

MEMO

To: Byron Reeves, Stormwater Manager, City of Fayetteville
From: Jennifer Tavantzis, Manager, Raftelis Financial Consultants
Date: May 24, 2021
Re: City of Fayetteville Residential SCM Maintenance Funding

Background

The City of Fayetteville (City) development standards require residential subdivision developments to treat the first inch of rainfall from a 10-year storm. During development, erosion and sediment control basins are installed to control construction site runoff. Developers must convert these basins into stormwater control measures (SCMs) once construction is completed. Section 23-38 (b) of the Code of Ordinances currently states that the City shall accept functional maintenance responsibility of structural stormwater management facilities that are installed in accordance with the ordinance, following a warranty period of one year from the date of record-drawing certification or from the date the facility ceases to function as an erosion control measure and starts to function as a stormwater management facility (conversion), whichever is later. Further, the City will only accept the stormwater management facility provided several specific conditions, including:

1. The stormwater management facility is satisfactorily maintained during the one-year warranty period by the owner or designee;
2. It includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection, maintenance, repair, or reconstruction;
3. Prior to the release of the installation performance guarantee as outlined in section 23-41(b), the developer must pay into a maintenance fund used to maintain such facilities in the future an amount equal to 20 percent of the initial construction cost of the stormwater management facilities related to detention ponds or other BMPs constructed to meet the requirements of the ordinance.

As of the writing of this memo, the City currently has taken over six residential SCMs, each of which met the conditions above. However, there is good reason to consider adjusting this policy. Most importantly, as maintenance responsibility for an SCM is transferred to the City, so too is the cost associated with maintenance and periodic replacement. Functional maintenance activities include regular inspections, repairs, stabilizing slopes, and removing sediment, all as needed. Periodic replacement costs represent the cost to fully reconstruct the SCM once it has passed its useful life.

If the City continues with this current policy of taking over residential subdivision SCMs, it must also consider these growing costs and the appropriate mechanism for funding them; the 20% maintenance fund payment is likely not enough to cover the ongoing costs. Without additional funding, this requirement will stress the stormwater program budget.

Peer Community Activities

Contemplating the decision to maintain residential SCMs is not one that is unique to Fayetteville. Utilities must evaluate local drivers and unique considerations to determine residential SCM policies most appropriate for their agencies. This section provides a summary of how several other utilities address maintenance of residential SCMs.

- **City of Austin (TX)**

As the capital of Texas, the City of Austin has a 2019 estimated population of over 978,000 (US Census Bureau). The City has a very resourceful and mature stormwater management program implementing a range of services from asset assessment and condition assessments to flood warning systems. Within the City, there are currently 6,300 privately maintained, commercial SCMs. While privately owned and maintained, the City does perform inspections once every three years.

The City maintains and repairs an approximate 1,000 SCMs within residential developments. In addition to functional maintenance, the City also performs general aesthetic maintenance and performs inspections based upon

known basin attributes; repairs are identified as a result of inspections. An area of focus for the City is to become more proactive in SCM repair and compile more complete rehabilitation plans for all City-maintained SCMs.

Funding for residential SCM maintenance is provided by the utility's general drainage charge.

- **City of Charlotte Storm Water Services (NC)**

The City of Charlotte Storm Water Services is part of the joint municipal/county stormwater utility, Charlotte-Mecklenburg Storm Water Services. Charlotte-Mecklenburg Storm Water Services utility is a great example of collaborative service delivery. As such, the City and County work collaboratively to operate and maintain various aspects of the storm system. The City of Charlotte is responsible for stormwater program implementation and drainage systems draining less than one square mile within city limits. The City has provided services to improve stormwater-related issues on private property in the past but has shifted to focus resources on public right-of-way drainage solutions.

Recognizing that residential detention basins manage public water as well as the resource limitations of HOAs and property owners, the City has created a process for HOAs to petition Charlotte Storm Water Services to provide structural maintenance for the residential SCM. Should an HOA petition the City, Storm Water Services will perform an inspection to ensure the basin is properly functioning and routine O&M work is being performed. If the basin is functioning properly and the City chooses to accept structural maintenance responsibility, they will not take over ownership of the basin. The City will not perform any aesthetic maintenance of the basin, including mowing or trash pick-up. Structural work performed by the City would be funded through the City's general stormwater utility fee.

To date, only two HOAs have petitioned the City to take over structural maintenance responsibilities of their development's basins. These petitions are relatively recent, and each is being handled on a case-by-case basis as Storm Water Services evaluates if the basins are suitable for transfer of maintenance responsibilities. Although the City isn't performing routine maintenances on basins, they do inspect over 1,600 residential basins each year (at least once per year). They do not provide this service for non-residential SCMs; all non-residential SCM inspection and maintenance activities are self-reported by the property owners.

- **City of Durham (NC)**

While the City of Durham does not provide maintenance services for residential SCMs, they do have a very detailed process for the transfer of SCMs to HOAs and establishing funding mechanisms for these SCMs. The City would only take over temporary maintenance (remediation/renovation) to restore the full functionality of an SCM if an owner failed to maintain compliance and all other options to restore functionality were exhausted. The City has not yet had to do this, but they have had to complete the construction of SCMs in a few instances.

Most neighborhoods that have SCMs within the city have HOAs. There are detailed processes in place for a monitored handoff of SCMs from a developer to an HOA, and the City attempts to participate in each handoff. Upon completion of the SCM construction, as-built drawings are required to be submitted to the City for review and approval. Upon approval, the City issues a certificate of SCM completion to acknowledge the developer's fulfillment of obligations. From that point forward, the HOA will take ownership of the SCM facility.

Also, generally, after as-built drawings are approved, an SCM handoff meeting is held between the development's HOA, developer, and the City. The goal of the meeting is to serve as the formal handoff of maintenance responsibility from the developer to the HOA; the meeting also provides the HOA with the maintenance information necessary for the SCM, relevant stormwater facility agreements and covenants, HOA obligations, and the City's requirements.

The Stormwater Facility Agreement and Covenants is a legally binding agreement between the developer, HOA, and the City, and is laid out to clearly define responsibilities of each party including ongoing maintenance and inspection requirements, repairs and reconstruction requirements, and budgeting and funding requirements.

Additionally, the City has developed the Stormwater Facility Replacement Fund to ensure funding is available for the long-term maintenance of SCMs if needed. The Fund consists of one-time payments made by developers for each SCM, which are in addition to performance guarantees required to ensure the initial construction of SCMs.

The fund payment is calculated to be 25% of the SCM construction cost for single family projects and commercial or non-single family projects. Payment must be submitted as cash or check, and the fund is maintained by the City. All collected funds may be pooled, but these payments must be kept separate from other stormwater and non-stormwater funds.

Ultimately, the HOA is responsible for perpetual maintenance, annual inspections, major repairs, reconstruction, and appropriate budgeting and funding for these activities.

The City has allowed some SCMs for development in the public right-of-way, which the City maintains for rejuvenation projects in partnership with low income or affordable housing. These have traditionally been Filterra systems within the right-of-way that the City will maintain.

- **City of Raleigh (NC)**

The City of Raleigh does not provide maintenance or inspection services for residential SCMs; they only operate and maintain city-owned SCMs. Once an SCM is constructed and an as-built certification is accepted by the City, the owner is required to submit annual inspection reports to the City. The inspection report is due by the anniversary date of the as-built acceptance.

Annual inspections must be completed by a North Carolina professional engineer, landscape architect, or land surveyor. Reports must include any identified and completed repairs, the City's Stormwater Device Annual Inspection Report Summary, a completed checklist, and supporting photos.

To assist owners with inspection and maintenance resources, the City has developed the Stormwater Inspection and Maintenance Program. This voluntary program showcases professionals who inspect and maintain SCMs by validating their training, credentials, and inspection and maintenance history. For those professionals that participate in the City's program, their business information is shared with property owners and they are also provided a list of SCMs requiring maintenance and inspection.

- **El Paso Water (TX)**

El Paso Water's (EP Water) stormwater system is comprised of over 145 miles of conduit, over 6,000 inlets, and 21 pump stations. Additionally, EP Water is responsible for the maintenance of over 300 ponds and basins. These basins include residential basins that have been dedicated to the City of El Paso for maintenance and repair. Acceptance of basins is not automatic; basins must be brought to the City for acceptance. If an HOA does not dedicate a basin, it remains responsible for all maintenance and repair.

- **Lexington-Fayette Urban County Government (KY)**

The City of Lexington is consolidated with Fayette County into a combined urban county government – Lexington-Fayette Urban County Government (LFUCG). Located in the heart of the Inner Bluegrass Region of the state, Lexington's population based on 2014 census data is over 310,000, with a metropolitan area of over 489,000. With a broad mix of residential, commercial, and large industry development, over 1,200 SCMs are currently inventoried within LFUCG's service area; these include residential, commercial, and government-owned SCMs.

Over the past several years, LFUCG has become more prescriptive regarding delineation and ownership of residential SCMs. Currently, the utility does not automatically accept ownership and/or maintenance responsibilities of residential SCMs. Final plat language requires that it is clear that ownership of the basin will be with the HOA, and LFUCG *may* accept ownership transfer.

If specifically requested by the HOA, LFUCG will consider taking ownership of the SCM. However, to do so, several criteria must be met:

1. The SCM must be located on a parcel by itself, separate from any other structures and residents
2. Only detention basins may be transferred to the utility; the utility will not accept wet basins or any other SCMs
3. The HOA must petition Council for acceptance; LFUCG staff will perform an inspection to ensure the basin is in functioning order and no maintenance is needed before recommending acceptance to Council.

If ownership of the basin is accepted, LFUCG will provide all functional maintenance and typically perform grass cutting twice per month.

While ownership transfer of residential basins is not automatic, LFUCG has made the policy decision that the utility will provide all structural repairs for residential detention basins, even if it does not assume ownership of the basin. The utility inspects all residential basins twice per year; no self-inspection by the HOA is required. HOAs are required to provide day-to-day maintenance such as removing litter, removing fallen trees, and ensuring trees and structures aren't placed on dams. LFUCG tries to warn owners of any imminent maintenance that will be needed such as removing sediment from concrete flumes. If this type of maintenance becomes too difficult for the HOA and will lead to structural impediments, LFUCG may choose to perform the maintenance and then educate the HOA about maintenance needed to ensure the issue doesn't arise again.

LFUCG funds all maintenance and structural repairs through its general water quality management fee. They feel it is a meaningful, tangible service that is provided for the fee that everyone pays. LFUCG has also observed that residents tend to be happier with ownership remaining with the HOA – if the HOA retains ownership, they have more direct control over aesthetics of the SCM and sometimes feel a more direct line of influence with the HOA than the utility.

- **New Hanover County (NC)**

New Hanover County provides stormwater services to properties only within the unincorporated portions of the County. However, Cape Fear Public Utility Authority extends water and sewer service into the County. This has resulted in more densely populated areas in an unincorporated county than may be considered typical, particularly for residential development.

The County has decided that it will not take on maintenance of residential SCMs; these will continue to be maintained by the HOA. However, the County will maintain any infrastructure that conveys public drainage within the public right-of-way up to the residential SCM.

Residential homes are served by SCMs that accept public water, and property owners are contributing money to the HOA that is used to maintain these SCMs. As such, the County is granting credits for all residential properties served by an SCM.

This policy was supposed to be implemented this year, but due to the impacts of COVID-19, implementation is being delayed one year.

- **Sanitation District No. 1 of Northern Kentucky (KY)**

Sanitation District No. 1 of Northern Kentucky (SD1) provides stormwater services to a population of over 300,000 on behalf of 30 local municipalities, including ownership and maintenance of infrastructure that drains public water. Part of this infrastructure includes residential detention basins. SD1 ownership of residential detention basins began when one local municipality transferred ownership of approximately 50 residential detention basins to SD1 as part of the asset transfer agreement between agencies for the regional stormwater management program. Upon receipt of these basins, it was determined that other residential dry detention basins may be transferred to SD1 to provide equitable service across the service area.

Specific criteria and design standards are in place for any residential basin that is to be eligible for transfer to SD1 for ownership and maintenance. SD1 will only accept dry residential detention basins. To be considered for transfer, basins must be situated on an individual lot of their own which includes the entirety of the basin, but not overly large compared to the basin size. This lot must be deeded to SD1 with the transfer of the property. To streamline the process, the Executive Director has been granted authority by the Board of Directors to accept the property and the basin ownership. Most commonly, a basin will be transferred to SD1 once a Notice of Termination for the Land Disturbance Permit is filed with record drawings and executed transfer documentation.

Once a basin has been transferred to SD1, it is inspected annually, with mowing services performed by an outside contractor twice per year. Should property owners or an HOA want to mow the basin additional times, they are allowed to do so but at their own cost. All structural repairs are performed as needed.

Should an HOA want to make the investment to bring a basin into compliance with current design standards, they may then transfer the existing basin to SD1 for ownership and maintenance.

As this program continues, SD1 anticipates accepting five to six new basins per year. Basin maintenance and repair is funded through the utility's general O&M budget with revenue collected from the stormwater fee. This funding decision was driven by the factor that residential SCMs most typically manage public runoff so all users of the regional system contribute to this activity.

The following table provides a summary of peer community findings:

	Does the utility maintain residential SCMs?	Funding Source	Type of Maintenance
Charlotte-Mecklenburg Storm Water Services (City of Charlotte, NC)	By Petition	Stormwater utility fee	Functional
City of Austin (TX)	Yes	Stormwater utility fee	Functional, aesthetic
City of Durham (NC)	No	N/A	N/A
City of Raleigh (NC)	No	N/A	N/A
City of Greenville (NC)	No	N/A	N/A
El Paso Water (TX)	Yes	Stormwater utility fee	Functional
Lexington-Fayette Urban County Government (KY)	Yes	Stormwater utility fee	Functional
Metro Government of Nashville & Davidson County (TN)	No	N/A	N/A
New Hanover County (NC)	No	N/A	N/A
Sanitation District No. 1 of Northern Kentucky (KY)	Yes	Stormwater utility fee	Functional

Source Data

The City engaged Raftelis to evaluate potential solutions for this funding gap and provide a recommended approach. Focusing on a sample of residential subdivisions, Raftelis estimated the annual cost of SCM maintenance (including periodic replacement) and modeled cost recovery under different approaches. Sample subdivisions, cost estimation methodology, and funding approaches are described below.

The analysis focused on seven sample residential developments, listed below, and their SCMs. For each, Raftelis gathered parcel and tax data from Cumberland County's publicly available GIS information in conjunction with information provided by City staff. The developments were selected to represent a variety development sizes, ages, and average home values. The seven residential developments used for the analysis were:

- Summer Grove
- Little River Farms
- Patriot Park
- Arran's Cove
- Oakridge Estates
- Colinwood
- Fairfield Farms

For each residential development, City staff provided Raftelis with specific information that included:

- SCM construction cost estimates
- SCM maintenance fund payments
- Year SCM built
- SCM conversion cost estimate
- Developer estimated SCM annual maintenance cost (where available)
- Pond lot size

Raftelis used four approaches for estimating long term costs for maintaining, and periodically replacing (PR), SCMs. One of the methodologies included periodic replacement costs, while three of them did not. For those three, period replacement costs were added to maintenance costs.

The four approaches were

1. **Developer-provided** annual maintenance costs, when available, plus PR costs.
2. **NCSU Extension** maintenance estimates, plus PR costs. This approach is based on the parcel size of the pond.
3. **Peer NC City** maintenance estimates, plus PR costs. This approach is based on the surface area of the pond.
4. **WERF** SCM maintenance estimation tool, which includes period replacement cost. This approach is based on the amount of impervious area that drains to pond.

Analysis

Raftelis considered four funding alternatives for recovering the revenue required to maintain the SCMs. Under the first two alternatives, which were modeled by Raftelis, only properties draining to the SCM (and as such benefitting from its maintenance) contribute toward maintenance. The first approach considered Special Assessment Districts for benefitting residential ad valorem taxpayers. This approach would mean that each benefitting property pays according to the value of their property. The second approach considered a stormwater fee surcharge for benefitting residential ratepayers. This approach would add a charge on top of the existing stormwater fee. As more SCMs are built and converted, and maintenance responsibility is turned over to the City, the residential properties in associated developments would become subject to the tax or surcharge. The following assumptions were used in modeling these approaches:

- Periodic reconstruction occurs on average every 25 years
- Reconstruction costs are assumed to be 50% of the original construction costs, escalated to current dollars

- Construction and maintenance costs are inflated at 3% per year
- Revenue generated from taxes or fees increases 3% per year (that is, tax rate or surcharge rate increase at 3% per year)
- Neighborhoods are fully built out, and tax value of lots yet to be built are similar to those already built
- The amount developers contribute to the maintenance fund is accounted for in estimated revenue requirements

Additionally, Raftelis considered two other approaches that were not modeled – a city-wide tax increase and a city-wide stormwater fee increase. Both approaches would charge both benefitting and non-benefitting customers. These two approaches would require regular increases as more SCMs are built and converted, and maintenance responsibility is turned over to the City.

Results

The chart below compares the annual maintenance and periodic replacement costs per home across the seven sample residential developments, for each of the cost estimation methodologies described above. There is a great deal of variation between developments and, in some cases, between the four methodologies given their different bases.

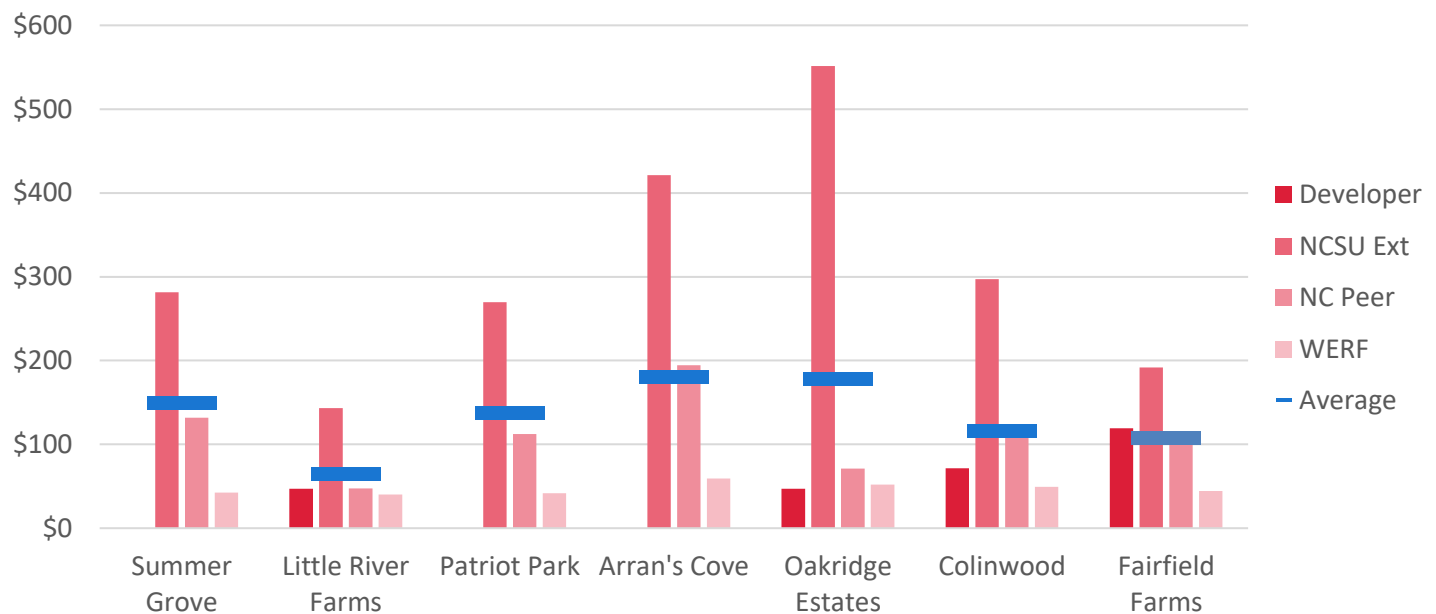


Figure 1. Comparison of Annual Maintenance + Periodic Replacement Cost Estimation Methodologies (Cost per Home)

Given the variation, Raftelis used the average of all four cost estimation methodologies in the remainder of the analysis. An average cost per house was calculated for each development. See Table 1, below.

Table 1. Development and SCM Summary

	Summer Grove	Little River Farms	Patriot Park	Arran's Cove	Oakridge Estates	Colinwood	Fairfield Farms
<i>Number of SFR Parcels</i>	115	149	128	32	50	60	96
<i>Average Tax Value</i>	\$216,431	\$185,501	\$253,638	\$200,209	\$95,687	\$274,838	\$342,895
<i>Year SCM Built</i>	2011	2012	2016	2015	2019	2012	2015
<i>Pond Surface Area (Ac)</i>	0.55	0.80	0.20	0.20	0.77	0.90	0.45
<i>Pond Lot Size (ac)</i>	2.90	2.49	3.30	1.45	3.89	1.95	1.59
<i>Maint. Fund Payment</i>	\$8,637	\$19,913	\$12,286	\$35,942	\$2,703	\$28,632	\$18,734
<i>Average Cost per House</i>	\$148.84	\$64.07	\$137.30	\$180.05	\$178.21	\$115.92	\$107.67

In total, annual maintenance and period replacement costs for the sample of developments would total about \$76,200. Across all developments, this equates to an average (weighed by the number of homes) revenue requirement of about \$121 per house. The average tax value of the homes in the seven neighborhoods is \$232,000, varying from less than \$100,000 to over \$340,000. If the City decided to pursue a Special Assessment District tax, a tax of 5.2 cents per \$100 in taxable value would be needed to generate \$121 per house on average. Alternatively, a stormwater fee surcharge of \$121 per house amount would generate the needed revenue to maintain SCMs in this analysis.

Recommendations

Raftelis recommends that the City amend their current Ordinance Sec. 23-38 to remove the option for the City to accept functional maintenance responsibility of newly permitted residential SCMs because of the added expense and effort that is associated with maintenance, especially across numerous residential developments. If that recommendation is pursued, Raftelis further recommends that the City allow previously permitted SCMs that are eligible for conversion to be accepted by the City if they meet the established requirements within a specified timeframe (a sunset clause on the existing language). For example, developers could have two years to complete the conversion of their basins for the City to accept and assume functional maintenance responsibility. After that timeframe ends, and the one-year warranty period has passed, the City would not accept maintenance responsibility of any new SCMs. The City should continue maintaining the SCMs that have already been accepted and maintain those converted by the sunset date and subsequently accepted. If the City decides to pursue this option, it should consider adding language in the Ordinance for enforcement action if the owner fails to perform routine maintenance on their SCM(s).

If the City decides to continue accepting functional maintenance responsibility of SCMs, Raftelis recommends recovering costs through a stormwater fee surcharge for residential ratepayers who benefit from the program. A surcharge of \$121 per benefitting residential property recommended. According to our analysis, this surcharge should be enough to maintain residential development SCMs as well as cover the cost of any necessary periodic replacement. Should the City decide to pursue a stormwater fee surcharge, the City's ordinance should be updated to reflect this change. As discussed, the stormwater fee surcharge would apply to a property if, and when, the City takes over the SCM associated with that property's development.