

Impact of Impermeable Surfaces on Flood Risk

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WHY IT MATTERS?

Problems:

- Urbanisation
- Impermeable surface volume increase
- UK Flood frequency increase
- Climate Intensifying

Impacts:

- Reduce Infiltration
- Increase Surface Runoff
- Drainage overwhelmed
- Climate Change variation

URBAN VS GREENFIELD

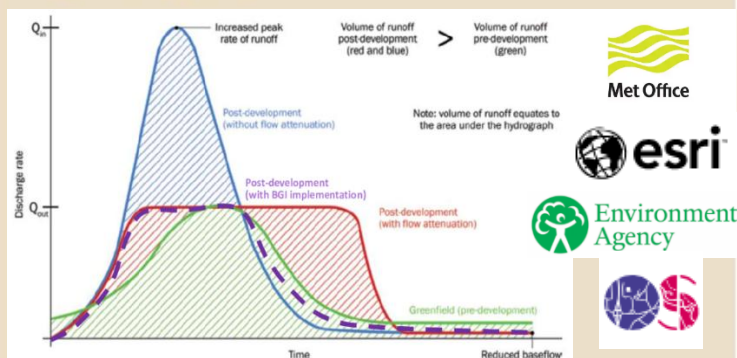
Objectives:

- Urban vs Greenfield Hydrology
- Analyse Runoff Rates
- Evaluate Mitigation Strategies

Process:

- Research Design
- Data Sources
- Pilot Study (Urban vs Greenfield)
- Analysis

Pre/Post Development Hydrograph



EXPECTED OUTCOMES

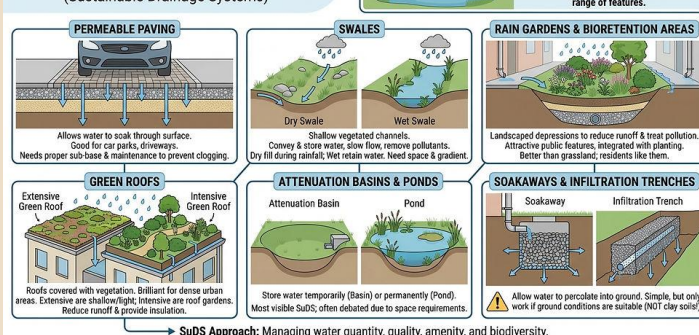
Expected Finding:

- Higher Runoff in Urban Areas
- Faster Runoff Velocity
- Greater Flash Flood Risk
- Climate change Amplifies Impacts

Urban Mitigation Strategies:

- Permeable Pavements
- Green infrastructure
- Green Roofs
- Soakaways

TYPES OF SuDS FEATURES



QUEEN ELIZABETH PARK

Implementations:

- Porous Asphalt
- Attenuation Basin & Ponds
- Rain Gardens
- Wet Swales

Aims / Objectives:

- Maintenance for 6 Million Annual Visitors
- 41% used for Public Space
- 59% Sports, Studying, Attractions, Shopping
- Economic Importance to Local Area
- £3.5 Billion GVA per Annum
- 38,000 Jobs



Results:

- Usable 250 Hectares in Central London all year round
- Increased Biodiversity
- Influence to sustainable development
- restoration of rivers and wetlands



CONCLUSION

Key Findings:

- Impermeable Surfaces increase surface runoff
- Urban areas more prone to impactful flooding
- SuDS improve flood resilience
- Foundation for future project development
- Necessary development with growing population and climate change

