



# Luas 2050

Presentation to TII Board  
Jan 28<sup>th</sup> 2025

By: **Anthony Duffy**  
Head of Project Services

# Background / History

## Background History

# PROJECT VS STRATEGIC APPROACH



VS



### TII Aims

1. Identify and Secure a pipeline of work
2. Protection and Renewals and also new projects
3. Through an integrated vision / plan for future
4. Consensus within TII

# Background History



## NTA Request

1. Review GDA Strategy
2. See if LRT provisions make sense
3. How they would be implemented, phasing, timelines etc
4. Any particular considerations, trams, depots, growth etc
5. Anything left out, TII suggestions

# Luas 2050

# Luas 2050 Objectives

## PRODUCE A LUAS VISION:

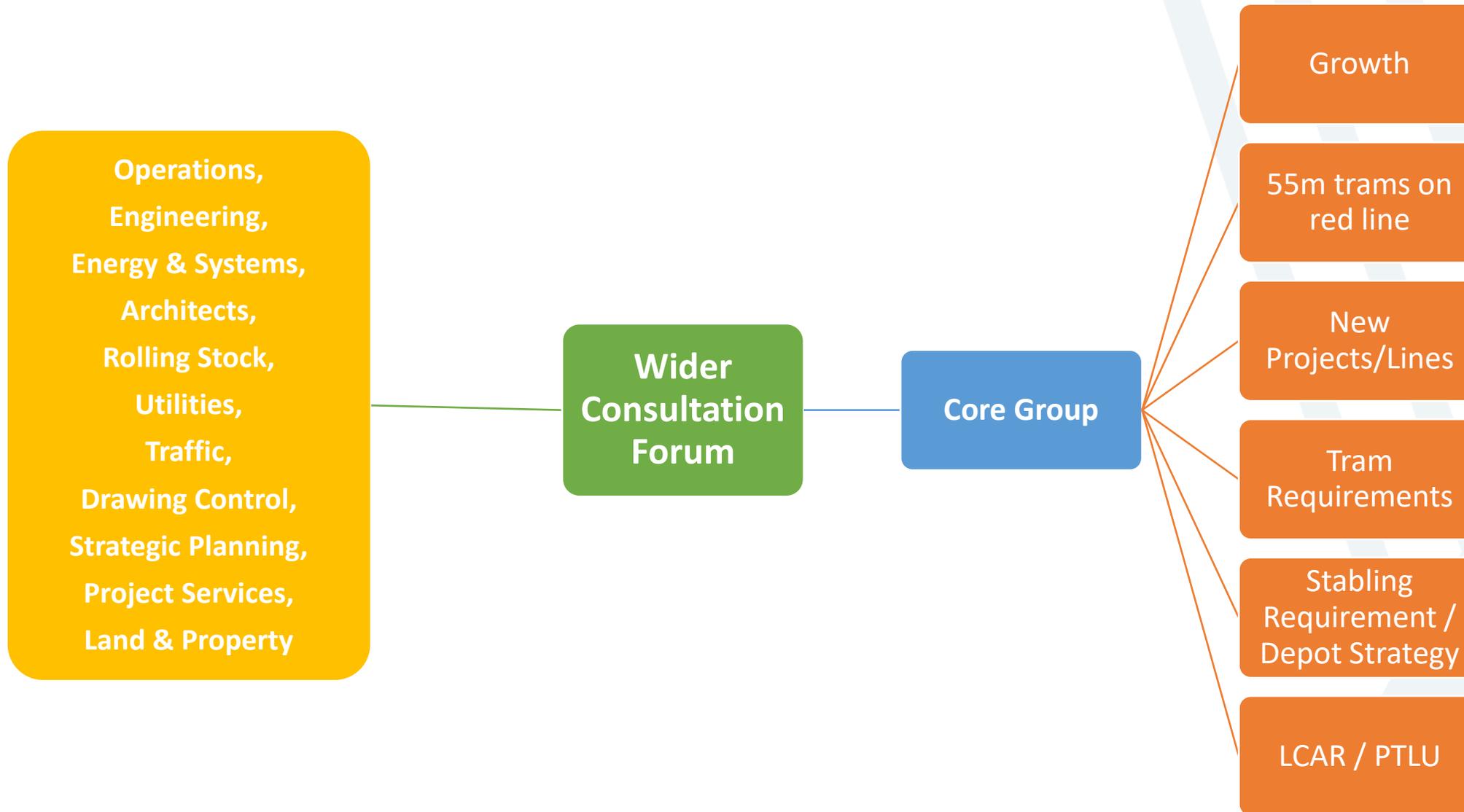
- TII RESPONSE TO GDA STRATEGY AND HOW WE SEE LUAS NETWORK EXPANDING OUT TO 2050 & ASSOCIATED WORKS
- ALIGN WITH TII CORPORATE STRATEGY
- TO BE COMPLETED END 2024



## PROVIDE A RESOURCE / FORUM FOR THE ORGANISATION TO:

- MAINTAIN / UPDATE THE LUAS 2050 VISION GOING FORWARD
- ANSWER ANY QUESTIONS / CARRY OUT RELATED TASKS ASSIGNED
- RAISE ANY OTHER ISSUES FROM THE FORUM / GROUP

# What is Luas 2050?



# LUAS 2050 – METHODOLOGY – SCENARIO 1

## STEADY STATE



- ONLY COMMITTED PROJECTS CONSIDERED
- EXTERNAL & INTERNAL
- GROWTH
- ASSET RENEWAL

## GROWTH



## TRAMS



## DEPOTS / STABLING



## LCAR / PTLU



- TRAM CAPACITY
- LUAS CENSUS
- FUTURE FORECAST
- 55M TRAMS – RED LINE

- GROWTH
- REPLACE EXISTING
- NEW PROCUREMENT
- MAINTENANCE OF EXISTING FLEET

- STABLING – HOW MUCH / WHERE / TYPE (SIZE OF TRAMS)
- DEPOT
  - CAPACITY – TYPE OF MAINTENANCE ETC
  - UPGRADES – RED COW – OFFICES AND DEPOT ITSELF

- TRACK / OHLE
- SUBSTATIONS
- STEEP – SYSTEMS RENEWAL
- DEPOTS
- OBSOLESCENCE

# LUAS 2050 – METHODOLOGY – SCENARIO 2

## NEW PROJECTS



- DETAILS
  - LENGTH
  - NR OF TRAMS
- PRIORITY
- WHEN
- HOW MUCH

## GROWTH



- TRAM CAPACITY
- LUAS CENSUS
- FUTURE FORECAST
- 55M TRAMS – RED LINE

## TRAMS



- GROWTH
- REPLACE EXISTING
- NEW PROCUREMENT
- MAINTENANCE OF EXISTING FLEET

## DEPOTS / STABLING



- STABLING – HOW MUCH / WHERE / TYPE (SIZE OF TRAMS)
- DEPOT
  - CAPACITY – TYPE OF MAINTENANCE ETC
  - UPGRADES – RED COW – OFFICES AND DEPOT ITSELF

## LCAR / PTLU



- TRACK / OHLE
- SUBSTATIONS
- STEEP – SYSTEMS RENEWAL
- DEPOTS
- OBSOLESCENCE

# Output / Findings



## LUAS 2050 – WORKSTREAMS - GROWTH

- Establish existing usage / demand and estimate future growth
- Utilised Census 2022 initially and then 2023
- Focussed on peak hour inbound initially
- Cross referenced with ERM data and TII internal calculations
- Difficult to Forecast growth due to recent issues, COVID, change to blended working, housing delivery
- Growth can be constrained by capacity i.e. Red Line
- Using a conservative long term growth rate, 2-3%
- Also cross reference with existing tram capacity



# Growth – Tram Capacity

- Tram Capacity
  - Theoretical Tram Capacity
  - Census capacity
  - Comfortable crowding capacity

TRAM TYPE	401	402	502
Theoretical Total Capacity (5 people /m2)	305	312	408
Realistic capacity = x PHF of 85%	259	265	346
PHF of 80%	244	249	326
PHF of 90%	274	280	367
Census capacity figure	262	262	367
	86%	84%	90%
Comfortable crowding figure (60% of census figure)	157	157	220
Alternative comfortable crowding figure - using theoretical total capacity x 90% PHF x 60% comfort factor	165	168	220

# Census 2023 – Heuston Station (Outbound)



Tram: 3022  
Time: **08:09:04**  
% Utilisation: **75%**  
Volume/Capacity: 196/262



Tram: 3011  
Time: **08:17:29**  
% Utilisation: **77%**  
Volume/Capacity: 202/262



- Tram: 3005 Time: **08:04:14** % Utilisation: **34%** Volume/Capacity: 90/262



# Growth

## CONCLUSION

- Green Line
  - Capacity ok for short term 2027 with current fleet
  - Turn back facility possibly required from 2027 onwards
  - Some changes / increases possible in service pattern
  - Most likely can be accommodated with existing fleet
- Red Line
  - At or over capacity
  - Not enough trams to increase service
  - Possible constraints on increasing service pattern
  - Potential constraint to accommodating future demand

## 55m Trams on Red Line?

- Red Line at or over capacity
- Limited scope for increased services
- Previous constraints may not exist any more or may be more of an appetite to address
- Infrastructure constraints not as much of an issue as previously
- Census 2023 analysis indicates that 55m trams may not be solution
  - Slow moving
  - Not suitable for particular characteristics of Red Line, lack of segregation, shared running, nr of busy junctions,
  - Possible safety issue with junctions etc
  - Need more trams, rather than longer trams

## Stabling Requirements / Depot Strategy

- Follow on from previous workstreams
- Sandyford Depot
  - Depot is land constrained and cannot be increased
  - Stabling is full
  - Should we relocate or new depot?
- Broombridge
  - stabling to be increased as part of Luas Finglas
  - Not ideal for operational reasons
- Red Cow
  - Has some stabling capacity
  - Possible scope for land acquisition and further expansion
- New Project Requirements

# Stabling Requirements / Depot Strategy

## CONCLUSION

- Utilise a Super Depot Strategy / Approach
- Heavy maintenance to be carried out at Central Depot(s)
- Lighter maintenance / stabling at satellite depots
- Could be at Red Cow or alternate location
- Look at potential to secure additional lands at Red Cow
- Does not affect Red Cow Depot Upgrade Project
- Passive provision for approach in above Project
- Longer term issue (10-15+ years)

# New Luas Projects

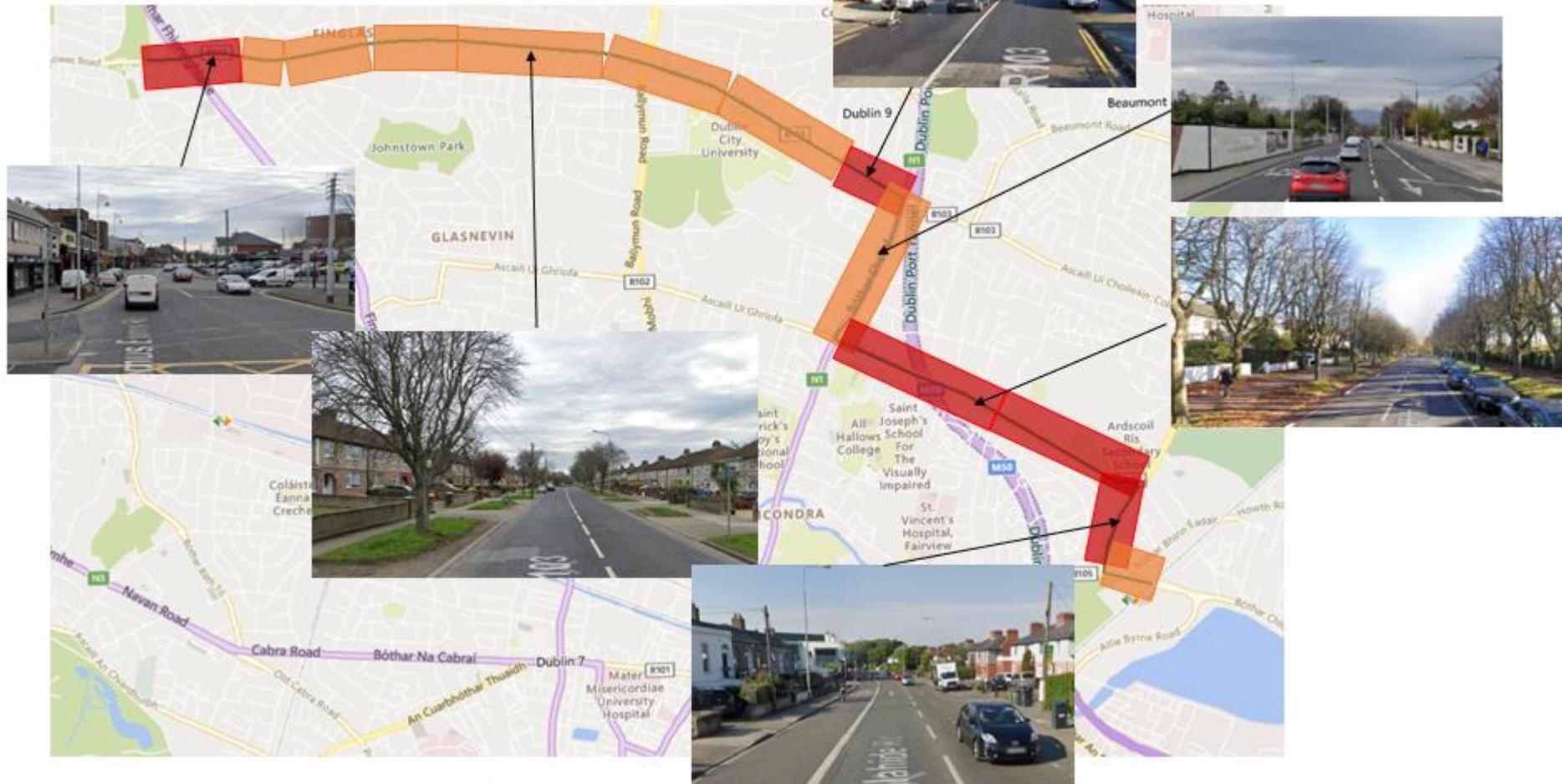
- Current NDP Projects
  - Luas Finglas, Luas Cork, Luas Lucan
  - Luas Bray and Luas Poolbeg likely to be pushed out in review
- NDP Projects Phase 2
  - Luas Bray and Luas Poolbeg
- Post 2042 Projects
- New Projects – TII Suggestions – Orbital routes
- Route length, nr of stops, possible service pattern, tram and depot requirements, likely service commencement

Figure 12.7: Post-2042 Light Rail Network



# Potential Route Analysis

## Additional TII Lines (post-2042) Inner North Circle



# Route Analysis / Tram Requirements

	Total length	off road	On street segregated	On street shared	Runtime	Com m Speed	Round time	Frequency	Trams	Spare trams	Tot Trams	Capacity	Tram/km
	(km)	(km)	(km)	(km)	(min)	(km/h)		(every x minutes)	(no.)	(no.)	(no.)	(pphpd)	
Green Line (*)	24.5				66.0	22.3	142.0	4	36	5	41		1.67
Red Line (**)	20				60.0	20.0	130.0	4	33	5	38		1.90
Luas Finglas	3.8	2.76	1.09	0	11.6	19.6	33.2	8	5	1	6		1.58
Luas Lucan	20	10.81	8.35	0.84	67.1	17.9	144.2	5	29	4	33		1.65
Luas Bray	6.4	6.05	0.15	0.16	18.3	21.0	46.5	5	10	2	12		1.88
Luas Poolbeg	2	0.62	1.03	0.38	8.4	14.3	21.8	5	5	1	6		3.00
Clongriffin	10.3	0.88	7.89	1.48	43.1	14.3	96.2	5	20	3	23		2.23
Tynnelstown	9	2.72	4.5	1.47	35.3	15.3	80.6	5	17	3	20		2.22
Blanchardstown	12.7	0	11.15	1.57	53.6	14.2	117.2	5	24	4	28		2.20
Clondalkin	4.6	1.71	1.83	1.04	19.3	14.3	48.7	5	10	2	12		2.61
Kimmage	9.2	3.5	3.71	2	38.5	14.4	86.9	5	18	3	21		2.28
Knocklyon	10.5	1.66	7.4	1.4	42.8	14.7	95.6	5	20	3	23		2.19
Sandyford	8.5	3.26	3.83	1.39	33.7	15.1	77.4	5	16	2	18		2.12
Inner South Circle	15.2	1.81	11.38	2.01	62.7	14.5	135.4	5	28	4	32		2.11
Inner North Circle	7.6	1.59	3.75	2.26	35.3	12.9	80.7	5	17	3	20		2.63
Luas Finglas Extension	3.1	1.46	1.64	0	10.1	18.4	30.3	5	7	1	8		2.58
Metro Orbital (West)	25	21.79	2.77	0.44	73.1	20.5	156.2	5	32	5	37		1.48

(\*) average runtime and frequency between two terminuses

(\*\*) average runtime and frequency between two terminuses

Tot Trams

378

# LUAS 2050 – Projects

## Delivery Timelines

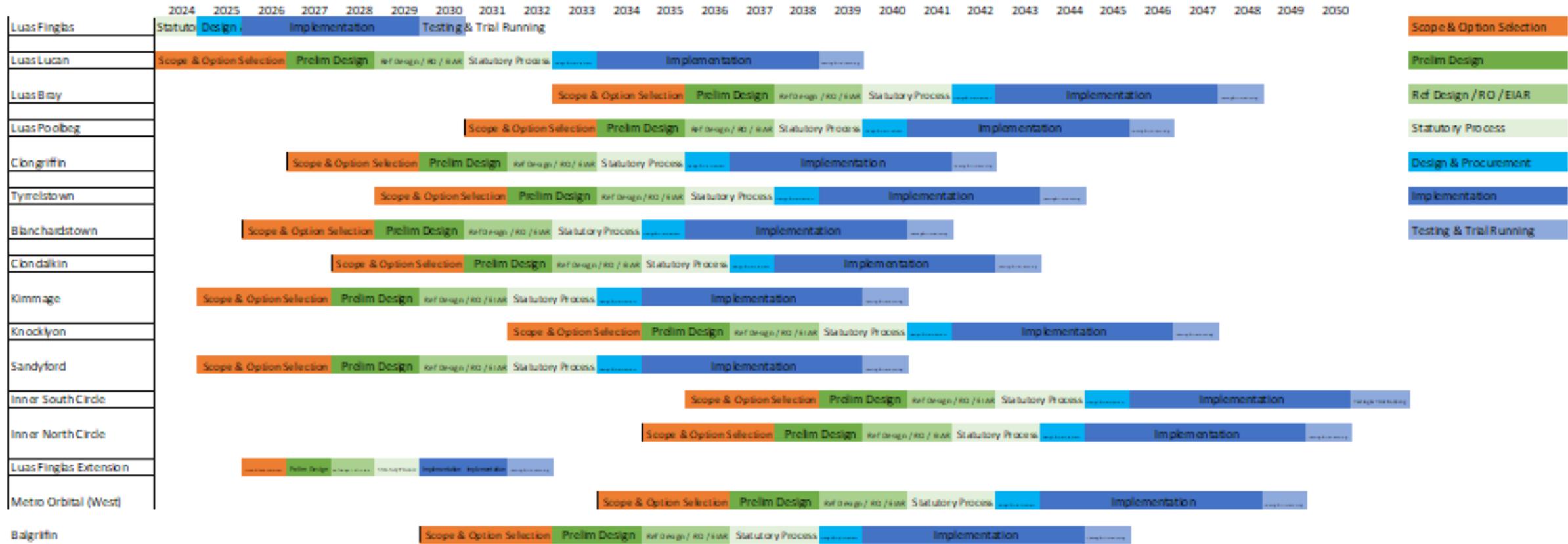
### GENERIC TIMELINE

Phases	Min (Yrs)	Max (Yrs)
1-2 SCOPE & CONCEPT & OPTION SELECTION	3	4
3 PRELIM DESIGN	2	2.5
3 R/O REF DESIGN / EIAR	2	2.5
4 R/O PROCESS	1	2
5A DETAILED DESIGN & PROCUREMENT	0.5	1
5B & 6 IMPLEMENTATION	5	7
6 TESTING AND TRIAL RUNNING	0.5	1
TOTAL PROJECT TIMELINE	14	20

Figure 1 Phases of an NTA Project Life Cycle - Capital Investment



# Potential Phasing



## LCAR / PTLU

- Review for any likely projects / initiatives which might which influence / affect foregoing
  - STEEP – Systems Renewal
  - Red Cow Depot Upgrade
  - Track & OHLE Renewal Programs
  - Substation Upgrade Programme
  - Red Line Fleet Replacement
  - Green Line trams Mid life refresh

# Luas 2050 vision



- ▶ TII is keen that the benefits of Luas are recognised, and inform Dublin and Ireland’s future planning and transport policy decisions.
- ▶ TII welcomes the scale of ambition in current policies and plans, but would like to accelerate.
- ▶ TII will work with the NTA, local authorities, community, and political stakeholders to see this vision happen.

## NTA Response

- Email outlining Works to be progressed in future
- Luas Poolbeg – Start late 2025
- Red Line Efficiency Study – Start now
- Green Line Operational Flexibility – Start now
- City Edge – Start now
- New Luas Project - Luas Sandyford – UCD? (TBC)
- Luas Bray – Start 2028 / 2030
- Requested initiatives / consultation to reduce project delivery timescales

# NEXT STEPS

# Next Steps

- Action NTA Instructions
  - Requires additional resourcing – Strengthening Initiative
- Document Progress to Date
  - Draft Booklet – Completed Dec 2024 - AECOM assisting
- Launch / Publicity??
  - Internal – TII & NTA briefings, internal Comms
  - External - Eolas magazine & Conference, Other?
- Scope out next phase
  - Depot Strategy
  - Red & Green Line operational capacity studies
  - Luas Poolbeg Pre-feasibility Study
  - GDA Strategy Projects Pre-feasibility Study
- Workshops on accelerating project delivery
  - Initial findings are that barriers / delays are outside the control / remit of the project team, i.e. NTA & Govt procedures, NTA requirements, planning, public etc
  - Investigate incremental project delivery – example Bordeaux & Manchester case studies
- Input to NDP Review as required



## LOOKING FORWARD

- 2025 Positive funding position
- 2026 Status (potentially)
- Working on Five Luas Lines
  - Luas Finglas – In or Progressing to Construction
  - Luas Lucan – Route selection
  - Luas Cork – Route selection / Preliminary Design
  - Luas Poolbeg – Project Commencement
  - Luas TBC – Project Commencement
- Rolling Stock Contract Awarded and Order Placed for new Red Line Fleet
- Red Cow Bus Interchange – Construction Substantially Progressed
- Red Cow Depot Extension – Construction Commenced
- New Red Line Tramstop at City Edge (Naas Rd) – In or progressing to construction
- Asset Renewal and Luas Upgrade Programmes

## FUTURE POTENTIAL MILESTONES

- 2027 Red Cow Bus Interchange Completed
- 2027 New City Edge Tramstop goes into operation
- 2028 Completion of Red Cow Depot Extension
- 2028 Commence delivery of new Red Line Trams
- 2028 Engineering Designer appointed for Luas Bray
- 2029 Onwards – commence work on new Luas line every 1-2 years to meet Luas 2050 targets
- 2030-2032 Passenger Service commences on Luas Finglas
- 2036+ Luas Lucan – passenger service commencement

# QUESTIONS



Bonneagar Iompair Éireann  
Transport Infrastructure Ireland



Bonneagar Iompair Éireann  
Ionad Gnó Gheata na Páirce  
Sráid Gheata na Páirce  
Baile Átha Cliath 8  
Éire, D08 DK10



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



+353 (0)1 646 3600



Transport Infrastructure Ireland  
Parkgate Business Centre  
Parkgate Street  
Dublin 8  
Ireland, D08 DK10



[info@tii.ie](mailto:info@tii.ie)



+353 (0)1 646 3601