



# Stormwater Utility and Rate Study - Phase II

Village of Libertyville, Illinois



PREPARED IN ASSOCIATION WITH:



February 17, 2021

Nicholas A. Mostardo  
Finance Director  
Village of Libertyville  
118 West Cook Avenue  
Libertyville, IL 60048

**Subject: Stormwater Feasibility and Rate Study – Phase II**

Dear Mr. Mostardo,

NewGen Strategies and Solutions, LLC, in association with Donohue and Associates, Inc, is pleased to submit to the Village this report summarizing our completed Phase II of the Village's Stormwater Feasibility and Rate Study. This document details the results of various tasks related to updating the Study's Phase I results, including updates to the Village's Impervious Area database and Stormwater Financial Model as well as the alignment of the Impervious Area database with the Village's Utility Billing database. The Phase II updates are based on the most recently available data and industry standard cost allocation methodologies.

It has been a distinct pleasure to work with you and the Village of Libertyville. The dedication and assistance provided by yourself, as well as Deputy Village Administrator Engelmann, Public Works Director Kendzior, and Village Engineer Cooper were essential to the completion of this study and should be acknowledged. Thank you for the opportunity to work with the Village on this important project.

Sincerely,

Eric Callocchia  
Executive Consultant  
**NewGen Strategies and Solutions, LLC**

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# Section 1

## PHASE II BACKGROUND AND SCOPE

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### Phase I Summary

The Village of Libertyville adopted Village-wide Master Stormwater Management Plan (MSWMP) in February 2019 that detailed \$45.5 million in capital improvement projects that would be necessary to provide a 100-year level of flood protection for the Village's citizens. The MSWMP includes a proposed flood reduction project for various locations and prioritizes each proposed project by the estimated total costs and benefits. To finance the implementation of the MSWMP, The Village engaged NewGen Strategies and Solutions, LLC in association with Donohue and Associates, Inc. to develop a Stormwater Utility Feasibility and Rate Study. The purpose of the study was to project the total costs of the MSWMP's implementation and recommend an equitable and defensible funding mechanism for a dedicated Village-wide Stormwater Utility.

The Stormwater Utility Feasibility and Rate Study was completed in two Phases. NewGen delivered to the Village the Phase I report on July 15, 2020. The Phase I report detailed the development of a Village wide impervious area based fee to support the projected operating, capital, debt service, and reserve requirements of the Village for the implementation of the MSWMP. It also detailed the calculation of several fee bases that the Village could use to equitably distribute the cost of the MSWMP among Village parcels.

Ultimately, NewGen recommended an impervious area fee with two components. The components for each parcel are an Equivalent Residential Unit (ERU) and Intensity of Development Factor (IDF).

The Village-wide ERU is equal to the total impervious area of Residential parcels divided by the number of Residential parcels. For the purposes of this calculation, "Residential" parcels are Single-Family and Multi-Family. Each parcel is assigned an ERU value that is the ratio of the parcel's impervious area to the Village wide ERU. The Village's ERU is equal to 3,800 square feet.

The IDF calculation method recognizes that the level of development on a parcel will affect the rate of storm runoff. That is, highly developed parcels will have increased runoff as a result of rainfall having less opportunity to infiltrate into the soil. IDF adds an additional component to the stormwater fee calculation that is based on the percentage of each parcel's impervious area relative to its size. Each parcel is assigned an IDF varying from 0.2 to 2.0 based on the percent of the parcel that is covered impervious area.

Table 1-1 shows a summary of the Phase I results including the net revenue requirement, fee basis, and projected Bi-Monthly stormwater fee for the Village.

**Table 1-1**  
**Summary of Phase I Revenue Requirements, Fee Basis, and Bi-Monthly Fee**

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>
<b>Net Revenue Requirement</b>	<b>\$2,155,132</b>	<b>\$1,838,543</b>	<b>\$2,275,891</b>	<b>\$2,783,762</b>	<b>\$2,774,525</b>
System ERUs	17,343	17,343	17,343	17,343	17,343
System IDFs	10,361	10,361	10,361	10,361	10,361
<b>Total System ERUs + IDFs</b>	<b>27,703</b>	<b>27,703</b>	<b>27,703</b>	<b>27,703</b>	<b>27,703</b>
<b>Fee per Parcel ERU + IDF</b>	<b>\$13.00</b>	<b>\$13.00</b>	<b>\$14.00</b>	<b>\$17.00</b>	<b>\$17.00</b>

Phase I of NewGen’s study resulted in a reasonable projection of the revenues needed to support the Village’s MSWMP and an equitable revenue generation methodology.

## **Phase II Tasks**

After the delivery of the Phase I report, the Village gave NewGen notice to proceed on Phase II of the Study. Phase II of the Study included several related tasks.

- ***Alignment of Parcel Data with Utility Database***
- ***Update Stormwater Financial Model***
- ***Public Outreach***

This report summarizes the results of Phase II and presents NewGen’s recommendations for the implementation of the Village’s Stormwater Utility.

## Section 2

# PHASE II RESULTS

The Phase II tasks that merit discussion in detail are the update to and alignment of the Impervious Area Database with the Village’s Utility Billing Database and the update to the Stormwater Financial Model and projected Stormwater Fee.

## Updated Impervious Area Database

The Phase I parcel database was based upon Lake County parcel data. A Phase I recommendation NewGen made was that the Village levy stormwater charges on the Village’s utility bills. Doing so required the alignment of the County parcel data with the Village’s utility billing database. Table 2-1 shows the Phase I parcel data by customer class.

**Table 2-1**  
**Summary of Village Stormwater Customer Base – Phase I**

<b>Classification</b>	<b>Parcels</b>	<b>Total Area (ft<sup>2</sup>)</b>	<b>Pervious Area (ft<sup>2</sup>)</b>	<b>Impervious Area (ft<sup>2</sup>)</b>
Single-Family Residential	5,433	84,542,850	61,434,842	23,108,008
Multi-Family Residential	1,859	12,648,476	8,343,938	4,304,539
Commercial	782	32,788,750	14,883,498	17,905,252
Industrial	177	26,788,737	13,484,550	13,304,188
Village Property	173	31,476,869	28,982,343	2,494,526
Tax Exempt	100	10,303,879	7,782,767	2,521,112
Apartments	31	775,000	311,081	463,919
Lake County Forest Preserve	18	3,822,428	3,802,868	19,560
Lake County	9	565,657	545,882	19,775
State of Illinois	9	597,744	519,759	77,985
Water	9	4,529,230	4,465,890	63,340
Railroad	8	1,208,566	1,117,474	91,092
Agriculture	7	8,949,738	7,417,056	1,532,682
<b>Totals</b>	<b>8,615</b>	<b>218,997,924</b>	<b>153,091,947</b>	<b>65,905,977</b>

The Village’s utility billing system is separate from the Lake County parcel database. To transfer ERU and IDF data from the parcel database to the utility billing system, the two systems needed to be cross-referenced based on a common data point – in this case, service address. Municipal GIS Partners, Inc. (MGP), Donohue & Associates, Inc, NewGen, and Village staff were all involved in the process of cross-referencing addresses and parcels. During that process, certain parcel data was modified and or removed based on a more detailed review of the database. Table 2-2 shows the Phase II parcel database results after the detailed review and modification.



**Table 2-2  
Summary of Village Stormwater Customer Base – Phase II**

<b>Classification</b>	<b>Parcels</b>	<b>Total Area (ft<sup>2</sup>)</b>	<b>Pervious Area (ft<sup>2</sup>)</b>	<b>Impervious Area (ft<sup>2</sup>)</b>
Single-Family Residential	5,432	84,016,413	61,060,511	22,955,902
Multi-Family Residential	1,766	12,739,474	8,412,811	4,326,663
Commercial	756	31,105,212	13,856,275	17,248,937
Industrial	202	26,237,323	13,073,851	13,163,472
Village Property	178	33,046,337	30,578,960	2,467,378
Tax Exempt	100	10,524,156	7,928,581	2,595,575
Apartments	31	776,092	310,939	465,153
Lake County Forest Preserve	16	3,708,399	3,695,403	12,995
Lake County	9	565,657	545,882	19,775
State of Illinois	6	432,306	373,716	58,590
Water	9	4,529,230	4,465,891	63,339
Railroad	5	708,687	657,180	51,507
Agriculture	6	8,895,493	7,473,782	1,421,712
<b>Totals</b>	<b>8,516</b>	<b>217,284,778</b>	<b>152,433,781</b>	<b>64,850,998</b>

The Phase II database is a complete cross-referenced database that aligns Lake County parcel data, impervious area data, and Village utility billing account numbers. This database will allow the Village to include the Stormwater Fee on existing and future customer utility bills. Table 2-3 shows the percent variation by customer class between the Phase I and Phase II databases.

**Table 2-3  
Summary of Village Stormwater Customer Base – Phase II % Difference**

<b>Classification</b>	<b>Parcels</b>	<b>Total Area (ft<sup>2</sup>)</b>	<b>Pervious Area (ft<sup>2</sup>)</b>	<b>Impervious Area (ft<sup>2</sup>)</b>
Single-Family Residential	(0.0%)	(0.6%)	(0.6%)	(0.7%)
Multi-Family Residential	(5.0%)	0.7%	0.8%	0.5%
Commercial	(3.3%)	(5.1%)	(6.9%)	(3.7%)
Industrial	14.1%	(2.1%)	(3.0%)	(1.1%)
Village Property	2.9%	5.0%	5.5%	(1.1%)
Tax Exempt	0.0%	2.1%	1.9%	3.0%
Apartments	0.0%	0.1%	(0.0%)	0.3%
Lake County Forest Preserve	(11.1%)	(3.0%)	(2.8%)	(33.6%)
Lake County	0.0%	(0.0%)	(0.0%)	0.0%
State of Illinois	(33.3%)	(27.7%)	(28.1%)	(24.9%)
Water	0.0%	(0.0%)	0.0%	(0.0%)
Railroad	(37.5%)	(41.4%)	(41.2%)	(43.5%)
Agriculture	(14.3%)	(0.6%)	0.8%	(7.2%)
<b>Totals</b>	<b>(1.1%)</b>	<b>(0.8%)</b>	<b>(0.4%)</b>	<b>(1.6%)</b>

## Phase II Results

The overall difference between the Phase I and Phase II parcel data sets is about 1.5%. The reasons for changes in the parcel data are several. Some parcels were re-assigned different classifications, particularly between non-residential classes. Other parcels were removed from the database due to the Village's policy of not charging parcels with zero impervious area. Parcel classification only impacts the calculation of the Village's system-wide Equivalent Residential Unit (ERU), which is the average Residential parcel impervious area. Both the Phase I and Phase II parcel data result in a system-wide ERU of 3,800 square feet. All parcels are charged the same fee regardless of customer class.

The stormwater utility billing database will continue to be updated in conjunction with the Village's appeal program. As appeals are processed and approved, the Village will update the stormwater billing database.

## Updated Stormwater Utility Financial Projections and Rates

The financial model developed by NewGen during Phase I was updated with the most recently available data during Phase II. Various changes in capital program timing, operating expenses, non-fee revenues, and reserve contribution requirements resulted in an updated revenue requirement and fee projection. Table 2-4 shows the Phase I financial projections and proposed stormwater fees for Fiscal years 2021 through 2026.

**Table 2-4  
Stormwater System Revenue Requirements and Rates – Phase I Results**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>
Operating Expenses	\$117,027	\$737,318	\$752,561	\$768,171	\$784,159	\$782,250
Cash Funded Capital	\$2,644,920	\$979,448	\$312,678	\$314,242	\$315,813	\$317,392
Debt Service	\$ -	\$ -	\$360,104	\$787,002	\$1,282,988	\$1,282,988
Non-Home Rule Sales Tax	\$ -	\$88,403	\$88,403	\$88,403	\$88,403	\$88,403
Reserve Contributions	\$ -	\$355,741	\$672,330	\$401,203	\$391,995	\$401,232
<b>Total Expenses</b>	<b>\$2,761,947</b>	<b>\$2,155,169</b>	<b>\$1,863,746</b>	<b>\$2,307,818</b>	<b>\$2,821,363</b>	<b>\$2,821,033</b>
Non-Fee Revenues	\$916,685	\$37	\$25,203	\$31,927	\$37,601	\$46,507
Fee Revenues	\$ -	\$2,160,873	\$2,160,873	\$2,327,094	\$2,825,757	\$2,825,757
<b>Total Revenues</b>	<b>\$916,685</b>	<b>\$2,160,910</b>	<b>\$2,186,076</b>	<b>\$2,359,021</b>	<b>\$2,863,358</b>	<b>\$2,872,264</b>
<b>Bi-Monthly Stormwater Fee</b>	<b>\$ -</b>	<b>\$13.00</b>	<b>\$13.00</b>	<b>\$14.00</b>	<b>\$17.00</b>	<b>\$17.00</b>

The key changes in the financial projections during Phase II were:

- Updated annual O&M costs
- Revised CIP funding schedule
- Updated FY 2022 non-fee revenue
- Adjusted fee effective date from March 1, 2021 to September 1, 2021.

Table 2-5 shows the updated financial projections and fee recommendations based on the Phase II updates.

**Table 2-5  
Stormwater System Revenue Requirements and Rates – Phase II Results**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>
Operating Expenses	\$117,027	\$797,076	\$850,670	\$869,224	\$888,250	\$889,474
Cash Funded Capital	\$2,644,920	\$979,448	\$312,678	\$314,242	\$315,813	\$317,392
Debt Service	\$ -	\$ -	\$360,104	\$787,002	\$1,282,988	\$1,282,988
Non-Home Rule Sales Tax	\$ -	\$88,403	\$88,403	\$88,403	\$88,403	\$88,403
Reserve Contributions	\$ -	\$1,040,269	\$520,431	\$85,645	\$56,333	\$221,095
<b>Total Expenses</b>	<b>\$2,761,947</b>	<b>\$2,905,196</b>	<b>\$2,132,286</b>	<b>\$2,144,516</b>	<b>\$2,631,787</b>	<b>\$2,799,352</b>
Non-Fee Revenues	\$916,685	\$1,500,000	\$24,492	\$36,722	\$37,579	\$43,006
Fee Revenues	\$ -	\$1,405,196	\$2,107,794	\$2,107,794	\$2,594,208	\$2,756,346
<b>Total Revenues</b>	<b>\$916,685</b>	<b>\$2,905,196</b>	<b>\$2,132,286</b>	<b>\$2,144,516</b>	<b>\$2,631,787</b>	<b>\$2,799,352</b>
<b>Bi-Monthly Stormwater Fee</b>	<b>\$ -</b>	<b>\$13.00</b>	<b>\$13.00</b>	<b>\$13.00</b>	<b>\$16.00</b>	<b>\$17.00</b>
Fee Difference from Phase I	\$ -	\$ -	\$ -	(\$1.00)	(\$1.00)	\$ -

The Phase II updates had a favorable impact on the projected stormwater fees. Due particularly to the FY 2022 non-fee revenue resulting from an Illinois Department of Commerce & Economic Opportunity (DCEO) grant, the Village is able to more quickly build the Stormwater Utility’s reserves, resulting in a slightly lower cost burden on customers in years FY 2024 and FY 2025.

## Public Outreach

A key part of the Phase II effort was a public outreach program coordinated by Village staff. NewGen’s participation in this effort was in two key areas which will be described in this section.

## Online Fee Lookup Tool

NewGen developed for the Village an online lookup tool that was made available on the Village’s website. The tool gives each Village utility customer the ability to see the impervious area (and pervious area) assigned to their utility billing account and what their FY 2022 bi-monthly stormwater fee is projected to be. Utility billing accounts that serve multiple parcels are notified of that fact and directed to where they can find more information on how multi-parcel accounts are billed. Exhibit 2-6 shows a sample output of the lookup tool.

## Phase II Results

### Exhibit 2-6 Online Stormwater Fee Lookup Tool

### Libertyville Stormwater Fee Lookup Tool

Enter your utility billing (UB) account number

**Account Number**

🔍
✎

Click [here](#) for assistance locating your utility billing account number    Click [here](#) for more information about the Village's stormwater utility fee

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12345 Street Road  
Service Address

**1.10**      **1.00**

Number of [ERU](#)    Number of [IDF](#)

**Estimated  
Bi-Monthly Bill**

**\$27.30**

The Village of Libertyville bills customers on a bi-monthly basis.  
Monthly Fee: **\$13.65**

**Impervious & Pervious Area**  
(Square Feet)

Area Type	Area (Square Feet)	Percentage
Impervious Area	4,003	40%
Pervious Area	5,998	60%

● Impervious Area   ● Pervious Area

PIN numbers associated with this utility account

Account Number	PIN
123456789-10	987654321

Service addresses associated with this utility account

Account Number	Service Address
123456789-10	12345 Street Road

All of the above information is estimated based off of the most recently completed stormwater fee study. If you feel the above information is inaccurate or have questions please contact [stormwaterhelp@libertyville.com](mailto:stormwaterhelp@libertyville.com)

## Town Hall Meetings

NewGen participated in two virtual Town Hall meetings along with Village staff and elected officials. The meetings took place on January 28<sup>th</sup>, 2021 and February 11<sup>th</sup>, 2021. During the meetings NewGen presented the Phase II results of the Study and answered citizen questions regarding the fee basis, impervious area data, and credit and appeal processes. Recorded videos of the virtual Town Halls are available on the Village's website.

## Section 3

# PHASE II RECOMMENDATIONS

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During Phase II of the Stormwater Utility Feasibility and Rate Study NewGen confirmed the assumptions and projections of Phase I and updated the Village's projected revenue requirements, impervious area database, and stormwater fees. Our recommendations based on the Phase II results are that the Village should:

- Adopt the proposed Stormwater Utility Ordinance along with the proposed Credit Manual, Credit application, and Appeal Application.
- Adopt a bi-monthly stormwater fee for FY 2022 of \$13.00 per parcel ERU and IDF.
- Allow a period of time for stormwater rate payers to prepare for the implementation of the fee. We recommend adopting the fee effective September 1, 2021, which is consistent with the Phase II projections in this report.
- Continue to update the Village Stormwater Utility database as appeal and credit applications are processed and approved.
- Update the Village's Stormwater Financial Model annually to confirm projections and make any necessary adjustments to the projected stormwater fees.