

Human Infrastructure for Electric Transit

Prototyping the Human Recharge Station
through Urban Geography Recycling.

The 7-Minute Infrastructure Gap

Refueling a car with petrol, diesel, or hydrogen takes a few minutes. Even with super-fast chargers, EV charging averages around seven minutes.

That is seven minutes of twiddling your thumbs while the kids riot in the back seats.



The Danish Inspiration

To adapt to the seven-minute charging reality, Denmark has begun converting conventional gas stations into spaces designed for the human experience.



The Human Recharge Station: A utilitarian facility designed to simultaneously charge an electric vehicle while providing the driver and passengers a space to rest, eat, and relax.

Anatomy of a Human Recharge Station

Extended Needs:

Retail spaces, repair centers, and a library/bookstore for reading on rainy days.

Human Basics:

Toilets with baby changing stations, and food outlets ranging from food trucks to full cafes.



Human Leisure:

Playgrounds for kids to burn off energy, and shaded garden sitting areas.

Machine Needs:

Sleek EV charging bays.

Prototyping the South Pacific

Off-the-shelf urban simulators often restrict green EV infrastructure to specific zoning policies.

To test the Human Recharge Station concept in a South Pacific context, we must build it ourselves using the Manukau city map in Cities: Skylines.

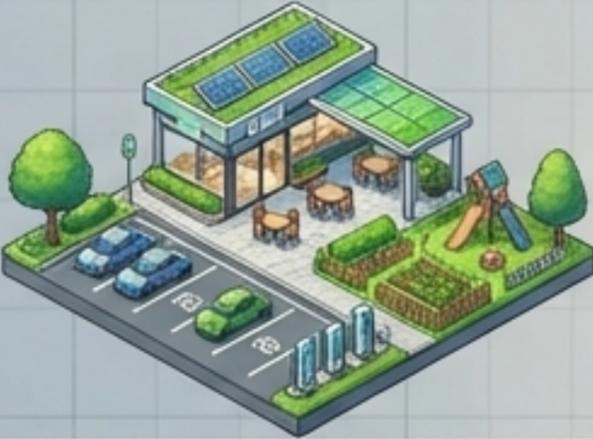
Tool: Cities: Skylines

Scale: Large City (Manukau)

Objective: Simulate utilitarian rest stops for inter-city travel.



The Infrastructure Typology Matrix

	Small Station	Medium Station	Large Station
Visual Avatar			
Ideal Urban Geography	High-density constrained urban or 2-lane national highways.	Lower-density unconstrained urban or 4-lane expressways.	4-8 lane inter-city motorways or wide 8-lane city avenues.
Core Function	Essential quick-stop.	Expanded transit rest.	Out-of-centre destination retail.
Key Amenities	Bathrooms, coffee kiosk.	Full cafes, basic retail.	Supermarkets, repair shops, library/bookstore.

The Micro-Village Node Ecosystem

The Large Station operates as a self-sustaining micro-village. It provides adjacent residential housing for facility workers and maintains dedicated transit links to the primary urban center, integrating the station into the broader city fabric.



McLennan Park & 340 Onehunga Models (Worker Housing)



Large Human Recharge Node

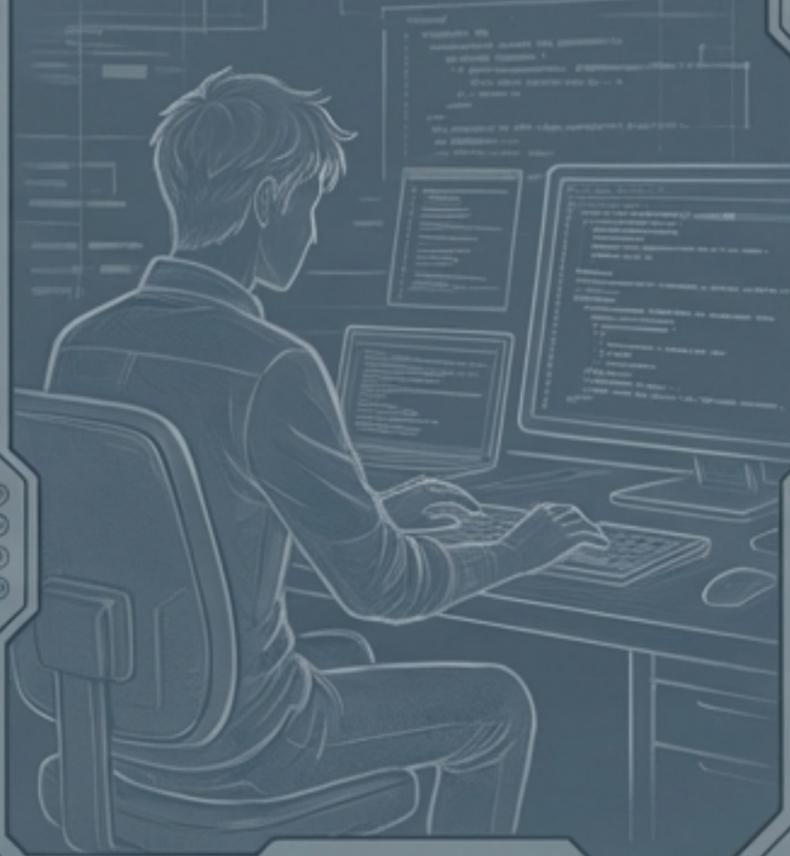
45-Min Manukau Trans-Link



The Builder
(Creates new assets)



The Modder
(Alters core code)



The Lotter



The Ecosystem of Urban Prototyping (BLaM)

The Lotter is the underappreciated unsung hero of the city. Lotters do not invent or build from scratch. They search through existing assets and reassemble them to plug functional holes the city has.

The Methodology of the Lotter

This is not about invention; it is about strategic assembly.
We repurpose what already exists to satisfy modern technological demands.



Stranded
Urban Asset

+



Off-The-Shelf
Amenities

×



The EV Charging
Time Need

=



The Human
Recharge Station

Urban Geography Recycling

Urban Geography Recycling transforms aging infrastructure into modern utility. It is an inexpensive, rapid, and highly adaptable planning cycle.

1. Identify Stranded Assets

(Gas stations, poorly used parking lots)

2. Select Existing Amenities

(Parks, cafes, modular bathrooms)

3. Repackage via Lotting

(The act of urban recycling)

4. Deploy Evolutionary Solution

(Install the new utilitarian space)





Evolution, Not Revolution

The transition to sustainable transport does not require tearing down our cities to build sci-fi utopias. Flashy concepts like autonomous vehicles may stall, but the human need to rest, play, and recharge has not changed in 100 years. True sustainable design relies on the quiet evolution of recycling existing urban geography to meet our future.