FEDERAL EMERGENCY MANAGEMENT AGENCY

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NATIONAL FLOOD INSURANCE PROGRAM

eRATING FORUM

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WEDNESDAY

DECEMBER 13, 2000

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The Forum convened at 9:00 a.m. in the Horizon Ballroom, International Trade Center, Ronald Reagan Building, Washington, D.C., Edward Pasterick, Federal Insurance Administration, moderating.

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P-R-O-C-E-E-D-I-N-G-S

(9:00 a.m.)

MODERATOR PASTERICK: I am not sure that everybody is here. However, we probably should take our seats. We have a lot of material to cover and only so much time to do it. So let's at least start to get organized, and pretty soon we will begin.

ADMINISTRATOR HOWARD: On behalf of the Federal Insurance Administration, I want to welcome you here today. Do we not have the sound on? Now it is. Okay.

Thank you for coming. Our topic today is rating for the 21st Century. As I prepared for today, I found myself thinking about something that happened about 500 years ago, and that's Columbus' departure for the New World.

Don't get me wrong. I am not saying that our rating system rises to that level of importance. I wasn't thinking about the magnitude so much as the pre-conditions that were set, which is today not many.

Before Columbus sailed, Ferdinand and Isabella didn't say, now you go northwest 15 degrees and then take a turn. They didn't tell Columbus where to anchor, when and how to manage the sails. His only directive was to discover and bring back, and his only limitations were his dreams.

So today, I am not going to speak long in this introduction, because what happens after me is the important part, of course. But I want us to know that we are all here to poke and prod and discuss. I don't know where this discussion will take us, and that's the thrill of discovery, isn't it?

We began this day today or this process with no preconceptions about its outcome. I intend to frame the discussion, but the route is open to negotiations and, more important, imagination. But we all know our destination, and that is to keep a promise. It's a promise that we are about in the flood insurance business, a promise that if nature's worst outcome strikes, we'll be there, but far more important than that, a promise that will transform America's coastlines and riverbanks and creeks, and that we will be there to help people recover financially.

As we all know, technology is a complicated business, but I believe that complex systems flow best from simple precepts. So let me start with a little bit of what was in my mind as we started talking about this -- what was it, Ed? -- I guess, a year ago.

I want to make the process as simple as the promise. I want flood insurance to be easier to rate and obtain.

I want flood plains to be safer, more prosperous, and to be put to beneficial use rather than being viewed as a threat.

Because technology must be placed in the service of that promise rather than pursued for its own sake, our goal is to advance and not undermine the basic flood plain management objectives of this important program. Beyond that, I have no directives other than let's discover with no limit but our own dreams.

As our discussion takes place today in the context of broad trends, both in government and in corporate spheres, one is that companies are concentrating their attention to do what they do best, and they are turning to others like you here today outside their core expertise.

For example, eTrade, the online broker, is providing its customers with a rich array of information such as financial news, stock quotes, purchased from outside sources.

Online grocery stores have emerged in which one company provides the shopping cart ordering system and payment system, another company provides the logistics, and yet another group provides fraud detection services.

At NFIP, our expertise is flood insurance. It's keeping a promise, and I don't mind telling you, I think we do

that pretty well. With just over 50 people, we are the largest mono-line insurance carrier in America, and we have 4 million policyholders.

We have over $100 million a month in premium income, and with 50 people who give it their best and very, very good contracted services and partners. Without these strategic partners, the program would be nowhere near the success that it is.

The old model of government, though, looked a lot like the old model of business where government was the chief architect, the builder, decorator and purchaser for every activity it undertook. A new way is taking hold, and one that makes government a consumer of other people's good ideas.

How that role plays out in technology is just now being written, including our discussion here today. Here, too, our story parallels the corporate experience. Industries that not very long ago were in the business of selling goods and services are now in the business of selling information.

Many successful businesses and syndication services, for example, are in the business of aggregating information rather than producing it. That's a significant area of opportunity for us. The syndication model, I think, is a very

interesting one, looking at what we are doing today.

Just as Dave Barry produces a column, syndicates it, other newspapers take those columns from Dave Barry and other writers, aggregates them. You could even, in an instance, have another outsourced company take those combined stories, print them, and distribute them.

I think that model is one that we can explore in this process today. Information is the cornerstone of insurance, as you know, and that's been especially clear with the digitization of flood maps. We rate policies based on flood maps, elevations and a broad range of other factors that drill down not just to each community but to each unique property.

Right now, no one entity has all of that information in the most usable form, but a lot of entities, you here today, have pieces of it. For example, one entity might not know the elevation of a structure, but they might have information on its tax valuation.

A utility company might not even be thinking about flood insurance, but their highly detailed maps for utility lines might be invaluable to us.

One reason we organized this session was our hunch that different people who possess different pieces of information

may be sitting next to each other here today and discovering new opportunities today. I think there is a huge market opportunity for whoever is the first to aggregate this kind of information, and NFIP may be only one consumer of it.

So, as so often happens in the new economy, our information, new information may generate new industries. As purchasers of ideas, we may participate in that development. Maybe we would simply provide the specs and state the goal. It could be that we need to change the rating system to make it more conducive to electronic processing.

For example, we need to know how much a property is elevated based on what flood maps tell us its risk is, but we may not need to know to the inch how high the foundation is poured.

If you sense that I am laying out something that is so broad and general, it's because I intend to. I don't know where today's discussion will take us. I know that we are determined to keep a promise, and that is we want to make the process as simple as the promise has always been.

I have been told this several times, that when Lyndon Johnson applied to teach at San Marcos State University in Texas, he wanted to teach geography. They said, tell us how you teach it. He said, I can teach it round or flat, however you want

it.

So, we have no preconceived idea on how this is going to come together, and that makes some people a little uneasy. I think it should be very encouraging that a process can be opened up like this.

So allow me to formally open the discussion, and let's go back to Columbus with a story five centuries old. When he set sail, his destination was India. He wasn't looking for what he found, but what he discovered exceeded his dreams.

So maybe that's the way it is going to be with us today. We start with only one directive, to discover, and only one limitation, our dreams. Hoist the mainsails. Anchors aweigh. A new world of opportunity is right ahead. Thank you.

(Applause.)

MODERATOR PASTERICK: One of the advantages sometimes of speaking second is that the first person does most of your job for you. I think my qualifications for overseeing this entire process probably have more to do with the fact that I have been around longest or second longest anyway to hearing about how complex the National Flood Insurance Program is.

So maybe because I have heard it more as much as anybody else here, I have been charged with overseeing an exercise

which maybe is directed toward making it simpler.

My job in the immediate is to give a little background on what we are doing here today. JoAnn has given you a great deal of the broad direction we would like to go in. Maybe I will be a little bit more specific in terms of our immediate exercise today, some of the rules of the road and where we go from here, as well as being a bit of a traffic cop or organizer, because one of the things that we are hoping is that we have a fairly wide ranging discussion today.

To the extent that it will be wide ranging, we may need periodically to kind of rein ourselves in or at least be sure that we try to cover as many of the issues as we have planned.

The agenda that we have today is a somewhat loose one. It is deliberately loose. It is really structured around the issues that were published in the Commerce Business Daily and in the Federal Register.

I don't want to make too many assumptions. Most of the people here are familiar with -- very familiar with the National Flood Insurance Program as well as the process that we follow for rating flood insurance policies, but maybe just to give some -- again, some additional framework to what we'll be talking about today.

Right now, I need to organize my notes. I have to tell you that when I prepare, I drive everybody crazy, because I never have planned lines, notes and prepared speeches. I make the last outline about four minutes before I go up and talk. So, it usually comes off, but if it doesn't, then you can complain about me.

We don't have any comment sections, remarks or feedback for this session, but one of the challenges around this whole session is trying not to talk too much. We really have a number of set presentations for you, but we want to leave a lot of time for comment and discussion from the group.

I will also say this. We will have three or four people that are going to come up here and make specific presentations. If there is anybody who is so moved that they are prepared to come up and make additional presentations during the course of the day, I would welcome that. We really would like to see that happen.

Again, just a couple of other rules. When you do ask questions or make comments, we would ask that you identify yourself. I think it is important that we keep and be aware of all of the various people out there that can serve as resources for us in trying to come to some solution to what we regard to be

a significant issue that surrounds the wide distribution of flood insurance coverage in this country.

We don't have times on the agenda. I would think that, just as an estimate, we will probably get through maybe the three presentations this morning and then break for lunch. This facility is a very good facility, because there are a number of places that we can conveniently get something to eat. We have coffee in back, but we didn't prepare any lunches. So, you are on your own.

Then we will decide a convenient time to break somewhere around noon, and then come back in the afternoon and finish around three. If it spills over, as I'm actually hoping it might for a while because I think there's a lot to talk about, we are prepared to stay around for as long as you are prepared to keep talking to us.

Let's see. What other kinds of -- I just need to make two notes of personal appreciation and thanks. Claudia Murphy of my staff and Jackie Taylor were the two people that were mostly responsible for setting up this whole session, and I really, really want to express my appreciation to them.

Right now, we have a process for -- a rating process on policies that relies on securing certain risk data from

various sources. Apart from the challenge of bringing together these data for ready use by an insurance agent, there are issues that relate to the data themselves.

At the risk of oversimplifying our rating process, there are really three critical pieces of information that an agent needs to know in order to rate a flood insurance policy. One, of course, is what kind of a building is he or she insuring.

The relevant characteristics there have a great deal to do with whether it's one-story or two-story, whether it has a basement, and various things like attached garages and the like. Again, some building description and the kind of facility being insured is a critical piece of information.

The second critical piece of information is where is that building located relative to the flood risk. That information is generally contained on the flood insurance rate maps that are the result of flood insurance rate studies that FEMA has been conducting for approximately 30 years now.

There are various issues surrounding the data contained in those maps, one having to do with the age of the maps and the data, another having to do with the costs associated with keeping them updated, and of course, when you are talking about age of data, you are also talking about the issue of accuracy of

that data.

Of course, the other issue that we are dealing with immediately today is also the matter of making that data readily accessible. I think we have made great strides in making that data, those data -- I'm never sure; actually, data is a plural term. I'm going to step back in my classical education now. The singular is datum; the plural is data, and I go crazy trying to figure out whether I should say those data or that data. So, I'll probably slip between the two. This is just my anal emotional make-up.

Anyway, we've made great strides in making flood risk data available to the public. Primarily, the focus has been on lenders who are required to know a location of a structure before approving a mortgage, but we have also made a lot more strides in terms of making it available to insurance agents.

The third, of course, pieces of information that, I have to say, has been most problematic for us in terms of both securing and making readily accessible, is the elevation of the lowest floor of the building that we are insuring.

Our primary piece of risk information that is critical to understanding the rate that needs to be applied to a flood insurance policy has to do with how high or low the lowest

floor of a structure is relative to the flood risk.

That piece of information right now is provided by way of a piece of paper, basically, that is prepared by an engineer or a survey that is called an Elevation Certificate, and it has a lot of valuable information on it that an agent needs to secure in order to write a policy.

Agents, to be perfectly straightforward about it, are very frustrated with the notion of having to get an elevation certificate, because it's not the kind of thing that they are traditionally -- it's not the kind of thing they have to do in their other lines of insurance.

Therefore, we have challenged them to try to write flood insurance in ways that are somewhat different from how they write their other lines. We've spent a lot of time trying to convince them that it is really worth their time and effort to learn how to do it and to do it just the way we would like them to do it. We have also spent a lot of time and effort hearing them say -- if not say it out loud, or at least tell us by their actions that they are not prepared to go to the lengths we would like them to go to rate flood insurance policies.

So what we are trying to get to is a point at which we can maybe make it a little simpler for them. Anyway, that

piece of information is important to the rating process.

The other aspect, another very important issue that we need to keep in mind, is the fact that in the flood insurance program, somewhat other lines of insurance, we have a direct reinforcement through the insurance rating process of enforcement of local building standards that we ask communities to put into place as a precondition for coming into the program.

The virtue of the flood insurance program -- and believe me, I have to talk to enough reporters and enough other individuals who challenge why in the world we try to even insure certain properties in the flood plain -- is that we are getting a significant trade-off from local communities for taking on risks that the insurance industry won't. The Wall Street Journal comes out practically every six months or so with some -- somebody gives them a comment about the program, and they say how crazy the government is for providing insurance where no private insurance company would ever provide it.

It's true, because we provide insurance to properties, many properties, at a rate, which doesn't even closely reflect the risk to which they are exposed. We do that for a very important reason, and that is that the communities where those properties are located are, in fact, insuring that new structures

built in those communities are being built more safely, better, and more secure from flood risk.

In fact, our actuarial experience shows us that that is happening. We are getting, in fact, the trade-off that we bargained for when the program was first put into place.

So, any process that is directed toward trying to simplify and streamline the rating process for the program can't seriously or in any significant way threaten the reinforcement that the insurance process provides to compliance with local building standards.

I had an e-mail yesterday from a surveyor in Louisiana who said he couldn't make it to this session, but he hoped that the interest of the surveyors and engineers would be represented here. His first comment was why are you trying to get rid of the elevation certificate.

I said, well, you know, we are not trying to get rid of the elevation certificate. What we are trying to do is find some way of getting the information that is available through the elevation determination process more readily in the hands of insurance agents.

To be honest with you, we don't have any particular interest in the paper on which an elevation certificate is

prepared. We have a lot of interest in the information that is on that paper. Now I don't mean to make that too overly simplistic, but in fact, the relevance of the elevation certificate is the information and not the paper on which it's written.

Now again, right now we are geared to requiring that we have the piece of paper, although I guess there are probably areas where we are getting it electronically. I don't want to dwell on that, because we are going to be talking about some of that today.

So, in general, those are the large issues that we are trying to address today, and hopefully, the agenda will cover through the course of their presentation pieces of all of this. We may not cover absolutely everything.

I don't necessarily believe this is the last of this kind of session that we will be engaged in. Hopefully something from this session will feed into some following sessions, and we can keep moving toward some possible solution.

So all of that said, I am going to introduce our first speaker, who is Matt Miller from our Mitigation Directorate in FEMA. He is going to talk about those maps that you are all familiar with.

What he is going to say, I have no idea, but that's

the mystery and joy of this whole session.

MR. MILLER: Thank you very much. Good morning. There is a building in Bethesda, Maryland. It's Barnes and Noble's bookstore. Has anyone been there? I need to confess this, because along the foundation of that building, there are wise sayings, and I have plagiarized every inch of that foundation, and you can get away with it if you speak at least 100 miles outside the Beltway. So, I'm going to have to confess that any quotes I use today, I stole from that building.

For instance, Soren Kirkegaard is quoted there as saying, "Life is lived forward and understood backwards." Now I would like you to all think I'm that well read, but I'm not. It's a problem, but I do want to talk a little bit about the history of our mapping program, because I think it will help us understand where we are going.

This is my son's science fair project that's coming up here. I just drive around the Beltway talking, it seems. Yesterday I was late, pulled up where I was supposed to be, and locked my keys in the car, and we'll see if we do better this morning.

I want to briefly talk about the history of our mapping program and where we got where we are. Then I think that

will be a jumping off place for maybe e-commerce discussions later on.

I was giving a presentation -- Dr. David Maune is here. He's the distinguished looking guy halfway back. Before the presentation started Dr. Maune and I were huddled together, and I'm sure the people in the audience thought that we were just talking about geography or something, but we were really trying to figure out where the down-button was, because we are both very nearsighted here. I've got that located now, and I'll go on.

We have used this graphic as sort of a poster child for a map modernization initiative. The left-hand side is what's called a scriber. It looks like a little magnifying glass, and you use this device to scrape a line on a piece of plastic.

You scrape enough lines that people -- in enough pieces of plastic and stack them together, and that's how you make a flood map. That was state of the art in 1968, and most of our inventory was made using that device on the left.

On the right, we have a digitizer. That is how you trace a line and enter the data into a computer. It sort of symbolizes where we are trying to go with our mapping program. We have -- I think it's called a legacy problem in the industry.

We have about 100,000 flood maps that were made

with that scriber. It's dumb data. You can't answer questions. You can't send it over a phone line, and we need to convert to a digital format so we can.

I want to make four points today. I want to talk a little bit about how flood maps are made and then talk again about the history of our program.

I think it takes a little gall to say this, but I'll say it again. What is the purpose of NFIP? No matter what administration we have, be it a Republican or a Democrat, we pretty much agree that the purpose of the National Flood Insurance Program is, one, provide flood insurance to citizens to protect against catastrophic loses; secondly, a risk assessment program to identify the hazardous areas of the nation from flooding; and lastly, a basis for flood plain management regulations.

The mapping is where I work, and I think it's an essential part of this three-legged stool.

The special hazard area is the area of the flood plain we map. It's the one percent flood plain. There's a one percent chance you will have a flood there in any given year. If you have a 30-year mortgage, there's about a 26 percent chance you will have a 100-year flood.

It has been subject of some debate very recently.

At the time that the one percent standard was adopted, it was a compromise. There were people who wanted a 50-year standard and others a 500-year. So, it was a compromise. It's in the middle. But as we have had catastrophic events in the past decade, there are those who are questioning the adequacy of the one percent standard.

Our flood studies were done primarily with -- by hiring other Federal agencies and by contracting with local firms in communities. We are changing a little bit the way we are doing business, and I'll talk about that more in a minute.

Here is our budget, and this is the funding problem our mapping program faces. The red line represents actual dollars that spent. The green line is those dollars adjusted to 1997 dollars.

You see that our heyday was at the late seventies, and since about the early eighties our budget has basically been frozen. What that means is, it's declining. We had a very good blip this year, and I'll talk about that in a moment.

Wherever I see a flood -- somebody who sells flood insurance for us, I always thank them. If my children are with me, I always introduce them. They say this gentleman is paying part of our family's salary.

Ninety percent of the funds that run the mapping program come from the sale of flood insurance. Every time a flood policy is sold, 30 bucks goes in a pot, and that pays program expenses. About ten percent we collect in fees from the sale of flood maps, from charging for our engineering reviews, but most of the money comes from the sale of flood insurance.

About two years ago, our mapping program got a line item in the President's budget, and we were seeking substantial funding of about $170 million. We got $5 million, but we got our foot in the door. This year we received funding in addition to the fee income of about $32 million. So, I'll talk a little bit more about that later.

How do you make a FIRM? Now some of you smart people in the back are saying my FIRM doesn't look like that. Well, you're right. These are the components of our newer map products. But on the left, you will see a base map.

Now a base map, when we started our program, we used USGS quadrangles, and in many ways, I wish we had never deviated from that. We used topographic information -- that means elevations of ground -- to map elevation data, flood elevation data.

The flood data itself, we compute using hydrologic

and hydraulic models. We put it altogether, and we get a flood insurance rate map at the bottom.

Here's a process for our mapping, which I won't dwell on. I think this is interesting, the cost of our program. Eighty percent of our costs are in actual data collection analysis. If you'll notice, only two percent is printing and distribution, and in any e-commerce solution, that's where we really need to do better in our mapping program. We need to make those data available to the people -- to the end user.

The original maps -- Mike Buckley, my boss, talks about them about them being made with hammer and chisel. That's not quite right, but they were done rapidly. We called them emergency maps. They are in an 11 x 14 format, and they only showed A-zones, no base elevations, just the rough outline of the 100-year flood boundary.

The flood insurance rate maps were born after the reform legislation in 1972, which made the purchase of flood insurance mandatory if you had a federally guaranteed loan. Then we made the larger E-frame format. We added flood elevations to the maps, and we added floodways.

The floodway is the channel of the stream in the adjacent flood plain that must remain open in order to pass

floodwaters downstream.

The primary source for the base map, which is what we lay the flood down on top of, was quads and then some community base maps. We started a slippery slope at that time. Because the USGS base maps did not have enough detail to locate a structure, the FEMA mapping program started adding detail. We started making what is called kiss plates and adding more detail on the flood plains.

When we did that, we introduced inaccuracies in our mapping, and we really started making graphics instead of maps, if you think about it. We are suffering from that today.

What are our accomplishments? I guess it's an accomplishment to spend over a billion dollars, but we'll claim it. We've made flood hazard maps for almost 20,000 communities. We have produced about 100,000 flood maps.

We have done detailed studies for 12,000 communities. A detailed study is one in which we actually compute the flood elevations in that community.

Where we are now: In 1986, we started making digital flood insurance rate maps. Now we have what we call a legacy problem. We have about 100,000 flood maps, and we revise about 4,000 a year at most. So you see, we have a long way to go

before we convert the inventory of manual maps. I don't need to probably sell you on the advantages of digital flood data.

We have Q-3 flood data. Many people ask me where did the name Q-3 come from. Dan Cotter is halfway back. Dan named the Q-3 flood data. It stands for quality level 3, and intuitively we are going to have quality level 2 and quality level 1 data, but Dan Cotter developed this product.

I have to say about Dan's ideas it that generally I understand how good his ideas were about ten years after he came up with them. But this was how FEMA really got -- how we produced a lot of digital data very quickly.

The Q3 data is the outline of the 100-year flood plain. It does not contain flood elevations, but it's vector data, which means that it's suitable for importation into GIS models, and we've covered about 95 percent of our policies in force, and we have about, I think, almost 40,000 math panels of Q3 data.

The one limitation for eRating is that it can't be used to write a policy. It does not have baseline elevations on it, though it's useful in the FIA for screening policies, for looking at actuarial soundness of the program, but it doesn't take us where we need to go.

I want to talk about the challenges facing our mapping program. First is the age, and Ed alluded to this. Over half our maps are at least over ten years old.

When I moved here in 1980, Loudon County was farm land, and today it is the second fastest growing county in the nation, and our flood maps reflect the rural condition, I'm sad to say.

Things change. This is a great -- a good example of that. When we did the flood study in 1976, the data we had ended right here, and here was our estimate of the 100-year flood discharge, about 55,000 cubic feet per second.

If we add in the data up to the present, we now know that the discharge should be over 70,000 cubic feet per second. That's a tremendous change, and our maps frequently don't reflect that.

Base maps are sort of a no-brainer, but when you have development flood plain and your maps don't keep up with it, you can't locate yourself. Here's an example of that. The red information indicates the additional roads in the flood plain.

When companies lose track of their inventory, they generally go bankrupt. If you don't know what you've got in the warehouse, you don't know how much borrowed money you are using to

support that inventory, you tend to go out of business.

We lost control of our inventory. We didn't know really the age of our maps. We didn't know how many needed to be updated. We are now in the second cycle of a five-year cycle in which we review the accuracy of our maps, and this is very good, because it's giving us a handle on the age of the inventory and what needs to be done.

This was from our first cycle of updates. These are the projects we came up with.

20,000 of our maps needed to have the flood data updated. I showed you that graph of the flood discharges. 19,000 need map maintenance only. What's that? Well, the base map is out of date. You know, we've had development that's not reflecting the base maps.

For 41,000, we estimate we just need additional conversion. The data is adequate, but we just need to change it from a manual to a digital format.

We estimate that we have about 14,000 unmapped -- about 3,000 unmapped communities, which totals about 14,000 panels we need to make.

About three years ago, the Director, Director James Lee Witt, noticed the mapping program, and it was wonderful.

Previous to that, most Directors -- we were just an irritation to them, and Director Witt said I'd like to know how much it would cost and how long it would take to make the flood plain mapping program what it should be.

We asked him for eight weeks to do that, and we wrote a plan. It wasn't rocket science. It was just talking to our constituencies and talking to people with knowledge of our mapping program, and we proposed several things.

We proposed, one, reissuing the maps in a digital format. We proposed flood data updates where we needed to do that, and we proposed an aggressive outreach program. We proposed to do it over seven years at a cost of about $750 million.

The Director initially balked at that. He said I'd like you to demonstrate to me that this is beneficial. So, we did a detailed benefit/cost analysis, and our conclusions were that better mapping would pay for itself in reduced flood losses.

Another component of our map modernization program was our cooperating technical communities program, which we were changing to cooperating technical partners.

This is working with local communities and states to tap local expertise, to use their resources and their expertise. This takes advantage of their resources, but also it

gives them ownership of the flood maps. Probably one of our best examples is a partnership we started with the state of North Carolina last year after Hurricane Floyd.

Floods, in one way, are our greatest friends, because they capture people's attention. It's like hitting a mule with a 2 x 4. After Hurricane Floyd, the state of North Carolina realized they had a real problem. The state has proposed a $60 million program statewide, and they have already started mapping the first third of the state.

North Carolina has thrown in about $26 million, and, we have thrown in $1 million of our flood money and about $5 million from the disaster relief fund, and that's a great cost share. The state proposes to restudy the entire -- all flooding sources in the state, and reissue them in a digital format.

You saw this a few minutes ago, but these are the components of our map product. In lieu of the old USGS quad, we are using digital or the quarter quads as our default base map.

JoAnn Howard talks about OPM. That's Other People's Money. I talk about OPM as Other People's Maps. We need to not duplicate effort. We shouldn't make base maps where other Federal agencies and communities make them.

We had a great deal of debate about a base map

source. In one sense, having a single standard base map would have been cheaper and easier for us or, better yet, not have a base map. But the political reality being what it is, when a community has spent a lot of money to develop their own base map, when they have tied their own tax collection to it, there's a great deal of pressure on us to use it.

So when a community base map meets our standards for accuracy and currency and we can use it -- the licensing is adequate -- that's the base map we'll use. Otherwise, the digital with our quarter quad is our default base.

You are going to hear more about topography, and I won't dwell on this. One of the most expensive components of a flood map is felt is the elevation data. The USGS information used to be the best. It would have typically a five-foot interval. Now the advanced technologies like Lion-R are coming online. We can do much better mapping at lower cost.

We have wonderful tools now. I have a GPS unit in my car that gives accuracy of surveys that were unheard of, even using field instruments, you know, 20 years ago.

This is what the new FIRM looks like. It uses other people's data as much as possible. It's fully digital, and it will be available through our Map Service Center.

I mentioned funding a little bit, but it works out to be about $750 million over seven years. We've been very successful in one area of our map modernization program. That is coming up with new standards and products. We've been very successful in the outreach. We've been much less than successful in our funding for that.

We really needed about $110 million this year to launch the program, and we've come up with under $30 million, realistically.

I think one of our other good successes is our digital distribution center or the FEMA store or the map service center, you may have heard it called.

Right now, when I talk about the map service center, I let people know that it's next to a doughnut factory. It's a giant warehouse next to the Entenmann's plant near Rockville, Maryland.

Our vision, our goal, is to migrate that warehouse from the big building by the doughnut factory to the Internet, and we are almost there. In January of this year, we are launching our e-commerce site, and we are scanning our maps now. So, within a year, we will also have all flood maps scanned and available on site for viewing and downloading.

Now I need to talk a little bit about what's the difference between a scanned map and a vector product. A scanned map is just like, when you FAX someone a letter, you're making an image. It's a bunch of on/off, on/off, just a bunch of dots on the page. It's dumb data, but it's digital, and you can send that over the Internet, for instance.

So, what we are doing is scanning our maps concurrent with developing the better vector data. If you understand that -- Dan Cotter will explain that later.

There are four main components of our digital distribution center. I'm going to go through these very quickly and dwell on the last one.

First of all, we had to change that warehouse. We had to rebuild the back office, if you will. Then we had to find state of the art technology to effectively collect money and take orders.

The more exciting part, to me, is the products we have. Right now, if you called our map service center now and said I'd like to order a flood map for my house, they would say, well, what map panel do you want? You would say, I don't know; I live in Fairfax, Virginia. They would say, well, we'll mail you an index, and you figure out where you are and then call us back,

and we'll send you a flood map.

Well, that's no way to sell flood maps. With the e-commerce site, you can order online or, if you don't have a computer and can't order online, you can call our map service center, and they will be able to take your -- to find out where you are and place your order immediately.

I also mentioned that we are scanning our maps right now. Within a year, we'll have all of our inventory available online for viewing and downloading, and within probably two months, we'll have about 20,000 of those images up.

You know, we've built this wonderful store, which represents a large investment. We are going to use FEMA. We'll use that for selling other products from the fire company products to FEMA hats. The idea is that will be the FEMA store.

One challenge is pricing. You know we can't lose money, and some of our newer products, the color maps, cost more. We need to be careful that we are revenue neutral, at least.

Another is the law. For instance, laws were written for paper. Laws were written for manually produced maps. It's a new world out there, and laws and regulations really haven't kept up with it.

I am going to stop there, and take questions or

comments from you. Thank you.

MODERATOR PASTERICK: There may be, during the course of the day, questions and, hopefully, we'll open it up to -- - There will be more discussion.

One of the objectives, obviously, here is to describe for those that maybe aren't familiar what is the territory that we are dealing in. The maps are a primary source of risk data, flood risk data. Any solution that we have toward accessibility to that data, we need to understand what's going on in the world of map study and production.

One of the things I didn't mention maybe in the opening comment was the fact that I suppose you can break down the alternative ways that we can go about addressing this problem into two broad categories.

One is to find better ways of streamlining our current process, making it more user friendly for the most important users of the rating process. The other is to devise alternative strategies that still preserve the essential program objective.

Our next speaker this morning -- Matt's purpose really was to lay out the status of the flood risk data, the nature and extent of the flood risk in given areas, and that

important piece of flood information.

Bill Barton is Project Director for the NFIP Bureau and Statistical Agent, and is going to talk about another piece of risk information, and that is the lowest floor elevations that are really contained currently on a whole series of individual elevation certificates, again, that rest in actually various locations.

Bill will address that, and then after Bill's presentation we will take a short break, and then we will have our final presentation after that, the final presentation of the morning after that.

MR. BARTON: I'm keeping my fingers crossed.

MODERATOR PASTERICK: Everybody tested these things before this whole session started, and they all worked. Obviously, the testing doesn't really make a whole lot of difference, because we kind of start from scratch every time somebody new comes up here.

MR. BARTON: This should be interesting. We are calling a technician, and we'll see if we can go. But, I have to have the slide show to remember what I'm supposed to say. So, I'm going to look at my slides while -- I'll describe them to you and do hand puppets, just like in the commercial.

First of all, I want to say that I really appreciate JoAnn and Ed, the idea of having an open forum, and I think this is very indicative of the way that the Federal Insurance Administration works.

They really do consider issues from everyone, and one of the things that I want to do today is share my perspective of things to you. In some cases, I may be a little bit more, I guess, radical to try to make my point. I hope you don't consider that I really believe everything I'm going to say, but I think it's important in a setting like this that we all are able to voice our perspectives strongly to make our case strongly, and without anyone taking it personally. So I hope you will give me that opportunity.

My perspective is insurance. I was a property and casualty insurance agent, and for six years and I worked for FIA as a contractor at Computer Sciences Corporation. My job was to teach agents and lenders in Texas, Louisiana, Oklahoma, New Mexico and Arkansas about the Flood Insurance Program.

What a great way to learn this program. An especially what a great way to learn about what's wrong with this program. Matt, you wouldn't believe how many times after a workshop people would bring the maps up to me, and I know just how

you feel, because they thought they were my maps, that I made them, I was responsible for how they were, and to hear, you know, what they had to say about them.

So, it really has helped me to get a broader view. Right now, my job is the Project Director for the Bureau on Statistical Agent. The Bureau idea is something that the folks who were setting up the flood insurance program sort of copied from the insurance industry, and today ISO is sort of the follow-on there now. It's a little bit different entity, but ISO served as the bureau for the national scene for many years. They are where all the statistics from so that actuaries and other folks could make some determinations about what risks were really like in our country.

So, what we do is take the data -- the datum -- from all the companies and, if you will, roll it up into reports and massage it into reports and things like that for the companies -- I mean for FIA to use to make their decisions.

So, we are sort of in the middle of it. We're nuts and bolts folks, but we are right in the middle of where everything traffics back and forth. It's an exciting place to be. Looks like I'm just going to wing it here.

So, that's sort of my perspective. Again, I want

to say to you that observing the Federal Insurance Administration for almost 15 years, you know, I'm just amazed at how they do their job. As JoAnn said, with only 50 people, the way they make policy, the way they consider everyone's view, the way they try to reach consensus, and I think today is just another example of how they work.

You can't see this great slide, but I want to talk to you about rating. Rating in the insurance industry, you know, goes back to almost the pioneer days in the U.S.

As insurance companies came to the point that they could no longer touch everyone who they needed to write a policy for, as the frontier expanded, as cities moved further west, they found the need to have what you could call field underwriters. They were people who could go out there and, without a telephone, without a telegraph, with Pony Express, there was no way to communicate back to the company.

Those folks had to have some sort of systematic way of assessing risk and binding the company to that risk without actually being able to communicate directly with the home office, with the underwriters who understood what all of this was about.

So, it was necessary to reduce the rating to rules or to logic and to simplify it to the point that it could actually

be put into manuals that could be used for rating. Yes, sir?

MR. SCAWTHORN: I'm sorry to interrupt you. But I know you want to use your slides. Have you tried to control FI?

MR. BARTON: No. Control FI? Oh, you mean because it might not be going to the screen.

MR. SCAWTHORN: Yes, exactly.

MR. BARTON: Neither one of those did it. It's probably just not recognizing my laptop. This part is just bullets anyway.

So as the manuals were developed, mainly because of a lack of communication, and the way manuals are going these days is that they are becoming -- that people are using more and more rating software.

So, what we have experienced with our flood insurance manual is that a number of users for it have gone down. In the 1980s, we had over 100,000 manual subscriptions, so that every time FIA changed policy or changed the rules, we at CSE would put together through GPO 100,000 copies and mail them out to all of those people out there who needed to know the new rates and the new regulations.

In 1993, when the manual was rewritten and reformulated, it was decided to try to collect something back for

the cost of these manuals. We would charge the exorbitant rate of five dollars for five years worth of subscription, it went from over 100,000 down to about 22, and it grew up to about 25,000 people who subscribed for a manual.

So, what's happened -- This is a mess to reboot.

ADMINISTRATOR HOWARD: Why don't we take a five-minute break for coffee?

MR. BARTON: Thank you.

(Whereupon, the foregoing matter went off the record at 10:00 a.m. and went back on the record at 10:20 a.m.)

MODERATOR PASTERICK: If you could get back to your seats and we'll get the session going.

ADMINISTRATOR HOWARD: If you will take your seat, we can resume.

MR. BARTON: Okay. Somebody needs to turn me up back there.

So this is -- what a nightmare. Just imagine. How would you like to be me right now?

MODERATOR PASTERICK: Just keep going.

MR. BARTON: I was telling JoAnn, you know, Thursday my daughter's car was stolen, and she handled it with such maturity, I have to be mature now, you know. She said, at

least nothing happened to me, Dad.

So, before the break, we were talking about manual usage and how it relates to rating. You can see that, at least as far as people who formerly subscribed to us, it has continued to plummet over time, over about ten years, and we have some concerns right now about, well, why isn't anyone subscribing to our manual? Maybe we didn't do a good enough job of advertising how to subscribe or how to sign up.

You know, as it turns out, many, many people are using other ways to follow the rules for rating. Hopefully, they are using rating software. In fact, agents use it all the time for all their other coverages, their automobiles.

You know, one of the things that's happened: When I was an agent, you had to get out the manual and try to figure out exactly which Ford Mustang that person had and what accessories it had, because all of that went into what its value was.

Well, now the VIN number is like automobile DNA. From the vehicle identification number, you can key that into a rating system, and it could almost draw your car for you, maybe not the right color paint. So, agents are very used to using rating software, and it's a major part of their environment now to

go to a computer to rate a policy.

I just copied these off the fema.gov/nfip site. These are the rating companies that we have on our site. If you want to know more about them, you can go to fema.gov and click to find out more about them.

They have been doing this for quite a while. Most of them were around before Windows. So, they have really learned how to do this. You can get community information, CRS, different kinds of data just from the rating software.

In fact, some of the companies either furnish the software to the agent at no charge, and sometimes they might even offer an incentive for using the rating software rather than turning in a FAX'ed application or a mailed application, because it saves them time.

So, what if we had some rating software that communicated with the NFIP? After collecting the information from the insurance agent about that particular risk, what if the software could communicate with the NFIP and then find out specifically for that property what is the rate for that property, and that it be passed back to the rating software, no manuals, no place to look up the rates. The software does everything.

So, imagine that the agent's computer goes to the

NFIP computer, and they talk, and then the rate is passed back to the agent's computer. Now this rating software thing today is not just one of those software packages loaded onto the agent's PC. We are beginning to have vendors and companies who are putting the logic, the rules, on the Web server that the agents access.

The agent is not really accessing software on their computer. They are using a browser to access the same rules based logic on a Web computer that, in turn, communicates with the company and processes it. So, this rating software could be a software vendor. It could be a write-your-own company. It's not necessarily just the agent's desktop.

So what are the advantages to doing something this way? It's transparent to agents. If we were to create a rating registry where we have a rate, for example, let's say, for every address in the country, we have a privacy issue. But because we are only communicating to certified people like rating companies and write-your-own companies and not to the general public, I think that would make it possible to address the privacy issue.

It's not a threat to the flood zone determination companies, because we are not dealing with the lenders here. We are not telling the lender who is required to have it or not required to have it. We are just providing a database with the

rates in it so that the companies or the agents can access it.

Also, if we have such a thing where we are no longer publishing rates in the old manual form but we have a database where we have the rates listed, it frees the actuaries. I mean, aren't we all in favor of freeing actuaries? I mean, they've been bound up so long, they are so pent up that we need to free them.

You know, one of the things that I was talking about the early manual is, you know, there are restrictions because you have to make it simple enough to reduce it to a manual and make the rules general enough for them to be reduced to rating tables that aren't too monstrous. I know from working with these guys, sometimes that's a serious constraint for them.

Now I know you're still a little puzzled, but we'll get there. So complexity that could become transparent if we had an individual rate for each address would be, for example, we had this problem of grandfathered C-zones. People are not really in a C-zone, but somehow they are able to say they were.

Well, how do we get away from that? Well, if we are able to say that the rate for 1602 Jefferson Avenue is an A-zone rate, then that's what it is. Maybe we go through a period where we would document whether it was or not.

There are repetitive loss properties that are not a part of the repetitive loss target group. Maybe we could find a way to deal with those after they have had several losses and change the rates for them individually.

Communities on probation are a real problem to communicate out to everyone in any kind of time frame, but if we had the ability to instantly go into the database and change the rates for everyone in that community, it would make it a lot faster. We might not have to say it lasts for a whole year.

We are trying to find a way to get Pre-FIRM properties with losses up to the actuarial rates. Well, the ones we should be concentrating on are the ones who have losses. Maybe having a database that we can change the rates in would give them the ability to do that.

Perhaps when the agent goes to rate the policy, we come back and say to them, hey, there are no losses on this property, you qualify for preferred risk, and maybe you should consider that instead of the normal way of rating. Just a few suggestions of how we could make complexity more transparent.

Now what am I talking about, a by-address database? Basically, we could start with an array of all the current B, C and X zones, in other words the ones that we have in our policy

base today. But I think, you know, what our goal would be would be to have every address in the United States in a database and then be able to access that by keying in the address.

There are many systems like that. There are many systems based on addresses where you can search them. We would have to go through a process, the GIS folks, to create a beginning database that says what the rates are for each individual structure, using the Q3. We could possibly purchase or bargain with the flood zone determination companies for their data to include in it, and add other critical rating overlays as they become available to use to make that decision of which rate to charge for an individual property.

Now this may sound a little radical, but actually, much of the property casualty -- or some of the property casualty industry works that way already. There are commercial registries where, when an agent goes to write a policy for a particular commercial building, he may access a state database, get the rate and rate the policy.

If he wants to change the rate, then he has to submit to the Bureau to have it inspected and get the rate changed. So, that's been going on in the country for a very long time.

Once established, a registry -- there would have to be procedures for updating it, for people accessing it, and either having a property put in the registry or for having a property designation changed in the registry. But one of the things this would do is give us uniformity.

One agent or another agent is all going to come up with the same rate. They are not going to each be creatively involved in determining what the rate would be. Updating could come from the companies or the agent. Something would have to be worked out.

Okay. What about elevation rating? Before we talk about that, I just want to make the point that 90 percent of all the structures that are eligible for flood coverage are not in the flood plain, and they flood.

Somehow, we spent all of our time talking about this ten percent of the policies, and you know, we have a perception problem with the agents. The agents think that this program is so hard because all they see of it is those structures in the special flood hazard area.

The agents are not selling this moderate risk or this second tier of risk. If we ever are going to get the program to go where we want it to go, we have to address the perception

they have.

You know, having been an agent, I can be a little hard on them. Is Fletcher here? He was going to be here today. There are no agents in the room, huh? Oh, good. Good. Well, then I can't say everything I want to say.

You know, just to be cruel for a moment, here we have this mandatory purchase requirement. We send people to these agents begging for a flood insurance policy. You know, I think that's great. We are sending business in their door, and what do they say? Oh, it's too hard. It's so hard to write a flood insurance policy.

I just find that hard to believe, because having been an agent -- you should try to write a worker's comp policy or you should try to write a general liability policy with monthly reporting on the gross income or on the salaries and payroll of the staff. Every month, it has to be computed.

You should try to write an animal mortality policy. You have to have the animal looked at within 24 hours of the policy taking effect. So, I think part of why they think it's so hard for all this free business we are sending them is that they just don't know. They are not accustomed to using it.

Nevertheless, they have the perception that it's

hard, and that perception is reality. That's what we have to deal with in order to get them to sell that other 90 percent of the policies that are going to make this program really work. Okay, I'm not going to beat on you anymore.

One of the things that we've been discussing for quite a while is doing something about the elevation certificates that are out there in the communities that already exist. About a year ago, I know Jerry spoke to most of the stakeholder groups from ISO about this, and something I'll talk about a little later is we actually did some experiments in 1997 dealing with taking some of the community information.

I think this is something that definitely should be done. It would be part of any strategy to have a rating registry or an elevation certificate registry that agents could access. Some communities already have databases. They have really good ones, and they have everything in them.

All you would need to do in that case would be to create a uniform record layout, a standardized record layout, so that that data could be put into a system that everyone could access. That's fairly easy programming to do.

People talk about scanning elevation certificates, and as Matt said, a scan is just a picture. It's stupid. It

doesn't do you any good. You can't edit it. You can't get data from it. It's just a picture.

There is optical character recognition, but it's only good for -- It misses one out of 20 words. If you had a secretary that was missing one out of 20 words on a regular basis, you wouldn't keep them for long.

So it's still possible that scanning elevation certificates might give us data, but the basic truth is that, even though they are scanned, they are going to have to be keyed to the file in order to be able to really access the data and use it.

My company, CSC, just finished doing a project for the Census. We had 3,000 employees for 100 days in Baltimore. We scanned literally one-third of the Census documents in the country in those 100 days. Twenty-six semi-trucks a day pulled up from the Post Office. They were unloaded, scanned, and then loaded back into the trailers.

So, it's possible to scan a lot of data easily. Then those were keyed from the screens. We had 400 people at a time keying, but those 400 keyed literally millions of documents.

So were to go along with this idea of creating an elevation certificate database, we would need to address having those keyed. We could have kids doing it in the summer, college

projects, so forth, if that community really wanted to do that. Fortunately, there are CRS credits for those communities that want to do it, and they should be encouraged.

Another idea along that line is maybe what needs to happen is that there be a software developed to key into so that they meet the standard format or possibly even an Internet site to key into so that the format remains the same.

So you know, I think we should pursue something like that, but as you can see just from what I was just saying, that's not going to happen tomorrow. It's not going to happen anytime soon.

So in some of our conversations back in October when Ed and I happened to be working on the Conference Planning Committee talking about this, we started talking about, well, what can we do now.

I recall that, Jhun, I think you worked on this EC project back in 1997. We went through all of the policy data we had ever had, sort of a data mining thing, looking for elevation certificate data, and we found that there were 4 million records and, when we de-duped them, we found 1.9 million individual records that we have elevation certificate information on today.

Now I'm about to show you some statistics. I

really want to qualify this because we've just run these reports, and it's possible that these are not the exact numbers. You know, we still need to go back and message it, but I think we are in the right order of magnitude from what we've found.

I have real reticence. I just talk to a number of my colleagues about bringing this up, but I think it's really important, and we have done our best to make sure that I'm not -- You know, I told you before I might not always tell you the truth. No. I might not always say what exactly I believe, but I believe that we are right about this.

If you look at this history, just to give you an idea, what the bar in 1986 represents the number of elevation certificates or policies we have with elevation certificate data, and the 1986 represents when the policy was written. It's actually the last time the policy was written, if you want to get to the rule.

So, you can see that we had a lot of the activity in 1992 through 1996. There's a great deal of elevation certificate properties put into effect.

Now what we did next was we took that 1.9 billion policies -- Now remember, this is from 1996. I mean at the end of 1996. In 1997 when we did this, we had very little 1997 data. So

this mostly represents 1996 data and before, and it's now three or four years old. But we took that data. We took those addresses, and we ran them against the current policy base.

What you are looking at now are those policies that we had elevation certificate data about who don't have a policy today. So we would assume they were required to have a policy. They went and bought one. They got an elevation certificate, and now they don't have a policy.

If you look at the comparison, the left side is those who do have a policy, and the right side is those who don't. It really doesn't do you much good in the trending to look at the out-years, because as I said, that data was pretty new. But it looks like the trend here is that the longer ago it was written, the more likely it is not to be in effect now.

If you look at the right side, 1986 has the most number of policies that had elevation certificates or had elevations that were elevation rated and do not have a policy today.

AUDIENCE MEMBER: Is there any effort to make a correlation between those properties with elevation certificates and LOMAs?

MR. BARTON: No. No, but we did try to estimate --

She's asking did we try to correlate, and these are some of the things we need to do -- but to correlate with LOMAs. But the order of magnitude of the LOMAs in a year over a ten-year period, I don't think, would add up to that, do you?

AUDIENCE MEMBER: Well, you would have to have some --

MR. BARTON: Some part of it. When we look at our retention numbers from year to year, we say that we have -- we lose about ten percent of our policies each year. And if you go over this time period and use that ten percent, that sort of becomes the order of magnitude of policies that we seem to be finding.

I just want to say again, -- We still need to do a lot more research on this, but you know, I wouldn't be bringing this up if I didn't have some confidence that there is something here. We are in the right order of magnitude.

Maybe it's only half as many policies, but there are literally hundreds of thousands of policies that used to be elevation rated, used to have a policy, and they don't have one today. Rita?

AUDIENCE MEMBER: Bill, did you correlate those numbers between mortgages set aside and transfers?

MR. BARTON: No. We would have no way to do that.

AUDIENCE MEMBER: Wouldn't that be a reason for that variation?

MR. BARTON: It could be. You know, we use as the number that 35 percent of the people in the country don't have a mortgage, for one reason or another.

So I'm suggesting that perhaps we could use -- Whether it's a million or half a million or 100,000 policies like that -- that we might be able to use these orphan policies, I like to call them, these orphan policyholders and the elevation data we have as the beginning of building an elevation certificate registry or database.

We need to get this information out to people so we can write those people. So just for fun, imagine we were saying, well, let's have flood amnesty. Maybe we could say to these people, to the write-your-owns or whoever, to the agents, hey, if it's one of these policies in the next two years, we will let you write that policy with the rate that we have on our system, or maybe it's a year or maybe it's six months, you know, like cable amnesty.

Create a database of those; work out what kind of access and who we would allow to access it, to facilitate

rewriting it. That process of figuring out what to do about all of that is probably more important than how many policies there are. Beginning to have an elevation certificate database, this would be our pilot project, figuring out how to share and who to share with and seeing if we could get those orphan policies back on the books.

You know, like a lot of -- If it's of great enough a magnitude and it's done right, it could fund future things by bringing those policies back on the books. That's a lot of mapping dollars. That's a lot of claims dollars. That's a lot of paying back the Treasury dollars or maybe even going on and using it to create something where we could help those communities key in those data files.

AUDIENCE MEMBER: How do you deal with the issue of who owned the elevation certificate?

MR. BARTON: She's saying how do you deal with who owns the elevation certificate? I think that's a great question, you know. Who does own it, who owns the information on it, under what circumstances can it be shared, and who can it be shared with?

ADMINISTRATOR HOWARD: Does anybody want to opine on that? I mean, a CRS community, what's your view of the CRS

community?

AUDIENCE MEMBER: Don't CRS communities have to commit to making that information available? So I think it becomes public information, once they fulfill that commitment, subject to whatever privacy commitments they have. But they do have to make it available.

AUDIENCE MEMBER: And some of the communities do have it available -- the actual elevation information available on the Website. So, obviously, they have it as public information.

MR. BARTON: Absolutely.

MODERATOR PASTERICK: Excuse me. Is the elevation that they have on the Website elevation that the community collected or was it paid for by an insured on an elevation certificate?

AUDIENCE MEMBER: It was paid for by someone on an elevation certificate, whether the insured or the developer.

MODERATOR PASTERICK: Excuse me. We are taping, recording this exercise, and I think you will want to be preserved in antiquity. So if we could start to identify. This is Rebecca Quinn who is now speaking, and Beth O'Brien before her, and Don Beaton in the mix there, too. Anyway, try to identify yourselves, and we will be able to have it on the record.

MS. QUINN: Rebecca Quinn. There are at least two broad reasons why people get an elevation certificate. One is because they have to get insurance, but most of the elevation certificates that the community, CRS communities, maintain are a compliance tool --

MR. BARTON: They are as-built information.

MS. QUINN: If someone in a CRS community obtains an elevation certificate just to get insurance, the community won't necessarily have that.

MR. BARTON: Right. You know, in the eighties I was -- When I was in the region, I was working with the city of Austin, and the lady there, Cathy Schlagel, just made a rule that any surveyor who did an elevation certificate in the city of Austin had to give her a copy, and she held workshops with them.

She told them she was going to come get them if they didn't do that. So since the eighties they have been collecting -- Even the ones that someone else paid for, they have been collecting them. But I think that is a good issue, and I think this is -- You know, you always need a pilot. You always need some way to work things out.

That's why I was proposing that we try to get these orphan policyholders and use that exercise to see how this works.

MS. Hollada: Rita Hollada. I think that part of the ownership issues could be addressed by making the elevation data part of anything the Zoning Commission -- data that they collect. Any property that is built has costs then that have to be filed and setback regulations that have to be filed to become part of the permanent data.

If elevation information was filed right along with that, it would always be there and always accessible to anyone as part of the public record and take away the need to purchase an individual elevation certificate and the need then for the privacy issue.

MR. BARTON: Now one of the points that I want to make right now is that I'm not saying that what we should do is furnish the agent with the elevation difference or with the highest floor and the lowest floor. I am saying we should furnish the agent with the rate. Tell them what the rate is. What do they care about all the rest of that stuff?

They only want to know what do; I multiply this amount of coverage times. That's it.

MODERATOR PASTERICK: And your rate would include the calculation done within the registry?

MR. BARTON: Right, or include the calculation done

within the software. I know --

MODERATOR PASTERICK: And the calculation would include the elevation difference?

MR. BARTON: Yes. It would include the elevation difference. Right. But the agent -- he only wants to know the rate. He really doesn't even want to know the rate, to tell you the truth. He just wants to know the premium so he can tell his customer and tell him that's worth it, so he can get his commission from it.

MS. QUINN: Rebecca Quinn again. I really wonder if that's, as you have before, sort of shortcutting or shortchanging the agent, because I think agents do have loss control in mind, and if all you do is write a policy with one number, then even the homeowner has no information about risk or to even, we hope --

MR. BARTON: They don't want it, though, Rebecca. They have to buy it, because the mortgage company made them. That's the only reason they are buying it.

MS. QUINN: No. There are people who buy insurance because they know they are at risk.

MR. BARTON: Yes, they flooded before.

MS. QUINN: And there are also people who decide to

do something about their risk. Part of my objective being here, representing the Association of State Flood Plain Managers, is to continue to remind, as JoAnn did and Ed did, that there is the evidence of loss control part of the plan, not just insurance, and information is valuable for mitigation measures and management measures.

While I can appreciate the need to continue to set policy, we also need the information, the same information is also valuable for considering losses or mitigation of losses.

MR. BARTON: Right. I understand that, and please know I do. But I'm trying to be polarizing, too, because you should hear what the agents say. They're saying the things I'm saying. They are saying who cares about that.

Just let me make this point to you. Say the average premium is $400. Say the agent gets 15 percent. How much is that? Sixty dollars? Is that right, $60? How much can he afford to do for $60? Not very much. That's a few hours of one employee's time, and that's all he can afford or he is losing money on that.

Of course, we try to tell him you're going to get a renewal, but maybe not. In fact, I believe the agents are usually co-conspirators with the customer to get out of the policy. After

the policy goes to the mortgage company, they forget to tell the mortgage company that flood insurance was required. I think that's where a lot of these policies go.

MS. HOLLADA: Bill, I need to defend -- Rita Hollada here. I need to defend the agents.

MR. BARTON: I know, I know. I told you I was going to do that, Rita.

MS. HOLLADA: Besides the fact that you've just contradicted yourself. Earlier you said 90 percent of all structures were not in special flood hazard areas, and those are the ones you wanted to target.

MR. BARTON: Right.

MS. HOLLADA: Then you turned around and said the only reason people buy flood insurance is because they have to buy it, because their mortgage company says. That's the ten percent in the special flood hazard areas. Those are the ones that need the elevation certificates. That's costing people $1000 these days. That's why it's hard to sell.

MR. BARTON: Right.

MS. HOLLADA: I can send somebody out, too, when they come to me for a policy and they want to insure a 15-year-old wood boat, and I tell them they have to go get a marine survey,

and I'll never see them again, because it's going to cost them a lot of bucks.

MR. BARTON: Right.

MS. HOLLADA: The same is true when they come to me with a flood problem. They need an elevation certificate.

MR. BARTON: I think there are some people up front that would like to have some of those $1,000 elevation certificates. Right?

ADMINISTRATOR HOWARD: I think they had a comment, too, up here.

MR. BARTON: Go ahead.

MS. LATHROP: My name is Wendy Lathrop, American Commerce and Surveying. This comment supports Rebecca's.

The problem of building a database with elevation information should not be so narrow that it loses the value. I mean, if you are going to go to the effort of building a database, why make it so narrow that it has one purpose? You should make it multi-purpose information.

Aside from mitigation, there is also when you have a database of information like that, you can use it to make sure that the maps are accurate. You can use it for post-disaster verification. You can use it to verify that there has been a

change to the structure.

So to just have rating information -- it defeats the purpose, and you end up spending more money later on.

MR. BARTON: Yes, I agree. I agree. But it is the business case, too.

MODERATOR PASTERICK: I think the issue may be to break apart. If that information is available to a broader community than just the agent, that probably better serves the purpose of doing an individual risk assessment on my property.

I think maybe one of the concerns that Bill is conveying is the idea of relying on the agent as the purveyor of the wisdom of exercising loss prevention. Generally speaking, it's not the agent that does that in other lines. The agent reflects what the risk is.

That's not to criticize the agent. It's just the fact that there are any number of other vehicles or sources of encouragement of taking risk mitigation measures. So maybe just what you're saying -- if that information is available, there are any number of other individuals or groups that can use that information to impart the wisdom of doing something about your risk.

Let's take about five more minutes or eight more

minutes of questions.

MR. BARTON: Okay. I can go really fast with the end. This is my main --

MR. MURPHY: A quick comment. Matt Miller has been -- Jim Murphy. Matt Miller is always fond of saying let's not dig the hole deeper. There is maybe something we can do very quickly that won't take care of the old elevation certificates but could take care of the new ones.

There are some privacy issues in that that have to be addressed with some of FEMA's new issues that they are looking at, how to protect privacy, and those can be addressed. But there is no reason that surveyors -- and Wendy, you can probably confirm this. They are all computer literate -- that the elevation certificate now, rather than just doing it and giving it to the homeowner, there is no reason they couldn't log onto the central data point where FEMA maintains a database from now on. The information goes in. It's collected. It's kept private, and then they can print out the thing, give it to the homeowner and give it to the insurer. But you could start from here on out maintaining an effective database.

That system could be up and operating very, very quickly and very easily.

MODERATOR PASTERICK: Does FEMA have to be the custodian?

MR. MURPHY: I don't know if FEMA has to be, but I'm just saying --

MODERATOR PASTERICK: Okay. I just think we have to keep -- Keep questions like that in mind.

MR. MURPHY: -- you know, an inexpensive and quick to put up system.

MR. BARTON: Because one of the things really behind this whole idea is that maybe the private industry should come up with this, you know. That's why we are trying to do the business case.

Matt was next.

MR. MILLER: I'd like to comment a little on your brilliant remarks -- If we had started even ten years ago, we would be at least halfway there. Talking about it doesn't get us there, as there are no silver bullets in the -- technology, but we ought to start. We've got to start. We ought to build the database now.

ADMINISTRATOR HOWARD: Amen.

MR. BARTON: Amen. You know, I'm trying to just propose one way to just start, make that first step.

There was somebody right -- There you go.

MR. SCHNEIDER: Philip Schneider.

MR. BARTON: Philip.

MR. SCHNEIDER: Actually, there is a form of database that is -- These are efforts being done by -- A few years ago, they were the first to take all their -- and store it, because they were digitizing it --

MR. BARTON: Right. And some communities have been at it 15 years or longer with GIS, too.

MODERATOR PASTERICK: Let me ask a question of the group. If we wanted to get some idea of which communities have this kind of information in what form, what would be the best source for us to ask? National Association of Counties -- do they have information like that?

MS. QUINN: Rebecca Quinn again. Well, first let's be careful. When you buy a house, the survey that is required is a boundary survey. It's not --

MR. BARTON: I think that's an excellent point. There's a big difference between boundary surveys and elevation.

MS. QUINN: Right. When you submit for a building permit in those communities that require a building permit, because there are still some that don't, elevation information may

be required, but often for single-family homes, it's not required unless you are subject to flood plain rules. Then even then it may not show on the building permit.

So, you know, we run up against a variety of authorities that require collection of information at the local level. In terms of finding out which communities either have or are beginning to maintain that kind of information, I think the states are the first choice to find out. They would probably have some feel, if you were looking, for example, at communities that do that.

MR. BARTON: And, you know, I told you I was going to make -- you know, incite the agents. But you know I have to say that there are many agents in this country, especially in small communities, who have actually been the catalysts that got their community in the flood insurance program.

Remember, this is a carrot -- You know, that's what I heard when I first came on. The NFIP insurance is the carrot for mitigation, and we have to keep the carrot there, you know. If the carrot gets to be too small, there's not going to be incentive for people to even want to be in the flood insurance program.

So, they have to feel like they are getting value.

There has to be a significant number of people in the community who are actually buying flood insurance, too. I think that should be a CRS requirement, is at least you have policies, you know, 50 percent of 25 percent of the policies. Yes?

MR. SUMNER: Kurt Sumner, also from ATSM.

I heard you say the agents don't care about the rate. They only care about the amount. I didn't hear you say how you expected rating to occur. Who is going to do the rating?

MR. BARTON: Okay. The idea is that we would have a database by address, and each address would have the rate for that property in the database.

MR. SUMNER: I understand that. Who would establish the rate?

MR. BARTON: The Federal Insurance Administration, the NFIP, would use some of the same kind of edit procedures that are used to verify that the rates that are being generated now are correct could be used to generate the rates in the initial database.

MODERATOR PASTERICK: That's his proposal.

MR. BARTON: Yes. That's just my idea.

MODERATOR PASTERICK: I'm just saying we -- What I'm saying is that's what he's saying --

MR. BARTON: Right.

MODERATOR PASTERICK: -- that we should do.

MR. BARTON: Right. Just trying to get some discussion.

MR. SUMNER: The reason I asked the question is I also see it as his proposal, because we heard some conversation before that the surveyor should do that. The surveyor is the person to do that.

MR. BARTON: Right. Okay. And then, so again the idea is let's try to take the orphan policies we have now and start on this process of building a database and deciding what should be captured and talk to the different stakeholder groups and see what they believe should be in it, and how do we share and things like that. Then the second phase would be to try to get this data from the communities, and use it however we do decide to do it. Kija?

AUDIENCE MEMBER: Maybe -- This is Kija Kim, by the way. I want the DSO community; the surveyors go out -- who go out to disaster response. They collect that elevation data, and they send it to the regions. You know, there is considerable data collected over the years. So maybe there are some regions -- in the regions you could even collect some of this data.

MR. BARTON: I know. They have done some GIS projects out there in the flooded areas. Okay.

You know, just to briefly go on with like what a rating scheme would be like is, for example, we might give special preference to all the elevation certificates written on the new form. If we were using older elevation data to provide the agent a rate, it might cost more, because the data is old. That's sort of what this chart represents.

I was going to talk a little bit about mapping and satellites. So, I'm just going to make one point, and then I'll stop, because we've had such good discussion, and Matt covered some things.

You know, our risk is location based, and addresses are a real problem. We run all the addresses that we get from the companies through Group 1 software, just to standardize it to see if it's a real address; because people write addresses many different ways, and it's hard to always know exactly which house they mean from that.

So there's been discussion about longitude and latitude, and being what we eventually want to get to. I was just going to suggest that there might be a way to use the one-meter commercial satellite images that are now available in the United

States.

This is the Washington Monument. That's pretty good clarity. I was going to suggest that, were we to use those images or somehow that be one of our layers, that the agent could identify the risk simply by going online, finding it, and indicating to us, hey, this is the house I'm wanting to insure. That could possibly be passed to the rating software.

You know, can you imagine the phone conversation: Mrs. Johnson, let's see, now you're the white house. Are you next to the cul-de-sac or are you the house two doors down from the cul-de-sac?

Being able to identify a risk is -- When we come to claim time, that's one of our biggest problems. We don't have the structure insured that we thought was insured or the insured doesn't have the structure insured. I just wanted to mention that this is one way to use technology and e-technology to capture that longitude and latitude maybe before we would get to it another way.

Okay. I'm going to call it a day there.

MODERATOR PASTERICK: Thanks, Bill. Again, hopefully, maybe we will have time later on in the day, and we'll be running over some of the same ground, I think, and from

different angles. All I could think of is, when you were talking about that house and how easy it was, was the Chinese Embassy.

The next presenters are Claire Drury and Paul Tertell, who are from our Mitigation Directorate. There is a major activity going on in FEMA called HAZUS, which is doing some loss estimation technology and, again, addressing another -- from another angle some of the pieces of information that are needed in this whole rating process, and some of what's going on within the agency that probably is very important for you to know about.

So I guess -- I don't know who is leading off. Claire? Paul?

MS. DRURY: Hello. I think technology helps, but I'm not sure, when it comes to some of this that we are doing. Maybe let's wait more than anything else here.

I'm Claire Drury, and I am with the Mitigation Directorate at FEMA. As Ed started to say, the Mitigation Directorate is engaged in a very exciting project. It's a follow-on, really, to the flood mapping program and utilizes the flood mapping information that Matt Miller was talking about, but it is to do loss estimation for flooding.

The benefits of this approach are that, you know, we know it's a hazard issue, and people were talking about risk

here. We know what the hazard is, but as you all know, in order to rate a flood insurance policy, in order to determine what it's going to cost the disaster fund the next time a flood happens, we need to know what properties are at risk, what lifelines, you know, pipelines and bridges and so forth, are going to be damaged.

So about a year ago we started to put together a video, which I think really explains loss estimation in a very simple way. I know we have some people say, gee, now I really know what HAZUS is trying to do.

The name of the project is actually HAZUS. It stands for Hazards U.S. Right now, we have an earthquake loss estimation model. It's been distributed to anyone who really wants to get it.

A lot of state and local communities are using it. We are getting a lot of interest, actually, from the private sector. People at Charles Schwab and Wells Fargo and so forth are seeing that there are commercial applications to this technology as well.

One of the things I would like to point out is that in the process of developing this methodology, we really have taken a tack with what JoAnn has said. We are not developing new information. It's really a need to synthesize what information is

already out there.

There are a lot of databases that you can use in doing loss estimation, you can do hazard identification, you can use in your rating policies. But they are of different qualities. They are of different accuracies.

You know, people say, oh, well, you can do -- we have the LIDAR, and it's really readily available. Well, if you really look into it, it isn't so available. So I think anyone who is trying to come up with a solution for right now has to deal with the reality of what is there now and then build toward the future.

So, this is what we are trying to do with HAZUS. We are developing a program. It will come out in 2002 to do loss estimates for flooding. It will use existing databases, and it will use existing flood hazard data, but as communities learn more about what their properties are, what the properties are at risk, learn more about what we call the billets environment and their inventory, that part of this information can be loaded to HAZUS and can be used to refine loss estimates.

The same thing goes for the hazard data. We have all intents to use the Q3 data for a national level loss estimate with HAZUS, recognizing that as the de-FIRM movement goes on and

we get better data in that way, that can also be input into HAZUS, and that will refine loss estimates.

Now I think there are probably -- and I'm not an insurance person; so we wanted to come and at least let you know what was going on in the area of loss estimation/risk assessment, i.e., taking the hazard, what's at risk, and combining them and determining what the losses might be.

So, it's up to you all to sort of see how this might relate to solving some of your problems. Now I've been told that if I push "play," it will go.

(VIDEO SHOWN.)

MS. DRURY: Okay. Is this working now or did I break it? It's working. Okay.

I'd like to introduce Paul Tertell, actually, who is also with the Mitigation Directorate, who is our technical lead on the HAZUS flood development.

Also, there are a few people in the audience here. If you have questions, actually, about some of the more details -- I mean, this is a very broad description of loss estimation and HAZUS, but in terms of the databases and some more detail, Paul would be able to assist you.

We also have with us Barbara Schauer and Philip

Schneider from the National Institute of Building Sciences, and they are the FEMA contractor who is responsible for developing HAZUS.

We also have Charles Scawthorn from EQE. Charles is here today on his own recognizance, because he is interested in this subject, but he is quite familiar with HAZUS as the methodology and software developer for the flood model, so would be able to answer any questions that you might have.

Paul is going to do an overview, a quick overview of the flood model, and with that I'll turn it over.

MR. TERTELL: Good morning. I do have a handout. So, if everything crashes, hopefully, everyone has one and we will be able to continue with the presentation.

I should mention someone else who is in the audience, the contractor who is involved with the WIN module of FEMA, which is Peter Vickery from Applied Research & Associates.

Again, the purpose of this brief introduction: There's people here who can answer very detailed questions or we can provide additional information about how the model works. We can also show you an earthquake model, which has very much the feel of the software that will be used for flood. The purpose is just to introduce it to you so you can see is there a use, a

partial use, with more data of some of the methodology in the model that we have developed.

I should explain that my daughter calls me a "twelver." I have a 12-year-old and a 14-year-old daughter, and I originally thought that meant on a scale from zero to ten that, you know, I was above ten. But what it really means is that, when the VCR blinks 12, I don't know how to change it. So --

This is from an executive summary that FEMA uses to explain the flood HAZUS model to all the audiences. I've deleted some of the slides that I don't think are of particular interest to the audience, and I will try to highlight the points where I think it has particular maybe interest to you.

Just an overview of the flood HAZUS. You have already seen the video, and it demonstrates the sort of damages that can occur and its impacts. Again, as Claire mentioned, the whole HAZUS model is under the contract with the National Institute of Building Sciences and then different subcontractors, depending on their technical expertise.

The vision: What do we hope to accomplish with the flood HAZUS model? First, we want to standardize national applicable methodology that communities, individuals, businesses can use and get some results of value when they do the analysis.

Accommodate various user needs: I think, as you go through, you will see that this is set up so that a wide group of users can use the model, and there's a lot of opportunities to add more specific data to get a better result or result that meets your needs.

Again, it addresses all the types of flooding that can occur in the United States: It has to be applicable throughout. That's coastal, river, rain, alluvial flooding, flooding from closed basins and lakes.

One of the most important things is the flexibility to incorporate user data. We realize there's a lot more specific data about floods, about building inventory, about topography that may be available to some uses or that they may want to enter. So, we wanted flexibility to be able to have the user and/or additional information that can fit their needs that they have for the analysis of losses.

Methodology is very simple, as you all know, but the problem is, of course, in the details and how you get to the final result of calculating losses.

Defined land surface is part of the hazard identification. Again, where is the flood surface? What are the characteristics of the flood or floods that occur?

Looking at what the inventory is: What is out there that can be damaged, and how do we determine its vulnerability to the event that we have defined?

ADMINISTRATOR HOWARD: Are you defining this by structure, by address, by longitude/latitude?

MR. TERTELL: I was going to go into that a little later. How this is being defined -- and this is based on a lot of feedback that we got from users, and let me compare it to the earthquake.

On the earthquake model, the hazards are identified generally at the census tract level and within that census tract we know certain information about the buildings and the inventory so that we can map it or make some -- have some understanding about how that will be damaged.

What we heard from the flood users is that information needed to be much more geographically specific. So we have gone down a level in some of the default data that we're providing, and that's provided at the census tract level, so a much smaller area that can be several blocks or more.

So, the information is more specific. Probably one of the important things -- That's much more useful in making a lot of planning, mitigation decisions and some of the emergency

response decisions.

More importantly, there's an opportunity for a local community of business to enter a lot more specific information, either from some data that they may already have such as tax assessment records, how they have identified their flood hazard in their community, maybe some specific building inventory that they have. There's also a tool to go out, collect information, and put it into the model.

So a lot of these will come in a preview method at the beginning of this year in February and March, and the important thing about them is, again, there's a lot of data out there, and the model wants to accommodate -- incorporate in that data to get people better results.

Then from the inventory and the hazard, you determine the damage by how you understand that the flood hazard has been identified does damage to the buildings, and from that you estimate the direct damages, the induced damages, and all the indirect economic losses that can occur.

Potential users: Again, this is being developed as software at considerable expense, but it is, you know, being developed for the whole U.S., everybody who helps pay the cost in developing this model.

The more people who use it or who can use it or it is adaptable to being used by, the greater success we feel we have.

You will see from the start, we've always identified insurance industry as a potential user of this model or parts of it or using it with additional detailed information that they may have available.

ADMINISTRATOR HOWARD: Are you going to sell it or is it available --

MR. TERTELL: No. This is available free. This is software. Again, there may be some more specific data that -- even proprietary data that an individual or business may want to enter to get different results or results that meet their needs.

I think we have a room of experts. So, I may go through these pretty quickly. Again, the overview is just identifying the hazards, you know, the frequency, the discharge, the depth, elevation of loss, and the hazards that can occur from the flood event.

Look at the inventory. HAZUS has a huge number of databases that it uses to put inventory out there, from dams and bridges from the Federal Highway Administration to hazardous material sites to census data. So just numerous data is out there

now that's national defaults of data on the building inventory.

From the understanding of that flood inventory, again, we get the direct damages and the induced damages, damages that directly occur as a result of the physical damages to the building; and from that, the direct losses and through economic models you can have a way to understand what the indirect losses will be from those direct losses that occur.

This is probably one of the important points that I want to stress, is this little pyramid. I should explain, I'm a structural engineer, not a hydrologist or hydraulics person. So, I understand this. So, everyone in here should be able to understand it at least as well as I, or better.

Default databases: With what we are providing in the flood HAZUS model, there will be certain default information that will have value to different users, particularly planners. You know, a broader area -- you can make certain decisions based on some of this default data.

As important is the user-modified data. HAZUS provides the opportunity to both change data, add new data. You know, it's very cognizant of the fact that the better data or the more specific data that you can put out, you can use the results for more specific sort of analysis and needs. An example of that

is modifying the building inventory.

Then there's expert supplied data that a lot of communities might have, and this would be understanding natural flood hazard in more detail, having more information about what the topography looks like, or even specific damage functions based on their construction varies somewhat from the national norm.

Again, everything -- Every way a house could get wet, flooded, moved, is in the model, or will be in the model. Again, we like to put these sort of graphics kind of to keep our minds focused as much as -- you know, what are we actually doing in the model? Well, as long as we keep the concept simple, then we can understand how to best use the data.

Again, we have to know what the ground elevation is. We have to know what the flood elevation is, and from those two, we need to overlay the inventory that we need to do the analysis that will suit our needs.

Again, a lot of national data that's in the flood HAZUS model, that's also in the earthquake model, and then there's some more specific national data that will be in there for flood hazards.

We need to understand -- the model has the damage functions -- how the flood damage occurs based on first floor

elevation and some other parameters that can affect damages.

This is just one of the tools, and you will probably get confused with the acronyms. We have FIT, we have BIT, and we have NCAST. These are all tools for getting better data into your model so that you can get results that meet your need. The flood information tool is the one that helps you put better flood hazard information in your model.

I think we've seen this same concept, direct damages, knowing the flood hazard, the elevation, the flood depth, and the inventory. Again, that all gets related to the type of construction and what the actual flooding that occurs in a particular site.

Then there's a lot of things that FEMA is interested in that don't directly relate to direct damages, a lot of indirect losses, who needs shelter, what are the emergency response needs, and then what are some of the economic costs of these damages for the community.

Again, a couple of different ways of estimating the cost of the damage based on cost of repairing the damage based on damage we see, full replacement and depreciated replacement value. Those really relate to some program issues that FEMA has in the National Flood Insurance Program.

Again, shelter: We need to know how long people will be out of their homes, what the shelter needs are, what schools are going to be closed, who seeks shelter and for how long.

I guess all the organization of the models from the software point of view looks pretty similar, and first you identify the area that you need to study. That's the file. You have the opportunity to look at the inventory that you have, and that changes, if you want.

You identify the hazard that you are trying to do the analysis for, whether it's an annual loss or a specific flood event. Then you have a result. Of course, all the GIS packages have very substantial menus of back-up that allow you to do specific analysis or to show you results in a way that is meaningful to you.

This is probably something that you would see in -- is now available in the earthquake model, and you could see how it works. You look at your state. You select your county and communities that you are interested in, the census tracts. If you're not interested in a specific census tract in the community; and then the flood model will allow you to go down further and select the census blocks that you are interested in, which is how

the flood hazard will be identified, from a default level.

Then what's going to happen that damages these structures? You can either use a historic flood, flood of record, or probabilistic annual cost or, you know, 100 year or 500 year event, to see what your expected damages are in that defined study area.

Again, all the flood hazards have to be evaluated. How they damage buildings changes somewhat, depending on what the flood hazard actually is.

That's an example of hazard data. We define this in different ways, Level I, Level II, Level III. The important thing to remember is that there's some default data that's Level I data, and then there's a lot of other data that you can enter that is going to affect your result.

Again, Level I: Gauge records, watershed characteristics for the -- again on the census block level, and the FEMA maps, Q3 maps and digital elevation information.

Again, just some more specific information that can be entered to get a different or more refined result from the HAZUS model. Again, this is under development now, and again for these tools that are going to be used to input data they are being developed. Actually, they will be shown to the review committee

that guides this effort for NIBS.

So if there is any interest in, first, understanding do you have data that you want to put in there or you think there's some data needs that would help improve the results, you know, please let Claire or I or NIBS know.

A lot of different ways to say, you know, how high does it get, what does it get, what are the damages. You see that throughout this flood presentation, because that's really what we are getting at. There's a lot of hard data that needs to be gathered to get that information.

Again, that's just a screen that will show what one of the screen shots of the flood HAZUS model may be, and that's Grand Forks. Of course, there's a lot of damage, and it shows the 1997 flood. So, it shows a flood of record rather than the annual event that some other users might want to use.

Again, it just looks at the inventory and will make -- map that inventory in some way so we can understand the damages that will occur within that census tract area, not by individual building but by the types of buildings that are in that census tract and what the damages are expected to be, based on some average elevation.

I'm going to go through a lot of this quickly,

because I think you have a handout. We do have a unique opportunity here that we have National Institute of Building Science and we have Barbara Schauer and Philip Schneider here, and we also have the people who are developing the flood model for us, which is Charles Scawthorn from EQE and Jim Murphy.

So, I'm going to go through this quickly, because I want to leave some time to ask them questions that I can't answer.

Again, the output is just -- I'm going to go through these quickly. You can prepare a report. You can have the standard report. You can put your information in these modules in some sort of format that helps you to display the information.

The project schedule: I went through that quickly so that, if we are late, nobody knows it. It's into 2002 when NIBS is committed to having this, and a lot of people in FEMA will be in trouble if we don't. So, we will have a model out here sometime in 2002. It may be December 31, but it will be done.

So, I guess if there are any questions or any of us are available kind of with the HAZUS team to answer questions later.

ADMINISTRATOR HOWARD: Why don't you get your whole team up here for questions?

MR. TERTELL: Even though we're not paying you, you're part of our team. Come up.

MS. DRURY: One of the things I did want to say is the HAZUS tool -- I may have said it at the beginning; I don't know -- but we're developing a means where you can identify just flooding in any location.

So what seems to us to be an important piece of information to share with this group, because you are probably not going to go in the community -- some of you, I know, will be, but from an insurance perspective going out to the community and doing a loss estimate. But that piece of information everybody needs to know.

I mean it helps with the ratings, I would think. It has some application to ratings. So, I just want to make sure that that came through.

The level of analysis, the reporting of analysis developed for the HAZUS flood model will be at the census block level, but it's my understanding, and Charlie can answer this for me, but we're going to do this on a grid basis. So, you can actually determine what the depth of flooding is on the -- at what the DEM grid basis.

So if you have a pretty good understanding of what

your inventory is -- you know, how that house is built -- then I would think the methodology that we have developed would be useful in your exploring some solutions to how you might rate -- have an individual structure by structure policy rating.

MR. TERTELL: Let me give this to Charlie to have him put his two bits in.

MR. SCHNEIDER: Okay. As for the schedule part, we do plan to produce this model by the end of 2002. That is the hurricane preview model and a full flood model, and we are on track to do that.

Right now, we have really nothing on the horizon that is going to derail that. So, we expect to have those models completed in 2002.

MR. SCAWTHORN: Good morning. My name is Charlie Scawthorn. I just wanted to reinforce some of the points that have been made here today.

First of all, as HAZUS was conceived and is being developed now -- and the methodology is actually under development right now -- there's been a lot of work already done, but this is an excellent moment to provide input for the development of the methodology.

The methodology will be on a grid basis associated

with the national elevation database, which provides a fairly detailed level of resolution down within a census block, and a census block in urbanized areas is about a city block. So within a city block we ought to be able to determine, as currently conceived, the elevation of flood or the depth of flooding.

So, if you wanted to use this to analyze for insurance purposes the potential depth of flooding at a structure, a house or whatever, there is an application there. There are some issues associated again with details and so on that might have to be worked out, but it's an excellent tool for that purpose.

It's also a potential tool for looking not only at the individual structures but also at larger industrial structures and if you have a group of houses or whatever development and so on.

I could probably meander on for weeks on the subject, but perhaps we ought to --

MODERATOR PASTERICK: Where are you getting the information on the nature of the structure and the lowest floor elevation of the structures themselves?

MR. SCAWTHORN: That's an excellent question. Again, at the default level -- This is a national database. So

it's very broad brush, and the first floor elevations and so on are going to be done on a regional basis, disaggregated or grouped into various kinds of structures.

In other words, if we take a particular part of the country, maybe 60 percent of those structures have basements with first floor elevations being three feet above ground level on average. So we characterize the inventory or the total built environment as being 60 percent of that type, and then 20 percent perhaps being first floor parking with elevated first floors -- or ground floor parking, and so on.

So it's done on a statistical and an average basis, but again, if an agent or any user has detailed information on a particular block or type of building that they are interested in, they can pop that information right in there.

ADMINISTRATOR HOWARD: So you could use, say, tax roll information.

MR. SCAWTHORN: Oh, absolutely. Exactly. This is a Level II. The concept is that at Level I -- It's a shrink-wrapped box. You open it up, and you can sit anyplace. You could sit in Alexandria, Virginia, and do an analysis for Oregon or fill in the blank, anywhere else. But at Level II, more typically the local users would have better information. They would have better

elevation information. They would have better value information, first floor elevation from maybe the engineer's survey for the cities, things like that. All of that could be put in and refine the accuracy, improve the accuracy of the analysis. Exactly.

MODERATOR PASTERICK: There is a question out here. I should mention that the speaker is Mr. Dan Cotter, who is on our Advisory Panel.

MR. COTTER: Would you just discuss a little bit, just for clarification, the relationship between the HAZUS flood module and the map modernization program, particularly with regard to the mandatory insurance?

MR. SCAWTHORN: Sure. Probably, FEMA is better able to comment on that.

MR. TERTELL: Well, actually, I'm going to give you Jim Murphy with Baker, because, of course, they are involved both in the flood HAZUS model and the map modernization.

MR. MURPHY: A couple of items. One, at the default data level, we will use the Q3s. In the boundary, we're not just staying with the census data. We're showing the boundary as it's shown on the Q3s. As we get DFIRM information, that will be fed right into the system so that we can use the accurate boundary that's in the DFIRM.

One of the issues, Matt, that we are looking at is the new Federal look at where they are going to get DEM data in that. Right now, we are using the USGS DEM so that we take the difference between what the flood elevation is and the ground and, if we get better ground information to use as default database, we'll use that as it becomes available. But as map modernization goes through the system and more and more data becomes available, HAZUS is designed to just suck that right into the system.

MODERATOR PASTERICK: Questions here? He wants to ask a question, but he's not sure. Go ahead.

MR. MAUNE: I'm Dave Maune. I'm concerned about the DEM from USGS from the national --

MODERATOR PASTERICK: Excuse me. What is DEM?

MR. MURPHY: Digital elevation model.

MODERATOR PASTERICK: Okay.

MR. MURPHY: I'm interested in knowing which version of the DEM is being used, because the default DEM available in the USGS national database is a Level I DEM, 30 meter -- vertical root mean square error of seven meters, maximum error of 50 meters, terribly inaccurate. That's the default one available nationwide.

What's now under development is the Level II DEM

which is either 30 meter or ten meter point spacing, and that is generated by digitizing the contours on USGS quad maps, and then the elevations are accurate 90 percent or accurate to one-half the contour interval.

So, it depends on the contour interval of the map being digitized. So, if you have a 20-foot contour interval, which is rather standard, 90 percent of the elevations are accurate within ten meters or something like that.

Even those accuracies are not anything that give me any comfort that the results coming out of comparing elevations to that database are going to give us a high level of confidence in the flood regions.

MR. TERTELL: I'm going to let Jim, since he is near me, answer that. But one of the points -- Since it's too hard for me to answer, but if there is considerable interest in how the flood HAZUS model is being developed and the specific information among this group, you know, we would be glad to set up at another time a detailed briefing.

So, you know, let me or Claire --

MS. DRURY: Actually, could I just make a comment, because, you know, that comes up a lot. What we need to -- I'll let the experts handle the second, but anyway, but I have to get

my two bits in here.

You really do hear that a lot, but the national level databases are intended as national level evaluations or state level evaluation of risk and loss. One of the reasons why HAZUS is flexible and can intake better data is because we recognize that most of the really good data is available at the local community level.

So there is the need to provide that capability to import that data and to use it. Now, you know, that's just something, I think, that we have to deal with. You know, if you are going to solve a problem now, you're looking to the future.

Those national datasets may well be improved, and at that point, we would go back, revise HAZUS, and incorporate those. But it does provide that flexibility now for an individual user to go in and improve the database, both the hazard database and also the inventory, their knowledge about the inventory.

There was one other point that I've sort of lost there. Would someone like to address the FIT tool, the flood hazard tool with reference to -- Charlie? I think that applies as well.

MR. SCAWTHORN: Thank you. The gentleman raised some excellent points. The flood information tool is being

developed which would allow a variety of more detailed hydraulics and elevation data in a wide variety of formats to be brought in and easily incorporated by the local community and so on.

So I think that that -- There are -- We do recognize that there are accuracy issues associated with the default level data, and in order to investigate that, we went through a proof of concept exercise at the urging of FEMA and the Advisory Committee, and we tested all aspects of the proposed model for six different communities across the country.

The accuracy of the different parts of the model was compared -- of the proposed model using default data, was compared against the best available data for each of those communities, and in general, the accuracy of the depth of flooding worked out very well.

The numbers you quoted -- We can discuss this perhaps, if you like, later -- are, I think, upper bounds on the inaccuracy to the DEM data, and the accuracy was quite a bit better than the numbers you quoted. However, there is still definitely uncertainty associated, as with all things -- definitely, significant uncertainty associated with this model.

The use of elevation certificates or any other kind of more detailed localized data will be an important part,

especially when financial issues such as insurance are involved.

MR. SCHNEIDER: We also have a coastal component to the model that's being developed by EQE, but it's also being coordinated with our hurricane preview model. I'm going to let Peter Vickery say a couple of words about that.

MR. VICKERY: I wasn't expecting that. What specifically did you want me to talk about?

MR. SCHNEIDER: Just talk about the relationship of the flood model and the hurricane.

MR. VICKERY: At the current point in time, we will -- They are, in fact, going to be separate. It's being looked at in a multi-hazard -- the potential is being addressed multi-hazard, but the physical modeling of the hurricanes would enable one to model storms and hurricanes at the same time, but at this point it will not be in the preview version.

It's being envisioned to be in the final version, which will be coming out in --

MR. SCHNEIDER: 2005-6.

MR. VICKERY: 2005-ish. In that case, you will be able to run probably scenario analyses when a hurricane is coming in, to get both wind and flood damage, and you will be able to run average annual loss calculations looking at both combined wind and

flood damage. So, that's kind of a summary of where that's at.

MR. SCHNEIDER: I also want to underline that what -- the people up here are only a small part of the team. We also have -- Besides EQE as a contractor and ARA as a contractor, we also have Technologies, Incorporated, who are our software contractors, who are not here today.

We also have four committees that oversee this work. We have an Earthquake Committee, a Wind Committee, a Flood Committee and a Software Committee. Some of the members of those committees are here with us today, Joe Coughlin in the back of the room; Dan Cotter is on the Software Committee; Masoud Zadeh is on the Wind Committee, and Howard Leikin was on the -- represented on the Flood Committee.

Of course, with FEMA, not only do we have the management people, that we have our shadow FEMA committee members like Mike Robinson and Paul Tertell and others that work with us directly with the committee. So, it's a fairly large organization that is both producing HAZUS and overseeing HAZUS.

MS. DRURY: One thing I would like to point out: Michael Baker as well for HAZUS.

MR. SCHNEIDER: And Michael Baker. Michael Baker works with EQE, and Michael Baker does the flood hazard part of

the flood model.

MODERATOR PASTERICK: Matt, last comment.

MR. MILLER: Thank you. Matt Miller. It's good to speculate on how HAZUS might be used to support -- where we want to get the ability to sell a policy -- Level I strikes me as being implicitly supporting a provisional rate. The idea might be that you could buy a rate, good for a year, with a subsequent rate scheme -- after that. So provisional rate might be based on one analysis --

MODERATOR PASTERICK: Let's break for lunch. There is a -- I hate to be that abrupt. Thanks to everybody.

ADMINISTRATOR HOWARD: Don't leave. Come back. This is the kind of discussion that we need, but we need to make sure that we are getting all the questions and viewpoints.

MODERATOR PASTERICK: We are going to have two presentations this afternoon from Dan Cotter and John Clayton on some alternative methodologies, actually.

The food court for the Reagan Building is straight down that way and, of course, the Pavilion, the Post Office, is a block down.

Let's try to be back here at one so we can get started, and we'll try to start as close to one as we can.

(Whereupon, the foregoing matter went off the record at 12:00 Noon.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

(1:10 p.m.)

MODERATOR PASTERICK: Okay. I think we have most of our audience here. There may be some delays, but I think, for the most part, we are ready to get started.

As I said before, our first thought provoker this afternoon is going to be Dan Cotter. Dan, for those of you who don't know, works with -- is President of -- which is associated in some mysterious fashion with Transamerica.

Dan left FEMA for some unknown reason some years ago to go out into the private sector. He left the womb of the Federal government to go out and launch off on his own. So he comes back every once in a while just to make sure that he still has a place to land, once everything falls in on him. I'm sorry. As you can tell, Dan and I are comfortable and friends and it's good to have him here today. Anyway, Dan, the show is all yours.

AUDIENCE MEMBER: Dan, you work for FEMA.

MR. COTTER: Who said that? Get his name. It's a pleasure to be back among some friends. Here's a Matt Miller story, since Matt used my name in vain. One of the times I was in the biggest panic of my life, you know how you get to get

something going and you get some program or something, and never really -- somebody is going to complain about it. So, inevitably, you get the senior staffer from two or three irate Congressmen's offices wander over to you, and they want a briefing, you know.

So you get ready, you set up, you practice and get the best conference room you can at FEMA, you brush your teeth, shine your shoes and put on your best suit, and you go.

You know, we were all set up and we were ready to go, and somebody came down and they preempted us out of that conference room. You know, now we got like 15 minutes and we're on like the eighth floor and got to scramble down to the seventh floor, and all the stuff to move.

By the time I'm done, you know, I'm covered in sweat, and my tie is all disheveled, and I put myself back together and somebody goes, Dan, you're hair is wreck. So I go, "A comb, who's got a comb?" Guess who had the comb? Guess who had the comb?

The best part -- But one other thing, he says, "And Dan, I've never used it." I believed that. I think I returned one to you when I left. Anyway, I assume you would use that.

I guess one of the things, as I listened to people talk, some of the discussions that went on, also from the

perspective of how long the flood insurance program has been around and how long a lot of the people in this room have been with it, it kind of reminded me of when I was trying to get myself on the airplane, you know, yesterday.

You get your laptop on your shoulder, you get your other bag on this shoulder, you get your ticket in this hand, then you get your book in this hand, you get your overcoat somewhere, you're leaving a trail of stuff behind, and you're trying to get through the door. Right?

You know, it's that issue of, you know, this is too much baggage. You know, do we need to check something. You know, does something need to go left at home or put in the car compartment and not get worried about it as much.

You know, as we listened to the talks, one of the things that I've always really enjoyed about the flood program is the number of constituencies that are involved. I mean, you know, we've heard from surveyors. We've heard from people who are passionate about flood plain management. You know, we've heard from insurance people. We've heard from agents. Very passionate, their own perspectives, and Matt Miller is in the middle, because we are all relying on the spatial representation of the risk.

You know, we talked about map modernization. Back

in the mid-eighties, it was the full compliance program or something like that. What was that we did? Before that, it was the make maps look like what everybody wants program. You know, every few years there is -- I can't remember the names anymore, the acronyms.

Back a few years ago, what you really learn is that there's a lot of constituencies, and Matt Miller is in the middle, because how do you make them all happy? -- gets easy because he can preserve the data content and allow people to kind of make what they want, provided you've captured the data with the integrity that's required.

But in the graphic world, map scales -- you know flood plain management wants this whole county on one map, you know. So, it's like this big. The surveyor wants to see the individual parcel very accurately to know where the house is and do that. The insurance person probably doesn't want a map at all.

You know, so how do you serve that need? In the hard copy world, it's very difficult, because you can only put out a map at one scale, basically. In the digital world, if we can collect data at a very high fidelity, then people can kind of generate things at the scales they want for the applications they want, and you give the user freedom.

Another thing that came up which is kind of sort of the argument that kind of goes against that a bit, and I think Bill touched on a bit, is kind of how much of the problem do you really need to solve, and how much are you willing to pay for? He mentioned in his case, for example, you know, we talk a lot about the ten percent in the flood plain, but maybe it's the 90 percent outside the flood plain.

You know, we ought to be able to try to sell them, I assume, preferred risk policies and millions of those policies at 75 bucks apiece, and you know we could do really well. So how much are you willing to pay, and how good does the data have to be to do that?

As technology grows -- and this is another place I think Matt Miller is caught. You know, we talked about the map modernization program. We're not talking about the hydrologic engineering modernization program. We are not talking about the risk analysis modernization program.

The technology we all seem to talk about is in terms of mapping. And as technology has improved, it's allowed us to push the standards up for what we can get out of a map.

We can survey better. We can survey faster. We can survey cheaper, but how much has the engineering science of

hydrologic analysis or hydraulic profiling improved in the last 50 years, you know, since Ben P. Chow and some of the other guys wrote their equations in the thirties, forties and fifties, that map, you know – non-compressible, unconfined, fluid flow, equations are there. They haven't changed.

So as we push mapping standards higher and higher, you know, not only are we saying we need more accurate data; we are changing the standards by which we measure how accurate the data is. So, we're pushing all those things up.

So, you know, we're pushing one thing this way and I look at Matt in the middle, and I'm wondering, you know, well, what are we really doing here? So, I'm probably allowed to give opinions.

I think it gets to other parts, too. Are there really any new problems? You know, are there really any new ideas in this program? You know, Ed and Neil and Joe, you know, agent database, eRisk -- we've got new technology, but in 1976, 1977, you know, they were talking about this map information facility thing. Then some other jerk thought there ought to be a flood risk directory thing.

You know, then there was national -- and how there's this, I mean. So there's, you know -- I think what that

tells you is we are not solving the core problems which are identified maybe at the formation of the National Flood Insurance Program.

Our technology is getting better, but again, like me trying to get on the airplane and carrying all this baggage and things we're worrying about, it's sort of preventing us from getting out of our own way to solve the problem with the tools that we have. The tools are getting better and better, and yet it doesn't seem we are able to attack maybe the basic problem JoAnn is worried about: You know, how come all the people who need flood insurance don't have it, because we know we can identify them.

I mean, you know, at Transamerica we have done that basically on some of the private sector side, at least on the horizontal, are you in or are you out. You know, Wendy knows that it can be done. I mean, you know, we can do it. Why haven't we?

New ideas -- I guess, listening to the HAZUS talk -- and I'm kind of a data person. You know, the equivalent of HAZUS in 1979, 1980, and 1981 was IEMIS. Who remembers IEMIS? There you go -- the Integrated Emergency Management Information System.

Again, FEMA was going to write software. We were

going to put it out, give it away to people. You know, put out the software, they will come. Put a lot of money into it, and users got it, and the end users said what can I do with it? We can do anything with it. Wait, where's my data? Well, you didn't get any data.

At that time, it was one to two million scale USGS data that just came out. It was great. If you are concerned about 30 meter DEM data, you should have seen this one to two million digital line graphs to do flood insurance studies. That was really scary.

You know, talk about -- being local. I think some of the experiences that credibility is local too, and credibility of the flood program seems to run on the anecdote. You know, lock the door and people are named.

You know, saw Mr. Q3, right? I just can't go anywhere I don't hear about the Q3 data where it was outside the Q3 line. Right? Okay, is that one time or is that all the time? But the anecdote kills you. I mean, people don't typically testify to Congressmen on statistics. It's anecdotes, you know, and decisions get made on that.

So there's that local credibility issue that goes to data fidelity, and, I think that is what in the end killed the

IEMIS as a program, and I think it's one of the issues that HAZUS has probably faced in adoption. If you do something that's different with 30 meter DEM data than the flood plain map has, how do we make that come together?

What happens the first day somebody puts in a -- based on HAZUS and it is applied against it or they come up against a flood zone determination company, you know, looking for -- you know, to be called instead of being -- or whatever?

You know, a lot of just interesting problems and, you know, I really do feel it's true that local credibility is what allows the flood plain program to survive.

You know, Bill here criticized a bit before for having a lot of cynicism about agents and the dollar figures. I think that cynicism is well placed in the interest of the public in flood plain management and whether they will buy insurance.

I've heard it said many times -- I really think it's true -- insurance needs to be sold. You know, it's not bought by people; it's sold. How do you give the agents the tool so they will sell it?

Again, I think I go back to the premise. I haven't heard anything different, I think, you know, in the time I've been around the program, of what agents have complained about since

they first complained back in 1976, 1977, 1978, when you tried to put the map information facility in place.

So, those are kind of some of my thoughts. So you know, what I'm coming here to talk about, though, is there a way to address these programs. You know, Matt is going to do the map modernization program. He's going to ask Congress for $750 million. Right? And we can make great new maps for that. We know that. We're going to make people happier than they ever were. But is it going to solve maybe the problem of putting more insurance policies on the books?

You know, if it's not, does Congress understand that, and what are we going to say in seven years when there's a big flood in Texas and 70 percent of the people are uninsured. I mean, so what do we get for our money?

Well, you get great maps. You know, well, what about all these people who are flooded? Wasn't that the point? You know, well, you've got great maps. So, those are the types of things that I worry about.

So maybe one way to look at it is, instead of looking at things kind of from the mapping perspective is look at all the problems perhaps being, you know, an income problem. You can tell I'm no longer with the Federal government. Right? It

always used to be an expense problem: How do I get more money to make things expensive? I like to spend money.

One of the problems -- and can we look at it as a data problem? You know, whether it's Web-based software or other things that are being talked about today, I think the technologies are there to do anything we want fairly cheaply, if we can collect the right types of data that are needed by the right users who are truly the ones who are going to make the program successful.

So, talk a little bit about that, and talk a little bit about a couple of ideas and some things we tested.

So, you know, in general there are no rocket scientists here, and really you've heard today -- you know, you've heard people say we need a database that has everything you need in it, and it needs to be connected to some rating software, and it needs to be accessible through the Web or some, you know, e-commerce solution. Great.

Okay. So what types of data do you need? You know, kind of fundamentally, you're going to have the risk data off the flood insurance maps. You know, you've heard talk about, you know, tax data. There's been some discussion here that, you know, a lot of forms are more and more available digitally. But to really rate, then you get this really big problem if we're

going after the ten percent, not necessarily the 90 percent.

What's the lowest adjacent grade and what's the lowest floor elevation? I heard a number, somebody was saying $1,000 to have a surveyor fill out an elevation certificate, and the number is probably between, you know, $200 and $1500, depending on where you are.

So we get a monetary issue here, and you've got another thing the agent has to deal with, and I think we heard, he's only getting 60 bucks. Is he going to pick up the phone and call the surveyor and, you know, the heck with it, I'd rather smear in the A, make it look like a C and go on with it.

ADMINISTRATOR HOWARD: Makes our underwriters really happy to hear you say that.

MR. COTTER: I didn't say it. Bill said that.

So if you want to put out this type of database, you got to look at integrating the flood insurance maps with tax data, and you know, at Transamerica in the flood hazard business we've kind of done that.

You know, we went out, and we got all the tax rolls from people, and you know, GIS hand map and the other things. We kind of built about a 100 million parcel sort of database, kind of a text thing of all that. So, you can do that. You know, it's

brute force.

Certainly, if a flood company can do it, you know, FEMA can do it. It's a matter of do you want to do it. With us, it's called the Transflood Database, and it's attached -- you know, a lot of talk about addresses. It's attached to -- You know, you need parcel ID. So, parcel ID is kind of universal ID, not the address. That's in there, too, but there's ways of dealing with these things with database technology or collecting data.

If you want to get this after the elevation piece, there are ways to do that. This is one type of technology, but you know, Dave referred to new initiatives in the Federal government.

There's different types of technologies coming along where, you know, the question is, is it reasonable that you can collect elevation data cheaply enough that you could somehow populate an elevation certificate database with LAG, LFE information of a reasonable enough quality to address the issues of rating?

In this particular instance -- you know, it's lasers and airplanes and it just flies over and you just measure the range from the airplane to the ground, and we use Witchcraft

from Black Magic. We know where the airplane is. So, we figure out where the ground is, and it works really well. There's never anything wrong with it -- except on seven days a week. But in concept -- and it doesn't have to be LIDAR, but it could be the DEM data, but the concept is you know where the ground is. You got points all along the ground pretty tightly spaced, and they're fairly accurate.

You know, you know where they are within -- you know, let's say within a foot. And one of them is pretty close to the house, and could you use that as a substitute for lowest adjacent grade?

Again, going back, if today it's hundreds of dollars to do an elevation certificate in the field, Dave Maune and Dewberry has tried to use some mass elevation certificate appraisals. I think your numbers on that are in the tens of dollars probably per structure if you do it en masse.

MR. MAUNE: Not that cheap. Probably over 100.

MR. COTTER: Per structure?

MR. MAUNE: Yes, but all the things that we did with it, photographs and background maps and stuff, the GIS database.

MR. COTTER: That's the last time I asked you a

question. This is like -- well, anyway -- So they are cheaper but not order of magnitude cheaper, and perhaps if you did something like this, you get the cost down to, say, a couple of bucks a structure.

It's going to be different than what you have had in the past. It is not what a surveyor would get going out there, but perhaps we're trying to solve a different type of problem.

So, we took a look at this. So, we're getting the ideas. Can we make all these databases come together so we can do something to help the agent with risk rating?

For a number of communities where we had elevation, detail elevation data for, FIA provided us with some data from elevation certificates. Of course, we did all this work, and then we went through this presentation at the Write-Your-Own conference. I mean, we were really proud of ourselves, and Jerry Foster stood up and said elevation certificate is only useful 30 percent of the time, after he tested 100,000 of them.

So I think drilling into that, I think we suspect that the elevation information on the certificates were correct, but he was questioning perhaps more the type of structure, the structure definition, and what the first floor -- So anyway. But looking at this, again it's a concept test bed.

You know, one of the areas we looked at was down in Houston. You know, here's a flood plain as defined by LIDAR, kind of a street scene, sort of slab on grade structures that are nice, sloping grades up to the structure, typical coastal flood plain environment; you know, a lot of houses there. Kind of an easy test. Things are flat. You don't have basements. So, you don't have as much problem worrying trying to get lowest floors.

Kind of an example of what it would look like: Here each one of these dots was actually an elevation data point, and we just selected some buffers and looked for a low point within a buffer. Some are close to the house.

We linked it over to the flood zone determination property database from our flood hazard company -- Is Donna still here? If Dona Roy is still here, she's here representing them today -- and dropped in the base flood elevation, and estimated the lowest adjacent grade based on that.

We did this for a number of areas. Here's an example in Alexandria. For those of you who are kind of mapping freaks, behind this is a DOQ, on top, we have parcel boundaries, and you can see that there's been a total change of the land cover. This has all been built out. I think this is Ford's Landing.

Anyway, we extracted out kind of ground elevations and the structures. You know, here's your digital picture. It's, you know, a flat area, on grade. Then we're looking again to see, you know, how good can we pick up something that might be considered as the lowest adjacent grade.

In the Alexandria area, we let the machine -- just give it some buffers and pick it. You know, we had 105 different structures we looked at. We ended up at about 2.7 feet RMSE disagreement with what was on the elevation certificate.

We went in and manually selected, you know, trying to pick something that the human eye thought was better, and we ended up within a foot, and we had about 26 points.

Harris County ended up at about a foot and a bit under, depending on whether we did it automated to manual. You know, indications from FIA are that, you know, if you could be good within a foot, you know, on kind of a 1 sigma error basis, that's something worth talking about perhaps, you know, if we can provide the cost and the quantity volume that we think might be achieved.

I'm just trying to give you kind of a taste of what is going on. Lowest floor elevation -- So you mess with this a little bit, and kind of what was interesting here -- you know, you

got the ones that are slab on grade or going up, then you got the basements.

What we kind of found -- and you would need to do more work -- that within a particular neighborhood, particularly ones that have been constructed in the last 20 years or so, the elevation certificate -- the difference on the elevation certificate for houses in that kind of neighborhood or on that street between the LAG and the LFE turned out to be a pretty good predictor.

So if the average house on a block said it had a LAG of ten feet and the LSE was 10.5, subtract the two, and then you use half a foot and added it to all the LAGs in the neighborhood. You know, you had a way to approximate the lowest floor elevation, which seemed to work out.

Again, you know, we've looked at hundreds of things, not thousands, and we've looked at four or five communities, not hundreds. But interesting.

Basements, you know, become the tough one. You know, it seems to be a lot more going on with basement depths, and we really don't have enough information to draw a conclusion. But basements definitely are the tougher one.

I talk a little bit about this type of thing with

flood plain managers, and I think maybe some of it started to come up this morning in some of the questions you raised.

One of the things, I guess, I hadn't realized as you start looking at that is the interest in the flood plain management community on the elevation certificate as an enforcement tool.

Sitting up at the ASFPM conference with some of the leadership, you know, there's a very, very strong concern there that, if something is done that built a database like this which would make elevation certificates less available or fewer of them, that that will lead to a hole perhaps in the enforcement cycle.

You know, it's one of these things, too, where -- you know, getting, I guess, being Matt Miller in the middle or maybe, in this case, JoAnn is in the middle, you know, what was the elevation certificate made for -- you know, to sell flood insurance policies perhaps. But it's become a critical link and another one of the major constituencies of the flood insurance program.

So if you wanted to move toward some type of online automated thing, you know, how do we overcome that? You know, how do we provide the data that is needed to that constituency that give the agents what they need to write things rapidly and faster

so there's enough insurance policies coming into the flood insurance program in a manner that keeps the program fluid, funded, in the black, with enough money to pay for maps. Better maps are going to make us all happy.

I think the little bit of work we have done -- and, you know, if you mess with it, it's sort of an actuarial decision. I don't think it's a mapping or surveying decision. I think it's an actuarial decision. How accurate is accurate enough?

I think that is something that FIA is struggling with a bit, but it would seem that if you had tight enough, high fidelity enough elevation data, you could automate extraction of a reasonable lowest adjacent grade.

I think it is really unclear at this point how often you could also predict lowest floor elevation in a way that would make the actuaries happy. Although again are we trying to solve all the problems or are you trying to solve a significant number thereof, and would this get us a good part of the 90 percent and three more percent, and does that make everybody happy?

There's a byproduct. You know, do we have very good digital topographic data to support flood insurance studies, which is cheaper? How much of your budget do you actually spend

on your hydrologic and hydraulic engineering?

MR. MILLER: About 81 percent --

MR. COTTER: So actually doing H&H, you're spending under 20 percent of your time actually focusing on the hydrology and the hydraulics and the risk assessment piece?

I think in the past I heard a number that, you know, about 30 percent of the total flood insurance studies budget was actually to fund engineers to do hydrology and hydraulic related tasks. So again, you know, would the overall product quality improve if we could get down the cost of some of those other areas and allow Matt to spend more time actually working on the engineering aspects of the program?

You know a lot of questions to be asked. So I guess in summary, you know, in a way I'm talking about a smaller ID here than in general what's going on, but in summary we know that we can get the tax data. We know we can combine that with flood risk data from either digital or hard copy flood maps a number of ways.

You know, there's enough flood maps determination companies out there that have proved that is possible and satisfied a lot of fairly picky clients, you know, and guaranty their work.

To make the agent happy, it seems like you've got to at least add in some type of lowest adjacent grade information, and then would that put you in the position where you really could talk about some type of eRisk rating, and would that type of database also assist in marketing?

Does it become the mitigation database that helps people look before a disaster where to do your buyout in the post-disaster environment, before people get back in there and rebuilding their house, which is like two days later, give them a cease and desist, we're going to buy you out notice.

You know, getting access to properties after a flood disaster to evaluate and survey and see whether they are eligible for buyouts is a big problem. You know, people don't want you in there. They want you to give them money, but they don't want you in their house.

When I say a 360 method, one of the other interesting things that appears to have come from some of our work, particularly in urban areas where you have, you know, long streets and maybe an alley behind. Some of the deviation between our data and elevation certificate data could be explained if one were to assume the surveyor could not get access to the property on the back of the house.

You know, we found lower elevations in the backyards than in the front yards. But from imagery and other sources it's pretty clear that the surveyor would have had a kind of cut down the line, then come back up the street, over, down the back alley, and tried to get access through a closed fence, locked fence, things like that. You know, I think that's a major time and cost problem for them.

So you know, a 360 look, would offer something as well. You know, maybe that would moderate to some degree, that the technology might not be as accurate as a field survey.

Bottom line, you know, the arbitrators are -- you know, it's what's good enough for FEMA? What do they really need?

I think that's all I got. Just one other issue. I'll just throw a couple of numbers on the table here. Again, you know, the problem with the flood insurance program in a lot of ways is it's not that hard to solve any one piece of the puzzle like trying to make one community to do it right at one structure, you know, to make one really great map. But it's the number of units that kill you, you know.

When you start talking 100,000 flood maps and 19,000 communities, you know, even very economical solutions overwhelm you. We ran some numbers, and I'll just throw you out

some numbers, you know, so can you prioritize.

Everybody has probably heard numbers like this. But if you look at 300 counties in the U.S. to make some type of approach on to do something like this, you would be touching about 22,000 panels, so less than a fifth of the total panels you would be looking at.

You would get about 58 million land parcels. That's over 50 percent of the land parcels in the U.S. that are skewed into those 300 counties. There's about 3100 counties out there.

You get about 6.2 million land parcels that are either in or probably bisected by the flood plain. That's probably about 70 percent of the total flood risk problem. It's very skewed, and if you think about it, it makes sense, because you got like all of Florida would be in the 300, and all of Florida is under water, and a lot of people live there. So there's a lot of skewing in the demographics.

If our estimates are correct -- and this is based on some assumptions and derivations from FIA data and Transamerica data -- of those 6.2 million kind of in or close, there's probably only about 1.8 million policies in force.

So you could look at a very small subset perhaps of

the total problem and get a very high return and maybe do it pretty fast, probably get the insurance benefit income back, hopefully to pay for some of the things that all of the communities in the flood insurance program need, whether it's mitigation, flood plain management, better maps.

That's it. That's all I had to say.

ADMINISTRATOR HOWARD: Questions?

AUDIENCE MEMBER: Could you talk a little bit more about the 6.2 million structures and where that number comes from?

MR. COTTER: Yes. What we did is we have created a database essentially. We went out, and we collected every tax roll in the country in that sense. So, we had them all up as individual parcels. Right?

Then, you know, Transamerica has done a lot of hand mapping, and then using GIS and GEO coding, other technologies -- you know, they are doing several million hand look-up determinations a year. So they had this big database that the various and sundry means pretty much as a flag on every parcel, it says, you know, I'm in, I'm out, I'm pretty close, I'm pretty close, and you know, don't even touch this unless you go out to the field and look at it, you know, that type of separation.

If you add up all those numbers, you end up with a

nationwide number that's around 8.5 million, 10 million -- 8.5 to 9 million; I forget the exact number -- of land parcels nationwide that are in or very close to the flood plain.

That runs, I think, pretty well with the estimates that FIA has had historically that say about ten percent. You know, seven, eight, ten, 11 percent of the whole country is probably in a flood plain.

Then the 6.8 million number is by only looking at those 300 counties. So taking the subset of them, adding it up to the database, saying, well, what's the number for these 300 counties? That's where the 6.8 million number comes from.

To some degree, since we are counting parcels, not structures -- you know, insurance is on structures, not parcels -- there's some apples and oranges that you got to be careful of, but that's where the number comes from.

AUDIENCE MEMBER: Thank you.

MR. SUMNER: Kurt Sumner, ACSM. What is going to be the database or the control base for the mapping? For an example, oftentimes surveyors have difficulty finding benchmarks, which are relative to the base flood elevation, and are you then intending to go and set up an entirely new control base network based on BFE elevations rather than on current existing controls?

How do you plan to do that?

MR. COTTER: In the work -- You're kind of asking two questions. You know, the real answer is, if FEMA wanted to do this part, we would do it according to the standards that FEMA has out there for mapping and creating digital elevation models.

Typically, in the work that we do, typically we are running off existing control. I mean, right now, almost every client we have says this is your control you're going to go off, whether it's the HARN or the Department of Transportation's benchmarks or something like that.

MR. SUMNER: But you're not necessarily going back to benchmarks that were used for the BFE?

MR. COTTER: Right now -- As far as this is concerned, right now -- Just remember that this is not something that's -- I don't know. I think that's one of the questions that need to be answered.

If this were to be done, you know, how should it be done correctly.

MR. SUMNER: I had a curious question. Was that Alexandria you were showing, the townhouses there?

MR. COTTER: Yes. Do you live there?

MR. SUMNER: No. I was curious how you got the

photograph if you weren't on the ground.

MR. COTTER: We sent somebody on the ground for that one. Donna snuck in there one night. Was that the night the police car came by and chased you out of the area?

ADMINISTRATOR HOWARD: Dan, I hate to interrupt you. I just wanted to try to get five minutes before Keith Phillips leaves. Keith, would you come up? Dan, stay right up here.

Keith is with Booz Allen. As we have been doing our concept of operations and other related kind of issues on how we are going to run the flood business, at lunch today I asked Keith about some of his observations for today.

I don't think this is on.

MR. PHILLIPS: Well, first of all, I'm sorry I didn't catch this gentleman's name, but I thought that was an excellent presentation, because -- not for the smallest reason that many of the issues that JoAnn and I talked about at lunch, he actually touched on here.

So, it's nice to kind of hear a validation when you are conceptualizing about new ways of thinking and about really what the true value is of certain things that we have come, like the elevation certificate, to expect that, well, that's a gospel

item that we can never change. So, it was very interesting.

I guess one of the questions I had, since we are talking about various initiatives and getting more accurate elevation certificates and maps, etcetera, is: In some of the earlier presentations that I was listening to, one question occurred to me.

Seems like we've got a lot of players that are all kind of marching toward better EC information, i.e., we've certainly got mitigation. We've got FIA. We've got big communities that have the money. We've got some states, etcetera, etcetera.

One question I would have is have we put together kind of an inventory of initiatives so that duplication of effort and money doesn't occur? That would be one question I would have.

I don't know how difficult that would be to do, but it would certainly seem like, if we've got a lot of folks marching off, if we all kind of knew where they were heading and could coordinate it somehow through mitigation or through FIA, that would be helpful.

The other question is with respect to the types of technologies that are being to develop these maps. Like I'm a North Carolina native. You may can tell from my accent. So, it's

great to hear that North Carolina is doing this initiative. But is it using applications that are going to be importable, if you will, into Federal government initiatives and vice versa.

I mean, how many applications are there out there that you can actually develop digitized map information, and are you going to have some outliers like big parts of the country that maybe developed information in a way that no one else can touch, that it's a unique application?

So, I was talking to JoAnn about this. It just seems like something of this magnitude begs for, you know, some high level, like task force level, coordination. I know that's kind of a dirty word sometimes, task force, but in order to really get your arms around requirements and lessen the chance for duplication and wasted money and wasted effort, I'm just wondering, is there kind of -- is there an opportunity here for the government to kind of be at the helm?

Maybe you already are, but at the helm of developing an inventory of all initiatives, getting all the players into some type of working group or something like that so that you are not duplicating effort and that type of thing. That's just one of the questions that I had to JoAnn.

ADMINISTRATOR HOWARD: Do you have an answer?

AUDIENCE MEMBER: Yes. I don't know that that type of initiative would work when you're talking about public partner type of relationships. If you've got several commercial entities here, perhaps --

ADMINISTRATOR HOWARD: Well, I mean, if someone wants to volunteer from one of the private sector companies --

If we are talking about populating some sort of database with elevation information, wouldn't it be in everybody's best interest to have a uniform or a transportable type of information, not because government says you have to do it, but because if you are developing something it would seem to have a higher value if it were transportable.

AUDIENCE MEMBER: And so are you talking about a task force just being connected to the standards and --

ADMINISTRATOR HOWARD: Yes. I don't know.

AUDIENCE MEMBER: In terms of transportability of data, I think that's something that we all can agree on, that there should be some common format. But I think what we are disagreeing on is what the level of accuracy of that data should be in terms of, if we are talking about elevation data, are we talking about, for instance, for surveyors to fill out an elevation certificate, we must fill it out to the nearest tenth of

a foot. However, the maps we are working from don't have that level of accuracy.

Is that realistic? If we are talking about -- You know, Dan's suggestion is getting plus or minus a whole foot. Should we then be thinking about changing the NFIP regulations to be plus or minus a foot so that it's more in line with technology or do we maintain the regulations that we have and then work on the technology to bring it up to that level?

What we are working with now is this variation, and that's what is giving us all the head banging part of it. We all are agreeing that there is information out there that we can use for multiple uses that we all have an interest in for mitigation, for map accuracy, for emergency response management, for land use planning.

We all need this data. But what is the common denominator?

ADMINISTRATOR HOWARD: I guess one of the questions I have is are there different degrees of accuracy needed by different interest groups, and it seems to me the answer is yes. But that doesn't mean that it all has to be one or the other, all or nothing, does it? That's more of a discussion.

MODERATOR PASTERICK: Excuse me. I would --

Actually, one of the issues that Dan raised that we've talked about and talked around a number of times has to do with the fear. If we used a less precise lowest floor elevation -- if we allow tolerances in the rating process for that particular piece of risk information, that it would somehow dilute the commitment at the local community to enforcing flood plain management and building standards.

I guess I'd like to hear the logic from flood plain managers that goes into the thinking as to why that would happen.

MS. QUINN: Rebecca Quinn. Speaking on behalf of flood plain managers, actually, my first thought is I think you would get different answers. There are some communities, when they get pushed into a corner sometimes, will use the profile and regulate to the hundredth of a foot, just because sometimes the data are put out at that level.

You know, you can program a computer to give you five decimal places. Sometimes people think we should regulate to whatever the computer says. When you really look between line widths on the profile and line widths on the map, you know, a half-foot is probably a good measure.

I don't know that you would have -- I think that there are a lot of people in the management community who don't

realize that it's plus or minus a foot that might be used for insurance rating, because we sometimes struggle for the decimal places. Then when it really gets down to now rating the structure, you don't use the decimal places like we use the decimals.

So there may be some room for consistency. The problem at the local level is you are requiring somebody to build to a specific standard. That standard turns into a number. How do you pick the number?

MODERATOR PASTERICK: But if I can -- An analogy I've been using lately is in the flood insurance program right now we are asking applicants for insurance to come to the agent with the equivalent of a piece of paper that says they have copper wiring in their house. We don't ask people to prove that they have copper wiring in their house.

We have systems in place that assure the agent that there is copper wiring in the houses he insures.

MS. QUINN: Well, actually, I would disagree with that, because I can tell you I have copper wiring in my house. But that's not a certified statement. You are asking that people come to you with a certification from a professional that that house has copper wiring.

MODERATOR PASTERICK: That's right. And there is fairly complete confidence in the insurance community, because they have a lot of information already that, if a house is in that community, there is in fact copper wiring in that house.

MS. QUINN: Right.

MODERATOR PASTERICK: And if you're just looking for an example of how the flood process differs from other lines, that's one of the examples.

Now there is a reason I was asking why an application of a particular elevation from a rating standard may be different from an application of a similar elevation at the building standpoint, might be a problem. In fact, is the thinking at the point of requiring a certain elevation when a structure is built, such that if I don't require that elevation, then down the line this person is going to have to pay higher insurance.

I'm asking. Is that, in fact, the kind of thinking that community officials apply to that process? I don't know.

MS. QUINN: I think that at the beginning when they are saying should we join the flood insurance program -- we have a map; the day has started; the clock has started. Anything built after that date is going to be rated a certain way.

Yes, they may have thought about that. That was

many years ago. Now they require a certain elevation, because that's what the regulation is.

I'd like to kind of connect to something that -- It's now been brought up twice. We kind of a -- We've kind of found the inventory, the building environment that was there predating -- pick a day -- and then we've got new construction, a completely different process.

Obviously, what Dan has described doesn't work in built after the date of your data. So, we will still need elevation certificates. Our concern about compliance is for reconstruction.

Your need to say we've got 6 or 8 or 11 million buildings out there and not enough of them are insured is really that already built inventory. It's not the ones that are coming on line. That's, I think, much less of a problem.

MODERATOR PASTERICK: What we don't know is how much of the already built inventory was built before the map was put in place or after the map. The already built inventory isn't by definition necessarily pre-FIRM.

MS. QUINN: Oh, I understand that. I understand.

MODERATOR PASTERICK: And, you know, we're dealing with any post-FIRM property in terms of the elevation

requirements.

MS. QUINN: -- property that doesn't have an elevation certificate that's readily available, acceptable, etcetera, etcetera, etcetera, which is most of them.

MODERATOR PASTERICK: Dan, come on back up. I don't know if there are any other questions. Keith had to leave. Just to reinforce what JoAnn said, Keith has been very, very helpful to FIA in some ways not just keep our eye on the ball, but also maybe try to figure out what the next pitch is going to be, and giving us pretty good scouting reports in terms of stepping back to see where we ought to go and what kinds of things we ought to be considering in terms of how we do business.

So, that's why we asked him here today. He's a good kind of -- He's healthily unfamiliar with a lot of the details that we are talking about here today. Jim?

MR. MURPHY: Jim Murphy. One of the issues that Rebecca brought up and, to a certain extent, Dan brought up is how accurate do we have to be?

One of the things some of us at three in the morning have talked about is: Is there a possibility to slightly decouple the insurance requirements from the flood plain management requirements?

From an insurance standpoint, you have the opportunity to slightly spread the risk, and maybe you don't need to be quite as accurate. From a flood plain management standpoint, because we can survey to the hundredth foot, because we can draw a line, not necessarily the correct line -- for those of us who are doing hydrology and hydraulics, we know that line fluctuates a lot, but because we can draw a line on a map, it becomes this legal boundary, not necessarily a scientific boundary.

Is there a possibility that, you know, through some statutory changes, regulatory changes, that there can be a slight decoupling of the insurance requirements from the flood plain management requirements so that from an insurance standpoint Dan's stuff would be great.

You could go out and get all those earlier structures, and you could deal with it that way very, very quickly, and it would be good -- You know, from an actuarial standpoint, I'm sure, Howard, it would be close enough so you guys aren't losing money or anything.

The problem is, from a flood plain -- or anymore money, whatever -- But from a flood plain management standpoint, the legal homeowner -- you know, if the guy down in South Carolina

that wants to build his new development, he wants to get a little bit more accurate. But if you could decouple those somehow, you might be able to attack this a little bit better.

MODERATOR PASTERICK: Lois?

AUDIENCE MEMBER: I think that's why you want communities to be pretty accurate. That's why you want communities to have freeboard. That will make the flood insurance part, if you do think in the direction of decoupling, continue to have cheap rates or as cheap as we can get them. But we've got to have that accuracy.

I think there's agreement here that you ought to have that accuracy on the flood plain management side, and push not only accuracy but pushing better flood plain management, freeboard and that sort of thing. Then you can look at the technology and the flood insurance part of it and be maybe a little more loosey-goosey about it.

ADMINISTRATOR HOWARD: I guess I hate to say loosey-goosey. From an insurance standpoint, let's just take life insurance, term life. I can get a term life quote, and they don't do -- I think they do a whole lot of tests. They look at my age and a couple of factors, do I smoke, do I drink, and they will give me a quote.

I can say, wait a minute; all my ancestors lived to 99. You know, I exercise -- that's not true, but --

MODERATOR PASTERICK: They don't know that.

ADMINISTRATOR HOWARD: -- I don't eat junk food. And they sort of say this is the rate; we go by tables. We go by large numbers.

Somebody is going to be paying a little bit more for life insurance after the fact. It's just how much inequity. If I charge Howard ten dollars and I pay $100 when it really ought to be 60/40, you know, how much tolerance do we have in matching that rate by inches?

I have to tell you, from the claims end -- and Jim Shortly is here -- At the claims end we know now that our agents just are human, and we don't have perfect rating. We want to follow this perfection, and at the claims end we say, oh, well, I was misrated. And guess who then finds out, oh, we're going to reform the policy, and they get mad at the agent, they get mad at the flood program.

So, it's not a perfect world. We can say we want perfection, but I guess what I'm saying is how much can we live with in the insurance side that would be flexible, maintaining flood plain management at the local levels, decoupling? How much

decoupling is possible? Then our actuaries can try to get within a range of rates.

I mean, that's the question that we are struggling -- Donna is here, I guess, representing flood zone determination companies. There's so many players in this that until we have an opportunity to get people together -- I know it takes a day out of your life, and God bless you for staying here with it, because if we talk about this with two constituency groups, they're going to say do you know what they are doing with hazards and, wait a minute, have you thought about this.

You really do need to get every viewpoint represented and sort of get roughed up a little bit, because we are looking for solutions. We're not looking for breaking rice molds or win/lose situations. We're looking for a win/win situation. But if we put three million more policies in force in two years, Woody and Rita would be happy. Matt and the mitigation budget folks would be happy. The disaster people would be happy. Congress would be happy. But Howard would be worked to death, but okay.

What I'm saying is that's where we're trying to go on this.

AUDIENCE MEMBER: Well, but you still have to have

a system in place to penalize the noncompliance structure.

AUDIENCE MEMBER: That's where you need to enough accuracy in the system so you catch the egregious cases in flood plain management, but you don't necessarily have to --

MS. QUINN: Okay, you want it to the tenth of a foot when it's new construction, and you're verifying compliance, but maybe for insurance purposes if you're doing an elevation certificate, you know, maybe a half a foot does it.

Remember, we talk about accuracy and tolerance. If I read -- and I only read this about a week ago -- the subsidy study, half of the policies are paying more than they should if they had an elevation certificate.

There's an awful lot of inaccuracy built into the program. So if -- Even if we got elevation information to -- half the people could see something like -- some reduction of the premium.

AUDIENCE MEMBER: You can't forget. I mean insurance does reinforce the flood plain management. You build an occupied structure and you could just pay in $400, but you are now paying $1200. That does sound important to that --

MS. QUINN: But my guess is when the insurance agent has a problem with a homeowner saying I got to go spend

whatever it is to get a survey, it's the old-built building, not the new construction.

AUDIENCE MEMBER: Right.

MS. QUINN: The new construction is you have your elevation certificate built in the cost of doing business in a flood plain.

AUDIENCE MEMBER: Right.

MS. QUINN: So I think it is less -- As long as we preserve the elevation certificate, we can decouple it from compliance, because the problem we're talking about is more --

MODERATOR PASTERICK: The question that -- Maybe it wasn't clear, the way I framed the question before. But it has been our impression, and when we discuss, we've discussed the possibility of decoupling in some way the insurance rating part of elevation information from the compliance, the enforcement of standards part; because, as JoAnn says, insurance deals in large numbers, and it's not as critical to have the precision.

It is much more critical that this single house be at a proper elevation for safety purposes than it is critical for the insurance company to know what the precise elevation is for 1,000 houses, because you're dealing in larger tolerances.

The concern that -- Let's say the impression that

we have had is, unless the insurance process in fact applies the same precision of elevation in its rating process, that somehow the enforcement of the standards to begin with will somehow break down.

That's why I asked the -- and basically, those requirements are in place for buildings, whether those buildings are ever going to be insured or not. The insurance is really -- I shouldn't say it shouldn't be relevant, but the enforcement is directed toward building safe structures, and the availability of insurance is premised on that, and there has to be some -- certainly, some impression that the safer the building -- some broad notion that the safer the building, the better the rate. But --

MS. QUINN: But you have already decoupled them if you round to the nearest whole foot. We just don't know about it.

MODERATOR PASTERICK: My next challenge then would be that, if we are prepared for larger tolerances at the rating end than at the building end, why do I have to have an elevation certificate?

AUDIENCE MEMBER: That is exactly what I was going to ask. Why then you needed an elevation certificate for a post-flood buildings for communities that are participating in the

flood insurance program and presumably doing all this good stuff or, you know, take it one step further and say CRS communities that are collecting all this stuff and that sort of thing.

MS. QUINN: Why else do you verify compliance?

AUDIENCE MEMBER: No, no. Communities -- Keep in mind, that is their basic job. As I spoke yesterday about development process, we really want our NFIP communities visiting that site possibly up to three times during the development so they understand what's going on, verifying these elevations to as-built elevations, with detached garage elevations -- whether there's some openings or not.

We want that level of accuracy, and that's all on the current elevation certificate.

MODERATOR PASTERICK: Lois, let me ask a question and clarify something. When you say we need the elevation certificate, are you saying that the community needs to have the elevation --

AUDIENCE MEMBER: Community.

MODERATOR PASTERICK: That's fine, because there's a whole bunch of us who are sitting here thinking -- We're not questioning the community having the elevation certificate, requiring it upon construction and everything else.

What we are wondering is does the homeowner have to go out and secure a copy of that in order to buy insurance? That's --

MS. QUINN: And our concern is -- If the business side of the program that drives the money -- okay? -- stops using this as a tool, then it could begin to erode backwards.

MODERATOR PASTERICK: But that's the -- But as I framed that question before, I was starting to hear, well, maybe not.

MS. QUINN: I see it only as the level of accuracy might be difference. You know, once you send a surveyor out there, they're not going to say, oh, well, we'll just round up. They are very professional with you.

MODERATOR PASTERICK: There isn't any question that a surveyor will give us better information. We're not questioning the --

MS. QUINN: And a homeowner would always have that as a recourse. Should they -- if you built a national database out of what Dan is proposing or any other number of proposals, a homeowner would always have that recourse.

MODERATOR PASTERICK: You had a comment?

MR. COTTER: I think she's right.

MODERATOR PASTERICK: Okay.

ADMINISTRATOR HOWARD: I think we have in the back someone who has been very patient.

AUDIENCE MEMBER: Well, my only concern is -- My only question is that, if we do allow LIDAR technology, then we have to now set up standards on what technologies are acceptable, you know.

Am I going to be accepting GPS or someone's measuring from a storm water system, you know, and measure it from --

MR. COTTER: You raise what to me is a fascinating question, because I think that the trend we're seeing from the Federal government is exactly what you say. When a new technology comes out to set a mapping standard, something specific for that technology, I guess what I would suggest is that FEMA and the flood insurance program should decide what the standard is for the maps and the parts they needs to produce, and hold your contracts and your vendors to produce maps to that standard. But I think if you tried to establish standards for LIDAR and IFSAR and GPS and everything else -- and the way it's coming out right now you've got a different standard for program metric work. You have a different standard for LIDAR. You have a different standard for

IFSAR.

I don't understand that. You know, should there not just be a standard for the product you need, and let the professional surveying community determine what's the fastest, cheapest, best way to provide that to you?

AUDIENCE MEMBER: But otherwise, we will be forever --

MR. COTTER: Forever making standards.

AUDIENCE MEMBER: -- an upper layer of rating where we rate LIDAR differently than surveyors' elevation.

MR. COTTER: Well, whenever -- You know, over time, if people go back to resurvey, they are going to get different answers within the error budget of the technology. There's no doubt about that. But if you have a standard for the work that you are required, you know, people can hit that standard.

It may be better. It may be worse. Well, it should always be better or as good as, but you should always get the end product you need.

You know, with the Federal government, I always worried about the standards making and what it can involve you in.

AUDIENCE MEMBER: I have a question then about the technology or this approach. With the elevation certificate,

earlier we talked about having a national database and then who owns it and owns the security.

Is it the same problem with this approach? Is there the same perception of problem with who owns that and --

ADMINISTRATOR HOWARD: We may not care. We may just want to buy the information.

MODERATOR PASTERICK: Who owns it is who shoots it. If he shoots it, he owns it.

AUDIENCE MEMBER: Right. Okay. I just was wondering.

MODERATOR PASTERICK: This is not the first time we've done something similar to this, you know. As those old enough to remember, our zones used to not just be A-E zones. They were A1 through A30, and we determined on a very, very tight, precise basis, not just the frequency of the depth and -- There was a different rate for A2 versus A15.

We compressed those for the agents. We didn't compress those for the local communities. We compressed them for the insurance process. So this is -- I'm not suggesting that we have an exactly comparable situation here, but it is, in fact, an area where we've had to make some compromises form an insurance standpoint without, hopefully, doing any violence to our building

standards. Bill?

MR. BARTON: Bill Barton. When we had the surveying folks here and everything, one of the things that sort of concerns me when we start talking about accuracy is interpolation of BFE.

My understanding is that, you know, we have these measurements or cross-sections or whatever, and they are fairly far apart; and the reason we have LOMAs is we're not really measuring the area in between.

It seems like the engineering community insists that little cross-section be measured in very minute detail. Yet, it's okay to leave everything out in between. Then the surveyor has to come along and, say, he has a marker 200 feet here and 210 feet down here, and they have to determine what the base flood elevation in that area somewhere in between there.

How accurate is that actually being done out there? You know, you're carrying it to 100. What difference does it make if the surveyor is missing the BFE by two feet? How accurate do you think that is, those determinations?

AUDIENCE MEMBER: Well, it all boils down to map accuracy and how clearly those maps depict the extent and the depth of flooding in a particular area. That's one of the big

reasons that we really feel that the maps need to be upgraded and one of the concerns that we have for this technology. When you have a flood insurance rate now or you do a LINAR mapping, you have a snapshot of a particular moment in time, and here it is six months after you've done a LINAR, and are conditions really exactly the same, and was the grass -- you know, was it winter and the grass was this high, and now it's summer or, you know, what did you actually shoot with the LINAR. So, we have a little concern there.

When we are trying to establish what the basement elevation should be at a certain location, we have several problems. One is the map accuracy. One is the location and the liability of benchmarks in the vicinity from which we can reestablish the reference level from which the map was created in the first place.

In many cases, we find that there were no reliable marks in the first place. They were temporary sites, and they're not reliable or they have been destroyed.

We have to go back to the flood insurance study report to try to pull something off of a cross-section. Or we have to go to some other kind of field solution to try and reestablish where those gray lines on the map fall on the ground

and do some kind of interpolation from actually restudying that area, not to the extent of doing a full H&H, but doing some kind of an interpolation of water systems and the level from here to here.

So in terms of how well you'll be able to reproduce the same elevation to a hundredth of a foot -- that is going to vary immensely from one panel to another within a community, much less from one side of the country to the other. It's always going to be a hundredth.

In some places, yes, you could do it to a hundredth. In others, if you get within two feet, you're doing really well, or even less in an approximate unnumbered E-zone with no BFE.

MODERATOR PASTERICK: This is Dan's last comment.

MR. COTTER: Last comment. It's just interesting, I guess, to look at the map. Correct me if, I'm wrong. But I've got this thing ringing around in the back of my head, and it says away back when the maps, which really weren't maps -- they're graphics, you know, by definition -- they were intended as a guide, and they actually weren't intended to be used as we are using them today. They were intended as a guide to community officials. All decisions were supposed to be made off the profile

from the flood insurance study text.

A lot of the reason why we are where we are today is the maps have become sort of a basis for everything, and they weren't really maps, and it's led, I think, to a wad of problems that we've seen.

That was a wonderful discussion. I'm sitting here listening. I'm like, I'll go home, and I'll never sell this. So, I'm going to shut up.

MODERATOR PASTERICK: Okay. We've got one more presentation today. I'm sorry, did you have a question, Charles?

MR. SCAWTHORN: I did have a comment. I'm not sure what we're actually discussing here today in this last discussion. But it seemed to me that discussion was on how accurate should the ground elevation be?

The framework to make that decision should be a benefit/cost analysis. The cost is the cost of greater accuracy. The benefit should be the reduction for greater accuracy in the loss -- not necessarily the loss to the house or the structure, although that's part of the loss. The loss is composed of two parts, the loss to the structure, which is, in effect, the loss to the insured property or uninsured property, and also then a loss to the rest of the region, which is the flood plain management

issue.

Now another thing that was part of this discussion was precision versus accuracy. I think most people understand the difference. Insofar as I know, we did some limited analysis of accuracy during some of our proof of concept, and there is significant inaccuracy.

In other words, it's a broad sigma and a broad Bell curve on the loss. I don't know if you've done detail either on the actuarial side or on the map determination side, if you've quantified your uncertainty on these things. But in one of your slides, you pointed out the base flood elevation at Kennedy can cause five more years of data. That's a major contributor.

The Army Corps of Engineers is struggling with this issue. So there's significant uncertainty. So, that would argue to me that there is quite a bit of room for relaxing the accuracy of the ground floor elevation.

By the way, in the limited analysis we did do of uncertainty, probably the biggest contributor was the ground elevation. You know that intuitively anyway.

The only other thing I would comment on -- So I'm making two points. One is that -- Well, I'm making three points. One, the decision process is benefit/cost. The second one is

that I think that there's quite a bit of room for relaxing the accuracy. The third point I would just make is that in terms of enforcement, precision is normally required. Because people -- Even if you say, well, your first floor elevation can be between these bounds, plus or minus a foot or three feet, there's always going to -- and the broader you make that, the fewer people, but there will always be some people right at that boundary who will measure it to a hundredth of a foot.

So, it turns out crafting a law and crafting a process. Precision is usually required, and to try and get around that problem, which is -- It may be possible, but I think what accuracy and precision do --

MODERATOR PASTERICK: I would also just want to make just -- Well, first Woody.

AUDIENCE MEMBER: As an agent, I disagree with that. I would want it as accurate as I can get, because eventually that elevation certificate is going to come to me. I've got to interpret that and those floor elevations, and I've got to sell a policy based on the accuracy that's been given to me by other people, and then at a point in time, if I have losses on that property, I've got to -- So I would just say I'd want any information to me to be as accurate as possible.

MR. SUMNER: Could I raise one other question?

MODERATOR PASTERICK: Sure.

MR. SUMNER: That is, using the scenario where we use some other method beyond field surveys, are we saying then with regard to what you just said, Woody, we would then do away with the certification of that data, which is now required by the surveyor, which puts you in a worse position. I believe, and if that is what we are going to do, then regardless of the method through which it's gathered, that certification should go away for anybody who provides it, whether they do it on the ground or whether they do it with LIDAR.

MODERATOR PASTERICK: Again, we're back to I don't have to prove that I have proper wiring in my house, if the agent has enough confidence that the community has required me to have it.

I just wanted to make one other observation in this area of decoupling, and it's just to throw out -- It's to step back one-step and say why are we doing this to begin with? Why are we enforcing building standards to begin with?

Our primary objective is really to protect life and property. We don't want people living in unsafe locations, and maybe we -- On the other hand, we spend much of our time talking

about the financial consequences of it.

There is a point at which maybe somebody has to worry about the life and safety parts of the standards. Since theoretically we're the ones paying the bills, we could figure out what the tolerances are we can live with in terms of the damage. Because, see, every time we talk -- When we talk about this whole area of why we should build safely and everything else, we more often than not talk about the cost, how much it's costing us in disaster assistance and all of that.

Well, you know, if you build an insurance program which contemplates trying to get some -- make it profitable, you're really in the situation where you need to be sure you are charging rates that are commensurate with the risk and what your expected losses are.

So I think sometimes -- and I don't want to get too far off on this, but I think sometimes we need to keep in mind that there are really two aspects of this.

One is keeping people out of harm's way in terms of their life and their safety. The other part of it is the cost of repairing properties that are built. Sometimes those are two different considerations.

I will only throw in one comment in that regard,

and you can kill me for it, but that's why I don't care where the air conditioner is. And Lois will kill me for that. But because the air conditioner is not going kill me.

AUDIENCE MEMBER: No, but it does damage the building, and also --

MODERATOR PASTERICK: No, no. No, Matt, last comment. We need to get John in.

John Clayton is from NCSI --

ADMINISTRATOR HOWARD: We'll stay here as long as you want to.

MODERATOR PASTERICK: We'll have time later. I don't want to cut off. It's just that I also don't want to put John in a position where he's sitting here having you all look at your watches, saying I thought we were going to be finished. When John is done, we'll talk as long as you all would like to.

John is with NCSI, a servicing agent for the NFIP direct program, and he submitted some thoughts on and is going to talk a little bit about the idea of, if something like this would develop, what is the way of distribution.

One of the big issues that we've kind of touched the edges of today is, if some magic system were developed, where would it be developed? Would it arise out of the entrepreneurial

talents and initiative of the private sector and be able to make somebody a rich or at least moderately well to do company or will it, as Bill wants it to be, totally resident within some governmental sector that we would pay for.

So, I'm not sure if John is going to discuss quite those -- and how does it get developed? Who pays for it? I'm sure that's in the back of some people's minds too.

ADMINISTRATOR HOWARD: Pardon me. On our website we'll tell you how to get any of the papers. We'll send them electronically to you here today and, rather than take anymore time, just we'll put it on our Website.

MODERATOR PASTERICK: We have many of your -- probably most of your e-mail addresses. Make sure we have them, and we will -- As issues come up here, I think it would be helpful for all of us that we kind of distribute ideas. Maybe we'll become a clearinghouse, if you would like us to do that on this issue. Okay, John.

MR. CLAYTON: All right. Well, thank you very much. I'm certainly very happy to be here and pleased to be part of this group. John is not quite sure what he's going to say at this point either. We've covered a lot of ground, and I think I've rewritten this about eight times since I've been sitting

here.

I hope to at least offer a little different perspective maybe. NCSI is on the -- We're a vendor or flood insurance services, working with write-your-own companies who are working with their agents, and we're really -- it sort of gives us there on the insurance side, sort of like Bill and the Bureau, and give perhaps a little different perspective on some of the issues that have come up today.

Certainly, in responding to the announcement, we expressed our belief that a desktop rating system was desirable and, really, we are hoping that the flood insurance transaction can be accomplished as a purely electronic, non-paper transaction sometime.

There's just a myriad of issues that get into that. Some of them follow the point of sale, and this really isn't the crowd for that, but we're working on that in other places such as how the application gets handled and how we deal with the paper and file retention and all that stuff. But, really, here we're talking about -- With what we're talking about here we're really working with the information coming in to us.

That process can really only be improved by the sort of ideas we're talking about today. Certainly, our

livelihood depends on this, as many others do; and if the possibilities change, then that's something we are trying to stay on top of.

As I said, we're really on the retail end of this transaction. I love these meetings and hearing the discussions of LIDAR and HAZUS and all the other systems, the developments, the issues in mapping.

I'm very sorry to come up here and interrupt that, and we'll get right back to them in a minute. I guarantee you. I learn a lot, and it's useful, but we're really dealing with it.

I guess what I'm going to try to do is just bring up a few practical considerations that we see, or alternatives as this information comes into the retail front end of the point of sale, the sort of things that maybe we're worried about and we're thinking a little bit about. We can generate, collect, and consolidate all this information on properties, structures, etcetera, but if we don't address some of these considerations, it may not be cost effective. We may actually be producing more problems in some ways than we're solving.

As has been said, we also need to look at what is FEMA's role in developing these capabilities and getting them rolled out all the way to the agent, how much of that is private,

how much of that is FEMA's role.

I may have a small opinion on that along the way, but I don't presume that I'm going to help solve that in any big way. But it is a big question.

I guess there are main considerations that I would like to cover. One -- and we've been going through this quite a bit -- the acceptance and verification of the information that gets used for rating, how that information is validated and whether it has to be revisited, which I'll explain what I mean by that a little bit later. Processing issues related to the dissemination and exchange of the information, once it's available, into the rating process; and also what really are the goals of the desktop system. Maybe I'll touch on that one first.

Where is the actual final payback? I know it's a question everyone is working through. From our perspective, does this help sell more flood policies, pure and simple? The technical hurdles we're talking about, the difficulty, the inconvenience of selling a flood insurance policy, how much is that really affecting the sale of flood insurance?

If the perfect desktop gets created, the perfect desktop system, put in the address, press a button, snap, it all comes back, is that really how perfect it has to be, and is it

going to be cost effective to get to that point?

One of the issues may be -- and something that I know some companies have already been working with quite a bit and has been discussed in other conferences -- is really who is the user of the flood insurance desktop?

Right now flood insurance is strictly a -- is really a business-to-business proposition from where we stand, because we're producing software, as other companies do, and we're working with the agent or the sales -- we're working with some sales professional, an independent agent or a captive agent or a salesperson.

We're not really working with the consumer directly to sell flood insurance. Is that an offshoot? Is that something that comes closer when you have the perfect flood insurance desktop system where, theoretically, the difficulty is pulled out of the process?

I don't know that that's a goal. I don't even think it is, and if that is a goal, it opens up a lot of other issues; because I think there was a reference made to auto insurance processing earlier. That's an area where a lot of companies have put consumer oriented Web based systems out for consumers to use, but there's just a different level of ease of

use that you have to have.

In short, the average user is not going to be terribly patient in using the system. If they hit a hurdle, anyone of us, if we go onto a Website, we're trying to buy something, we're trying to learn something, you hit a couple of bumps in the road, you're gone. You're just not going to work with it.

The agent, however, assuming the sale is made, is being paid to do this transaction. They have a vested interest in completing the transaction. So, does the needle really have to move over as far on making this such a perfect transaction?

Let me see. Actually, that's an important concern, but really, my bigger concern in all of this --- and concern is not really the right word. I'm just, I think, just trying to point it out as something that -- Well, maybe it is concern.

We're concerned about how the data will be validated and accepted during this process. Now assuming that we're able to implement this system and it's beneficial, it's going to reduce the acquisition cost for a flood insurance policy, hopefully, at some point you pay back your development cost based on those reduced costs, and you're moving forward. But if that information --

Right now -- I'll put it this way. Right now that information goes back to a piece of paper. It goes back to a signed piece of paper, the elevation certificate. In a purely electronic environment, we're not going to have that piece of paper to go back to.

We're writing all this business. If at some point, the program decides to re-edit, decides to reevaluate, and decides to sample elevation information, both the program and the companies get into a very expensive process.

We've been through this somewhat with the preferred risk policy and other invalid policy issues that came up. I'm not suggesting that was a bad process at all. I'm not suggesting that there is any rationale for not making sure that business is written correctly.

I'm just saying that it's important to address those issues of validation up front so that we can avoid touching all this business a second time in the future, because that will very much detract from how cost effective it was to implement those systems.

Again, I love hearing about the mapping issues and how we collect the data. But at the point of sale, it really doesn't matter whether the information came from a survey. It

doesn't matter if it came from a spacecraft. It really doesn't quite matter where it came from.

The real issue is accessibility and transfer. There was some mention of that earlier as well.

There were two options, two strategies in the Website publication. That is Strategy A and Strategy B, and A really was existing elevation information, collecting it, and making it accessible to companies. We've been through that.

Strategy B concerned developing new technologies, perhaps changing the rating. But in both cases, we're really talking about a need to consolidate that information, store it, and make it accessible throughout the program.

So that brings up a lot of database issues that we'll have to work through. It's really -- I know Bill talked a little bit about having one database with this information, but from our perspective, it doesn't really have to be one database. It's not important that the government has one database. It's not important.

The information could continue to come from many sources, but it has to be very readily accessible, and again it has to be validated easily so that when the policy is written, when the policy continues to renew, we're not having to go back

and touch it a second time and work with it, adding to the expense.

Really, the last point that I wanted to make with this has to do with some processing issues again, because when we get the desktop system, when we have the eRating desktop flood insurance system, that's the first step of a number of other processes.

That produces an application, but then you have to process that application, and you have to pay that application, and process it as an e-commerce transaction, and it has to feed a larger system. It's a company system, and eventually has to report to the Bureau. We have to pay commissions, sales incentives, etcetera.

If the concept of an e-commerce -- of a desktop system means one desktop system provided by the government, then you have that whole myriad of interface issues with all the companies that are participating in the program that would have to be addressed.

I don't know that that is the intent of the discussion of we want to have a desktop system, a desktop flood insurance system, and hearing the comments today, that really doesn't seem to be a driving force. I think we all agree that the

information -- The real focus is the rating information coming in so that all of these different desktop systems can access that information.

Another reason that's important is, when you get to the point of a desktop, these things are done very different ways. It is just amazing the number of ways that flood insurance can be represented on the screens.

I mean, we have -- There's one TRRP plan. There is one flood insurance manual. There is one financial control plan, and companies still manage to have different applications. They have different ways of asking the questions. They have different ways of explaining it to the agents.

So, I really don't think that any one interface or any one approach to this is ever going to serve all of the constituencies and really achieve what we're trying to do.

Now if you do decide that that is what you want, we would be willing to talk about that and go through that, and I'm sure there are others that would as well. But, really, we don't think that's the way to go.

The important role for FEMA in this is to again collect the data, do the much more complicated and expensive issues of consolidating and making the information accessible, and

then letting the companies, serving agents, vendors, all the software developers do what they do best, which is setting it up so that all the consumers beat a path to our door.

That, I believe, was the original write-your-own concept, and I think still is.

That's really about all I have.

MR. MAUNE: I don't have a question for him.

MODERATOR PASTERICK: It's all right.

MR. MAUNE: My name is Dave Maune. I thought we were invited here today to see how we might think outside the normal box. I think Dan Cotter had an idea on how we might think outside the box.

Let me give you a little background. I've managed the production of about 30,000 elevation certificates to date. One of the things is the fact that we see a large number of houses outside the special flood hazard area boundary that have elevations below the BFE, and a large number of houses inside the special flood hazard area boundary that have lowest floor elevations above the BFE.

We all know that a large percentage of our insurance claims are paid to people who live outside the special flood hazard area. Is that generally accepted? That's generally

accepted. Okay.

So I have been concerned for years that we are using a horizontal criteria, a horizontal location of that special flood hazard area boundary, as the gospel on determining who needs flood insurance and who doesn't unless you hire a surveyor to get you an elevation certificate to prove that you got re-flooded.

So, the starting point I'm saying, here's the default decision on who needs flood insurance and who doesn't is a horizontal line drawn in the center. When we did these 30,000 elevation certificates, and one of those surveys was paid for by FEMA, some of it was for that pre-FIRM actuarial study that Rebecca mentioned where we found that nearly 50 percent of the houses we surveyed inside that special -- had elevations above the BFE.

So if we were to use vertical criteria for determining who needed flood insurance, we might have said that 50 percent of those people would have got flood insurance cheaper if they had paid for a surveyor to cure their elevation, but except we didn't know what 50 percent would do that.

So, they would all have to do it in order to prove that they were part of the half, and then half of them said, well, I wasted my money, because I'm low, and I have to buy flood

insurance anyway.

So but there's -- The point I'm making is that there is a high probability that we may be telling the wrong people who needs flood insurance when we use that horizontal line incentive.

I'm intrigued by the potential that Dan Cotter's technology has in saying, well, can vertical criteria do any better, and here's what I would like to throw out for consideration.

Of those 30,000 elevation certificates, over 2,000 of them were done for the program that David Canaan -- When we showed the little show here earlier that you had, Dave Canaan was on there from Charlotte-Mecklenburg, North Carolina, in a program that he was calling proactive flood plain management.

He surveyed over 2,000 houses in which we know the lowest floor elevation and the lowest adjacent grade, and it was in that group that we found a lot of houses outside the boundary were lower, and a lot of them inside were higher. But we know their lowest floor elevations, and we know their lowest adjacent grades.

I would love to see LIDAR flown of Charlotte-Mecklenburg County use the technology that Dan Cotter proposes to

say what does LIDAR tell you about the lowest adjacent grade around those buildings.

Now that process wouldn't tell you the lowest floor, but he might use a philosophy that, well, if the lowest adjacent grade is above the BFE here, he might say there's a good risk that that homeowner does not need flood insurance. But if the lowest adjacent grade is below the BFE, there is a high probability that the homeowner does need flood insurance.

I would love to be able to compare that with the actual lowest floor to see if the discrepancy rate is anywhere close to the 50 percent that we get by using the horizontal criteria. I think it is worthy of a test to see the merits of what he is proposing, because we do have -- The most expensive part of that process has already been paid for, and acquiring the LIDAR data without going through all the post-processing -- Dan doesn't remove the trees and stuff. He says what's the lowest part around the houses.

So, the most expensive part of the LIDAR project -- you wouldn't have to bear that, but I think it's worthy of a test to see how accurate his method might prove to be.

MODERATOR PASTERICK: I'd like to see the conclusion, though, drawn from that not that he doesn't need flood

insurance, but that his flood insurance would be cheaper.

MR. MAUNE: Well, I'm also saying it gives you the opportunity to have a desktop system -- If you have a desktop system that has all the LIDAR data around it and you could determine the latitude and longitude of a house that's applying for a mortgage, that desktop system with LIDAR data around it might be able to tell you there's a high risk and that guy is flood prone or the high risk that he's not flood prone.

MODERATOR PASTERICK: Paul?

MR. TERTELL: I'm an engineer asking an insurance an insurance question. So, I'll beg your forgiveness. But there's a lot of talk about the desktop rating, whatever it is. I think the underlying thing is that you would sell a lot more insurance policies if you had the desktop rating system -- I mean, if that's what you want to achieve. How do you know that?

MODERATOR PASTERICK: We don't know that. What we're responding to is a great deal of comment and frustration on the part of the insurance agent community that flood insurance is not an easy line of property insurance to write.

I guess we are concluding from that that, if it were easier to write, there would be.

MR. TERTELL: That seems to be -- without trying to

quantify that, that seems to be a pretty major step.

MODERATOR PASTERICK: I understand that. At the same time, intuitively -- intuitively, as far as I think any number of us are concerned, it makes sense to simplify this process, that if we're getting complaints -- If we're getting --

Let me tell you. This is not one or two. These aren't anecdotal complaints. This is everywhere we go. Rebecca mentioned it, too. It is, in fact, an attitudinal obstacle to a lot of agents writing flood insurance.

Now should we spend $200,000 quantifying how much resistance and how many policies? I don't think -- I'd rather apply the $200,000 to something else. I think this is still -- From our standpoint, we have a lot of pressure, constant pressure, to try to simplify this process.

MS. QUINN: Making it easier to write, will you reduce the agent's fee?

MODERATOR PASTERICK: Maybe.

MR. MILLER: Three big points. Matt Miller. One, the irony of this is that, if we were successful in introducing eRating, you will tend to eliminate the need for the agent, because when you simplify to the point where you can --

There's a second point I'd like to make. Dave

mentioned that frequently we have houses above BFE in the special flood hazard area. My point is that, if that proves firm, it means our flood plain management program is working. That's what should be happening.

We should be having structures in the special flood hazard area above BFE, if our flood plain management program in working.

My last point is this: I compliment, Ed, you and JoAnn. I think you've really crossed the boundary today that needs to be crossed, and that is to have an open dialogue about the -- of flood plain management from writing flood policies. You needed to have that dialogue, and here's why I think it's important.

I think that there's little question on my mind that you decouple flood plain management from selling flood insurance, especially in eRating -- The question that needs to be answered, though, programmatically is this: To decouple flood plain management from flood insurance, will flood plain management work? That's an important discussion.

MODERATOR PASTERICK: That's the question.

MR. MILLER: And I applaud you for letting us get that on the table.

MODERATOR PASTERICK: Let me just clarify one of your questions. We're not looking to start selling flood insurance directly. When we talk about eRating, we're not going to put it out -- we are not trying to establish a direct linkage between the program here and the consumer.

The fact is that we work through 90-some companies who in turn work through the insurance agent community, or however they work. But what we're trying to do is get a tool for both of those entities to be able to do it easier.

AUDIENCE MEMBER: I would also like to say, Matt, that we're not talking about decoupling. That's maybe a strong word. We're talking about some relaxation. A decoupling from flood plain management would work against our insurance rating and the financial soundness of the program.

MR. MILLER: Thank you. I wasn't trying to start rumors, but to finish my point -- I wasn't trying to start rumors about Internet sales, but maybe the next Administrator will. Just teasing.

My last point is this: We have two real compliance tools we use. One is community statutes. When a community issues building permits that are inconsistent with their flood plain management ordinances, we can put the community on probation or we

can suspend them. That's one means we have.

The other means we have is torturing the homeowner. What I mean is giving them exorbitant flood insurance premiums. I suggest that frequently, in most cases, we don't have the political wherewithal to sanction the communities.

In my career with FEMA, I think I can count on one hand the times we've sanctioned individual communities, because you don't have the guts. But we're sort of bold in the other way. We're all the time handing out exorbitant flood insurance premiums to the homeowners.

My point is this: Maybe we need to back up and rethink this, you know. Maybe we need -- and if we decouple or relax the relationship between flood plain management and the sale of flood, maybe it will make us be a little bit gutsier about working with the communities as a whole and not taking on individual homeowners.

MODERATOR PASTERICK: We're glad she could come. Rebecca?

MS. QUINN: If I could weigh in on behalf of ASFPM in terms of the decoupling word, I'm sifting my brain, did I use the word, because I think all I've tried to characterize was I think we recognize that perhaps the level of -- and I'll have to

decide whether it's precision or accuracy -- of elevation information needed on existing buildings maybe could be different in terms of having actually to come up with rating information, maybe could be different than what's needed for compliance.

I don't think any of us want to talk about decoupling. We're talking about different applications of similar information which has to date been collected on the same tool and, therefore, the same level of precision has been used, and is that necessary to continue?

MODERATOR PASTERICK: Woodie?

AUDIENCE MEMBER: I'm sitting here with all of you technical people today, and I really admire you a lot for what you do. But $750 million amount and whatever a desktop system is going to cost is not really going to sell anymore insurance policies.

All of these systems that you talked about certainly will serve a good purpose and allow them to rate things correctly and understand where the losses are, and they are important. I'm not -- But, you know, as Mr. Cotter said, the bottom line is to sell more insurance policies.

It really comes down to a couple of things. You have to demonstrate a need for people and demonstrate to them why

they have to have it, and -- So that's what I sell insurance on and flood insurance on, based on -- I mean, I do need your assistance, because as I said earlier, I have to have accurate information to do that. But I just want you to understand, if you don't already, that some insurance policies -- these systems that you develop probably aren't going to sell very many policies at all.

I'm not saying, again, that they aren't important. But it really comes down to -- See, what we did and what has been done is you can only control one segment that's got to have it, and some people in the population don't have to have it. And now we're trying to sell to that 90 percent of people that we told you don't have to have it.

So, you can be flippant about agents, if you want to, not wanting to sell it. I don't think that's true. I think that there's some serious concerns -- But it's a completely different operation from what you people generally deal with.

MODERATOR PASTERICK: Sue?

AUDIENCE MEMBER: I don't think people buy flood insurance because they want to. They buy it because they're told they have to. It's the same with all other insurance. I mean, I don't buy fire insurance because I want to buy fire insurance on

my house. I'm required to. I have to have fire insurance.

It's one of the few industries where the risk isn't spread across really broad populations. And as Dave was saying, I think there's a large number of structures that probably should be required to that aren't being recognized as needing insurance.

It seems like it would be much fairer to apply a more broad based criteria and then adjust the premiums.

MS. QUINN: You know, years ago we had some discussions along those lines on the Hill. There was a coalition that said, well, why don't we just charge everybody fifty dollars.

Well, what's the first thing that would go away? Maps and flood plain management. You don't need to define the risks. We don't need maps. We don't need flood plain management, as long as everybody is paying enough to cover the risk.

I'm not suggesting necessarily a premium for everybody, but I think the answer is what I perceive that your survey work, Dave's survey work, pointed out is what many of us believe. That is on those margins the maps just aren't good enough.

So, if we can invest in a better map and if we can overcome this grandfathering issue and have maps better defined and shifted whichever way they need to shift and up a little creek

and whatever, then we'll capture more of the risk. We'll capture more of the at-risk buildings, and then more of those people will be brought into the program.

There is a program now oftentimes now, because they flood, even though they are not in the FMHA.

MODERATOR PASTERICK: Neal?

AUDIENCE MEMBER: Not being either an engineer or a flood plain manager, I firmly believe that the only way we'll have a long-term program is if we have flood plain management. But the engineering bit is forced to draw a line in the sand, and as we heard a moment ago, we are also forced to draw a line in the air, and we're drawing lines to a tenth of a foot, two and a half inches every day.

We're talking about an inch and a half on how high a slab was poured. We're talking inch and a half on a pier or on a piling. Is that still practical? When you go back into the contour mapping, you can go back into the hydraulics and hydrology, does it really make sense to take all of that and write it down to an inch on a slab, an inch and a half on a slab? I'm not sure.

Would we be not better off, as someone was suggesting, using cinder blocks? In a special flood hazard,

you've got to build to three-quarters of an inch. Otherwise, we're going to constantly be trying to be as precise as possible in an arena, which is based upon probability. We just confound our problem.

The only time we do know how we came out is 40 or 50 years later to see whether or not we put these pieces together correctly.

MODERATOR PASTERICK: To be honest with you, I'm not particularly questioning the validity of our standards for construction. That's not the issue. As a matter of fact, as Howard says, not only do we not want to, quote, "decouple," we rely on those standards.

Down the line, we want to rely on it to the point where we don't have to verify that they are being enforced. I mean that's really the ideal that we're getting at here. If we ever got to the -- and so when we're talking about the rating process as being somehow apart from the local community enforcement process, we're really not talking about separating them as much as we are trusting the fact from an insurance -- because if you don't trust the fact from the insurance standpoint that they are being enforced adequately from a community standpoint, then, in fact, you do have to go through two links

that complicate the rating process.

So in terms of the construction process, we can be as precise as want to, because in fact you do have engineers and planners and surveyors that are very much involved, and building permit officials and construction people who are very comfortable with the standards and all the, quote, "complexity" that surrounds the enforcement of elevations and construction standards.

The issue is whether we need to go through and acquire for purposes of rating a policy and we have to have people who are not part of that process interpret that information for that purpose or whether we can produce some other set of data that brings it into that -- that simplifies that calculation. Let's just put it that way.

I would say this, that if ten years from now we are in some process where we are allowing tolerances from a rating standpoint that, in fact, we find are diluting the enforcement, it would not serve our purposes to continue to do that. We would begin to see loss experiences from an insurance standpoint, which would be directly traced back to the lack of enforcement at the community level. Jim?

AUDIENCE MEMBER: Just one caution. You don't want to be selling the policy with LIDAR at half-foot and then

applicable laws use the elevation certificate one and a half inch to enforce -- to the insured. Yes to the community but not to the insured.

MODERATOR PASTERICK: Right.

AUDIENCE MEMBER: So I think we --

MODERATOR PASTERICK: We have changed standards.

AUDIENCE MEMBER: -- beating the insured up and get to what we're going to do in the community.

MODERATOR PASTERICK: Dawn?

AUDIENCE MEMBER: We heard a lot about how -- in yesterday's meeting -- LIDAR or other types of technology can make it easier for insurance agents to write policies --

I think that issues that we haven't brought up today that need to be put on the table are how do you do this -- how would you do this, and what are the viable options --

If we lower the standards for rating the policy and we make that today through the agents to write the policy, then is the ownership of the database tied to the fact that you might need to indemnify the agent against that being incorrect, because there's no one there to certify it? So the how is really important and who owns that data and how that data is certified back and identified --

Then who pays the developer? If you look at a developer in a project, you often look at cost. So, is this really something that he should look at as an additional cost of sales?

I think those are a couple of things we need to think about. The technical issues are important, but there's also some other business related issues.

ADMINISTRATOR HOWARD: But within that question, I guess, or asked in it is the question we're exploring today. Whereas, the NFP might in one scenario bear the development cost, we might be a provider, but we might not own the various pieces of the data.

We might be the aggregator or we might be the distributor of it, but engage or hire private sector firms to aggregate it. For instance, you said you've already collected or your company has collected the tax data. Why would we want to go back and collect the tax data if we could buy the use of that data or from some other syndicator?

So I think it would be interesting to explore the roles, and we have nothing. It's just exploration.

MODERATOR PASTERICK: Excuse me. I just want to let you know where we all are now. Whether you know it or not,

you just got us into next steps, which is me on here. But that is, in fact -- Those are some of the questions that we don't know necessarily what the next steps are.

AUDIENCE MEMBER: Now I think there's a real gain here in bringing a product -- I'm not an engineer. I'm not a flood plain manager. I'm not a business development -- thinking about making money and making as much money as possible on low cost -- That's my role in life.

I think that, if we want to make a product and help the agents, we shouldn't also burden them for additional liability based on a piece of data on it that is no longer certified or no longer has any recourse for that agent to go back. I mean, I think that's a little dangerous. You're asking the agent to use something that then is riskier.

ADMINISTRATOR HOWARD: Here's a database that the government stands behind, and they have access to it for rates. They should be able to rely on that rate, and that does reduce their E&O.

AUDIENCE MEMBER: And the other thing is that I wanted to bring up is I don't -- We've done expensive studies on the applicability of turning what we have -- this is a very large personal database -- into other types of products and have tried

to quantify significant revenue based on those opportunities.

I can tell you, if there were something specific to just adding elevation and providing it back to the insurance industry, one, we would have done it earlier. So I don't know that just saying commercial America is going to solve the problem, because it's profitable to them is 100 percent --You know it really needs to be explored.

MODERATOR PASTERICK: Just again for background, that is, in fact, one of the questions that we need to explore. But for -- There have been occasions in the past when we have tried to enter the fray in terms of doing the development ourselves that we have been backed off, because the private sector has, in fact, done -- and I think we're all familiar with that territory.

So, we don't know where the lines are. So maybe that's part of the push and pull here, that we can't automatically assume that we're the big dog and we're going to be the ones to be the players here. We need to figure that out.

That is, in fact, part of the post-session jockeying we'll have to do. Beth?

AUDIENCE MEMBER: I think something that ultimately be helpful to the group is if anyone could share the outcome -- I

believe there was a meeting that FEMA had in New Orleans in December that talked about sharing data and the issues concerned with private sector and government working together, and when does it become public domain. That would be a good start on some of the private sector involvement that you're looking for.

I don't know if there was anything published after that meeting or anybody here was there and has some insight.

MR. SUMNER: It was actually October, and it was USGS. It wasn't FEMA, and it was done in conjunction with a group called Management Association of Private Flood Information Surveyor's Maps.

There was a lot of discussion at that meeting about how licensing data might occur. There was discussion about how certification of data might occur, and then, of course, the licensing of the people involved at the level primarily of flood management and GIS.

As far as I know, nothing has actually been published yet, because there really were no results. It was a meeting a lot like this. There was a lot of discussion. People had different ideas.

There are some government agencies, including USGS, I believe -- You may have said the same thing; I don't know --

about already purchasing data through licenses. I mean that's occurring.

I think the big issue that a lot of people had with that was one that someone touched on here today, and that is whose dollar generates it.

If I go out and create a product that I can sell, then I have the right to sell that to anybody I want in any way they will buy it for ever how much they will pay. But if somebody pays me to do that, that puts me in a little bit different place.

That was the big discussion that went on at that meeting. I think it's important to maybe try to get what came out of that meeting into this discussion as well, because it's really similar to what we're talking about here, but to answer your question directly, as far as I know, nothing has actually been printed on that meeting.

ADMINISTRATOR HOWARD: There has been some discussion on repetitive loss data, and I thought that was where you were going, because I wasn't familiar with the meeting. How could we get the information from this previous meeting?

MR. SUMNER: I could probably get it for you. John Palatiello, who you may or may not know, over at MAPS was the person who orchestrated that meeting and was going to create a

report, but as I said, I haven't seen it yet, but if he has done it, it would be on their Website.

You could contact John directly and get that from him.

ADMINISTRATOR HOWARD: And his last name is?

MR. SUMNER: Palatiello. You could spell that any way you like. He's over in Reston. I'll send you the information.

ADMINISTRATOR HOWARD: Okay. Thanks.

MODERATOR PASTERICK: Okay. You get the final comment.

ADMINISTRATOR HOWARD: Was there any validity in what Keith suggested, without knowing anymore about a task force between mitigation and insurance and to talk about elevation data being collected so that we don't have -- we don't find ourselves doing what maybe some people call legacy but data that's not interchangeable. Does that sound like one step?

I'm intrigued with your suggestion about testing the LIDAR in an area that you already have the elevation certificates for. I don't assume, Dan, that that would be a long-term project. The LIDAR is pretty fast, isn't it?

AUDIENCE MEMBER: Exactly the speed of light.

AUDIENCE MEMBER: Yes. I can't imagine that it's more than a few square miles. Right? You know, there's a lot of LIDAR technology right now.

ADMINISTRATOR HOWARD: I think that would be an interesting exploration.

The other would be if we have 90 percent of our structures or more than 90 percent outside the special flood hazard area, should we start there with the database and move in then to the special flood hazard area? I think that's something that we should explore of eRating.

Looking at the ease to the agent may not be enough to give the instant information to every piece of property up front, but if we could get into the 80 percent range, maybe that's a good enough start.

So I think, rather than put it on the Website the next steps from this -- I assume that by your registration we have an e-mail address for you. If we don't, please e-mail Ed Pasterick and tell us how we get back in touch with you.

Why don't we tell you that the first part of January, the first week or so of January, we'll tell you what we think -- where we think we will go from here, whether we want to meet or have a -- several interest groups and suggest that we

explore several areas.

I'm intrigued with HAZUS. I think that -- I would like to think that anything we developed could be fed into HAZUS for other uses.

Matt, I hope we can enhance the mapping project, because whatever we do of exporting the information into an eRating system, it's only as accurate as the information that goes into it, and we are woefully behind in doing those restudies.

So, we haven't solved the problem of suddenly, because you have the ease of giving a quote to an agent, that we have gotten better -- or we've improved the map quality by the same stroke. We have that to struggle with.

I think it's a challenge. I feel like that the pleasurable part about working in the public sector, one of the most rewarding parts, is that we can ponder "what if," and sometimes in the private sector you don't have that luxury unless you are actually working on bidding a job or something, and that is a very satisfying part. But this is not merely an academic exercise.

I believe that we can within three years improve dramatically the rate information we can provide through write-your-own companies to agents, and I think that's very possible.

So, we are looking realistically.

We are looking at our business process improvement side here, concept of operations. We have now a system that -- in our planning that looks ahead two or three years. So the flood insurance program, I think, is becoming even more.

It has always operated very, very well within government, but I think that you will see within the next five years a dramatic leap in the National Flood Insurance Program.

That's due to Ed Pasterick. That's due to Howard and that's due to Don Beaton and Jhun, Harriet, Amy, that whole team; because we have a team of people who are really committed, I think, the very highest principles in government, but we need our partners. We need to hear from you, and we need these conversations, because if we don't hear every viewpoint, then we'll be missing a piece of information.

So, thank you today, and we will be in touch with you.

MODERATOR PASTERICK: That's the last word.

(Whereupon, the foregoing matter went off the record at 3:20 p.m.)