U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

HOUSING POLICY IN THE NEW MILLENNIUM

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HUD ON THE INTERNET:
USES OF INFORMATION TECHNOLOGY
AND GIS FOR HOUSING ANALYSIS

Reported by: Ray Heer

P R O C E E D I N G S

Tuesday, October 3, 2000

Morning Presentation Beginning Time: 9:20 A.M. PRESENTATION BY SUSAN M. WACHTER

MS. WACHTER: Good morning, everybody. Thank you very much for your patience.

This morning's session is going to attempt to show you an online demonstration of a tool which we will make available to everybody in the room in a matter of a few weeks. The purpose of this overall conference is, more broadly, to promote dialog among researchers, practitioners, and policymakers, to let you know what we are doing at HUD, and to seek your input -- to seek your input today and to seek your input in an ongoing -- an ongoing fashion in a number of our initiatives at PD&R.

There's a PD&R pamphlet which is available which tells you ways to join our efforts, but one of the most important ways that we'd like to have you join our efforts is this new initiative -- a new initiative that we are about to unveil. The purpose of this new initiative is perfectly consistent with the overall purpose of democratizing data, which is at the heart of what PD&R is about.

We have, already at PD&R, very important data that we provide to researchers across the country, but we do it in ways that data are not particularly accessible. And so, with this Internet application, this Web-enabled application, the data will be available to be downloaded for analytical purposes.

And it is extremely exciting work that we are about here. But it isn't work that we are, in PD&R, doing by ourselves. It is work mostly that we build on -- the extraordinary "transformative" software that was put together early

in -- about five years ago at HUD, called Community 20/20.

In my experience in government, I have found that Community 20/20 is the only agency software product that actually shows where a cabinet expenditures -- cabinet-level -- agency-level expenditures are across the United States. Community 20/20 -- how many of you know Community 20/20? How many have used it?

(A show of hands.)

MS. WACHTER: There are sort of pods of people through the room.

Community 20/20 is a software application -- it's a CD-ROM -- that shows, for the entire United States, all HUD program dollars -- multi- family, project-based, CDBG -- it shows the exact address of where the dollars are being spent. It shows the address of all public housing. It shows the address of all multi-family.

What we about here is joining that set of data with the data that we provide to researchers -- the American Housing Survey, the State-of-the-Cities, as you will see, four or five other extremely important data sets -- and enabling them -- Web-enabling them, moving the data out, streaming the data out over the Internet and, at the same time, allowing analysis -- nationwide analysis, comparative analysis, of one region to another, one MSA to another of multiple data sets. So this is a very, very ambitious undertaking.

We wanted to begin it here so that you could see what we're doing and, most important, be our alpha testers. So by signing up your e-mail in the book that's going around is --

Where is the book right now that is going around? Would

someone put up their hand with the page or with the -- is someone doing this? Right over there, folks. Oh, you've got several places? Okay. Who is collecting these? I just want to make sure this process is well in hand? Who's collecting these? In that table? Okay. Make sure that they - - all of these go here. You will be part of the alpha testing of this initiative.

Let me then introduce the folks who are with us today who are key to the initiative. First and foremost is our director -- deputy assistant secretary, who's directing this initiative for PD&R, Ayse Can Talen. It is not an exaggeration to say we simply could not do this without her capacity. She is one of the leading GIS people in the country, and it's extraordinary to have her here at HUD.

Secondly, we will have Fred Eggers presenting the data. Fred Eggers is our chief economist, and he has played an exemplary role in bringing the data that we already have at PD&R to bear and making it -- enabling it so that we can use it for spatial analysis.

Finally, we have with us Dick Burk. Dick Burk is the software development guru at HUD. He is the developer of Community 20/20, and it is his product that we are bringing these new capacities, the new data of PD&R -- he is developing the new capacities; we are linking the PD&R data. So this is a team effort between Dick Burk and between our shop -- Ayse Can Talen and Fred Eggers people.

Also people in the room is David Nystrom. David, will you please stand? David is a key link in all of this, so if you ever have any questions on this, David is the person to go to. Also, we have Todd Rogers -- please stand, Todd. He is with ESRI, and he's helping making this happen.

And so, with that, let me then turn to Ayse to introduce where we are in our initiate. Thank you.

PRESENTATION BY AYSE CAN TALEN

MS. TALEN: Thank you, Susan. David Chase was hiding under the podium. That is why Susan did not see him, but I would like to acknowledge David Chase who has been an excellent contributor to our GIS efforts in PD&R, as well.

As Susan mentioned, the HUD is increasingly recognizing the importance of providing open access to public information to its constituency groups. With -- consistent with this effort, HUD, over the last several years, undertook several major important steps. First and foremost, HUD's Community 20/20 software opened the path to our business partners, in terms of using public information in local planning in decision making. And it has really moved the planning process to an interactive and engaged process in local communities.

In 1999, HUD took a real bold initiative to make Community 20/20 a more crucial tool for its business partners by making the decision to move it to an open GIS Web-based platform. A major component of that decision involved the development of spatial data where -- spatial-enabled HUD databases that could be accessed on the Internet.

This is an ongoing effort and is probably -- those of you in the audience who have worked on program application development and technology development, it's going to take us a considerable amount of time to make all these things a reality. However, it is very exciting that, through the initiation of this process, HUD was able to bring to the table crucial resources, including PD&R, including other program offices, and, most importantly, its information technology group.

PD&R wanted to take advantage of these technology

investments that HUD brought to the table and introduced -- and initiated a process for the development of a GIS platform for research and application development. This is a two-pronged effort that we're going to demonstrate to you today through an application.

The first one is the provision of open access, not only to PD&R's research databases, but HUD's programmatic databases on the Web to spur civic engagement in decision making. The second one is -- we are interested in bringing a more spatial focus to some of the research that we undertake in the PD&R with the goal of making HUD a leader in spatial social science research. There is so much happening in the business and academic research, community in this area, and we would like to join in that and put our resources and lead to more research -- spatial research.

An important component of spatial research, as Susan indicated, is data. Data plays the most important role. And, as we know in the group, "garbage in, garbage out," so PD&R made a decision to provide accurate, consistent, objective, comprehensive data through its research databases for -- to support the efforts of the research community.

With that, I'm going to turn it to Fred Eggers, who's going to tell us more about data, data, data. Thanks.

PRESENTATION BY FRED EGGERS

MR. EGGERS: Good morning. Let me see -- get the slides up here. I'm going to tell you a little bit about the data. Why don't you run the entire set for me, would you? Thank you.

These are data sets that we do a lot with. The first three are already available on -- from HUD USER right now. What we hope -- the main message I want to get across today is that we're going to make all four available to you in this system in a shape- file context so that you could actually use them to overlay with other data.

Now, briefly, I'll just walk through those data sets. Most of you, of course, know about the American Housing Survey. It's very rich in data. I've got 450 pages of data from the 1997 American Housing Survey. By the way, the 1999 is out, for those of you who may not know it, and I wanted to commend my staff -- Ron Sepanik and his people, particular Deb Vandenbroucke -- for getting the '99 data out so quickly this year.

What people sometimes forget about is not the -- is the metropolitan surveys that come out that cover the 47 largest metropolitan areas on a four- or six-year cycle. Now, these -- this data contains a lot of information on the population, on the housing, and it is down to what we call zones where areas of 100,000 population are identified as special geography within the AHS so that you can get information down to that level of geography.

The next system is the State-of-the-Cities data system. How many of -- here have used the State-of-the-Cities data system?

(A show of hands.)

MR. EGGERS: Oh, listen. Do yourself a favor, take this down:

www.HUDUSER.org. And when you go home, pull it up, look on the front page there. You'll see a link to the State-of-the-Cities data system. It is a very rich data system on cities, suburbs, metropolitan areas -- population -- it has the Census data -- '70, '80, '90 -- all on a -- in a format consistent with most recent definition of the metropolitan area. It has employment and unemployment data. It has jobs data from the Census. It has data you can only find there, because we created it. It has city poverty estimates for '93 and '95. It has our estimate of high-tech jobs. We've just added crime data for cities and metropolitan areas, both violent crime and property crime. It's a very rich data source.

If you haven't been on it lately, get on it again, because I got on it myself this morning and realized there were new things on it. My staff, Kurt Ozowski (phonetic) and his people, just seemed to always be taking -- adding new things and making it a richer database.

The GSE database is information that is provided by Fannie Mae and Freddie Mac. There are three national-level databases which have no geography to them, but there are two databases that are down to the Census-tract level -- one for single family and one for multi family. And the HMDA data is data that we use that will be made available in this shape format later.

Let's go the next slide, if you would, Dave. There are also two databases that are already available and that have geography. There is information on the tenants that live in our assisted housing for projects. It's for, like, public housing and assisted projects. It's accumulated at the project level. And you actually get the X-Y coordinates of that project. For the voucher program, the information is aggregated by census tract, and you get it -- the data by census tract.

The last dataset is low-income housing- tax-credit database. Again, we have project-level data identified by address and X-Y coordinate -- basic property information, size of project, number of assisted units, whether it's a non-profit or not, a lot of very basic information -- but these are projects that are actually operating, put in place, which is a unique database, and it's through 1998, at this point.

These are other data sets that we will be making available -- rich data, of course, from the Census on socioeconomic characteristics, the Census TIGER street files, more HUD program data from other programs, and selective data from other agencies -- EPA, FEMA, Department of Justice, and the U.S. Geological Survey.

And at this point, I'm going to turn it over to Dave Chase who's going to give you a demonstration involving one of HUD's newest initiatives, which is the APIC program, the American Private Investment Companies. It's part of the new -- the president's new market initiative. It is legislation that is pending on the Hill, and we hope to have legislation shortly and an operating program early in the new year.

And the key here is that there are only certain areas that will be eligible for activity under APIC. There's a complicated definition of what qualifies. And Dave's demonstration here will show you kind of the overlay of that. Dave?

MR. CHASE: I would love to, but we're not connected to the -- we can't do it.

MR. EGGERS: Oh, well.

(Laughter.)

MR. EGGERS: So much with technology -- some of the foibles of technology. Where shall we move? We'll move on while we see if we can get ourselves connected here.

PRESENTATION BY RICHARD R. BURK

MR. BURK: Good morning. Live television is exciting, isn't it?

(Laughter.)

MR. BURK: My name is Dick Burk. We -- I'd like to take a couple of minutes to talk about some of the efforts that we've engaged in over the last couple of years, but mostly what's coming up in the future with regard to the Community 20/20.

I saw a pretty sizable number of folks out there who had used Community 20/20 either to conduct research or to work with cities engaged in those activities. The feedback that we got from most of the folks -- and there are 6500 users of Community 20/20 at the present time -- and most of the folks that we talked to wanted to have more data and more up-to-date data.

And as you know, and as Susan pointed out, that product that we have at the present time is limited to a -- CD-ROM based. We tried to work an arrangement so that people could use that product and come to the HUD home page, download data on an as-needed basis, and we would update that data on a monthly basis, but, quite frankly, most folks found that a little complicated and a little bit hard to use. And so we've now moved onto an Internet-based product.

What you see up on the screen, for those of you who are not familiar with geographic information systems, is sort of a representation of how it works. These maps are all built in layers not too dissimilar from those of you from -- who might be my age, who worked in the planning departments with acrylic layers in which you would put down the layer, and every layer represented -- every one of those acrylics represented a data set. And the same thing is true. We simply use the computer to do that and which, in this case, it happens to be

geography and program fundings in natural area.

And as -- the wonderful thing about geographic information, for those of you who know about these things, and that I have come to learn, is that you can continue to put additional data sets on top of there and begin to manipulate the data in various ways and manipulate cosmetically how it's shown and sort of represent it in a variety of ways.

And then secondly, the kinds of analysis that one is able to conduct is fascinating to watch. You know, for example, we now have up on the Net, and we'll -- well, we're going to demonstrate for you -- where we have HUD locations along with EPA sites. That begins to bring in questions of environmental justice, obviously. Also, location -- where is it I would want to live in that area, given the information I have, or not?

How do we intend to do this -- is through this GIS tool and through the data that -- through HUD USER that Fred talked about. We have three tools that we're going to be providing. One is the thin client, medium client, and thick client. Now, Susan told me this was mostly an academic group from universities, so we were going to call this light, amber, and stout, but we chose not to.

(Laughter.)

MR. BURK: And instead -- we tried to relate it -- thin client, the data sets are basically HUD program data that Fred talked about, and it's quite broad -- and the research data Fred also spoke about, as well. The Census data comes in counties, MSAs, ZIP-codes, congressional districts, Census tracts, a variety of geographies. We'll probably also have Home Mortgage Disclosure Act areas, as we do with the present product, and other geographies and areas that

are appropriate -- in particular, two particular programs -- and, as Fred pointed, EPA data, as well. And we expect to have that up here in about the third week.

These are -- will have pre-designed reports. This is an html product, and so you'll simply go into your browser, come through HUD, HUD.gov, go there, click on it, and up will pop this application, and you'll be -- have access to these data sets that you can identify and click off and on, and you'll be able to conduct some level of statistics with it of totals and sorting averages and basically, essentially, simply queries. For probably 80 percent of the folks who use it, that's going to be -- that's going to satisfy them.

Okay. Next is the medium client. This will require a Java Applet to be downloaded to your PC. This will enable you to do a tremendous amount more analysis. First of all, it will be data streaming. These will not be simply html pages that will be brought to you off of a server, but this will actually be able to stream the data in as you need it, where you need.

You'll be able to add your own data, so that as you have data from state or local government or personal data off of your C-drive or other data that you want to make available and integrate that in, as long as it's spatially enabled, it'll be able to integrate it in and show it on the map simultaneous with what you're getting from HUD.

It will also give you access to the geography network. This is a service that is provided by our new contractor, ESRI, Environmental Systems Research Institute, out of California. They are perhaps the -- if I could characterize them as the Microsoft of the GIS world, they have a dominant position with regard to state and local government, and they make various kinds of data available off of their geography network to anybody who's -- actually anyone, but, particularly

with this case, you'll be able to access the geological survey. I threw up the world wildlife fund -- I thought you'd get a kick out of that because that's on there too -- but also FEMA maps and other kinds of data. And it's just extensive, and they're being added to virtually daily, the kinds of data that will be available there.

The kinds of functions you'll be able to carry out will be multiple analysis of multiple data sets simultaneously -- Boolean queries. You'll be able to define your own polygons instead of taking the traditional ones -- instead of taking the congressional district or the census tract. If you have a neighborhood that you want to analyze, you can define that neighborhood on the map and conduct a query -- a spatial query against that polygon, be able to conduct additional map editing and cosmetics, and be able to then -- to print it out and do, essentially, a basic map layout, as you normally would.

And finally is our thick client. The thick client really would require -- if you'd give me the next slide, please -- unlimited data sources. And this would essentially be that we would be providing lots of additional kinds of data to you and you would be adding your own. And this would be in cases where we have researchers, folks that we want to contract with or are asked to do particular high-level spatial analysis and research, and we would provide you with a very thick client -- in other words, a desktop product that you would use and conduct pretty serious kinds of analyses -- 3-D analysis, spatial econometrics -- I wish I knew what that meant -- and network routing analysis.

So those are the three products we're talking about at the present time. A little bit of time on this -- we expect, by about the third week of October, to provide the thin client. Medium client will be sometime in the spring. And probably at the same time, we'll do the thick client at that time.

Okay? Thanks.

MS. WACHTER: Thank you very much, Dick. How do you participate? Send us an e-mail -- the site is up and going -- sign up at the registration desk -- you've done that by signing what's gone around -- and you will be e-mailed as we roll out the alpha testing part of this project, which will happen in the next few weeks.

In both the medium and the thick clients, we have been absolutely thrilled to have a partner in Wayne County. Wayne County is advanced in the use of GIS techniques for decision making, and they have been working with us on making these tools usable.

So it is my extreme pleasure to introduce -- we have with us today Sue Hall, who is the assistant county executive of Wayne County. She has a leadership position and -- in making Wayne County an exemplar for integrating data across various levels of government for a better decision making. Sue? Please join me in welcoming Sue.

(Applause.)

PRESENTATION BY SUE HALL

MS. HALL: Good morning. I want to thank Assistant Secretary Susan Wachter for inviting us to give us a chance to demonstrate what we do in Wayne County, Michigan.

The city of Detroit is our largest community. We have 43 communities. We're larger than 19 states. We have 2.2 million people in Wayne County, and our land mass changes from a very urban community in the city to very rural farmlands in the suburbs.

The chance to demonstrate our GIS -- I need to give you some background first. One of the things that we had in Wayne County was ten different departments and 6,000 employees that were going in different directions with GIS, so they were building their own little systems. And so my boss, County Executive McNamara, said to me, "I want you to pull everybody together and put together a GIS project." And I said, "What's GIS?"

(Laughter.)

MS. HALL: I mean, when you said earlier, "What are all these terms?" -- I was representing my boss yesterday to a Korean delegation, and my presentation was interpreted. And I feel a little bit that way today, because I'm not a technocrat -- I will have someone from my staff that will do that -- but I'm a policy-maker. And what HUD does, and what communities do, which is to take data and information out there and bring it together so we make good policy decisions to improve the quality of life for those in our community. And we think we have done that in Wayne County.

We spent a lot of time bringing our departments together so we're all on the same page. And then our next step was our 43 communities,

because everyone has their own land information, zoning information, and all that, and so we had to figure out a way to bring all their information together, the data that they collect. And then our next step was to work with the state of Michigan, which has been a great experience. And then we went on to work with HUD and the federal government and other agencies.

What we're doing is we're trying to bring together all this information so we can maintain and build livable communities. We want to empower our citizens, especially our community groups, and we want to empower our "academians" that we work with, our private business, so that we can make it -- the best community possible.

What we've done in Wayne County -- we've integrated the HUD data about public housing, and we've attached it to what we call our "base map" to support these decisions.

Some good examples -- we're going to be talking about brown fields, but I do want to talk about a project that we did recently, within the last year. We had a problem in which we had young children walking to school in the city of Detroit that were being raped, and we had ten rapes within one month.

And what we found was -- there are so many abandoned housing structures around our schools that they were just targets -- these children were targets. And so what we did was -- we pulled together our team and said, "Let's go out and inventory." We asked our principals in the schools in the city of Detroit, and we, in the first month, had over 1200 homes identified as abandoned buildings.

So we've used our GIS tool directly to take a look at the ownership of those, and then we've gone into court and gotten the court to say to

those owners, "You either repair those homes or demolish those homes within a specific period of time. And if you don't, those homes will be taken by county government."

And that project has been ongoing for less than a year and has really made a difference, in terms of the safety of those children walking to school.

We also use our GIS tools for our economic development, our empowerment zone information, emergency management. We recently had some serious flooding in our area and have submitted to the president for some flood relief. And that data is being used for that. And then, on a day-to-day basis, we use it for our airport, environment, health, criminal justice, and just daily things like register deeds, assessment information.

So that gives you kind of an overview. And the importance is that this was a $15 million investment on the part of Wayne County, which is a huge sum of money to us, but we believe that the payoff, by gathering all this data information, will mean that we're having better public policy decisions for the quality of life of our citizens.

So with that, I'm going to turn it over to the technocrat in the group, which is Larry Ross, who's our director of GIS for Wayne County, Michigan.

PRESENTATION BY LARRY ROSS

MR. ROSS: Good morning. I'm going to tell the story -- a little bit about our presentation -- on brown field analysis.

And what we're doing is we're taking a tool that combines data from various levels of government -- from federal, state, and local -- to provide better criteria for space-based decision, particularly in some of the brown field analysis, establishing candidates for the cleanup.

What we have here is a map of Wayne County. And as we go through it, we'll find various layers of our base -- including parcel data, center lines, hydrology, and so forth, photo data -- along with data that's been provided to us through HUD, through their program, public housing data, as well as EPA data regarding hazardous waste sites and so forth.

One of the things about Wayne County -- it is the home of the motor city, and it's pretty much the -- one of the industrial centers of America where approximately 46.5 square miles of the county are dedicated to manufacturing. And unfortunately, in times of economic distress, the auto industry suffers. And what happens is the vacated properties of many of these industrial companies are abandoned and become what we call today "brown fields," problems that are a serious economic nature for the citizens of Wayne County.

In Wayne County, you can see there's approximately 2,000 brown field sites that have been documented so far at the federal level. In addition, we have a number of EPA sites -- if we could turn those on -- that you can see lighten up.

And one of the questions you might have is, "Where do we begin? How can we, you know, make an intelligent decision out of all of this?" So

we can look at some of the factors.

One of the factors we might want to consider initially is perhaps let's look at some public housing sites, because, for the sake of our scenario today, we want to look at some brown fields that may be in areas of public housing that detract from those neighborhood settings.

So as we see the red triangles come up, we see some particular areas of -- that we might want to focus in. So let's go in that one area of Detroit there that we identified earlier. And another particular area that HUD asked us to look for in funding would be some distress factors, such as economic distress, and so we have another layer of Census data, basically on income. And this particular layer identifies poverty, low income -- pretty much under thirty, twenty, under fifteen thousand dollars -- severe economic distress.

And as we see here now, we have an area identified -- a small -- a triangle of public housing with -- a particular clustering of brown fields. So this is a site that we want to go in further and look at.

And if we could zoom in a little bit more. (Pause.) Okay. Another factor that might be good to look is, you know, economic -- what are some of the economic priorities for this area. And it happens that -- okay -- it happens that there's one very large project in Wayne County -- and it's in Detroit -- called the "empowerment zone," so we could turn on that and see if our particular area of interest falls within that. And we can see that the purple or slashed area is actually an empowerment zone. And the area that we sort sifted out as a potential candidate falls within that.

So if we could turn that off and we'll zoom in a little bit closer -- and let's identify -- first of all, let's identify the public housing. And it happens to

be a Jefferies Homes project -- large project -- 922 units -- large unit here. And if we could perhaps leave this one, and we'll go to look at some of the local brown fields in that particular area.

There's one we selected out here. It's a large one. It's actually what's called a LUST site -- underground storage -- leaking underground storage.

(Laughter.)

MR. ROSS: It's this -- yeah. Okay. And with this information, we could actually go into the parcel database now, and we can find out information such as the square footage, assessed value, and so forth. So this is a nice example. We have shown several layers working together to provide a -- you know, I think, an optimal tool for decision making.

Now, if we could back out, we have another layer of data I wanted to demonstrate today. And maybe we could back out to the full extent of the county. (Pause.) Okay. And we have some data from the Michigan Department of Health. And what we've done is we've aggregated disease-related data in Wayne County by Census tract. And it could be that the highest instances of disease -- there may be some correlation with brown fields.

So we have here of particular distress that -- you see the darker areas are particularly high incidents of disease in the county. So let's focus in on that one particular dark area. Okay And we could also pass another variable. We could, for instance, turn on the -- well, let's go in a little bit further, and we'll see what's happening there. (Pause.) Okay, until we reach the parcel data. (Pause.)

Oh, I'm sorry. Wrap it up? Okay. And again -- I've been

asked to wrap it up, so -- but we can -- we can access that parcel data and provide the information that's required to finish all the integration of information for the actual proposal and the eventual remediation of these brown fields.

So, thank you.

(Applause.)

MS. WACHTER: This will give you some sense of the power of this tool. We'll not only be able to do it for the Wayne Counties of the world, but we will be able to do this kind of analysis comparatively across counties for the entire country. So you'll be able to see how Philadelphia County is relevant to -- relative in its performance to Wayne County. And the good news is you won't have to spend $15 million to do this. This will actually be free over the Internet.

So there is, in this one case, a -- such thing as a free lunch. Before we get to the lunch, however, we have a morning session to go through. I thank you all for being here for this session. It's very "tech-y," but I think this is very powerful stuff which we all will get a lot of potential understanding for the performance.

The next sessions are breakup sessions. We're going to have international perspectives. Somebody tell me -- what room is the international perspectives in? Dewey I -- right over here -- the first one over here, and we have several binational commissions with Israel, with China. We have a Central American initiative. What is HUD doing? What are we learning?

We have, in Dewey II, smart growth. Is that correct? Smart growth -- the big tradeoffs, the big questions of whether we can have smart growth and affordable housing. How can we have it all? That's where you're going to have the answers.

And finally, what are we doing in public housing? We have the team of HUD leaders here. We have Harold Lucas, Assistant Secretary. We have our direct of HOPE-6, Eleanor Bacon (phonetic). We have the director of Chicago. We are totally redoing public housing in Chicago, and you will hear about these efforts.

So enjoy, and we look forward to your input. Thank you very much.

(Applause.)

(Whereupon, the proceedings were adjourned at 10:00 a.m.)