

# METROTIDAL

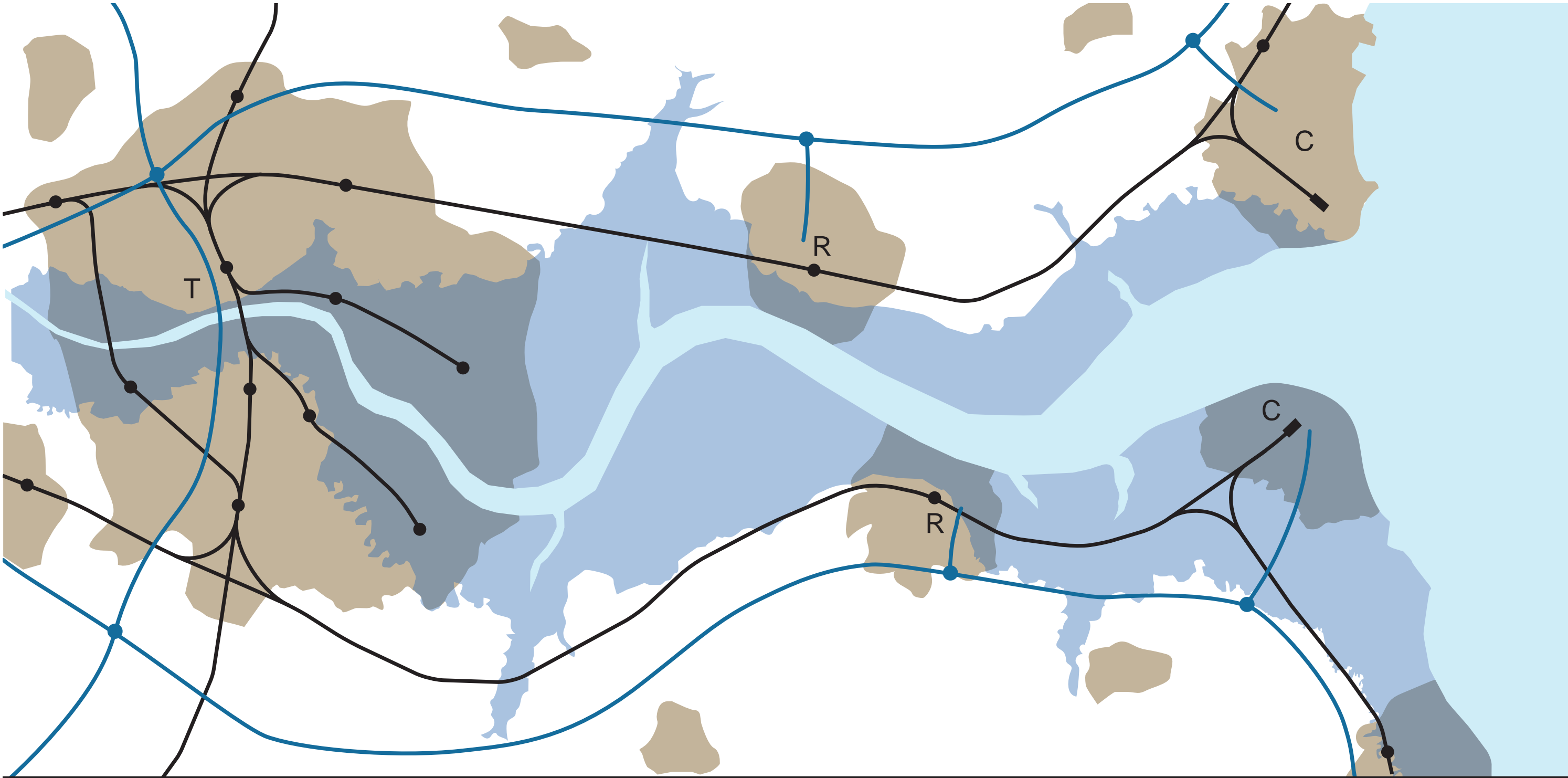
## URBAN ORBITAL

FEBRUARY 2021

# TYPICAL EXISTING URBAN ESTUARY

LARGE FLOOD RISK AREA + POOR CONNECTIVITY




- TIDEWAY
- URBAN AREAS
- FLOOD RISK AREAS
- 19TH CENTURY RAIL
- 20TH CENTURY ROADS
- TIDAL HEAD & MAIN SETTLEMENT
- COASTAL SETTLEMENTS
- RIPARIAN SETTLEMENTS

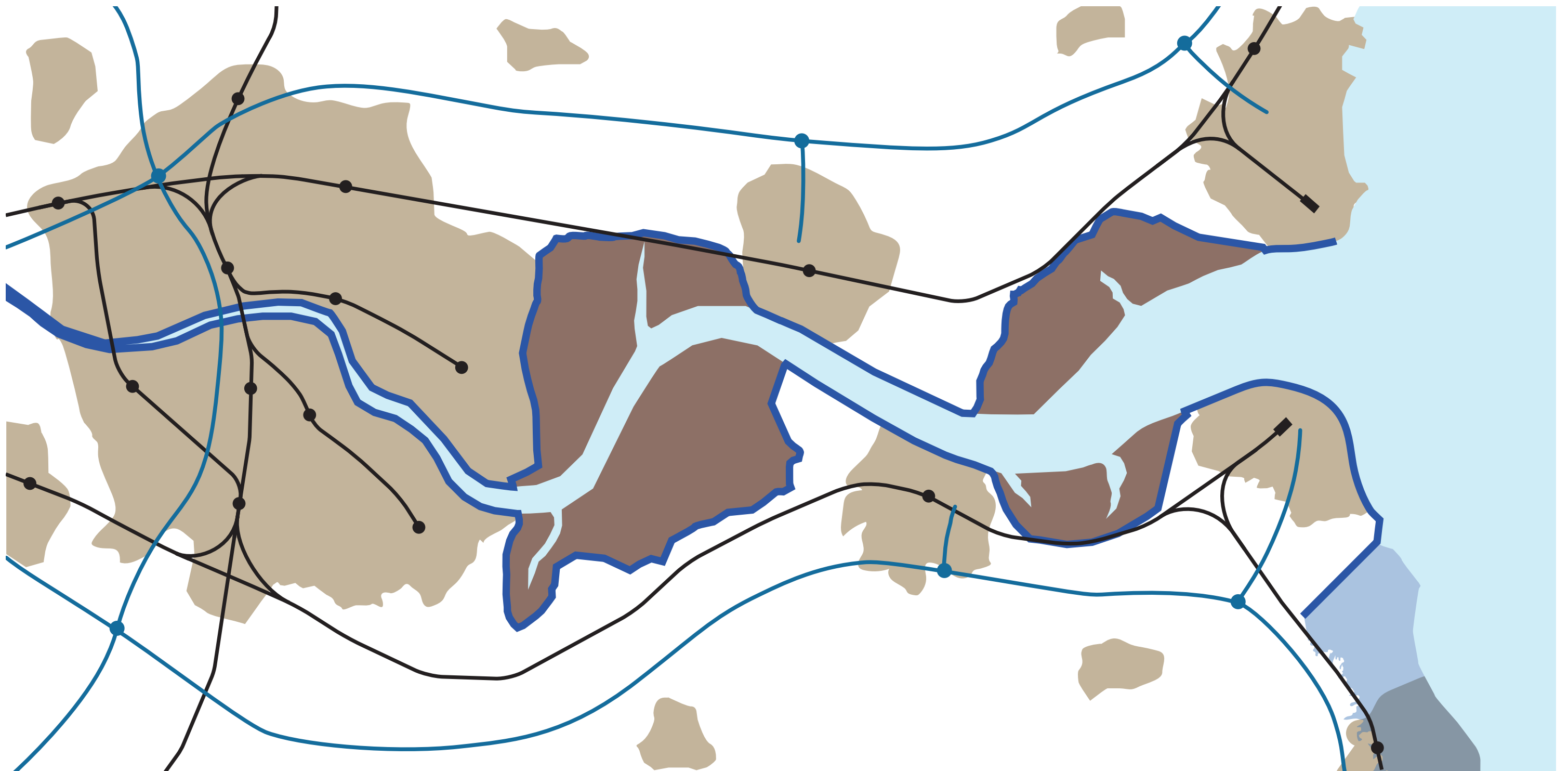


# MANAGED RETREAT

## FLOOD DEFENCE ONLY

- LONGER FLOOD DEFENCE LINE
- HIGHER FLOOD DEFENCES
- LOSS OF LAND
- LOSS OF EXISTING HABITATS
- ISOLATION OF COASTAL AND RIPARIAN SETTLEMENTS
- LOW RESILIENCE

FLOOD DEFENCE LINE   
MANAGED RETREAT   
FLOOD RISK AREAS 

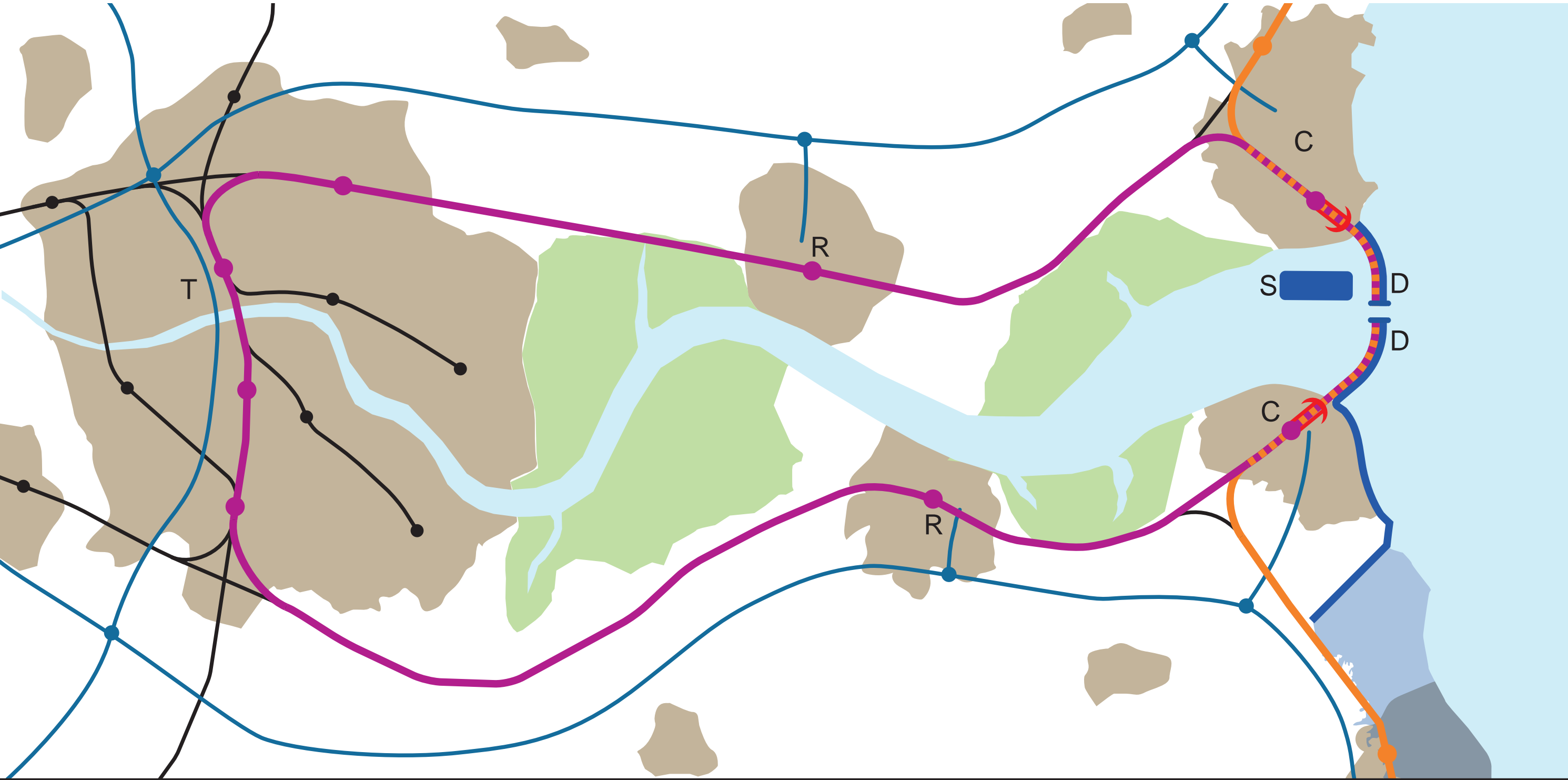


# METROTIDAL URBAN ORBITAL

FLOOD DEFENCE + TRANSPORT AND DATA ORBITAL + RENEWABLES

- SHORTER FLOOD DEFENCE LINE
- LOWER FLOOD DEFENCES
- PROTECTS ALL LANDWARD ASSETS AND HABITATS
- UNITES THE ESTUARY AND COASTAL ECONOMIES
- PROVIDES GREEN GROWTH
- HIGH RESILIENCE

FLOOD DEFENCE THROTTLE AND LINE	
FLOOD RISK AREAS	
PROTECTED HABITAT	
NEW RAIL LINK & TUNNEL	
URBAN ORBITAL	
URBAN COASTAL	
FLOATING SOLAR	S
DATA AND COLD STORAGE	D

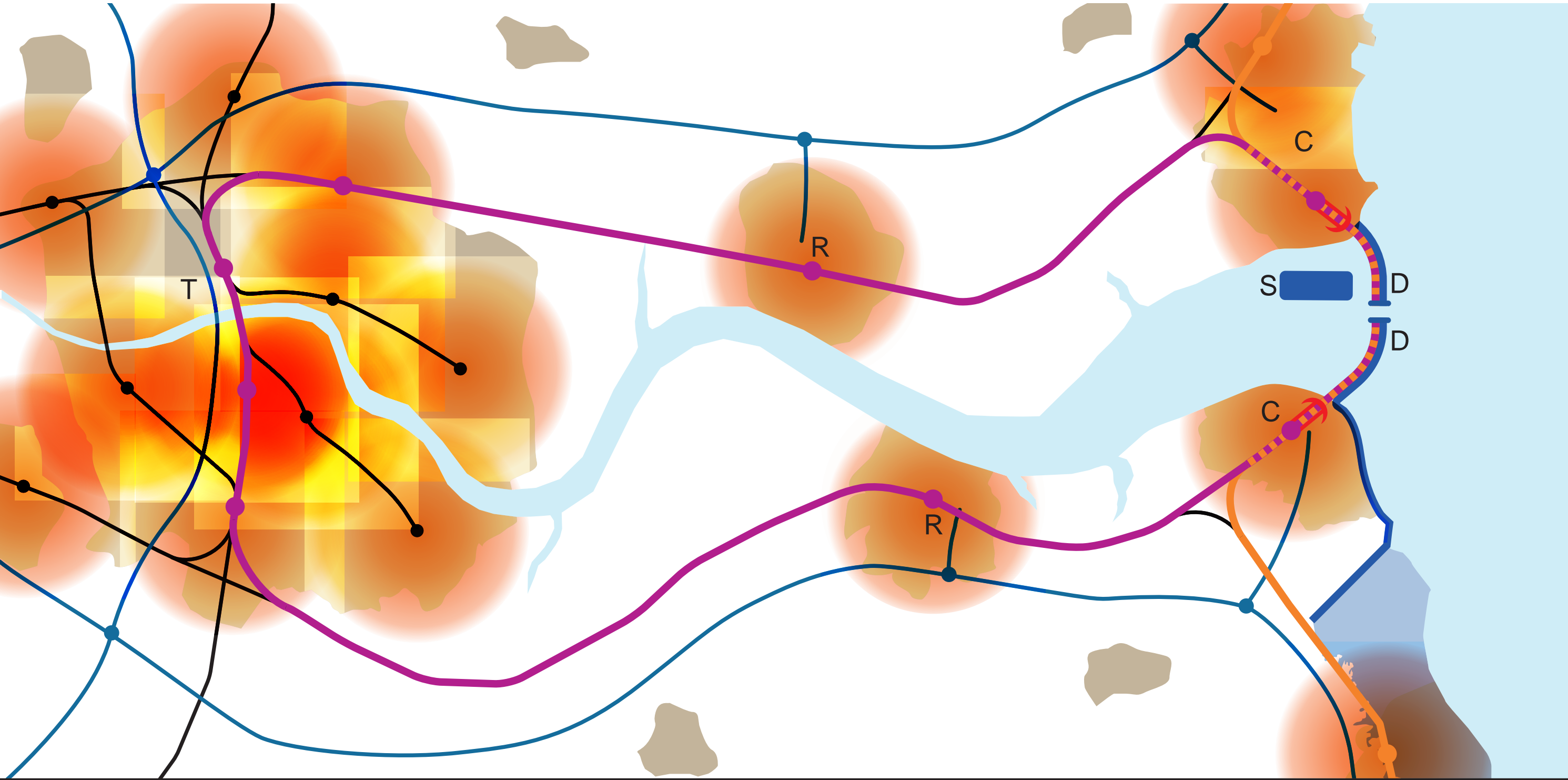




# METROTIDAL URBAN ORBITAL



RAIL + LOCAL MICROMOBILITY + DATA CONNECTIVITY = ORBITAL GROWTH AREAS

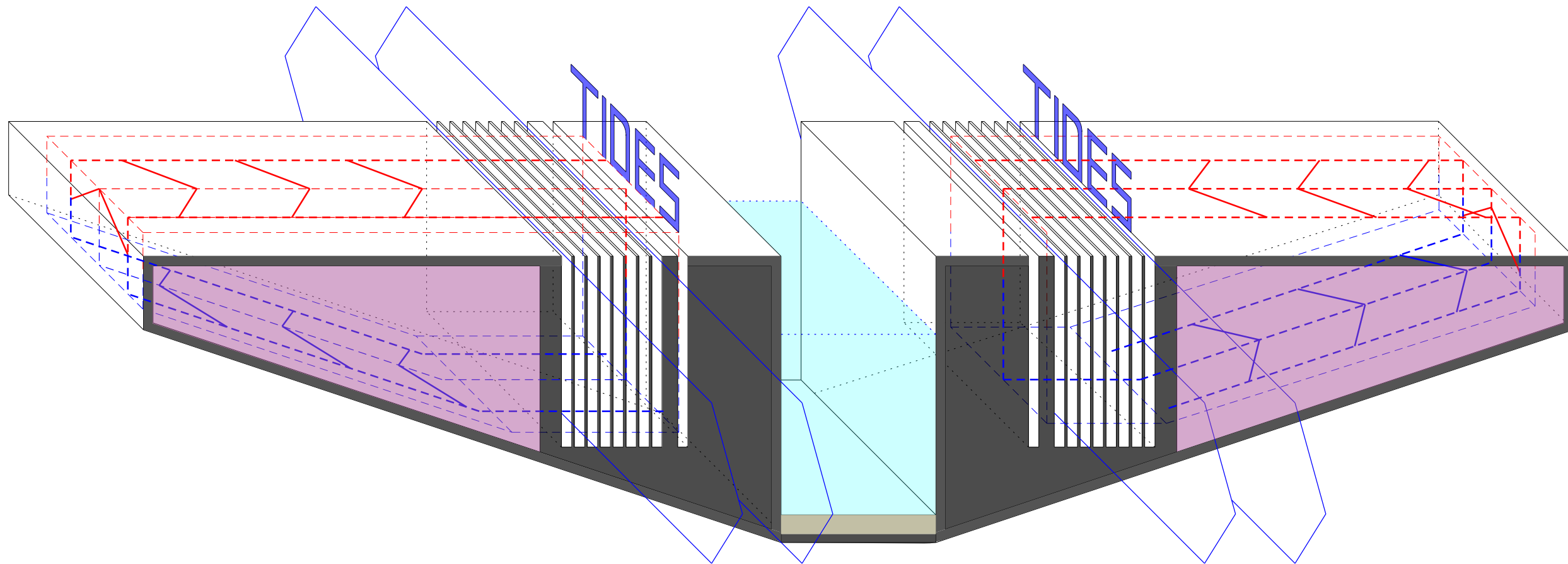
- FLOOD DEFENCE THROTTLE AND LINE
- FLOOD RISK AREAS
- PROTECTED HABITAT
- NEW RAIL LINK & TUNNEL
- URBAN ORBITAL
- URBAN COASTAL
- FLOATING SOLAR S
- DATA AND COLD STORAGE D



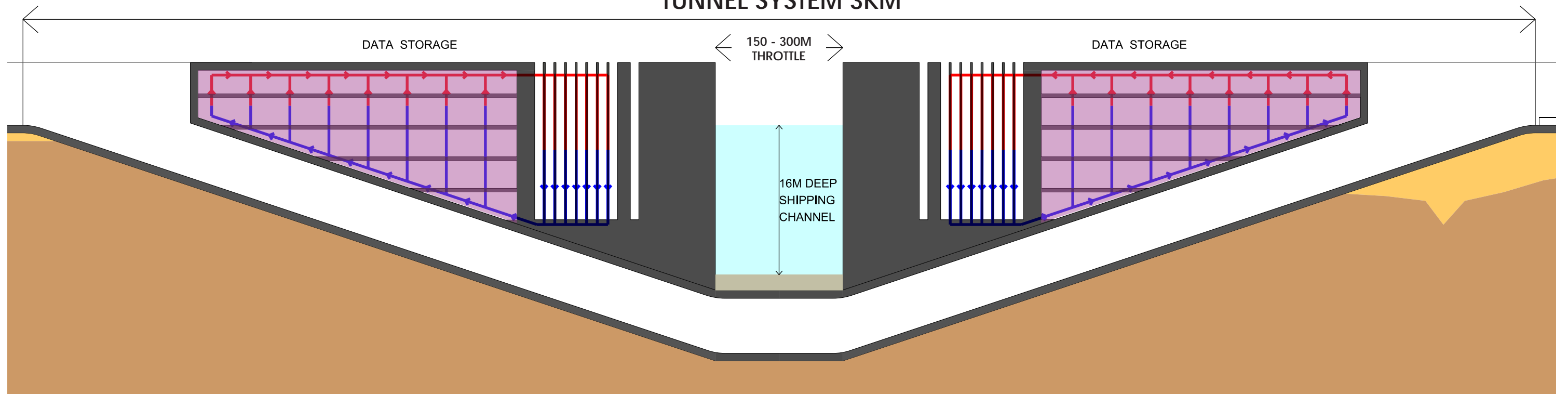
# GENERIC 3KM THROTTLE FLOOD DEFENCE SYSTEM

TIDAL COOLING FOR DATA AND COLD STORAGE

TIDAL COOLING SYSTEM   
DATA AND COLD STORAGE 



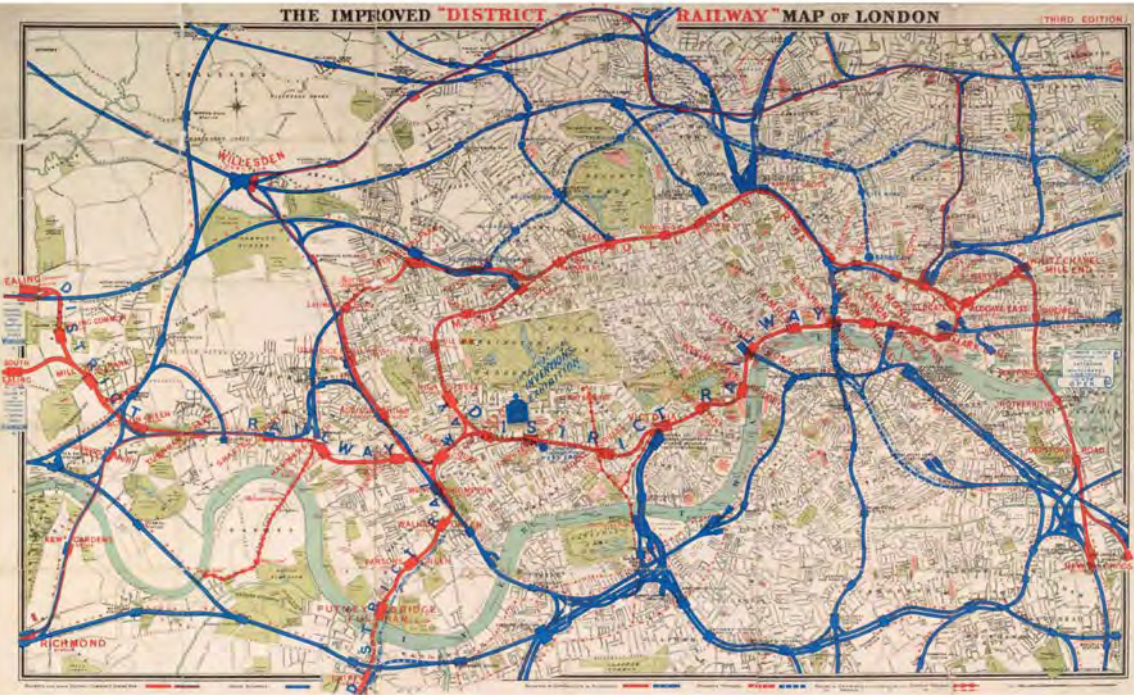
## TUNNEL SYSTEM 3KM



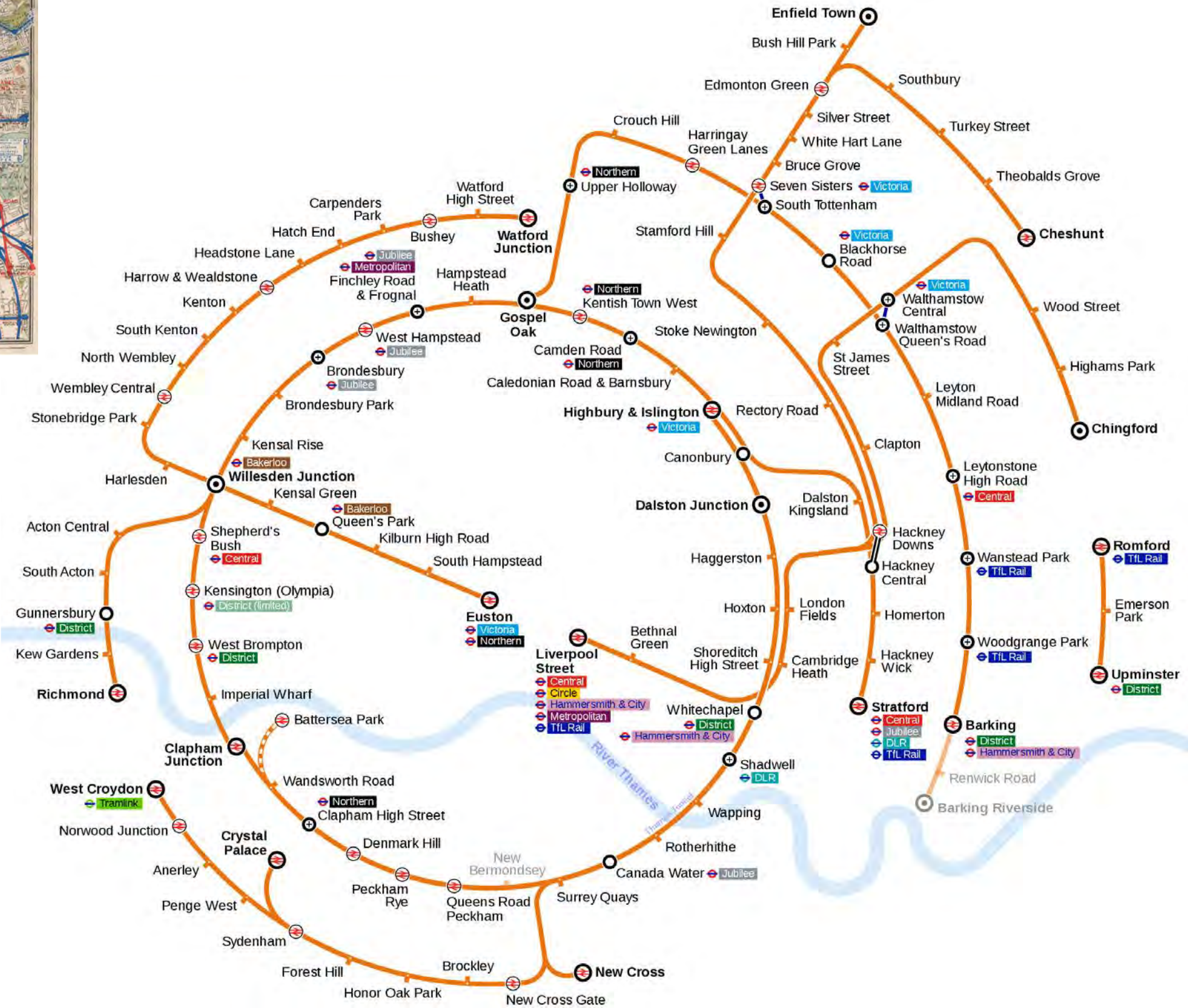


# RAIL ORBITAL PRECEDENTS

## GROWTH FROM URBAN AGGLOMERATION



LONDON UNDERGROUND CIRCLE LINE 1884

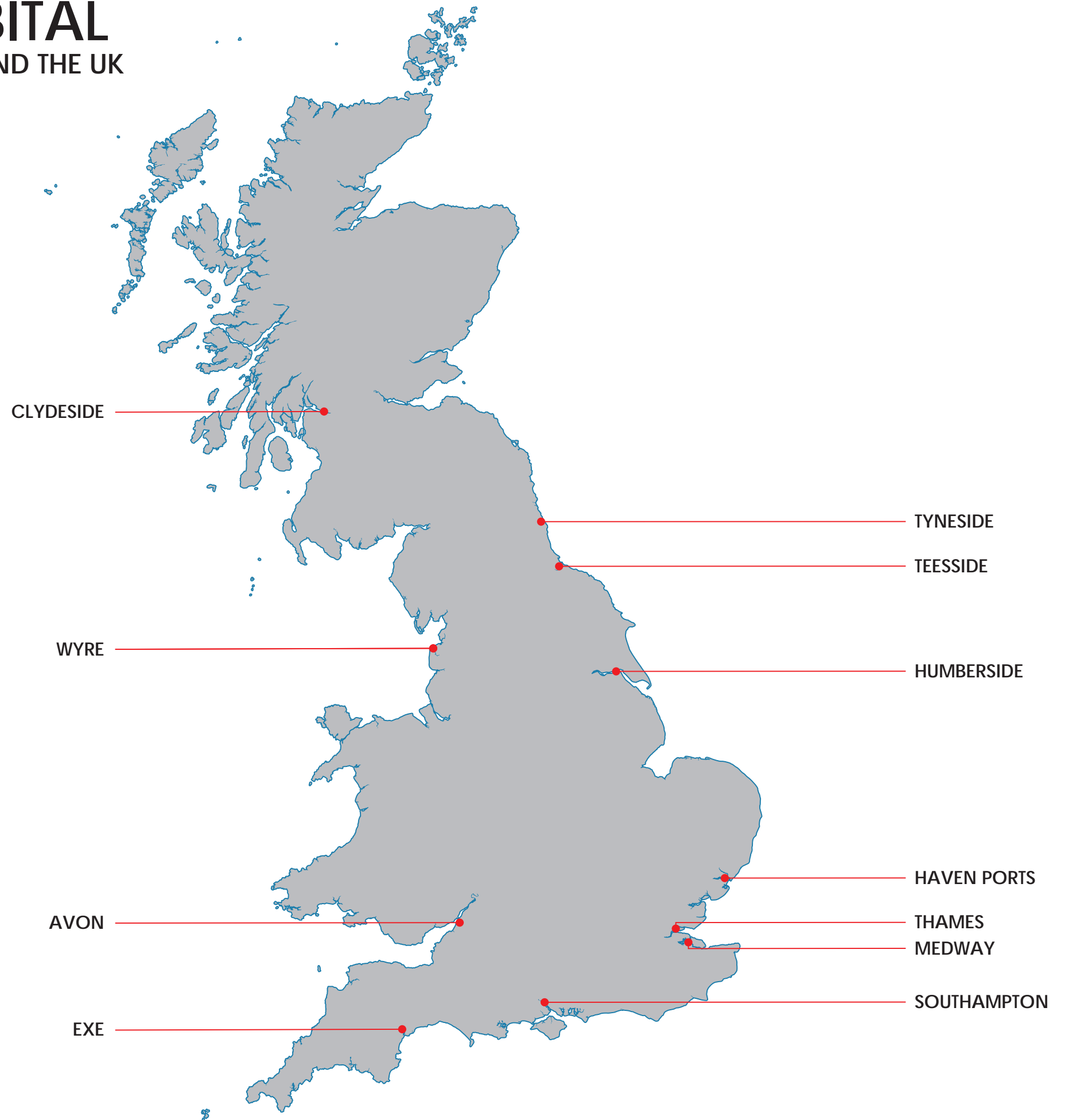


LONDON OVERGROUND 2007



# METROTIDAL URBAN ORBITAL

## EXAMPLES OF FLOOD DEFENCE THROTTLES AROUND THE UK



# METROTIDAL TYNESIDE ORBITAL

NEW RAIL LINE 6.0KM + FLOOD DEFENCE LINE 3.1KM + URBAN ORBITAL 42.9KM

- 2050 FLOOD RISK

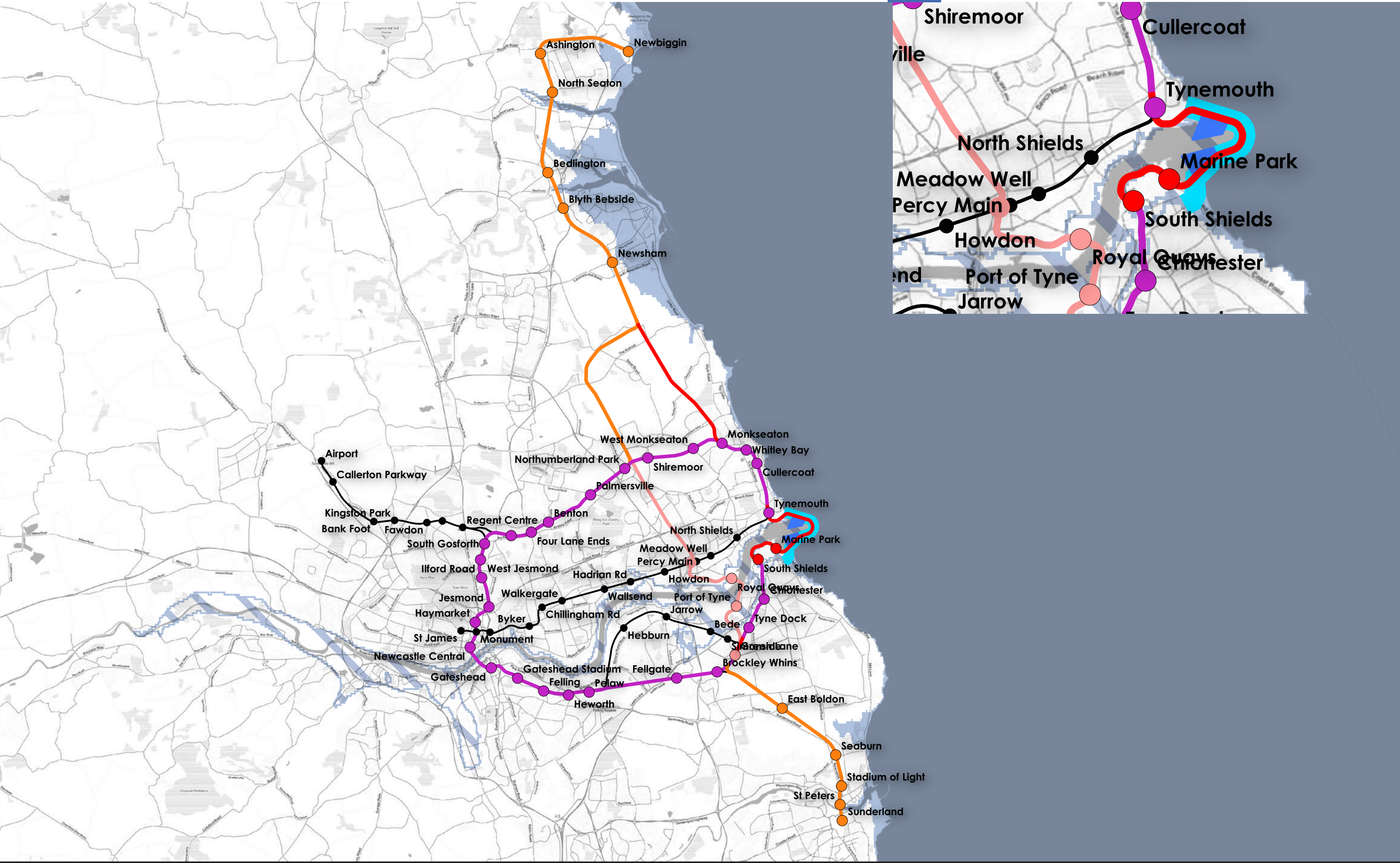
2050 PROTECTED AREA

FLOOD DEFENCE LINE

FLOATING SOLAR
- URBAN ORBITAL

URBAN COASTAL

NEW METROTIDAL RAIL





# METROTIDAL TEESSIDE ORBITAL

NEW RAIL LINE 6.0KM + FLOOD DEFENCE LINE 13.8KM + URBAN ORBITAL 39.7KM

- 2050 FLOOD RISK

2050 PROTECTED AREA

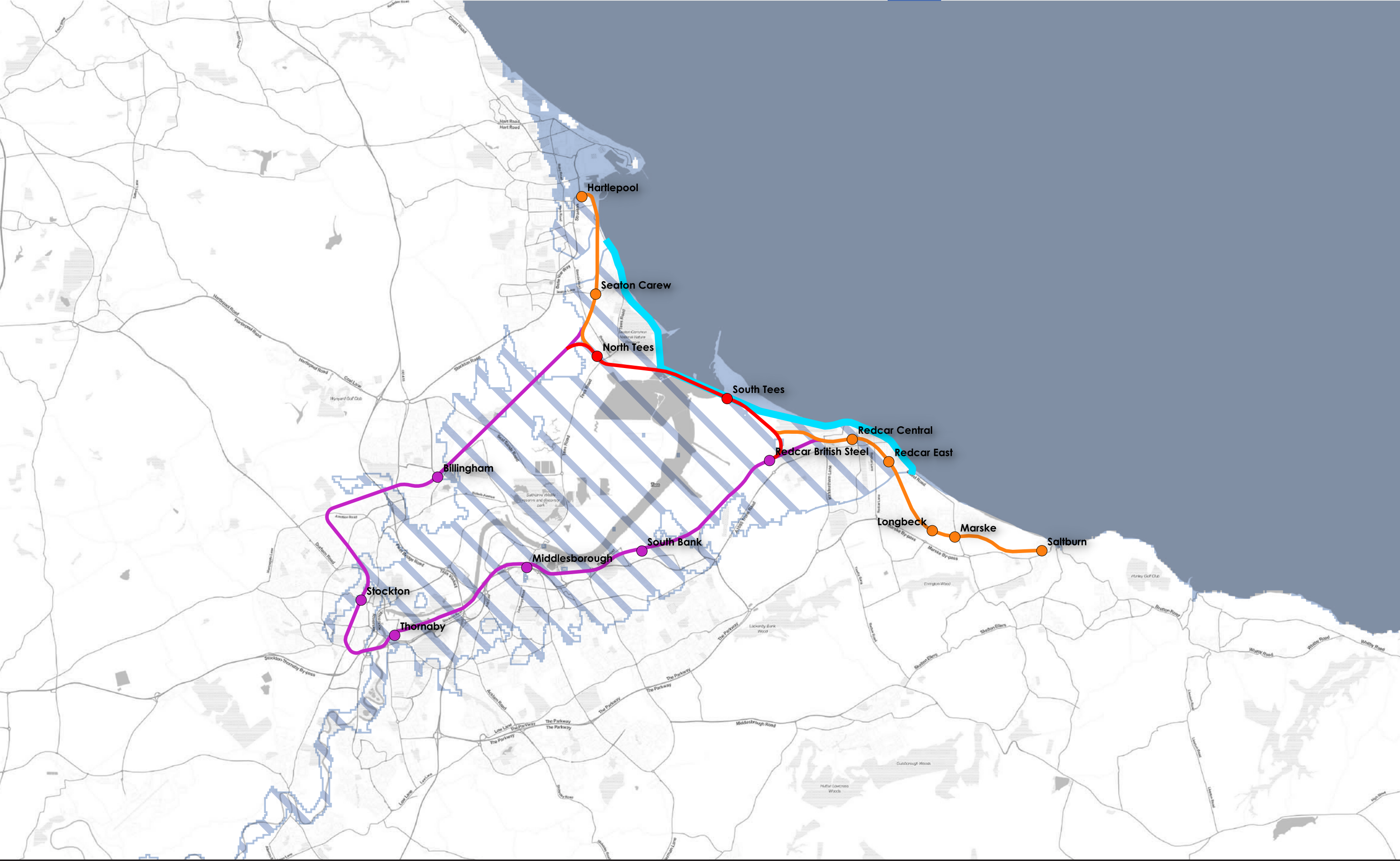
FLOOD DEFENCE LINE

FLOATING SOLAR
- URBAN ORBITAL

URBAN COASTAL

ALTERNATIVE ALIGNMENT

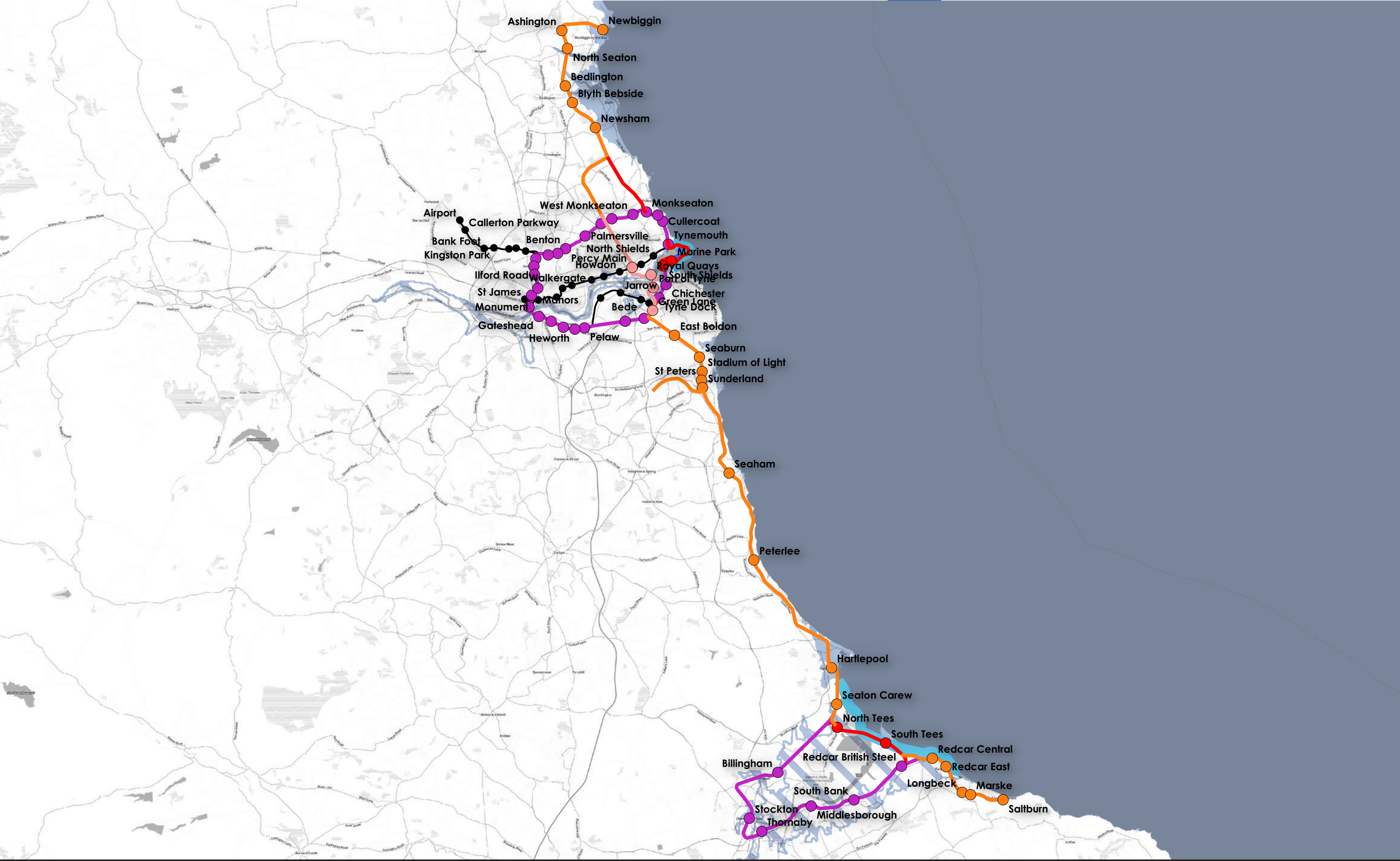
NEW METROTIDAL RAIL



# METROTIDAL TYNE-TEES COASTAL

COMBINED TYNE AND TEES COASTAL 97.2KM

- 2050 FLOOD RISK
- 2050 PROTECTED AREA
- FLOOD DEFENCE LINE
- FLOATING SOLAR
- URBAN ORBITAL
- URBAN COASTAL
- NEW METROTIDAL RAIL

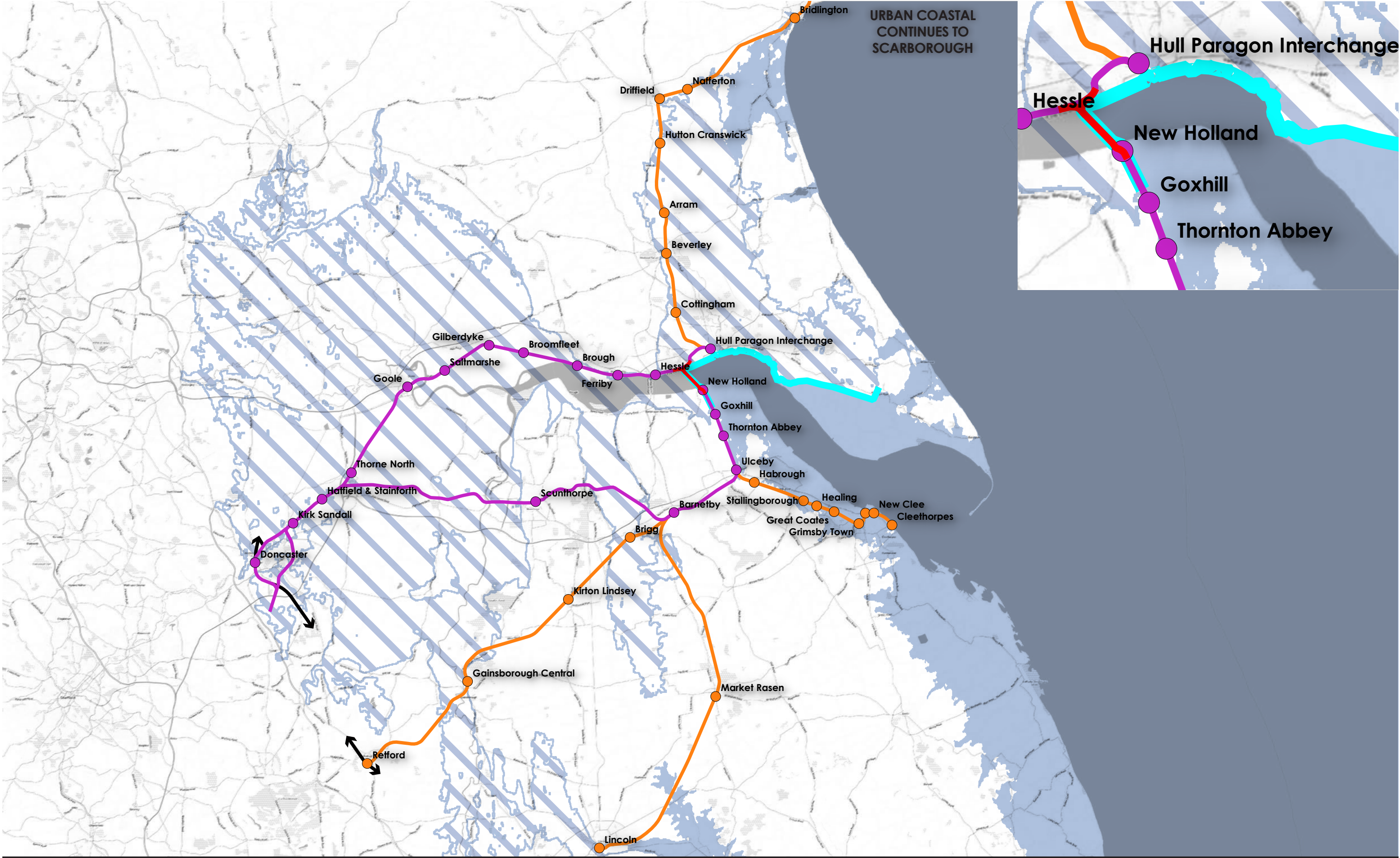




# METROTIDAL HUMBERSIDE ORBITAL (OPTION D)

NEW RAIL LINE 4.2KM + FLOOD DEFENCE LINE 33.2KM + URBAN ORBITAL 160KM

- 2050 FLOOD RISK
- 2050 PROTECTED AREA
- FLOOD DEFENCE LINE
- URBAN ORBITAL
- URBAN COASTAL
- NEW METROTIDAL RAIL
- ECML CONNECTIONS

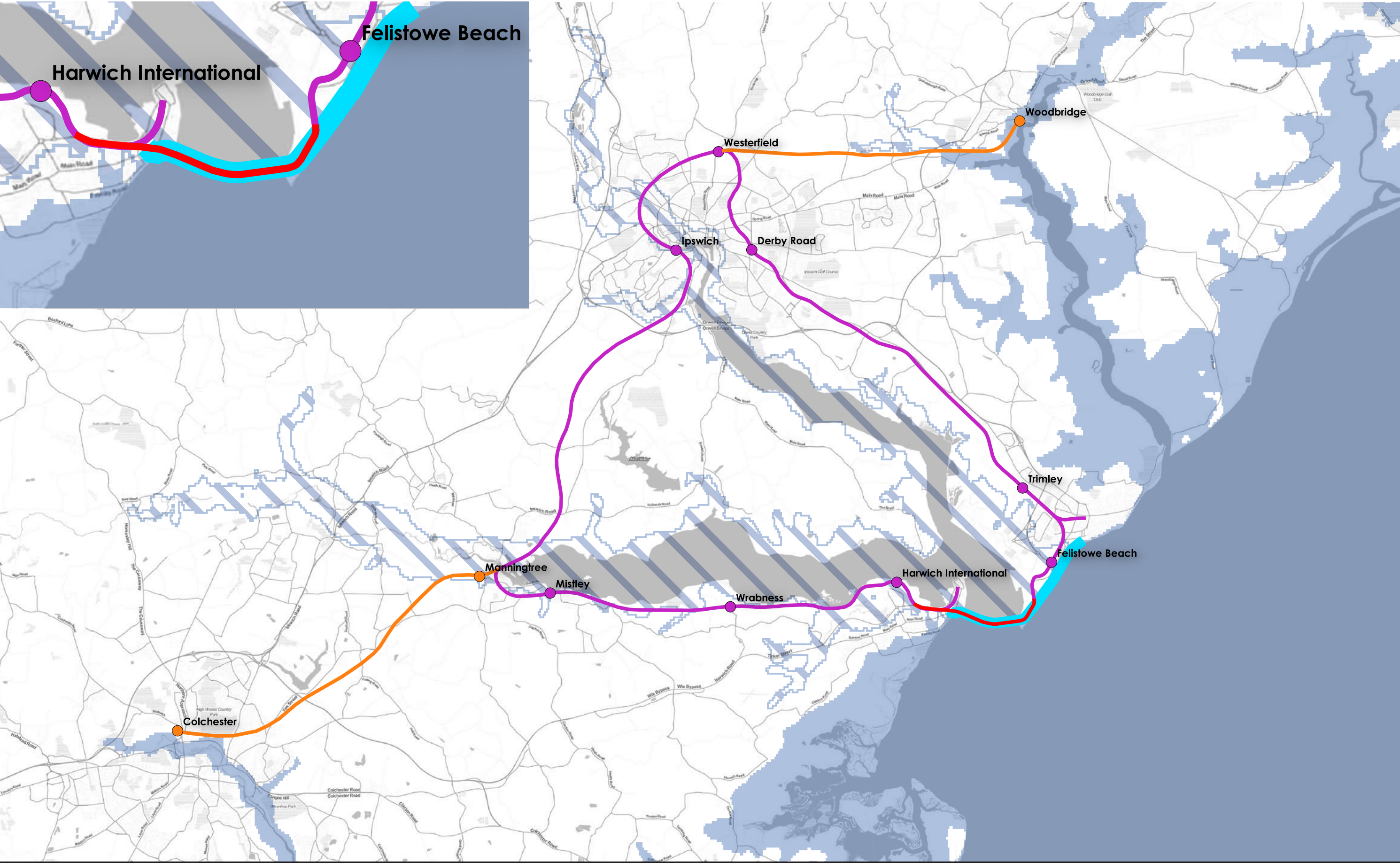




# METROTIDAL HAVEN PORTS ORBITAL

NEW RAIL LINE 4.4KM + FLOOD DEFENCE LINE 5.8KM + URBAN ORBITAL 62.7KM

- 2050 FLOOD RISK
- 2050 PROTECTED AREA
- FLOOD DEFENCE LINE
- URBAN ORBITAL
- URBAN COASTAL
- NEW METROTIDAL RAIL





# METROTIDAL THAMES ORBITAL

NEW RAIL LINE 12.0KM + FLOOD DEFENCE LINE 14.1KM + URBAN ORBITAL 132.0KM

- 2050 FLOOD RISK

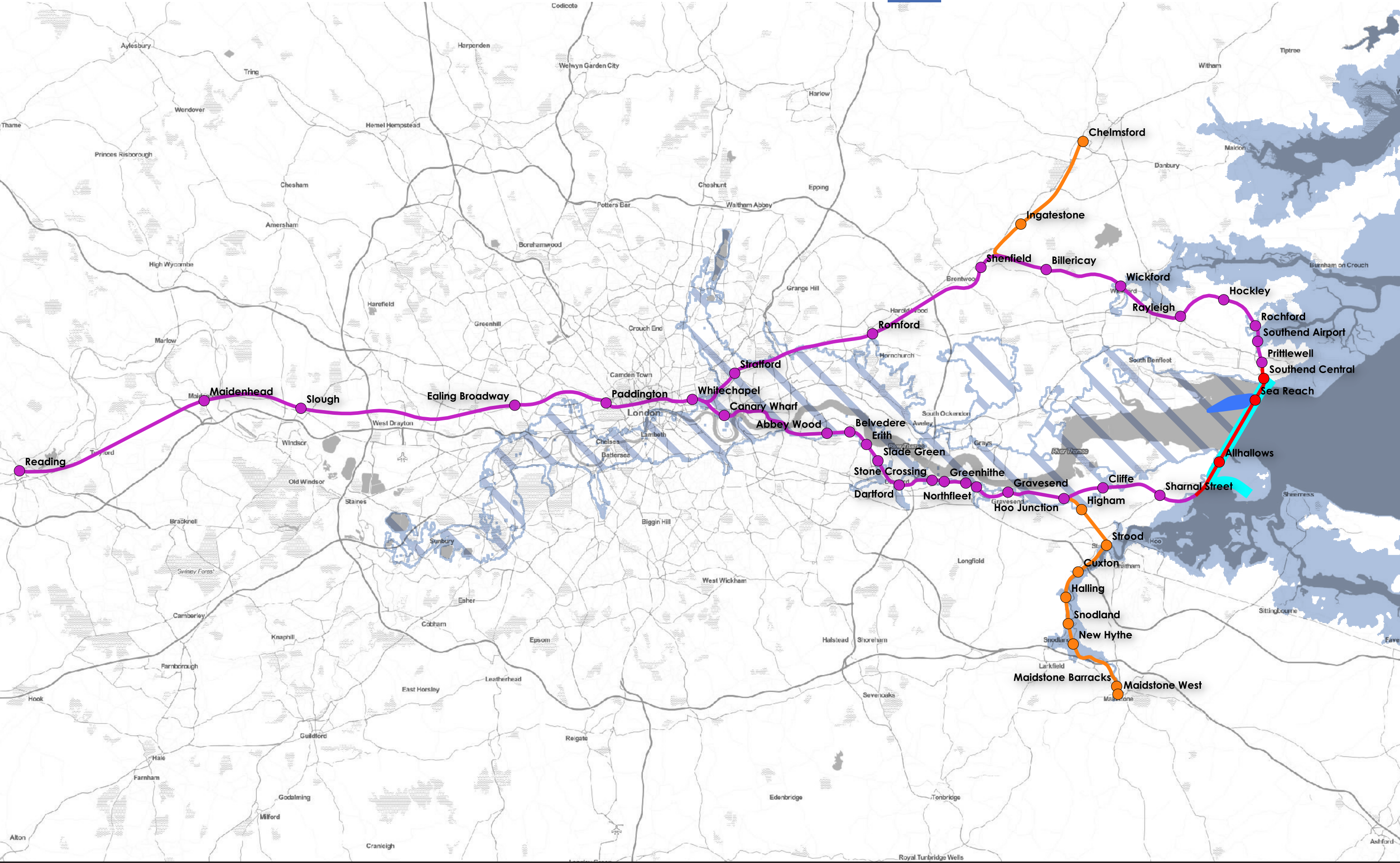
2050 PROTECTED AREA

FLOOD DEFENCE LINE

FLOATING SOLAR
- URBAN ORBITAL

URBAN COASTAL

NEW METROTIDAL RAIL





# METROTIDAL MEDWAY ORBITAL

NEW RAIL LINE 5.5KM + FLOOD DEFENCE LINE 11.6KM + URBAN ORBITAL 49.7KM

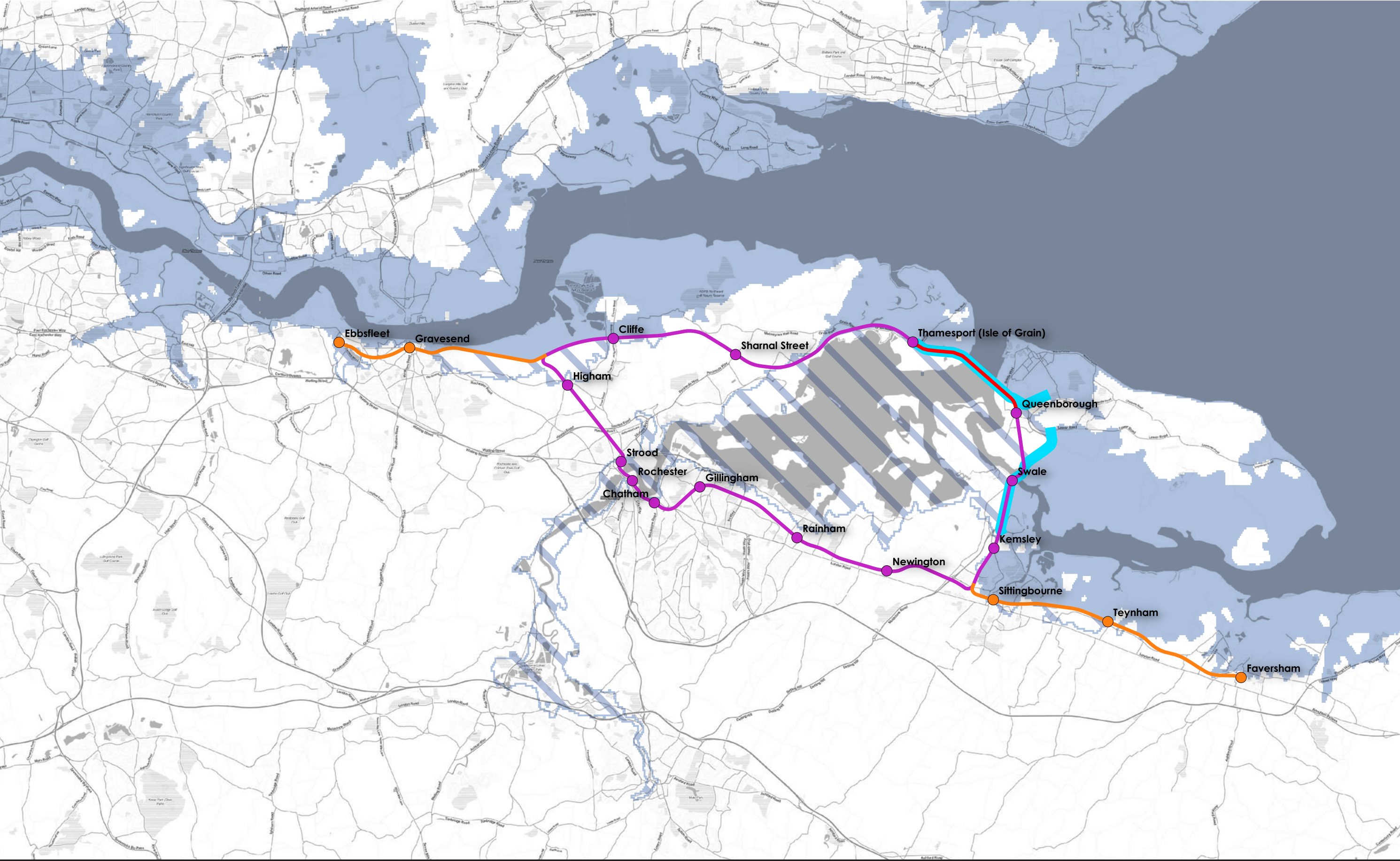
- 2050 FLOOD RISK

2050 PROTECTED AREA

FLOOD DEFENCE LINE
- URBAN ORBITAL

URBAN COASTAL

NEW METROTIDAL RAIL





# METROTIDAL THAMES + MEDWAY ORBITAL

2050 FLOOD RISK

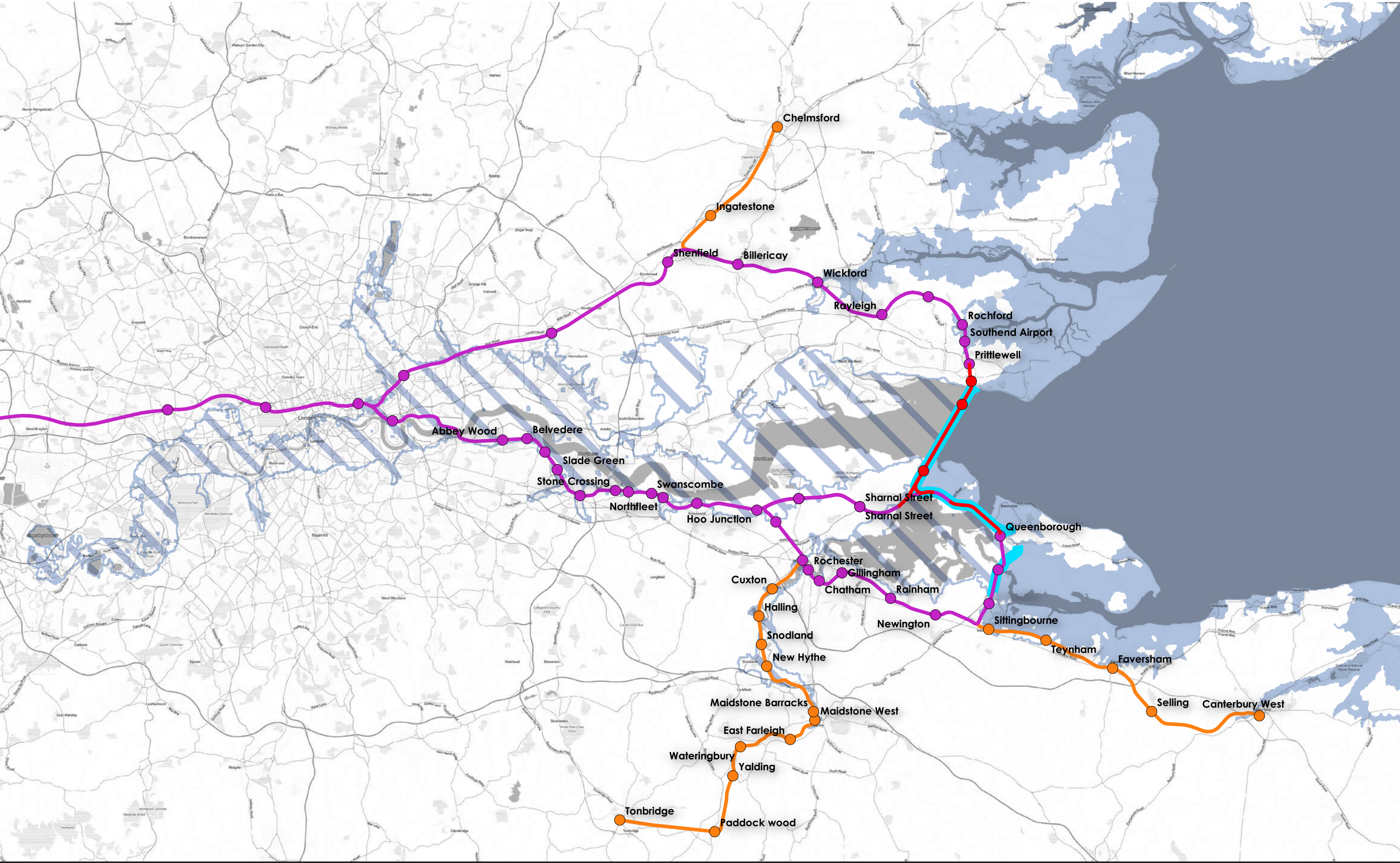
2050 PROTECTED AREA

FLOOD DEFENCE LINE

URBAN ORBITAL

URBAN COASTAL

NEW METROTIDAL RAIL





# METROTIDAL SOUTHAMPTON ORBITAL

NEW RAIL LINE 5.8KM + FLOOD DEFENCE LINE 3.6KM + URBAN ORBITAL 37.0KM

- 2050 FLOOD RISK

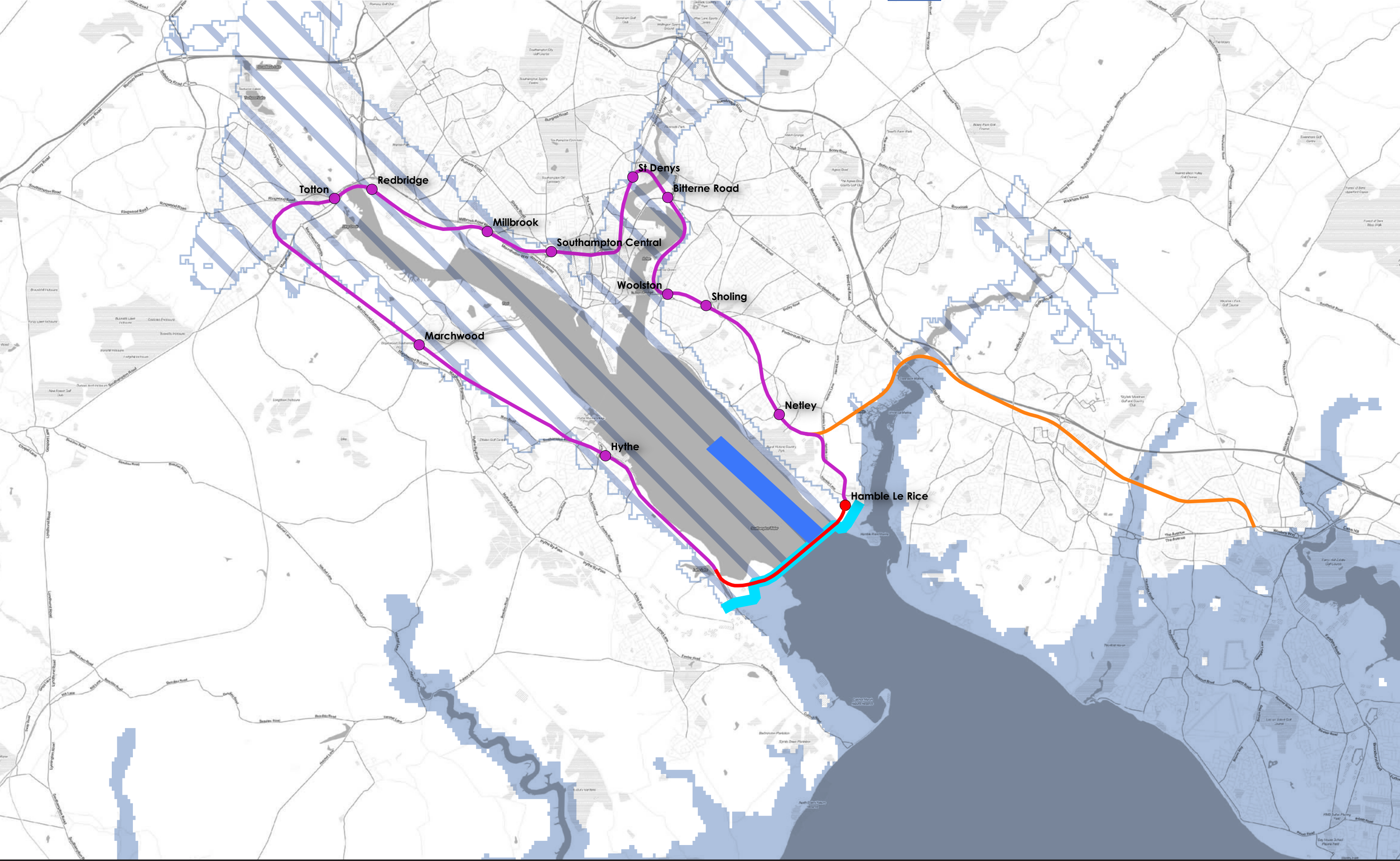
2050 PROTECTED AREA

FLOOD DEFENCE LINE

FLOATING SOLAR
- URBAN ORBITAL

URBAN COASTAL

NEW METROTIDAL RAIL

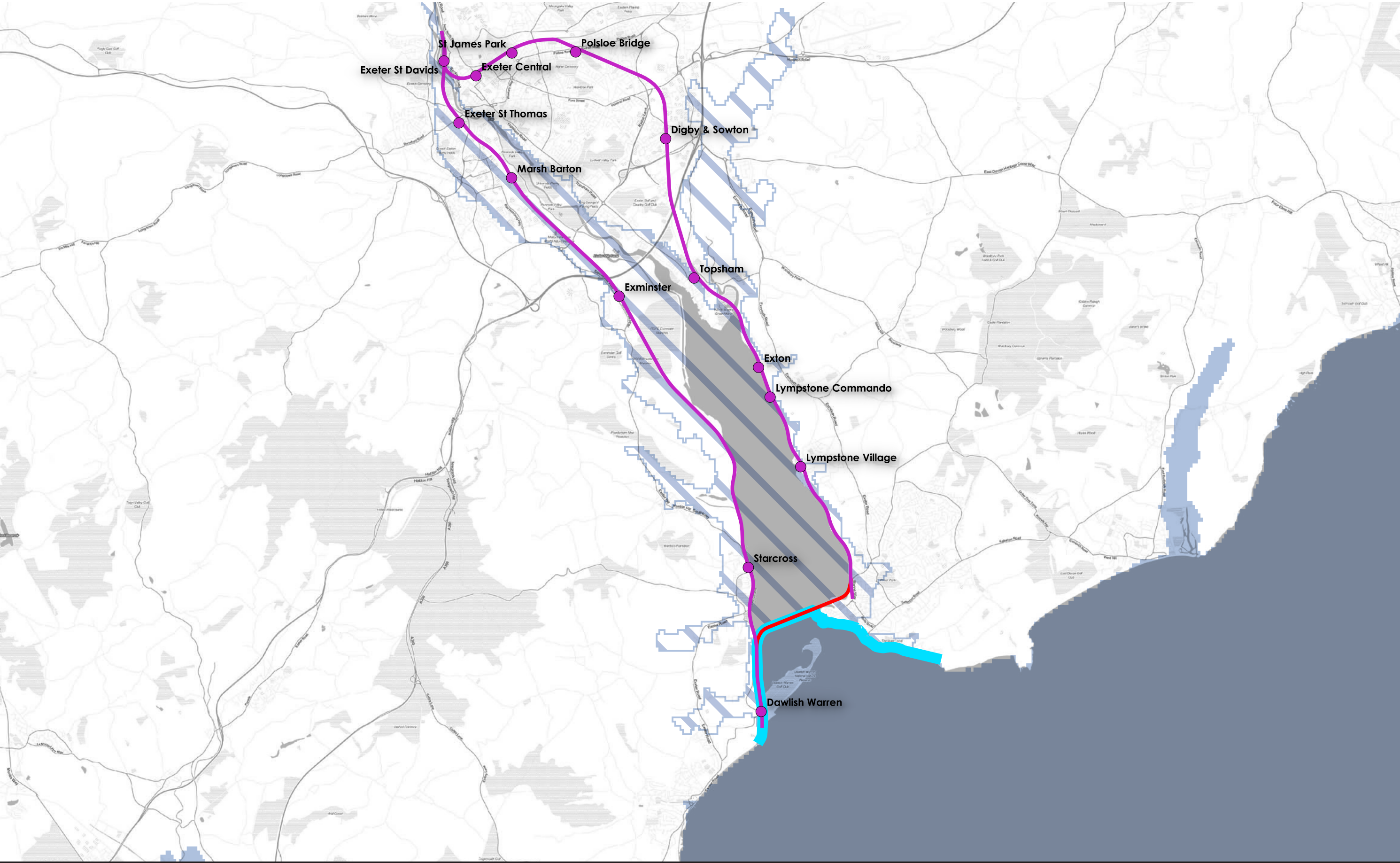




# METROTIDAL EXE ORBITAL

NEW RAIL LINE 2.9KM + FLOOD DEFENCE LINE 7.1KM + URBAN ORBITAL 39.1KM

- 2050 FLOOD RISK
- 2050 PROTECTED AREA
- FLOOD DEFENCE LINE
- URBAN ORBITAL
- URBAN COASTAL
- NEW METROTIDAL RAIL

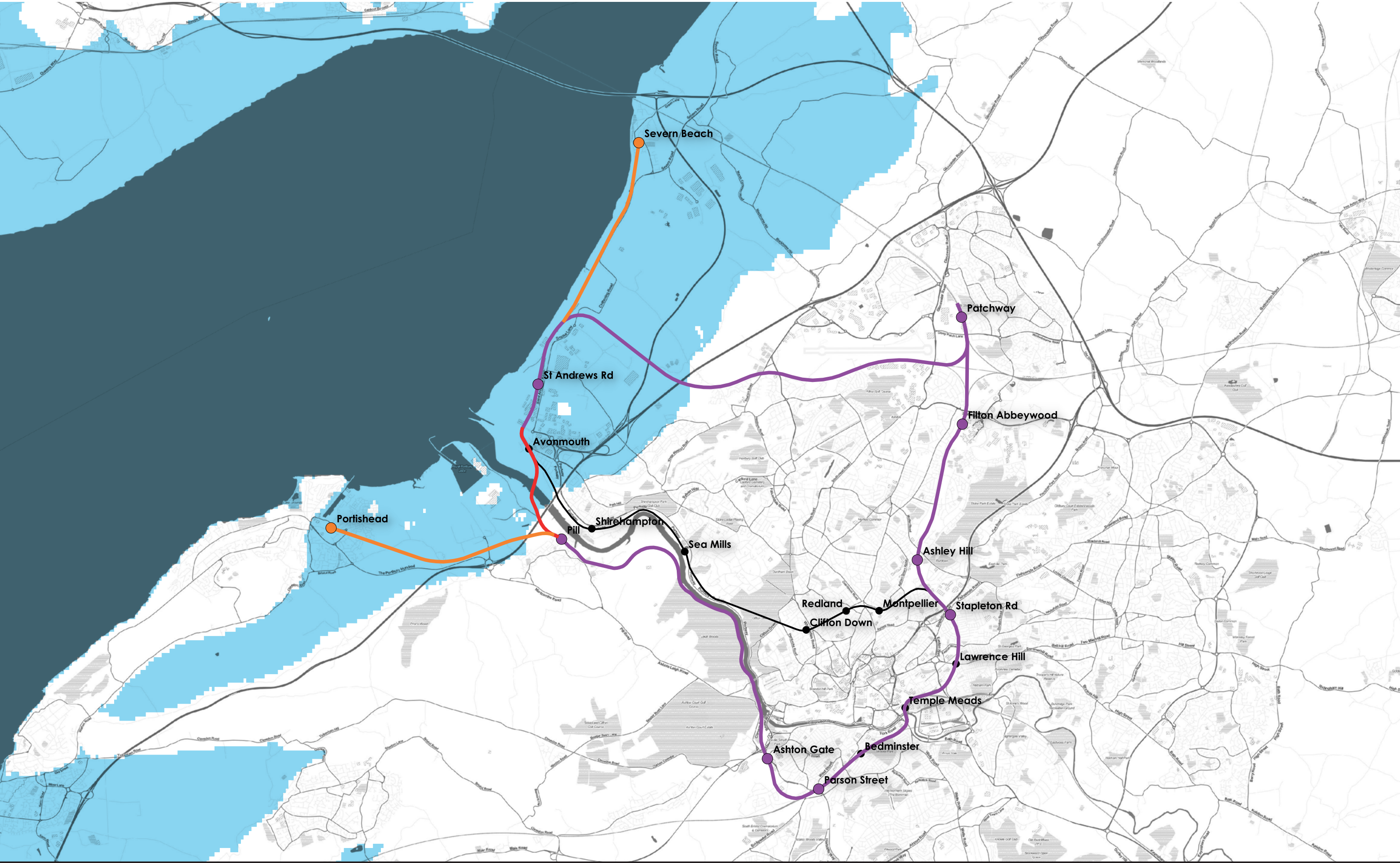




# METROTIDAL AVON ORBITAL

NEW RAIL LINE 3.0KM + URBAN ORBITAL 38.8KM

- 2050 FLOOD RISK
- 2050 PROTECTED AREA SUBJECT TO COASTAL DEFENCE STRATEGY
- URBAN ORBITAL
- URBAN COASTAL
- NEW METROTIDAL RAIL





# METROTIDAL CLYDE ORBITAL

NEW RAIL LINE 3.1KM + FLOOD DEFENCE LINE 2.5KM + URBAN ORBITAL 64.1KM

- 2050 FLOOD RISK

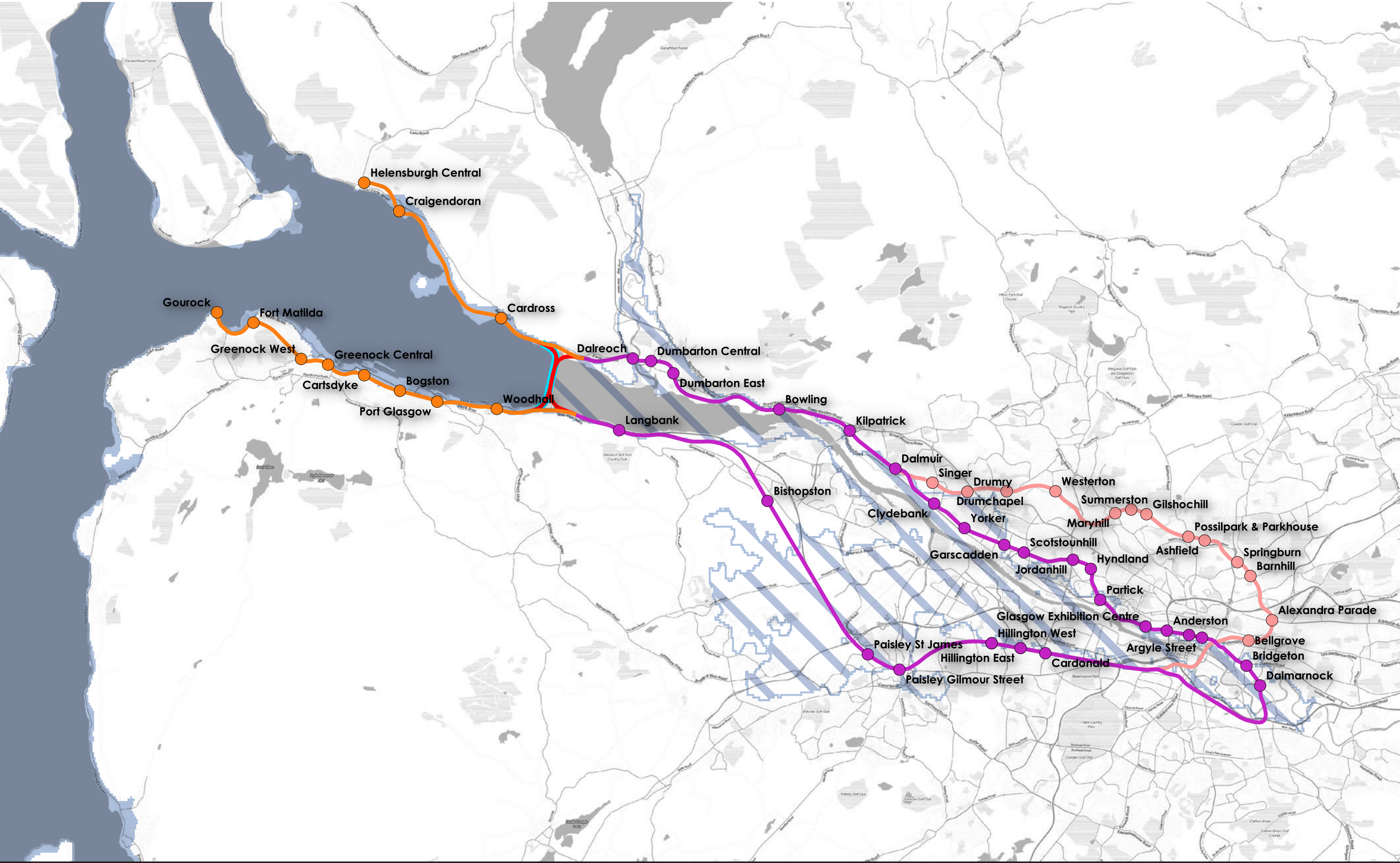
2050 PROTECTED AREA

FLOOD DEFENCE LINE
- URBAN ORBITAL

URBAN COASTAL

ALTERNATIVE ROUTE

NEW METROTIDAL RAIL





# METROTIDAL WYRE KNOTT RAILWAY

NEW RAIL LINE 3.9KM + URBAN ORBITAL 11.5KM

2050 FLOOD RISK

2050 PROTECTED AREA SUBJECT TO COASTAL DEFENCE STRATEGY

URBAN COASTAL

ALTERNATIVE ALIGNMENT

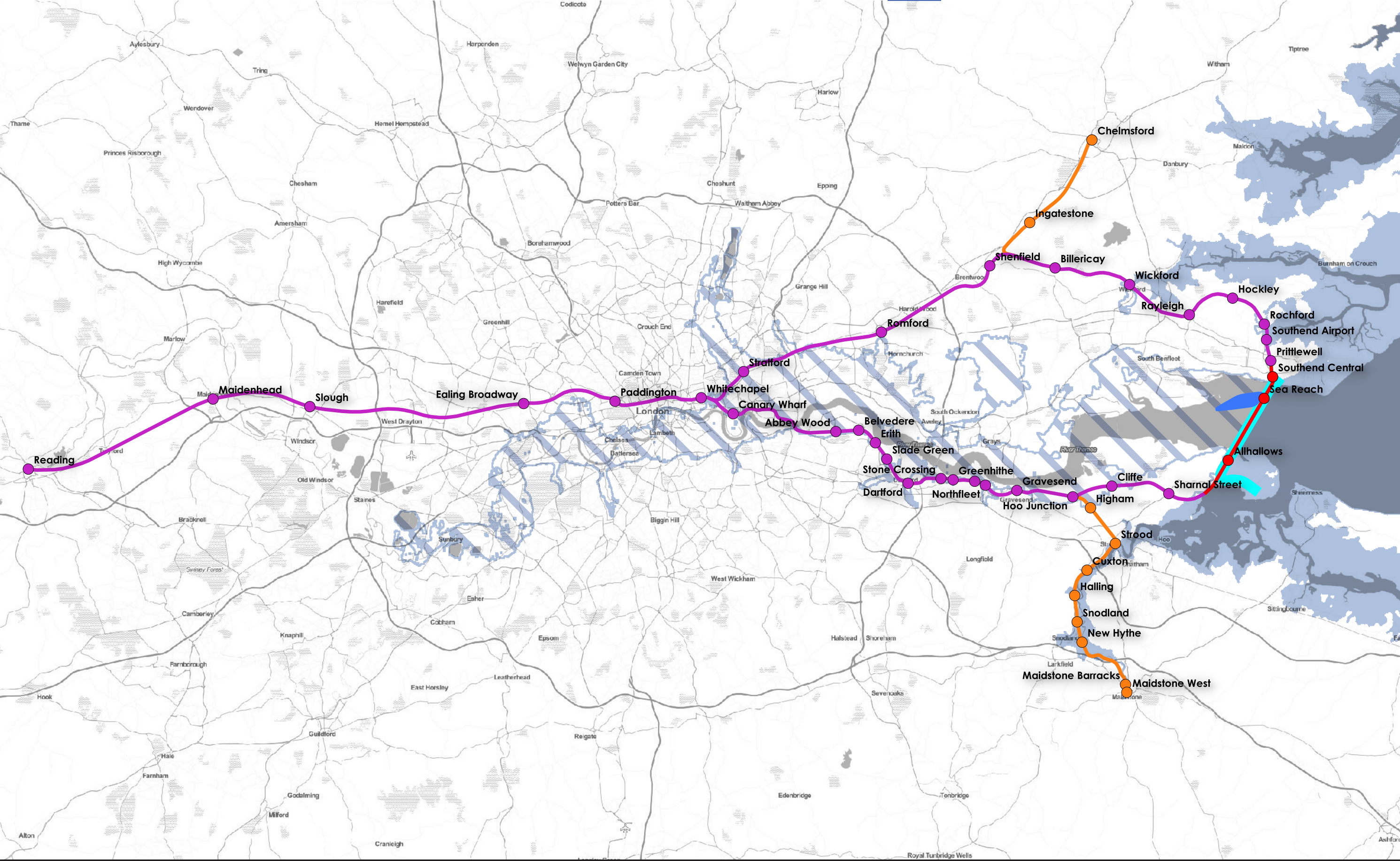




# METROTIDAL THAMES ORBITAL

PROTOTYPE FOR THE GENERIC METROTIDAL URBAN ORBITAL

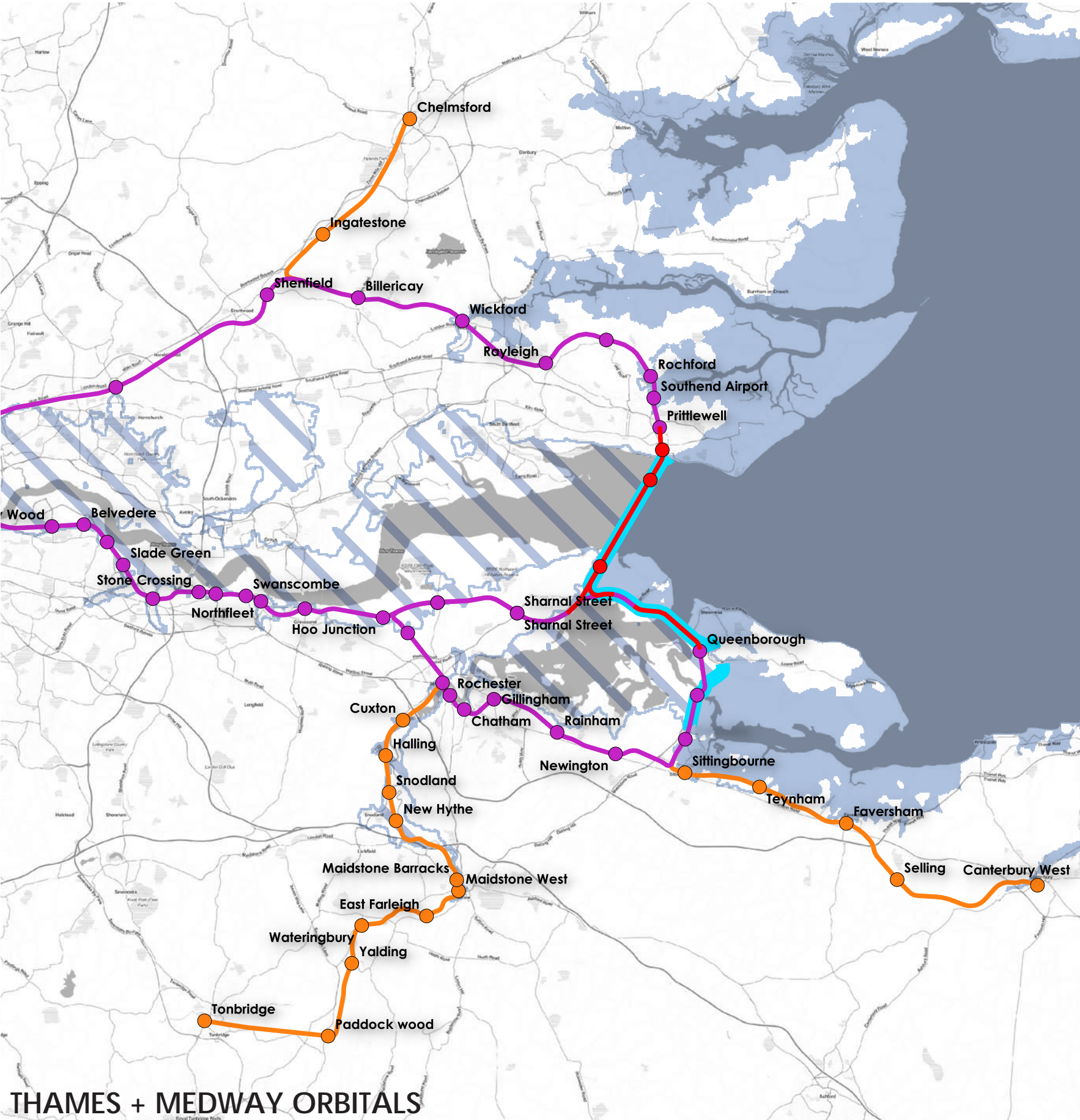
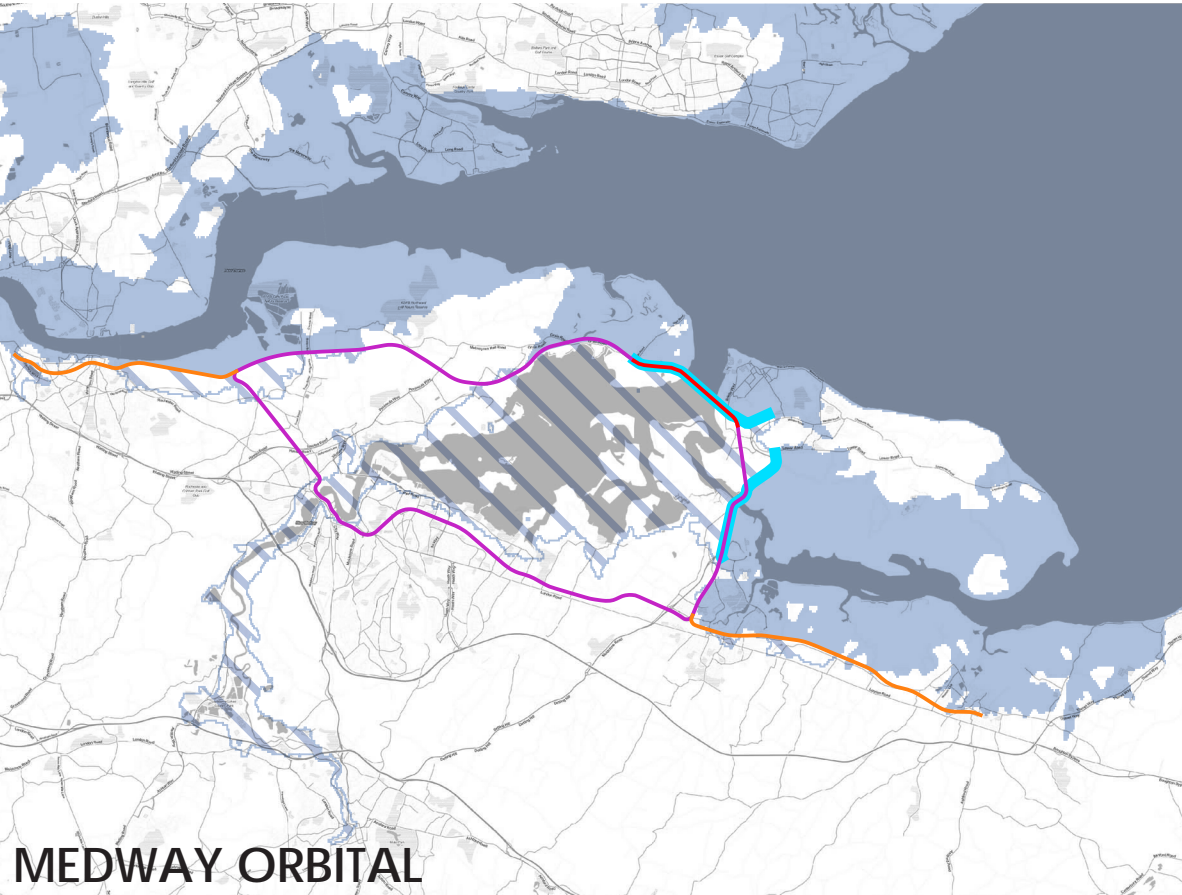
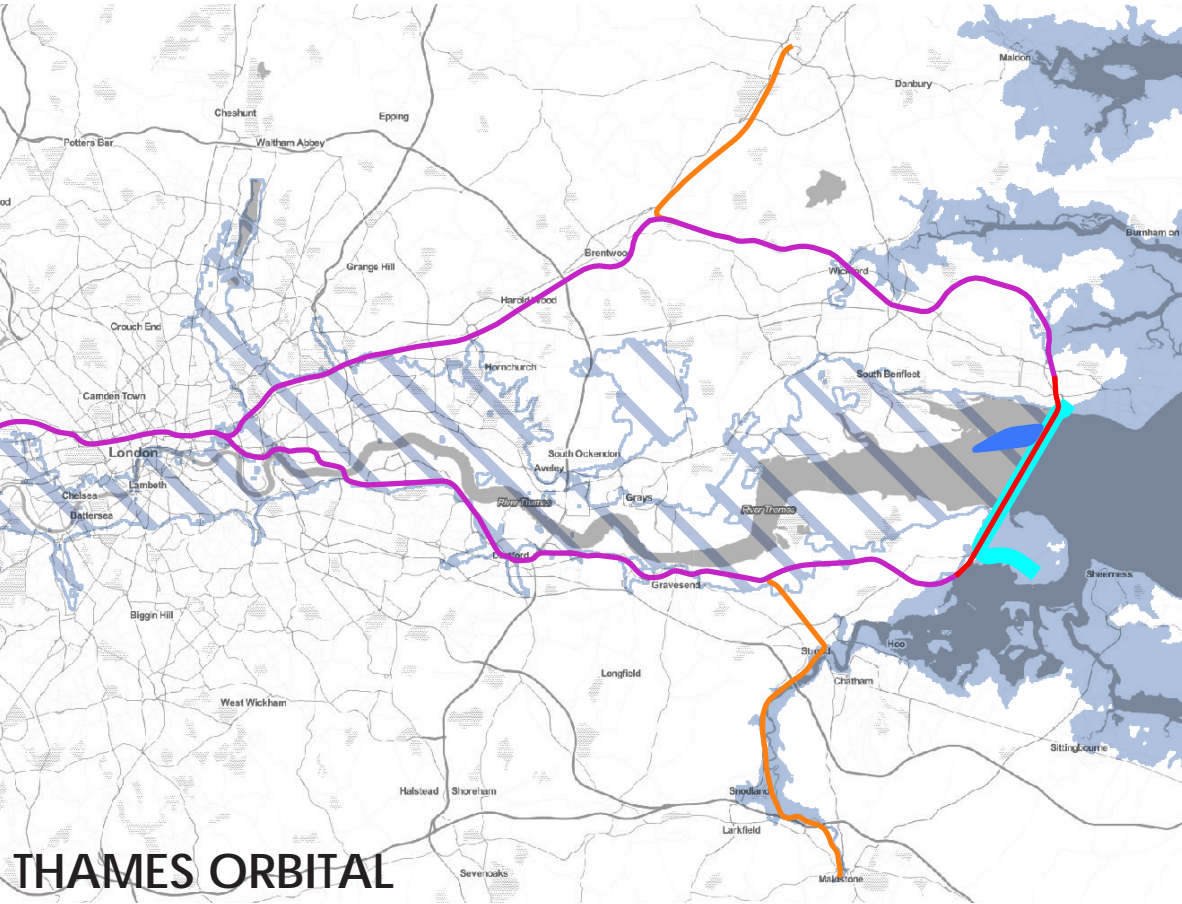
- 2050 FLOOD RISK
- 2050 PROTECTED AREA
- FLOOD DEFENCE LINE
- FLOATING SOLAR
- URBAN ORBITAL
- URBAN COASTAL
- NEW METROTIDAL RAIL





# METROTIDAL THAMES + MEDWAY ORBITAL

- 2050 FLOOD RISK
- 2050 PROTECTED AREA
- FLOOD DEFENCE LINE
- URBAN ORBITAL
- URBAN COASTAL
- NEW METROTIDAL RAIL





# METROTIDAL TYNE + TEES ORBITALS

COMBINED TYNE AND TEES COASTAL 97.2KM

- 2050 FLOOD RISK

2050 PROTECTED AREA

FLOOD DEFENCE LINE
- URBAN ORBITAL

URBAN COASTAL

ALTERNATIVE ROUTE

NEW METROTIDAL RAIL

