March 6, 2025

Mayor Hardi and Members of Council
City of Falls Church
300 Park Avenue
City of Falls Church, Va. 22046

SUBJ: Expanding Green Infrastructure by Revising City Stormwater Fee Credits

Dear Mayor Hardi and Members of Council:

The Falls Church Village Preservation and Improvement Society (VPIS) strongly recommends that the City support expanded green infrastructure and improved stormwater management by revising and updating the existing City stormwater fee credit program.

The existing stormwater fee credit program was adopted in 2013. Although developed with input from a citizen's advisory group, the credit program has been a disappointing failure. Intended to provide an incentive for residents to implement diverse green infrastructure practices by reducing stormwater fees, the value of credits approved is far below original expectations (i.e., fee credits of up to $75,000). Today, only a handful of credits are approved. Despite this poor performance, the fee credit program has remained unchanged for over ten years.

Since adoption of the stormwater fee credit program, evidence that a warming climate will result in more extreme precipitation and flooding in the northern Virginia region has become more compelling and concerning. To respond to this risk, the City needs to supplement its current efforts to maintain and improve storm sewers with an expanded effort to implement green infrastructure practices, including tree planting, rain barrels, and rain gardens. In its March 2021 report to the City Council (see attached), the Stormwater Task Force stated:

> "The best way to reduce storm impacts is by protecting and increasing the City's amount of green and pervious surfaces. To the extent possible, we must manage our land so the water filters into the ground and soil, is retained on site, and taken up by trees and vegetation. Green infrastructure absorbs and slows water, reducing flows to sewers.

Additionally, the green infrastructure offers multiple other benefits. In conclusion, the City must develop a comprehensive, ongoing approach to building and maintaining both grey and green infrastructure updates in parallel: invest in new, modern and upgraded storm sewer infrastructure to adapt to increased water flows, and invest in green infrastructure to lessen water flow into those storm sewer systems."

Green infrastructure practices will have diverse benefits including:

- Reduction of costly localized flooding of streets, homes, and other property;
- Protection of local streams by reducing peak flows that deeply channelize stream beds;
- Better control of polluted runoff, including nitrogen and sediment;
- Reduction of high flows and pollutant loading discharged from Falls Church streams to downstream communities and the Chesapeake Bay; and
- Aesthetic benefits associated with green infrastructure plantings and related practices.

VPIS believes that an updated and revised fee credit program can dramatically increase green infrastructure and related practices across the City. There are several problems with the existing stormwater fee credit system:

- The stormwater fee credits offered do not provide sufficient financial incentive for adoption of the green infrastructure practices (e.g., residential credits are limited to only 10 percent of the fee);
- The process of applying for credits is complex and cumbersome, becoming a deterrent to credit applications;
- A fee credit is only available through the implementation of numerous specific practices, rather than on a practice-by-practice basis; and
- State law requires that a credit be offered for installation of a stormwater management facility that is "installed as a condition of development to meet the requirements of the Virginia Stormwater Management Program (VSMP) permit regulations…" but these credits provide no incentive as the work is required by law.

In the ten years since the City adopted the current stormwater fee credit policy, communities have learned how to make credit programs effective. For example, in 2024, Arlington County adopted a stormwater fee credit program that addresses some of the shortfalls of the current City credit policy:

- Residential property owners are eligible for credits of up to 35 percent of the fee compared to the 10 percent credit in the City;
- Credits are available for each specific green infrastructure practice (e.g., 5 percent credit for planting a tree or installing rain barrels and 10 percent for a rain garden or permeable driveway);
- The credit for installation a stormwater management facility required by law is limited to 15 percent (i.e., the City offers a credit of 20 percent).

Expanding credit values for specific practices, such as tree planting, rain gardens, and rain barrels would provide a helpful financial incentive for implementation of these green infrastructure practices and complement the existing Neighborhood Tree Program and RainSmart Program.

VPIS recommends that the City review stormwater fee programs in surrounding jurisdictions, with special attention the Arlington County, and develop a draft proposal to amend the existing credit policy and manual with the goal of significantly expanding investment in green infrastructure practices throughout the City. The City should consult with the City Public Utilities Commission, the Environmental Sustainability Council, and the Department of Community Planning in developing a draft proposal for incentives and credits. A draft proposal should be subject to public review and comment prior to adoption.

Thank you for your consideration of this important matter.

Sincerely,

/s/

Lorraine O'Rourke
President
Village Preservation and Improvement Society

cc: City Manager
Public Utilities Commission
Environmental Sustainability Council

CITY OF FALLS CHURCH

INTEROFFICE MEMORANDUM

DATE: March 25, 2021

TO: Honorable Mayor and Members of City Council

FROM: Stormwater Task Force

SUBJECT: Phase 2 Green Infrastructure Project Recommendations

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Executive Summary

Purpose

This memo's purposes are to:

1. Identify the Stormwater Task Force's selections for Phase 2 green infrastructure Capital Improvements Program (CIP) projects
2. Provide guidance and broader recommendations concerning advancing a green infrastructure agenda for the City

Background

In a November 2020 resolution amending the Stormwater Task Force's charter after its first phase recommendations regarding six priority projects, City Council directed Task Force members to identify priority green infrastructure projects for funding in a second phase, stating:

> *Council is requested to amend the charter of the Stormwater Task Force to extend the sunset date to June 30, 2021 to allow continued work with staff on prioritizing green infrastructure projects in addition to the stormwater conveyance projects already identified and prioritized.*

Council requested input on these potential projects to help with its 2021 budget discussions and longer-term planning for CIP investments.

Council also requested a plan to advance smaller “green solutions” to stormwater problems in City watersheds, using stormwater detention best practices and citizen involvement. Recommendations on implementing “green solutions” will be addressed in the second part of this memo.

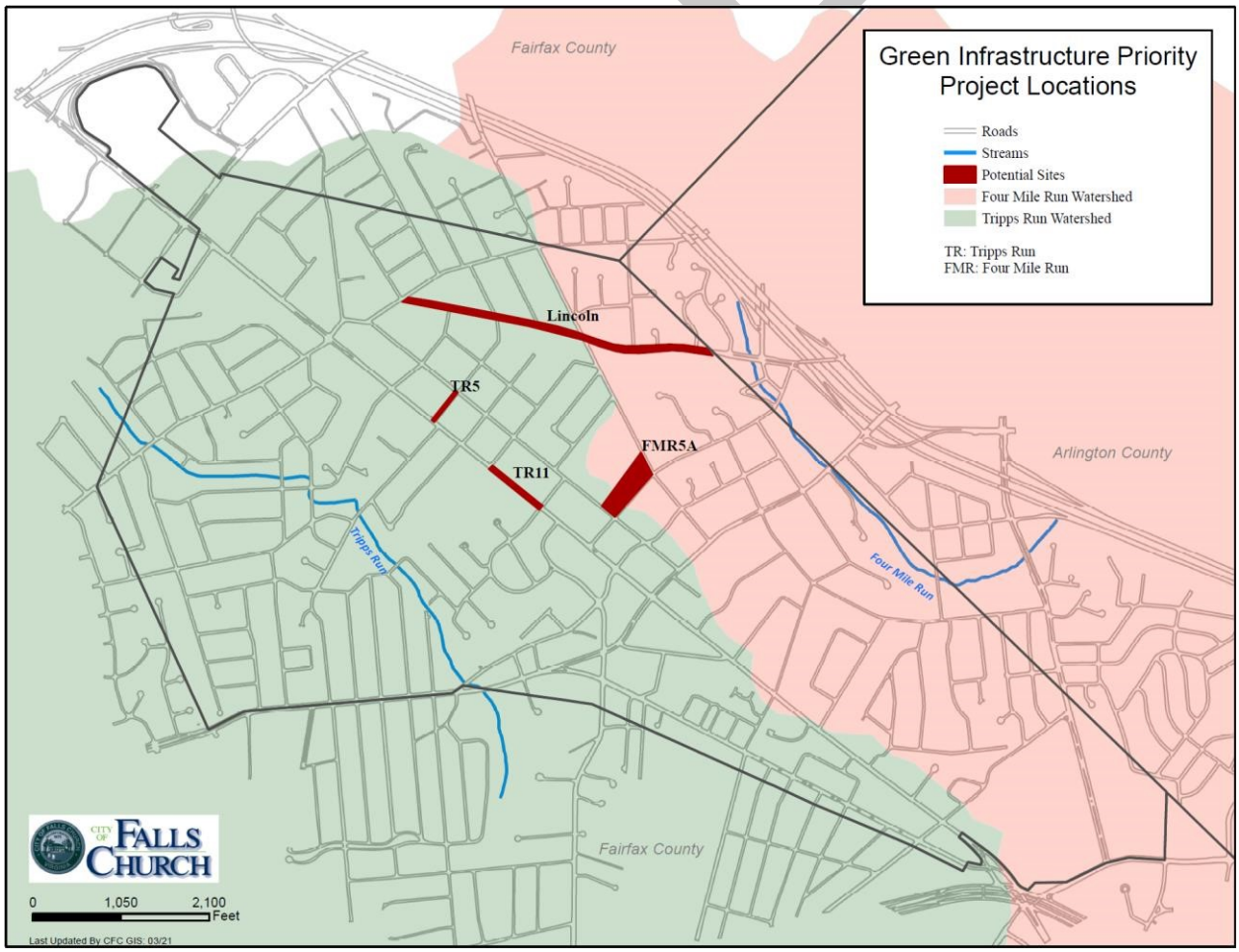
Phase 2 Stormwater Project Recommendations

Following Council’s recommendation, the Task Force compiled its list of potential phase 2 projects to consider starting with projects listed in the 2012 Watershed Management Plan’s (WMP) Section 5 that have yet to be fully completed. Other projects were considered based on input from citizens, Task Force members, and City staff.

With a unanimous vote on March 11, 2021, the Task Force recommended City Council consider these four projects in order of priority as a second phase of priority projects to fund and build:

Recommended Phase 2 Priority Project (More Details)	Watershed (Code)
1. North Oak Street bet. Broad and Park (WMP p. 5-15)	Tripps Run (TR -5)
2. City Hall campus (WMP p. 5-11)	Four Mile Run (FMR -5A)
3. "Greening Lincoln Avenue" (proposal)	Four Mile Run and Tripps Run
4. West Broad bet. Virginia and Pennsylvania (WMP p. 5-20)	Tripps Run (TR -11)

Note: Projects with a code such as TR-5 were previously identified and evaluated in the 2012 WMP, which contains more details on those projects. The Lincoln Avenue proposal was submitted by neighborhood residents for Task Force consideration.



Phase 2 Project Evaluation and Selection Methodology

Selection Process

The Task Force undertook a three-stage assessment process to score, rank and select projects for its Phase 2 priority recommendations.

In the first stage of the assessment process, the Task Force reviewed all projects in the 2012 WMP. The WMP developed a preliminary scope for 21 project sites in the City that were identified as problem areas. Members and Department of Public Works (DPW) staff assessed which projects from the 2012 report have and have not been completed.

The Task Force's goal was to develop a list of eligible projects and conduct a preliminary priority ranking. All eligible projects were scored using a rank scale of 1-3, with 1 indicating a top tier priority and 3 indicating a bottom tier priority. Projects' priority ranking was determined using selection criteria described below with an emphasis on their potential for green infrastructure as well as to qualify for state and federal funding.

Given the renewed attention to City stormwater issues following the July 2019 flood, Task Force members decided that other projects besides those in the 2012 report could be considered. Members identified several more projects and reviewed projects that had been submitted to City Council and staff. In particular, the Task Force included the Greening Lincoln Avenue project. As a result, 15 projects were assessed for their relative priority then ranked. Five projects rose to the top for further consideration and more detailed scoring. The constraint for any new project was that there needed to be sufficient information to review and evaluate.

All 15 projects are still eligible for completion, but the Task Force's purpose was to select a small number of Phase 2 priority projects to recommend to Council for its 2021 budget discussions and CIP consideration.

In the second stage of the assessment, the top projects were scored by consensus using selection criteria described below. Once the Task Force agreed upon scores for each criterion for each project, they were totaled to develop an ordinal priority ranking.

The Task Force then engaged in a third assessment stage where the Task Force re-evaluated the scoring and ranking. At this point, one project, Drainage into West Westmoreland Road and Tripps Run (TR3), was dropped from the priority list as it was determined after further review that most identified work had already been completed.

Selection Criteria for Ranking Projects

In its Phase 1 efforts from 2019 to 2020, the Stormwater Task Force evaluated and prioritized flood mitigation projects, specifically, adding to or upgrading the City's existing stormwater system. These projects were specifically prioritized because of severe and repeated impacts on neighborhoods, the public safety hazards they posed, and the high value opportunity presented for alleviating flooding, among other factors.

In its Phase 2 efforts so far in 2021, the Stormwater Task Force assessed projects for their green infrastructure potential. Therefore, the Task Force modified its focus and adjusted the selection criteria.

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Phase 2 Selection Criteria

The selection criteria used for Phase 2 green infrastructure projects were:

1. Severity
2. Easement and right of way issues
3. Constructability
4. Green infrastructure utilized
5. Water quality impacts
6. Federal, state and local funding opportunities
7. Return on investment

The principal criteria changes from the Task Force's Phase 1 efforts included adding green infrastructure utilized and federal, state and local funding opportunities.

The green infrastructure criterion evaluated the potential for a project to implement green technologies (such as permeable pavers, bioretention or other technologies), provided green infrastructure services (such as improving drainage or reducing impervious services), or serve as a flagship project for the City, promoting future green building that will support better stormwater management.

The federal, state and local funding opportunities criterion was added to identify projects that would be potential candidates for external funding, which would improve the City's ability to direct its stormwater fee revenues to other worthy projects

Table 1 shows the Project Evaluation Criteria and Table 2 shows the Green Infrastructure Priority Project Evaluation results.

Additional Considerations

Equity Review

On March 1, 2021, City Council sent out a memo requesting that all boards and commissions review their duties and goals to ensure that the City is equitably serving the needs of all, and then make recommendations to the City on policy changes and/or prioritization of work. The Task Force included this equity review as part of its project assessments.

From the Task Force's perspective, there are equity issues that need to be considered and there are community disparities in terms of the impact of flooding and sewer back-ups affecting some residents when it rains heavily. We also want to ensure that flooding does not unfairly impact areas that have some of the City's more affordable single-family homes. The City has both a duty and an opportunity to address these impacts through the work of this Task Force and through the funding of projects.

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Recommendation: The Task Force recommends that the City consider establishing an aspirational standard level of service that would be available to all residents. We suggest that this standard level of service be defined as: "The City seeks to ensure that all residents should be free from sewer backups and interior stormwater flooding based on a 10-year design storm."

Table 1: Project Evaluation Criteria

Criterion	Description	Weight
Severity	• Public safety issue • Potential for flooding • Scale of impact	**5**
Easement/Right of Way	• Complexity • Permit requirement • Interjurisdictional requirements	**2**
Constructability	• Utility or other conflicts	**2**
Green Infrastructure Potential	• Use of green infrastructure	**4**
Water Quality	• Potential water quality impact	**2**
State, Federal and Local Funding	• Potential for other sources of funds	**5**
Return on Investment	• Capital cost • Potential ROI	**3**

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Table 2: Final Green Infrastructure Project Selection Results

Criteria and Weight (Multiplier)	N. Oak between Broad & Park (TR-5)	Score	City Hall Campus (FMR-5A)	Score	Greening Lincoln Avenue Proposal	Score	W. Broad between Virginia and Penn. (TR-11)	Score
Severity (safety and potential for flooding damage) | 5	3	15	2	10	1	5	3	15
Easement right of way (complexity) permit and interjurisdictional requirements | 2	3	6	3	6	3	6	1	2
Constructability (utility conflicts) | 2	3	6	3	6	3	6	1	2
Green Infrastructure (includes nature-based) | 4	3	12	3	12	3	12	3	12
Water Quality | 2	2	4	2	4	2	4	2	4
State and Local Funding (resiliency and hazard plan) | 5	3	15	3	15	3	15	2	10
Return on Investment (includes capital cost) | 3	2	6	3	9	3	9	3	9
Total		**64**		**62**		**57**		**54**

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Recommended Phase 2 Priority Projects: Description and Justification

1. North Oak Street between Broad and Park (TR-5)

Justification | This project has an extremely large amount of impervious area (89%) causing flooding onto Oak Street, adjacent to a school and commercial areas. It has significant demonstration effect potential to utilize green technologies such as permeable pavers, box filters and bioretention measures. Located atop the Tripps Run watershed, improvements here will reduce or slow runoff downstream, and thus lessen impacts on the entire watershed and on homes closer to Tripps Run, which experience severe flooding during storm events.

2. City Hall Campus (FMR-5A)

Justification | While some 2012 WMP improvements have been completed on the City Hall campus, this project encompasses additional green infrastructure improvements. This is a large drainage area (7.4 acres) at the top of the Four Mile Run watershed that affects many downhill homes along West Columbia and Shadow Walk. This project has a large impervious area (particularly parking lots) with significant potential for green improvements and demonstration effect of various technologies (such as permeable pavement, tree box filters, parking lot infiltration and more). Improvements at this site will have significant impacts on runoff into Trammel Branch and reduce water flows to Four Mile Run, among other co-

benefits. Being City property, this project will also have positive demonstration effects for anyone visiting the City Hall campus and be easier to implement than projects facing other constraints such as utility or easement conflicts.

3. Greening Lincoln Avenue Proposal

Justification | This proposed plan offers many "co-benefits" of green infrastructure including improving safety through traffic calming, managing stormwater, adding canopy to the City, strengthening the neighborhood feeling, and beautifying the street all while maintaining its street function. This project could help reduce runoff flowing into both the Four Mile Run and Tripps Run watersheds, thus reducing the potential for downstream flooding. This project also demonstrates that the City can achieve cobenefits (transportation, stormwater, quality of life, tree canopy) through integrated planning and funding.

4. West Broad Street between Virginia and Pennsylvania (TR-11)

Justification | This is a highly impervious area (91%) with excess sheet flows during storms onto Broad Street, a major thoroughfare and commercial district. The project will reduce residential and commercial flooding and street flooding. At the top of its watershed, it will slow down flows into Tripps Run, benefitting downhill homes during storms. The project has a demonstration effect through the use of green technologies including permeable pavers and bioretention. It also offers co-benefits by improving the area's attractiveness.

Green Infrastructure Recommendations

Background

As noted earlier, City Council requested plans to advance "green solutions'' for stormwater problems throughout City watersheds, using stormwater detention best practices and citizen involvement. This section's purpose is to provide guidance and broader recommendations concerning advancing a green infrastructure agenda for the City.

Problem Definition

The City's increasing urbanization and ongoing redevelopment are leading to an inexorable increase in impervious surface. This reduces the capacity of natural systems to control stormwater runoff.

Overburdened and undersized stormwater infrastructure, particularly during severe storms exacerbated by climate change, leads to increased flooding.

While upgrading and investing in the City's storm sewer infrastructure is absolutely needed, traditional storm sewer (grey) infrastructure improvements alone cannot combat our worsening flooding problems. Storm sewer infrastructure is expensive, and even new and expanded storm sewers can reach their designed capacity during extreme events. Extreme storm events are expected to increase in frequency and severity in the immediate future due to climate change.

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The biggest impervious systems in the City are the road network, parking lots and roofs. Through careful consideration of transportation, commercial, and residential building practices, we must redesign key elements of the impervious surface over time to make them more pervious and to prioritize infiltration and retention. Even smaller areas, such as patios, sidewalks, and trails can benefit from using green infrastructure to improve water management.

The best way to reduce storm impacts is by protecting and increasing the City's amount of green and pervious surfaces. To the extent possible, we must manage our land so the water filters into the ground and soil, is retained on site, and taken up by trees and vegetation. Green infrastructure absorbs and slows water, reducing flows to sewers. Additionally, the green infrastructure offers multiple other benefits.

In conclusion, the City must develop a comprehensive, ongoing approach to building and maintaining both grey and green infrastructure updates in parallel: invest in new, modern and upgraded storm sewer infrastructure to adapt to increased water flows, and invest in green infrastructure to lessen water flow into those storm sewer systems.

Benefits

Green infrastructure reduces and treats stormwater at its source while delivering other environmental, social and economic benefits to the City and its residents. In contrast, single purpose gray stormwater infrastructure is largely designed to move urban stormwater away from the built environment. Green infrastructure can also promote urban livability and positively affect the City's bottom line.

Green infrastructure projects can:

- Slow stormwater runoff velocity
- Reduce the need to invest in expensive grey infrastructure
- Improve street environment
- Create park space
- Support economic development
- Attract public and private funding
- Improve pedestrian access
- Slow traffic speeds
- Improve water quality
- Contribute to clean water initiative targets to help meet federal and state standards

Recommendations

The Task Force recognizes that a broader understanding of the impacts of stormwater and the implementation of strategies for mitigating the impacts of stormwater on impervious surfaces is a longterm initiative that will require planning, integrated solutions and a diversity of interventions over the coming decades.

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While updating and improving the storm sewer system is an integral part of dealing with flooding issues, the City must also consider green infrastructure options in its future investments and planning to address these integrated issues.

The following recommendations can help support the City's efforts to implement green infrastructure investments and enhance our results. The Task Force considers these recommendations as a starting point for the City and City Council. As such, these are intended to be broader directional recommendations that will be implemented and monitored by other bodies, and additional detail will be needed to flesh out these recommendations over time. This is one potential role for a possible future Public Utility Commission, as well as the City Council and City Departments.

1. Establish framework goals and use a systems approach

For green infrastructure, the Task Force determined that the City must consider its watersheds as a system, as any changes to the watershed through development and conservation will affect water runoff flows throughout the City.

The Task Force identified four high-level long-term "framework goals" that individual projects could help accomplish. Thus, projects not only should make sense in and of themselves, but also be considered in the context of overall strategic value to the City by having some significant systemic improvement.

These framework goals are to:

1. **Increase green infrastructure:** All Phase 2 projects will increase green infrastructure.

2. **Reduce the City's total impervious surface area:** All Phase 2 projects will reduce impervious area. In addition, future city code improvements, better planning, and fee schedules can contribute to this goal.

3. **Improve downstream drainage and water quality:** All Phase 1 projects contribute to the goal or reducing the likelihood of flooding (with a 10-year flooding standard). Phase 2 projects contribute to this goal.

4. **Reduce stormwater flows and volume:** All Phase 2 projects reduce stormwater flows and alleviate flooding downstream in lower lying and vulnerable areas.

2. Implement the second phase of stormwater/green infrastructure priority projects

Implement the priority projects identified by the Task Force to kick start a green infrastructure agenda. See Section 1 for details on the recommended priority projects selected by the Task Force.

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3. Mainstream green infrastructure though more holistic planning

To date, the City has not had a green infrastructure agenda. Even the projects recommended in Phase 2 were initially considered through an ad hoc process (the Task Force was asked to identify a handful of useful green infrastructure projects to fund via CIP).

Looking forward, the City must consider, plan for and implement a long-term green infrastructure agenda more holistically in a way that integrates with other City development plans.

Other recommendations include:

- **Create a long-term target for the amount of impervious surface in the City:** Foster information-sharing to monitor this important metric among involved City departments (DPW, schools, planning, etc.), City Council, City manager, the Planning Commission, and a possible future Public Utilities Commission. See more details in #5 below.
- **Ensure integrated planning by key City stakeholders:** Large amounts of the City's impervious and pervious surfaces are under the jurisdiction, control or management by multiple City departments and entities, each of which has a role to play promoting a green infrastructure agenda for the resources under its control. To avoid information silos and encourage collaboration, have key metrics reported on a regular basis the City manager or the assistant City manager).
- **Mandate that every major City investment be reviewed with green infrastructure opportunities in mind.**
- **Require large private development projects to include green infrastructure options in proposals.**
- **Prioritize and seek co-benefits of City projects, such as traffic calming and stormwater detention.**
- **Collaborate and coordinate planning efforts with adjacent jurisdictions and region to leverage best practices, standardized approaches and maximize ROI.**
- **Maintain citizen participation in monitoring the health and capacity of the City's sanitary sewer and stormwater networks, including green infrastructure projects.**

4. Maintain a longer-term pipeline of projects

Green infrastructure and stormwater projects have a long lead time. A longer planning horizon would give City leaders and staff more insight on priorities and how to achieve "co-benefits" of. This plan could extend beyond the current five-year CIP process, possibly leading to a 10-year CIP for certain kinds of projects.

5. Monitor and manage pervious and impervious surfaces

Through its work, the Task Force determined that one of the most important objectives is to protect and promote pervious surfaces and reduce the amount of impervious surface

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throughout the City. City leaders need regular, reliable information about the City's surface area. Using GIS, the City should closely monitor its total impervious surface area and find ways to reduce it over time, even in the face of demands for redevelopment, added sidewalks and more.

- **Set long-term goals for reducing City's total impervious area.**
- **Monitor and track impervious area throughout the City.**
- **On City's Stormwater Utility Fee Lookup map, add a field to show public users each lot's percentage of impervious surface to enable possible rate tiering for fees.**
- **Enforce maximum impervious surface limits across the City.**
- **Establish and implement a tree canopy goal for the City.**

6. Pursue new funding sources for green infrastructure

To overcome resource constraints, the City must begin to think creatively about seeking alternative sources of funding for green infrastructure projects.

- **Use funds from multiple departments' budgets and other sources to address integrated problems and solutions** (Example: Add green infrastructure to a road improvement project).
- **Take advantage of federal, state and local funding opportunities for green solutions and flood management.**
- **Partner with private sector on projects:** This includes churches, businesses and residences.
- **Provide incentives or co-funding to spur investments by private sector and homeowners.**

7. Implement best management practices

- **Utilize best management practices for project design** to include infiltration, settling, vegetative uptake and filtering mechanisms where appropriate, most equitable and allowed by the stormwater regulations as listed on the Virginia Stormwater BMP Clearinghouse.
- **Enforce City management practices and codes with the vision of achieving sub-10 percent effective imperviousness by 2045 in both the Four Mile Run and Tripps Run watersheds**, thereby reducing flooding incidents community-wide, creating healthier streams, rivers and waterways capable of sustaining healthy aquatic organisms, allowing IMPROVED recreational activity and supporting marine industry commerce within the Chesapeake Bay. More study is required to determine the city's current level of effective imperviousness.

8. Strengthen and enforce City building codes

- **Explore strengthening building codes** (particularly related to expansion of impervious surface and cutting down of trees), requiring new impervious areas to include green infrastructure for both private and commercial builds.

9. Increase fees related to runoff and impervious surfaces

- **Educate residents about how to earn and apply for stormwater fee credits.**
- **Regularly review fees for stormwater runoff and for excessive amounts of impervious surface.**
- **Examine potential for progressive fees to disincentivize larger impervious areas** based on square footage of impervious surface, not on lot percentage of coverage percentage.
- **Review private homeowners' expansions** that exceed the square footage allowance. These fees can be assessed in different ways, including: additional stormwater fees, required inclusion of green infrastructure, or flat fines.

10. Mainstream green infrastructure through other investments

- **Set aside a portion of stormwater funds** and/or other City funds for broader, more holistic projects/themes (such as flood prevention in the Tripps Run watershed).
- **Consider utilizing some portion of future stormwater fee funds for geographic or thematic investments that promote green infrastructure.** (See Appendix 2 for examples of geographic or thematic investments.)

11. Promote public involvement and support

- **Expand public education on green infrastructure benefits to promote homeowners and business to implement more green solutions**
- **Use demonstration projects to begin to build public support and understanding**
- **Explore incentivizing/assisting businesses/organizations to add green infrastructure to their properties** (bioretention/permeable parking lots/green roofs). This could include advice on how to locate funds.

Conclusion

Overall, the City has invested in improvements to its stormwater system in accordance with the 2012 Watershed Management Plan and has addressed some changes in practices to reduce impacts to the system, but continued investment and assessment of stormwater infrastructure is critical.

Several factors are driving this need:

- Much of the legacy grey infrastructure is old and sections will need to be updated or replaced

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over time.

- The City's percentage of impervious surface area continues to increase amid ongoing redevelopment.
- The likelihood of flooding events will continue to increase, which could lead to more stringent standards for infrastructure.

The City's watersheds serve every resident. Future projects by the City and residents that have more of a focus on green infrastructure can help address these challenges to help create a healthier, greener, more flood-resilient Falls Church

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CITY OF FALLS CHURCH

INTEROFFICE MEMORANDUM

Appendix 1: Green Infrastructure Prioritization (Round 1 of Scoring)

Appendix 2: Examples of geographic and thematic investments

The Task Force recognizes that there are broader geographic areas with an opportunity for green infrastructure. An example of this was the proposed Lincoln Avenue project, which combines multiple benefits including infiltration, traffic calming, pedestrian safety and a green infrastructure focus). Other geographically contiguous areas have potential for multiple project interventions (such as Hillwood Avenue, Broad Street, Tripps Run, or a shopping district).

For example, green infrastructure improvements in the Tripps Run Watershed could involve (in addition to gray and green infrastructure projects noted in 2012 Watershed Management Plan):

- Bioretention opportunities in Howard E. Herman Stream Park, possibly room for berms/swales
- Remove Tripps Run concrete trapezoidal channel and return it to a more natural stream
- Change the angle of the outlet culverts entering Tripps Run from the TJ elementary school grounds so that they do not enter at a right angle and assess if the one almost directly across from Coe Branch needs to enter further up or down from the mouth of Coe Branch
- Add swales/berms on the residential side of Tripps Run between South Oak Street and Sherrow Avenue
- Add large bioretention facilities beneath the TJ elementary school fields
- Replace asphalt walking paths along Tripps Run with permeable pavers
- When South Oak bridge is rebuilt, ensure it allows for adequate flow so as not to create a damming effect during large storms
- Ensure culverts along Tripps Run are adequately sized
- Add a green roof to TJ elementary school
- Incentivize commercial buildings on Broad Street to add green infrastructure and green roofs

The City should also consider focused thematic investments such as:

- Add bioretention facilities in large areas such as parks and beneath cul-de-sacs
- Incentivize businesses/churches to add bioretention, permeable pavers, rain gardens, green roofs (help businesses write grant proposals to NGOs and governmental sources)

- Add green roofs to government buildings