



South End Green Stormwater Infrastructure (GSI) Combined Sewer Overflow (CSO) Mitigation Project

July 2020 | Feedback Response Summary

The City of Burlington's Water Resources Division hosted four neighborhood meeting opportunities on July 13 & 14, 2020 via Zoom. Prior to these meetings, staff marked the outline of the proposed systems to scale using chalk paint for residents to see on the ground.

The purpose of these meetings was to provide residents with a more detailed overview of the proposed project, and provide an opportunity to voice their concerns, and ask questions about the proposal. The following is a summary of the feedback the City received during this process, and the City's responses.

OVERALL PROJECT FEEDBACK & QUESTIONS

General Questions

1. What outreach has the City conducted on this project to date?

Board of Finance and City Council authorized acceptance of the grant to support this project on June 24, 2019. Since then, we have conducted the following outreach:

- July 2019
 - Front Porch Forum post regarding pre-design soil boring activities
- March 5, 2020
 - Staff presented project overview to the Ward 6 NPA
- March 13, 2020
 - Letter to residents describing the project, including contact information for project staff and links to additional web resources on the project

- March 31, 2020
 - Original date for neighborhood meeting (cancelled due to COVID-19)
- April 2020
 - Front Porch Forum & Facebook posts with project update
 - Direct email update to residents with emails on file with the Water Department
- July 1, 2020
 - Updated letter to residents mailed
- July 3-5, 2020
 - Fliers with project information distributed to residents by Councilor Paul
- July 9, 2020
 - Proposed system footprints marked in chalk paint by City staff
- July 13-14, 2020
 - Four neighborhood meetings held via Zoom to gather resident input & feedback

2. Why is the City installing these systems to mitigate the Pine Street Combined Sewer Overflow (CSO), rather than some of the alternatives?

- **Why not combined sewer separation?**

The majority of Burlington’s sewer system has been separated, with roughly 35% remaining combined. Combined sewer separation is certainly an option for addressing CSO’s – and the City very well may employ some degree of sewer separation in the future in areas where it is absolutely necessary.

However, separating the sewers does not provide any **treatment** for stormwater, which is a significant contributor to the water quality issues in Lake Champlain. Stormwater carries nutrients like phosphorous and nitrogen, bacteria, oils and greases, sediment, and other roadway debris. Rain gardens, and other similar ‘infiltrative’ practices remove these contaminants before stormwater is discharged to a surface water body.

- **Why not curb bulbs?**

The proposed systems function very similarly to curb bulbs, or curb extensions, just on a larger scale. The size of these systems is proportional to the amount of flow we are trying to mitigate to Pine Street CSO.

- **Why not Ultraviolet (UV) disinfection?**

The City has considered the use of installing a disinfection system to ‘treat’ discharges from the Pine Street CSO outfall before they enter the Pine Barge Canal. UV disinfection is not effective on its own for combined sewer flow, as these flows are too turbid (cloudy) for the light to penetrate and be effective. If the City were to employ a disinfection system, we would need to use chemical disinfection – requiring significant infrastructure.

Further, using chemical disinfection would require Vermont DEC to designate the Pine Barge Canal as a Waste Management Zone – and/or would require the additional step of installing de-chlorination equipment to remove residual disinfectant prior to discharge.

- **Why not install permeable driveways at all of the residences instead?**

The City is currently working to develop a residential incentive program to assist property owners with installing stormwater management practices like permeable driveways. However, replacing residential driveways with permeable pavement systems is not a viable alternative to the stormwater systems as proposed. It is important to note, as an initial matter, that this would require all of the homeowners in the project area be willing to participate.

First, the proposed systems will primarily manage stormwater runoff from the City-owned roadway and right-of-way. While there is some contributing runoff from private drives, those surfaces are a much smaller portion of the project area. Replacing driveways with permeable materials in lieu of these systems would therefore not provide the same water quality benefit.

Second, permeable paving systems require regular, routine maintenance with specialized equipment. The City cannot take over responsibility for private driveway maintenance at this scale, which is essential to ensure the long-term functionality of those systems.

Along similar lines, the grant that is funding this project requires the development of a 10-year Operation & Maintenance Plan. If the City were to take over maintenance of private driveways, it would require all participants to execute a permanent easement agreement with the City for maintenance of their driveways – and would necessitate a clause allowing the City to access and fully replace the driveways if necessary.

- **What about a tree plan for our neighborhood to help with stormwater?**

Burlington's Department of Parks, Recreation, and Waterfront (BPRW) includes a Trees & Greenways Team that manages Burlington's urban forestry program. At present, Burlington's Urban Tree Canopy (UTC) covers 43% of the City – and BPRW has the goal of increasing this to a full 50%. You can learn more about Burlington's urban tree management programs, and reach out to them directly by visiting: <https://enjoyburlington.com/type/trees/>

3. Who has the final say as to whether or not this project moves forward?

Procedurally, requests for parking removal must be approved by the DPW Commission. Following the construction bid process, the City's Board of Finance and City Council will need to authorize execution of a contract. All of these meetings are public, and include the opportunity for public comment.

This project is a direct outcome of the 2018 Clean Water Resiliency Plan, which was approved by 92% of Burlington voters. Water Resources staff have worked closely with the City's leadership throughout the project development process – and it is important to keep in mind that the current design would mitigate roughly 26% of the impervious surface currently contributing to discharges at the Pine Street Combined Sewer Overflow. That said, the water quality improvements associated with this project benefit every resident of Burlington, as well as the many visitors who use our beaches and visit our waterfront.

Aesthetic & Maintenance Concerns

4. These systems will be an eyesore in our neighborhood. Can the City provide a written maintenance agreement or plan for residents, including what options residents have for recourse if the systems are not properly maintained?

As part of our ongoing Asset Management Program, Burlington's Water Resources Division is actively developing a long-term maintenance plan for all of our Green Stormwater Infrastructure (GSI) systems. The current draft of this plan is included as **Attachment A**.

It is also important to note that the grant agreement for this project requires development of at least a 10-year Operation & Maintenance Plan. Starting in 2020, the Stormwater Program contracted with a landscaping company (Paragon) to maintain SW facilities throughout the City our Department is committed to dedicate the financial resources to continue this maintenance. If residents are not pleased with the level of maintenance, they can raise this issue to our departmental leadership, the DPW Commission, the Mayor or the City Council.

5. How long is the current contract with Paragon for landscape maintenance? What is the City budgeting for maintenance of these systems? How do we know that maintenance won't be dropped from your budget in the future?

The active contract with Paragon ends on June 30, 2022. The cost for maintenance of the GSI systems *currently* in place is \$4,091 per year. Burlington's Water Resources Division has made significant progress in meeting its overall maintenance goals over the past several years.

Like many communities throughout the country, the City faces challenges associated with aging infrastructure, diminished state and federal funding, and a more complex regulatory environment to navigate. As Water Resources has endeavored to meet these challenges, there has been an increased awareness that our past management strategies are no longer sufficient to keep up with demand. Over the last several years, the Division has been working to develop a comprehensive Asset Management Program. This included formalizing an Asset Management Plan to optimize our investments in all of Burlington's water infrastructure at sustainable levels,

to provide rate payers with the quality of service they expect and meet the many state and federal regulations we are subject to.

In collaboration with other DPW programs, in 2020 the Water Resources Division is working to procure an Asset Management consulting firm to assist with the procurement and implementation of an asset management software solution. This initiative demonstrates Water Resources and the overall Department's ongoing commitment to enhancing our approach to asset management, and these gardens are a critical component of the structures we are responsible for.

6. Will the City provide some plan / schedule for how plow damage to curbs will be repaired each year?

DPW's Street Maintenance crews regularly repairs any significant damage to curbs each spring. Minor dents and chips to curbs are considered normal wear and tear, and would not be patched.

7. This project does not fit in well with the aesthetic of this neighborhood. The reference neighborhoods in the Old North End are different, and therefore the perceived benefits should be consistent with the proposed location.

The City has worked with neighbors in the Old North End to develop planting plans for those systems. We will provide residents in this neighborhood with the same opportunity to participate in plant selection for systems adjacent to their homes, to ensure consistency with landscaping of adjacent properties.

8. Can the proposed signage in the systems be adjusted at all? The signs included in this plan set are not aesthetically consistent with our neighborhood and will be an eyesore.

We have reviewed this issue with DPW's Technical Services Division, and have identified an alternative option that will be less visually intrusive and still provide an adequate level of visibility for City plow operators. A photo of this alternative has been included as **Attachment B**.

"No Parking" signs will be minimized as much as possible, but cannot be eliminated entirely for safety reasons.

9. What do the drains look like that will be within the systems? Can these be camouflaged by plants?

All of the systems include an inlet storm drain, similar to a catch basin. These structures will be flush with the road and adjacent curb. The vegetation within the system will shield these basins to some degree, but in any event they will not be any more noticeable than the roadway catch basins currently in place throughout the area.

Construction Phase Impacts

10. Can the City provide any written assurance that the selected contractor will not damage my utility service lines – and if they do, that they will be responsible for any repairs?

The City routinely conducts and manages construction projects in the right-of-way, and our contractors are well aware of these structures. While conflicts with existing licensed utilities do arise on occasion, the City and its contractors are well prepared to respond to these issues and correct them as quickly as possible. If this were to occur, the cost of repair for a licensed utility would not be the homeowner's responsibility.

11. If my sprinkler system or some other infrastructure (not utility services line) runs to the edge of the road, will the selected contractor be responsible for any damage that may occur to the sprinkler system during construction?

Any private infrastructure (aside from licensed utility service lines) placed in the City's right-of-way must be registered and licensed with the Department of Public Works. We therefore encourage residents with sprinklers or other unlicensed private infrastructure that may extend into the City's right-of-way to have the infrastructure relocated outside of the right-of-way ahead of construction. If there is damage to any unlicensed private infrastructure in the City's right-of-way during the course of construction, the cost of those repairs shall be the homeowner's responsibility.

12. Is there any opportunity for residents to coordinate this project with existing driveway apron pooling issues?

Yes. Residents are welcome to either seek their own contractor, or contact the selected contractor prior to construction to coordinate work on their driveway apron with project construction. Please note that this work will be the homeowner's responsibility, and would be done at the homeowner's expense. Any homeowner's interested in coordinating additional

work should notify us directly so we can provide a confirmed schedule, and/or appropriate contact information for the selected contractor when we have it.

Property Values

13. What other cities have implemented roadside bioretention projects like this?

Roadside bioretention systems are common in many cities throughout the United States. Washington, Oregon, Minnesota, Wisconsin, Maryland, and Illinois are the most prominent examples of states with multiple municipalities having employed comparable installations.

14. Can the City provide any literature, data, or other supporting information about the potential impacts of these systems on property values?

We have included a list of the most relevant resources available on this topic as **Attachment C**.

15. Can the City provide the soil information gathered by the design consultant for my area?

Yes. Individual homeowners may request the soil data gathered for a specific area directly from Jenna Olson at jolson@burlingtonvt.gov.

Post-Construction Impacts

16. Will these systems change the water table, or otherwise lead to basement flooding in my home? If my basement does start flooding, will the City be responsible for addressing that?

Groundwater flows preferentially to the path of least resistance. The proposed systems are designed to allow quick infiltration, and are equipped with gravel beds and perforated underdrains to facilitate drainage. Further, the systems are installed down gradient of adjacent homes, and should therefore not exacerbate any existing, nor result in any new basement flooding issues.

17. Will these systems attract mosquitoes?

No. These systems have been designed and located in this area specifically because of the well-drained soils. Mosquitoes require several days of standing water to develop from the egg stage to larvae and then into adults (see the CDC's guidance here:

<https://www.cdc.gov/zika/pdfs/MosquitoLifecycle.pdf>)

These systems will not hold water for more than 24 hours at a time. Even if there is a significant amount of rain, there are underdrains in the systems to ensure positive drainage. We have not had issues with standing water in any of our other systems to date.

18. If the garden fills up with water during a large rain event, is that water going to start backing up into the roadway?

No. The systems are designed with drains to capture water if it reaches a certain depth to ensure it does not back up into the roadway.

19. Can I help select the plants that will be in the system adjacent to my home?

Yes. Residents can review a list of plants recommended for installation in rain garden systems in the [Vermont Rain Garden Manual](#). We will work with property owners adjacent to these systems to incorporate their plant selection preferences. We are supportive of individual property owners providing input consistent with the landscaping on their property, to minimize perceived aesthetic impacts.

20. Will this project impede any potential future plans to underground the currently overhead utilities on our streets?

This project is unrelated to any future utility work – planned or otherwise. However, these systems can be adjusted to accommodate utility work or other construction. It is important to note that these systems do not extend into the City's right-of-way beyond the footprint of the existing roadway.

21. Will the City pay to have a regular parking attendant on our street to ticket [students] who park on our street illegally? Will the City provide residents with parking permits?

The City has no plan to add parking enforcement staff or issue parking permits to this neighborhood at this time. If neighbors have concerns about students, they should contact the appropriate institution directly.

22. If the 'overflow' drains are tied into the sewer, does that mean we're going to have an open air drain directly to the sewer in these systems?

No. The drains installed in these systems will be equipped with valves to prevent sewer gases from escaping. These drains will function similarly to the existing combined sewer infrastructure throughout the project area.

23. Will the gardens have snow piled into them by the plows? If so, won't this further restrict sight lines for residents pulling out of their driveways? Also, how will this impact the plants when the snow melts with all of that salt and debris?

The City plans to maintain their current snow management practices. While there may be snowbanks along the edge of the gardens similar to those that accumulate on the edge of the roadway, the systems will not be designated snow storage areas.

In collaboration with neighbors, the City will work to ensure the plant selections for the systems are varieties that are resistant to salt. The systems will have inlets designed to capture sediment and other road debris, and the annual maintenance plan will include a targeted clean out each spring to remove debris that accumulated during the winter.

24. What is the maximum height of the plants for these systems?

Plant height will vary, as the City is making a concerted effort to coordinate with adjacent neighbors on plant selection. As part of that effort, we will continue coordinating with our colleagues in DPW's Technical Services Division to ensure plant selections do not pose any visibility concerns.

SOUTH PROSPECT STREET

1. There is a pedestrian & cyclist safety concern at the left-hand turn from Prospect Parkway onto South Prospect Street

- Can a walkway be placed on the interior of the garden to allow safe pedestrian passage within the system, rather than pedestrians having to walk on the outside edge of that system?
- Could the system be redesigned as an 'island' to further encourage traffic to slow down when entering that turn?

Our design consultant, Vanasse Hangen Brustlin, Inc. has completed a traffic analysis in response to traffic safety concerns. The system, as proposed, will function to slow traffic coming around this corner. This project will not in any way interfere with long-term plans for sidewalk installation throughout the neighborhood, although that is not part of the current proposed project. It is also important to note that, throughout the neighborhood, these systems would not narrow the roadway any more than currently occurs when cars are parked on street.

2. Several homes will be losing all or most of the available on-street parking in front of their residence. There are additional concerns related to emergency vehicle access / navigation, as well as navigability for curbside deliveries for landscaping materials or other large trailered items. Along the same lines, there are pedestrian and cyclist safety concerns in this area, which will occur if the road is narrowed by these gardens.

- Can the systems located adjacent to 874, 875, 884, and 885 South Prospect Street be eliminated, adjusted, or scaled back to restore one or more on-street parking spots directly in front of those residences?
- Can the systems adjacent to 875 and 885 South Prospect Street be scaled back, at a minimum enough to provide a wider turning radius for large delivery vehicles?
- If the systems adjacent to 874 and 884 South Prospect Street can be scaled back, can the designer ensure this will provide a wider turning radius for large delivery vehicles?

In response to feedback from neighbors, the City has worked with the design consultant, Vanasse Hangen Brustlin, Inc. to revise the project plans. The revisions pertinent to this comment can be viewed in the plan set included as **Attachment D**. In summary, the following adjustments have been made:

- The length of 'System 4P,' located in front of 875 South Prospect Street was reduced in length, and re-centered between 875 and 865 South Prospect Street to restore at least one on-street parking space directly in front of 875 South Prospect Street.
- 'System 6P,' located at the front of 884 South Prospect Street has been eliminated as this location previously had the greatest parking loss impact throughout the entire originally proposed project.

3. Can the system currently proposed adjacent to 780 South Prospect be expanded / adjusted in any way to provide additional capture of runoff from the 'one-way' section of South Prospect Street?

Our design consultant, Vanasse Hangen Brustlin, Inc. has assessed this area, and has determined that the current systems are designed to maximize capture in that area. The roadway beyond System 2P does not actually drain to the City's combined sewer system, and therefore any additional systems placed there would not be eligible for funding under this project.

4. Could any of the roadway be replaced with permeable pavement as an alternative to some or all of the proposed garden systems?

At this point in time there are very few examples of permeable pavement roadways. These installations are far more labor intensive than traditional paving, and would result in substantial disruption during installation as the roadway subbase would need to be fully excavated and replaced. Further, unlike parking lots, roadways are subject to much different wear and tear, and accumulate far more debris and sediment throughout the year. While we may pursue permeable pavement roadways some day in the future, the City is not currently equipped to manage or maintain a fully permeable roadway.

FAIRMOUNT STREET

1. Fairmount is a heavily traveled street by vehicles, pedestrians, and cyclists. The three systems currently proposed adjacent to 31, 41, 32, and 42 Fairmount Street are directly beyond a sharp blind curve, that is already precarious for pedestrians and cyclists to navigate. The addition of these three systems will exacerbate this existing pedestrian and cyclist safety concern. Further, these three systems as proposed will eliminate an equivalent of 11 on-street parking spaces.

- Can any of these three proposed systems be eliminated altogether?
- Could any of these three systems be scaled back to allow safer passage of vehicles or restore on-street parking proximal to the adjacent residences?
- Could sidewalks be added to the design to allow safe passage for cyclists and pedestrians along the inside edge of the gardens?

- Will the City at least conduct a more detailed traffic study if no adjustment or alternative options are being considered?

In response to feedback from neighbors, the City has worked with the design consultant, Vanasse Hangen Brustlin, Inc. to conduct a traffic analysis. The revisions made pertinent to this comment can be viewed in the plan set included as **Attachment D**. In summary, the following adjustments have been made:

- Subsurface infiltration chambers have been added below System 11P(A) [32 Fairmount Street] to increase the performance of that system
- Systems 11P(b) and 11P(c) [31 & 42 Fairmount Street] have been eliminated in order to maintain safe sight lines in that section, as well as the overall traffic safety situation at that point on the street.

SOUTH STREET

- 1. Can the system currently proposed at the corner of South Street and Holt Street be further shifted onto Holt Street, to restore some on-street parking and take up less of the curb line directly in front of this residence?**

In response to feedback from neighbors, the City has worked with the design consultant, Vanasse Hangen Brustlin, Inc. to revise the project plans. The revisions pertinent to this comment can be viewed in the plan set included as **Attachment D**. In summary, the following adjustment was made:

- The length and width of System 14P was reduced

The system could not be moved further onto Holt Street, as it would conflict with a City water main that is buried there.

- 2. Can the City replace the rest of the curbing in the vicinity of the proposed systems to ensure it looks uniform throughout the area?**

The existing curbing where systems are proposed will be removed and replaced on the roadside edge of the gardens. New concrete curbs will be installed along the gardens edge to match the

other curbing on the rest of the street, however DPW will not be replacing all of the curbing throughout the project area at this time.

3. The systems proposed adjacent to 51, 46, and 56 South Street will eliminate an equivalent of 8 on-street parking spaces directly adjacent to these homes, and will run along the entirety of the curb line. Can either system be eliminated, or otherwise modified to restore proximal on-street parking to these residences?

In response to feedback from neighbors, the City has worked with the design consultant, Vanasse Hangen Brustlin, Inc. to revise the project plans. The revisions pertinent to this comment can be viewed in the plan set included as **Attachment D**. In summary, the following adjustment was made:

- The length of System '13P' (adjacent to 51 South Street) was reduced by 20'

4. This area is currently used by young adults learning to drive. These gardens will be an impediment to that.

These systems are not widespread throughout the neighborhood, and should therefore not present any significant change to how individuals learning to drive use this area.

5. There is no need for traffic calming on South Street, why is this listed as a benefit?

The primary goal of these systems is to alleviate stormwater flows contributing to the Pine Street Combined Sewer Overflow. Traffic calming has been listed as an ancillary benefit, but is not a driving force behind this effort.