

Stourton Park & Ride

The First Fully Solar
Powered Park and
Ride in the UK



INTRODUCTION THE PROJECT AND MY ROLE

NICK BECKETT BA(hons), DipArch, RIBA

- Practicing architect for 15 years
- Joined Norse Consulting in 2012, run a team of 8 architects and technicians from the Leeds Office
- Multi-disciplinary Design and Consultancy Services as part of the Norse Group
- Public Sector Owned, Joint Ventures with Local Authorities across the UK

MY ROLE Stourton Park & Ride

- Norse Consulting worked as part of a wider civils-based team to deliver the terminus building and landscape setting
- Oversaw RIBA Stage 4 onwards, and became the lead technical advisor on site
- Responsible for taking credit for everyone else's hard work
- Go to networking events, show judging panels round etc



LEEDS?



STOURTON PARK AND RIDE The Problem?

CLIMATE EMERGENCY

BEST CITY AMBITION

- Health & Wellbeing
- Inclusive Growth
- Zero Carbon

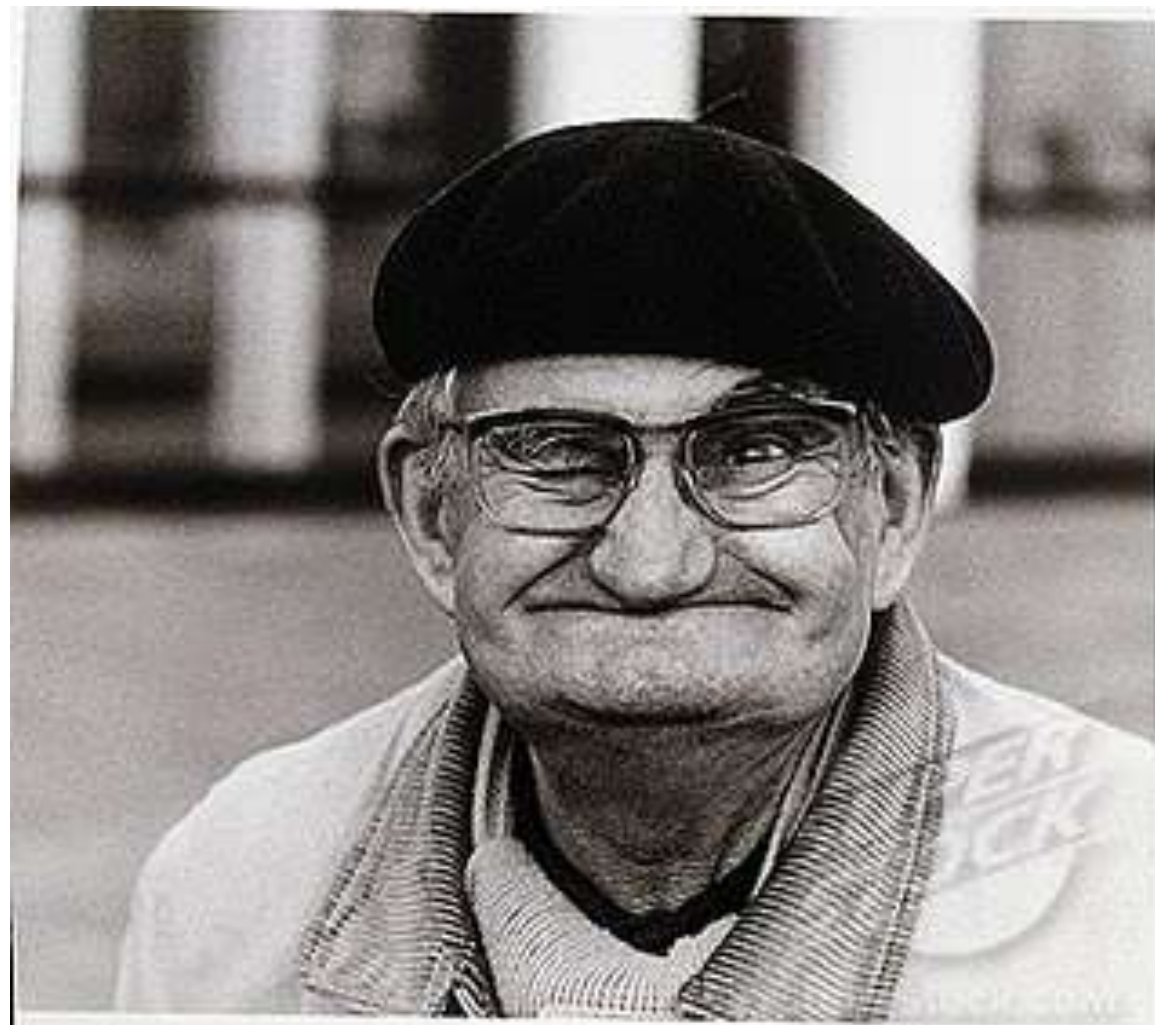
COST OF LIVING CRISIS



THE NORTH(!)



THE NORTH(!)



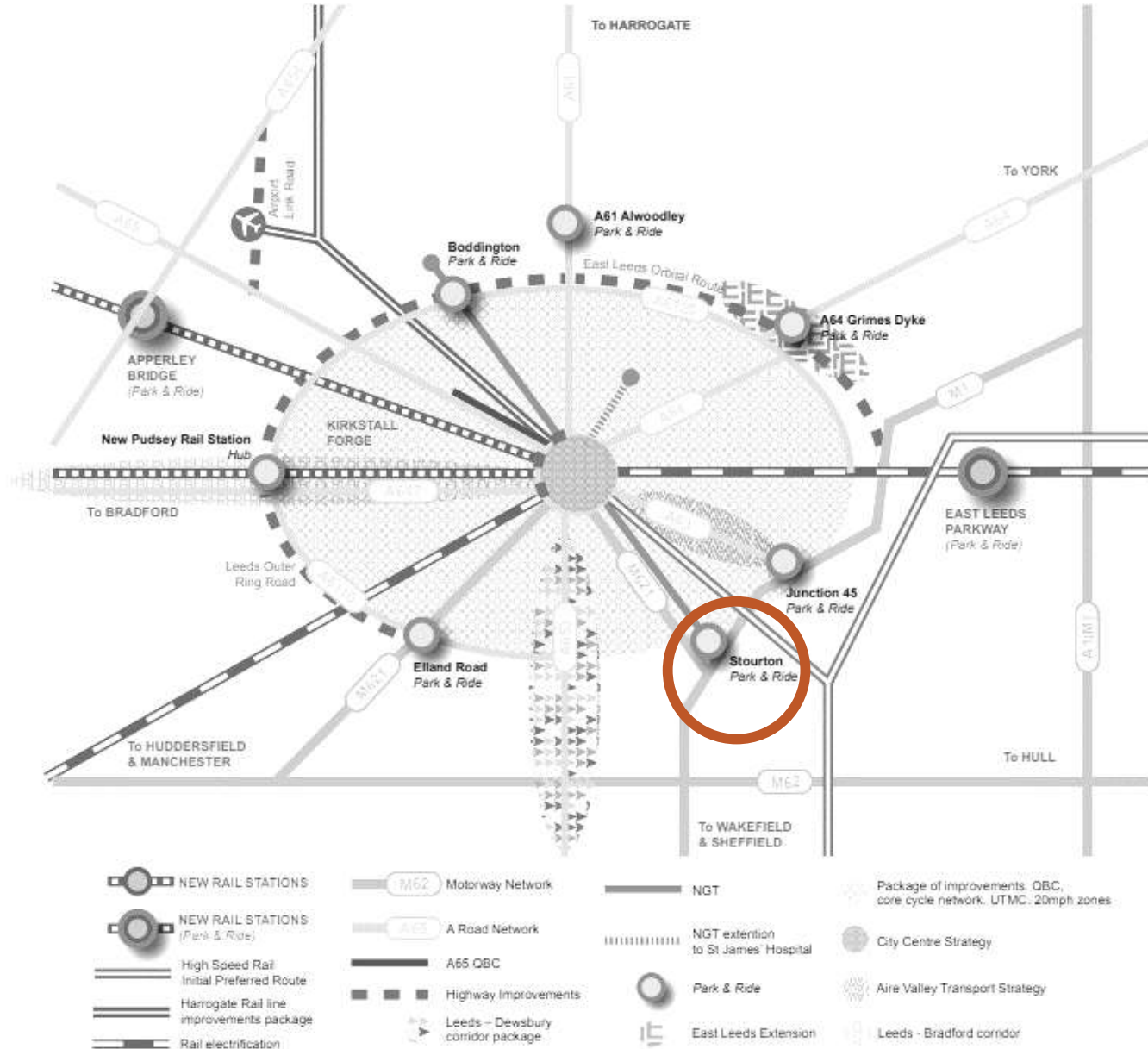
Map 9 Key Elements of Leeds Transport Strategy



THE STRATEGY

- Public consultations
 - Cost
 - Regularity
 - Time
- Encourage commuters to stop at periphery
- City centre parking extortionate
- All electric buses
- Dedicated bus lanes
- Affordable, clean and frequent
- Pedestrian priority

COULD WE HAVE BEST OF BOTH?



THE CONTEXT

2. ELLAND
ROAD P&R



1. TEMPLE
GREEN P&R

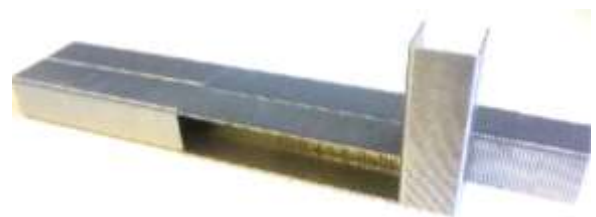
3. STOURTON
P&R



FROM M62

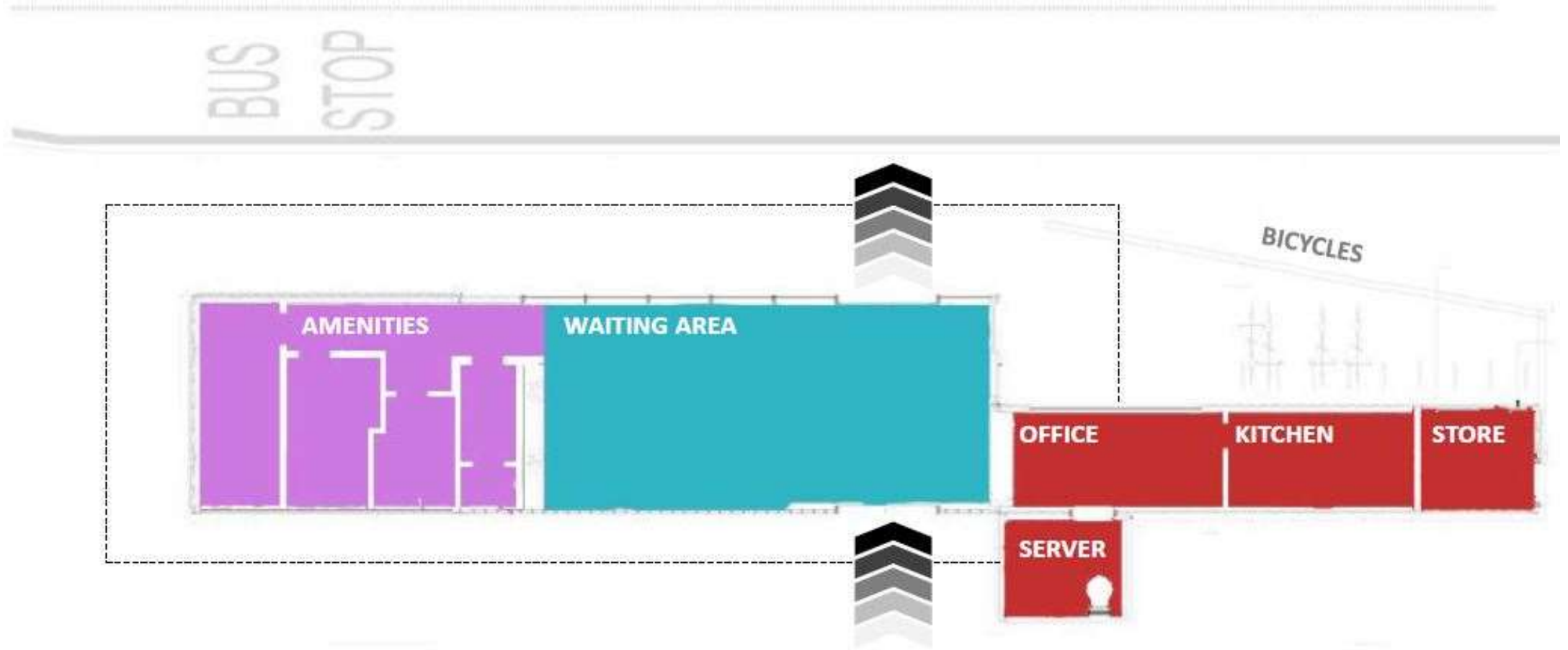
1. TEMPLE GREEN

WOODLAND



1. TEMPLE GREEN

FLOOR PLAN



2. ELLAND ROAD

WHITE ROSE

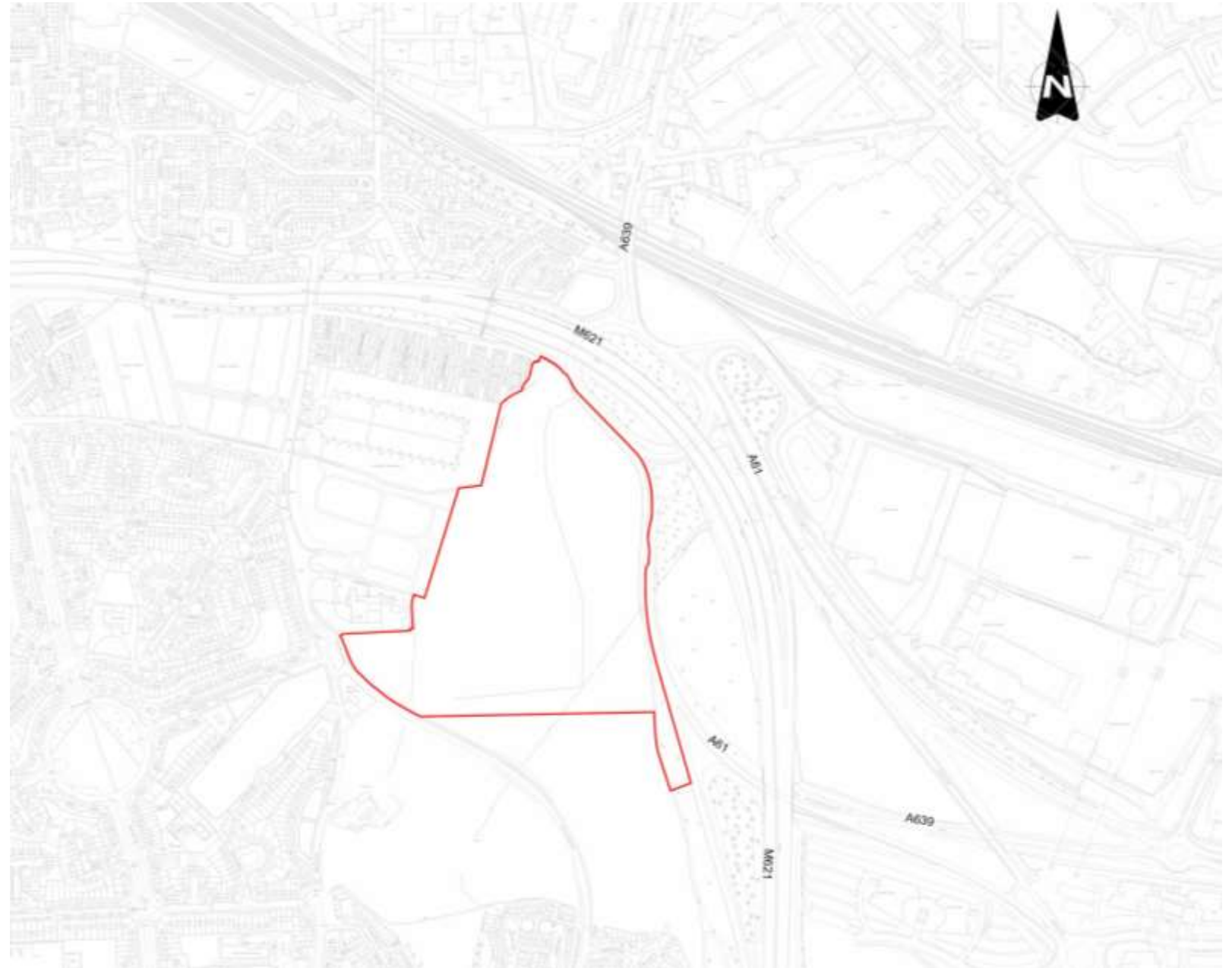


3. STOURTON P&R

EXISTING SITE

INDUSTRIAL HERITAGE

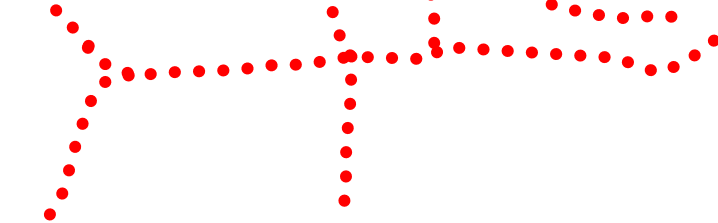
- Raw, robust materials
- Weathered
- Consumed by nature



3. STOURTON P&R

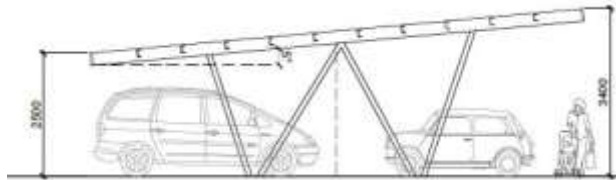


- ● ● Existing footpaths
- ● ● Proposed footpaths
- ● ● Right of way



CONCEPT SITE LAYOUT

- Solar Carports – to serve entire site(!)
- Battery Storage
- SUDS
- Biodiversity
- Tree Replacement
- 1,200 parking spaces
- 30 EVC spaces installed (26 trickle and 4 rapid)
- 84 duct enabled spaces for future provision
- Retail unit
- Customer WCs, office, ticket machines
- Cycle & mobility scooter parking
- Braille signage, flush kerbs



LEGEND



NOTES:

- A** **TRANSIT AREA PUBLIC REALM**
Transit area and Cafe public realm. High quality
pavement to help direct passengers. Soft
landscaping / raised planters to create walking /
seating spaces outside of Cafe / Retail unit.
- B** **ARRIVAL PLAZA**
Arrival area with shade trees and pedestrian
route to bus terminal. Clear stem deciduous
trees growing in amenity grassland
- C** **AVENUE**
Tree lined pedestrian routes to transit area.
Shade trees with low growing amenity shrub
planting.
- D** **PARKLAND**
Deciduous forest trees and native
cascades growing in amenity grassland
and wild flora / native bulb planting.
- E** **WOODLAND**
Deciduous native forest tree planting with native
woodland edge wild flora. few footpath /
brideway routes.
- F** **RETENTION BASIN**
Drainage detention basin within 'Parkland', wild
flora edging.

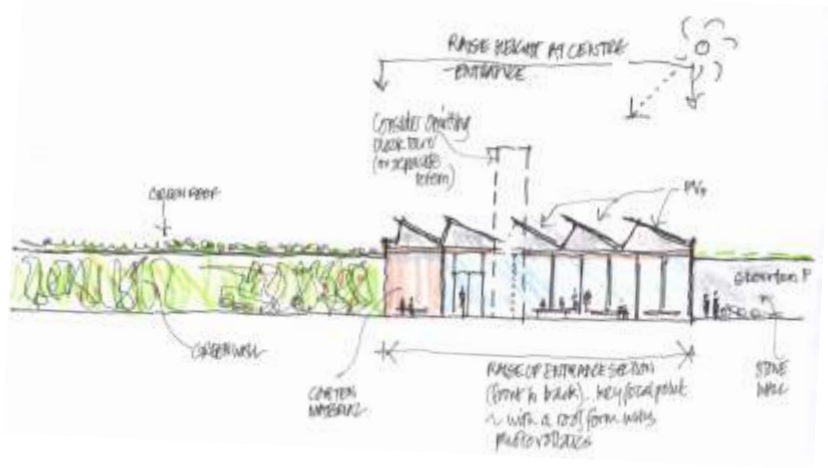
CONCEPT TERMINUS BUILDING



CONCEPT TERMINUS



CONCEPT PLANNERS(!)



- CREATE MORE FORM ~ express centre/entrance etc.

- INDICATIVE ONLY - more to explore...

CONCEPT TERMINUS SETTING



COMPROMISE!

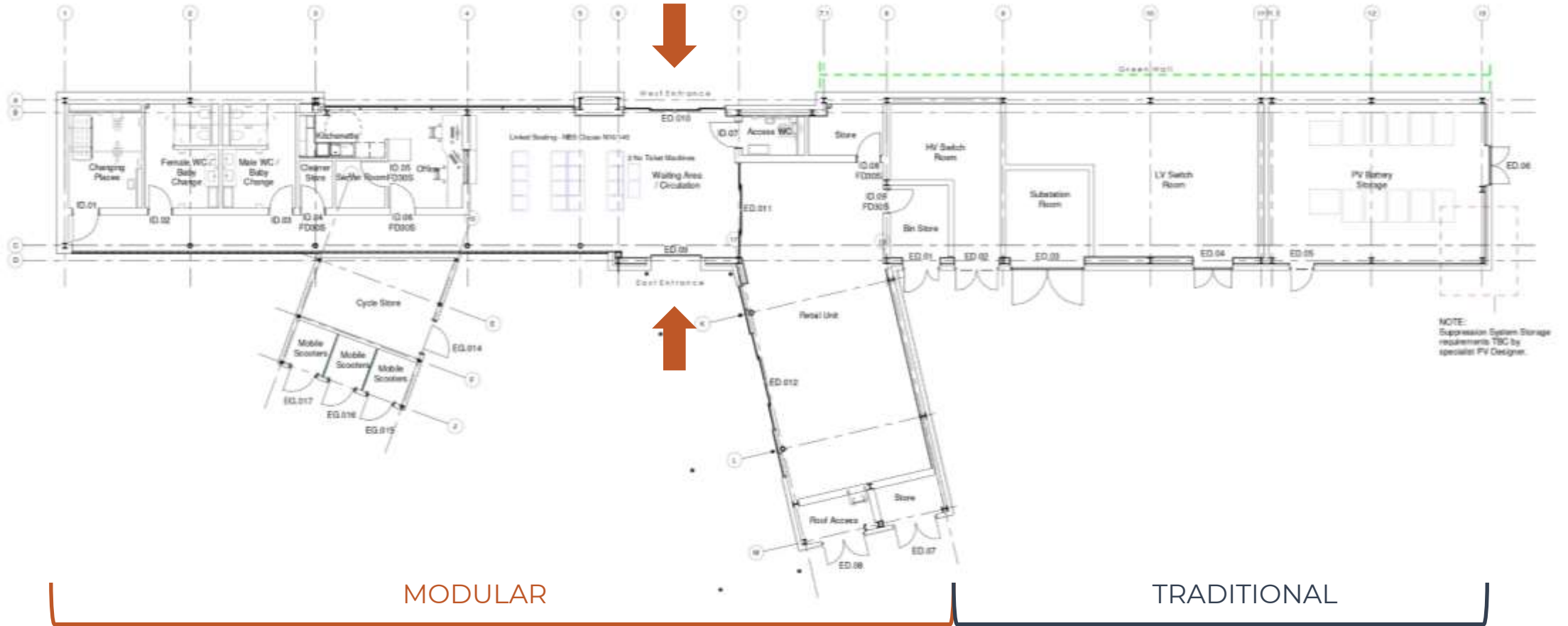
CONCEPT TERMINUS FRONTAGE



CONCEPT SEASONAL CHANGE



FLOOR PLAN



VISUALISATION



VISUALISATION



VISUALISATION



VISUALISATION



CONSTRUCTION



CONSTRUCTION



CONSTRUCTION



COMPLETED



COMPLETED



COMPLETED



COMPLETED



COMPLETED



COMPLETED



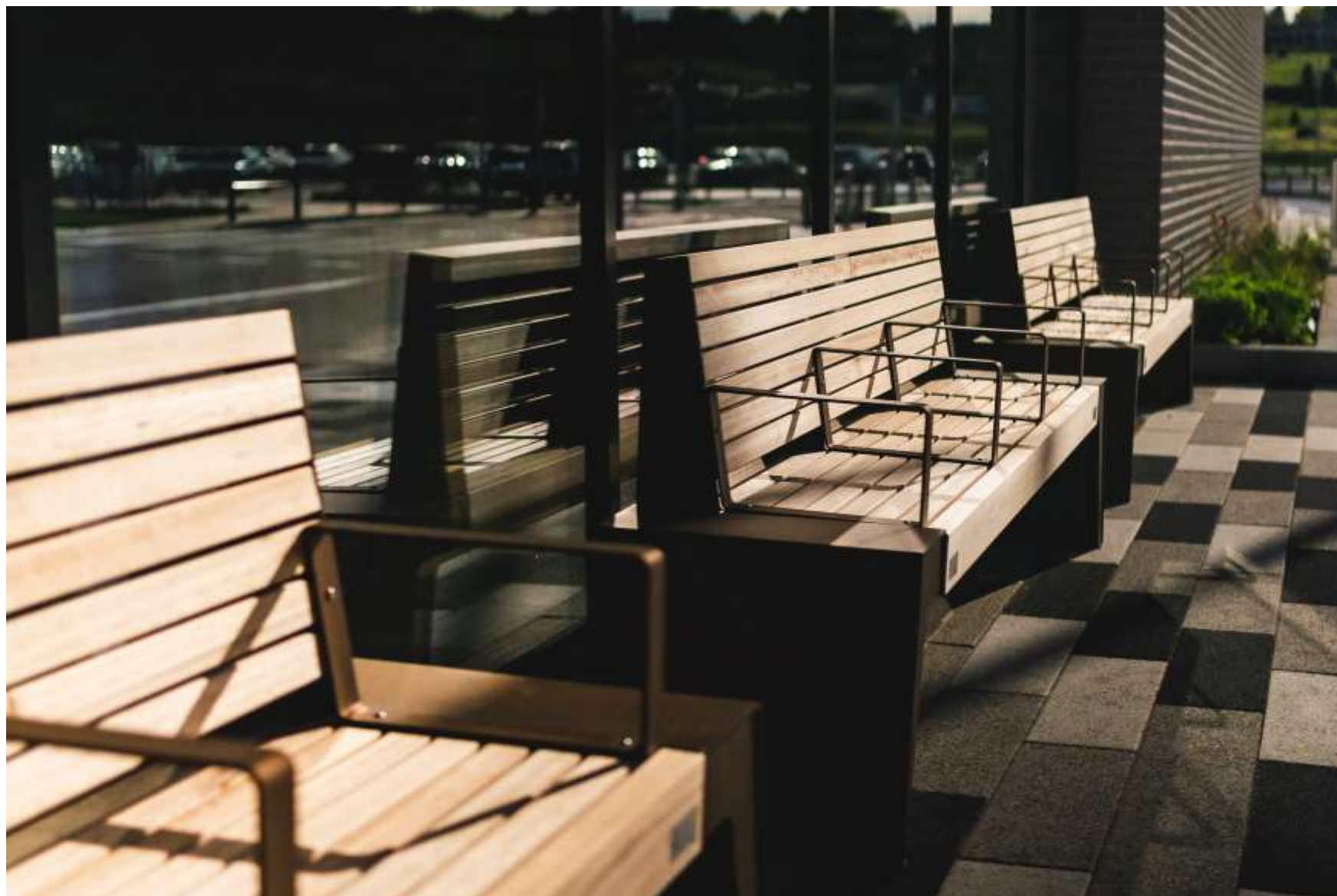
COMPLETED



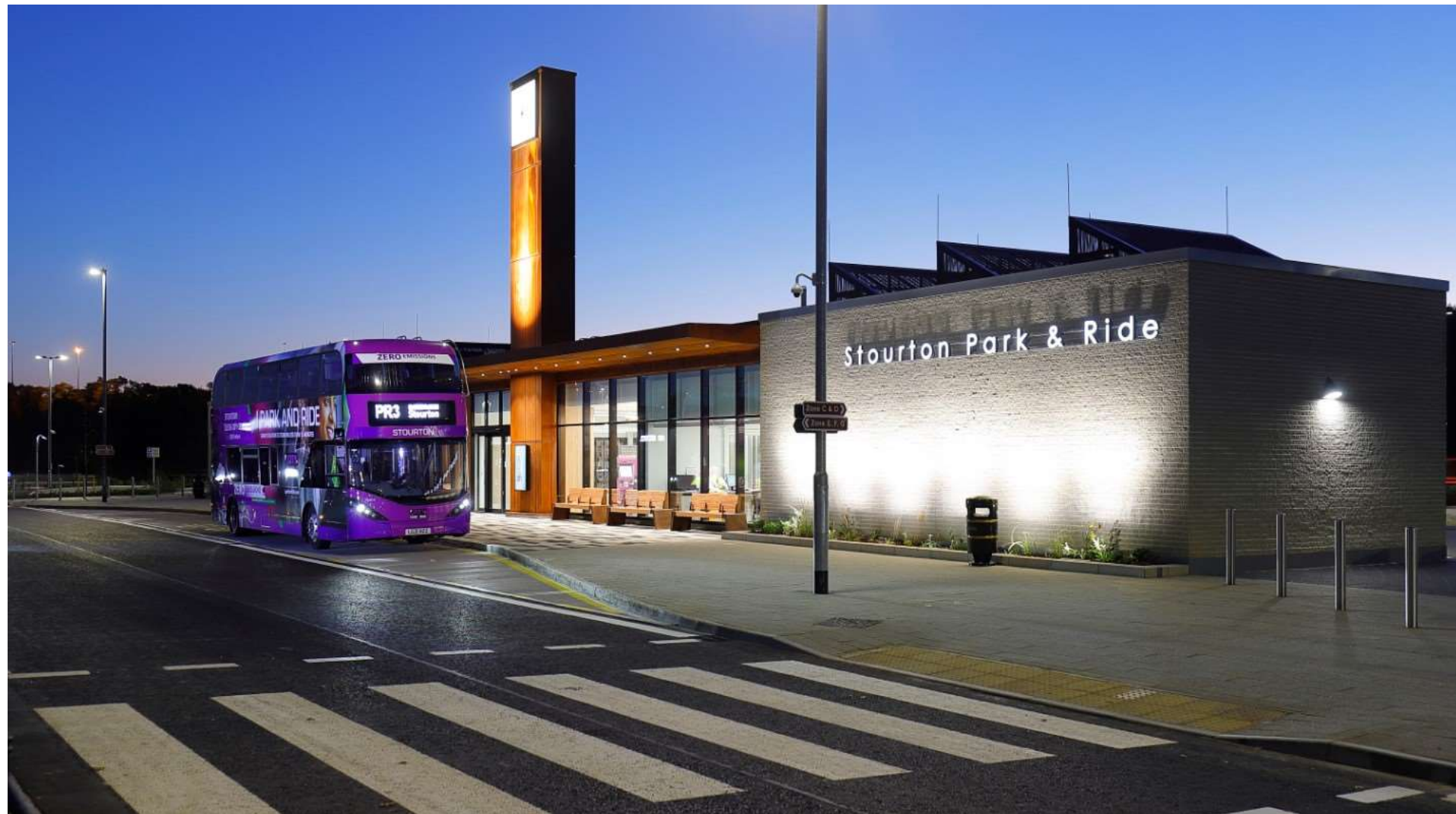
COMPLETED



COMPLETED



COMPLETED



COMPLETED



HOW DID WE DO?

AWARDS

- BCIA Transport Project of the Year 2022 - WINNER
- SPACES Mike Britch Award for Innovation 2022 – WINNER
- “Commercial Solar and/or Storage Project of the Year”, at the Solar and Storage Awards in Birmingham - WINNER
- “Electrical Project of the year” at the Electrical Industry Awards 2021 – WINNER
- RICS Public Sector Project Award 2022 – SHORTLISTED
- ICE Awards 2022 – Centenary Awards - SHORTLISTED

PROJECT INFO

- Project Value £38.5m total, of which £1.5m was attributable to the terminus building
- Obtained funding from central government
- 2 years on site
- NEC3 D&B Contract
- 1,200 parking spaces
- 26no 7kw EVC spaces + 4no 50kw EVC charging spaces
- Duct enabled provision for 84 additional EVC spaces
- Secure cycle, motorcycle and mobility scooter storage
- Flush kerbs, accessible parking directly adjacent the terminus building, changing places facility included

IMPACT

- 97% customer satisfaction rating
- 37% of users would have previously driven into Leeds City Centre



HOW DOES IT PERFORM?

SOLAR PV SYSTEM

- PV panels cover an area of 4853m², the size of 18 tennis courts
- Produces approximately triple the existing energy demand at present
- Requires 10.2km of solar cabling
- PV array has a capacity of 1,136MWp
- Comprises 2,840 Sunpower 400Wp modules
- Estimated generation of 851.7MWh/year
- Actual energy generated in 2022 917MWh
- Total energy use in 2022 was 292MWh
- On-site energy generation offsets 332 tonnes of carbon per year, equivalent to removing a further 143 cars from the road

EXTERNAL WORKS

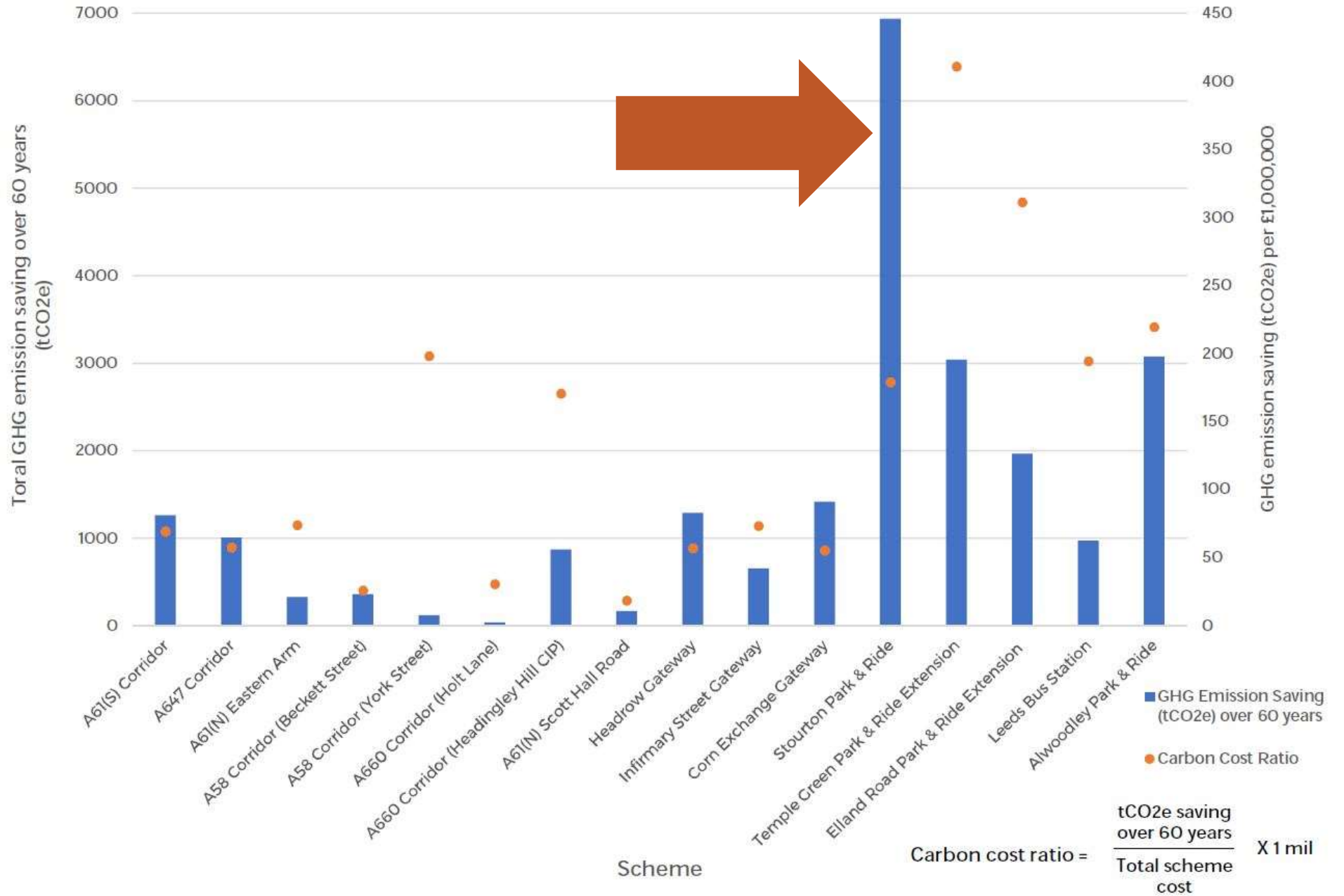
- SUDS employed throughout using permeable paving, omitting pre-cast attenuation tanks
- Balanced earthworks, 50,000m³ of material moved with only 8,500m³ removed from site
- Retained topsoil and reused
- Digital technology enabled earthwork plant to import 3D surface into the machine to inform movements, saving 21,000L fuel
- Multi-ducts used for private utilities, reducing arisings from excavations

CARBON SAVINGS

- Stourton is projected to save (reduce) 10,000T of Co2 in 60 years - You would need to drive 23,000 miles in the average car to emit 12.7 tonnes of CO₂e (that's once around the world).



EMISSIONS SAVINGS



CHALLENGES

VOLUME OF DESIGN SPECIALISTS

FIRST OF ITS KIND

- Learned as we went

COVID 19 PANDEMIC

- Material and labour shortages
- Remote meetings

PROCUREMENT

SOLAR PACKAGE

- Original specialist went into liquidation
- Redesign required

TERMINUS BUILDING

- Civils-based Main Contractor
- Modularising eventually pursued
- Redesign required

END DATE

- Was political, couldn't be moved

STILL FRIENDS THOUGH...



Stourton Park & Ride

The First Fully Solar
Powered Park and
Ride in the UK

