify layer depth	km <sup>3</sup>	Base Course		specify layer depth	km <sup>3</sup>
<b>Series 1100 - Kerbs, Footways and Pavement Areas</b>				<b>Series 1100 - Kerbs, Footways and Pavement Areas</b>				<b>Series 1100 - Kerbs, Footways and Pavement Areas</b>			
Footways & Pavement Areas			km <sup>2</sup>	Footways & Pavement Areas			km <sup>2</sup>	Footways & Pavement Areas			km <sup>2</sup>
Cycleways			km <sup>2</sup>	Cycleways			km <sup>2</sup>	Cycleways			km <sup>2</sup>
Other			km <sup>2</sup>	Other			km <sup>2</sup>	Other			km <sup>2</sup>
<b>Series 1200 - Traffic Signs and Road Markings</b>				<b>Series 1200 - Traffic Signs and Road Markings</b>				<b>Series 1200 - Traffic Signs and Road Markings</b>			
Traffic Signaling			km	Traffic Signaling			km	Traffic Signaling			km
Other			km	Other			km	Other			km
<b>Series 1300 - Road Lighting Columns and Standards</b>				<b>Series 1300 - Road Lighting Columns and Standards</b>				<b>Series 1300 - Road Lighting Columns and Standards</b>			
Public Lighting Columns			km	Public Lighting Columns			km	Public Lighting Columns			km
Other			km	Other			km	Other			km
<b>Series 1400 - 1200 Structures</b>				<b>Series 1400 - 1200 Structures</b>				<b>Series 1400 - 1200 Structures</b>			
Piped Culverts			km	Piped Culverts			km	Piped Culverts			km
Box Culverts			km	Box Culverts			km	Box Culverts			km
Overbridges			km	Overbridges			km	Overbridges			km
Pedestrian Footbridge			km	Pedestrian Footbridge			km	Pedestrian Footbridge			km
Underbridges			km	Underbridges			km	Underbridges			km
Signature Structures - Span			km	Signature Structures - Span			km	Signature Structures - Span			km
Other			km	Other			km	Other			km
<b>Series 2700 - Waterways, Utilities and Accommodation Access Roads</b>				<b>Series 2700 - Waterways, Utilities and Accommodation Access Roads</b>				<b>Series 2700 - Waterways, Utilities and Accommodation Access Roads</b>			
Access Road Length to be specified			km	Access Road Length to be specified			km	Access Road Length to be specified			km
Access Road Width to be specified			km	Access Road Width to be specified			km	Access Road Width to be specified			km
Other			km	Other			km	Other			km
<b>Landscaping</b>				<b>Landscaping</b>				<b>Landscaping</b>			
Landscaping including Topsoiling grade			km <sup>2</sup>	Landscaping including Topsoiling grade			km <sup>2</sup>	Landscaping including Topsoiling grade			km <sup>2</sup>

## TII Back Up Tracker Sheet - Draft

### Level 3 Estimate Rev 1

Scheme Name		
Drawing Library References		
Estimate Date		
Project Status		

#### Mainline Scheme

Road Type			km
Side Roads			km
Grade Separated Junctions			Nr
Other			km

#### Series 200 - Site Clearance

General Site Clearance			ha
Demolition of Individual or Groups of Buildings or Structures			item
Other			

#### Series 300 - Fencing and Environmental Noise Barriers

Boundary Fencing			m
Other			m
Environmental Noise Barriers			m

#### Series 400 - Road Restraint Systems (Vehicles and Pedestrian)

Safety Barrier	Yes	124	m
Pedestrian Guardrail			m
Anti Glare Screens			m

#### Series 500 - Drainage and Service Ducts

Off road drainage			m
Attenuation areas			no
Outfalls			no
Concrete Channel			m

### Level 3 Estimate Rev 2

Scheme Name		
Drawing Library References		
Estimate Date		
Project Status		

#### Mainline Scheme

Road Type			km
Side Roads			km
Grade Separated Junctions			Nr
Other			km

#### Series 200 - Site Clearance

General Site Clearance			ha
Demolition of Individual or Groups of Buildings or Structures			item
Other			

#### Series 300 - Fencing and Environmental Noise Barriers

Boundary Fencing			m
Other			m
Environmental Noise Barriers			m

#### Series 400 - Road Restraint Systems (Vehicles and Pedestrian)

Safety Barrier			m
Pedestrian Guardrail			m
Anti Glare Screens			m

#### Series 500 - Drainage and Service Ducts

Off road drainage			m
Attenuation areas			no
Outfalls			no
Concrete Channel			m

# TII Level 3 Estimate Tracker Comparison Sheet- Draft



Scheme Name		Level 3 Estimate Rev 1		Level 3 Estimate Rev 2		Level 3 Estimate Rev 3	
TII Ref		Base Estimate		Uplift from Previous		Uplift from Previous	
Estimate Date		Date:		Date:		Date:	
Road Authority		Consultant:		Consultant:		Consultant:	
Project Status		Estimator:		Estimator:		Estimator:	
Region		Total €		Total €		Total €	
Name of Consultant		Basis of Costs Estimate		Basis of Costs Estimate		Basis of Costs Estimate	
<b>1 Main Construction Contract (See attached for breakdown presented to Level 3 detail)</b>							
Series 100 Preliminaries		€ -		€ -		€ -	
Series 200 Site Clearance		€ -		€ -		€ -	
Series 300 Fencing and Environmental Noise Barriers		€ -		€ -		€ -	
Series 400 Road Restraint Systems (Vehicles and Pedestrian)		€ -		€ -		€ -	
Series 500 Drainage and Service Ducts		€ -		€ -		€ -	
Series 600 Earthworks		€ -		€ -		€ -	
Series 700 Pavements		€ -		€ -		€ -	
Series 1100 Kerbs, Footways and Paved Areas		€ -		€ -		€ -	
Series 1200 Traffic Signs and Road Markings		€ -		€ -		€ -	
Series 1300 Road Lighting Columns and Brackets		€ -		€ -		€ -	
Series 1400 Electrical Work for Road Lighting and Traffic Signs		€ -		€ -		€ -	
Series 1500 Motorway Communications		€ -		€ -		€ -	
Series 1600 - 2300 Structures		€ -		€ -		€ -	
Series 2500 Special Structures		€ -		€ -		€ -	
Series 2700 Watermains Utilities and Accommodation Works		€ -		€ -		€ -	
- Landscaping		€ -		€ -		€ -	
- Utilities Cost Estimates (Statutory Undertakers and Associated Civil Works)		€ -		€ -		€ -	
- Other Costs		€ -		€ -		€ -	
Total Base Cost for Main Construction Contract (Excluding VAT)		€ -		€ -		€ -	
Add Project Specific Risk Contingency		€ -		€ -		€ -	
Sub-Total exclusive of VAT		€ -		€ -		€ -	
Add VAT at		€ -		€ -		€ -	
Total MCC Base Cost plus Project Specific Risk Contingency and VAT		€ -		€ -		€ -	
<b>2 Land and Property</b>							
Base Cost Total from attached summary (to be compiled as per Appendix F Template)		€ -		€ -		€ -	
Add Project Specific Risk Contingency		€ -		€ -		€ -	
Total L&P Base Cost plus Project Specific Risk Contingency		€ -		€ -		€ -	
<b>3 Planning and Design</b>							
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		€ -		€ -		€ -	
Add Project Specific Risk Contingency		€ -		€ -		€ -	
Total P&D Base Cost plus Project Specific Risk Contingency		€ -		€ -		€ -	
<b>4 Archaeology</b>							
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		€ -		€ -		€ -	
Add Project Specific Risk Contingency		€ -		€ -		€ -	
Total Archaeology Base Cost plus Project Specific Risk Contingency		€ -		€ -		€ -	
<b>5 Advance Works and Other Contracts</b>							
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		€ -		€ -		€ -	
Add Project Specific Risk Contingency		€ -		€ -		€ -	
Total Advance Works and Other Contracts Base Cost plus Project Specific Risk Contingency		€ -		€ -		€ -	
<b>6 Main Contract Supervision (Employer's Costs)</b>							
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		€ -		€ -		€ -	
Add Project Specific Risk Contingency		€ -		€ -		€ -	
Total MC Supervision (Employer's Costs) Base Cost plus Project Specific Risk Contingency		€ -		€ -		€ -	
<b>7 Residual Network (Provision to be subject to the approval of the TII Regional Manager)</b>							
Base Cost Total from attached summary (to be compiled based on Level 3 breakdown)		€ -		€ -		€ -	
Add Project Specific Risk Contingency		€ -		€ -		€ -	
Total Residual Network Base Cost plus Project Specific Risk Contingency		€ -		€ -		€ -	
<b>TOTAL LEVEL 3 ESTIMATE INCLUSIVE OF VAT</b>							
N.B. Figures above are INCLUSIVE of VAT unless otherwise specified.							
Figures above are EXCLUSIVE of provision for inflation - base date to be stated if different from date of estimate.							
Total base costs to include for ALL qualifying costs under each cost heading.							
Refer to the TII Cost Management Manual and TII Requirements for Measurement and Pricing (RMP) for information							
See attached Budget Assumptions Sheet for Further Scheme Information.							
		Mainline Length (km)		Mainline Length (km)		Mainline Length (km)	
		Rate per km		Rate per km		Rate per km	

# TII Level 3 Estimate Tracker Comparison Sheet- Draft

Scheme Name		Level 3 Estimate Rev 1		Level 3 Estimate Rev 2	
TII Ref					
Estimate Date					
Road Authority					
Project Status					
Region					
Name of Consultant					
<b>1 Main Construction Contract (See attached for breakdown presented to Level 3 detail)</b>					
Series 100	Preliminaries	€ -		€ -	
Series 200	Site Clearance	€ -		€ -	
Series 300	Fencing and Environmental Noise Barriers	€ -		€ -	
Series 400	Road Restraint Systems (Vehicles and Pedestrian)	€ -		€ -	
Series 500	Drainage and Service Ducts	€ -		€ -	
Series 600	Earthworks	€ -		€ -	
Series 700	Pavements	€ -		€ -	
Series 1100	Kerbs, Footways and Paved Areas	€ -		€ -	
Series 1200	Traffic Signs and Road Markings	€ -		€ -	
Series 1300	Road Lighting Columns and Brackets	€ -		€ -	
Series 1400	Electrical Work for Road Lighting and Traffic Signs	€ -		€ -	
Series 1500	Motorway Communications	€ -		€ -	
Series 1600 - 2300	Structures	€ -		€ -	
Series 2500	Special Structures	€ -		€ -	
Series 2700	Watermains Utilities and Accommodation Works	€ -		€ -	
-	Landscaping	€ -		€ -	
-	Utilities Cost Estimates (Statutory Undertakers and Associated Civil Works)	€ -		€ -	
	Other Costs	€ -		€ -	
Total Base Cost for Main Construction Contract (Excluding VAT)		€ -		€ -	
Add Project Specific Risk Contingency		€ -		€ -	
Sub-Total exclusive of VAT		€ -		€ -	
Add VAT at		€ -		€ -	
Total MCC Base Cost plus Project Specific Risk Contingency and VAT		€ -		€ -	
<b>2 Land and Property</b>					
Base Cost Total from attached summary (to be compiled as per Appendix F Template)		€ -		€ -	
Add Project Specific Risk Contingency		€ -		€ -	
Total L&P Base Cost plus Project Specific Risk Contingency		€ -		€ -	





# GENERAL UPDATE

## 1. CHANGE CONTROL REVISIONS

- MOVE TO THRESHOLD BASED SYSTEM
- ACCOMPANYING TII SOFTWARE

## 2. UPDATE FRAMEWORK MANAGEMENT SYSTEM

# TII National Roads Conference 2019

## Update to TII Cost Management Procedures - Reference Class Forecasting

27/09/19

# Reference Class Forecasting – what is it?

---

- Methodology for forecasting future overruns on projects using data from previously completed projects
  - Builds on existing TII procedures for cost estimation
  - Removes ‘Optimism Bias’, uses outside view
  - Incorporates ‘unknown unknowns’
  - Does NOT replace the need for accurate and comprehensive base cost estimates
- 



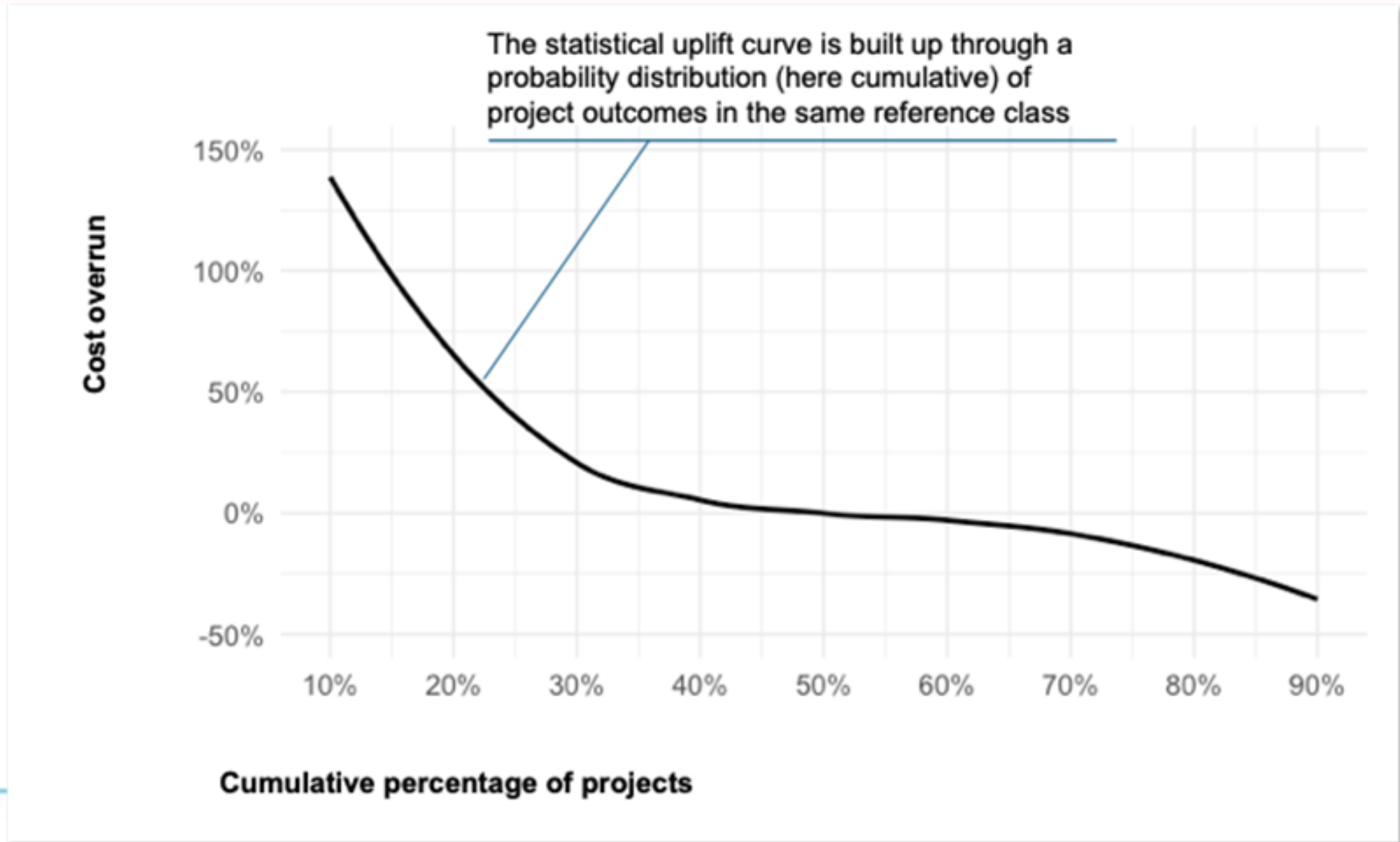
# Reference Class Forecasting – Why use it?

---

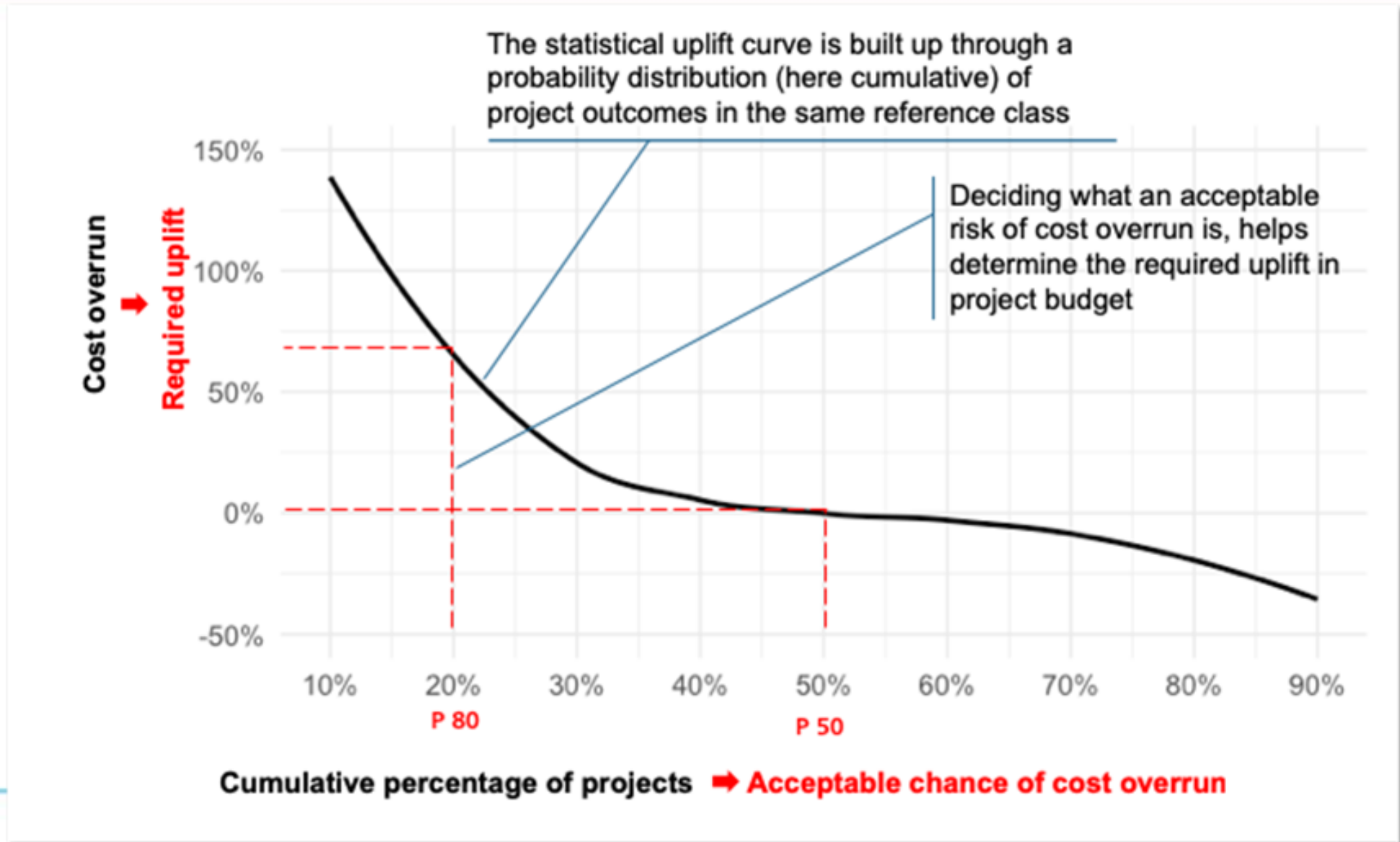
	Reliable			Comprehensive		
	Tailored	Objective	Moderate	Extreme	Known	Unknown
Expert Judgement	✓	✗	~	~	✓	✗
Monte Carlo Simulation	~	~	✓	~	✓	✗
Reference Class Forecasting	✗	✓	~	~	✓	✓
<b>Combined Approach</b>	✓	✓	✓	✓	✓	✓

---

# Reference Class Forecasting – How does it work?

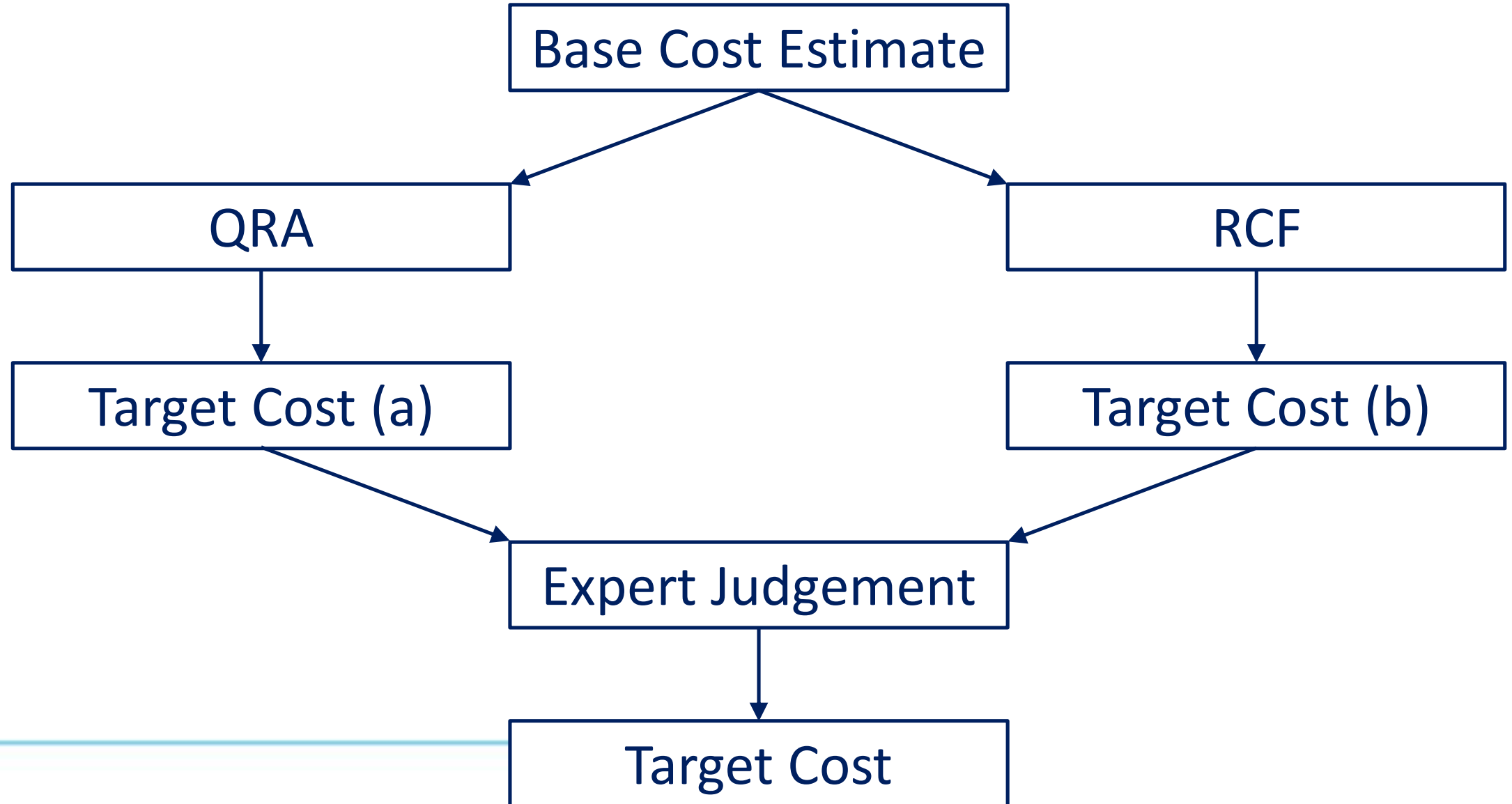


# Reference Class Forecasting – How does it work?





# How is RCF applied to TII Projects?



# Work Done to Date

- Reference Class of over 120 National Road projects identified
- Cost & Schedule data gathered at pre CPO (TC1), Pre Tender (TC2), pre Award (TC3) and Outturn
- Initial Analysis complete

Baseline	Measure	Cost overrun	Cost overrun (incl. contingencies)	Cost overrun (nominal)	Schedule overrun
TC1	mean	13%	-6%	35%	-14%
TC1	median	10%	-8%	24%	-16%
TC1	Frequency	73%	37%	74%	27%
TC1	N	40	30	100	37
TC2	mean	2%	-7%	-8%	-25%
TC2	Median	1%	-16%	-22%	-16%
TC2	Frequency	57%	29%	43%	NA
TC2	N	7	7	7	5
TC3	mean	10%	-3%	-4%	-7%
TC3	median	7%	-2%	-5%	-16%
TC3	Frequency	88%	43%	37%	37%
TC3	N	50	49	67	60

# Work Done to Date

- Reference Class of over 120 National Road projects identified
- Cost & Schedule data gathered at pre CPO (TC1), Pre Tender (TC2), pre Award (TC3) and Outturn
- Initial Analysis complete

Baseline	Measure	Cost overrun	Cost overrun (incl. contingencies)	Cost overrun (nominal)	Schedule overrun
TC1	mean	13%	-6%	35%	-14%
TC1	median	10%	-8%	24%	-16%
TC1	Frequency	73%	37%	74%	27%
TC1	N	40	30	100	37
TC2	mean	2%	-7%	-8%	-25%
TC2	Median	1%	-16%	-22%	-16%
TC2	Frequency	57%	29%	43%	NA
TC2	N	7	7	7	5
TC3	mean	10%	-3%	-4%	-7%
TC3	median	7%	-2%	-5%	-16%
TC3	Frequency	88%	43%	37%	37%
TC3	N	50	49	67	60

# Future Work

- Reference Class Charts to be finalised
- Reference Class Forecasting Publication to be finalised and published
- Cost Management Manual update including Reference Class Forecasting to be published

