

UDIA NSW

Western Parkland City, North South Rail & Urban AI

Urban AI Project Partners

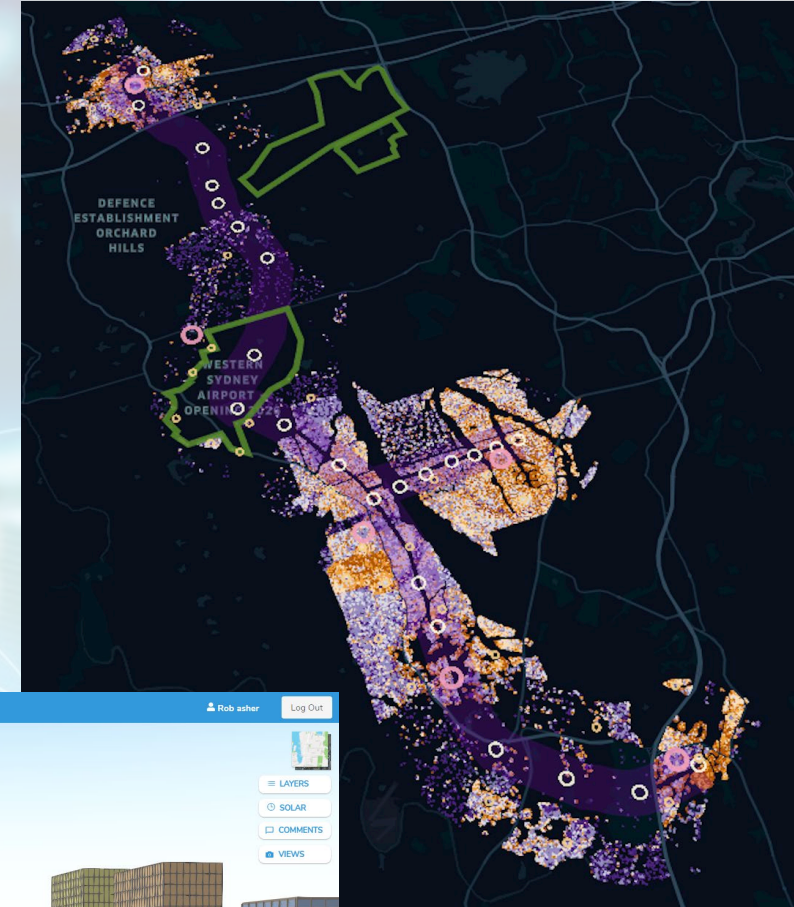
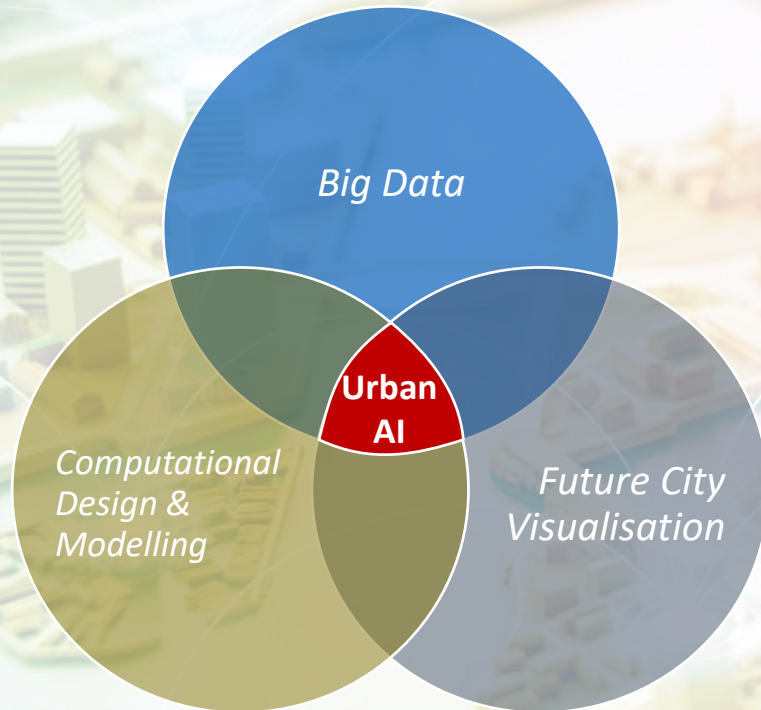


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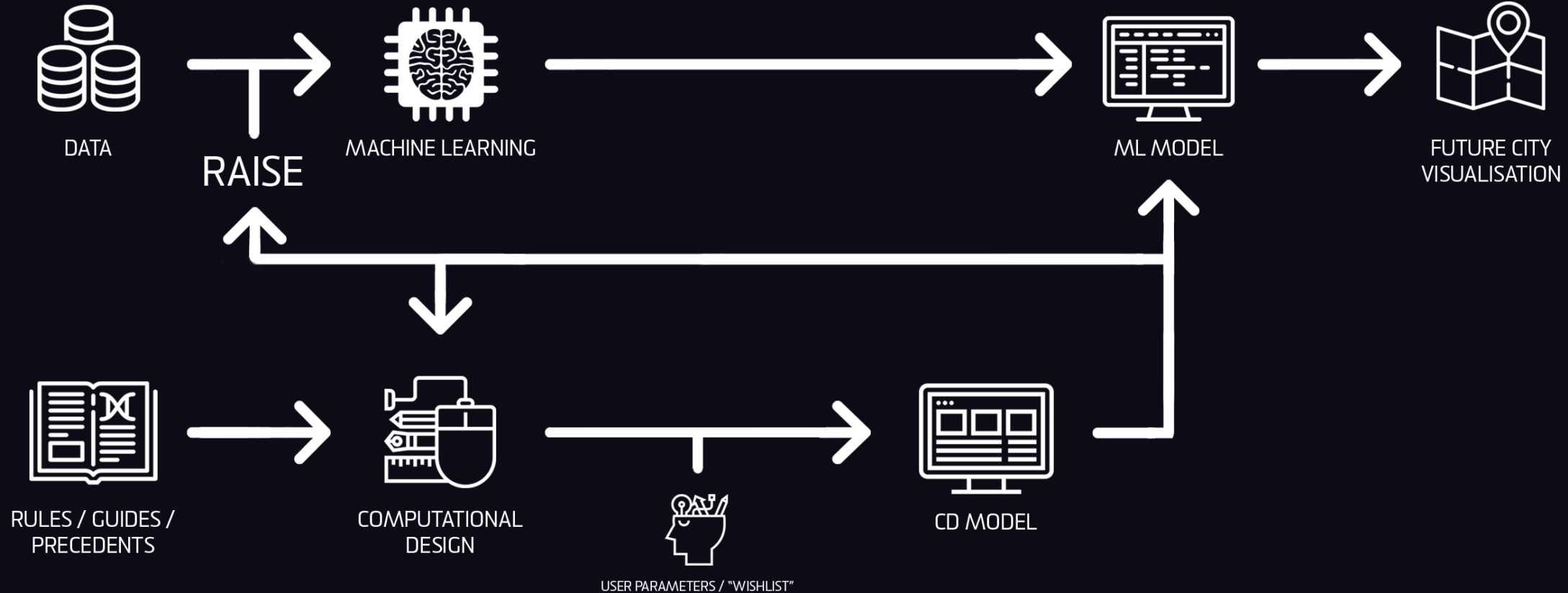


Urban AI

- Urban AI is one of the first applied research projects using and testing the benefits of artificial intelligence in urban development scenarios in Australia.
- UDIA NSW wanted a synthetic city model focussed on the Transit Oriented Design opportunities for the Western City's North-South metro rail.
- The planning and decision making around the total number and specific location of stations along the rail corridor is critically important for the future economic and social landscape of Western Sydney and Sydney's competitiveness as a global city.



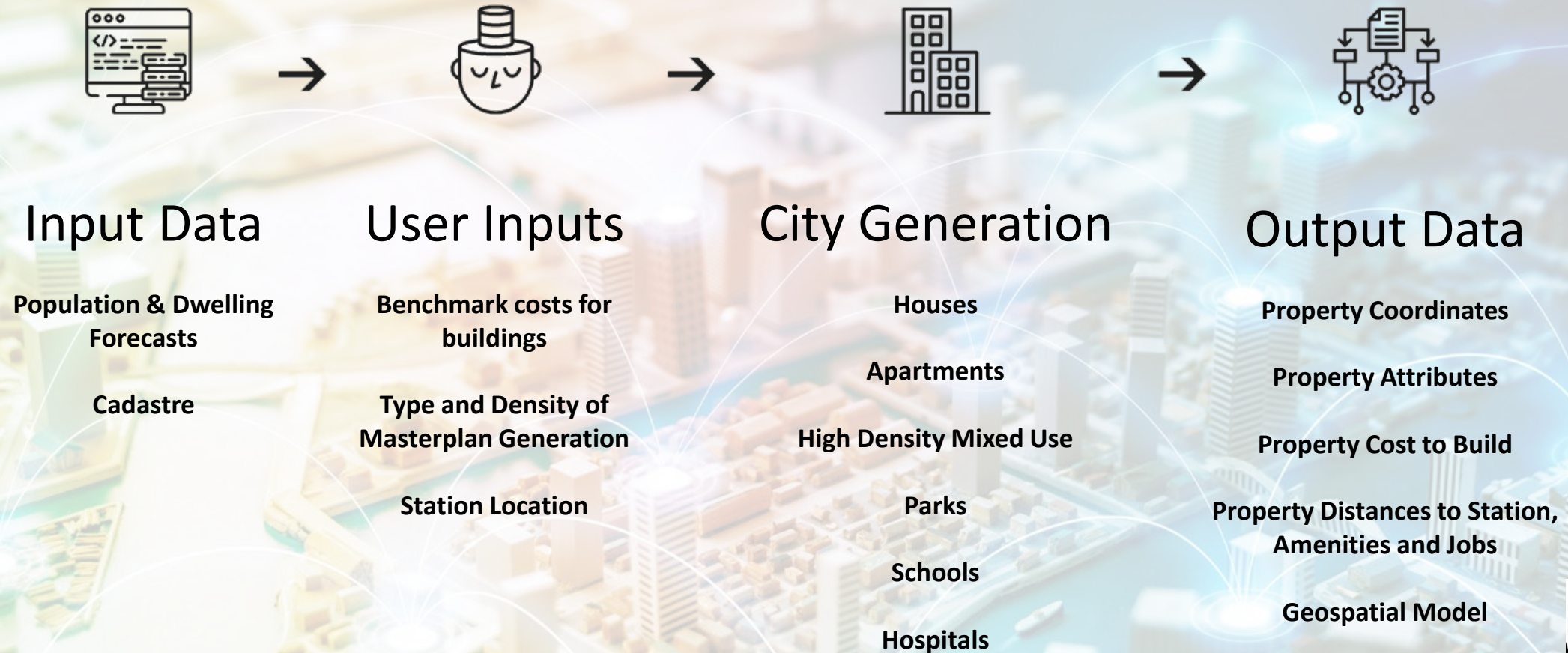
Synthetic Design Workflow



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Computational Design Workflow



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Key Data Assumptions

**+430k
Dwellings**

(Western City 2016-2056)



**+400k
Jobs**

(Western City 2016-2056)



**+100
Schools**

(Across Western City by 2056)



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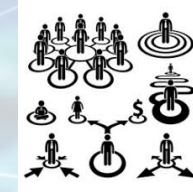
**3sqm Green
Space
Per Person**



**900 – 8,000
Dw/Per SqKM
per TOD**



**500 – 15,000
Jobs/SqKm Per
TOD**



- Site Value Dwelling: Low Density = \$150k; Medium Density = \$111k; High Density = \$69k
- Site Value PQM GFA: Low Density = N/A; Medium Density = \$706; High Density = \$692
- Average Lot Size/GFA per Apt: Low Density = 350sqm; Medium Density = 200sqm; High Density = 100sqm
- Proportion of jobs by type: Health & Education = 17%; Population Serving = 35%; Knowledge-Intensive = 23%; Industrial = 25%
- Average Annual Dwelling Growth Rates: 2016-2026 = 2.1%; 2026-2036 = 1.8%; 2036-2046 = 2.0%; 2046-2056 = 2.1%

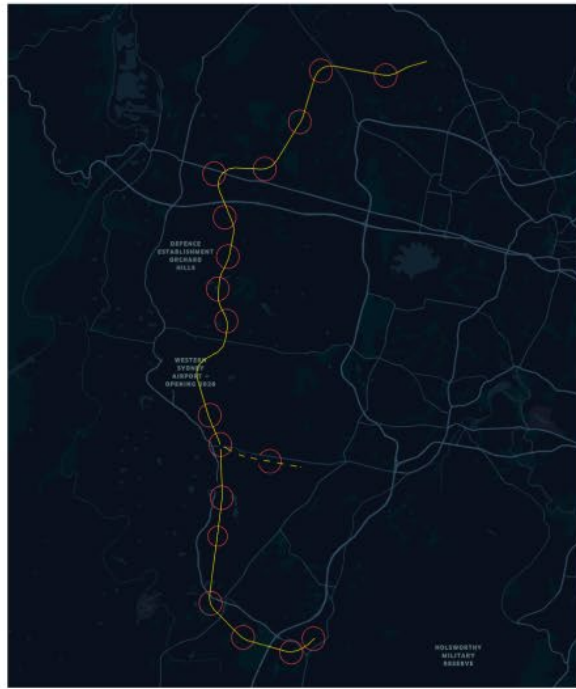


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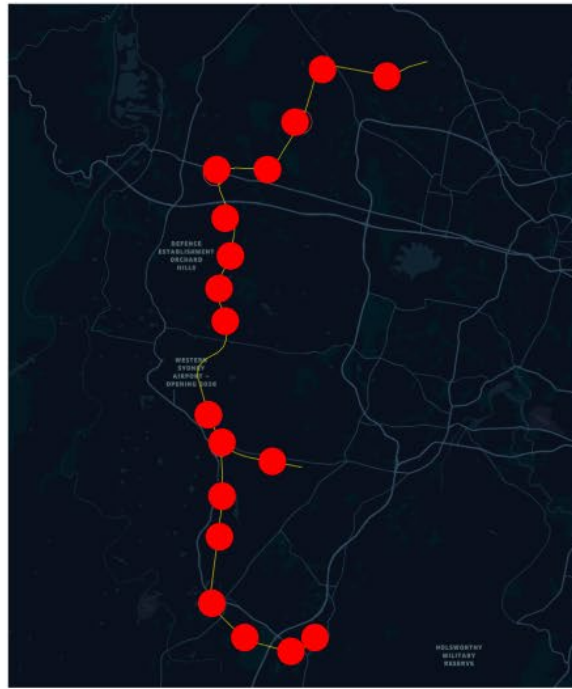


Scenario Testing

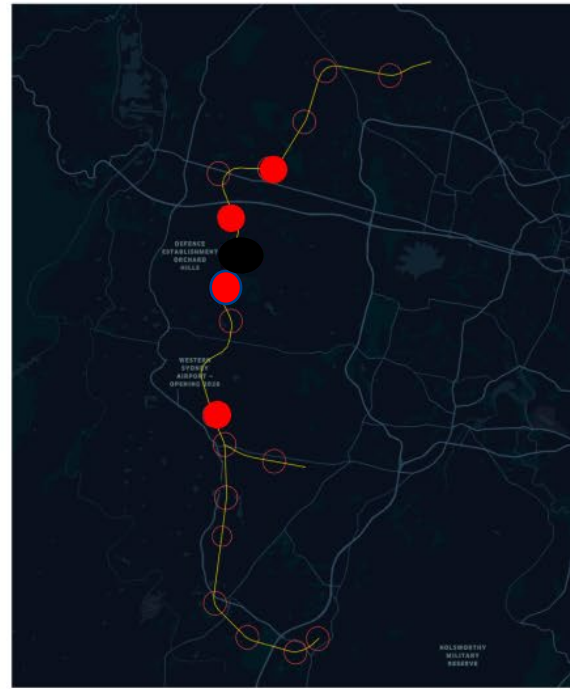
Scenario 1:
No N-S Metro Rail (0 stations)



Scenario 2:
Full Metro Rail (18 stations)



Scenario 3:
Stage 1 (4 Stations)



Scenario 4:
Stage 1 (7 Stations)



Notes: No modelling undertaken of the two Stations within Airport Precinct

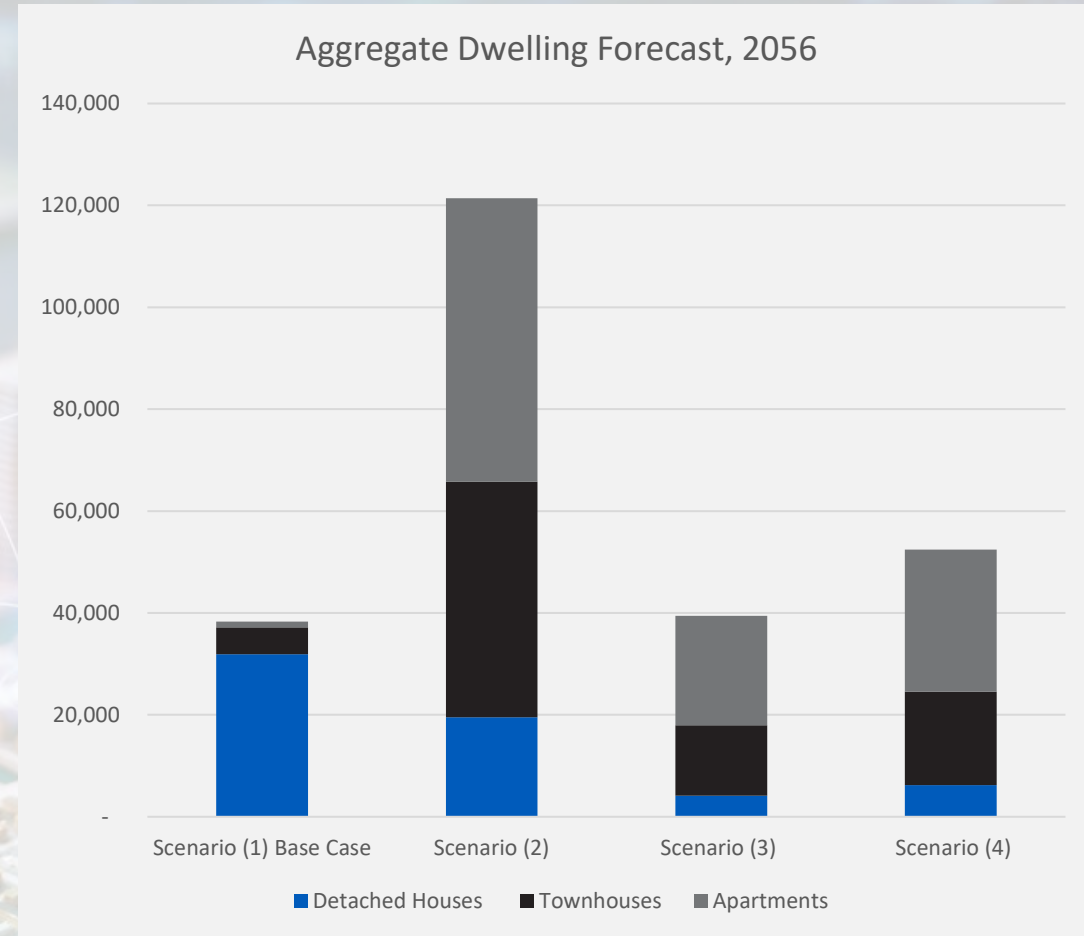


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Aggregate Forecasts*

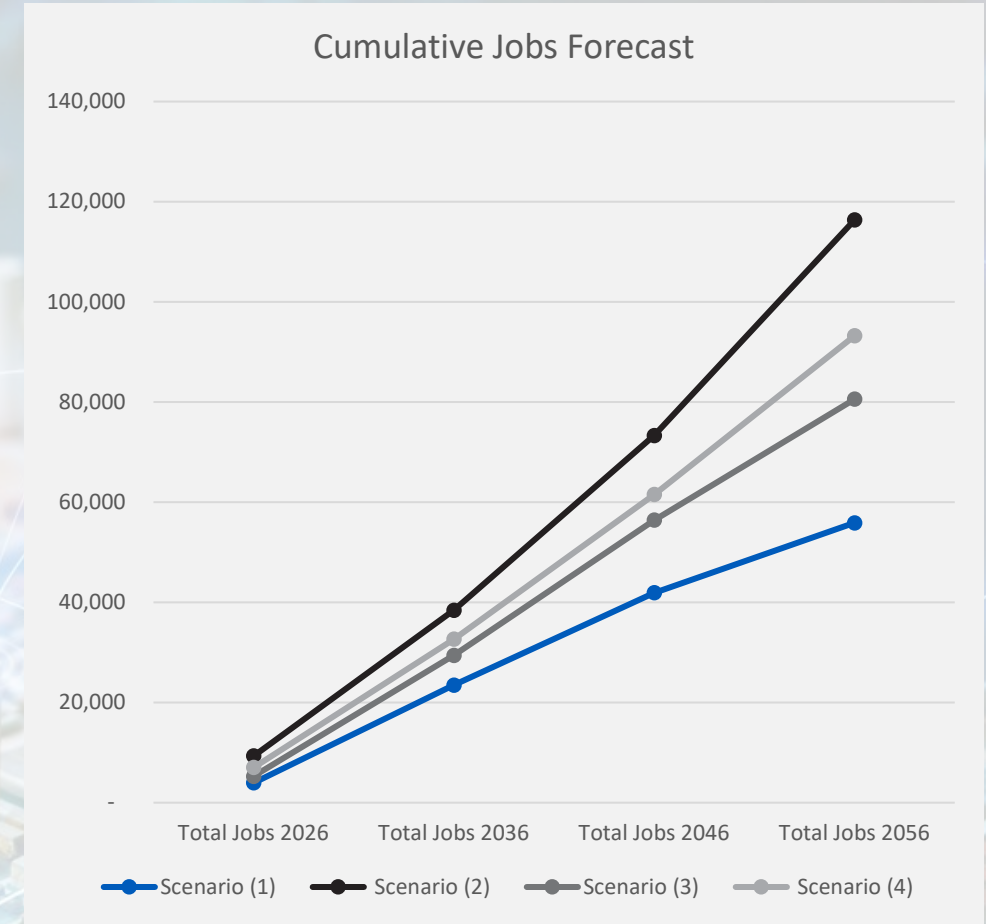
	Forecast Scenarios 2056 (within 800m station precincts)			
	(1) Base Case	(2) Full NS	(3) Stage One	(4) Stage One Plus
Total Dwellings	38,332	121,406	68,957	77,934
Detached Houses	31,816	19,527	29,205	27,909
Townhouses	5,367	46,248	17,551	21,607
Apartments	1,149	55,631	22,200	28,418
Total Jobs	55,835	116,325	80,539	93,208
Total Value - Residential (\$ Millions)	30,230	81,631	49,605	54,640
Total Residual Land Value (\$ Millions)	5,449	11,901	7,861	8,546



*Note: These forecasts reflect series 4.7(b) modelling outputs, are draft & not finalised

Aggregate Forecasts (Rollout Cumulative)*

	Forecast Scenarios (within 800m station precincts)			
	(1) Base Case	(2) Full NS	(3) Stage One	(4) Stage One Plus
Total Dwellings 2026	4,523	6,313	4,928	5,174
Total Dwellings 2036	15,793	24,281	17,948	20,763
Total Dwellings 2046	27,063	63,131	49,972	51,289
Total Dwellings 2056	38,332	121,406	68,957	77,934
Total Jobs 2026	3,908	9,306	5,235	6,991
Total Jobs 2036	23,450	38,387	29,397	32,623
Total Jobs 2046	41,876	73,285	56,378	61,517
Total Jobs 2056	55,835	116,325	80,540	93,208



*Note: These forecasts reflect series 4.7(b) modelling outputs, are draft & not finalised

UDIA NSW Advocacy Position - Western Sydney's North South Rail

The core objective of the Urban AI project has been to predict and visualise in 3D the urban morphology of the future city and to provide the evidence needed to determine the optimal long-term city shaping investment for the Western Parkland City. UDIA NSW's advocacy position is that this metro line is a once in a generation opportunity for Western Sydney to provide a core piece of city shaping infrastructure, which should include the following:

- **Stage One (plus):** Three additional railway stations in Stage 1 at Werrington, Orchard Hills #2 and Badgerys Creek North;
- **Full 18 Station Metro Line:** Corridor preservation and station locations should be confirmed for 3 stations at Lethbridge Park, Marsden Park and Schofields to connect to the existing North West Metro through to the Sydney CBD and a further 7 new stations in the southern extension to Macarthur and one station for the spur connection between Bringelly and Leppington to connect with the SW Extension line;
- **30-minute cities** Integrated TOD urban planning should be prioritised and enabling infrastructure planned to service these centres, to structure urban growth and development across the Western Parkland City around a TOD based 30-minute city urban hierarchy.

The driving advocacy messaging is that by not delivering expeditiously on the full North South Rail Corridor a car dependant, low job density 'suburban carpet' morphology is likely to materialise; therefore delivering an inefficient non-30 minute city, with poor connectivity and retarding the economic potential, affordability and accessibility of the Western Parkland City.



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