



# Redevelopment

*An analysis should be conducted of localized flood problems (see Chapter 7) to identify actions that would be appropriate on an area-wide basis. The analysis would determine whether a local drainage project is feasible (see Chapter 8), whether redevelopment of all or parts of the area would be suitable, or whether the localized flood problem should be dealt with on an individual building basis (see Chapters 10 and 11).*

As stated in Chapter 1, the term “floodplain” is used in this guide in a general sense to mean the area most prone to flooding, be it mapped or unmapped. The floodplain for a localized flood problem may well not be mapped as a Special Flood Hazard Area (SFHA) on the community’s Flood Insurance Rate Map (FIRM).

As used in this guide, redevelopment means taking deliberate steps to convert the use of a parcel or a neighborhood to a new use that is more compatible with environmental factors (including flooding), more economically productive, or more beneficial to the community fabric. Redevelopment is more than just flood mitigation. It looks to the future and what will happen to the land, and what that will mean to the community.

## Redevelopment Objectives

A redevelopment project could be pursued for several reasons:

- The area analysis may conclude that a change in use of the area is the best way to reduce the localized flood problem.
- A fire, flood, or other hazard may damage buildings and necessitate reconstruction.
- A change in the local economy, such as the closure of a major employer, may trigger a need to redevelop an area to attract or pursue new economic opportunities.

- A flood-prone area may have deteriorated to such a state that buildings need to be torn down to correct unsafe or unhealthy conditions.

For whatever reason buildings are removed or rebuilt, redevelopment is an opportunity to remedy a localized flood problem and work toward other community goals.

### ***Floodplain Management Objectives***

There are several floodplain management benefits to clearing a flood-prone area for redevelopment:

- After clearing, there will be no buildings subject to flood damage. Existing damage-prone buildings will have been moved away or demolished and, if replaced, the new buildings should be constructed to be protected from flood hazards.
- A vacant area will provide more room to carry or store flood waters, reducing the hazard upstream and/or downstream.
- A reduction in urban use of the area will increase opportunities for riparian habitat, i.e., habitat for plants and wildlife that live near or depend on water.
- The absence of buildings and other urban features that need protection would allow the stream channel to seek its natural course, potentially reducing public expenditures on bank stabilization projects.

The greatest floodplain management benefit is to remove the greatest cost of flooding—damage to buildings, especially buildings that are repetitively flooded. The community can consider buying these buildings and clearing the sites. Additionally, there are Federal and State programs to finance buy-outs, and the mechanics of participating in an acquisition program are covered later in this chapter.

Acquisition of flood-prone properties is becoming more and more common, but a community needs to think beyond a single flood protection objective. It needs to consider other factors, including:

- What will happen to the current occupants, either residents or businesses?
- How will the land be used and maintained after it is cleared?
- How will this affect adjacent properties and the rest of the neighborhood?
- How will it affect other goals and objectives of the community?

Because of these concerns, an acquisition program should not be initiated without considering the full impact of redevelopment on the neighborhood and the community.

### ***Non-Flood Objectives***

One of the advantages of choosing redevelopment as a solution to a localized flooding problem is that the project can also help meet other needs or objectives for the neighborhood and/or the community.

The community planning process described in Chapter 3 and the area analysis (Chapter 7) should include a review of community and neighborhood goals and objectives for the area. Broader statements of vision and goals may be found in the comprehensive plans, hazard mitigation plans, or regional watershed plans. For example, a watershed plan may identify natural areas that are to be preserved by acquisition and easements when an opportunity arises.

Opportunities for cooperation and sharing resources with others interested in non-flood objectives should be a top priority for community floodplain managers. Coordination with other people, goals, and objectives has the following advantages:

- **Avoiding conflicts.** Coordination ensures that flood mitigation activities do not conflict with other plans for an area. For example, if a community wants to increase recreational opportunities, clearing out flood-prone structures to create a waterfront park would be a good use of resources. On the other hand, if a community is interested in economic development, the redevelopment strategy should consider approaches that do not reduce the community's economic base.
- **Sharing resources.** Limited funds and resources may be shared to accomplish common goals. As an example, programs that fund park development might be used to defray the costs of acquiring flood-prone properties.
- **Maintaining interest.** Concern about flood protection wanes over time, particularly during a dry spell. If redevelopment is linked to other community initiatives, such as economic development, education, and recreation, it has a better chance of reaching completion.
- **Meeting funding requirements.** Many funding programs require applicants to coordinate with other agencies, exhaust other sources of funding, or bring other agencies in on cost-sharing.

### **Coordination with Other Objectives**

There are several important advantages to coordinating with others to expand a flood-mitigation-focused approach into a redevelopment project that benefits everyone. The interest groups and organizations presented in this chapter should be contacted as plans are formulated. They should be invited to participate in the planning of a redevelopment project and, ideally, they will want to contribute time, support, or even money because the flood project will advance their objectives as well.

The planning and urban renewal departments of the community are the most important offices to bring into the redevelopment process. They probably already have plans or concepts of how an area should be redeveloped. Approaching them with flood-related redevelopment plans or providing funds to acquire some of the properties may be the catalyst for them to activate their own plans.

If the community does not have to make immediate decisions (e.g., if the area has just been flooded, and people are waiting to rebuild), time should be taken to integrate redevelopment of the area with other community objectives. Coordinating with the



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*There is often widespread community support to replace run-down buildings with open space and recreational facilities that everyone can enjoy. Transportation planners support greenway sites to keep pedestrians and bikers separated from vehicular traffic. The Aldridge Creek Greenway is being expanded and extended over the years as the City of Huntsville, Alabama, acquires and clears flood-prone homes.*

community planning office can help ensure that redevelopment of the area would be put in the capital improvement plan, land use plan, repetitive loss initiatives, waterfront revitalization plan, or economic improvement program. Other objectives may include those discussed below.

**Recreation.** People with interests in recreation are the most obvious supporters of a project to clear and reuse land next to a body of water. Replacing flood-damaged buildings with open space or a linear parkway can be very popular and supported by many different people who would benefit.

**Redevelopment objectives.** Establishing parks, ball fields, ice skating rinks, hiking and biking trails, picnic areas; dedicating sections for fishing, hunting, bird watching, and sightseeing.

**People to contact.** Parks and recreation department; environmental organizations; nearby schools (interested in expanding athletic fields or educational opportunities); land preservation organizations (e.g., The Nature

Conservancy, The Land Trust Alliance); conservation and outdoor groups (e.g., Izaak Walton League, Audubon Society, Boy and Girl Scouts and other youth groups); hunting and fishing organizations (e.g., Ducks Unlimited, Trout Unlimited); recreational businesses (e.g., marinas, sporting goods stores).

**Fish and wildlife.** Preserving open space and restoring waterways, ponds, and wetlands are prime goals of the supporters of fish and wildlife. Clearing development back from streams, wetlands, and shorelines protects important habitat.

**Redevelopment objectives.** Expanding habitat; improving water quality (e.g., filtering runoff from parking lots or industrial areas through wetlands, grass, and/or planted open spaces); reducing or eliminating the need for channelization and other alterations to habitat.

**People to contact.** State fish and wildlife agencies; U.S. Fish and Wildlife Service; Federal and State environmental protection agencies; Natural Resources Conservation Service; parks departments; land preservation organizations; conservation and outdoor groups; hunting and fishing organizations.

**Economic development.** Some of the strongest community concerns are those that relate to the local economy: jobs, business survival and expansion, tax base, and viability of shopping areas. In many communities, the economic base was founded on or is dependent upon the waterfront.

Sometimes, economic development is seen as contrary to good floodplain management—why put businesses in a hazardous area? Coordinating with development interests assumes that new development will meet (or preferably exceed) the National Flood Insurance Program (NFIP) requirements for floodplain development. For example, the areas of deepest flooding can be preserved as open space while new buildings are elevated 1 or 2 feet above the regulatory flood elevation.

**Redevelopment objectives.** Redeveloping or reusing vacant or abandoned businesses; improving the appearance of the neighborhood adjacent to businesses and stores; improving access to parking and services along the waterfront; providing open space, picnic tables, and other recreational opportunities for employees; improving facilities that would attract tourists; retrofitting certain types of commercial structures, such as garages and car washes, to resist flood damage and support nearby businesses.

**People to contact.** Local and State economic development and job training agencies; chambers of commerce and business or manufacturers' organizations; real estate organizations; U.S. Economic Development Administration; community development and planning offices; recreational businesses (e.g., marinas, sporting goods stores, restaurants, hotels); utility companies; others that serve business and industry.

**Housing.** If the local flood problem area includes houses, the floodplain manager need only remember that every homeowner and renter wants a better place to live.

Residents and the organizations that work to improve housing can be vital allies to a redevelopment project.

Residents can even provide financial support for a project. Well-insured flood victims have used their claims payments and Increased Cost of Compliance payments (see page 11-6), their own labor, and/or additional funds to meet the non-Federal match of an acquisition project. Homeowners will work hard to replace their flood-damaged or deteriorating homes with new and better ones.

**Redevelopment objectives.** Removing vacant, abandoned, or dilapidated housing; bringing housing up to safe and sanitary conditions; providing affordable housing; improving recreational opportunities for nearby homes; improving property values; providing housing adjacent to amenities, such as parks, greenways, and natural areas.

**People to contact.** Community development, planning, and code enforcement offices; local housing authorities; neighborhood associations; and builders or developers associations.

**Historic preservation.** Historic features include buildings, museums, archeological sites, historic landscapes, and collections. These features are irreplaceable. Most people responsible for their preservation or restoration recognize that if these features were hit by a flood or other disaster, a valuable community and educational asset would be destroyed. Even minor problems, such as a flooded basement, high humidity, or loss of power, can severely damage delicate or aged materials.

Every application for Federal Emergency Management Agency (FEMA) acquisition funding requires a historic preservation review, so involving the appropriate personnel early in the planning is beneficial and practical.

**Redevelopment objectives.** Protecting historic properties; improving and opening areas surrounding a historic site (to help it conform to its original setting).

**People to contact.** Local historical societies; museums; school and university history departments; parks and recreation departments; State historic preservation office.

**Public works.** Repetitive flooding can contribute to deterioration and maintenance problems for streets and other components of an area's infrastructure. Water, gas, sewer, and power lines are sometimes broken due to settling of the organic soils found in flood-prone

### Rebuilt Areas Produce Many Benefits

**Frankfort, Kentucky**, developed a flood hazard mitigation plan to cover areas that were not scheduled to be protected by a planned floodwall. The areas included residential, commercial, and industrial uses as well as historic buildings. The high-velocity floodway has been cleared.

Funding support came from the Federal Emergency Management Agency, the U.S. Department of Housing and Urban Development, the Kentucky Housing Corporation, Frankfort Housing Redevelopment, Inc., and Habitat for Humanity. The last three groups helped obtain replacement housing for those whose properties were bought out.

There were several important spin-off benefits from the project:

- Reduction in the number of buildings exposed to flooding;
- Increased open space and recreation opportunities;
- Improved housing for residents relocated from substandard homes;
- Improvements to non-flood-prone houses that were purchased and improved to meet safety criteria as replacement homes;
- Training programs for the youths who helped rehabilitate replacement homes; and
- Increased property values of the surrounding area.

Association of State Floodplain Managers (1996, p. 35)

areas and wetlands. Public works, street, and highway departments are faced with repairs and are under pressure to upgrade roads and bridges to provide continued access to flooded areas. Public works staff are often supportive of redevelopment plans to reduce the amount of their infrastructure in a flood-prone area.

**Redevelopment objectives.** Lowering maintenance and replacement costs; reducing work during a flood; creating alternative transportation modes (such as bikeways and trails); reducing exposure of the sanitary sewer system to inflow and infiltration.

**People to contact.** Local public works, streets, water, and sewer departments; utility companies; regional or metropolitan sanitary districts; community development, economic development, and planning office.

In the 1970s, **Baltimore County, Maryland**, set aside \$5 million to enlarge and improve flood-prone bridges. The county planners calculated that it would be cheaper to purchase and clear the flood-prone buildings served by the bridges than to replace the bridges. The County subsequently implemented a nationally recognized acquisition program and saved money in the process.

## Clearing the Area

Removing structures and infrastructure from a flood-prone area is one approach to acquiring land for redevelopment. If open space or growth control is a community objective, then purchasing land, clearing it, and keeping it undeveloped is appropriate. If flood-prone properties are to be acquired, then several steps should be taken to ensure the desired outcome, whether it's open space or redevelopment. The properties should be assessed for repetitive losses and their proximity to other potential buy-out properties. It is advantageous to purchase contiguous properties to provide more options for re-use. Once the properties are identified, damage-prone buildings should be removed and the area maintained as publicly owned open space or redeveloped, as discussed later in the chapter.

Many communities today have ongoing buy-out programs to gradually acquire flood-prone lots throughout their jurisdictions, as the opportunities arise.

## Acquisition Funding

The biggest hurdle to redeveloping a flood-prone area is the cost of acquiring the properties. Several possible funding sources can be pursued.

- **Community general funds.** The Village of Gurnee set aside funds in its operating budget to acquire one or two properties each year as they came up for sale (see photos on next page).
- **Community capital budget.** A capital budget is often funded by a bond issue or special tax. It is used for permanent improvements to the community, such as drainage projects and parks acquisition.
- **Environmental or open space organizations.** The Nature Conservancy, the Trust for Public Lands, and other, more local, organizations are often interested in acquiring land for open space preservation.



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Over the years, the **Village of Gurnee, Illinois**, acquired and cleared homes in this repetitively flooded area. Some were purchased with funds from FEMA, but others were purchased by the Village when they were put up for sale by the owners. One area is now a public park for all residents to enjoy.

- **Adjacent property owners.** A factory, a school district, or another property owner interested in expanding may provide financial support. The land could be reused for parking or athletic fields to support the owner. If the nearby owner is considering redevelopment or expanding in a different direction, the flood-prone area might help meet regulatory requirements, such as the open space lot ratio or stormwater detention.
- **Private developer.** Depending on the location, a private developer may well be interested in purchasing, clearing, and redeveloping an area. It may not become open space, but the new development should take the flood hazard into account.
- **State and Federal grants.** Community development, open space, parks, natural resources, and housing agencies may have funds that can be used for different purposes, such as acquiring land needed for a public purpose. The most commonly used funds are those from FEMA, which are discussed in the next section.

### ***FEMA Funding***

Three FEMA programs can fund acquisition of floodplain properties: the Hazard Mitigation Grant Program, Flood Mitigation Assistance, and the Pre-Disaster Mitigation program. All three are managed by the State, usually the emergency management agency. In addition to Federal requirements, States may also set additional priorities for use of the funds. Eligibility requirements for these programs may change, so contact your local administrator for current requirements.

### Recipe for a Successful Acquisition Project

There are several sources of funds to purchase and clear flood-prone property. Getting the money is only half the job. The community needs to coordinate with many different parties and do some work on its own. Here are the key ingredients.

- **Commitment by the leadership.** The community has to be ready to commit staff time and political support for what may be a long and involved process.
- **Commitment by the staff.** If the staff has the necessary expertise and can handle the workload, some services can be done in-house. Otherwise, some communities will need to contract out services, such as project management, appraisals, legal services, and/or demolition.
- **Property owner involvement.** A successful mitigation project requires active and willing property owner participation. Even though they may have experienced recent damage, property owners may not always like the idea of selling and moving. Mitigation funds from FEMA are strictly limited to voluntary participation. The process should include a signed statement from each property owner that his or her participation is voluntary.
- **Informed public.** The community should have an effective communication plan and be committed to making it work. It is not just the owners of flood-damaged homes who are affected. Nearby residents and others throughout the community will be interested and will need to be kept informed.
- **Lots of data.** The community will need to collect data about each property. Owners should sign documents to allow access for the purpose of appraising property values and estimating damage. A title search must be conducted to ensure

that the title to the property is clear of encumbrances such as ownership issues, probate, or contractor liens.

- **Clear and fair procedures.** The community must establish the basis for deciding property values and the amount of money property owners will receive. A licensed appraiser is needed to prepare fair market valuations. Experience shows property owners will talk to each other about their offers, so it is important that clear policies are established up front and applied uniformly. When owners believe the appraisals are not accurate, they need to be able to appeal the decision about their own appraisal.
- **Adjusted purchase price.** If FEMA funds are involved, flood insurance and disaster assistance payments to the owners need to be deducted from the purchase price if the money was not used to repair the building. This prevents what is called “duplication of benefits.” If an owner wants to remove items after the appraisals have been made, the value of the items is deducted from the purchase price.
- **Demolition and clearance.** FEMA rules require that acquired buildings be demolished within 90 days of closing. Communities have found it more efficient to clear several lots at the same time. Wells have to be capped and septic tanks handled according to state regulations.
- **Paperwork.** Required paperwork includes records of meetings with the owners, copies of the appraisals, title insurance policies, warranty deeds, closing statements, and the checks for all disbursements. The state will perform a field inspection before approving final disbursement. All paperwork must be in order and kept until FEMA closes out the project.

**Hazard Mitigation Grant Program (HMGP).** HMGP funds are made available after a Presidential disaster declaration. The amount of funding available varies based on the total amount of expected Federal disaster assistance (the costlier the disaster, the more HMGP funds there will be). Eligible projects may be funded throughout the State, not just in the damaged area.

**Flood Mitigation Assistance (FMA).** FMA funds come from fees paid by NFIP policyholders and are used to reduce flood damage and repetitive losses to buildings insured under the NFIP. Each year a certain amount is set aside for planning grants, project grants (e.g., acquisition of property), and technical assistance grants. FMA funds are allocated to the States and territories based on certain criteria, such as the number of repetitive flood loss properties and number of flood insurance policies.

**Pre-Disaster Mitigation (PDM) program.** Annual appropriations provide the funding for the PDM program. There is no State allocation or formula to distribute the funds. States and communities throughout the country can apply, but they compete with all other applicants from across the country. Projects that potentially have the greatest impact on reducing future losses are the most likely to receive the funds.

All three programs provide up to 75 percent of the eligible costs for acquisition and other mitigation projects. The non-Federal share can be from a variety of other local, State, or private funding sources. The Community Development Block Grant can also be used as a match. Property owners may contribute their own money or their insurance claim payment (see Increased Cost of Compliance coverage in Chapter 11) to help offset the cost of the project. A portion of the non-Federal match may be covered by in-kind or donated services.

All three programs have the following application requirements:

- The applicant must show that the benefits of the project exceed the costs (FEMA's benefit-cost analysis software is the best resource);
- The applicant must conduct an environmental review and obtain historical preservation clearance; and
- The community must have adopted a FEMA-approved mitigation plan (discussed in Chapter 3).

### **Clearing the Buildings**

If there are buildings on any lots purchased through public acquisition projects funded by grant programs, including the FEMA programs, all of them must be cleared off the site within a certain time frame.

**In Activity 520 (Acquisition and Relocation),** the CRS credits acquiring, relocating, or otherwise clearing buildings from the floodplain. The community must document that the property will stay vacant.



Deteriorated structures, especially if they are abandoned, are health and safety concerns, and if the parcel has been converted to public ownership, it poses a liability for the local government. It is preferable to raze those buildings that have suffered repeated flooding and/or have been seriously damaged.

Buildings that are in usable shape may or may not be demolished, depending on the future use of the property and their location in relation to the expected flood water. However, these buildings may be obstructions to the flow, can inhibit drainage, and will take up space that might be better used as stormwater storage or for vegetation.



Hollis Kennedy House Movers



Lake County, Illinois, Stormwater Management Commission

**Smaller structures can be relocated and reused** relatively easily, provided past flooding has not caused permanent damage or created health hazards. It is recommended that the walls be stripped and new, clean, insulation and wallboard be installed after the move.

One inexpensive way to clear an acquired structure that is not a candidate for relocation is to offer the structure to the fire department for training and practice.

Some communities have moved the acquired building to a flood-free site and converted the structure to public housing on the new site. In other cases, the building owner moves the structure, sometimes to a new lot or sometimes to a part of the lot that is above the flood level.

The cost of relocating a building will depend on its size and construction type. It is easier and less expensive to move smaller, wood frame buildings on crawlspaces or basements than heavy structures made of brick with irregular shapes. Local house moving companies can estimate the cost and feasibility of moving a building. Some funding programs, such as the FEMA programs listed above and Increased Cost of Compliance (see Chapter 11), can help pay to relocate a structure.

## Reuse of the Area

Redevelopment projects need to keep the flood hazard in mind when reuse of the area is being considered. The most popular use (and the use required by some Federal funding programs) is open space. Other uses compatible with the hazard are possible.

### Public Open Space

If the area is being redeveloped as a park, preserve, greenway, or other public use, it will likely be owned by a parks or recreation agency. It is in the interest of the owning agency to keep it in a compatible open space use.

**In Activity 420 (Open Space)**, the CRS credits keeping vacant flood-prone lands open by keeping the land publicly owned, keeping it as a private preserve, or regulating new development on the parcel. More credit is provided if the parcels are preserved in an undisturbed (or restored) natural state.



**Parks.** Parks are one of the best uses of flood-prone areas. Even with minimal investment, such natural areas provide opportunities for passive recreation as well as hiking, jogging, horseback riding, bird watching, and photography.

**Greenways.** A hiking or biking trail can greatly enhance the benefits derived from park lands. Planning such a trail will benefit from input from environmental and recreational interests who can help develop a safe, environmentally sensitive alignment. Many communities now have networks of greenways that incorporate trails, and it may be possible to link newly cleared flood-prone areas with them.

**Public facilities.** Other recreational facilities, including sports fields, golf courses, boat ramps, picnic and camping grounds, fishing docks, and open-air amphitheaters,

### Greenways

- In an increasingly urban nation, greenways provide much-needed space for outdoor recreation and offer accessible alternatives to those who don't live near traditional parks.
- A greenway is ideally suited to such popular outdoor activities as jogging, walking, biking, fishing, and canoeing.
- Greenways provide safe, alternative, non-motorized transportation routes for commuters going to work and children traveling to and from school.
- Greenways offer ideal possibilities for joint-use partnerships along corridors with sewer, utility, and fiber-optic lines and railroad interests.
- In rapidly urbanizing areas, a greenway offers visual relief; its wooded breaks can frame and distinguish neighborhoods in an otherwise undifferentiated urban sprawl.
- Greenways are community amenities with an economic value. They enhance the quality of life and can increase the value of surrounding properties.
- Greenways have been shown to draw tourists and have been the catalyst behind new commercial development and the revitalization of former town centers.

Flink and Searns (1993, pp. 1-2)



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*The Village of Gurnee, Illinois, included a greenway as part of its flood mitigation plan.*



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*Greenways offer recreation and transportation opportunities for everyone in the community.*

are compatible with shallow flooding and have the potential to generate income for the community. The land could also be used for flood storage, either by keeping the overbank areas open or using the site as a storage basin for the watershed that drains to it.

### **Private Open Space**

In some cases, the flood-prone land may stay in private ownership, for example, when:

- The community (or a nonprofit group such as the Nature Conservancy) purchases the development rights or an easement to keep an area open, but does not purchase full title to the property;
- The area is redeveloped by a private developer;
- Adjacent property owners want the site for parking or other private use that is compatible with flooding;
- The community has purchased and cleared lots and deeded them over to adjacent owners for maintenance; or
- The owner moves the structure to higher ground but does not want to part with the waterfront land.

These cases are often much less expensive than acquiring the entire property, but the community does not have complete control over the parcel. There is always a concern that owners will be tempted to build something inappropriate on their lots.

If the community acquired the lot or helped fund the acquisition, it has a right to attach an easement to the deed. Easements are legal restrictions to preserve some or all of a parcel as open space, as a drainageway, for public access, or other purposes. A usual condition of the easement is that the property owner may still develop and use the property as long as the easement's provisions are observed.

If the community did not fund the acquisition, it may still negotiate with the owner for an easement. The community may be able to offer a property tax break or even purchase the easement.

As noted in Chapter 4, a community needs to enforce the provisions of these easements to ensure that they fulfill their purpose. As the years go by (particularly if flood problems do not recur), property owners tend to forget that there is an easement attached to the lot.

In conjunction with a stormwater management project (described in Chapter 8), the **Town of Hilton Head Island, South Carolina**, purchased a 55-acre tract on which it created a lake for water storage, preserved wetlands, and created a park. Responses to a questionnaire distributed to the Town's residents a few years before had identified the need for a park and revealed the kind of amenities that would be most used.

The park is designed as a passive recreation area with trails and picnic areas. Little vegetation was removed to construct the park infrastructure, and the walking trails were designed to go around trees, so that they would not have to be cut down. A boardwalk was constructed to leave the site in its natural condition and teach visitors about wetland mitigation through the interpretative signs along the trail. The undisturbed wetlands and the wetland mitigation area are protected permanently through restrictive covenants.

### Sustainable Redevelopment

Ideally, the future use of a redeveloped flood-prone area should keep in mind key local concerns and couple them with long-term considerations of sustainability. This means that any redevelopment should take into account social, economic, and environmental factors and also look to the future to be sure costs are not deferred to future generations. In the long run, this will make for a redevelopment effort that meets with a broader range of support, makes fewer adverse impacts on people or the environment, and pays for itself in terms of revenue or benefits.

The specific concerns will be somewhat different for each community, but any redevelopment of flood-prone property should strive for as many of these characteristics as possible:

- Be economically viable;
- Offer amenities to the neighborhood or community;
- Allow for natural movement and/or temporary storage of flood waters; and
- Yield benefits to the ecosystem, such as protection of vegetation or habitat.

### New Buildings for Redevelopment

In general, it is best to avoid having buildings in flood-prone areas. However, in many instances of localized flooding, the water is likely to be shallow and slow moving, and measures can be taken to avoid the risk of flood damage. It may be feasible and desirable to allow new construction in order to redevelop the flood-prone area to meet community needs. Particularly if drainage modification (as described in Chapter 8) can alleviate the flood problem, carefully putting the property to a new use can result in a revitalized neighborhood that can include new buildings and other community benefits.

If new buildings are allowed in a cleared area, it is essential that they be protected from flooding. A good rule of thumb is to require any new buildings to meet the floodplain management standards required for the SFHA (as specified in the community's ordinance) even though the area to be developed lies outside the SFHA. It is especially important to avoid placing structures in the portion of the area needed to convey the flood flow.

At the same time, a community needs to consider carefully what type of development and activities are appropriate for a given flood-prone area. Before specific redevelopment decisions are made, relevant ordinances, regulations, and land use plans that affect the neighborhood should be reviewed. Note

that properties acquired with funds from FEMA and many other State and Federal programs restrict future use of the land to open space or similar uses that limit the redevelopment options.

Some background work may already have been done toward the decision. Has the area been targeted for special area preservation? Urban renewal? Is there a long-term transportation plan that will affect the neighborhood? What other restrictions are there on the property's use?

With advice, encouragement, and a periodic reminder about flooding, a private property owner may redevelop the area for a new use on his or her own. In a commercial area, sometimes redevelopment with flood protection measures can be economically worthwhile. However, the businesses will have to understand that they may be closed sometimes when the streets are flooded and access is cut off.

Some ideas for new construction in a redeveloped localized flood problem area are:

- Minimize buildings in the most flood-prone area and avoid any area needed for conveyance of flow. Use the lowest land for open space, streets, parking, or storage basins (as illustrated on page 4-11).
- Instead of single-family homes throughout the area, build townhouses or cluster the development on the safest ground.

For the community, redeveloping in this manner can reduce losses caused by a localized flooding problem, reduce public expenditures by keeping the land privately owned, and bring revenue from property taxes.

### **Reusing the Buildings**

In some cases, buildings in areas subject to localized flooding can continue to be used, even if they have been damaged. Although repeated flooding tends to cause a structure to deteriorate, certain building materials and types of structures withstand the effects of flood water better, particularly if, as in the case of most localized flood problems, the water does not get very deep and recedes fairly quickly.

Reusing the building has the two obvious advantages of avoiding the expense and trouble of moving or demolishing it and of continuing to obtain economic benefit from the building, especially in the case of a commercial property. This could be important to a business that has a substantial investment in the structure or that may lose customers if it moves to a new location.

If the localized flood problem can be at least partially relieved by a drainage modification project (Chapter 8), then there is even more likelihood that a use for the building can be maintained. An extra precaution on the part of the owner would be to make alterations to the building (Chapter 10) or to the parcel to foster proper drainage and infiltration of stormwater so that the building's continued presence and use does not contribute to drainage problems in the future.

Another option is to put flood-prone buildings to a different use, one that is less susceptible to flood damage. It is easy to see that a supermarket would be vulnerable in a flood-prone area, while a farm equipment dealer's inventory would be less prone to damage from shallow flooding. Retrofitting the building (see Chapter 10) can make this an even more viable alternative. This has the advantage of preserving sales tax revenues for the locality and income for the landowner.

A community needs to consider whether any buildings in the target neighborhood have historical value. The local historical society or State historical preservation office can help make that determination. There may be opportunities to create a real community asset in a restored structure that is pertinent to local history (see page 5-7 for an example). Preservation societies and other nonprofit groups can be enlisted to assist with restoration plans and work.

After several floods damaged buildings in the Mississippi River floodplain, the **Village of Thebes, Illinois**, cleared out most of its floodplain. The village purchased one gas station on the edge of the flood-prone area. It was wet floodproofed and converted into a community building to serve the newly cleared park. The structure provided a meeting space, restrooms, and a garage for park maintenance equipment. Funding was secured from several sources, including FEMA, the Community Development Block Grant, and the state Division of Water Resources.

## Where to Get Help

- The Federal Emergency Management Agency has information about, technical expertise with, and funding programs for acquisition and relocation. See <http://www.fema.gov>.
- The U.S. Army Corps of Engineers has references on and experience with relocating houses. See <http://www.usace.army.mil/inet/functions/cw/cecwp/NFPC/nfpc.htm>.
- Many organizations have Web sites with ample ideas, success stories, and links to possible funding sources:
  - ▶ American Planning Association at <http://www.planning.org>.
  - ▶ Association of State Floodplain Managers at <http://www.floods.org>.
  - ▶ American Greenways Program at <http://www.conervationfund.org/?article=2471&back=true>.
  - ▶ Land Trust Alliance at <http://www.lta.org/>.
  - ▶ The Nature Conservancy at <http://nature.org/>.
  - ▶ American Trails at <http://www.americantrails.org/>.
  - ▶ The Trust for Public Land at <http://www.tpl.org/>.
  - ▶ The Waterfront Center at <http://www.waterfrontcenter.org/>.

Additional resources are listed in Appendixes A and B.