

We work in 160 countries

170
permanent
offices in over
50 countries

16K staff \$2 billion turnover

150 years'



Traditional design approach

Prestige: Looks grand & fancy



Design today

Prestige: Innovative & green credentials

## The United Nations Sustainable Development Goals (SDGs)

#### Overview of the SDGs

An internationally recognised framework for delivering sustainable development for all countries by 2030.

Ratified in 2015 by 193 countries, goals are universal, transcending the global north and south.





# INDUSTRY, INNOVATION AND INFRASTRUCTURE

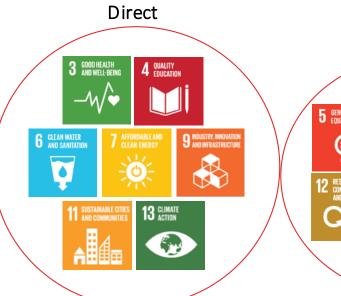


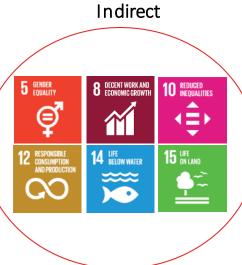
Build resilient infrastructure, promote sustainable industrialization and foster innovation

# Sustainable Development Goals & AEC













At Mott MacDonald we recognise that in order to deliver positive outcomes, whether directly, indirectly or induced, we must work in partnership with others.

# Climate change considerations



Temperature rise

- Extreme heat
- Wildfires
- Sea temperature



Storms

- Extreme wind
- Lighting
- Tornado



Precipitation changes

- Stormwater flooding
- Water availability
- Increased intensity
- Drought



Sea level rise

- Coastal and riverine flooding
- Saline intrusion
- Storm surge

Potential for accelerated ageing or catastrophic failure of assets Implications for design of new infrastructure and management of existing assets at risk

#### The resilience dividend

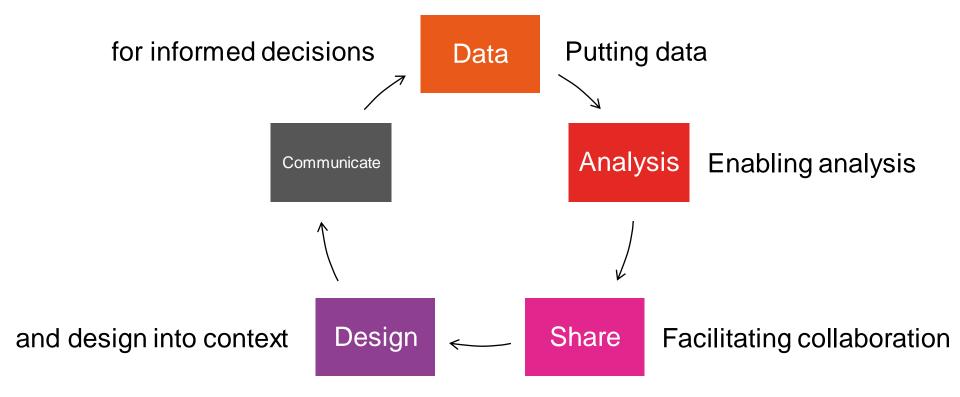
# **\$\$** for

- Protection
- EmergencyPlanning >
- loses
- Rebound swiftly
- Outcompete

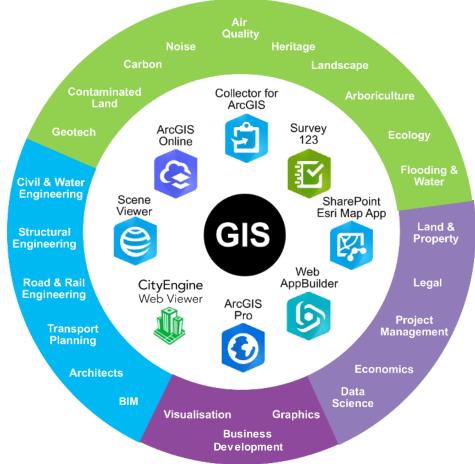


# GIS?

# Used throughout the design process



# **Esri collaboration**



# Case Studies



# Crossrail 2 Climate-Resilient Railway

#### **Project**

A sustainable railway that maintains or improves the quality of life and the environment. An exemplar Project.

#### Client

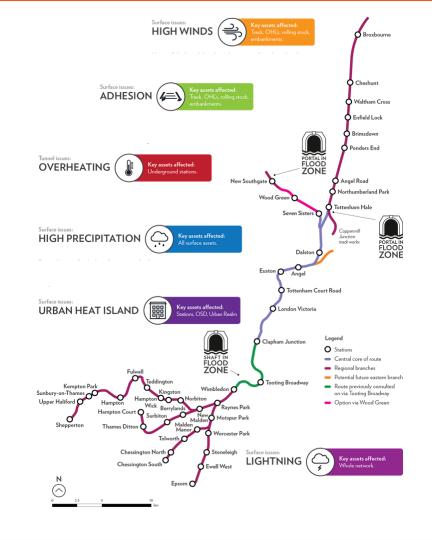
Transport for London

#### Location

London, UK

#### **Expertise**

Environmental and sustainability support



#### Crossrail 2 Environmental Scoping

ntroduction

Project descriptio

Local environmen

Assessment principles

Themes and topic

raç

Help



#### Scroll down or use the dots on the left to navigate

To navigate, scroll through the text, or use the dot markers on the left hand side

Central tunnel

No issues detected

₱ Edit ×

overground ticket halls and entrances.



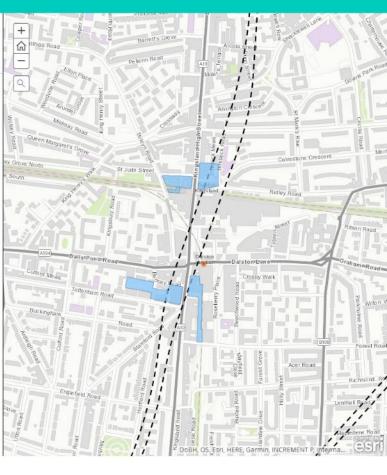
Dalston Junction bus station entrance

#### Key environmental issues

Dalston's thriving shopping area serves the area's ethnically diverse population. Georgian and Victorian housing surrounds the immediate retail core with pockets of open space. Construction could result in disruption for local residents, shops and businesses and these impacts will be assessed and managed. Local residential areas are known to have relatively high levels of deprivation.

Management of traffic and buses will be developed with Hackney Council to limit delays and inconvenience for people on the busy A10 Kingsland High Street. Further Crossrail 2 scheme design work would seek to support the wider regeneration of the area.

If you have an account log in to post a comment.



# ArcGIS Online – Story Maps for stakeholder consultation

#### Water Resources East - strategic regional planning for water resources

Multi-sector planning to 2100



#### Climate Change

Drought - driest part of UK. Flood risk – lowlying and very long coastline

#### Demand

10.5M people now and 3 of 5 of UK most rapid growing cities within region

#### **Economy**

40% of England's vegetables, agri-business £634M (2016). Large energy demands for water. Critical transportation corridors.

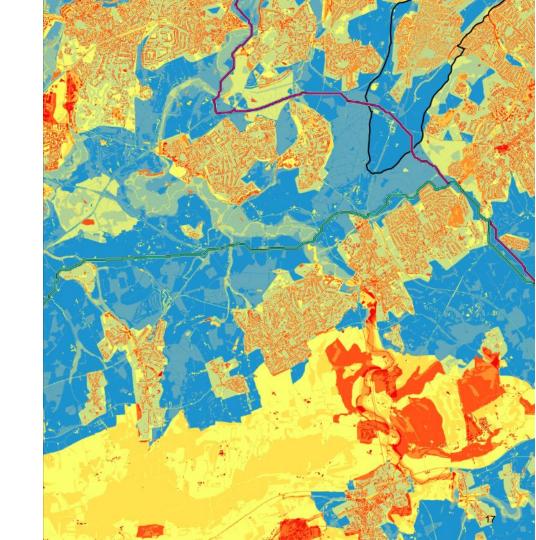
#### **Environment & Health**

Environmental damage through water lack or quality issues

# **GIS Pipeline Optioneering**

Provide a high-level review of possible connections, ensuring costs and environmental impacts are minimised.

- Model Builder
- Tool for elevation profiles of each route
- Tool to calculate the number and lengths of all features crossed.
- These statistics were fed into a route costing model.
- Over 100 routes options were generated and costed





# Identifying Risks

#### **Project**

Flood Resilience Assessments for 63 Wessex Water Sites

#### Client

Wessex Water

#### Location

South western UK

#### **Expertise**

GIS;

Hydraulic modelling;

Climate resilience

# Pooley Bridge

Before Storm Desmond









## Infrastructure Recovery Programme

GiGi

#### **Project**

A system to manage the Programme of more than 600 bridges and > 2,500 km of roads

#### Client

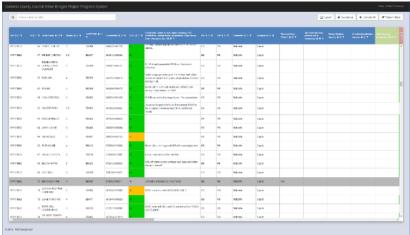
**Cumbria County Council** 

#### Location

North west, UK

#### **Expertise**

Engineering; Systems development; GIS





#### Glacial Lake Outburst Flood

#### **Project**

EO in Water Resource Management – Trial 2

#### Client

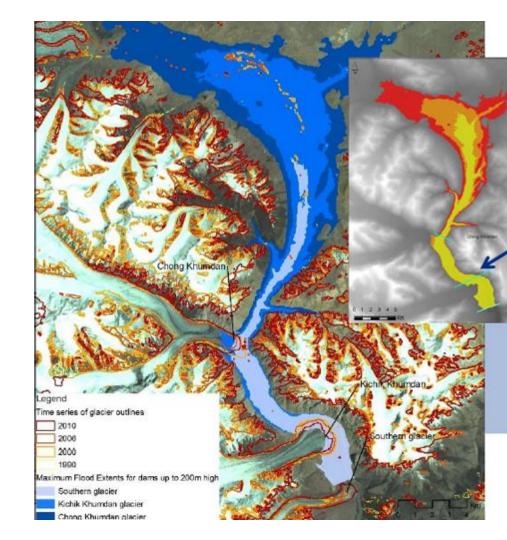
European Space Agency / WAPDA

#### Location

**Pakistan** 

#### **Expertise**

Remote sensing; GIS; Hydrological modelling; Structural engineering



# **Prioritising Investment**

### **Project**

Assessment of Risks to Transport Infrastructure of Climate Change

#### Client

**Confidential Bank** 

#### Location

Central Asia

#### Expertise

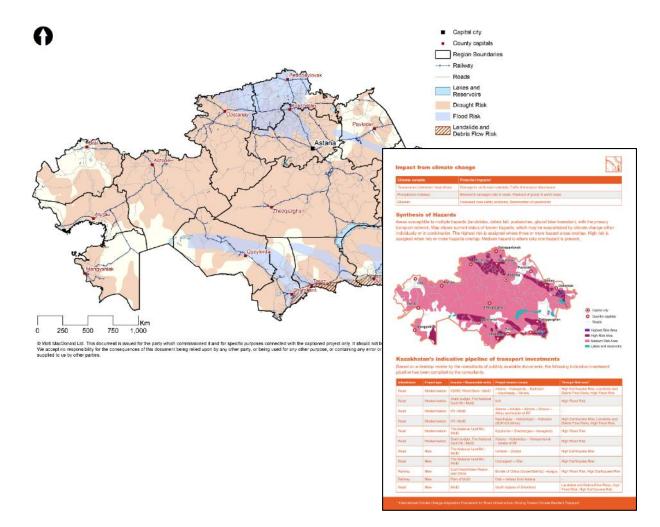
GIS;

Transport Assessments;

Climate Resilience



#### **Solution**



## Next Challenges

GIS can be at the heart of design and build

#### Data:

- Who owns it?
- How can it be shared & accessed
- Infrastructure is inter-connected
- Resilient smart infrastructure & cities need data

DECODE - DEcentralised Citizenowned Data Ecosystems

Solid POD – empowers





# Thank you

