

**Session 7.08 – How to Utilize Geographic Information System (GIS) To Improve the Practices of Child Welfare Operations, Practices, and Analytical Research**

**Panelists:**

Richard Foltz  
George Gabel  
Fred North  
Terry Skaggs

*Please note: The following is a direct transcription and has not been edited.*

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George Gabel: Thanks for joining us. I'm George Gabel, I'm a member of the management team for the NRC for Child Welfare Data and Technology, I'm also a Senior Study Director at Westat. This session is put together and supported by the NRC because we've started to do some work around GIS, found GIS to be just a wonderful use of Child Welfare data. And of course what we're learning is it's a wonderful way to improve the quality of Child Welfare data, because it relies so heavily on good clean data.

So, I'm real happy to have our presenters joining us here today from three states. I wanted to thank Linda Arnold, who I think will be joining us in a little bit who's the Director of the NRC for supporting this session. I'm going to be real quick as your moderator, because our three speakers have an awful lot to say. So, I'm going to quickly introduce them and then just do a little bit of an overview.

Our first speaker will be Terry Skaggs, who's worked at the Louisiana Department of Children and Family for over 35 years. I think you said 36, right?

Terry Skaggs: Yes.

George Gabel: And I apparently it's his last year, is that correct? Okay. As an IT Director, Mr. Skaggs has been engaged in the development and delivery of information systems primarily targeted to Child Welfare. He also has guided Louisiana's transformation efforts to move further web based single enterprise framework. And then after him, Richard Foltz will follow.

Richard Foltz initiated use of GIS at the Illinois Department of Children and Family Services in 1997, right, as part of the Department's performance contracting initiative to reduce case loads.

Fred North, will be the last speaker, he's a Social Work Supervisor with the Connecticut Department of Children and Families, actually your title has changed, it's not, is that correct?

Fred North: That's correct.

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George Gabel: Children and Family Research Evaluation. We did serve DCS for the last 10 years in a variety of quality improvement roles and for seven years before, it's Child Protection social worker. And he's been leading the agency in the use of GIS Software.

I also wanted to acknowledge Kathryn Kulbicki, from our Westat GIS Unit who has helped put the session together and has been working with us at the NRC around GIS issues. And we'll try to keep up.

So, what we're going to cover today is my brief overview. And then, the three gentlemen are going to talk about their state's involvement with GIS. We then will continue with a discussion in questions and answers. We do have some topics for discussions. However if there are more questions, we'll be happy to just stay with your questions. We figure about 20 minutes for each of their presentation and that should leave about 20 minutes for discussion.

So, let me just state the obvious first, around the Child Welfare is about geography. Obviously, your case workers know it. It's just so important when you're looking at whether your community services are in the right places, are the agencies located where the families are. Are your offices located in the right places where the families are. Obviously, your workers are quite concerned about travel when it comes to geography, when they go out for the day.

In terms of finding your resource parents, your foster parents, your adoptive parents, where they live is obviously very important. Relationships of where the foster parents in relations to the Children's home of removal, obviously very important in making those decisions. And similarly, when you unfortunately have to play siblings and place them apart, obviously the proximity of those homes is just real important. And again, that's just a partial list. So, just to acknowledge how important geography is.

What is GIS? I'm just going to do a real, just to make sure everyone is on the same page. Well, let me ask, how many of you have done some work with GIS? Good, so, little more than half. So, we're in good shape. Just, you could read the definition, just point out a couple of things. Obviously, we're talking about hardware software and data. Also, I wanted to point out the sort of the last phrase, the geographically referenced information. We're talking here about addresses.

So, I mentioned at the very beginning about data quality for those of you that have worked with your state's address data, you know, often that's not in the best of shape. If especially if you've been working with families that are moving or complete addresses of reports, etcetera, etcetera. So, the address is just one of the challenges of getting into GIS. But all three presenters I believe we'll touch on it relating to the challenges but also the resources around it.

When you get to talking about GIS, you're talking about layers of data. So, this again is another of the challenges, it's once you decide with the kinds of data, that you'll need, you're going to have to try to get it. And whether it's within your own agency or whether

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its elsewhere, these are the typical ones that are used with maps that you look at or whether some of the Google information. So, again, we will be getting into the challenges of adding layers, what layers are important and how you access them.

We just sort of and talking with our three presenters, got a sense of how – what kind of layers they use in terms of types of information that's captured. And again, they will talk about it from children services, locations of schools, locations of foster homes, information about police districts, census information and location of transportation. All things are very important when you're considering travel and location and how far it is to get somewhere or how far apart things are.

In terms of what our speakers are going to talk about, just to give you a little sense of when they started with GIS, and the types of things that we're using it with. Obviously the emergency planning, I think some of them are going to touch on even this, how they used it this past week and some of the planning around the weather.

So, with that I'm going to turn it over to our first speaker, Terry Skaggs, and again, we're going to let each speaker go for about 20 minutes. I'm going to give them little reminders. And I think we agreed that we'll take questions at the end, unless you have some clarifying questions, feel free to raise your hand during the session.

Terry Skaggs: Thanks George and I want to thank the Children's Bureau and the Summit Staff for inviting us, allowing us to come and share with you what we've learned, what we've done, what we know. I see that Irene, I evidently cut back on the number of the folks that would come and the content that you've been able to be exposed to. I did remark, there was eight or nine concurrent sessions, thank you for choosing us over so many other appealing subjects actually. And that was hard. I think you will come away benefiting from coming here. And I'm sure you've benefited from some of the other sessions early in the way.

In Louisiana, we seriously, you know, took to heart that phrase, a picture is worth a thousand words. And geographical information systems are something that's very visual, very picture oriented. And so, when it was determined that we were going to get into it, we invested significant resources, we have four full time programming type staff involved in supporting at a central state of Louisiana level that the GIS component of our staff.

We originally were told we had ten minutes, but 20 minutes is good because I don't have to rush through some of the things that I was just going to touch on.

George Gabel: Well even it up and make it 15.

Terry Skaggs: All right. So, I'm going to provide with the quickest portal.

George Gabel: I'm sorry.

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Terry Skaggs: Timeline, what our issues and what are solutions in that being to those issues. Going on, I'll talk about the programmatic and the technical characteristics of the GIS system. And I'll wrap it all up with telling you the benefits and the results of having the GIS system. So, quite simply, I'm, you know, going to describe what we did in Louisiana. And I think you'll find after seeing some of this and the other state's presentations, you would be compelled to go back to your locality and either get started or enhance your GIS offerings, because it does benefit the children and families because our workers are able to make better decisions and our managers and researchers for that matter.

So, what's the history? We began back in 2001 with GIS and Louisiana. And the Department of Children and Family Services consist of more than just challenge here consists of a lot of the economics, stability and sufficiency types of programs, TANF, food-stamps or snap. We also have in our Department Child Support enforcement.

And that it was a department level effort, we tend and I think appropriately try to commingle our funds as much as possible and take advantage in approaching things and share in enterprise kind of way, instead of each individual entity attempting to reconstruct complete things for themselves and having to also therefore independently budget for each of those things.

So, we're going to share the environment and we can actually accomplish a lot more. So, 2001 we started using TANF money that was pretty good, you know, 100% federal funds to start off with things is a good way to go. In 2003, we got involved with the food-stamps. And by 2005, Hurricane Katrina did as you are well aware, a big number in Louisiana. And we determined and discovered that through the GIS mapping, we saw a lot of patterns and trends and shifting populations and I'll get little bit more into that. But it was really Katrina that awakened us as to getting even more into the GIS mapping.

By 2007, the programming had been able to be finished to allow our Child Welfare staff to get out there and have the visual clues that they needed to understand where our children and families were and where they were. And equally important, where our resources were or service providers, where they were and where they weren't.

So, in 2007, several years ago is when we introduced GIS and a big way to all of our build staffs so they that they can while out in the field and take care of business. That was recognized as something that was good, important. But 2008, the APHSA IT side of Human Services gave us an award. So, we were very proud of the fact that it was recognized and it was good.

All right, I thought I'd share with you what were some of the problems that our field staff alluded to. And I guess, besides the traditional things, we would like to be paid more. And we'd like to have less paperwork to have to deal with. And in Louisiana, we've been going through a lot of organizational changes with the third thing that they would tend to talk about was stability in the organization. None of those things have anything to

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do with. The reported problems that we were looking for that field worker, the wanted to find a foster home or a service provider in a timely manner.

They were sick and tired of manually having to keep up paper list and go into others to keep those, list up daily, that was very, very necessary. They also recognized that they were unfortunately placing children and probably the first place that they could find is a place to the best and most appropriate, closest place they could find to the family if that was the plan to continue to have the family very involved, reunification efforts.

So, they described it, they had trouble keeping families close together. Transportation to the resources was another area that they had described they were always having to arrange transportation. And the further away something was, the more difficult it turned out to be. So, the opportunity to visually be able to see some of the stuff on a map, really was going to help them.

And lastly the school change's issue, education, stability in that area, for a lot of our foster children, it was important if they weren't having school issues, to keep them in the same school setting because they had developed for themselves a network of friends at school that they didn't want to, we're disrupting their life greatly as you're aware. But if you can be less disruptive, keeping them closer to home and keeping them in the same school, the outcomes would probably be better.

So, what did they request, about describing all these problems that they have? It turns out they wanted something that was web accessible so that they could get to a – not just in the office but while out in the field or at home. Something that was geographically referenced, in other words they wanted an online map like Google or Map-Quest where our clients were and where the resources were.

So, that was the solution, the challenge that was given to our IT department to come with something that was visually oriented, that showed them where their clients were and weren't, where their parents were and weren't and the resources.

So, Louisiana is, I guess, this is the programmatic side of things. We have about 1,800 Child Welfare staff that are out in the field, that number does include their supervisors and support staff. It doesn't include the state office, central headquarters type staff.

18,000 Child Welfare clients, foster children, adopted children and their parents have all been loaded into our GIS system. We talked about 5,000 Child Welfare related providers, adopted parents included and Child Care Centers and Groupings and therapy type resources. In addition to loading that type of data into our GIS system in a customer, we also bought and threw in a lot of just commercial off the shelf layers that that could help them find not only the resources that were only used in Child Welfare but other types of resources.

And it's important in any GIS system for people to have visual clues as to where landmarks are and the kinds of I guess, you can take of these resources when we talk

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about hospitals and courts, a lot of things go on in courts and unfortunately maybe too many things go on and hospitals and settings of that nature.

We felt it was necessary to synchronize that Child Welfare information that is coming from our Legacy Systems and other places too for that matter. So, on a daily basis, things do get updated to make it be helpful. If it was way out of date, you know, people began to not trust it or it doesn't seem to be helpful because they're looking at a place, oh, they went out of business. Two months ago and you have an updated thing.

So, I'd mention, it takes four full-time staff or that's what we believed the types of resources that you need to commit in order to properly do it. You can do it with less but, you know, you're roll-out of functionality would decrease the fewer staff that you're involved in such a thing.

So, what percent of the technical characteristics, because I mentioned Louisiana is and our Department of Children and Family Service, it operates as one department not as four individual programmatic departments or offices. We took advantage of an enterprise unlimited licensing for our web focus which is our data warehouse. And we see that warehouse with information from all of our Legacy Systems, not just the Child Welfare Legacy System, the food staff system, which we call LINI, a Child Support System, Laces, there are a number of other Legacy types of systems that could information loaded into it.

And web focus as a product from information builders, the bullet points up there, an integrated developed environment that allows fairly easy and self service reporting that can create charts if you need that. Now, to get the actual data as points and layers, you have to go outside of web focus, you have to buy other traditional commercial off the shelf type products that are listed in. And we went, I guess, full hog, we would try to buy universal unlimited everybody can get to types of licenses with our products. We didn't want to be constraint with having just, say four folks and stayed off and so all that can have access to these things.

So, I admit it. It was 20, right? Okay. So, anyway, there are number of resources therefore we go to get points. So, next I thought I would share with you what some of the views look like. And maybe we can start off with, you know, the United States view and obviously the Louisiana is there in all green, it's cluttered it's heavy. But you may find, we have some of our children and families in your states too. And not all of that was due to Hurricane Katrina, moving and displacing our clients. Even before Katrina, we had a, you know, inter-state contact. We have children and families all over the country.

You and zoom like Google Maps, I'm sure you're familiar with, how you can zoom and pan and do things. The Louisiana map on the right is an example of most of the time that's what our first thing that our workers will see is a map of Louisiana, not the United States. And then they can use various strategies to zoom in and particular areas of Louisiana or they can use some filter queries that I'll talk about in four minutes and to get your part on that one.

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The one on the far left would be an example of a map that is generated of New Orleans metro area. And the one in the center, sort of covered by each is, that's more of a street level view that shows I think, in this example, we'll not be able to see it shows our court in New Orleans and some of the parents near there.

I'd mentioned you can do queries this was an example of the screen that our programmers built to allow the workers to enter in various filtering types of information. And this example I just chose, looking for Day Care Centers and a particular zip code, my zip codes what I used that served children's zero to 12. And when you enter in that kind of criteria, as you can see there is all kinds of cartage, you could enter into include or exclude what you want to see on a list and down the map.

So, after you fill that out, it will first populate a list of client information, the list that you happen to see on your handouts or on the board is confined a lot, there is, other identifying information that's typically shown out for this context, a limit of the united information. And then, you click a button and olla, those things are on that list can appear on a map which is there on the bottom right. And you can click one on of those pinpoints another example would be, you know, more characteristics about the Daycare Center that you're seeking, if you're interested in that particular Daycare Center.

So, this is the way a lot of our workers choose to get particular types of resources or to limit the kinds of clients that they want to seek. Yeah, you can choose clients or providers you can search on a number of things. So, and this example, another example of viewing a report, it's attempting to show pink and green shows up but you probably can't tell the difference between pink and green from there because I can't from here.

The pink dots on this, was where our children were from where they were taken. And the green was where they went to in foster care. And sort of an interesting thing this map was displaying was our foster children weren't really being placed close to their biological homes and maybe and characteristically a large number of them were being placed in residential facilities that were in the center of town, which may explain why there weren't as many foster homes showing up on this map. And the other reason is that foster homes that a lot of these children are, are so far geographically away from this spot they're going to show up on the map here.

So, what are some of our benefits and results, well, frontline staff, right. They wanted that visual ability to see where the things were and not to just see charts and listings of things. So, that was a big thing and helping them locate resources, it actually is easier to and you visually see where our resource is especially foster home resource, where to place and to just get a laundry list of here is names and addresses and zip codes of where the resources are, seeing it on the map does make a difference.

Our home development recruiters, they were able to use GIS to see where those holes were. Where there weren't foster homes or other types of providers. You know, you use garments, Magellan's ties, it helps you in mapping out the most efficient rout in order to

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see your clients and work with your providers and having to go to schools and stuff. So, that was a biggie and the way that it helps. And when hurricanes come, I'll get more in answering part I'm sure, but how you can use the mapping to see where things are and where they're going.

So, one of our last benefits and results, you can really locate not only foster homes, Child care centers and medical facilities but a number of other resources that you'll need when trying to care for a child. A biggie keeping them close to the school or in the same school district, the ability for a system to have at helping for them, workers do want to do things, not just accept right out of the box, they can't, they want to be able to manipulate the data and see it. So, we've got over a million clients. Because when you include food-stamps and child support and all of that, it goes up big time. And all of that is in there, and used.

So, I guess, in summary, if you want to know more, you can contact me through this information. And we'll be taking questions after the rest of the state.

George Gabel: I guess, I'll push you back. How many people have any sort of certification in GIS, let's see a show of hands.

Terry Skaggs: I can even raise my hand.

Richard Foltz: That's where I am too. *[Overlapping Conversation] [00:26:26]*. So the reason I'm bringing this up, I don't want you to think that GIS is, you know, I might be a little geeky but GIS is not just for geeks and nerds, it is accessible, this stuff is accessible, this stuff is accessible. And I also want to point out that, Terry's example, his implementation process is an excellent implementation process, sometimes we can't get the best use, use the best approach and we just have to approach things the best way we can.

I'm self taught, back in 1996, I called my brother who has worked with GDT in Vermont, provide the jet coding and map software and stuff like that. And I said, we got this problem here in Illinois, how would I do this and he says, well, that's a problem that Pizza Hut's been dealing with since the 1980s, you know, how do you find the closest resource for somebody calling in, the closest restaurant for somebody calling in and order for Pizza.

So, this stuff has been out there for a while. It can be learnt. So I just want to encourage everybody. So, let's see, what's the best thing it has? The only thing I'm not going through the detail in this, but what I want you to take away from this is some trends. As we go through, you'll see increasing levels of services, skills, datasets and capabilities. So, GIS, once you get it started in an organization's dynamic, you want to end up in a different place, your at where you have it than you were when you first started it. So, think of it as a learning tool. You don't have to be perfect, you learn as you go.

From my example here, it's, sample of a – not a sampling but a sampler of activities. Half of your major activities if your experience is like mine, is inter-agency projects,

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inter-agency communication. How my points look in your geographies, how many kids do I have in your school district so if I want to motivate a school district administrator to work more closely with DCFS.

Your points, in my geographies maybe public health and DCFS within DCFS regions, how close are your points which serves in clients and/or clients are to my points which are services and clients. You know, these are big issues and that's about half of what our activity is. The other thing, on the right hand side, the platform what I see from that is the bulk of what's there is off the shelf software, free datasets that are available to public agencies and a minimal use of consultants. Again, you learn as you go, and as you learn, then you can make more effective use of consultants. So, the only thing I can say is, you know, don't be shy, you can jump in.

Now, one thing - one thing about the Lands database, now, what the Lands database does, lands are local area networks in Illinois and they sort of match up the department of mental health, development of disability boundaries. So, there are 62 geographies in the part of Illinois. So, what the lands database was, where I take I forget the term but strategic systems. And I added a latitude and longitude to child, family, provider and investigation records and I also added a census block to those.

And with this latitudes and longitudes and census blocks, I can then do things like allow non GIS professionals you know somebody that IT or maybe somebody that has some reporting skills and some other division or agency to go ahead and do straight line distance calculations. To go ahead and answer these questions like how many words do we have in a legislative district very helpful when the budgeting period comes up. It's nice to be the state agency that can tell the legislature where your clients are, and how much money you are spending under a district. How many kids are in library districts, how many kids are you know so we can work with the librarians to get maybe some extra services out of the library? And as I said before it allows non-GIS staff to do GIS type of functions.

Okay, I'm going to start comment about the next slide which you can't see, now you can. I'm not going to through in detail on this just the basic trends this slide is going to be available to you on the web. So when you look to this and do add up the people what we are doing here in Illinois, not here there in Illinois. What we are doing is with less than two full time GIS people and only one of them is has any credentials, we're jet coding 1,500 to 2,500 addresses a week that's the investigations, kids, families and providers.

We are maintaining two GIS server applications which are proving to be very stable. The only time I had a problem with the school minder GIS application when power went out in Springfield so anybody had a problem there. And what we are doing is providing maps and high level analysis so just with less than two full time GIS FTE's full time equivalents. And what we are doing is we are helping the field find resources for clients, we are identifying precise areas needing resources and we are freeing again free IT Staff and others who do GIS.

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And once you get certain even in Legacy Systems as the board is searching for earlier even in Legacy Systems if you just add a few components you can begin to leverage your data to do things that you couldn't do prior. The right hand column just once, just reinforce that something I said earlier as a public agency in Illinois I have access some pretty high quality free data from IDOT, I get the streets, a full list of streets for all the Western States so I'm jet coding on a customized data set.

*[Overlapping conversation] [00:33:07]*

Richard Foltz: Hello, over here. Through IDOT, Illinois Department of Transportation I'm getting a street files of municipal boundaries etcetera for all the Mid Western States, free for me. And I go ahead and I'm able to use developed and against not at hard once you dialed into it, I developed my own customized address locator so I can get better matches there than I can through commercial products.

Illinois Department of Revenue I'm getting taxing district boundaries you know school, libraries anything that we collect money I can go ahead and count our kids and other things within those districts. State board of Education school addresses in population description of the kids attending those schools. Bureau of Census you know about that and city of Chicago schools Catchment areas and automatic complicit districts. So, you at your own and you all know operations if you are government organization, you too have lots of free sources of data, you just have the network to find it.

Okay, this is just to, give you a sense we're a state agency, state based Child Welfare agency. So just some numbers of there's lot as you can imagine lots of transition going in and out of services cases closing, cases opening even within a year you know all about than more than I do. We have some 30,000 almost 32,000 children that were subsidizing placements, we wanted to report on that occasionally too, like again issue of how much money we are spending on certain areas and things like that. 13,000 families, 29,000 licenses and that include institution and groups.

Now on the performance contracting thing you can't do this without GIS we go ahead and compete both DCFS our own caseworkers and teams compete against private agencies, the 44 private agencies and there caseworkers and teams and based upon how well we do and things like our premises, unifications, instabilities and things like that you get a better cut of next years intake which boosts your, your financial profile.

So it's a do well performance contract and you get some bennies on the end. Well, I've to take those 44 private agencies so they can compete and dice them up their components up into our sub regions and regions. So imagine trying to take potentially 440 sub entities and do all the comparison without GIS, so it's a really powerful tool.

This is a slide which allows me to go out in public, this is slide comparing of the creasing distance to improve educational reunification outcomes, this is school minder, school minder is a GIS application on a server, we implemented in 2006 and before and after you look at the bottom line that's a cook county 9.9 to 2.5, so on the left hand side are the

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distance from the home of removal to the foster care replacement okay, so in cook county have the urbanized city, urbanized county even from 9.9 miles down to 2.5 miles okay.

Now keep in mind this is, this isn't the best of GIS can do because we are going to performance contracting also. So basically what it reflects is going from a state wide, going from a 33 geography set up 26 prior to school minder we are looking at, 26 lands in cook county and the 7 sub regions down state 32 geographies and with school minder with a now with instead of using the main frame for GIS operation we are using a server, a GIS server software we are now able to do the same thing with 1206 geographies which are the 790 elementary school districts in the state outside city of Chicago, and the 416 individual school Catchment areas in Chicago.

So that is what that reflexes with GIS tools and we are getting the GIS tools the further more you gain the benefits. Like I said this isn't pure GIS we are still not choosing the closest clinical home because we are making our calls to what agency based performance contracting standards, but we are really tightening up the geographies on which we are making those decision.

But look at other things if that's an example of what GIS can do think of other things Terry mentioned earlier, sighting offices. I dealt with a call from an agency wondering, if they, between two different locations what would the benefit would be, few miles of partners city in Chicago, two different locations and if they switch to the other location, I forget it this point how much money they are saving in travel cost, but it would well roughly equivalent about \$45,000, they would be able to hire another employee, right.

So not only are they existing staff made more effective, but they might write about not getting the travel reinvestment, not only their existing staff made more effective, but at the same time they get a chance to hire another person. So you know you can multiply this sort of little GIS type things throughout your organization, and you find that you have more resources, maybe something else arming investigators and give them the right tool to pull up all, pull up all services within 5-minute, 10-minute drive of the family their investigating, maybe they don't need to certain services around the community, maybe with diverse of intake. We wouldn't, child wouldn't have to go through the trauma of being removed from the home. So that's you know something to think about. I don't believe you.

Terry Skaggs: Okay.

Richard Foltz: We are going to spend through this, this is a, this is school minder and just I wanted to show you how simple it is. Left hand side left hand screen which does describe the kid sibling group, how many kids in it, ages is little check boxes or ages. So we are going to say it's a one we are going to remove one kid from the home, they are infants in high need areas, where we get most of the intake that is usually infants. And then we are going to go ahead and say it's a male and then we are going to say we will place this kid within the school district that elder sibling is who lives outside the city of Chicago that's a, we are saying school based placements.

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And the investigator calling in says the school is Padic well the clerical is using this system doesn't know a thing about Padic so she just types in PAD and on the right panel are the, all the schools in Illinois that come back with PAD in their name. She saw that the address was power time so she goes ahead and chooses Padic and Palatine, Stuart or Padic.

This, on the left hand side the grey things, the grey columns and blocking out confidential information. But anyway what you have returned back are the homes in order they are distance from Padic in Palatine and they are grouped according to whether in the school district, in the school district but don't do reunification and then and various bands outside the schools district in 5 mile bans outside the school district, which you see on the right panel is how the dad is going to be dumped into the performance contracting system.

So these sort of agencies will be dumped first, the clerical will retain the list of foster homes and performance contracting will tell him which agency to call first and the clerical can then say Mrs. John the licensing worker you have such and such foster home, please call the investigator, so you can decide whether those homes are clinically appropriate, making that the clerical involved in placements throughout the state.

Okay, developing foster care resources, the pink is a high need area, I used different JIS analytical techniques come up with that 56 intake came in the past year this is the only remaining home in that community that generate this 56 intake about the core that intake is traditional, so we need this map tells me for instance it's a high need area. But also in that particular community we need 14 traditional beds to meet intake for the upcoming year.

We can go ahead and see where they came from so we can even say well okay this we might have a lot more intake from this area, because of the developments or whatever, this is a street corner in which we need to start looking for foster homes. We've had recruiting done by bus stops, placing signs on bus stops we can be that specific, we go to schools the little blue things or schools, we can knock on doors and talk to PTA, so the organization searches. We don't have 2014 those are two homes next to each other, okay.

But anyway what it does is takes out very limited resources for recruiting foster homes and it gets amount of dragging on Illinois, public service announcement or killers, so with school minder we use homes where we need them, we don't use homes where we don't need them, and we know we don't need homes all over in Illinois and we know what communities. And so with it and as we know what neighborhoods, and oh boy we know we really need them in those neighborhoods. The result we spending are parenting dollars our tax parenting dollars where parenting is needed.

State-wide provider database, we've got 2 minutes. And you're going to be confused. State-wide provided data base is a one stop shop it serves not only DCFS but other folks,

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it's a place where we go and not only report include our own assessment based providers based on the cancer assessment can they provide this sort of service for this sort of assessment need, but also non DCFS. There are 1,400 agencies, 3,000 programs, 7,000 services these are some non DCFS entities are using this tolls, state wide provided data base look for resources.

YMCA is definitely not a government organization. These are the program types except for service types this is a sample screen where somebody of YMCA could be plugging in the address street and then describe what they think to kidneys what kind of services that family might need.

They get back the providers in order of distance if they click on the provider name, they get some information about provider, they click on the program name which is the middle underline thing, they get description about the program and if they click on the address therefore having provided an address on the prior screen they get a Google map and the Google map takes in from the client or office to the provider. And if it's since its Google map if there is a public transportation involved in that link it's included. And what I want to make a point is only thing I'm doing GIS for this operation is I'm just geo coding the provider locations, program location I should say.

Everything else is passed out to Google maps and done, so you can get it leverage of significant amount of GIS service you know, not internal to the organization. So there is different ways of doing that you don't need to just use Google maps but that's an example. And if you want to talk to somebody that they say provider data base then a liner heads up that operation of reviewing eligible providers and also receiving, evaluating our clients with the can't need assessment. Thank you.

Fred North: Thanks Richard. I should say that, I have to give some credit to Richard. He was one of the folks that we reached out to relatively early on and picked his brain for some ideas of what to do in Connecticut I mean we started working with GIS couple of years ago. We've, we are also kind of home grown also like Richard and, and partially self-thought. I work in the officer research and evaluation and we have not even probably one FTE working on GIS at this point they were just about to start scaling up whole operation. But so this is, this is a list of some of our, some of our resources, I'm not going to go into it too much but at this point it's the least of the three of the presenters here.

And the nice thing about that is as, as Richard said you really you can do a lot awful lot with very little when you start working with GIS you are limited to, to more descriptive and analytic kinds of products and as opposed to more operational features like the web apps that these guys both talked about, but it's a great starting place and if the very least what that does is get some products out there to your case workers, to your managers that are very useful and generates interest in buying and using this technology and hopefully then will end up getting you some more funding to do more advance things as you go forward, which I'll talk a little of both more about later on.

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Again as the other gentlemen mentioned there are lot of resources in most states I would say there are a free a lot of agencies have been using GIS technologies for many, many years particularly your departments of public safety, transportation, environmental protection those are all very traditional uses of, of this kind of software and they go Google searching looking around your state agency websites very likely you will find at least one maybe more data warehouses of shape file there and other kinds of resources for doing GIS in your state too.

We definitely started our work by partnering with some internal folks as well as some external folks. We wanted to use GIS for some very basic things to help our foster care folks know where their resources sat, and where they might look for more resources because we are facing quite, quite a shortage of foster homes at the time. So we worked internally with our foster care folks we got little bit of funding from KC family programs to do some basic training and purchase our first license for the SRI arc map level which is the most basic level, and I should say I think runs about 5 grand so relatively inexpensive.

And then they got us a little bit of consultation funding one of our partners within the state was an institute for community based research they had a an hours Dr. Alan Crumbly who came in and showed us how to do some more advance special analysis which I'll show also in another couple of minutes.

We definitely have some limits though on, on what we can do some of those things includes our address data quality, our current Sequa system doesn't have an address verification model built into it and there are a host of products out there that you can use to improve your data quality by building that rate into your Sequa system, I know specifically Rhode Island has done it using the same Sequa like base system that we've got so that's a product that we're tire on our hit list to things to get very soon.

So that's kind of the first thing you need to think about is what is your address data quality and how you are going to deal with that, then you definitely need to ask yourself what are the questions you are trying to answer with this, when we first starting out with GIS works, so what do I want to do with this, we started out with descriptive kind of things as I said and then relatively quickly moved on to some basic and then more advanced special analytic word.

One of the other major consideration is and limitations is how we are going to deliver your results to people both Terry and Rich their results kind of combination of person to person interaction in, in Richard's case and live online web based querying in Terry's case which in my mind is my holy grail. And what I want before we do trying to build in Connecticut, currently right now but what you can do is deliver maps when you have just that most basic level you can just export in PDF files and in PDF you can do an awful lot one of the thing I was surprised to, to learn about current versions of PDF is you can even when you have what are called points or just address is that display is little doc symbols on the map.

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When you export it to PDF you have an option of actually including all kinds of information about all those points that if you click on it in your PDF file that will actually show a little pop up window like you saw on Richards query screen. So even with real basic software you can actually push the, envelop a little and do some pretty neat things.

We were definitely blessed by some of our state partners in Connecticut trying to remember but its been probably 5 years I think, our governor was forward thinking and, and paneled geospatial council which had recruits participation from most of our state agencies DCF at the time where I work wasn't included on that list but I have been going to their meetings anyway for quite a while now and their task was to put together a state wide working group and to come up with a business plan for how to have a state wide operational GIS system.

And they are also making a lot of head way but at the very least right now in over the course of the last couple of years it's been a huge resource for us in terms of taping other peoples expertise literally going to other agencies and saying hey Jim can I you know use your, your, your extra license for network analyst to do some drive time analysis or things like that show me how to do this that or the other thing. So if you have any kind of like that in your state I highly recommend that you reach out to group like to groups like that as well.

You have received partnership is also another excellent place to look for resources at the University of Connecticut we have a couple of different departments within in connected to our geography department that have online archives of historical maps that do educational training across the states, we've, I've gone to some very inexpensive trainings I think maybe a hundred bucks for a 2 or 3 day course of particular aspect of how to use GIS software so another, other really good resources for you all to tap into.

So how do we start, so we started of by doing some descriptive maps and this is just a list of some of the things that I'm going to show you in just a moment, one of the nice things and these guys definitely showed you examples of these is to, when you first start of you need to come up with a base map, a template to help yourself with all of your projects it's just, it gives you the starting point that include all those common layers you pretty much always want to at least think about including in whatever map you are doing.

So this particular base map we started of by, by creating our administrative boundaries, so we have 15 area offices and that are collections of towns within the state. So that's how their calculated here, but then as you saw in the other some of other maps this, using this software lets you zoom in and then you can include and see all these other different layers including things like schools, school districts, courts, placement providers, day care centers anything you might think off and you can find available whether for purchase or for free. And we definitely have a combination of both to.

One of the things that we as state purchased access to was a company called Talley Outlets and they provide all those commercial layers and keep it updated are current road network which is also a crucial component. We actually get from our E911 state agency

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staff, they've taken on the responsibility of updating the roads in Connecticut or the road layers in Connecticut every quarter. So I get that every quarter and keep on maps nice and up to date. But descriptive is nice and you can do some useful things with that but analytically if there are some other areas that we really wanted to get into as well, one of the very first things we did during our very first training and how to use the system was to just calculate the rate of entry in the foster care by our administrative areas.

Now one of the other pieces that you need to have in order to do something like this is solid population data. At the time this is 2008 we are using census 2000 information which was pretty old and we knew actually that there had been some really significant changes in our population at that point. So again we reached out to the Connecticut state data center at Ukraine partner with another agency, got them to produce some population projection for us based on 2000 data and birth rate, death rate, immigration rates all those kinds of things to give us more solid numbers that were optimized at our area office level.

When we first started looking at this map and talking about some of our area office managers they came up with a couple questions for us very, very fast and to be fair they were to ask we had already kind of anticipated some of them. If you look at these rates and I think I'm going to come over a little closer too, you can see that there is a pretty wide variation or at least it looks like there is some pretty wide variation across the state in terms of entry in the foster care rates. The darker colors and this is kind of an accepted thing darker color is usually mean more dense so our New Haven metro area the highest rate by far of all of our area officers, hard for being the next one which is just a little more than half the rate of the New Haven metro area.

So our office managers said to us what is going on with New Haven, why is their rates so much higher than everybody else's. Well, if you remember back to our base map, each of those administrative areas is comprised of a whole bunch of different towns except for New Haven. New Haven is strictly New Haven, because of the case load is very high, it's completely urban center one of, only two really by definition urban centers in Connecticut. And because of all the things we know about, things that go into the reasons why kids are in foster care and has the highest rate, even Hartford, the Hartford area which is also relatively small has three other surrounding towns including in it most of which are combination of suburban and world kinds of areas where the rates by themselves. If you look at town and census block group even those rates are much, much smaller, much smaller.

So we learned a lesson about how to aggregate things and how the fact that local variation is easily must, when you aggregate up to larger geographic areas. One of the things we had done with us though is to at least break it out also by age groups just to see with the variation was by age, and as you can see the picture is certainly changes although our two highest areas remain of course Hartford and New Haven. Some of the suburban of the world areas change a little bit but that's pretty much it with that.

So in another area near and dear to our hearts, this week was our disaster planning and preparation work. This is an example of an early map that we produced, we have a

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nuclear power plant in Connecticut fortunately, unfortunately depending which side do you, fall on that issue we only have the one. It made it easier for me to do my work, so we just, we figured we would say all right so here is where it is. And our Department of Emergency Management and Homeland Security has a whole emergency planning guide that they put together for how to deal with disasters that happen at our nuclear power plant.

And they categorize certain areas if you are within certain amount of distance then you have certain evacuation routes and plans that you should be following. And the map kind of represents what that is. This little inset map down here is, map for the whole state with the power plant that initial emergency action zone and then a wider 50-mile zone where you might feel some impact and you might need to pay attention to certain things depending on which way the platoon goes.

And that's all the dots down there are foster homes. So, we wanted to know where our foster homes in relation to the power plant and if there was a problem. Who would be most affected and how we would get a hold of them and all those kinds of things.

So, using a more detailed version of this map, we can literally pinpoint exactly who is affected. This particular map though is actually designed to be releasable to the public. And we're using graduated symbols to show you just how many foster homes within certain ranges, there are within each of these towns that are affected.

One of the things about certain kinds of data when you're making maps with points, if it's confidential data that you really only want to be using for internal agency use, you probably don't want to be making copies of it and putting out there, there is technology that lets people reverse engineer addresses right of the printout. So, things to consider when you're building your points maps anyway.

Another point on this though off of this example, one of the other things that we did was to get federal emergency management agency rather FEMA, they put out storm search maps in shape files that are available for public use. And they just updated that in 2009.

So, on Friday, my job on Friday was spent geocoding all of our placement providers, foster homes, group homes and everything, everywhere we have children placed. So, we had the most to update map of where everybody was prior to Hurricane Irene hitting us on Sunday.

So, I produced maps, produced PDF files, produced just an excel lists and some pivot tables because really depending on your purpose and your question various ways of getting at this information or more or less useful than others. And maps actually are not always the best way to get an answer to a particular question. I think, in one of Terry's screenshots when you show in the query, I actually saw three different ways of displaying basically the same information, he had a map, he had a list, and he had popup details all in one area. So, that's a wonderful example of how you get it people's different learning styles and how you answer questions using different methods.

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One of the other things that we wanted to use it for was to try and figure out where we ought to be recruiting foster homes, the first way that we went out that was to combine a technique rather from the business world called market segmentation, I do not have time to really go into details on that.

I did a presentation with the data conference last year. So, you can look for more information on that, of course I'll take questions on later. But the idea here was to find places where they were people that were theoretically like our successful foster homes. And then show where other people that fit into the same groups live within the state and live within a particular within certain concentration so that they're worth our while to go after, so we would get better bank for our buck.

In order to look at where the need is, so Richard showed you his strategy for identifying high need areas, we wanted that very simply and we just said, what's the difference between the number of children placed from a particular town and the number of license foster care beds in that town. So, do they even have the capacity to take in the number of kids that are coming out of those areas? And that's what this map shows you, the volume difference by standard deviations actually. So, we kind of try to put a little bit more strength behind how we graduated our colors.

And that in combination was the percentage of children placed in care from the hometown with the placement in their hometown where all that red is, and all the kids that came out of care from those towns left those towns across that time period. So, well, I actually I guess, this was in care cohort. So, anyway, that shows where the holes are in our foster home system.

And the idea was between all three of those kinds of products that informs our recruiters to say, okay, so kind of overlay all this on top of each other, where are my high need areas and within those areas where are the places by a census block group anyway, where most likely maybe to get the most bank from a recruiting buck.

So, last example and this is more along the lines of resource management and that we'll talk a little bit more about later. But our substance abuse manager for contracted substance abuse services came to us and said, I have some funding, I want to open a new site for place where folks who have high gain short screen scores can go straight from referral right into services without having to go through whole assessment process at the provider because we know that folks with high scores on that particular assessment tool typically are ready for services, they want services.

So, we took a large dataset of our folks who have had gain short screen scores and used the technique called special adapter filtering to assess where there are areas and these are broad areas, they're not pinpoint kind of areas, but where there are broad areas in which there are folks with more high gains, short screen scores then we would expect by random chance alone. There's a lot of science behind that – that technique most of which, I don't understand because it was my colleague who actually did this work, I do

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have some reference material for you though that if you have more questions about this, I'm happy to take more questions on it later.

But, one of the interesting things about this was that even when you use very, you know, much more advanced special analytic techniques, you still have to get information from other sources to kind of help think through the answer to your question.

In this case those red areas are where you had highly significant differences in those high gains short screen scores. So, this area appears and your eyes immediately drawn to the northwest corner here that's the biggest area of red you see on the map.

If you didn't know anything about the state of Connecticut, you would think, well, that's obviously where I would put my new clinic. The problem is that, when you're thinking about where to site a clinic, you also want a site, you want to put it in a place where people can get to it and where there is a sufficient number of people that needed because this map is based on significant scores not numbers of people.

This is actually this northwest corners are least densely populated area with the least amount of accessible public transportation. So, while it looks, you know, on the map, like it's the place to go, it really was not.

Down here, this next one, this little one in Norwich actually, this would be a good place to do it. But, the stars on the map indicate where we already have sites. So, that helps us say, well, you know, we don't really need another one there. But, this area near Middle Town has a decent population, it has some public transportation. So, hopefully within the next year, we're going to have a new clinic in that general area somewhere. So, that's another example of how you might use GIS to answer different kinds of questions.

And I think that's about all the time I have. And welcome to, here is my contact info and I'm happy to hear from you at any point in time.

George Gabel: Good, well, let's thank all three speakers. So, each got at least 20 minutes. So, okay, Kathryn maybe you can grab the microphone in case. So, let's say, there were couple of topics that our speakers thought they can talk a little bit more about; they're up on the board. But I think I'd rather start to see if any of you have questions for any of the three of them. And we do need to use the mics, so it gets recorded, it'd be great. Anybody have question?

Kathryn Kulbicki: Just a basic question. And this is for you George. Do you know how many states are using similar methods?

George Gabel: Wonderful question, I wish, I knew the answer. We're trying to find out through our contacts with the NRC, but it's just sort of an evolving list. So, we'll keep at it.

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Speaker: How many do you know for sure, right now or it's like how many or George how many, how many?

George Gabel: I could only probably say about a dozen for sure, but that's only because the information reached us, so. And one of the other problem is, and if we get to the sort of resource management issue. There are number of states that were using it and then lost their staff and often it was an individual staff that was doing it. So, sort of I got to keep up with it also, so good question, any other questions. Well, then we can go back to our original plan.

Speaker: Some observations, I'd to share before we get into this kind of topics. And one is, when you're starting up, the GI system you're going to, you know, bring it both to your staff, don't do at the way Louisiana did, which was, our executive management in both the Child Welfare side and at the top build that it wasn't necessary to do any training related to how to use the GI aspect, you know, we know how to use Google maps.

So, they should be able to know how to navigate news these customize maps, well that went very efficient, our staff, they did not get the hang at the right away. And a communications plan, in other words just because you build it, doesn't mean they will come, you do have to, whether it's called marketed or just communicate in various ways to the field staff of what it is and how they can use it.

So, despite the fact that we didn't do a good job making the field staff involved and informed through word of mouth, hey, this is the way I'm planning my work, how are you doing it, you know, in other location. And it was through the word of mouth that people ended up being trained, we never did go out informally trained. So, in one sense, maybe the execs were right, you know, they will figure it out overtime, but it took several years before they really knew how to do it comfortably.

So, one more thing, helpdesk, we didn't even inform our helpdesk that we rolled out such an animal. So, then they would get cause about how to do something and they didn't have a clue. So, don't forget your helpdesk needs to be trained or how to use the staff to be able to respond to queries from the field.

Speaker: I guess, the question has to do with the, what Richard presented in terms of the project where you're looking a proximity to school districts and changes in that. And I'm wondering has anyone tried to look at that information relationship to your CSFR outcomes. And you know, has that been a strategy that's actually impacted those sorts of outcomes, has there been any approach of that?

Richard Foltz: Yes, we try to look at in house, the problem is isolating variables, what's the most important variable looks like really the judge, the court, is the most important variable for the things like reunifications. But, what was also interesting is that, we're looking at it about two years ago and at that point, we weren't really thinking about how mobile providers and families were.

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And so, somebody now is looking at outcomes for institutional group homes and we were able to clear up some of that clutter in their database that they're now analyzing. So, I'm hoping that we'll have a product; we'll know how to get a product that will more isolate to the geographic effect on outcomes.

Obviously, if we use school minder, we're much more likely the places within the school district, you know, school Catchment area. But, what's the overall outcome of that, I'd really like to drill down in that more.

Kathryn Kulbicki: I know, in Illinois, you mentioned that non DCF programs were able to use the search engines. But do any of you have plans to make the programs or the search engines publicly available?

George Gabel: I'm not hearing publicly available. And again I don't Dana Wiener is over that operation, I'm on the tail end Geo-coding provider locations, I mean, program locations. But, you know, YMCA, staff at YMCA, some of the things I've flashed up on the list real fast or city of Chicago, Department of Human Services. At one point, they were talking about putting them service locations out in communities to store fronts that could access the system. So, folks could, you know, walk in and access the system, I don't know the progress on that.

Richard Foltz: In Connecticut, we're considering the use of the open indicators, web based architecture and I'm, it's using software called weave. So, if you Google open indicators and actually I do have a website for you [www.ridatahubibelieve.org](http://www.ridatahubibelieve.org), I think that's right, might be a dot-gov, is a operational side that the state of Rhode Island uses based on this weave software and include some GIS capabilities, some mapping capability within it. The general idea of it is to have multiple state agencies putting administrative data and picking on indicators that are relevant to them they can then be all visualized in a single platform that's available in the aggregate to the public.

So, for Connecticut, we're thinking about that for those kinds of purposes for actually showing locations of providers, we have a really great two on one information system that's operated by United Way. They also have a really nice website that's integrates I think Google technology to be able to show kind of like, actually both of you guys are right. So, anyway to show where people are get directions to providers and those kinds of things allow you to search certain providers.

I'd really like to see two on one and we're going to be talking with them specifically about this as soon as we purchase up our GIS server licenses later this month. I'd like to see them produced it's called the web service, which to kind of, I'm just trying to think of the best way to define it. But it's basically where someone has a particular layer or set of layers of information that they want to make available to other people through an online automated connection.

So, I'd love to see them put there information in a web service that then I could consume and use in our own web based applications. So, that we can integrate all that, you know,

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for our own internal staff without them having to out and look at our side and then look at their side and those kinds of things. So, there's a couple of example of some public uses of it. Sure, it's ridatahub, no spaces, no underlines or anything. And again, it's either .org or .gov, I don't remember which.

Kathryn Kulbicki: In the use of your databases, are there university research projects going on to answer more theoretical consequence, I use GIS, I'm collecting data on neglectful mother's in Philadelphia and I'm using GIS to look, also use the control variable for neighborhood risk factors. But, it will also allow me to look at amplification of predictors of neglect.

But, I was thinking about other things that could be done like locating, what are the best schools that I should be putting domestic violence prevention, dating violence prevention program. And I was thinking about, could we go to the police that Penn State has really good GIS system. So, asking questions putting prevention programs non-governmental kinds of things. But, where it might be most needed, are there those kinds of things happening in your states for universities or working with you around with the medical questions?

Richard Foltz: In Louisiana, but not with the universities. In Louisiana no, the GIS in terms of research with the universities is not happening to my knowledge.

George Gabel: In Connecticut, I know of a couple of examples and it's definitely on our shortlist in our own agency to try and partner more with our universities, we don't have an existing Child Welfare university partnership like some states do, like, you know, Washington and California.

But, I know Trinity College for example in Hartford partnered with the Hartford public school system and the State Department Of ED to produce a web based application to allow families to figure out which is the best school within Hartford that they are A eligible they go to and B you know, it just gives a lot of information on those schools and integrates a lot of the STE information right into one place. So, they can make an inform choice, they have a, there a choice law that they says they can pick and choose whichever school they want within Hartford. And I think 18 surrounding towns. So, there is one example and like I said we'd like to see a lot more for sure.

Richard Foltz: In Illinois, one of the reasons, we went to develop a lands database, so we could collect information by census tracts and then census blocks, also we could exchange data with researchers. Our biggest users of, on a research level is University of Illinois in Urbana and University of Chicago, and it's shaping all derivative and University of Illinois in Chicago and Northwestern Swiss for different universities we're exchanging data with for their purposes for research.

Fred North: It was mentioned earlier, I just want to reemphasize. If your state has a GIS type counselor you joined it, go to it, because you'll get connections to others that have information already Geo-coded that they were willingly to share with you. And sort of an

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example with LSU Art University, they had done all this alleviation mapping and you know, it helps us in determining where the low areas are reflecting as likely to occur and clear, our agency is responsible for creating shelters and times of emergencies, we are not to put a shelter so.

Kathryn Kulbicki: One of the resources we had is NSIGC listed and which is the National State Information Geographic Council. And then from there you can click on your own state and see what they are doing also and it links all the state councils, next slide.

George Gabel: Yeah, that's right. It's on one of your last slides?

Kathryn Kulbicki: Yeah.

Richard Foltz: Sorry.

Kathryn Kulbicki: There it is. So, in case if you're interested about state councils and to see what else is happening in your state?

Fred North: Something else she will find that you'll have to invest in is a large plotter that can create maps, you know, there are three feet and four feet and five feet, and trying to portray, you know, the schematic and special stuff on a 8.5 length sheet of paper, sometimes just don't cut it. So, recognize that there are those kinds of expenses which you'll have to invest in. And once, you know, execs love, color maps and charts. So once you begin to produce that kind of stuff, the request will be pouring in for all kinds of permutations. Well, let me see it this way and let me see at that way.

George Gabel: The only I could produce maps that are resumed in close enough on Friday for the hurricane preparation was to do a series of PDFs. I want to say it was probably 15 pages of zoomed in views of Connecticut shoreline where all of the storm search areas where that didn't let you see pretty easily which homes were within storm search areas what category of storm would they be affected by and things like that.

It was nice to be able to know, we actually only have 13 faster homes and one group home that are in category one storm search. So and I think of those only two of them ended up having to evacuate. So, it was, but it was nice to be able to be prepared in that way and be able to reach out to all of those people if we needed to very fast, so.

Kathryn Kulbicki: In my research we're doing individual mapping with each mother. And I can see clinically we interview them about their activities where they go for food, where they go for healthcare, where they go to dentist etcetera. And we begin to collect mileage for each mother, how much burden, all the resources and how far she has to travel or how narrow her travel space is in terms of resources.

So, I could see something build in on the individual level were you can supplement the GIS data on the individual level with information about the mothers lives. And mothers

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love talking about where they go. And you begin to see with when that you have a mother with multiply disabled child, how many miles she has to go to get all the resources for her child through your service planning. My guess would be that would be helpful for an individual caseworker not to add one more service or figure out a way to streamline her services to get possible to one hospital. So, I think, there's individual level use for GIS that hasn't been exposed.

Richard Foltz: One of the first things that we said we wanted to be able to do with the system was to be able to take a child, and on a map show all the people that we knew we are connected to those kids and you know, who are they to that child.

One of the other things we're exploring right now to help us maintain connections to families as well as find better placement resources specifically ken resources is to purchase the subscription to LexisNexis, which if you don't know what that is that's the way the legal world has been trying to find information about people particularly adults, really doesn't have anything about children by law. But it's one of those things if you've ever gotten spam, e-mails about you, you want to find out everything in the kitchen sink about your neighbor, you can purchase this kind of information, well LexisNexis has tons of information about people and how they are related to each other.

So, we're thinking about that in terms of saying. So, here is a kid, here is their mom's name, their dad's name, show me all the adult related to these parents, plot them on a map, show me information about them and not generate to more complete list really fast of potential placement resources. So, we're trying to come up with the social ecology of an individual and being able to show that in a map form is a great use of this kind of technology.

George Gabel: Well, let me jump to these other resources to make sure you're family with them or you mentioned the resource center and we've already did one webinar last year, actually some of the same gentleman spoke. We're planning another one for next year little more advanced probably involving some of those confidentiality issues that the speakers referred to and some ways to use this in more complex analysis.

Technical assistance support states and tribes can request assistance on GIS and we are just underway starting a peer-to-peer GIS Group. I believe we've got two volunteers, I'm sure Terry would have joined us, if he wasn't retiring. But we already have two volunteers and I know we have somebody from the City of Philadelphia that's going to be joining our GIS group. So, state, cities and tribes are certainly welcome to join that group, we're working out sort of the commitment on it. But we're looking for people that really want to spend some time, sort of building some new tools and sharing what they know already.

Sort of in relation to Dian's question about whose using it, we try to really, have a little more informal conversation on our group sides. So, we often ask questions, what do you do in GIS or do you know anything about it. So, this is sort of how, we get that so bold information encourage you to join that.

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And then, this is a list of resources that Kathryn has put together and I would encourage you to contact her, if you have questions about some of these resources. Again, I think this is a good way to find out, who your neighbors are and your state that are also using GIS that perhaps you can either just ask your questions, share licenses, we're having, all good resources and I think these were all mentioned. I don't know, smart, you want to say something about smart Kathryn, smart, Kathryn?

Kathryn Kulbicki: Smart is on, it looks like it's been put together by different organizations and they've gathered a lot of information from census and from different organizations and start to compile it together. So, if you're not super advanced you can start at a website like that and then kind of build up from there, where they already have a lot of layers build in and as you get more advanced you can get download your own layers and start building your own census demographics, your end points and start going from there, it's a good starting resource, I think.

Richard Foltz: One quick comment, we've talked today a lot about how you can get layers from all-over the place and share layers with other people. Because that's kind of the way this works really well, it's very important to have good information about each of those layers. The formal term for that is Medidata. Most of GIS software has built in tools to help you input like structured Medidata it's kind of like going through a survey. There are extensive national standards for Medidata. And I'm happy to say that Kathryn is an expert in those standards. And has offered in the past some really nice webinars and in person trainings on how to go about doing really good Medidata documentation. And that's been very helpful to us.

Kathryn Kulbicki: It's important to trust your resource.

George Gabel: Any other questions? I'm obviously not been – done a good job at time management. But, I think we're supposed to end soon.