

OBG PRESENTS:

Using GIS to Streamline Project Workflows

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AGENDA

Safety Moment

Intro

Project Details

GIS Solution

Mobile Data Collection

Centralized Data

Automated Workflows

Report Writing in Access

Benefits

Q & A



SAFETY MOMENT

Kids are Back in school.

- Be Cautious when approaching bus stops
- Kids dart out without looking



Typical Project Workflow

- Field staff carry paper notebooks and maps on-site in order to collect data
- Projects have strict time constraints
- Results in sloppy notes and missing information

Challenges in the Field



Notes



Floor Plans

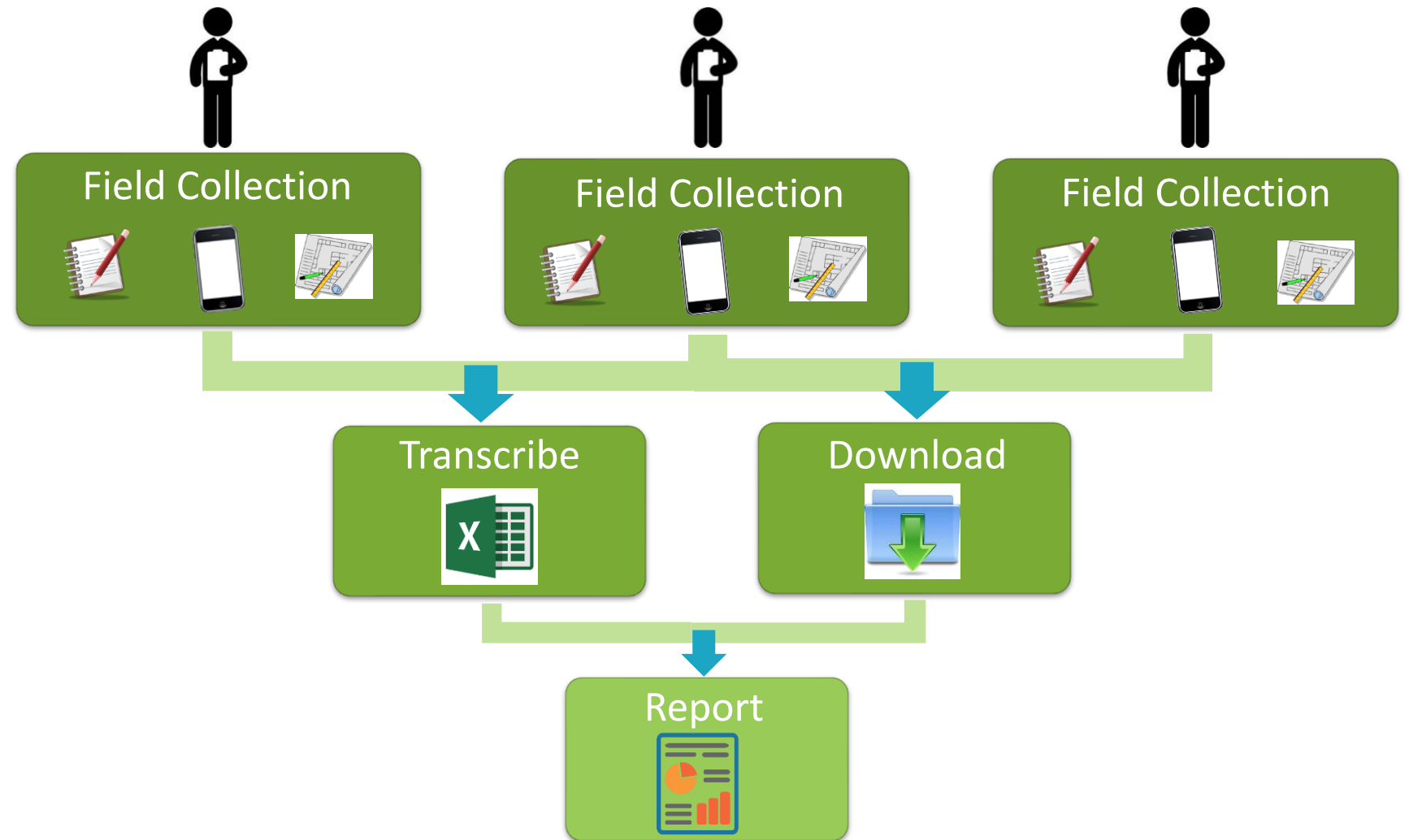


Pictures

Typical Project Workflow

- Office Staff transcribe field notes
- Office Staff download pictures to project folders with meaningless file names
- Report tables are formatted from transcribed Excel file creating versions of data.

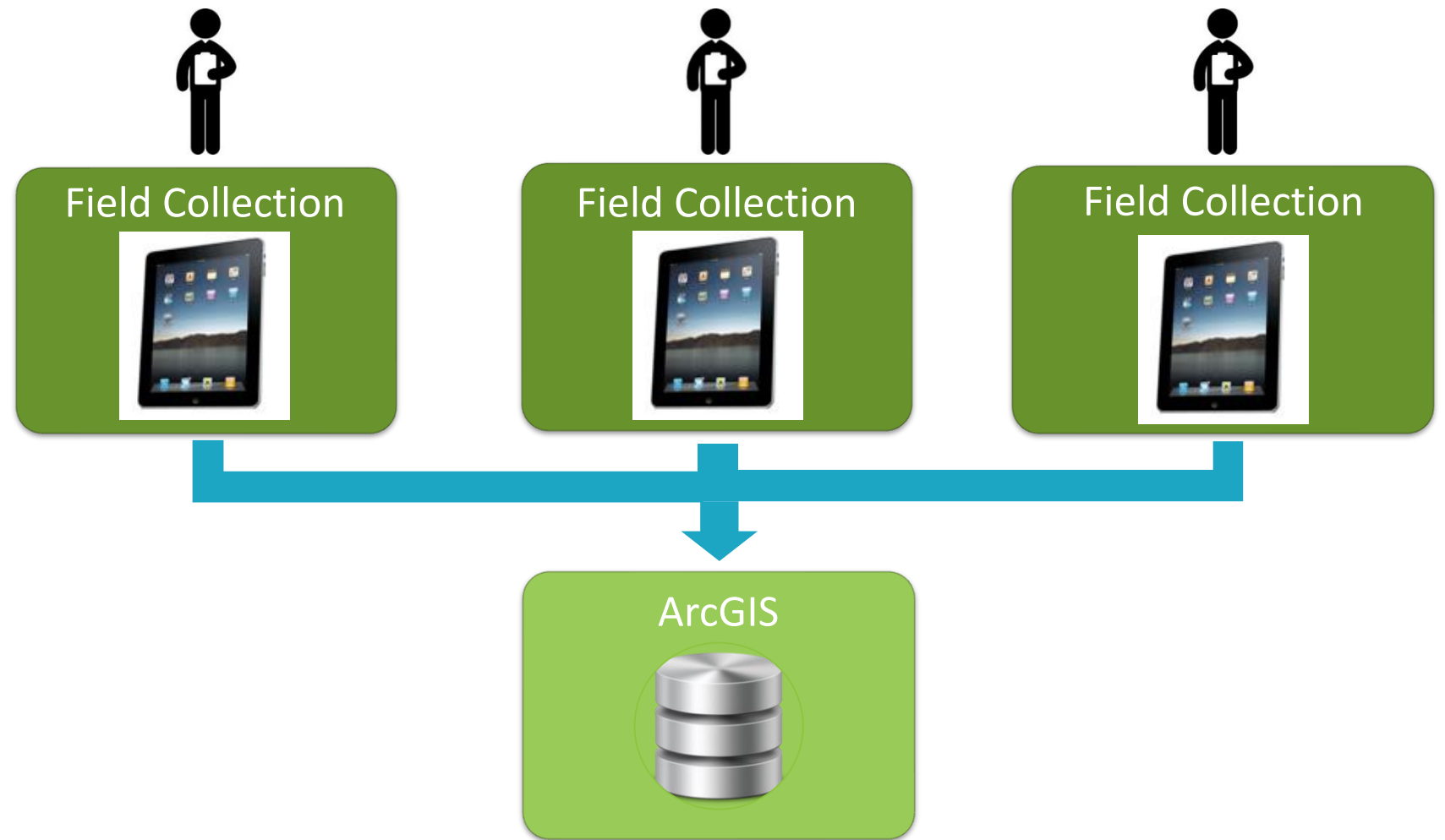
Challenges in the Office



Streamlined Project Workflow

- Field Personnel collect data using Collector for ArcGIS
- Data is stored centrally and updated in real-time.
- Reports, Pictures, and

Challenges Addressed





Project Details

Background

Exposure to lead can seriously harm a child's health.



Damage to the brain and nervous system



Slowed growth and development



Learning and behavior problems



Hearing and speech problems

This can cause:



Lower IQ

Decreased ability to pay attention

Underperformance in school



USEPA Regulates Lead in paint, dust, and soil

- Toxic Substances Control Act (TSCA)
- Residential Lead-Based Paint Hazard Reduction Act of 1992

Health Risks

- Children and pregnant women are most sensitive to the health risks associated with lead
- Can easily be transported from the work place or other source to a home with sensitive receptors
- CDC and OSHA have established safe blood lead levels
- DOHs can investigate and monitor lead exposure cases

USEPA & HUD Criteria

- Established acceptable lead levels in residences and child-care facilities to protect sensitive receptors
- Client established a program-specific criteria of 40 $\mu\text{g}/\text{ft}^2$ in dust wipe samples

Data Needs Assessment

Scope & Schedule

- 12 Facilities
- 1 week lead time
- 3 weeks to finish sampling and provide reports

Planning

- Determine the project needs
- Identify the project team
- Develop a consistent approach for each facility

Collaboration

- Team consisted of 10 people spread across 4 offices working concurrently on separate facilities
- Needed an easy to use approach to accommodate a diverse background of team members

Field Data Collection



SurfType_CODE	SurfType_Name	Material_Name	SampType_CODE	SampType_Name
Floor	Floor	Concrete	0	Floor
Sill	Window Sill	Steel	1	Elevated Surface
Ledge	Ledge	Drywall	2	Mechanical System
Pipe	Pipe	Wood	3	Field Blank
Table	Table	Plastic		
Desk	Desk	Bathroom Tile		
Counter	Counter	Terrazzo		
FB	Field Blank	Plaster		
Wall	Wall	Aluminum		
Door	Door	Brick		
Duct-IN-RECT	Duct-Insulated-Rectangular	Stone		
Duct-IN-RND	Duct-Insulated-Round	Tile Carpet		
Duct-Bare-Rect	Duct-Bare-Rectangular	Cardboard		
Duct-Bare-Rnd	Duct-Bare-Round	Ceramic Tile		
Column	Column	Marker Board		
Elec Box	Electrical Box	Tack Board		
Staged	Staged Material	Paper Wrap Insulation		



Reporting

24-HR reporting
time to client

Sample IDs lacked
descriptive
information

Provide our field
collected data for
each sample along
with lab results

Sample Results to
be used for
Recommendations





GIS Solution



Solution...

ArcGIS



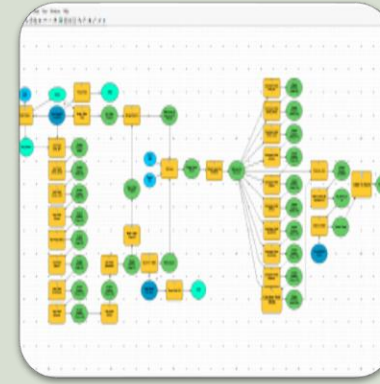
ArcGIS
Online for
Mobile
Data
Collection

- Collector App
- Web Maps



ArcGIS
Server

- Centralized Data
- SQL Server Enterprise Geodatabase



ArcGIS
Model
Builder

- Automating Workflows



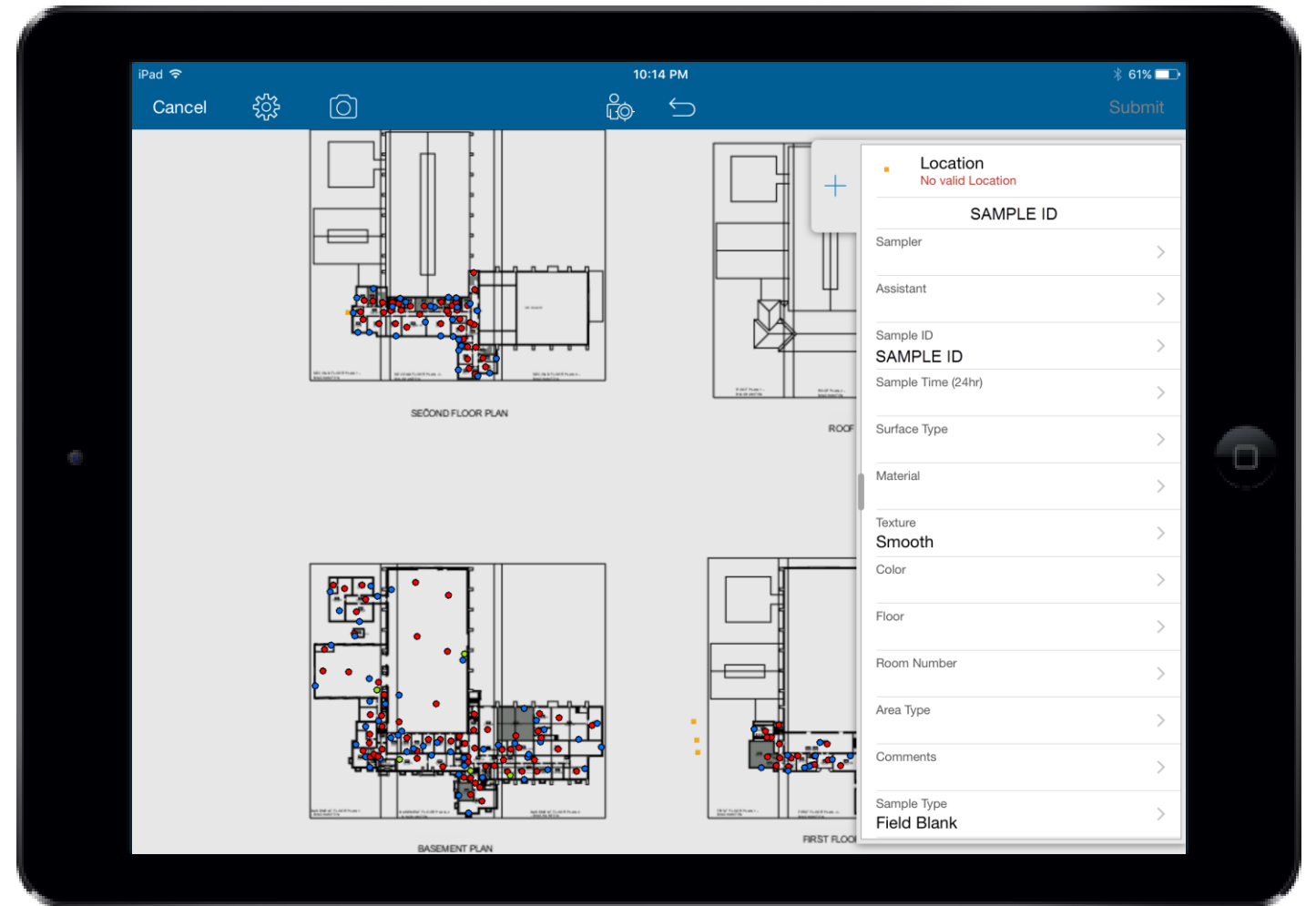
Microsoft
Access

- Report Writing



Mobile Data Collection with ArcGIS Online and the Collector App

- Basemaps from AutoCAD Floorplans
- Sample Collection Forms Built Using Native Functionality of the GIS Database
- Support for Offline Data Collection





Web Mapping Application



Information-On-Demand

Access From Anywhere

- Real Time Updates
- Operational Efficiency

Export Records to CSV

Table View Gives Access To Several Samples At Once

- Linked to View

HTML Popups Give Access To Sample Data

- Includes Hyperlinks to Attached Images

Corporate Branding



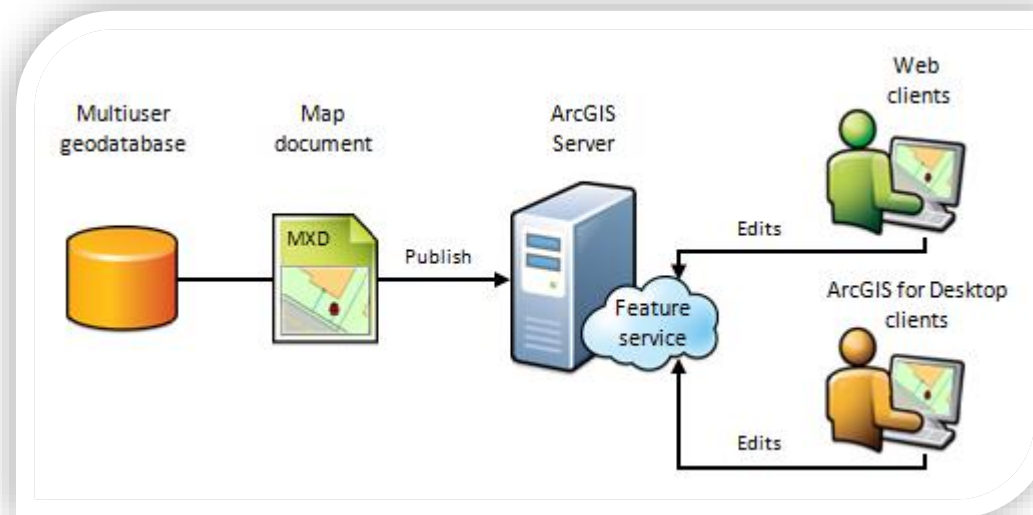
Editing Capabilities Optional

Sample ID	Time	Surface Type	Material	Texture	Color	Floor	Room Number	Area Type	Comments	Sample Type
SP 8942 232	11:08	Floor	PTC2	Smooth	White	Basement	818	4770486		Floor
SP 8942 233	11:20	Window SS	Steel	Smooth	Brown	Basement	818	4770486	Painted	Elevated Surface
SP 8942 234	11:24	Floor	Ceramic Tile	Smooth	Red	Basement	818	4770486		Floor
SP 8942 235	11:26	Kitchen Equipment	Steel	Smooth	Neutral	Basement	818	4770486		Elevated Surface





Centralized Data with ArcGIS Server



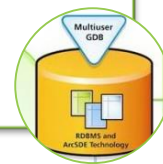
- Multiple Access Points (no software required)
- Always Current
- SQL Server Storage*

Centralized
Data Storage



- Support for Multiple Editors
- Built-In Tools to Increase Data Quality and Collection Efficiency

Enterprise
Geodatabase

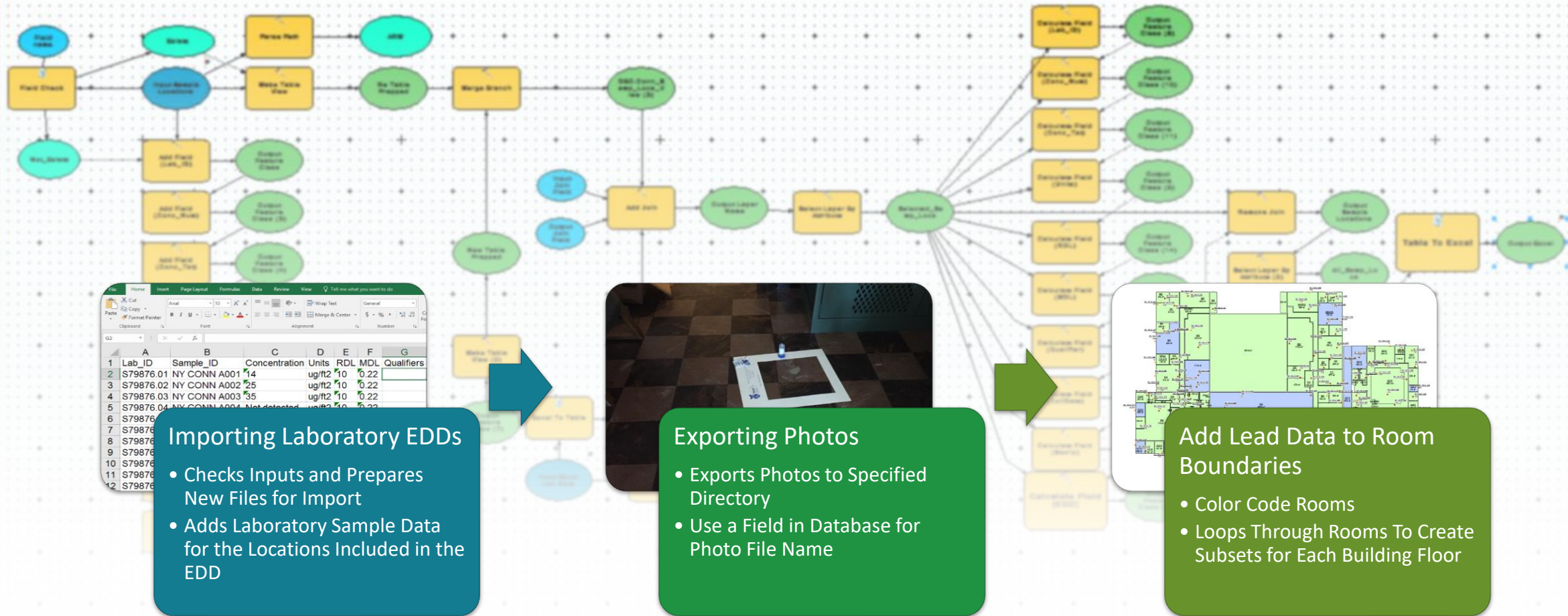


- Capture Photos with mobile device
- Store Images in Database as Attachments

Geodatabase
Attachments



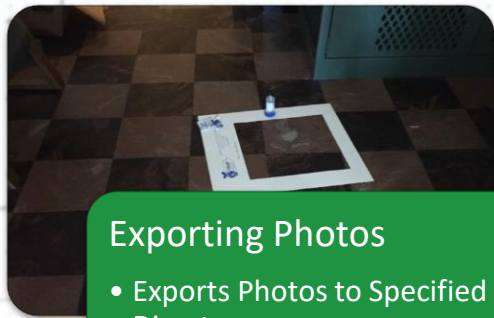
Automating Workflows with Model Builder



Lab_ID	Sample_ID	Concentration	Units	RDL	MDL	Qualifiers
S79876.01	NY CONN A001	14	ug/ft2	10	0.22	
S79876.02	NY CONN A002	25	ug/ft2	10	0.22	
S79876.03	NY CONN A003	35	ug/ft2	10	0.22	
S79876.04	NY CONN A004	Not detected	ug/ft2	10	0.22	
S79876.05						
S79876.06						
S79876.07						
S79876.08						
S79876.09						
S79876.10						
S79876.11						
S79876.12						

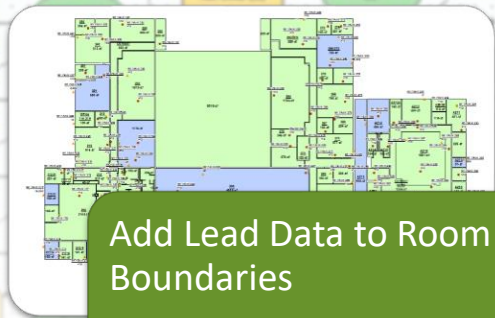
Importing Laboratory EDDs

- Checks Inputs and Prepares New Files for Import
- Adds Laboratory Sample Data for the Locations Included in the EDD



Exporting Photos

- Exports Photos to Specified Directory
- Use a Field in Database for Photo File Name



Add Lead Data to Room Boundaries

- Color Code Rooms
- Loops Through Rooms To Create Subsets for Each Building Floor

EDD
for the locations included in the
• Adds Laboratory Sample Data

Photo File Name
• Use a Field in Database for

Subsets for Each Building Floor
• Loops Through Rooms To Create



Appendix A.1 - Organized by Building Floor

Sample ID	Lead Result (µg/ft ²)	Floor	Surface Type	Room Number	Room Type
10001	39	1	Wall	101	Office
10002	40	1	Floor	101	Office
10003	200	1	Wall	101	Office
10004	39	1	Floor	102	Office
10005	40	1	Wall	102	Office
10006	200	1	Floor	102	Office
10007	39	1	Wall	103	Office
10008	40	1	Floor	103	Office
10009	200	1	Wall	103	Office
10010	39	1	Floor	104	Office
10011	40	1	Wall	104	Office
10012	200	1	Floor	104	Office
10013	39	1	Wall	105	Office
10014	40	1	Floor	105	Office
10015	200	1	Wall	105	Office
10016	39	1	Floor	106	Office
10017	40	1	Wall	106	Office
10018	200	1	Floor	106	Office
10019	39	1	Wall	107	Office
10020	40	1	Floor	107	Office
10021	200	1	Wall	107	Office
10022	39	1	Floor	108	Office
10023	40	1	Wall	108	Office
10024	200	1	Floor	108	Office
10025	39	1	Wall	109	Office
10026	40	1	Floor	109	Office
10027	200	1	Wall	109	Office
10028	39	1	Floor	110	Office
10029	40	1	Wall	110	Office
10030	200	1	Floor	110	Office
10031	39	1	Wall	111	Office
10032	40	1	Floor	111	Office
10033	200	1	Wall	111	Office
10034	39	1	Floor	112	Office
10035	40	1	Wall	112	Office
10036	200	1	Floor	112	Office
10037	39	1	Wall	113	Office
10038	40	1	Floor	113	Office
10039	200	1	Wall	113	Office
10040	39	1	Floor	114	Office
10041	40	1	Wall	114	Office
10042	200	1	Floor	114	Office
10043	39	1	Wall	115	Office
10044	40	1	Floor	115	Office
10045	200	1	Wall	115	Office
10046	39	1	Floor	116	Office
10047	40	1	Wall	116	Office
10048	200	1	Floor	116	Office
10049	39	1	Wall	117	Office
10050	40	1	Floor	117	Office
10051	200	1	Wall	117	Office
10052	39	1	Floor	118	Office
10053	40	1	Wall	118	Office
10054	200	1	Floor	118	Office
10055	39	1	Wall	119	Office
10056	40	1	Floor	119	Office
10057	200	1	Wall	119	Office
10058	39	1	Floor	120	Office
10059	40	1	Wall	120	Office
10060	200	1	Floor	120	Office
10061	39	1	Wall	121	Office
10062	40	1	Floor	121	Office
10063	200	1	Wall	121	Office
10064	39	1	Floor	122	Office
10065	40	1	Wall	122	Office
10066	200	1	Floor	122	Office
10067	39	1	Wall	123	Office
10068	40	1	Floor	123	Office
10069	200	1	Wall	123	Office
10070	39	1	Floor	124	Office
10071	40	1	Wall	124	Office
10072	200	1	Floor	124	Office
10073	39	1	Wall	125	Office
10074	40	1	Floor	125	Office
10075	200	1	Wall	125	Office
10076	39	1	Floor	126	Office
10077	40	1	Wall	126	Office
10078	200	1	Floor	126	Office
10079	39	1	Wall	127	Office
10080	40	1	Floor	127	Office
10081	200	1	Wall	127	Office
10082	39	1	Floor	128	Office
10083	40	1	Wall	128	Office
10084	200	1	Floor	128	Office
10085	39	1	Wall	129	Office
10086	40	1	Floor	129	Office
10087	200	1	Wall	129	Office
10088	39	1	Floor	130	Office
10089	40	1	Wall	130	Office
10090	200	1	Floor	130	Office
10091	39	1	Wall	131	Office
10092	40	1	Floor	131	Office
10093	200	1	Wall	131	Office
10094	39	1	Floor	132	Office
10095	40	1	Wall	132	Office
10096	200	1	Floor	132	Office
10097	39	1	Wall	133	Office
10098	40	1	Floor	133	Office
10099	200	1	Wall	133	Office
10100	39	1	Floor	134	Office
10101	40	1	Wall	134	Office
10102	200	1	Floor	134	Office
10103	39	1	Wall	135	Office
10104	40	1	Floor	135	Office
10105	200	1	Wall	135	Office
10106	39	1	Floor	136	Office
10107	40	1	Wall	136	Office
10108	200	1	Floor	136	Office
10109	39	1	Wall	137	Office
10110	40	1	Floor	137	Office
10111	200	1	Wall	137	Office
10112	39	1	Floor	138	Office
10113	40	1	Wall	138	Office
10114	200	1	Floor	138	Office
10115	39	1	Wall	139	Office
10116	40	1	Floor	139	Office
10117	200	1	Wall	139	Office
10118	39	1	Floor	140	Office
10119	40	1	Wall	140	Office
10120	200	1	Floor	140	Office
10121	39	1	Wall	141	Office
10122	40	1	Floor	141	Office
10123	200	1	Wall	141	Office
10124	39	1	Floor	142	Office
10125	40	1	Wall	142	Office
10126	200	1	Floor	142	Office
10127	39	1	Wall	143	Office
10128	40	1	Floor	143	Office
10129	200	1	Wall	143	Office
10130	39	1	Floor	144	Office
10131	40	1	Wall	144	Office
10132	200	1	Floor	144	Office
10133	39	1	Wall	145	Office
10134	40	1	Floor	145	Office
10135	200	1	Wall	145	Office
10136	39	1	Floor	146	Office
10137	40	1	Wall	146	Office
10138	200	1	Floor	146	Office
10139	39	1	Wall	147	Office
10140	40	1	Floor	147	Office
10141	200	1	Wall	147	Office
10142	39	1	Floor	148	Office
10143	40	1	Wall	148	Office
10144	200	1	Floor	148	Office
10145	39	1	Wall	149	Office
10146	40	1	Floor	149	Office
10147	200	1	Wall	149	Office
10148	39	1	Floor	150	Office
10149	40	1	Wall	150	Office
10150	200	1	Floor	150	Office

Improve Efficiency

- Format Once and Use For All Facilities
- Update With a Click of a Button

Connects to SQL Server

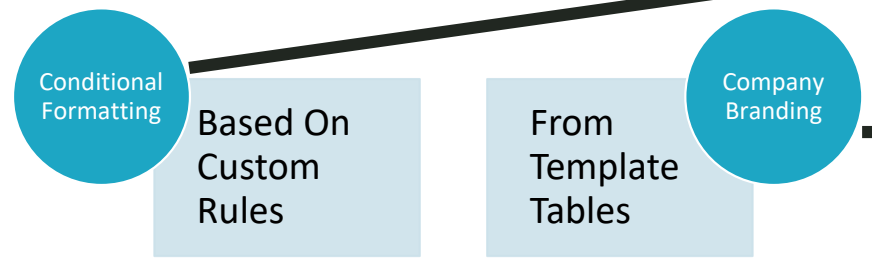
- Edits and Updates Are Made in GIS, Not Access
- Always Current

One Database

- Facility Selector
- Multiple Reports

Analytics Built-In

- Record Counts



ENVIRONMENTAL SAMPLING REPORTS

Select a Facility: LAKE PLACID FACILITY

Open Draft Report

Appendix A (sort by floor) | Appendix A (sort by type)

Export to Excel

Close Form

OBG | THERE'S A WAY

Notes:

Shading

39	Laboratory result less than 40 µg/ft ² (118 samples)
40	Laboratory result is between 40 µg/ft ² and 200 µg/ft ² (58 samples)
200	Laboratory result is 200 µg/ft ² or greater (58 samples)

234 Sample Locations

<10 = Lead not detected above the method detection limit of 10 µg/ft²

µg/ft² = micrograms per square foot

OBG | THERE'S A WAY

10/17/2017 11:23:09

Reports From Microsoft Access





Benefits

Benefits

Cost Savings

Saved Thousands of Dollars due to the efficiencies of digital data

Ability use the data in place to create Report Documents

Meeting Strict Reporting deadlines

24 hour turnaround on draft reports

Aggressive schedule both sampling and recommendations report

Versatility

Relied upon to create recommendations for remediation

Used to produce maps for follow-up risk assessment work





QUESTIONS

