Staying Within a Small Budget to Update GIS Procedures

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What will I be speaking about?

- Who is KLD?
- What do we do?
- Evacuation Basics
- What is the GIS Role in ETE?
- Why is having a workflow important?
- Low cost updates to workflows

KLD Engineering, P.C.

Over 40 years of experience solving complex transportation problems locally, across the US, and overseas

Headquartered in Hauppauge, Long Island with 13 Offices Nationwide

Nearly 30 years of experience in the development of emergency plans in response to natural and technological hazards

KLD Emergency Planning projects nationwide and abroad.

What is an ETE?

Evacuation Basics

Objectives of Evacuation Planning

1. Move people from an area that contains a hazard to their health and safety.
2. Move people in such a manner to minimize their potential risk.
3. Move people toward facilities that can provide care and shelter.

What is an Evacuation Trip?

- An evacuation trip generally begins at home and ends at some destination (Reception Center, Hotel, Relative's Home) outside of the area being evacuated

ETE Defined

- An ETE is an estimate of the total time required to evacuate an area at risk.
- An ETE is the elapsed time after the advisory to evacuate when the last vehicle leaves the area at risk.
- An ETE is an aggregate measure and does not reflect the experience of an individual evacuee.
- There is no acceptable value for an ETE. An ETE cannot be too short or too long.

ETE Misconception

- An Evacuation Time Estimate (ETE) of seven hours <u>does not</u> mean that individual evacuation trips will take seven hours.
- It means that the last vehicle to leave the area will cross the boundary of the area being evacuated seven hours after the advisory to evacuate.

What is the GIS Role in ETE?

Data Collection

- Emergency Plan information, i.e. reception centers
- Each project required digitizing Emergency Planning Zones (EPZ) and Subareas
- Extensive collection of all Special Facilities within 10 mile radius
- Evacuation Route creation

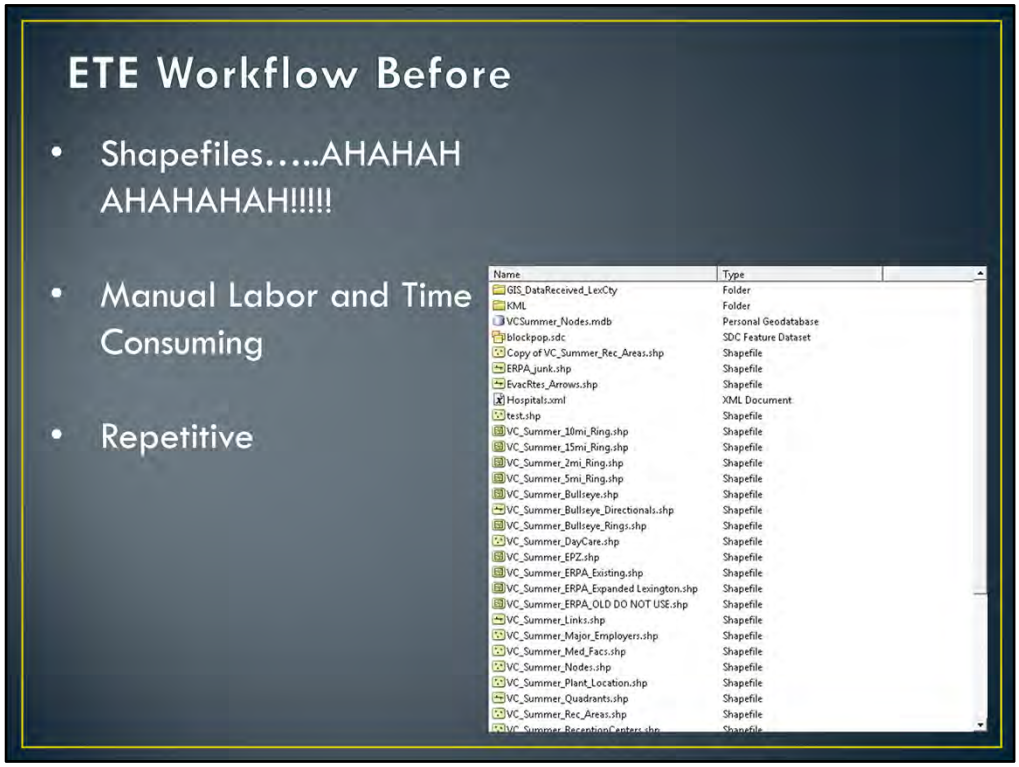
Map Production

- Created between 150-400 maps per plant
- Improved efficiency through Data Driven Pages when possible

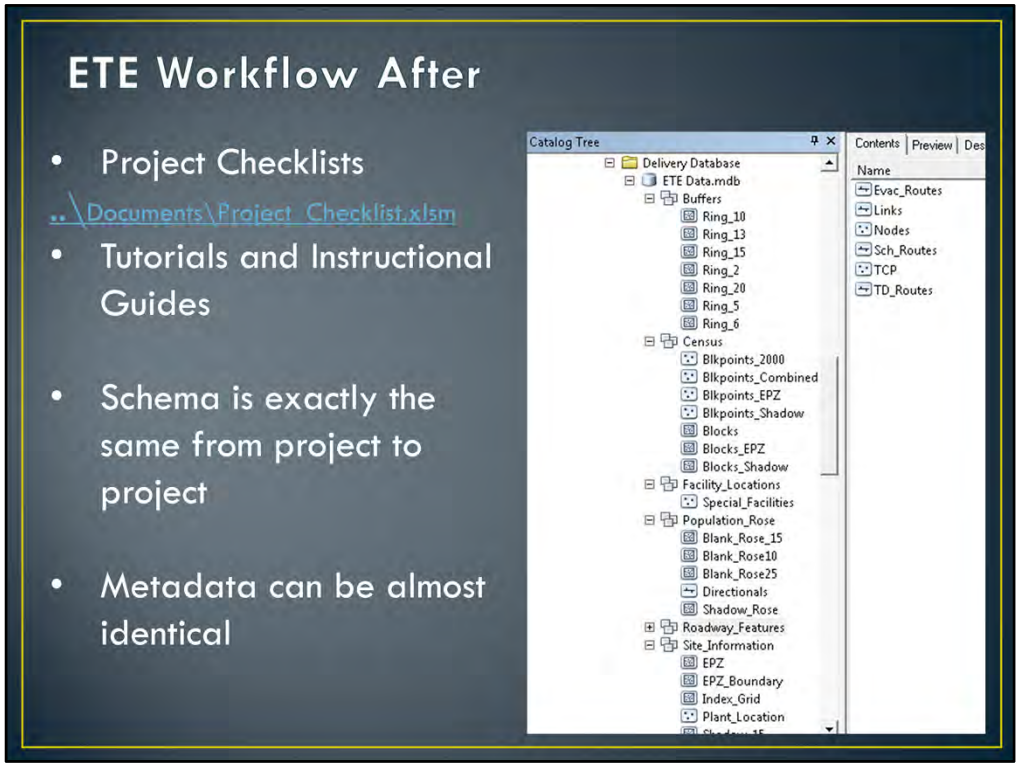
Why is Workflow important?

- Set of processes that need to happen to reach a certain goal
- Maintains a control aspect of the information shared
- Accomplish more as a team
- Our Goal to accomplish 49 updates in less than two years

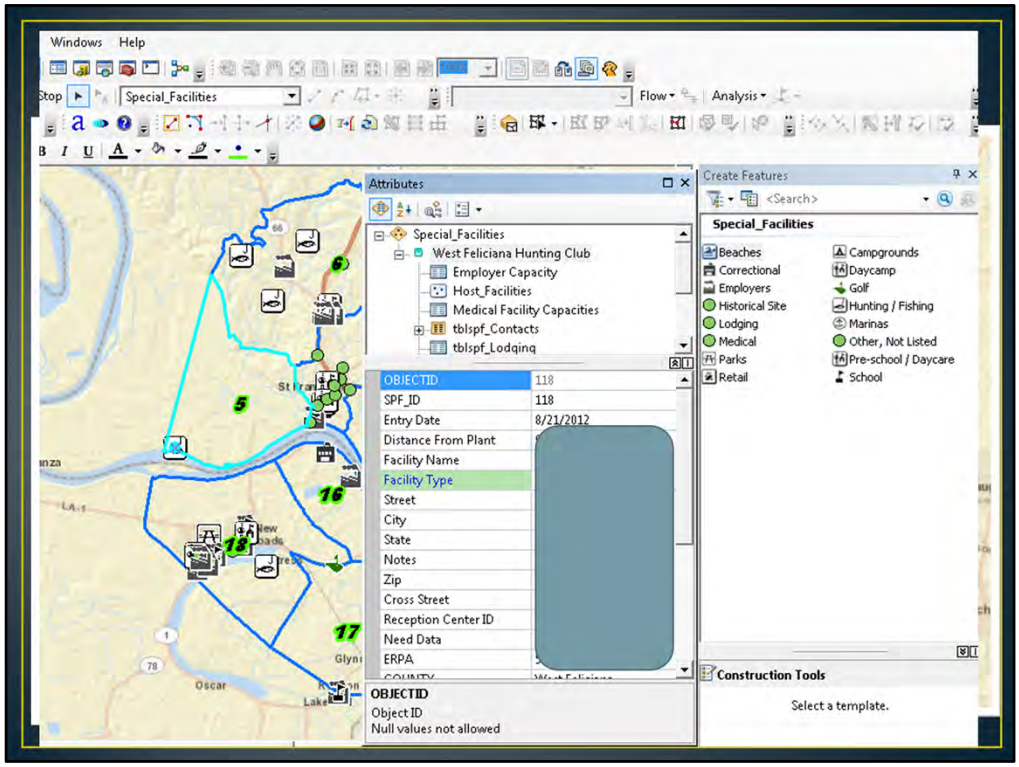
Low Cost Updates to Workflows



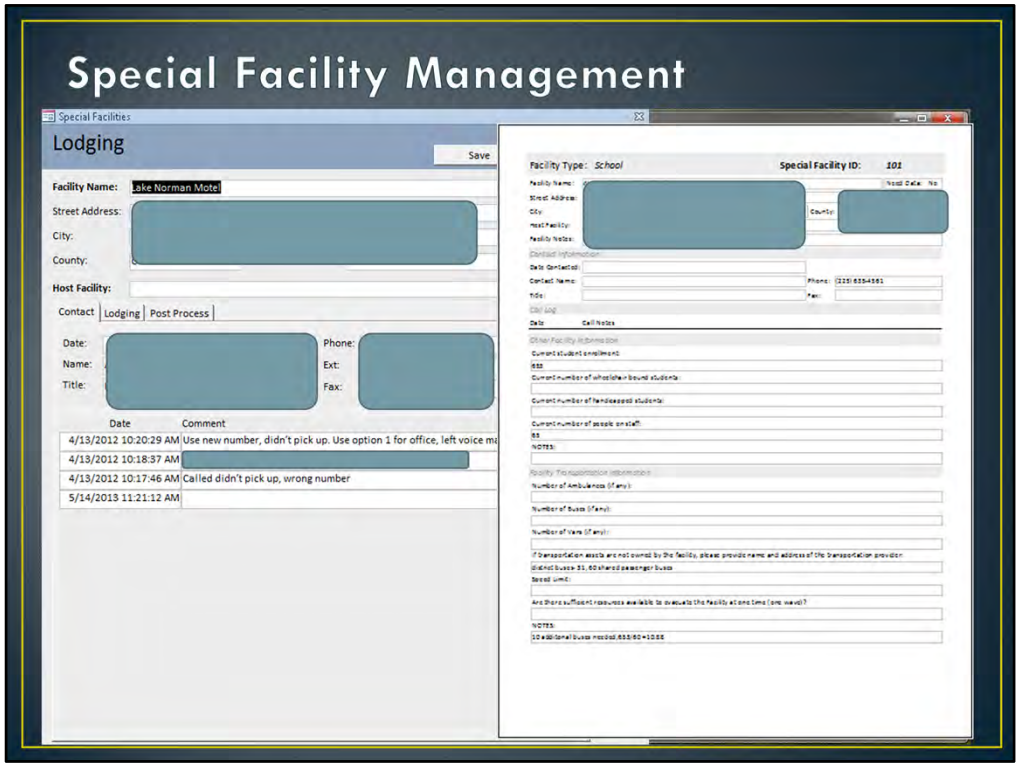
Many shapefiles included fields that were inconsistently named throughout a project folder. Each shapefile was named with the plant in the title making reusing mxd's time consuming. Instead of using a feature classes and subtypes many shapefiles were created to house one type of data.



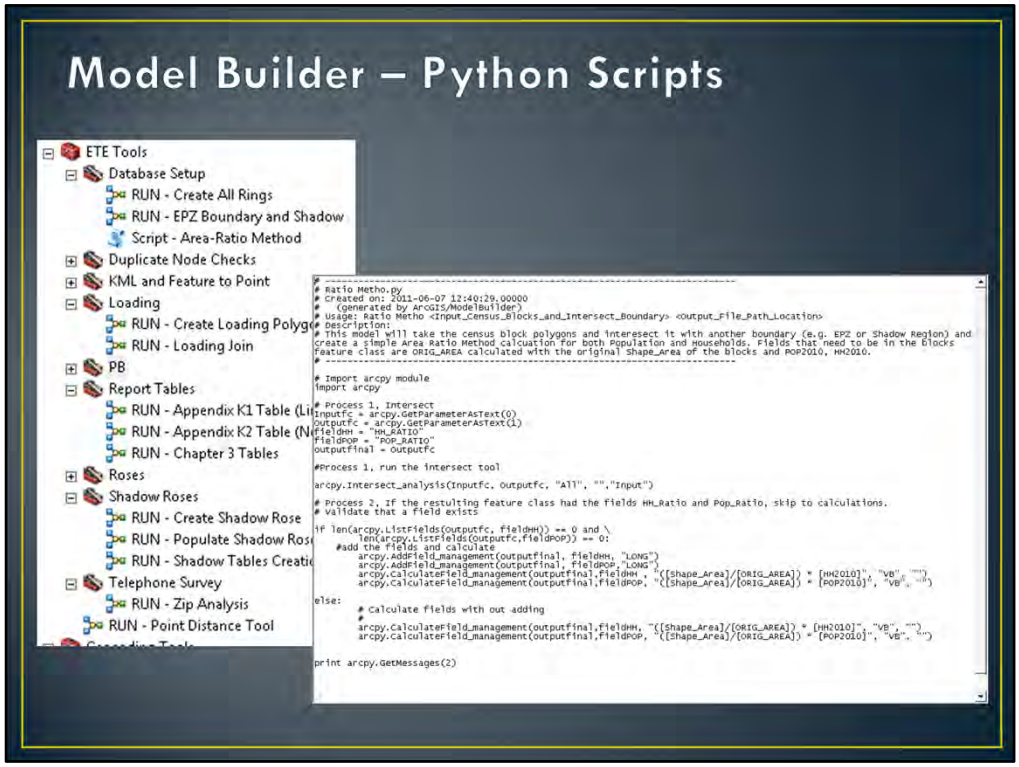
To update the process, a standard schema was created and housed in a personal geodatabase. Each projected started by using the same exact database and new features were created with the updated schema. Subtypes and domains were used to improve data entry, feature datasets were used for organization and several features required topology checks. The metadata between the delivery databases was able to be reused and just modified with the Utility and County/State information.



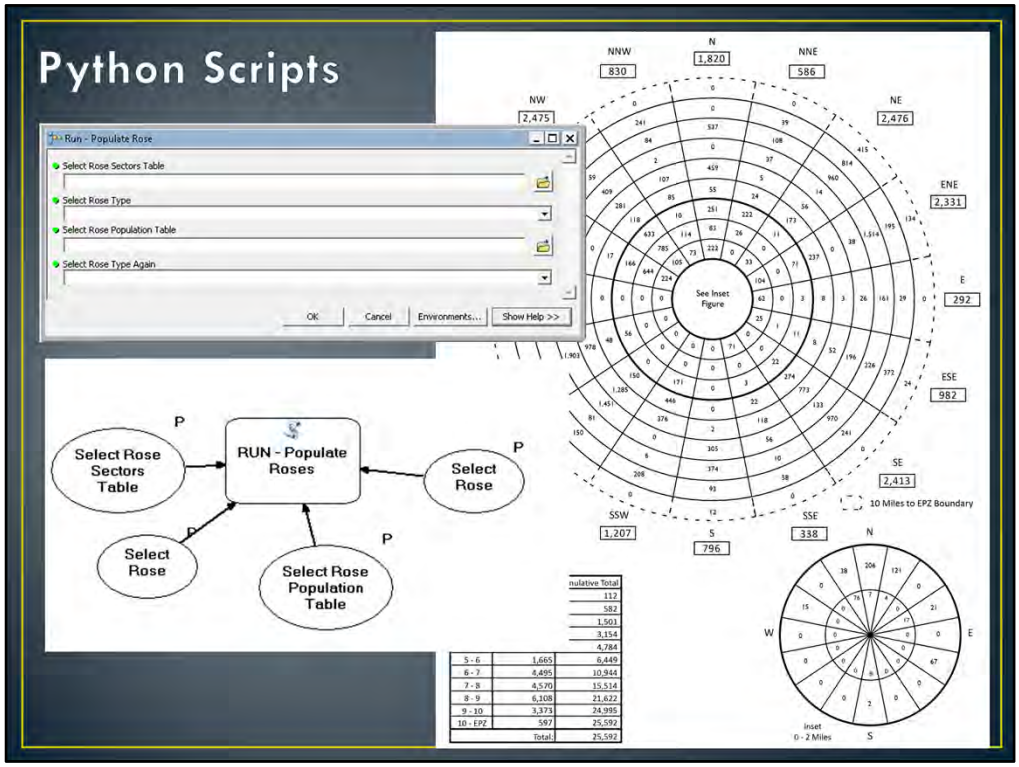
Relationship classes between the special facility database allowed for tables to store different types of data and that table to be used across multiple facility types. There was too much data to store in one table, it would have made it difficult to update and read inside of ArcGIS. Standard symbology layers were applied to each type. In general each plant had 10-15 types of special facilities that would attract transients into the EPZ and each type included several pieces of information that had to be stored.



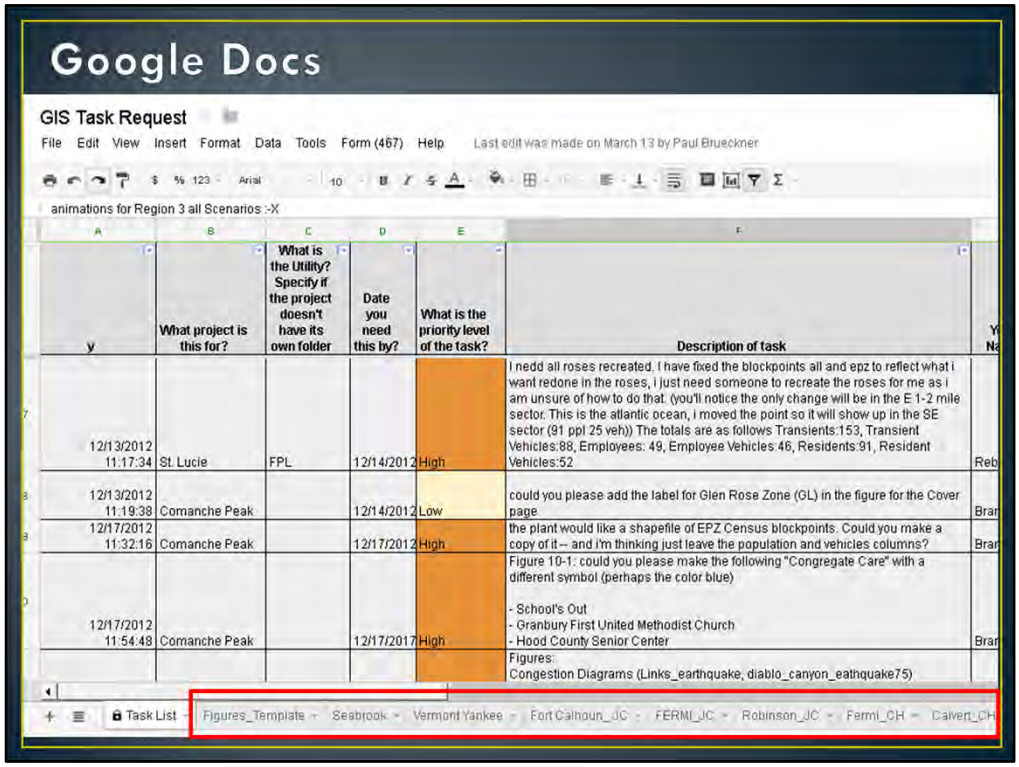
An access front end was created for those without an ArcGIS license. The user interface allowed for entry of data of each facility by untrained personnel such as temporary employees. A call log tracked each phone call made and who the person giving the information. A pdf generator was also used to store an additional paper copy for backup. Before the process was manual by printing off excel designed data collection sheets to be filled out.



Models were designed and developed to accomplish tasks that needed to be done for each of the 49 plants. Python scripts were used and also attached to models. This sped up the creation of data and standardized procedures. IN addition, as a part of the final reports, tables needed to be generated using the spatil data. These were also created through model builder.



A customized python script behind model builder was used to populated a “rose” of population numbers. Using standard or advanced labeling made the diagrams illegible. The table on the lower left was also updated through the script. What used to be a manual process using three different pieces of software, is now down to one.



y	What project is this for?	What is the Utility? Specify if the project doesn't have its own folder	Date you need this by?	What is the priority level of the task?	Description of task	Y Na
12/13/2012 11:17:34	St. Lucie	FPL	12/14/2012	High	I nedd all roses recreated. I have fixed the blockpoints all and epz to reflect what i want redone in the roses, i just need someone to recreate the roses for me as i am unsure of how to do that. (you'll notice the only change will be in the E 1-2 mile sector. This is the atlantic ocean, i moved the point so it will show up in the SE sector (91 ppl 25 veh)) The totals are as follows Transients:153, Transient Vehicles:88, Employees: 49, Employee Vehicles:46, Residents:91, Resident Vehicles:52	Reb
12/13/2012 11:19:38	Comanche Peak		12/14/2012	Low	could you please add the label for Glen Rose Zone (GL) in the figure for the Cover page	Bran
12/17/2012 11:32:16	Comanche Peak		12/17/2012	High	the plant would like a shapefile of EPZ Census blockpoints. Could you make a copy of it -- and i'm thinking just leave the population and vehicles columns?	Bran
12/17/2012 11:54:48	Comanche Peak		12/17/2017	High	Figure 10-1: could you please make the following "Congregate Care" with a different symbol (perhaps the color blue) - School's Out - Granbury First United Methodist Church - Hood County Senior Center	Bran
					Figures: Congestion Diagrams (Links_earthquake, diablo_canyon_eathquake75)	

To stay organized using a free google docs spreadsheet with a user interface front end, it kept what each analyst needed to complete their reports organized. Using the tabs like a spread sheet allowed multiple users to access and update at the same time. Assigning tasks between technicians was improved and organized. Custom code was used to generate an email to each user when a request was made.

Conclusion

- Don't need a lot of money to implement big changes
- Take the time to invest in your workflow, it can pay off in the long run
- Learn new skills that can help automate workflows

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