




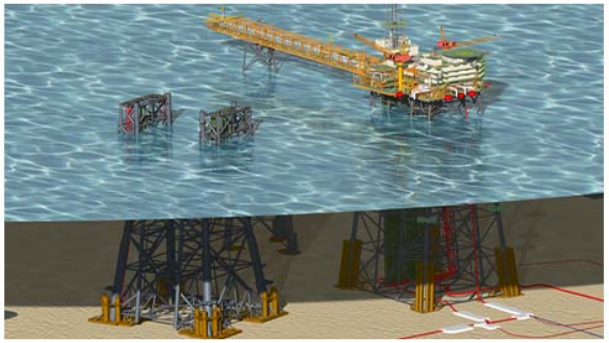

On-line Geotechnical Database Considerations and Data Sharing

STGEC October 22 – 25, 2012

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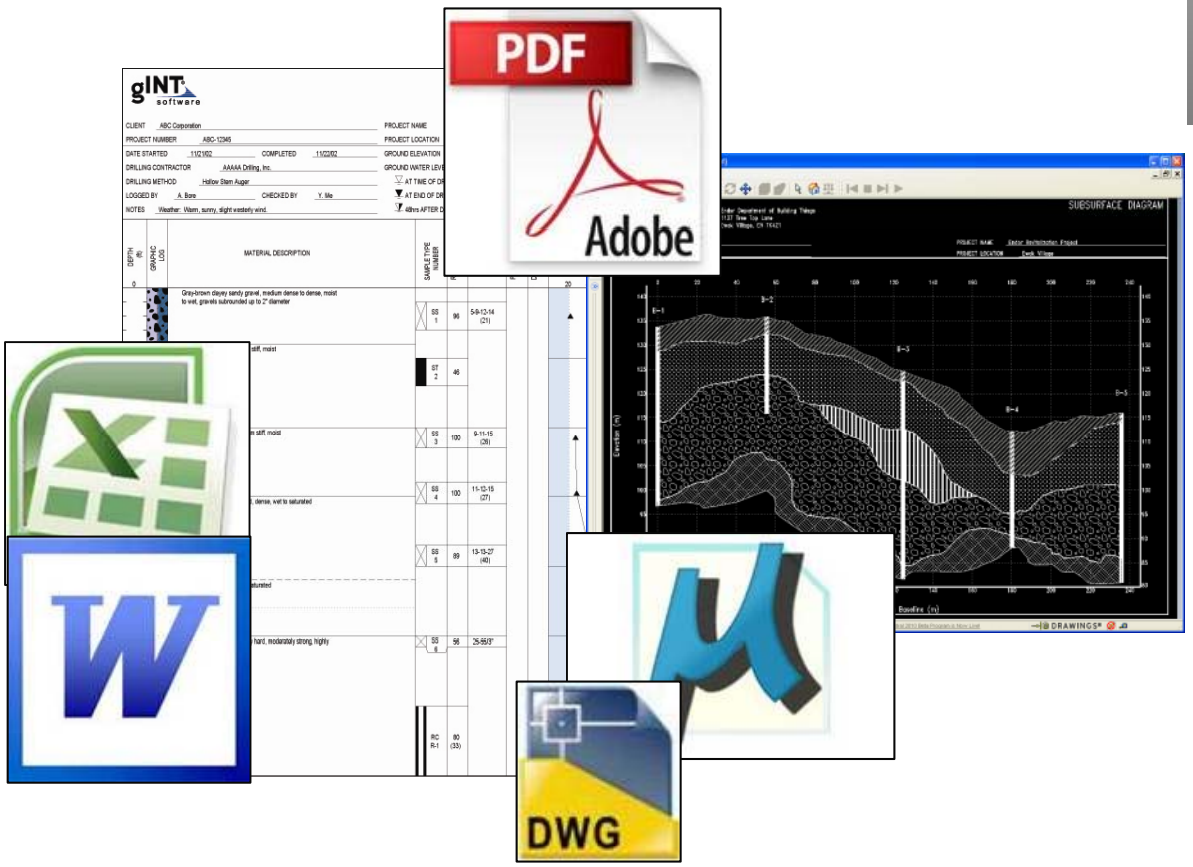
Outline

- Background/History
- Current capabilities in Virgina and Minnesota DOT Geotechnical Database Management System (GDBMS)
- Considerations in development of Virginia and Minnesota DOT GDBMS
- Lessons Learned
- Looking forward

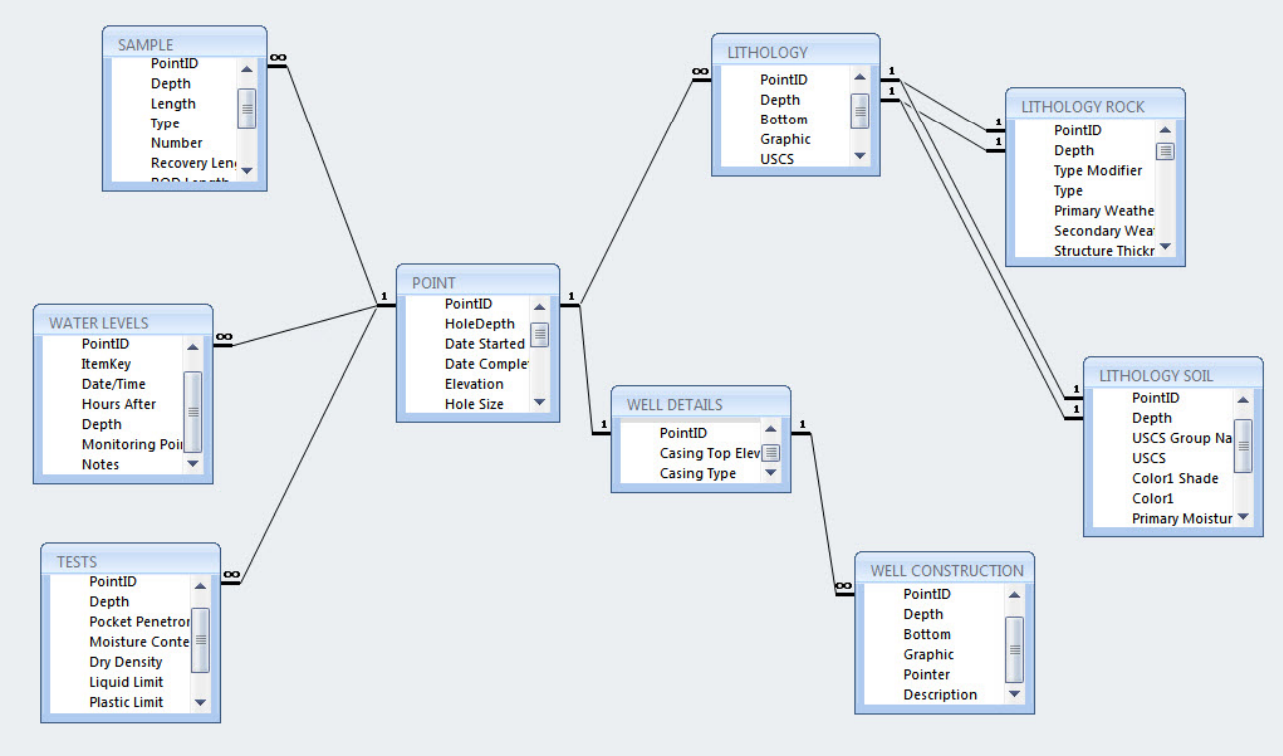
Background/History – Subsurface Data

- Geotechnical information has traditionally been exchanged on paper or electronic paper (.pdf or CAD format)



Geotechnical Databases

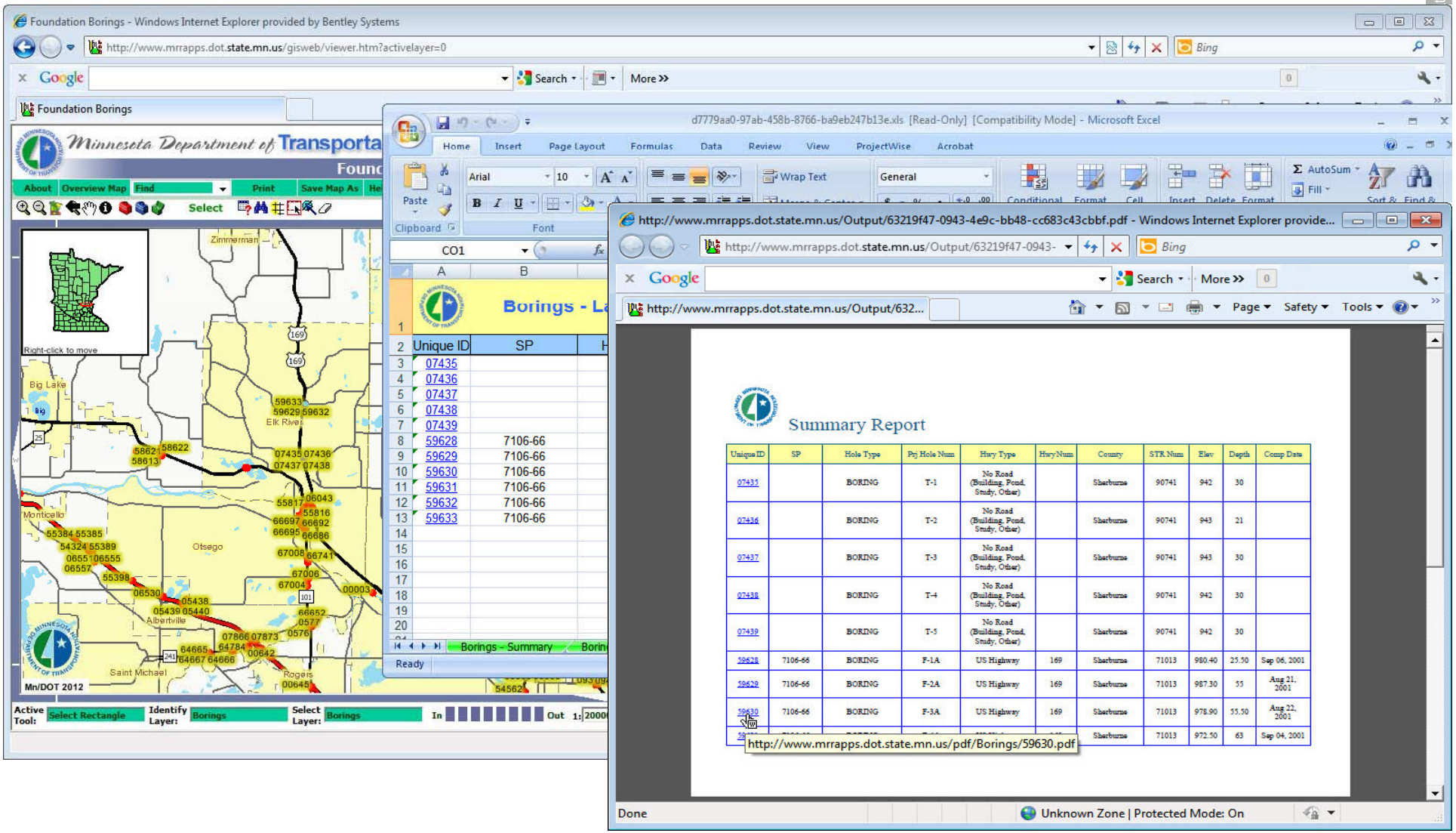
- Some organizations have started requiring data in a database format for individual projects.



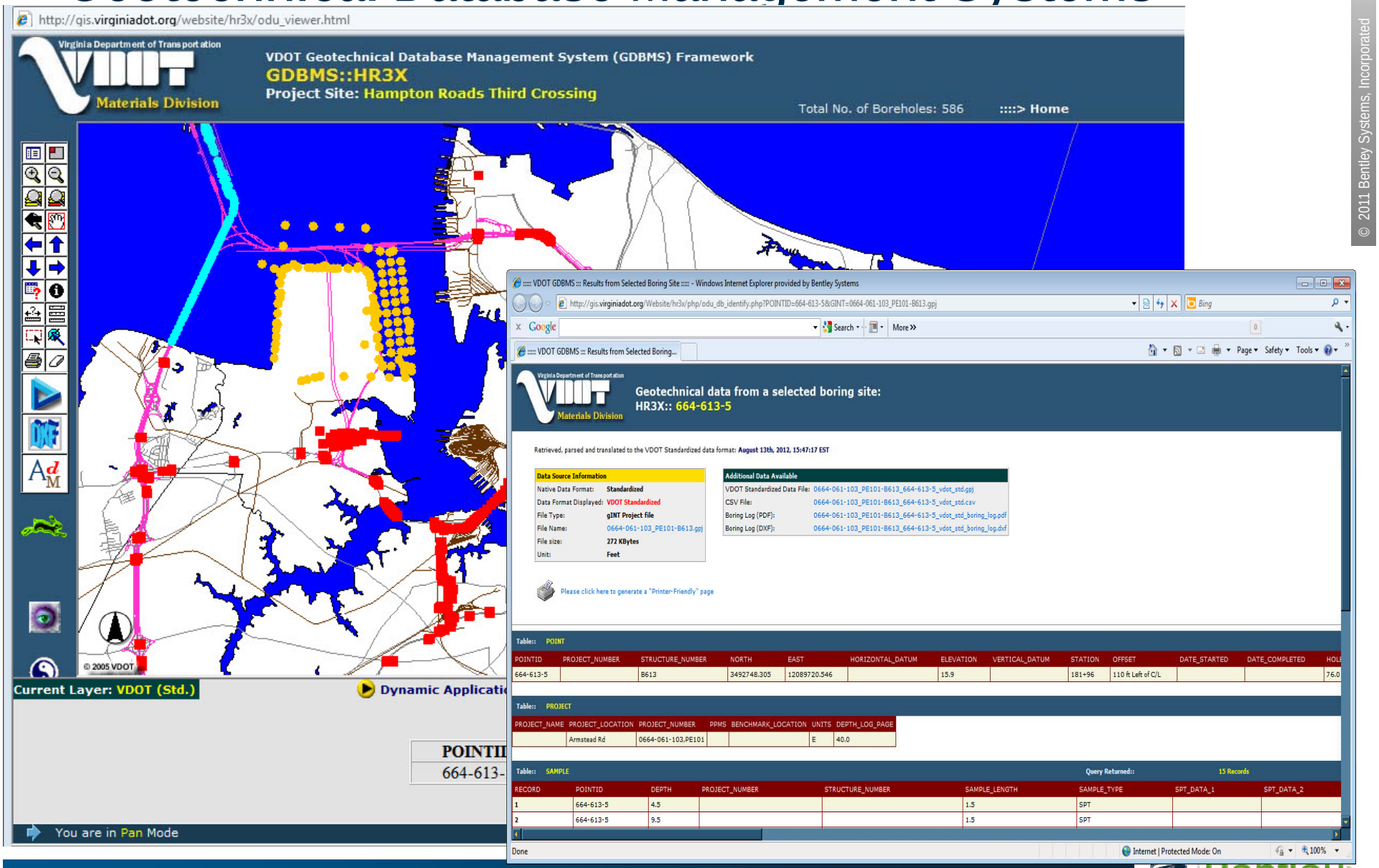
Geotechnical Database Management Systems

- In the past few years a movement to maintain a geotechnical database management system has started
- Agencies are recognizing the value of the geotechnical data
  - ID trouble points
  - Reuse of existing data
  - Correction of errors in existing data
  - Instant access to legible data
  - Quick development of results for analysis and reports
  - Fast access, distribution and turn around time
  - Simple backup of data

Geotechnical Database Management Systems

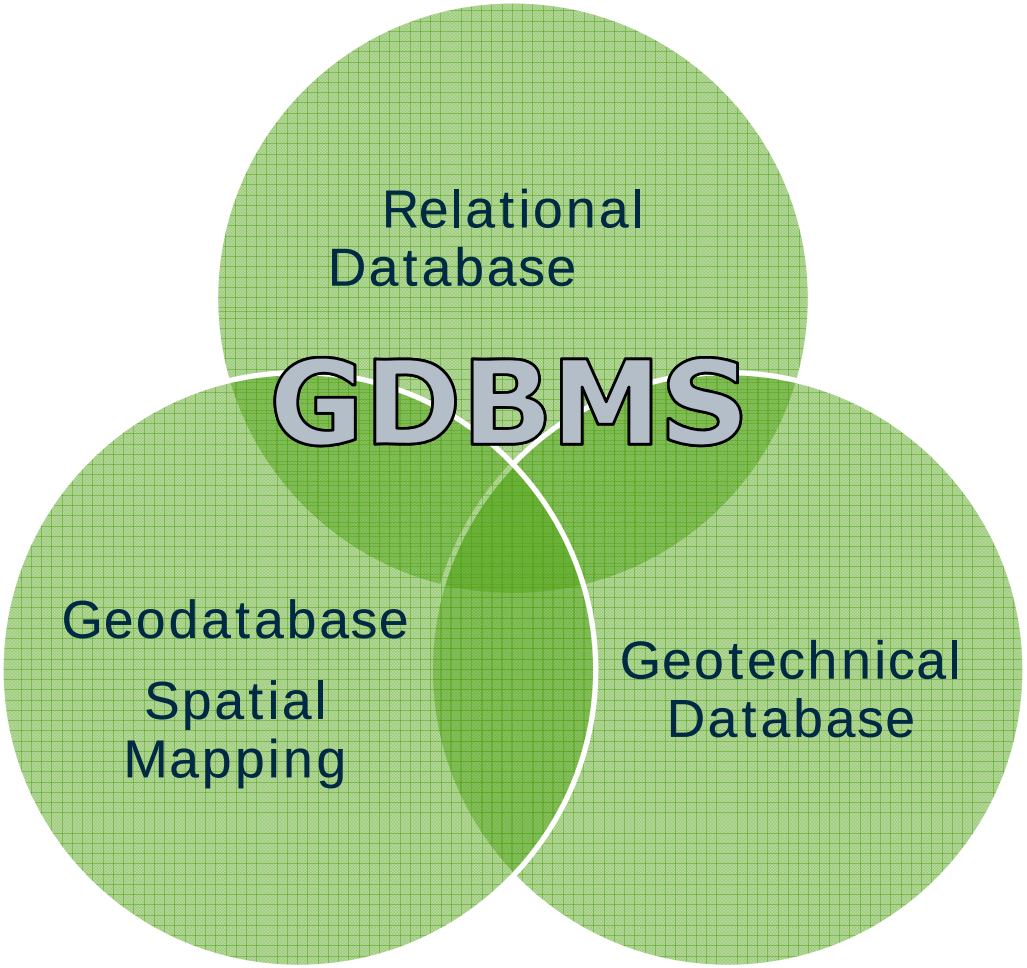


Geotechnical Database Management Systems

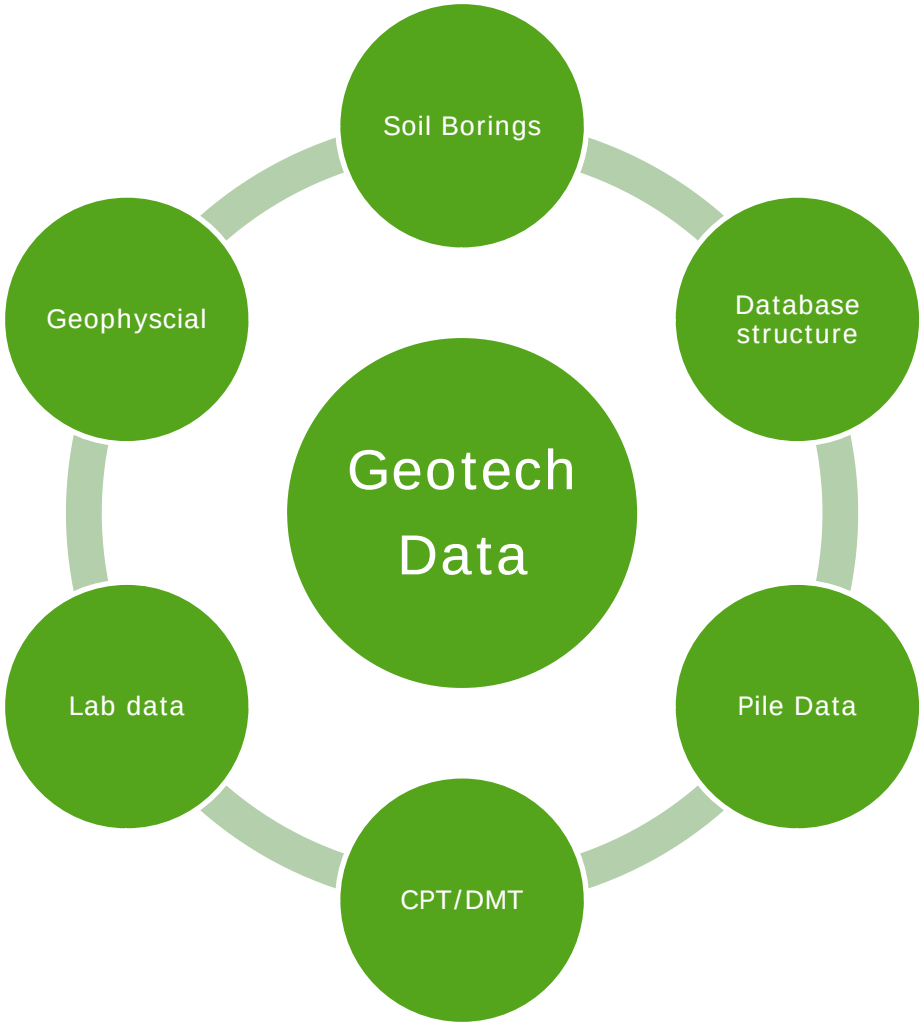


Geotechnical Database Management Systems

A GDBMS will be composed of several parts



Geotechnical Considerations



Future considerations?

Sharing Data

- VDOT shares geotechnical database files (gINT files, .csv format)
- MDOT has opted for a data exchange format (DIGGS)
- Informational exchange
  - Both organizations allow for PDF download of the borehole logs
  - VDOT has a DXF download option of logs

Data Reporting and Analysis

Virginia Department of Transportation
VDOT
Materials Division

Geotechnical data from a selected boring site:
HR3X:: 664-607-3

Retrieved, parsed and translated to the VDOT Standardized data format: **August 14th, 2012, 16:46:44 EST**

Data Source Information	
Native Data Format:	**Standardized**
Data Format Displayed:	**VDOT Standardized**
File Type:	**gINT Project file**
File Name:	0664-061-103_PE101-B607.gpj
File size:	**268 KBytes**
Unit:	**Feet**

Additional Data Available	
VDOT Standardized Data File:	0664-061-103_PE101-B607_664-607-3_vdot_std.gpj
CSV File:	0664-061-103_PE101-B607_664-607-3_vdot_std.csv
Boring Log (PDF):	0664-061-103_PE101-B607_664-607-3_vdot_std_boring_log.pdf
Boring Log (DXF):	0664-061-103_PE101-B607_664-607-3_vdot_std_boring_log.dxf

Please click here to generate a "Printer-Friendly" page

Table:: **POINT**

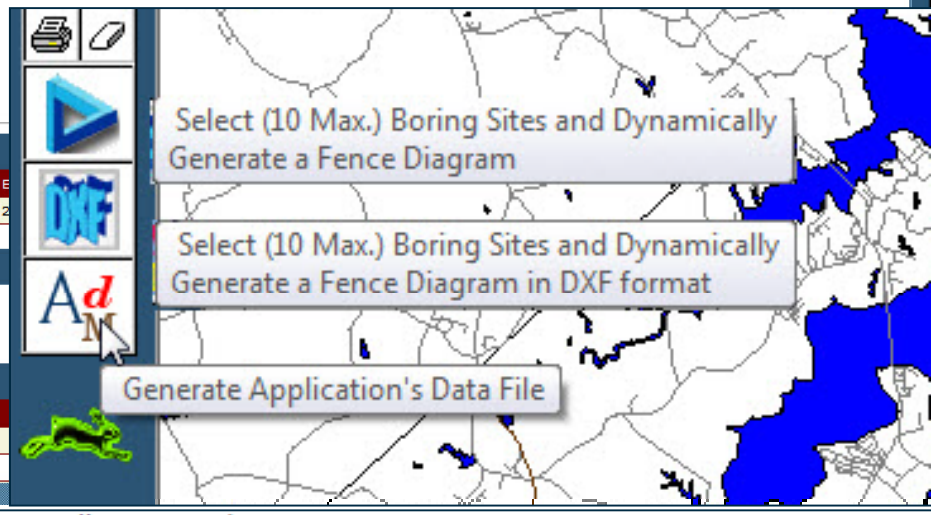
POINTID	PROJECT_NUMBER	STRUCTURE_NUMBER	NORTH	EAST	HORIZONTAL_DATUM	E
664-607-3		B607	3481655.093	12087083.065		2

Table:: **PROJECT**

PROJECT_NAME	PROJECT_LOCATION	PROJECT_NUMBER	PPMS	BENCHMARK_LOCATION	UNITS	DEPTH_LOG_PAGE
Ramp D over RTE. 164	Suffolk	0664-061-103-101,615			E	40.0

Table:: **SAMPLE**

RECORD	POINTID	DEPTH	PROJECT_NUMBER	STRUCTURE_NUMBER
1	664-607-3	4.5		
2	664-607-3	9.5		



Application data files dynamically generated :

Input Data: Translated Data (Standard Format)

Boring Log (PDF)

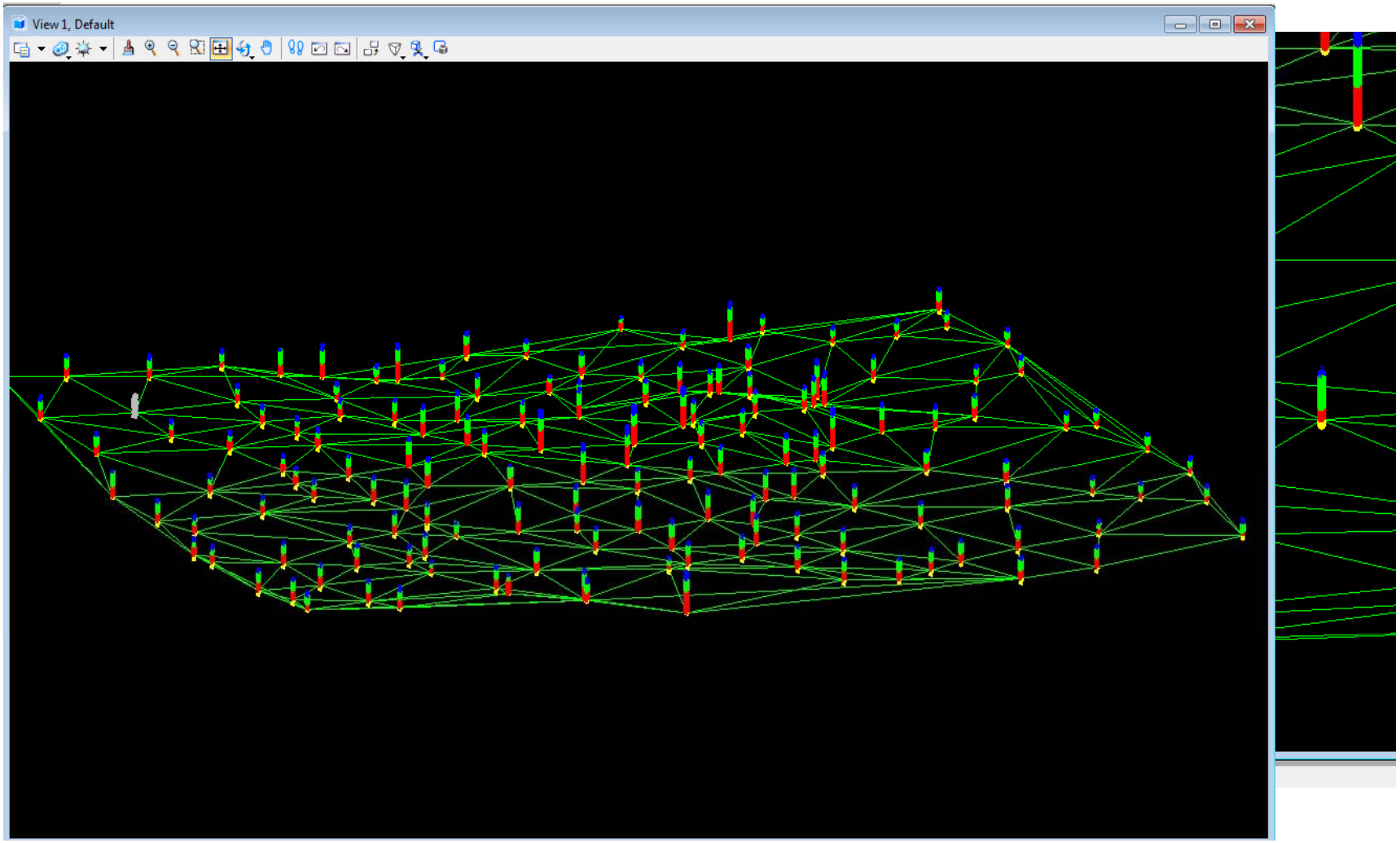
Output Data File:

For DRIVEN: 0664-061-103_PE101-B607_664-607-1_driven.dvn
For Shaft: 0664-061-103_PE101-B607_664-607-1_shaft.sfd
For GALENA: 0664-061-103_PE101-B607_664-607-1_galena.gmf

For RSS: 0664-061-103_PE101-B607_664-607-1_rss.dat
For LPILE: 0664-061-103_PE101-B607_664-607-1_lpile.lpd

Bentley
Sustaining Infrastructure

Data Analysis



Conclusions

- An geotechnical database is a part of an overall GDBMS
- Thorough consideration to a geotechnical database must be done by parties involved
- Consider analysis needs as well as data input for advanced use
- Streamlining of work processes produces the most financial benefit

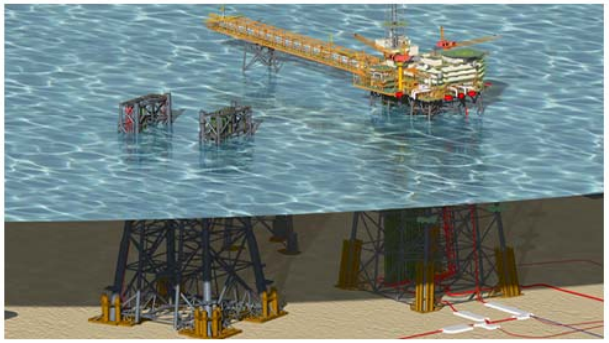
Thank you

- Ed Hoppe – Virginia DOT
- Kwame Adu-Gyamfi – Virginia DOT
- Derrick Dasenbrock – Minnesota DOT

Questions?





Thank You !

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Geotechnical Product Specialist