Minutes of a Meeting of
Board of Zoning Appeals
Held April 19, 2018

Members Present: Bruno, Burke, Gess, Miller, Norton, Young

Excused: Tyo

Also present: Steve Vogel, Chief Building Official, Lydia DeGeorge and Sara Byrnes Maier

Audience: Ed Pavicic, Kevin Hoffman, Denny Wendell, Tony DiBenedetto

*Full recording of the meeting is permanently available on the City of Bay Village website under City Government/Board of Zoning Appeals.

Chairman Norton called the meeting to order at 7:35 p.m.

Motion by Bruno, second by Burke, to approve the minutes of the meeting held April 5, 2018, as prepared and distributed. Motion passed 6-0.

Edward Pavicic
550 Red Oak Lane

C.O. 1306.04(d)(4) Applicant is requesting a variance to construct a basement within a 100 year floodplain.

Kevin Hoffman, Polaris Engineering and Surveying, presented a map from the Cuyahoga County Geographical System (G.I.S) that shows the floodplain overlaid with aerial photography and contour elevations. He referenced the map and explained that the area in red is Zone A and there have been no official means of base flood elevations that have been calculated and there have not been any studies to verify the elevation. Mr. Hoffman stated that when Mr. Pavicic purchased the property from the previous owner, that owner did not disclose the floodplain. We are trying to get the seller of the property to pay for part of the hydrologic and hydraulic analysis to determine the Base Flood Elevation (B.F.E.). Mr. Hoffman stated that “based upon the floodplain that has been issued, there is a 646 contour elevation which shows that the flood plain is not expanding past that contour and the finished grade around the home will be 646.90”. He added that Mr. Pavicic has obtained flood insurance. Also, he commented that the home will be one foot above the assumed elevation and the first floor will be two feet higher than the grade around the home.

Mr. Norton stated that you cannot artificially raise the grade around the home. By doing this, you will be pushing the water off onto the neighboring properties, which is against the ordinances. The natural grade must be maintained. In the report that was submitted by Mr. Hoffman, (please see exhibit A) one of the calculations was that the grade would be raised by one foot. Mr. Hoffman responded that the study would get into that.
Mr. Burke thanked Mr. Hoffman for the report that he submitted. Mr. Burke verified a few items with Mr. Hoffman. It is his understanding that Mr. Hoffman has taken what he has in the way of floorplan maps and has looked at the BFE around it and from that has extrapolated his best professional estimate of the subject properties BFE. Mr. Hoffman said correct and believes it to be 645.90. In the attached drawings, from the report, Mr. Hoffman shows the basement floor BFE to be at 639. Mr. Hoffman said correct. Mr. Burke continued and said if you take that difference of almost seven feet and then you add the required two feet then the basement floor will be approximately nine feet below the estimated BFE for the parcel. According to the drawing the first floor BFE is at 648.9 (Mr. Burke noted that he is not sure if that number is before or after the addition of the height of the property) but using that number it would come in about three feet above the estimated BFE for the parcel. Mr. Hoffman said correct. Mr. Hoffman stated that FEMA is mostly concerned with the elevation adjacent to the home. Mr. Burke stated that if the first floor of the proposed building is three feet above the natural grade and three feet above the estimated BFE for the parcel, it would suggest that they would be in compliance with Bay Village Code. Therefore, the first floor would appear from Mr. Hoffman’s numbers to be three feet above his estimated BFE. Mr. Hoffman said correct. Mr. Burke continued and said since the requirement states the lowest floor has to be at least two feet above then Mr. Pavicic would be able to build a basement less house on this property.

Mr. Pavicic stated that he would not have bought the property for a basement less house. He commented that all the homes in that development have basements and when the engineering was done for the streets this was missed. Mr. Pavicic referenced two of the homes on the map that have basements that are in the flood plain. Mr. Burke said that those homes were done in 2002 and the most recent map is not until 2010, therefore, it could be that the updated map was not available eight years earlier.

Mr. Norton referenced the National Flood Insurance Program (NFIP), which Bay Village is a member and that it provides a discount on the cost of Flood Insurance to the residents of Bay Village. Mr. Pavicic commented that he believes there is a national set fee. He explained that the Red Oak property and a home he did in Westlake the rates were exactly the same. The Westlake home was 1.3 million and this one is 450,000. Mr. Norton referenced the Variance Guidelines report issued by FEMA that states “FEMA may suspend a participating community when the community fails to enforce its floodplain management regulations”. If the city is suspended because a variance was granted that FEMA disagrees with than the community could be suspended and become nonparticipating. Therefore, flood insurance policies cannot be written or renewed. Mr. Norton stated to Mr. Pavicic that he is asking the city to give him a variance that threatens the status of the City of Bay Villages participation in the program because he would like to maximize the value of his property by having a basement.

Mr. Pavicic commented that there is a national state exchange were insurance companies apply to buy the insurance and they are about the same cost and does not know where Mr. Norton is getting his information from. Mr. Norton stated that he is quoting the Variance Guidelines set by FEMA. Mr. Pavicic stated that the insurance is not bought through Bay Village. Mr. Norton explained that the Federal Government subsidizes flood insurance, if a community participates, the community needs to make sure that there are laws and what they allow is done in a way that minimizes FEMA’s problem with flooding. Mr. Burke referenced a memorandum received from
Alicia Silverio from the Department of Natural Resources (DNR) from the State of Ohio referencing this issue of compliance by a community states “If it is determined that a community is not meeting its natural flood insurance programs (NFIP) commitment, the community can be placed on probation or suspended from the program. Probation is a FEMA-imposed change in a community’s status resulting from violations and deficiencies in the administration and enforcement of local floodplain management regulations. During probation a surcharge is added to the premium for each policy sold or renewed in the community”. A surcharge will increase the cost of flood insurance for the citizens of Bay Village, if that were determined by the Feds. Mr. Pavicic stated that he looked up the study statement and the 1976 map was into play, (referenced map) all these homes are affected and they all should have flood insurance. Mr. Burke stated that he does not know what floodplain maps were available at the time those houses were built, nor does he know when the current regulations of the national flood insurance program were enacted.

Mr. Norton recommended that if Mr. Pavicic disagrees with the floodplain and Zone A, he as an individual property owner can do the study and then submit it to FEMA. Then, FEMA can make the decision based on engineering if he is either in or out of the floodplain.

Mr. Pavicic commented that normally he would do that. Mr. Pavicic referenced an email and stated, “on Friday, February 23, 2018 when I submitted all of my plans into the City in January I was following up with my plans approximately February 7, I received first before this I received a letter from Joe Lenahan who was in the Building Department said he needed 4 requirements in order to get the permits. So I went ahead and followed up with him again and on the 23rd I said I gave him all the requirements. I said are my permits ready? His verbatim was the permit is ready when they get picked up one note needs to be added, initialed, thanks Joe. I took this information and closed out my loan. Right now, I have an active loan on the property that’s generating interest.” Mr. Norton suggested that he should sue the people who sold him the property. Mr. Pavicic explained that he went back to the previous owners and informed them that they would responsible for the cost of the study. He noted that he talked with Bramhall and the study will cost almost $10,000 dollars. “In the meantime, I used the due diligence and knowledge that I asked a representative from the City to make sure I was alright before I closed on the loan.

Mr. Vogel asked Mr. Pavicic why he did not ask him if the permit was ready. Mr. Vogel stated that “we have dealt with items before and have a relationship in the City Building Department, why are using a Joe Lenahan, a new rookie guy, who I just had do a Building review and the building is fine but it’s not a permit. The permit has to be issued by the City, which would come through me and you know that, why didn’t you come to me for your permit. I want to defend Joe Lenahan, he is a young guy, who I am having do plan reviews”. Mr. Norton asked if the City is responsible for a builder knowing about the floodplain. Mr. Pavicic noted that he speaks to administrative assistants in different cities and there is no policy that is clearly written and he needs to talk to the Chief Building Official. Mr. Norton asked again if the city is responsible to know if that piece of land is in the floodplain. Mr. Miller responded no. The title agent is supposed to do the due diligence to search out any issues on the property. It is not the city’s problem. Mr. Pavicic commented that he is not asking the city to cover any of the studies. Mr. Norton advised that Mr. Pavicic is asking the City to grant a variance that goes against FEMA.
Mr. Pavicic commented that he does not see how that is reflected on. Mr. Norton stated that the requirements for FEMA and for FEMA to agree that the City was proper and reasonable in granting a variance are very specific. Mr. Pavicic commented that if he knew that this would be getting into a legal debate than he would have brought in his attorney. He stated “I am in a position where if you deny me this then it is just going to end up in litigation which I know already. Steve, I understand that you feel that you are defending your man in the position involved in it but that’s not where I’m at.” Mr. Vogel responded that Mr. Pavicic knew he had an issue.

Mr. Gess commented that the request for a variance is premature because if additional engineering and analysis were done and might be completed by now, it could demonstrate that the house does not fall within the floodplain and therefore, this is a moot point. Mr. Pavicic responded that he agrees with that but the only reason why he is here is because he facilitated a loan. Mr. Pavicic recommended to Mr. Ebert that he should not even be in front of the BZA and he believes the floodplain is actually the edge of the creek. He commented that this is opening a can worms up for the City because this study should have been done before that subdivision went in and every home back there now with basements should not have been built. He believes the engineer at the time missed it. He stated that “when you vote this down, the City is going to be required to do on its own dime because of something that was missed. I tried to avoid this. I did not want to be here because, at the end of the day, you now have all the residents around there that have basements that are below 7 ½ feet, eight feet below BFE. Thank God there’s no flood because ultimately back 2002, say there was a flood, who is going to be responsible for that.” Mr. Norton commented that we do not know that because we do not know the changes that were done in 2010. Mr. Pavicic stated “that he knows that, he looked at it, and he went over it with Dominic Vannucci and we tried to avoid it”. Mr. Hoffman stated that the map of 1977 shows. Mr. Norton asked what is FEMA rights and what changes were made in 2010? Unless we had a lot more information, he does not see how the board can jeopardize the City’s position as a member of FEMA. Mr. Pavicic commented that he was not aware of the City’s position with FEMA and will research that. However, he is still in the same position as he is now, where he has a loan out collecting interest. He tried to cancel it, but he can’t. He commented that his recourse is with the title insurance and he talked with the former landowner, who has agreed to pay for the study. He is now in a position that if he tables his request and, assuming that the board would want the study done first, he is still collecting interest on loans that he is responsible for. Mr. Miller asked if this is a construction loan. Mr. Pavicic responded no, these are investor loans.

Mr. Burke asked Mr. Pavicic how long he has been a builder for. Mr. Pavicic responded 32 years. Mr. Burked asked that in 32 years have you either addressed or at least heard of floodplains from other builders. Mr. Pavicic said yes. He stated that he has developed streets and when he has developed the streets, he does his due diligence and rely on disclosures and information that is produced from title companies. Since this was a developed lot, he did not go back in detail because it is not a raw piece of land. Mr. Burke commented that it is his understanding that from the last meeting the parcel, at one time, was part of a larger area that your family owned. Mr. Pavicic explained that on Wolf Road, the adjacent land (referenced on map) so it was very close to it. Mr. Burked continued that he was familiar with the parcel. Mr. Pavicic said yes and it never floods. Mr. Burke asked Mr. Pavicic that when he purchased the
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property, did he request from the seller a disclosure from the State of Ohio. Mr. Pavicic said it was not blank, it was no. Mr. Burke asked if he made his purchase agreement subject to confirming with his engineer. Mr. Hoffman that there were no conditions with the floodplain. Mr. Pavicic responded no and that this is a deeded lot with a permanent parcel number from Cuyahoga County. The permanent parcel number allows him to do what he wants according to the City ordinances. The City ordinances, at that time, are based on their setbacks. One of the things that he looks for in a property is what size home he can put on a lot. He did not look any deeper because he is not the developer.

Mr. Norton advised that Mr. Pavicic can build a home on that lot without a basement. Mr. Pavicic responded that is not why he bought the property for, he will not get the value for what he paid for. Mr. Burke noted that he is asking the board to approve a variance based upon economic benefit. Mr. Pavicic stated that “I want what was in 1977 which was missed, I want what everybody else has.” Mr. Norton stated that FEMA has been around a very long time and Mr. Pavicic is asking the City to get in-between him and a financial basis. There are variance guidelines that FEMA has and these are the guidelines that FEMA would judge Bay Village on. According to the Variance Guidelines by FEMA “The intent of the regulations therefore, financial hardship for the health condition of a property owner alone are never sufficient causes for granting a variance”. That is FEMA’s condition for granting a variance and that is how they will judge Bay Village in granting a variance. If they judge that Bay Village did not support the concept of Flood Insurance as Bay Village agreed too then they will terminate Bay Village and everyone will pay more for flood insurance. On that basis, there is no way the city can get in-between and the financial hardship has nothing to do with this. Mr. Pavicic noted that it is not just financial hardship.

Mr. Pavicic explained that Mr. Norton is asking for due diligence that is not normal with buying a lot. Mr. Bruno commented that these lots have been sitting there for years. He believes that other developers have looked at these lots and they have seen and understood the history and the risk associated with the lots and have they have done the research. He agrees with the Chairman and other board members that there was a lot of due diligence that was missed.

Mr. Pavicic stated for the record “why was all these homes with the same studies that we are looking at today have basements and not required to put slabs.” He referenced four homes on the map and that the BFE needs to be established for a basement. A discussion followed if the homes were grandfathered in because they were built in 2002 and then there were some changes in 2010 and that nobody has adequately addressed what happened in 2010.

Mr. Pavicic stated that he puts 5 million dollars of revenue into the City of Bay Village. Mr. Pavicic stated that his attorney called Gary not to be here because this opens up a can of worms for the City and the residents. Mr. Norton asked Mr. Pavicic if he would like to withdraw his application. Mr. Pavicic said “Nope, I have an email that I am confident on, so let’s move forward.”
Motion by Burke, second by Bruno that this Board of Zoning Appeals finds the following facts:

1) That based upon the professional estimate of Kevin Hoffman the applicant’s engineer that the Base Flood Elevation (BFE) of the subject property is 645.9.
   a. The proposed basement BFE of 639 would be 6.9 feet below that estimated BFE of the lot.
   b. That the first floor BFE of 648.9 would be three feet above the estimated BFE on the lot.

2) That granting the requested variance would not simply be a slight variance from the requirements of Bay Village Codified Ordinance section 1306.04(d)(4) but would be complete negation of that Ordinance and in violation of the regulations of the National Flood Insurance Program, as we understand them.

3) That granting the of requested variance would place in jeopardy the City of Bay Village’s participation in the NFIP and could possibly result in higher flood insurance premiums because of an additional surcharge to those citizens of Bay Village that need Flood Insurance.

4) That the requested variance appears primarily to be for the economic benefit of the applicant and fails to meet the criteria of both the City of Bay Village and the Federal Guidelines for local City’s granting variances.

Roll Call Vote: 
Yeas – Bruno, Burke, Gess, Miller, Norton, Young
Nays – None

Motion Carried 6-0

Motion by Burke, second by Bruno, that the property at 550 Red Oak Lane, Bay Village be granted a variance from the provisions of Codified Ordinance section 1306.04(d)(4) to permit the construction of a home within the federal floodplain and a variance would be from the requirements of that codified ordinance that required the lowest floor to be at least 2 feet above the base flood elevation.

Roll Call Vote: 
Yeas – None
Nays – Bruno, Burke, Gess, Norton, Miller, Young

Motion Defeated 0-6

Zaki Touma
23609 Lake Road

C.O. 1155.01 Applicant is requesting a variance for a lot split.

Mr. Norton advised that the Board has had an opportunity to visit the site and review the application, and the issue has been discussed at the April 5, 2018, meeting.

Mr. Tony DiBenedetto stated that Mr. Zaki Touma is unable to attend tonight’s meeting and he will be representing him.
Mr. DiBenedetto informed the board that Mr. Touma has experienced continuous water damage to the foundation of his home due to water not draining properly from Lake Road and Clague Road. Mr. Touma is looking to make up for the damage to his property by splitting his lot into two parcels. There would be a potential entrance off of Lake Road and off of Clague Road. He also understands that this request does not meet the requirements of 14,700 square feet.

Mr. Miller asked Mr. DiBenedetto if the water that is coming onto the property is because it is sheeting in off of the road. Mr. DiBenedetto responded that it comes from the neighbors and it floods his backyard. Mr. Miller suggested that if this is a transitional flow from a higher elevation Mr. Touma could put in a French drain system and then attach it into the storm lines. Mr. DiBenedetto explained that the neighboring property is much higher. Mr. Norton added that is the natural elevation change and also believes that adding a French drain or other techniques can prevent the backyard from flooding.

Mr. DiBenedetto stated that it is his understanding that every home owner is supposed to retain their own water and said that this is not happening. Mr. Norton responded that you cannot artificially change the elevation of the land and drain your water onto an adjoining property. If the land by nature is on a slope the homeowner does not have to interrupt any surface water. However, your building water cannot dump onto neighboring properties.

Mr. Gess commented that this seems to be an engineering problem and creating two parcels does not seem to be the answer to the problem. Mr. DiBenedetto explained that by taking down the house there will be new home, new tile inside and outside and they can install new drains. Mr. Miller stated that Mr. Touma cannot resolve the issue or the "hardship" of the water by splitting the lot and creating two new homes. He suggested that he needs to invest in drains to address his water problem and he might also need to talk to his neighbors. This is not a zoning issue. A discussion was held regarding building water and grading.

Mr. Bruno stated that based upon the comments from 2 weeks ago, this request is for a significant variance. The significance of the variance is 25% based on the square footage requirements in zone A. He noted that the board understands the water flow issue and has sympathy for the applicant but the real issue is the variance request. Also, by putting two homes onto the lot with the issues of water flow does not make much sense.

Mr. Miller suggested to Mr. DiBenedetto that a civil engineer or landscaping company come out and assess Mr. Touma’s property and make a professional elevation. If there is evidence that the southern properties are surcharging his property than there might need to be some other type of action taken to limit that surcharge. A discussion was held regarding the drainage system.

Mr. Norton commented that he understands why Mr. Touma would want the lot split however, it is not a hardship to the property itself. Mr. DiBenedetto thanked the board for the information and their time.

Mr. Norton verified with Mr. DiBenedetto that he is representing the owner tonight and that he will be withdrawing the request. Mr. DiBenedetto stated yes and they will withdraw the request.
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Mr. Denny Wendell presented the board with information regarding mid-20th century architecture and history regarding the Dover Bay area of Bay Village. A presentation and discussion followed.

There being no further business to discuss the meeting adjourned at 8:55 p.m.

[Signature]
Jack Norton, Chairman

[Signature]
Kristine Jones, Secretary
April 17, 2018

City of Bay Village
Board of Zoning Appeals
350 Dover Center Road
Bay Village, OH 44140

Re: 550 Red Oak Lane – Bay Village, OH

Members of Planning Commission,

On April 5, 2018, on behalf of my client, Edward Pavicic of Edwards Financial Group and EFG custom Homes, we presented to the commission a variance for 550 Red Oak Lane relating to codified ordinance section 1306.04(d)(4) which states the following:

"New construction and substantial improvement of any residential structure, including manufactured homes, shall have the lowest floor, including basement, elevated to or above the flood protection elevation. Where no flood protection elevation data are available (Zone A designated areas), the structure shall have the lowest floor, including basement, elevated at least two feet above the highest natural grade adjacent to the structure."

We are requesting a variance to install a basement in a home that is located in a FEMA flood Zone A on the current Flood Insurance Rate Maps (FIRM). The basement would NOT be installed at least two feet above the highest natural grade as required by code. The construction proposed is a traditional home with a basement that is below existing grade and will have no exterior means of egress from the basement (i.e. no "walkout" basement). This will be the same as the adjacent neighboring houses on the street (which are also located with basements in the flood plain). "Zone A" is a Special Flood Hazard Area subject to inundation by the 1% annual chance flood. It includes areas within the 1% annual chance flood (100 year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The base flood elevation is the water-surface elevation of the 1% annual chance flood. **Zone A includes all areas where the flood zone Base Flood Elevation (B.F.E.) has not been established.** To establish the B.F.E., a hydrologic and hydraulic engineering analysis is required. The study is submitted to FEMA to be reviewed to establish the B.F.E. Until the time a B.F.E is established and it is determined that the lowest adjacent grade surrounding the home is above the B.F.E., the homeowner is required to carry flood insurance (which Mr. Pavicic has obtained).

While it is our client's intention for the previous owner of the property (whom sold the property to Mr. Pavicic without disclosing the flood plain) to pay for the cost of the hydrologic and hydraulic analysis to determine the B.F.E., we believe there is relevant information available that can be used to ease the concerns of the commission that this structure will ultimately be located above the Base Flood Elevation once constructed. Please find attached relevant information:
• "National Flood Insurance Program Background" Section II from FEMA Document #265 ("Managing Floodplain Development in Approximate Zone A Areas"),
  o 1977 Flood Insurance Rate Map (Historical)
  o 2010 Flood Insurance Rate Map (Current)
  o 2017 Flood Insurance Rate Map (Preliminary)
• Cuyahoga County GIS – Flood Plain & Contour Overlay
• 550 Red Oak Site Plan (Showing Current Flood Plain Limits from FEMA/GIS)
• 550 Red Oak Site Plan (Showing assumed B.F.E. of 645.9 based on Cuyahoga County GIS overlay).

The attachments have been provided to help explain the evolution of this and other flood plains since 1968, the year the Flood Insurance Act was passed by the United States Congress. The conclusion from Section II of Document #265, is that the intention was that an engineering Flood Insurance Study (F.I.S.) would be performed on all flood plains to adequately establish the flood boundary limits or B.F.E. However, due to the costs associated with this, it was determined that a detailed study was neither economical nor necessary in certain communities where there were minimal flood risks to existing buildings from the waterways that were subject to flooding beyond their banks. In those cases, FEMA designated these areas as approximate Zone A, with no BFE's. Thus, the limits of Zone A that affect 550 Red Oak Lane are approximate and have been so since the inception of the flood insurance act.

Using technological advances not available at the inception of the flood maps, we now have the capabilities to use Geographical Information System (G.I.S.) databases as a tool to compare the flood plain as it relates to topography and surrounding features. We've included an attached map from the Cuyahoga County GIS website that shows the floodplain overlaid with aerial photography and contour elevations which appear to be on the same vertical datum (NAVD88) as what was surveyed by Polaris. As you can see from this map, it appears the floodplain stops short of the 646 contour elevations of the two neighboring properties to the south. Additionally, on the west side of Tuttle Creek, there are no 646 contour elevations that appear; thus, it is our professional opinion that the Flood Plain Base Flood Elevation does not extend beyond 646.00 on the subject property; at this time, we are assuming that the B.F.E. is 645.9 +/- based on interpolation of the flood plain in relation to the 646 contour. Based on these assumptions, we’ve prepared a new site plan that shows the new location of the flood plain based on this assumption. Additionally, we’ve raised the finished grade (FG) surrounding the house to be 646.90 which would be 1 foot above the assumed B.F.E. of the flood plain.

We look forward to presenting this appeal to the commission and answering any questions you may have.

Respectfully,

[Signature]

Kevin T. Hoffman, P.E., CPESC
Polaris Engineering & Surveying, Inc.
II. NATIONAL FLOOD INSURANCE PROGRAM BACKGROUND

In 1968, the United States Congress passed the National Flood Insurance Act, which created the NFIP. Congress recognized that the success of this program required that community participation be widespread, that studies be conducted to accurately assess the flood risk within each participating flood-prone community, and that insurance premium rates be established based on the risks involved and accepted actuarial principles. To meet these objectives, the 1968 Act called for: 1) the identification and publication of information within five years for all floodplain areas that have special flood hazards; and 2) the establishment of flood-risk zones in all such areas to be completed over a 15-year period following the passage of the act.

Within the first year of NFIP operation, it became evident that the time required to complete the detailed flood insurance studies would markedly delay implementation in many flood-prone communities. As a result, an interim means for more rapid community participation in the NFIP had to be provided. The Housing and Urban Development Act of 1969 expanded participation by authorizing an Emergency Program under which insurance coverage could be provided at non-actuarial, federally-subsidized rates in limited amounts during the period prior to completion of a community's flood insurance study.

Until engineering studies could be conducted for these communities, Flood Hazard Boundary Maps, such as the one shown in Figure 1, "Flood Hazard Boundary Map," which delineated the boundaries of the community's special flood hazard areas, were prepared using available data or approximate methods. The Flood Hazard Boundary Maps identified, on an approximate basis, the areas within a community subject to inundation by the 100-year flood (i.e., Zone A). The 100-year flood has a one-percent chance of being equalled or exceeded in any given year. The Flood Hazard Boundary Map was intended to assist communities in managing floodplain development, and insurance agents and property owners in identifying those areas where the purchase of flood insurance was advisable.

The Flood Disaster Protection Act of 1973, which also amended the 1968 Act, required that flood-prone communities be notified of their flood hazards to encourage program participation. This notification was accomplished through the publication of Flood Hazard Boundary Maps for all communities that were identified as containing flood hazard areas. In addition, the 1973 Act required the purchase of flood insurance by property owners who were being assisted by
Figure 1 - Flood Hazard Boundary Map

Federal programs, or by Federally supervised, regulated, or insured agencies or institutions, in the acquisition or improvement of land or facilities located, or to be located, in special flood hazard areas. This act also severely limited Federal financial assistance in the flood hazard areas of communities which did not join the NFIP.

The initial Flood Hazard Boundary Maps for communities identified as having flood hazards were prepared using available floodplain data contained in reports developed by a variety of Federal, State, and local sources. For those communities that had no available flood information, approximate hydrologic and hydraulic methods or historical flood data were used to determine the extent of the special flood hazard areas.

Flood Insurance Studies that used detailed hydrologic and hydraulic analyses to develop BFEs and designate floodways and risk zones were subsequently developed for most NFIP communities. The results of a Flood Insurance Study were
issued to the community in the form of a Flood Insurance Rate Map (FIRM), such as the one shown in Figure 2, "Flood Insurance Rate Map," and, in most cases, a Flood Boundary and Floodway Map and a Flood Insurance Study report. Once more detailed risk data were provided, the community could enter the Regular Program whereby more comprehensive floodplain management requirements were imposed and higher amounts of insurance could be purchased by owners of structures.

Figure 2 - Flood Insurance Rate Map

As early as 1976, FEMA recognized that some communities did not require a detailed Flood Insurance Study because there were few existing buildings in the floodplain and minimal development pressure. Shortly thereafter, FEMA began utilizing a special conversion process whereby communities
were converted to the Regular Program without a Flood Insurance Study. Consequently, these communities were converted using FIRMs in which all of the special flood hazard areas were designated as approximate Zone A, without BFEs.

Although over 10,000 communities have now been provided detailed Flood Insurance Studies and issued FIRMs that include BFEs, many floodplains are still designated as approximate Zone A without BFEs. Due to the costs of developing detailed risk data, areas not subject to development pressure are studied using approximate methodologies and continue to be shown on the FIRM as approximate Zone A areas. FEMA only provides BFEs for the floodplains of those flooding sources that are currently subject to development pressure or are projected at the initiation of a Flood Insurance Study or Flood Insurance Study restudy to be subject to development pressure during the immediate future. Generally, a planning period of approximately five years is used. Even in these cases, BFEs are provided on a priority basis due to funding constraints. The community plays a major part in the determination of the level of detail required in the study of selected streams. As a result, most communities will have FIRMs that include special flood hazard areas for flooding sources that have been studied in detail with BFEs and special flood hazard areas for flooding sources that have been studied using approximate methods, and have been designated as approximate Zone A.