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MEMORANDUM

TO: Public Works Committee
THROUGH: Carl Goldsmith, Director of Public Works
FROM: Nick Hatfield, P.E., Private Development Engineer
DATE: March 29, 2010
SUBJECT: Private Detention Facilities –Analysis of Long-term Maintenance and Ownership Issues

Introduction

The Village Board’s Strategic Planning Workshop resulted in an itemized list of topics and/or goals for staff to pursue during FY2010. During these sessions, the long-term maintenance and ownership issues relating to private stormwater detention facilities was discussed. The Department of Community Development provides the following examination of these issues for both residential and commercial development. The following provides the starting point for this analysis, highlighting the Village’s current procedures for these facilities, along with a list of possible options to further the Village’s involvement in these systems.

Background

Stormwater detention is a requirement for all new commercial (any size) and major residential (greater than 1 acre or 4 lots) development. The size of the required detention volume is determined by the size of the area under development, which dictates the required release rate from the pond as well as the modeled amount of water that the development would generate during the 1% annual recurrence storm event (a.k.a. the 100-yr storm). There are currently over 300 known privately owned/managed detention facilities within the Village. Of these, the majority are dry-bottom (grassed) or wet-bottom basins (see attached photos). Other types of detention facilities include parking lot storage and underground detention vaults. There are currently no on-roof detention facilities, and there is one under-building detention facility (from an annexed parcel). A summary of the types is below:

Detention Type	Percentage of Total Facilities
Dry-Bottom or Wet-Bottom Basin	66%
Parking Lot Storage	27%
Underground Vault	7%

Dry- and wet-bottom basins are typical as they are generally the least expensive and easiest to maintain option for providing required stormwater detention. The attached photos #1 and #2 show

typical views of these facilities. These types of basins are designed to have anywhere from zero to a few feet of standing water during dry periods. During storm events, the basins are designed to fill with water, thus detaining the storm water to prevent properties further downstream from flooding or minimizing the amount of flooding. Once the ponds and basins begin filling with water, they slowly discharge the detained water into the stormwater system. After most storm events, many of the ponds and basins have elevated water levels for the next 24 to 72 hours, depending on the controlled release rate.

To ensure that these detention facilities are constructed appropriately, the Department of Community Development inspects all site work related to these systems, including pipe and structure installations. Further, a final topographic survey of the facility is required, which is then used by the design engineer to calculate the final volume of the pond. If a pond has too little capacity, then further excavation is required. Once the finished product meets or exceeds the design requirements, the engineer seals and signs the final topographic survey and provides the Village with a statement of compliance.

The detention facilities and associated appurtenances remain the property of the owner, which is generally an association. They are required to be placed in an out-lot and/or an easement is required over the facility.

Current Program

Lombard's current requirements for stormwater detention are consistent with, and some are more stringent than, DuPage County's requirements. In Lombard, all new major developments are required to provide on-site stormwater detention. Pertinent Village Code requirements are provided in **Table 1**. These Codes provide the basis for the volume requirements of the detention facilities as well as requirements for locating the ponds and how ownership is handled. As these facilities are typically associated with private development, they are generally the responsibility of a property owner or property owner's association. To ensure that the facilities are being maintained, the Village requires that the facilities be placed in an easement that provides the Village (or its designee) with the right, but not the responsibility to inspect and, in the event of an emergency, access the facility and correct the issue.

Surrounding municipalities generally handle detention facilities in the same manner, with some slight differences, as noted in **Table 2**. Distinct to Lombard on this issue is a program established in 2003 that has the Department of Community Development routinely inspecting these facilities to ensure that they are functioning as designed. The inspection program is a low-cost method that allows for an on-site field inspection that is usually performed by an engineering intern or the Private Engineering Services Inspector. Property owners, owners' associations and/or their maintenance companies are notified via certified mail of the inspection prior to the date and time so that they can be present.

During a typical year, approximately 60 facilities (again, generally ponds) will be inspected. Anywhere from 75% to 90% of the inspected facilities are found to be maintained for safety and

function, as required per Village Code. Issues with remaining facilities are highlighted in writing to the association or property owner, with a set timeframe for the issues to be corrected. As there are over 300 facilities, each one is inspected roughly every four to five years. The table below summarizes the past years' inspection results. **Appendix A** has further information on the details of the inspection program. Of note, the Village of Lisle is working on implementing a similar inspection program for their detention facilities.

Year	Number of Ponds Inspected	Number of Ponds with Required Actions	Percentage of Ponds with Required Actions	Result
2003	42	4	9.5%	All issues corrected
2004	42	11	26.2%	All issues corrected
2005	32	5	15.6%	All issues corrected
2006	49	2	4.1%	All issues corrected
2007	66	9	13.6%	All issues corrected
2008	69	18	26.1%	All issues corrected
2009	68	29	42.6%	All issues corrected

Note the higher than average number of basins that had a required action in both 2008 and 2009. These higher numbers resulted from two main issues: a number of older facilities were identified in past Village files, and were added to the inspection schedules for the first time; and, the frequency and severity of the storms over the past two years has resulted in more sediment flow, which in turn can lead to blocked restrictors. The most common issue noted through these inspections is that the restrictor is clogged, thus water is not draining from the pond as fast as it should. Restrictors are also found to be missing or damaged (widened). Lastly, larger issues have also been detected through these inspections. In 2007, a large portion of a retaining wall for the Highland Lakes Condominium's stormwater pond had fallen and posed a safety issue. This issue was turned over to the condominium association, which acted quickly to resolve the issue. The 2008 inspection program noted a severe blockage in the outflow of a private detention pond located in the Highland Green Subdivision. This issue led to the larger issue of long-term maintenance of these facilities.

Long Term Maintenance Issues

The Highland Green Homeowner's association had dissolved several years ago, leaving the stormwater pond as the responsibility of the contiguous property owners, as set forth in their covenants. Thus, ten separate owners of the pond were notified of the issue and their responsibility. The homeowners were reluctant to act at first. Fortunately, one of the property owners stepped forward and worked as the liaison between Village staff, the other owners and the contractor that they hired. The work was completed and the pond is operating again. As of my last conversation with this homeowner, he had collected all but one of the property owner's share in the total cost for the work.

While this situation was resolved, the question was raised as to how the Village can ensure that these systems are being maintained or that deficiencies are corrected when there is no active property owners' association. While this specific event highlighted an issue of a defunct association, staff feels that the current inspection program does provide a reasonable and effective approach in identifying safety and function issues with these systems. Regardless of the status of any association, an ultimate property owner is legally responsible to maintain these systems for safety and function. Staff has a 100% compliance rate in having these types of deficiencies corrected or mitigated. As the Village Board has expressed interest in possible options to further assist property owners with maintaining their detention systems, staff has prepared the following summary of options.

Options to Explore

To consider an increased role for the Village in maintaining private detention basins, staff looked at the following possibilities. While the programs vary widely, any increase in the Village's service for these private facilities involve higher staffing levels and annual costs to the Village.

1) Continuing with the current program

The current program is successful in identifying issues associated with the health and safety functions of these systems. Staff is able to manage this program with one seasonal engineering intern who is provided oversight and assistance by the Private Engineering Services Division of Community Development.

Intern – fulltime for 16 weeks: \$7,000

Vehicle costs – uses current PES #91: \$350 for fuel

Staff time – assist for ~4 hours a week for 16 weeks: \$2,500

Total: \$9,850

2) Expand the inspection program so that each facility is inspected once per year.

By increasing the number of seasonal interns, or by providing for a full time position, staff could increase the frequency of inspections.

a) Interns – 4 fulltime for 16 weeks: \$28,000

Vehicle costs – would need access to two other vehicles plus PES #91: \$1,000

Staff time – assist for ~8 hours a week for 16 weeks: \$5,000

Total: \$36,000

Any deviation of the above costs could be applied to increase the number of inspections annually. Thus, two interns would cost ~\$24,000, etc.

b) A full-time technician should be able to inspect at least 150 detention systems annually, assuming that the systems are inaccessible during winter months (12 weeks). This cost would be:

Technician – \$40,000 salary (plus benefits)

Vehicle costs – would need their own vehicle: \$6,000 (based on current annual fleet transfer and O&M)

Staff time – assist for ~2 hours a week a year: \$4,000

Total: \$50,000 (+ benefits)

3) The Village creates special service areas (SSA) in areas where extensive, costly repairs are required to the detention systems.

Again, as the inspection program is meant to identify issues before an extensive repair is necessary, this level of involvement is not immediately necessary, and has not been discussed with any group to date. Separate of the actual cost to complete any repair, which would be several thousand dollars, the estimated cost of engineering and legal staff time to set up a special service area is estimated at \$7,500.00 for one area (one pond). To ensure that payment is obtained, the assessment is put onto the property tax bill of the residents. Of course, as policy goes, action on one basin will set precedence for all basins. In order to establish an SSA, the affected property owners could object to the formation by obtaining a vote of 51% of both the electors and owners of record in the affected SSA. This is a rather likely outcome of any attempt to create an SSA for the purpose of detention pond maintenance.

Legal Staff and Engineering time: \$7,500

Cost of repair: \$15,000 (assuming major repair of new piping, berming and/or grading once every 15 years)

Total: \$22,500 (for major repair issue)

Cost of Annual Maintenance: \$5,000

Total: \$97,000 over the 15 years, including one major repair

Thus, in a subdivision of 100 lots (the approximate size of Highland Green), each home would be assessed \$225 initially to correct the issue, and then \$65 annually thereafter if we assume that a major repair is required every 15 years.

4) Village assumes ownership of these systems.

This would require that the land be dedicated to the Village and that additional Village staff would be added to maintain these systems. Currently, the Village maintains only a handful of ponds, a portion of which are being evaluated in a study underway by Public Works in which the combined sewers are being modeled to identify the phasing of projects to separate the sewers in these areas, or at least limit sewer back-ups.

Based upon current responsible bids, the Village estimates a cost of mowing and weed maintenance of approximately \$900 per year per acre. The 300 known ponds are approximately 63 acres. Therefore, the annual cost to the Village to mow the detention facilities is \$56,700. This does not take into account any dredging or bank stabilization efforts that may be required. The cost for these activities could be upwards of \$25,000 per site.

Additional considerations relative to the Village taking over the private detention facilities are the properties with underground structures for detention, as well as the facilities that use surface detention in parking lots. The Village would have to determine the extent to which we would be responsible for maintenance of the surface lot relative to ensuring proper drainage.

Increasing the number of ponds would result in an increase in staff, material costs and equipment. Staff has developed two (2) cost estimates; the first table provides the “one-time cost” incurred and the second table provides ongoing costs to the Village.

One Time Costs			
Description	Cost	Quantity	Total
Legal Fees (document preparation)	\$2,000	300	\$600,000
Plat preparation	\$500	300	\$150,000
Recording fees	\$100	300	\$30,000
TOTAL ONE-TIME COSTS			\$780,000

Annual Costs			
Description	Cost	Quantity	Total
Maintenance Worker	\$44,531	2	\$89,062
4x4 Pick-up Truck*	\$22,000	1	\$22,000
Rental of GradAll (80 hours)	\$150	80	\$12,000
Mowing/Weeding	\$900	63	\$56,700
Specialty Landscaping (wetlands) **	\$1,000	30	\$30,000
Material	\$10,000	1	\$10,000
TOTAL ANNUAL COSTS			\$219,762.00

* *The Village would incur the full cost in year #1, but see a reduction in subsequent years as the vehicle would be in service for four (4) years.*

** *Assumes maintenance of wetlands plantings on a five year rotational basis for 1/2 of the detention facilities.*

Recommendation

Staff recommends that the Village maintain the current program of inspecting, but not owning or maintaining, private detention facilities. This program has proven to be an effective means of insuring compliance with all applicable Village Codes at a minimal cost to the residents and businesses in Lombard. Since the program’s inception in 2003, the Village has worked cooperatively with owners to keep detention facilities safe and functional, as required by Village Code.

Table 1. Current Village of Lombard Code Requirements for Stormwater Detention

Code	Primary Requirement
<p>§ 151.55 RETENTION/ DETENTION BASINS.</p>	<p>Detention is required for all commercial, business, office, industrial, and multi-family construction, single family major subdivision, or any property, which is being developed for other than single-family residence.</p>
<p>§154.406(D)(E) STORM SEWER AND DRAINAGE SYSTEM</p>	<p>Stormwater detention basins shall be provided in accordance with specifications and requirements of Lombard Flood Control Ordinance, located on separate lots of record (outlots), and comply with the Lombard Specifications Manual.</p>
<p>§154.507(B)(C)(E) OUTLOTS; DETENTION, RETENTION, OPEN SPACE, AND OTHERS</p>	<p>If ownership of an outlot is conveyed by agreement to each of the lots in the subdivision, a covenant on the face of the plat must be provided which describes the perpetual maintenance of the outlot. Maintenance generally shall be the responsibility of the owners via a homeowners' association. Outlots shall be designed to serve multiple purposes. For example, retention areas may serve as passive or active recreation areas, environmental preservation areas, or bufferyards. Storm water detention/retention outlots shall generally be rectangular and their location in rear yards should be avoided.</p>
<p>§154.508(D) LANDSCAPING</p>	<p>The perimeter of all storm water detention/retention areas shall provide landscaping and ground cover consistent with the perimeter lot landscaping. Internal landscaping may be required as determined appropriate by the Director of Community Development.</p>
<p>§154.605(C) GUARANTEE OF MAINTENANCE</p>	<p>In order to guarantee the continued maintenance of privately owned storm water control outlots an association of property owners or other comparable administration may be required. The association shall be responsible for the perpetual maintenance of all such areas. The terms and conditions of the property owner's association agreement relative to maintenance of all such areas shall be subject to the review and approval of the Director of Community Development.</p>
<p>§ 94.04(N) SCHEDULE A: NOTICE REQUIRED; NUISANCES DEFINED.</p>	<p>To fail to maintain or repair any private stormwater management facility including, but not limited to, any private stormwater retention basin, detention basin or storm sewers, as well as any grates, inlets, outlets, manholes, catch basins or restrictors relative thereto, thereby creating a situation in which said stormwater management facility does not perform as designed or poses a potential or real hazard to the health, safety or welfare of the public.</p>

Table 2. Stormwater Detention Policy Comparison with Other Local Municipalities

Community	Detention Pond Property	Maintenance	Defunct Ownership	Funding Source	Inspections
Lombard	Private property with a "stormwater detention easement" required over the facility.	Owners responsibility	Stormwater Detention Easement provides Village (or it's designee) to enter property to correct problem after 72 hours of notice and lien the property for the cost	Private (Owner or Property Owner's Association)	Routine inspection by Village staff of each pond every four to five years
DuPage County	If private, then title to the land is conveyed to each lot in subdivision or to owner of the land. Each lot has equal interests in facility; property owners association required; easements required if conveyed to property owner.	Plat is to define maintenance and operation methods as well as designation of person(s) responsible for long-term maintenance	With 30 days of notice, a AHJ can access property and correct any condition affecting the functionality of the pond, with a lien being placed on the property for the cost of the work.	Private (Owner or Property Owner's Association)	subject to periodic inspections; can enter to maintain after 30 days of notice after posting notice and sending notification to property owner
Addison	"Before a permit is obtained from the Village of Addison, the applicant shall execute a maintenance agreement with the Village of Addison guaranteeing that the applicant and all future owners of the property will maintain its storm water drainage system." Stormwater facilities as well as maintenance provisions are shown on the Plat of Subdivision or other recorded document	"Maintenance of storm water drainage facilities located on private property shall be the responsibility of the owner of that property."	"The maintenance agreement shall also stipulate that if the Village Engineer of the Village of Addison notifies the property owner in writing of maintenance problems which require correction, the property owner shall make such corrections within 30 calendar days of such notification. If the corrections are not made within this time period, the Village may have the necessary work completed and assess the cost to the property owner."	Private	"The maintenance agreement shall also specifically authorize representatives of the Village to enter onto the property for the purpose of inspections of the drainage system"
Carol Stream	Private, easements required	Owners responsibility	Use property maintenance codes	Private	On a complaint basis and after major storms
Downers Grove	Same as County plus "Responsibility for	Same as County plus "Maintenance	Same as County	Same as County	Same as County

	is the responsibility of the land on which the stormwater facilities are constructed"	Same as County	Same as County	Same as County	Same as County	Same as County
Glen Ellyn	maintenance of all storage facilities shall be designated on the plat of subdivision or other recorded documents."	Same as County	Same as County	Same as County	Same as County	Same as County
Lisle	Same as County	Same as County plus specifies that it is the responsibility of owner for underground facilities	Same as County	Same as County	Same as County	Same as County
Wheaton	A drainage easement shall be provided wherever the bypass design flow exceeds one cubic foot per second	Agreements for the perpetual operation and maintenance of wet bottom retention facilities shall be prepared to the satisfaction of the city.	Has not occurred	Required through association dues, tax bill or other source	After major storm events	

APPENDIX A

Routine Stormwater Facility Inspection Program



Photo #1

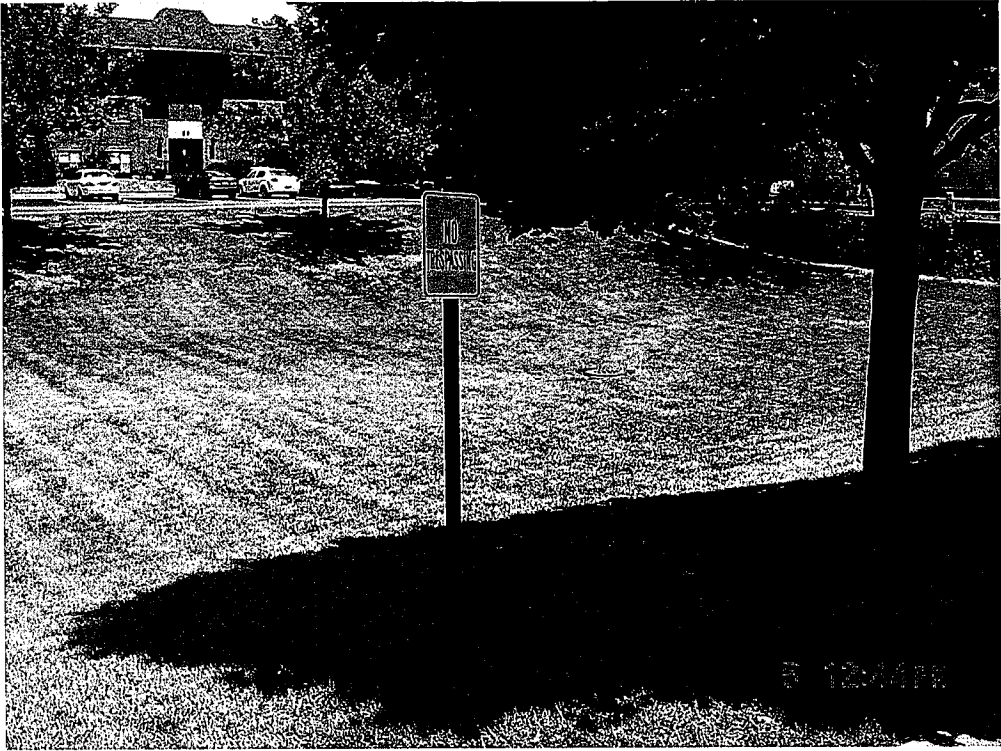


Photo #2

