


# Highways England Geotechnical Information Improvements

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# Highways England

- Operates, maintains and improves England's motorways and major A roads.
- Created in April 2015 (Government Company)
- Regulated by the ORR 
- Transport Focus – Independent Watchdog 
- 4300 miles Road Network
- £15bn of investment

# Geotechnical assets

- Cuttings, embankments & at-grade sections.
- $\approx 8600$  miles of asset
- Value  $\approx \text{£}30\text{bn}$



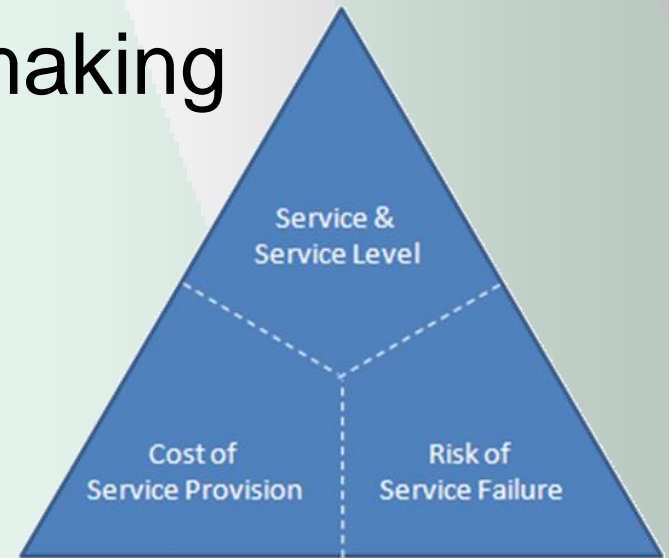
# Geotechnical assets

- Geotechnical assets key to stability of the road and associated structures.
- Assets are interrelated. Poor drainage is a major cause of slope failure.



# Asset Information Improvement

- Information is an asset itself
- Good quality, complete information enables good decision making
  - Prioritise investment
  - Manage performance
- Saves money

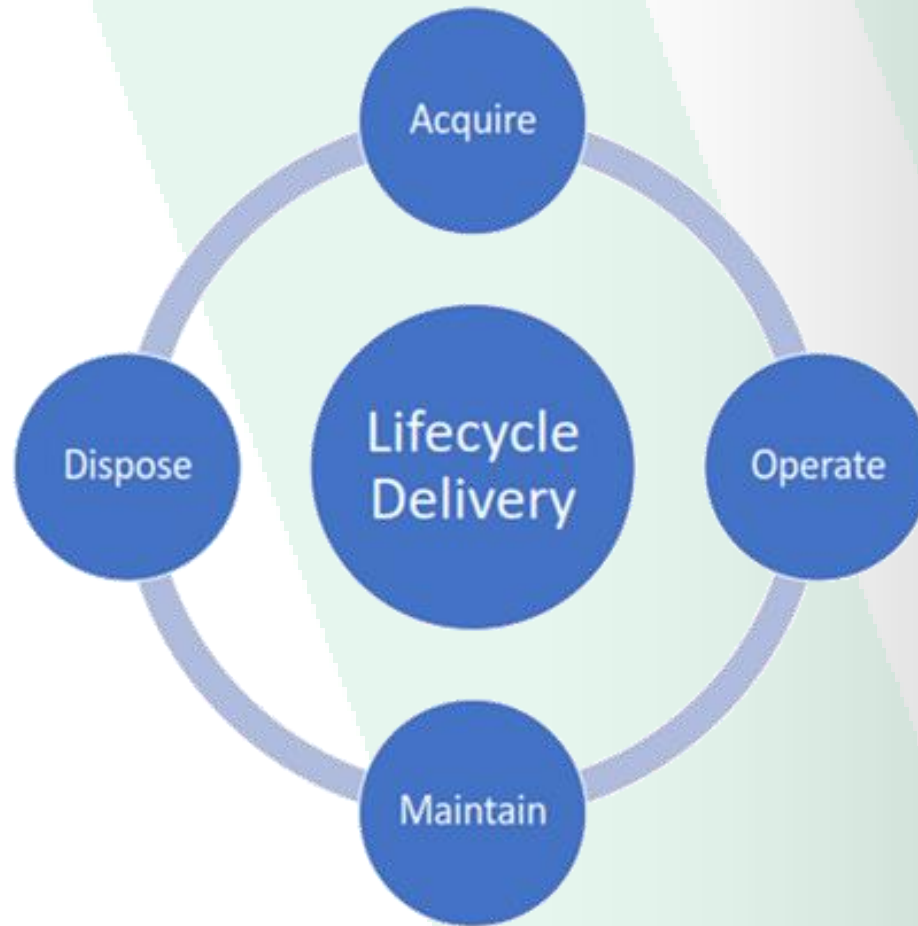


Asset Management Decision

# Research Task

- To review, prioritise and plan geotechnical asset information improvements.
- Spring and summer 2017
- Not yet reported
- Early ideas & questions

# Scope - Complete Asset Lifecycle



# Geotechnical Information?

- 13,800 reports available online (PDF)
- 700 reports are factual (last 10 years)
  - Only 264 have AGS data (**38%**)
- 48,700 geotechnical assets
- 266,000 inspection records
- 210 individual data items
- Derived mapping layers




# Task Processes

- Feedback from the supply chain
- Process mapping (inputs & outputs)
- Literature search
- Research & business
  - (data requirements)

**DIGGS: A Dream Becomes Reality: Implementation Status**

GEOSYNTEC | MMI | SIREM | GSM



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Process - Site Investigation - Desk Study (HD22/08)

Inputs	Formats	Outputs	Format
Existing Reports	PDF	Desk Study	PDF
Published Information	AGS	Annex A	
Line design Information	CSV		
Asset Information	Raster		
Work Register	GIS		
Third party Mapping (e.g. landmark)			
Walkover Surveys			

CON125 - Phase 1 Report  
A Review of Electronic File Formats for the Exchange of Geotechnical Information used in Transportation Schemes

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**CON125 - Phase 1 Report**  
**A Review of Electronic File Formats for the Exchange of Geotechnical Information used in Transportation Schemes**

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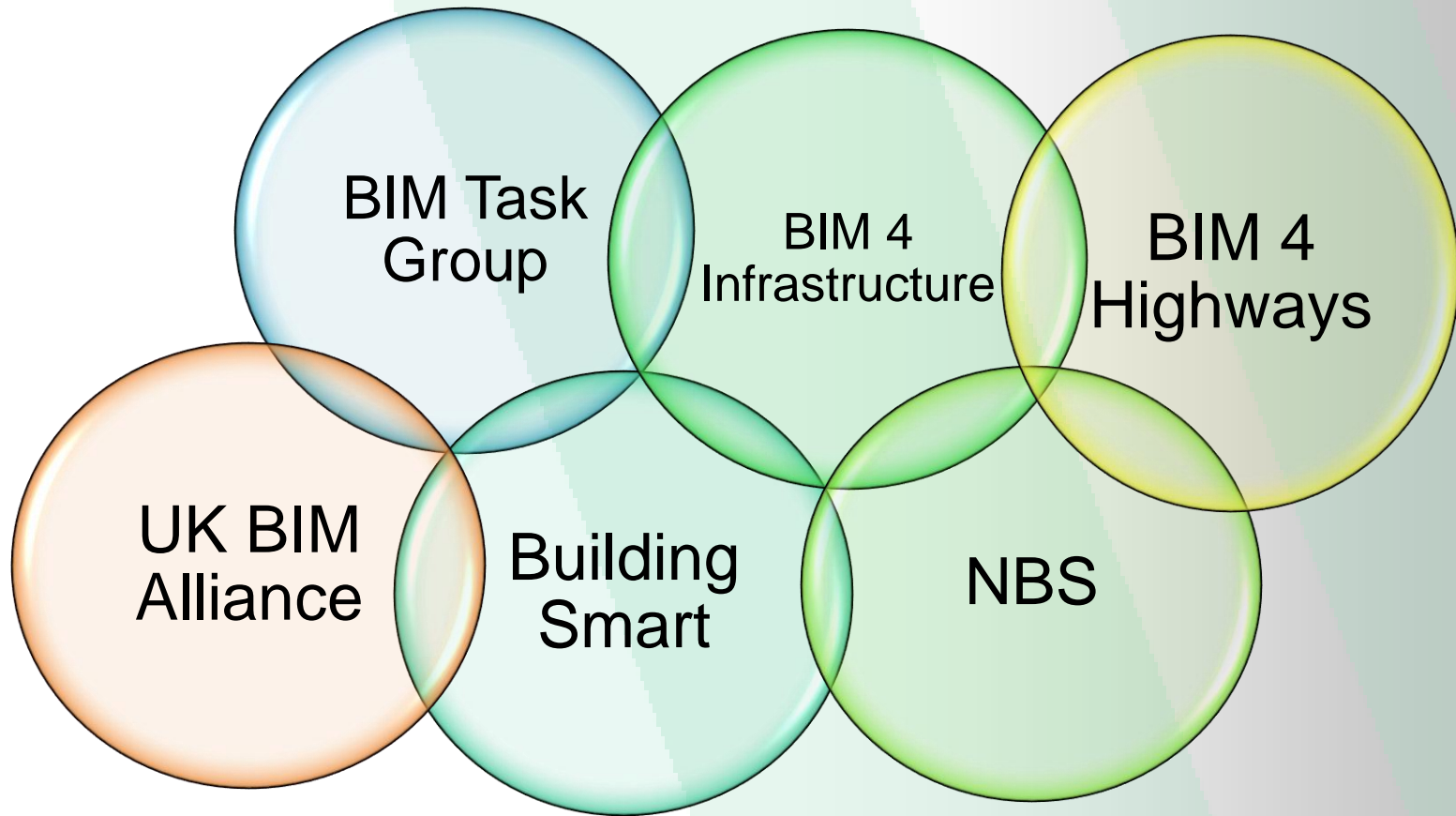


# Internal Initiatives

- Asset Data Management Manual
- Standards updates
  - HD22/08
  - IAN 184
  - Integrated System
  - Research reports



# The BIM family



# Findings/questions - BIM

- BIM world is complicated. Not mature enough for geotechnical information
- No defined geotechnical standards for IFC, COBie, Uniclass 2015
- Main Highways England implementation is to reference AGS Data format and BS8574 in Employer's Information Requirements.
  - Include data requirements in ADMM

# Findings/questions - AGS

- How to improve provision of AGS data?
  - Still perceived as an end-product deliverable
- AGS is no use to Highways England staff!
  - No ability to view the data in a sensible way
  - Web enabled viewers?
- AGS 4 adoption has been very slow
  - Where has all the EC7/ISO data gone?

# Findings/questions - AGS

- Consider machine to machine data format  
Not human to human (JSON/XML V5?)
- Expand AGS to earthworks acceptability testing (probably not much work involved)
- Would like to see increased use of Geology Codes, but not sure if they should be geotechnical or geological
  - (PI problems?)

# Findings/questions - Reports

- The process mapping shows that there can be many spatially-aware imports to a report, but the output is always a PDF.
  - How can we use the input data throughout the design & construction phases
  - Common data format required – Shape files/GeoJSON etc?
- Need clarity regarding contents of the H&S file
- Reports should be less prescriptive. (HD22)



# Findings/questions – Governance & procurement

- Data requirements need to be refreshed to align with business requirements
- Would like to see wider adoption of BS8574
- Problems with procurement of GI.
  - Delays and increased costs (CDM 2015 & supply chain)
  - National Framework contract?
  - Can the industry help?