

## Chapter 5. Regulations

While Chapters 4 and 7 are oriented toward dealing with the existing flood problem, this chapter focuses on planning efforts undertaken by the Village that are based on the goal of minimizing the effects of future storm events. These planning, zoning and regulatory efforts are designed to keep the existing flood problem from getting worse by ensuring that future development does not increase potential flood damage and by maintaining the river system's capacity to carry floodwaters away.

### 5.1 Planning and Zoning

5.1.1 General: Advance planning can match the land use with the land hazard, typically by reserving flood hazard areas for open space, parking lots, backyards, or similar low-damage activities. A land use plan proposes appropriate uses for areas within the Village and provides valuable information regarding the land use goals of the Village. However, it is only a plan, and plans generally have no real authority.

Plans are usually implemented by two local measures, zoning ordinances and capital improvement programs. A zoning ordinance regulates development by dividing the community into zoning districts and setting development criteria for each district. Appropriate zoning districts for a floodplain include public use, conservation, agriculture, and low density residential development. Public use and conservation generally require public ownership of the land to avoid the legal challenge that the restrictions are so severe they amount to a "taking" of the land.

A community's capital improvement program identifies where major public expenditures will be made over the next 5-20 years. These expenditures may include the acquisition of land for public uses, such as parkland, and extension of roads and utilities. If the long range plan calls for preserving the floodplain as open space, then the capital improvement program should support the plan by acquiring flood prone areas for parks and by not improving or extending roads into the floodplain.

Acquiring open space in the floodplain has two benefits: it prevents potentially hazardous developments and it provides attractive sites for open space and parks. While this can be an expensive endeavor, there are sources of financial assistance available for park acquisition and/or development. Many communities have been successful in getting owners to donate land for tax purposes or to ensure it is kept open for future generations to enjoy.

As an alternative to public ownership, an easement can be purchased. With an easement, the owner can develop and use his or her private property but is financially compensated to not build on the floodprone part or the part set aside in the easement. In some cases, the owner can develop the area for low hazard uses or to transfer the right to develop other flood-free parcels (known as "TDR" or transfer of development rights).

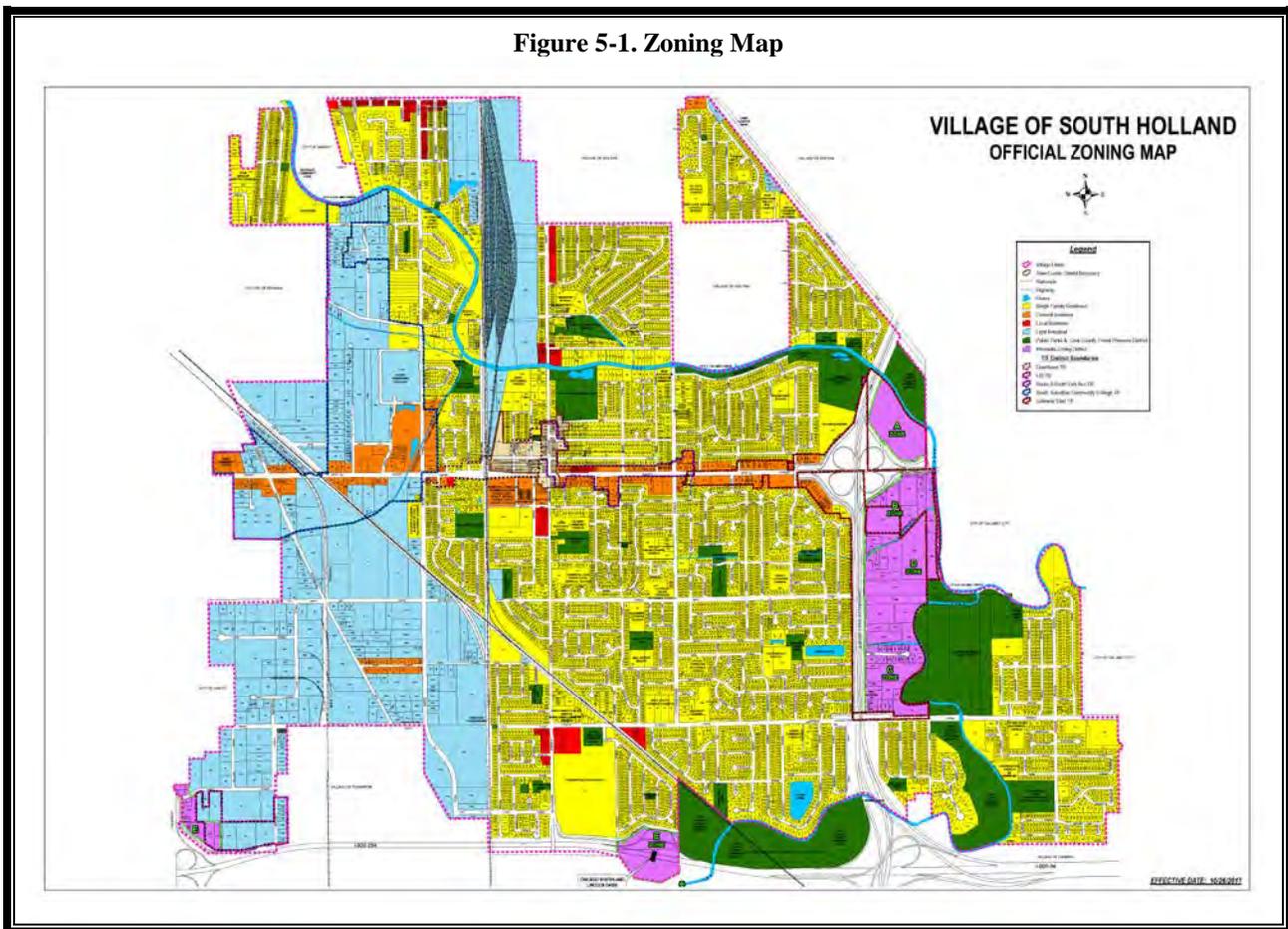
Easements do not always have to be purchased. Flood flow, drainage, or maintenance easements can be required of developers as a condition of approval of the development. These are usually linear parcels along property lines or streams. Maintenance easements can also be negotiated with riverside property owners in return for a community channel maintenance program.

5.1.2 South Holland’s Planning and Zoning: The “Comprehensive Plan for the Village of South Holland” was prepared in 1989, and a 2018 update is pending. It notes that the Village

“is basically built-up and has limited vacant land available for development... The Land-Use Plan attempts to reinforce and strengthen the established land-use pattern in the community.”

The land use plan’s map shows a variety of uses in the floodplains, including residential, commercial, industrial, institutional, and parks and open space.

The Village’s Zoning Ordinance was first adopted in 1956 and has been amended periodically since then. The zoning map generally matches the land use plan’s map. The current zoning map is shown below. The major land use designations are yellow – single-family residential, light blue – light industrial, orange – general business, and green – public parks or forest preserves. Figure 5-1 shows that several parks are located within the floodplains, but there is a substantial amount of floodplain zoned as single-family residential and light industrial.



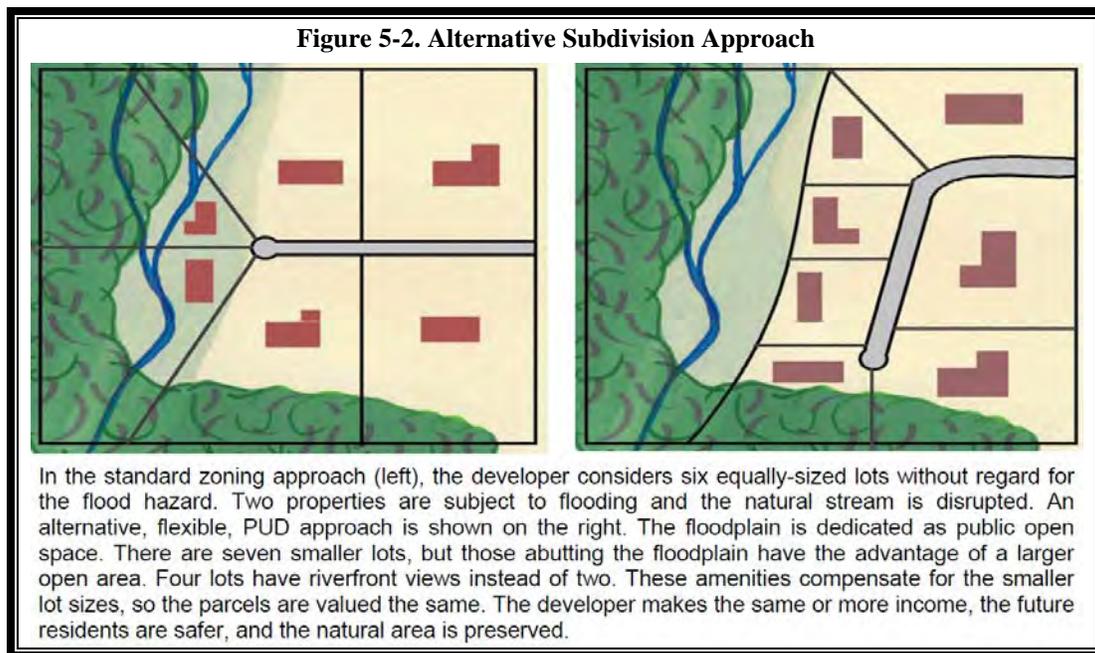
Because so much of the Village is already developed, it is difficult to plan or zone for major changes to the existing development pattern. The impact of the land use plan and the zoning ordinance is primarily on vacant areas. The largest vacant area of floodplain is located along the Little Calumet River and Thorn Creek, to the east of the Bishop Ford Expressway. This area is zoned into four basic zones, A, B, C and D, consisting of 175 acres and named the Interstate Zoning District (purple shading), which allows for larger lot developments and more flexible designs that can avoid flood prone areas.

South Holland does not have a formal capital improvements program. The last parkland expansion was the acquisition of Gouwens Park in 1987. This floodplain park has since been developed to incorporate stormwater and floodplain storage features. There have been no recent acquisitions of lands in the Special Flood Hazard Area.

## 5.2 Floodplain Regulations

**5.2.1 General:** Subdivision ordinances and building codes come into effect after the plans and zoning ordinances have identified where various land uses are appropriate. If the zoning for a site allows buildings, these regulations ensure that the buildings will not be subject to flood damage and that the development will not aggravate the existing flood problem.

Subdivision regulations govern the development of large vacant areas that the developer intends to subdivide into individual lots. They set the construction and location standards for the infrastructure provided by the developer, including the roads, sidewalks, utility lines, storm sewers and drainageways. The storm sewer and drainageway standards are discussed in the next section on stormwater management.



Subdivision regulations often require that every lot have a buildable area that is located entirely above the flood level. A preferred approach is to keep proposed buildings completely out of the floodplain, as shown in Figure 5-2.

Where buildings are allowed in a floodplain, the building code should provide flood protection standards. These standards should include criteria to ensure that the foundation will withstand flood forces and that all damageable portions of the building are located above or protected from floodwaters.

Most floodprone communities participate in the National Flood Insurance Program (NFIP) which is administered by the Federal Emergency Management Agency (FEMA). As a condition of making federally supported flood insurance available for their residents, communities agree to regulate new construction within the 100-year floodplain. To minimize confusion, the 100-year floodplain is called the “base floodplain” and the elevation of the 100-year flood is known as the “base flood elevation” or “BFE.”

The 100-year floodplain is shown as the “Special Flood Hazard Area” on the Flood Insurance Rate Map (FIRM) provided by FEMA. In non-coastal areas, the 100-year floodplain is designated as the “A” Zone. The area outside the A Zone is labeled the “X” Zone. The designation as an X Zone does not mean that the area is not subject to local drainage problems or overbank flooding from streams or ditches smaller than the FEMA mapping criteria.

The major requirements of the NFIP in a riverine situation are shown in Figure 5-3. Communities are encouraged to enact more restrictive regulatory standards, especially where warranted by the flood hazard. The most common restrictive standard is to require freeboard. “Freeboard” means an extra margin of safety added to the BFE to account for waves, debris, miscalculations, lack of data, and floods higher than the base flood.

Other more restrictive regulatory requirements include:

- Using more accurate or more restrictive techniques to calculate the BFE or to delineate the floodway;
- Specifying foundation protection standards;
- Counting improvements cumulatively to determine when a substantial improvement occurs;
- Using a threshold lower than 50% to determine when a substantial improvement occurs;
- Setting higher protection standards for critical facilities;
- Preserving the floodplain’s flood storage capacity by prohibiting fill or requiring that an equal volume of fill be removed to compensate for the loss of storage; and
- Requiring buildings in X Zones to be elevated above the street or local drainageways.

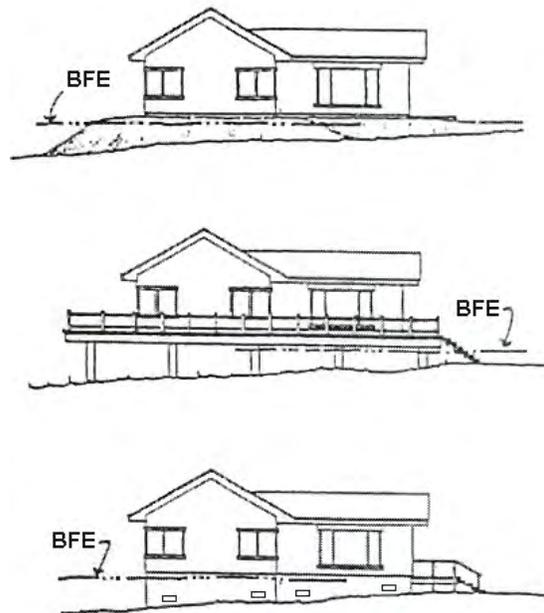
More restrictive state regulations take precedence over the minimum NFIP criteria. FEMA uses Illinois’ floodway mapping standard and defers to the Illinois Department of Natural Resources’ floodway regulations. In Northeastern Illinois, all new buildings and substantial improvements must be protected to a level of one foot above the BFE.

**Figure 5-3 NFIP Floodplain Regulatory Requirements**

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA). As a condition of making flood insurance available for their residents, communities that participate in the NFIP agree to regulate new construction in the area subject to inundation by the 100-year (base) flood. State laws set additional requirements. Here are the basic requirements:

1. The regulatory floodplain is the floodplain mapped on the 2008 Cook County Digital Flood Insurance Rate Map.
2. All development in the regulatory floodplain must have a permit from the community. “Development” is defined as any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of materials.
3. Only “appropriate uses” are allowed in the floodway. The floodway is the channel of a river or other watercourse and the adjacent land areas that are needed to convey the base flood. Appropriate uses include flood control structures, recreational facilities, detached garages and accessory structures, floodproofing activities, and other minor alterations. They do not include buildings, building additions, fences, or storage of materials. Such larger projects in the floodway require a permit from the State DNR in addition to the Village permit. The result of this requirement is that vacant floodways will essentially remain as open space, free of insurable buildings or other obstructions.
4. New buildings may be built in the floodplain, but they must be protected from damage by the base flood. The lowest floor of residential buildings must be elevated to above the base flood elevation (BFE). Nonresidential buildings must be either elevated or floodproofed.
5. A “substantially improved” building is treated as a new building. The regulations define “substantial improvement” as any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement. This requirement also applies to buildings that are substantially damaged.

Communities are encouraged to enact more restrictive regulations that better reflect local flooding conditions and better meet local needs.



**5.2.2 South Holland’s Regulations:** In 1996, the Flood Liaison Committee recommended that the Village’s subdivision ordinance be amended to require all new subdivisions to have the streets and building sites elevated above the base flood elevation. This amendment was subsequently approved by the Board of Trustees. The Village has adopted the 2018 edition of the International Building and Residential Codes.

South Holland’s floodplain regulations are in Article II of Chapter 14 of the Village’s code. This ordinance is taken from a 1990 model recommended by FEMA, the state, and the Northeastern Illinois Planning Commission. The ordinance has the following sections that exceed the minimum requirements specified in Figure 5-3:

- Section 14-22 defines “flood protection elevation” as one foot above the BFE. Section 14-29(3) and 14-29(4) require new buildings to be elevated or floodproofed to the flood protection elevation. This is equivalent to one foot of freeboard.
- Section 14-25(4) requires that a detailed flood study using future land use conditions in the watershed be conducted by developers in floodplains where there is no BFE.
- Sections 14-26(2)b and 14-27(2)b require compensatory storage in the flood fringe and floodway. In the fringe (the floodplain area outside the floodway) filling must be compensated at a rate of 1.5 times the volume of storage lost.
- Section 14-27 allows only “appropriate uses” in the floodway. Appropriate uses do not include buildings, building additions, fences, or storage of materials. There is a list of approved appropriate uses which includes flood control structures, recreational facilities, detached garages and accessory structures, floodproofing activities, and other minor alterations. The result of this state-mandated regulation is that vacant floodways will essentially remain as open space, free of insurable buildings.
- Section 14-29(3)b states that improvements will be figured cumulatively beginning April 1, 1990. This will close a loophole and prevent owners from making many small improvements to avoid the requirement to bring older buildings up to flood protection standards.
- Section 14-29(4)d states that nonconforming structures in the floodway may not be enlarged. If they are damaged beyond 50% of their pre-damage value, they must be brought into compliance, i.e., removed from the floodway.

From code excerpts listed above, it is evident that South Holland’s ordinance includes more restrictive criteria than that which is required by the NFIP. The intent is to better respond to the local flood hazard where flood storage is so important, and to comply with state law. The ordinance is limited to the base floodplain. There were no requirements for elevating or protecting X Zone buildings from local drainage problems until 1996 when the Liaison Committee recommended a grading plan be required for every new building or addition. The Board of Trustees adopted the recommendation.

Administration of the floodplain management ordinance is dependent on accurate elevation data for each construction site. The Department of Planning, Development and Code Enforcement has transferred the flood elevations to a more accurate base map with one-foot contour intervals. This map also reflects the latest map amendments issued by FEMA after areas have been filled or found to be higher than the BFE.

To transfer the flood elevation to a site, a surveyor must start from a known elevation point. This job is easier and the flood elevation is more accurate if there is an elevation reference mark close to the site. The Village Engineer helps to maintain the elevation reference marks and replaces them if they have been moved or altered.

If a project will be in the floodway, the applicant must also apply for a permit from the Illinois Department of Natural Resources, Office of Water Resources. This lengthens the permit review time and requires the applicant to submit plans and gain approval from two different agencies.

The NFIP, state, and Village ordinance requirements total more than 100 pages of technical floodplain management requirements. It is possible for the permit office to make errors or not be aware of all the details. The state has a program to visit communities and help ensure that local

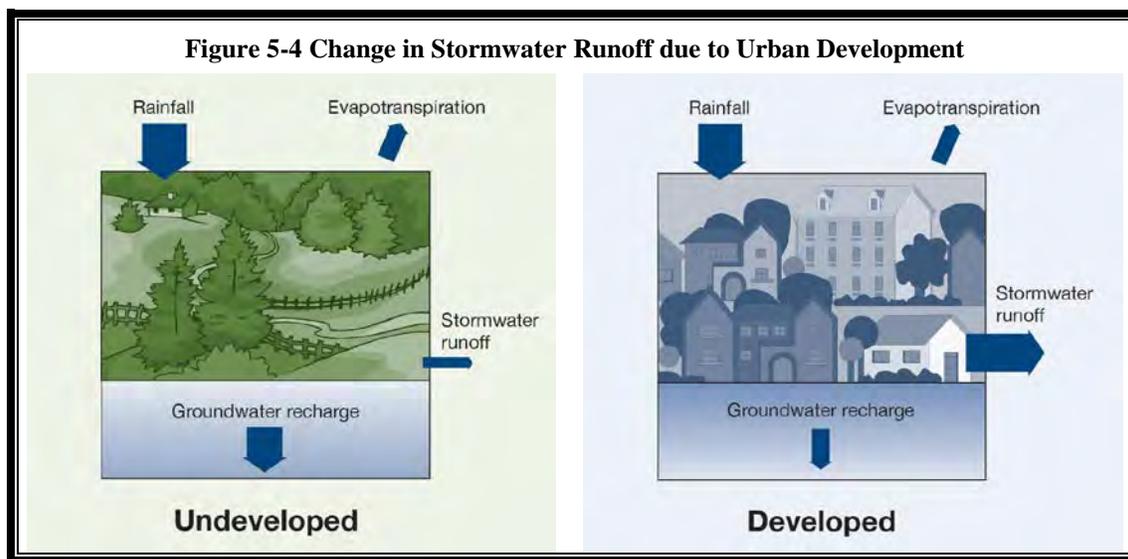
procedures meet all the mandated requirements so the Village does not jeopardize its participation in the NFIP.

**5.2.3 MWRDGC Regulations:** In 2007, the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) began developing a countywide stormwater management regulatory ordinance to be known as the Cook County Watershed Management Ordinance (WMO). The primary goal of the ordinance is to establish uniform, minimum, countywide stormwater management regulations for Cook County. It covers drainage and detention, floodplain management, wetland protection, stream habitat and riparian environment protection, soil erosion and sediment control, and water quality. The WMO went into effect on May 1, 2014 and was adopted by the Village of South Holland on April 21, 2014 to be in compliance.

### 5.3 Stormwater Management

**5.3.1 General:** Floodplain regulations address development in the direct path of flooding. However, flooding can also be increased by development that occurs outside of the floodplain. When an area is urbanized, converted from farms, forests and fields to buildings and streets, the ground surface becomes more impervious. As a result, more stormwater runs off the land instead of soaking into the ground.

At the same time, developers build gutters, sewers, and ditches to move surface water as fast as possible downhill to the river channels. Not only does this aggravate downstream flooding, it often overloads the community's drainage system. The alternative, stormwater management, requires developers to incorporate detention facilities to ensure that the post-development runoff rate is no greater than the runoff rate generated in the pre-development condition.



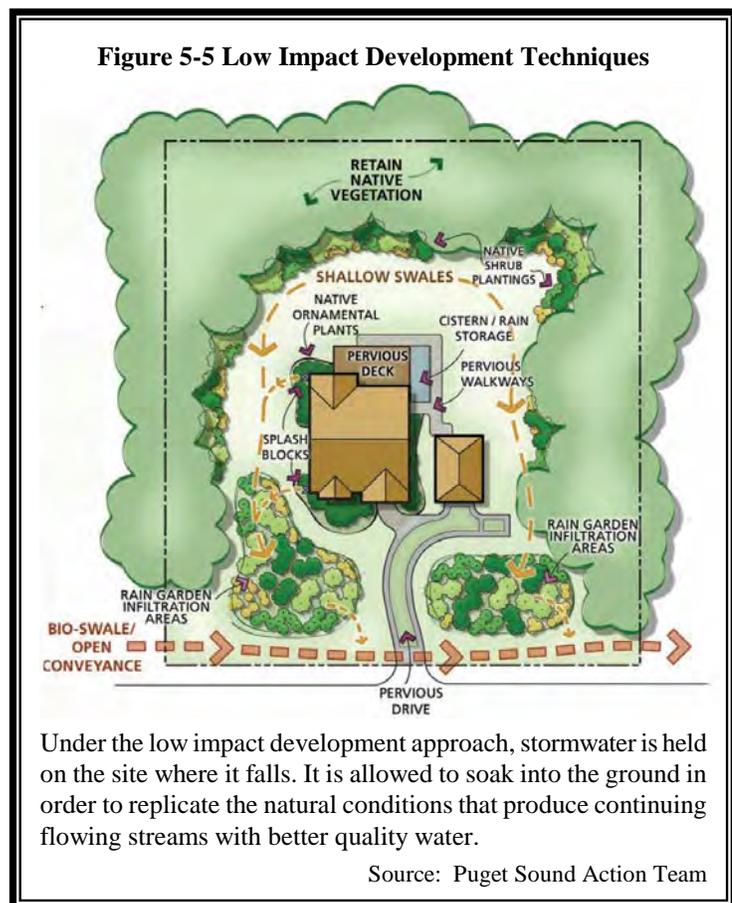
Stormwater management requirements for detention are generally found in ordinances governing subdivisions and larger new developments. Many developments utilize wet or dry basins as landscaping amenities. Larger detention basins are more effective than smaller basins which drain relatively quickly. In some cases, advance community planning identifies the most effective location for a basin and requires developers to contribute funds in lieu of constructing on-site detention.

There are four general problems with the usual approach to stormwater management:

1. If not properly planned, small on-site basins may aggravate the problem rather than alleviate it. Depending on the location in the watershed, flooding can be increased when small basins release their detained water too quickly.
2. Most communities leave maintenance of the detention facilities up to the property owner. Often the owner, such as a homeowner's association, does not understand the need for continued maintenance or is not interested in paying the associated costs. As a result, the maintenance required to keep the facility in good working order does not consistently occur.
3. In urban areas, stormwater runoff is not clean. The water passes over streets, chemically-sprayed fields, and industrial areas and picks up many kinds of pollutants. Storm sewers, ditches, and traditional detention basins simply channel these pollutants to the rivers and creeks.
4. Under natural conditions, most stormwater soaks into the ground. Rivers are continually replenished with groundwater and flow throughout the year (see Figure 5-4). Holding back high flows and then releasing them over the next few days results in erosion of natural streambanks and low or no flows for the remainder of time. This does not bode well for habitat or water quality. A low impact development approach can alleviate this issue (see Figure 5-5).

### 5.3.2 South Holland's Stormwater

Management: South Holland's subdivision ordinance sets construction standards for storm sewers and the use of streets for local drainage. However, it does not have any requirements for detention of stormwater runoff.



In 2008, the Village adopted Chapter 14, Article III, "Stormwater Conveyance Systems." This has both water quantity and quality provisions. It applies to "building, grading or other land development permits required for land disturbance activities of 1.0 acre or more." Applications must include both a storm water management concept plan and a maintenance agreement. It adopts the provisions of the *Illinois Urban Manual*, which is generally seen as the current best management practice.

The Environmental Protection Agency is requiring communities of South Holland's size to improve the quality of their stormwater runoff through the National Pollutant Discharge Elimination System (NPDES). The Village has been mandated to enact regulations requiring developments to incorporate additional measures to "treat" runoff, such as grass filter strips. These provisions are included in the Cook County Watershed Management Ordinance set forth by the Metropolitan Water Reclamation District of Greater Chicago and adopted by the Village April 21, 2014.

The value of an improved stormwater management ordinance is relative to the amount of area that is still subject to development in the Village. Because most of the Village is already developed, there will be few opportunities to require new stormwater management structures. However, every little bit helps.

## **5.4 Debris, Erosion and Sediment Control**

5.4.1 General: Floodplain regulations control major development projects in floodplains. However, debris can accumulate or be accidentally or intentionally dumped into the channels, obstructing even low flows. Stream dumping regulations are one approach to preventing intentional placement of trash or debris in watercourses.

Another occurrence that obstructs channels is sedimentation. As rain hits the ground, especially where there is bare dirt, (farm fields and construction sites), soil is picked up and washed downstream. Sediment tends to settle where the river slows down and will gradually fill in the channel.

Catch basins can be installed downstream of construction sites to slow runoff so sediment will be dropped on-site before it gets to the river. There are a variety of erosion and sediment control measures that can be taken; the main goal is to implement these measures, particularly on construction sites.

5.4.2 South Holland's Program: The Village's Code had an effective stream dumping regulation that has been copied for use as a national model by the NFIP. It was inadvertently repealed when the 2008 stormwater management ordinance was adopted. It has since been readopted at Section 14-64 under Chapter 14.

Division 2 of Chapter 14's Article III was adopted in 2008 as part of the stormwater management regulations. It is an effective erosion and sediment control regulation based on a proven state model.

## **5.5 Conclusions and Recommendations**

### 5.5.1 Conclusions:

- a. The Village's floodplain regulations exceed the minimum federal and state requirements. Additional ordinance and code amendments would encourage retrofitting buildings to protect them from flooding and better protect new buildings outside of the floodplain.
- b. The Village adopted the MWRDGC WMO on April 21, 2014 and is therefore in compliance with the current regulations.

- c. The Village’s regulations on stream dumping and erosion and sediment control are acceptable, although the requirements and procedures could use more publicity.

#### 5.5.2 Recommendations:

- a. The Village Plan Commission should incorporate floodplain concerns in the all revisions to the comprehensive plan and the zoning ordinance.
- b. The Village Plan Commission should draft amendments to the subdivision ordinance to require that the floodplain portions of new developments be dedicated to parks, open space or maintenance easements.
- c. Village staff should examine the benefits of low impact development and similar techniques that will improve water quality when the next stormwater management regulation revisions are prepared.
- d. The Village Code Enforcement Office should continue to enforce the standards of its floodplain, stormwater, debris, and erosion and sedimentation control regulations.

### **5.6 References**

- Comprehensive Plan for the Village of South Holland, Trkla, Pettigrew, Allen & Payne, Inc, 1989, 2018 update pending.
- Cook County Stormwater Management Plan, Metropolitan Water Reclamation District of Greater Chicago, 2015.
- CRS Credit for Higher Regulatory Standards, National Flood Insurance Program/Community Rating System, 2006.
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- Floodplain Management: Local Floodplain Administrator’s Manual, Illinois Department of Natural Resources Office of Water Resources, 2006.
- Openings in Foundation Walls And Walls of Enclosures, Federal Insurance Administration, Technical Bulletin 1, 2008.
- South Holland Municipal Code, Chapter 14: “Planning and Development”, 2016.
- Technical Guidance Manual for the Implementation of the Watershed Management Ordinance, Metropolitan Water Reclamation District of Greater Chicago, 2015.
- “Village of South Holland Zoning Ordinance”, 1995.