

**VILLAGE OF DOWNERS GROVE  
REPORT FOR THE VILLAGE COUNCIL MEETING  
DECEMBER 9, 2014 AGENDA**

SUBJECT:	TYPE:	SUBMITTED BY:
Stormwater & Flood Plain Ordinance Update	Resolution ✓ Ordinance Motion Discussion Only	Nan Newlon, P.E. Director of Public Works

**SYNOPSIS**

An ordinance has been prepared to amend Chapters 13 and 26 of the Municipal Code concerning the regulation of stormwater impacts.

**STRATEGIC PLAN ALIGNMENT**

The goals for 2011-2018 include *Top Quality Infrastructure. Consider Amendments to Stormwater Management Regulations* is a Medium Priority Action Item for 2014-2015.

**FISCAL IMPACT**

N/A

**UPDATE & RECOMMENDATION**

This item was discussed at the December 2, 2014 Village Council meeting. Based on Council discussion, staff prepared the attached list and chart detailing the net new impervious area of recently issued building permits. Additionally, staff prepared answers to the questions regarding the relative cost of regional versus on-site storage and enforcement of sump pump and down spout regulations. Staff recommends approval on the December 9, 2014 Active Agenda.

**BACKGROUND**

The purpose of this item is to introduce changes to the Municipal Code that would lower the threshold for providing on-site stormwater storage for new development. The substantive changes to the Ordinance include Section 26.1001, the reduction of the threshold by which new development would be required to provide on-site stormwater storage from 2,500 square feet of new impervious surface to 500 square feet of new impervious surface. An ordinance has also been prepared to amend Section 13.7.(f), to more clearly describe a nuisance created by sump pump and downspout discharges.

The current code requires that on-site stormwater storage be provided when the net new impervious area on the lot is greater than 2500 square feet. The majority of new construction falls under this threshold and is not required to provide on-site storage. The majority of the newer homes are also constructed with deeper basements, which lead to more frequent sump pump discharges with more volume onto adjacent properties and onto the public right-of-way. In the winter, excess water can lead to icy and unsafe sidewalk and road conditions.

Larger home and paved areas, in addition to greater sump pump activity, lead to stormwater issues between neighbors, as well as staff time and money spent addressing negative impacts between properties and onto the public right-of-way. Between April 2012 and October 2014, 194 permits were issued with new impervious area between 500 and 2,500 square feet. None of these were required to mitigate runoff from their property. To address these concerns, staff researched available options and recommended amending the Municipal Code to reduce the threshold for new net impervious area from 2,500 square feet

to 500 square feet. This change to the threshold will address runoff problems associated with construction related to new homes and substantial home additions, but will not overly encumber small home additions, sheds or patios.

If the amendments are approved, stormwater on-site volume controls such as rain gardens, permeable pavers, dry wells and flo-well systems would be required at the 500 square foot threshold. Examples of costs of these PCBMPs are provided in the attached staff report to the Stormwater & Flood Plain Oversight Committee.

The Stormwater & Flood Plain Oversight Committee met on November 13, 2014 and recommended the proposed changes in Chapter 26 for approval. A letter was sent to approximately 40 builders who are currently or have recently done projects in Downers Grove soliciting their input. Two builders gave input at that meeting.

Staff is also recommending that Chapter 13 be revised to more clearly describe what would constitute nuisance runoff from sump pump and downspout discharges.

#### **ATTACHMENTS**

Responses to Council Questions

Ordinance revising Chapter 26, Stormwater & Flood Plain Ordinance

Ordinance revising Chapter 13, Health and Sanitation

Staff Report to Stormwater and Flood Plain Oversight Committee

Stormwater and Flood Plain Oversight Committee November 13, 2014 minutes

Map of Permits with Increased Impervious Area

### ***Responses to Council Questions***

*What is the relative cost of providing on-site versus larger regional facilities?*

To determine the relative cost of providing detention on a lot-by-lot basis versus larger, regional facilities we calculated the cost of three recently completed regional basins. The costs include acquiring land and installing storm sewers to drain water to the basins.

Washington Park: \$37/CF

2nd & Cumnor: \$22/CF

8th & Cumnor: \$122/CF

The cost of regional facilities vary widely based on the cost of land acquisition, and the amount of excavation involved. The comparable costs for individual volume control and stormwater quality projects range from \$15-\$125/CF of storage.

The regional basins are helpful for the less frequent, but large storm events, whereas smaller improvements are designed to help contain the more frequent, smaller storm runoff from individual lots. Providing stormwater management on one's own lot reduces impacts to neighbors and significantly reduces the amount of staff time investigating drainage complaints.

*How will staff enforce sump pump and downspout complaints under the proposed changes?*

Enforcement will remain complaint based. The language allows solutions to be crafted based on the unique characteristics of the site. For example, previously a 5'-0" setback for the downspouts or sump pump discharge from a property line was all that was enforceable, regardless of whether or not it eliminated the nuisance of affecting the neighboring property. With the new language any modification that can eliminate the nuisance is acceptable. The nuisance has further been defined as creating a condition of standing water for a period of 72 hours or more, allowing time for the ground to absorb water before defining it as a nuisance.

Sump pump discharges make up the vast majority of the complaints as they tend to create more persistent water issues than downspouts do. Adding a discharge hose to carry the water away from the lot line location is often all that is needed. Kits can be purchased from home improvement stores to provide 24 ft. of discharge hose for approx. \$10. Often the only action required for downspouts that are creating a complaint based nuisance is to redirect the end of the downspout to not point directly at the neighboring lot line, or to add an extension to the end that carries the discharge to an area better able to accommodate it. The new language also adds to the nuisance definition the important "any other hazardous or unsafe condition on public property." This will enhance staff's ability to rectify dangerous conditions in which water discharging across a public sidewalk leaves a slippery residue of ice, silt, mud, or algae.

Staff does not anticipate an increased number of complaints or code enforcement cases triggered by this revision to the code. The goal is to resolve the issues as they arise and pass along helpful information regarding stormwater management in general. However as with any code compliance effort, if staff cannot achieve compliance through initial voluntary cooperation, notices of violation and citations sometimes become necessary.

*Please provide a list of permits in increments of 100 square feet of new impervious area.*

Attached is a list of permits and a chart showing the types of permits in increments of 250 square feet.

**VILLAGE OF DOWNERS GROVE**  
**COUNCIL ACTION SUMMARY**

**INITIATED:** Village Manager **DATE:** December 9, 2014  
(Name)

**RECOMMENDATION FROM:** \_\_\_\_\_ **FILE REF:** \_\_\_\_\_  
(Board or Department)

**NATURE OF ACTION:**

- Ordinance
- Resolution
- Motion
- Other

**STEPS NEEDED TO IMPLEMENT ACTION:**

Motion to Adopt "AN ORDINANCE REGULATING SUMP PUMP/DOWNSPOUT DISCHARGE", as presented.



**SUMMARY OF ITEM:**

Adoption of the attached ordinance shall regulate sump pump/downspout discharge.

**RECORD OF ACTION TAKEN:**

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## Sump Pump Discharge

ORDINANCE NO. \_\_\_\_\_

### **AN ORDINANCE REGULATING SUMP PUMP/DOWNSPOUT DISCHARGE**

BE IT ORDAINED by the Village Council of the Village of Downers Grove in DuPage County, Illinois, as follows: (Additions are indicated by **shading**/underline; deletions by ~~strikeout~~):

#### **Section 1. That Section 13.7. is hereby amended to read as follows:**

##### **13.7. Enumeration.**

The following shall constitute nuisances:

(a) To permit any premises where any animal is kept to become offensive or detrimental to any adjoining or adjacent property or neighborhood. For the purposes of this subsection, the offensive or detrimental quality of such a premises shall be determined on the basis of the following factors:

- (1) The area of the premises in terms of square feet;
- (2) The number of animals on the premises;
- (3) The type or types of animal on the premises;
- (4) The location of the animal or animals on the premises and the proximity of such location to adjoining properties;
- (5) The type and adequacy of any shelter, if any, for such animal;
- (6) The noise created by the presence of the animal;
- (7) The odor created, directly or indirectly, by the presence of the animal;
- (8) The presence, or lack thereof of facilities for proper collection and removal of refuse or waste materials resulting, directly or indirectly, from the presence of the animal;
- (9) The presence of rats or other vermin as a result of the presence of the animal;
- (10) The zoning district in which the premises is located.

(b) To intentionally feed any wild animals within the Village such that as a natural and predictable result of the amount and type of food given a wild animal or animals, and/or the repetitive nature of the feedings made, the wild animal or animals does any of the following:

- (1) Creates a habitat on occupied property which becomes offensive or detrimental to the neighborhood;
- (2) Causes substantial damage to a neighboring or adjacent property owner's tangible personal property or real property; or
- (3) On more than one occasion, leaves feces on real or personal property.

For the purposes of this section, wild animals include, but are not limited to, raccoons, deer, skunks, coyotes, squirrels, possum and fox.

(c) To throw, deposit or allow the accumulation of any garbage, refuse, waste or similar material on any public or private property unless such material is contained in a receptacle of proper size and design so as to prevent the dissemination or release of such material to adjacent properties.

(d) To interfere with the natural flow of stormwater or surface water in any of the following ways:

- (1) By obstructing any floodway or floodplain, as defined in Section 26-05 of this Code, so as to interfere with runoff or temporary storage of surface water through or upon the premises.
- (2) By causing, suffering or permitting any obstruction to the flow of storm or surface water within any drainageway.
- (3) By depositing, maintaining, suffering or permitting the deposit of any object or material within or adjacent to any drainageway so as to create a reasonable likelihood of an obstruction of the drainageway. The likelihood of an obstruction shall be determined on the basis of the following factors: the nature of the particular object or material, including without limitation, its size, density, and structure; the

## Sump Pump Discharge

topography of the site; the distance from the drainageway and the measures taken to prevent dislocation of the object or material.

For purposes of this subsection, the term "drainageway" shall mean the entire width of any open channel, either natural or manmade, which collects and transports surface water and storm water runoff from dominant to servient lands.

(e) To keep or deposit, or to cause, suffer or permit to be kept or deposited, whether on public or private property, any inoperable automobile, watercraft, or other motor vehicle of the type which would be required under applicable state statute to be registered for operation on any public highway or waterway, or any part or parts intended for use in any such vehicle or watercraft or any inoperable accessory apparatus for use in connection with any such vehicle or watercraft, unless:

(1) Such vehicle or watercraft or part or parts therefor shall be wholly enclosed within a building; or

(2) Such vehicle or watercraft or part or parts therefor shall be located within the premises of any business for wrecking or junking vehicles maintained and operated in accordance with applicable provisions of this Code and other ordinances of the Village; or

(3) Such vehicle shall be an antique or historic vehicle registered or eligible for registration under Section 3-804 of the Illinois Motor Vehicle Code, as amended.

For the purposes of this subsection (e), the phrase "inoperable automobile, watercraft, or other motor vehicle" shall mean any motor vehicle or watercraft from which, for a period of at least ten consecutive days, the engine, wheels or other functional parts have been removed, altered, damaged or otherwise affected so that the vehicle or watercraft is incapable of being driven under its own motor power or otherwise used as intended.\*

For the purposes of this subsection (e), the phrase "inoperable accessory apparatus" shall mean, but is not limited to, semi-trailers and trailers as defined in the Illinois Vehicle Code,\*\* and other similar vehicle or watercraft accessories which are not roadworthy. An accessory apparatus is not roadworthy if any one or more of the following exists:

(1) Wheels or other functional parts which make the semi-trailer, trailer, or other similar vehicle accessory roadworthy have been removed, altered, damaged, or otherwise affected so that the semi-trailer, trailer, or other similar vehicle accessory is, for a period of at least ten (10) consecutive days, incapable of being drawn by a motor vehicle; or

(2) The semi-trailer, trailer, or other accessory apparatus, is not registered with the state as required by the Illinois Vehicle Code\*\*\* and has not been moved from the property for a period of at least ten (10) consecutive days.

(f) To discharge sump pumps and/or downspouts in any of the following manners or locations:

(1) Into parkways, drainage ditches or storm sewers on public property without permit approval from the Village; or onto adjacent property. In a location which does not provide at least five feet of pervious surface between the point of discharge and any property line, unless such discharge is

~~(i) Into any open drainage ditch located within the site or on public right of way; or  
(ii) Into a storm sewer, provided that adequate capacity exists in the system and that the hydraulic grade of the system will not cause a backup into buildings on the premises or other premises.~~

(2) In any manner and in any location that results in standing water for a period of more than seventy-two (72) hours; of a depth of three inches or more or formation of ice of any thickness; or the creation of any other hazardous or unsafe condition on public property, including, but not limited to, sidewalks or the paved portion of the roadway within the public right of way.

(g) To allow graffiti to remain on any property owned or controlled by such person for a period of three (3) days or more. It shall be the responsibility of the property owner(s) or person(s) in control of the premises to remove any graffiti on any structure or building within the Village of Downers Grove.

For the purpose of this paragraph, "graffiti" shall mean any unauthorized inscription, word, figure, or design or collection thereof, which is marked, etched, scratched, painted, drawn or printed on any

## Sump Pump Discharge

structural component of any building, structure, fence, or other similar type of property.

(h) To permit any dumpster or other garbage container exceeding four (4) cubic yards in capacity to be placed on any residential property for more than ten (10) consecutive days; provided this section shall not prohibit the placement and use of such dumpsters and containers during the term of a valid building permit issued for the property on which the dumpster or container is located, nor prohibit dumpsters or containers placed in a Village street or parkway pursuant to a valid permit issued under Section 19-22. (R.O. 1925, § 266; Ord. No. 1840, § 1; Ord. No. 1847, § 1; Ord. No. 2798, § 1; Ord. No. 2802, § 1; Ord. No. 3264, § 1.)

\*For state law authorizing village to require disposal of unenclosed inoperable vehicles, see Ill. Rev. Stat., ch. 24 § 11-40-3.

\*\*Ill. Rev. Stat., Ch. 95-1/2, Secs. 1-187, 1-209.

\*\*\*Ill. Rev. Stat., Ch. 95-1/2, Secs. 3-400 et al.

**Section 2.** That all ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

**Section 3.** That this ordinance shall be in full force and effect from and after its passage and publication in the manner provided by law.

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Mayor

Passed:

Published:

Attest: \_\_\_\_\_

Village Clerk

**VILLAGE OF DOWNERS GROVE**  
**Stormwater and Flood Plain Oversight Committee Meeting**  
**November 13, 2014 7:00 p.m.**

**Downers Grove Public Works Facility**  
**5101 Walnut Avenue, Downers Grove, Illinois**

**I. CALL to ORDER**

Chair Gorman called the meeting to order at 7:00 p.m. A roll call followed and a quorum was established.

**II. ROLL CALL**

Members Present: Chair Gorman, Mr. Civito, Mr. Crilly, Mr. Ruyle, Mr. Scacco, Mr. Schoenberg,

Members Absent: Mr. Ruyle

Staff Present: Karen Daulton Lange, Stormwater Administrator; Julie Lomax and Kerry Behr, Development Engineers

Public Present: Michael Ricklefs, Greenscape Homes, LLC; P. Boroumand, 1906 Concord Dr.; Liam Doherty, Doherty Custom Homes

**III. APPROVAL of July 10, 2014 MINUTES**

Mr. Crilly made a motion, seconded by Mr. Civito, to approve the October 9, 2014 minutes as presented. Motion carried by voice vote of 6-0.

**IV. PUBLIC COMMENTS**

None at this part of the meeting.

**V. NEW BUSINESS**

**A. Code change consideration of reducing the 2,500 square foot threshold of when Post Construction Best Management Practices (PCBMPs) are required to 500 square feet. Code Section 26.1000.A.1.**

Staff reported that the current code requires that on-site stormwater storage be provided when the net new impervious area on the lot is greater than 2,500 square feet. The majority of new construction falls under this threshold and is not required to provide on-site storage. The majority of the newer homes are also constructed with deeper basements, which lead to more frequent sump pump discharges with more volume onto adjacent properties and onto the public right-of-way. In the winter, excess water can lead to icy and unsafe sidewalk and road conditions.

Larger home and paved areas, in addition to greater sump pump activity, lead to stormwater issues between neighbors, as well as staff time and money spent addressing negative impacts between properties and onto the public right-of-way. Between April, 2012 and



October, 2014, 194 permits were issued with new impervious area between 500 and 2,500 square feet. None of these were required to mitigate runoff from their property. Staff sent letters notifying over 40 builders and developers of the proposed changes and an invitation to tonight's meeting.

To address these concerns, staff researched available options and recommended amending the Municipal Code to reduce the threshold for new net impervious area from 2,500 square feet to 500 square feet. This change to the threshold will address runoff problems associated to construction related to new homes and substantial home additions, but will not overly encumber small home additions, sheds, patios, etc.

Discussion ensued regarding the merits of providing PCBMPs on an individual lot basis, where it can have a small but immediate improved impact to a neighboring property to a more regional basis where a larger stormwater basin might be installed to help a larger project area. A combination of the two could help both scenarios.

The increase in sump pump discharge with larger and deeper basements was also discussed, and it was reiterated that our current practice is to not allow a direct sump pump connection into a storm sewer and that if it was an active sump pump it would need a separate BMP to mitigate drainage onto downstream properties and Village right of way.

Maintenance and recording of PCBMPs was recognized as being important elements to the long-term success of the infiltration measures to reduce run-off from new development. Staff reported that at this time there are no plans for inspections by staff to ensure on-going maintenance, but it would be handled through education and on a complaint basis, as many code enforcement items are currently. Recording a note to title will alert a new owner to that a PCBMP exists and must be maintained.

Chair Gorman asked for public comment. Mr. Boroumand asked about how deep drywells had to be constructed. It was explained they had to be a foot above the seasonally high ground water elevation, so in some cases there may be a shallower but larger drywell than in other locations. Rain gardens and permeable pavements were discussed as common PCBMPs that were used as well. Mr. Ricklefs noted it was sometimes difficult to fit a PCBMP on a lot because the houses were so large and with the foundation over-dig it would put them in or near the right-of-way.

Mr. Scacco reiterated an earlier comment by Chair Gorman that standard drawings would be beneficial to homeowners and developers to assist them with PCBMP options. Ms. Lomax and Behr both stated that they discuss with applicants PCBMP choices and direct them to our website that has information on the topic. Ms. Daulton Lange said she was working with other staff to develop a guidance manual and details that should be ready by time the code takes effect on January 1, 2015.

Mr. Schoenberg offered a standard detail of a level spreader sump drainage detail which he has found helpful in other communities; it is a perforated pipe system placed underground in a bed of washed stone with risers for access and overflow.

Mr. Wicklander asked if a fee may be easier to collect and track, and use that money to install regional facilities. Discussion ensued how fees may be collected in one area, but spent in another, and collecting fees did nothing to mitigate the additional run-off that new development was creating.

A motion was made by Mr. Scacco and seconded by Mr. Civito to recommend that the Village Council adopt the proposed changes to the Stormwater & Flood Plain Ordinance. Messrs. Gorman, Civito, Crilly, and Scacco voted yes, Messrs. Schoenberg and Wicklander voted no. Motion passed 4-2.

#### **VI. STAFF REPORT**

See Attachment 1.

#### **VII. PUBLIC COMMENTS**

No further public comment.

#### **VIII. OLD BUSINESS**

A draft of proposed 2015 meeting dates was presented, generally the second Thursday of the month. The Committee requested Staff forward to the Village Clerk for publiciaton.

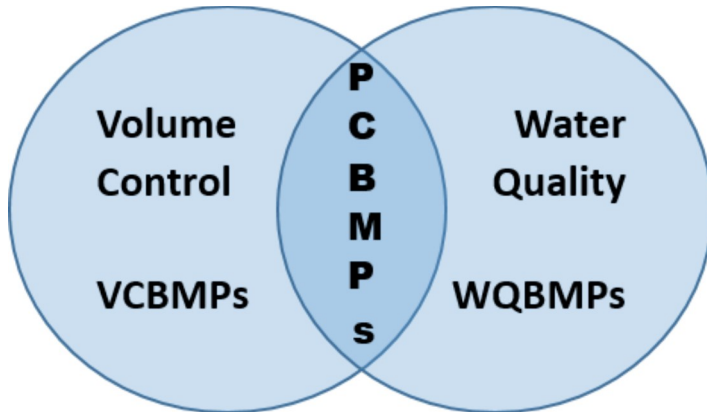
#### **IV. ADJOURN**

Mr. Schoenberg made a motion, seconded by Mr. Scacco to adjourn the meeting at 8:50 p.m. Motion carried by voice vote of 6-0.

# Proposed Stormwater Ordinance Amendments

## Purpose

The purpose of this memorandum is to review options for reducing the negative impacts of stormwater runoff in conjunction with development. What is being considered is reducing the threshold by which new development would be required to provide on-site stormwater storage from 2,500 square feet of new impervious to 500 square feet.



## Background

In 2012, the Village adopted the new County stormwater and flood plain standards, which for the first time included Volume Control with the Post Construction Best Management Practices. Prior to that, PCBMPs consisted only of Water Quality Best Management Practices (WCBMPs).

Simply, VCBMPs are practices that encourage infiltration and reduction of runoff. Examples include rain gardens, dry wells, and infiltration trenches. WQBMPs reduce the pollutants of concern, such as oils, metals and suspended solids, and often the two types of BMPs can function together. Examples include wetland style storage basins, permeable pavers, and native vegetated swales with underdrains.

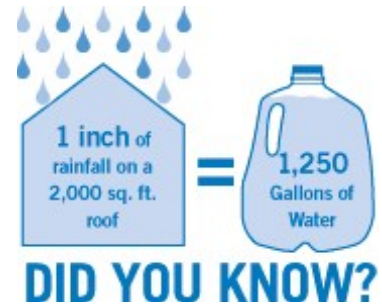
The current ordinance requires that both water quality and volume control BMPs be provided when a development has more than 2,500 square feet of net new impervious area. Once the development reaches the 2,500 square foot threshold, both BMPs must be provided for the *entire* development.

The volume is calculated based on a 1.25", 2-hour rain event for all new impervious surfaces. For example, if a home was torn down and there was a total of 1,900 square feet of impervious coverage, and a new home was built with a total of 4,300 square feet of impervious coverage, no volume control would be required ( $4,300 - 1,900 = 2,400$  which is less than the 2,500 sf threshold). If, however, the new home had 4,400 square feet of impervious coverage, the BMP threshold would be met ( $4,400 - 1,900 = 2,500$ ) and they would be required to provide storage on all new impervious:

$$(1.25" \times 4,400 \text{ SF})(1 \text{ FT}/12") = 459 \text{ CF of on-site infiltration}$$

## Issues

Many of the new, larger houses are under the current threshold of 2,500 square feet and are not required to provide BMPs. In addition, many of the new homes have deeper basements, causing sump pump water discharging more frequently and with more volume onto adjacent properties and onto the public right-of-way. In the winter, excess water onto the right-of-way can lead to icy and unsafe sidewalk and road conditions.



These disruptions lead to stormwater issues between neighbors, as well as staff time and money addressing negative impacts between properties and onto the public right-of-way.

## Items to Consider

Property Development - As a mature community, the Village of Downers Grove's residential districts are largely developed, leaving most of the new residential development in the form of additions or by way of teardown development, where older homes are replaced by new construction. Most commercial redevelopment does not trigger the BMP provisions of the stormwater ordinance since the properties are typically already impervious.

It is important that the permitting process make it easy for property owners to reinvest in their homes. Reducing the threshold of when BMPs are required would not substantially increase the permit review time or permit fees as the stormwater reviews are already being done for many projects.

Costs - The cost of providing PCBMPs varies with site constraints, volume required, and method chosen. Some recent costs provided by contractors for providing BMPs are:

Rain Gardens: \$15-\$20/CF of storage (includes native plants)

Permeable Pavers: \$40-\$50/CF of storage (includes removal of existing drive)

Dry Wells: \$20-\$30/CF of storage

Flo-Well Systems: \$95-\$125/CF of storage

Depending on the volume and placement needed to meet the code requirements, a combination of methods are chosen.

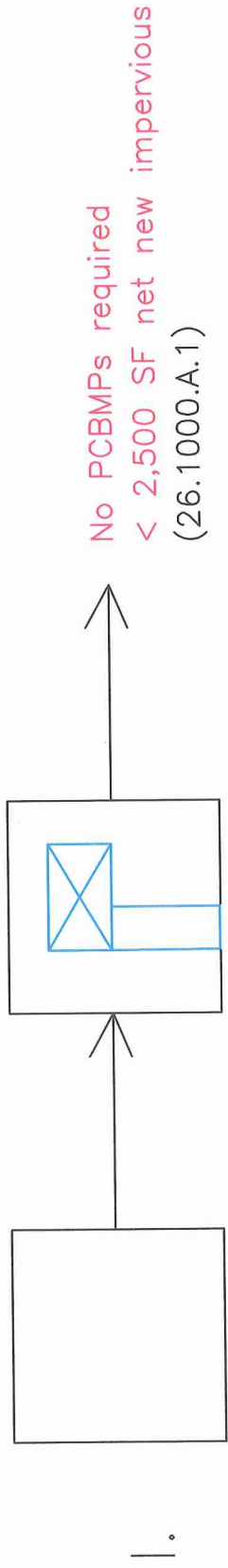
The expense of providing additional volume control storage above the current County required threshold is minimal when considering the scope of new construction that would trigger the additional volume.

For example, 1,000 SF of additional new impervious would require an additional 104 CF of storage. This equates to an additional cost of anywhere from \$1,500 to \$10,000, depending upon the method chosen. This equates to approximately 0.6% to 4.1% of the cost of building that additional 1,000 SF of a home in Downers Grove. The costs of new homes are based on new construction for sale in mid-October, 2014 in Downers Grove.

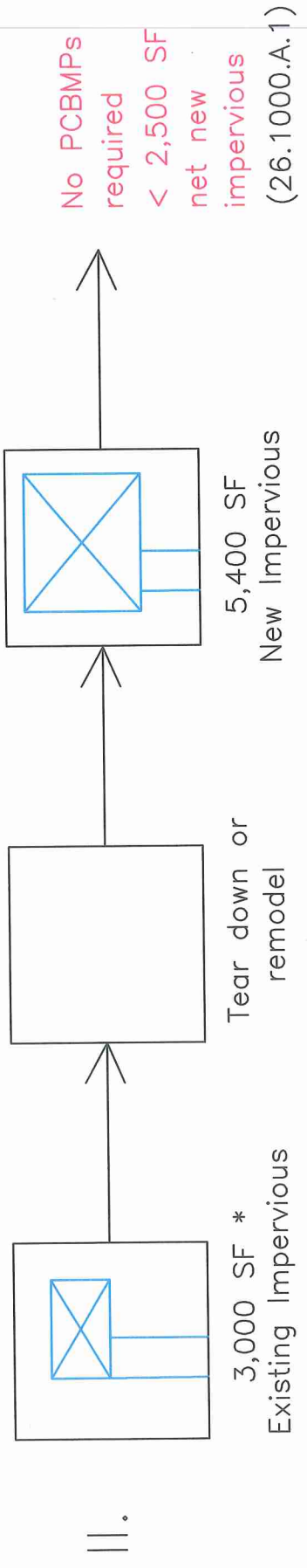
Sump Pump Discharge - Currently there are no provisions in the County Stormwater & Flood Plain Ordinance that addresses sump pump discharge. We no longer allow direct connections into the storm sewer, as the capacity of the sewers are limited, and adding this additional volume of water can cause more frequent and serious flooding to downstream properties.

New construction codes require piped discharge to be no closer than 20' from the downstream property line and not to cause a nuisance on adjacent properties (26.700.B.1.m.) During the plan review process, we encourage a separate VCBMP to handle the sump discharge. We suggest if the sump is active, to provide the equivalent infiltration of 25% of the volume required for the impervious area on the site. This has not yet been codified.

# Village of Downers Grove Current PCBMP Residential Scenarios

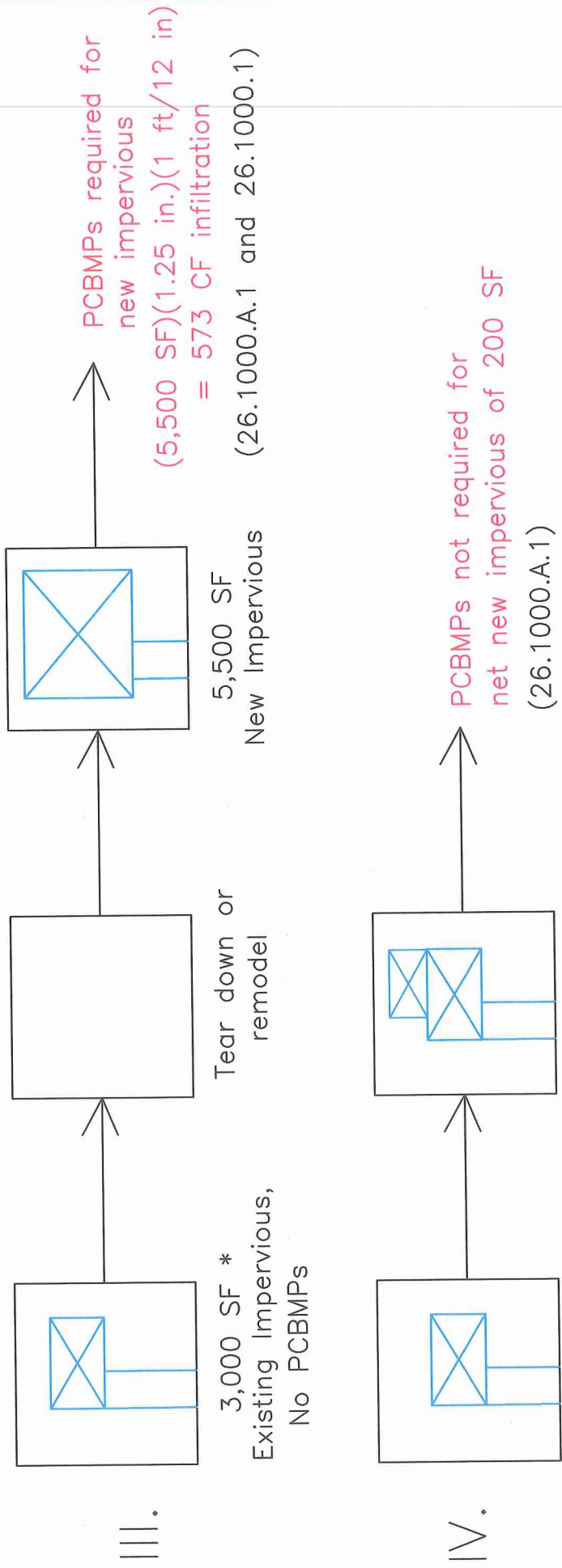


No Impervious \*



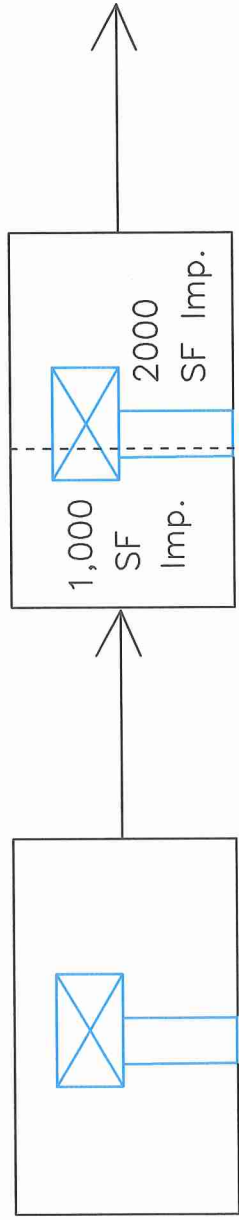
\* As of April 23, 2013

# Village of Downers Grove Current PCBMP Residential Scenarios



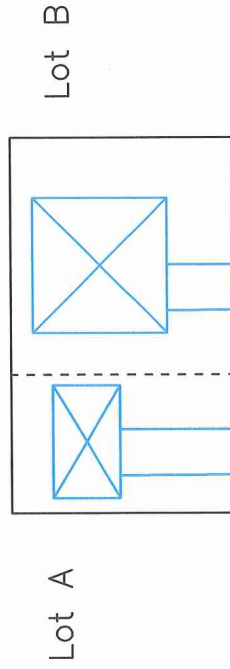
\* As of April 23, 2013

# Village of Downers Grove Current PCBMP Residential Scenarios



3,000 SF \*  
Existing Impervious  
No PCBMPs

Subdivide  
and tear down  
(Maximum 2,500 SF net  
new impervious allowed  
for entire development)



3,200 SF  
New Impervious

5,000 SF  
New Impervious

8,200 SF - 3,000 SF = 5,200 SF  
5,200 SF > 2,500 SF Threshold  
Therefore, PCBMPs required  
(26.1000.A.1)

Lot A: (3,200 SF)(1.25 in.)(1 ft/12 in)  
= 333 CF infiltration required

Lot B: (5,000 SF)(1.25 in.)(1 ft/12 in)  
= 521 CF infiltration required

\* As of April 23, 2013