



Local Community of Practice Report Recommendations to PWD Maximizing Green City Clean Waters' Success

February 2014

The Story of the Local Community of Practice

The Sustainable Business Network of Greater Philadelphia (SBN) recognizes the profound environmental, economic, and social impact of the Philadelphia Water Department's (PWD) innovative and sustainable stormwater management plan, Green City Clean Waters (GCCW). This recognition led SBN to create the Green Stormwater Infrastructure (GSI) Partners initiative and subsequently to convene a Local Community of Practice (LCoP). SBN, in partnership with BALLE and Ventana, invited several of the local GSI industry's small business and organizational leaders to participate in a five-month intensive program intended to develop and strengthen "transformational leadership" skills. The group-building process sought to not just advance the GSI industry but also to enable a select group of executives in key local firms to grow and transform their businesses. Each of these executives entered the program with the clear sense that Philadelphia has the opportunity to become a global economic and innovation hub for leading edge GSI practices and a desire to be part of realizing this opportunity. The LCoP is a component of the grant SBN received from the Surdna Foundation for SBN's GSI Partners initiative. As with GCCW and the GSI Partners, the LCoP has the potential to serve as a replicable model for other regions looking towards more sustainable stormwater management plans.

The Philadelphia Water Department asked SBN to write a report on the barriers for small businesses wanting to connect with the GSI-related investments being catalyzed by GCCW. Because the LCoP was composed of small business and organizational leaders representing a cross section of the GSI industry, including women- and minority-owned firms and prime contractors and/or subcontractors to PWD, SBN chose the LCoP to tackle this task.

The Local Community of Practice met for 2 overnight retreats and 4 breakfast meetings. The group included:

- Glen Abrams, Pennsylvania Horticultural Society
- Robert Cheetham, Azavea
- Mark Highland, Organic Mechanics Soil Company
- Hermann Moser, Land Stewards
- Melissa Muroff, Roofmeadow
- Lou Rodriguez, Rodriguez Consulting
- Alden Zove, Cedar Run Landscapes

Yvette Jones of Ultimate Concrete, a small minority- and women-owned non-union firm trying to grow a portfolio of porous pavement, had to withdraw from participation after the first retreat.

Since those retreats, LCoP members have remained a closely knit group, and have been integral to the success of the GSI Partners' Strategic Planning process. The self-organization and unification that evolved through the retreats reflects the success of the transformational leadership process originally conceived by BALLE and Ventana. The LCoP members have organically evolved into leaders within the GSI Partners, bringing with them the culture of collaboration that developed within the LCoP, reinforcing among the GSI Partners the value of intra-industry collaboration to achieve the common goal of advancing the region's GSI industry, innovation, and the local businesses whose services and products relate to GSI.

The LCoP worked to identify concrete opportunities and offer realistic recommendations toward ensuring that GCCW has a stronger local impact, so this report covers a range of topics and introduces them on a summary level. The LCoP expects that this report likely validates conclusions to which PWD has already arrived. The LCoP believes that this is indicative of the overlapping interest from the business community and PWD to ensure the success of GCCW. SBN's GSI Partners, whose in-depth Strategic Plan is complimented by this report, looks forward to continued conversations with PWD on these and other key topics that will help advance the GSI industry, innovation, and local businesses, and ultimately amplify the success of Green City Clean Waters.

The LCoP's Recommendations

PWD and its Green City Clean Waters plan have established Philadelphia as a national leader in urban stormwater management. SBN and the LCoP members are convinced of the environmental, social, and economic potential of GCCW, and recognize that the challenge of its demonstrable triple-bottom-line success will depend, in large part, on productive cooperation between the industry and PWD. The LCoP prepared this report with that spirit of collaboration in mind.

Green City Clean Waters is the first Long Term Control Plan update to focus on decentralized green stormwater infrastructure instead of the traditional centralized gray approach of larger pipes and treatment facilities. GCCW's implementation will benefit from the support of intra-industry collaborations, and the region is perfectly set up – and eager - to provide this support. The Greater Philadelphia area is home to a robust cohort of qualified and innovative businesses – some with national and international reach - whose services and products relate to green stormwater

infrastructure design, construction, maintenance, and material supply. Several prestigious academic and research institutions in the region have strong engineering and landscape architecture programs with existing concentrations in low impact development, green stormwater infrastructure, and water quality. Additionally, Philadelphia and the surrounding region are seeing population growth for the first time in 50 years and the development community is responding with new construction in many locations. The region also has a well-established “triple bottom line” culture, promoted by locally-based organizations like the Sustainable Business Network of Greater Philadelphia, B Lab, the philanthropic community, and Green City Clean Waters itself - a triple bottom line plan.

Several reports indicate that GCCW will spur large-scale economic growth in the Philadelphia region (see Living Cities¹, SBN²). Other reports, such as Sustainable Water Jobs published by the Pacific Institute³, also report that significant job growth will occur as the water industry changes its focus to more sustainable practices. Green stormwater infrastructure has consistently been included as an area within the water industry currently poised for growth (see Green for All⁴ and EPA⁵). Despite the inherent strength of GCCW, eagerness of the local industry, and the economic projections, the full success of the environmental, economic, and social components of the plan depend on significant intention in its implementation.

It was in this context that the members of the LCoP answered this question: “What changes do you want to see that would be most impactful for your business?” The LCoP members’ recommendations fell into the following categories: Policy; Process; Innovation and Research and Development; Financing; Contracting and Procurement; and Resources.

Policy

Policy improvements should be made that support the emerging GSI industry and encourage it to continue to grow and flourish. A robust GSI industry in the region is one in which demand meets supply; local businesses work with one another, innovate, and grow; and the triple bottom line goals of Green City Clean Waters are maximized: clean waters, an equitably green city, and a healthy economy.

Currently, the implementation of the plan does not sufficiently prioritize green designs in the private sector. Without requirements for the prioritization of green designs, demand will remain minimal, and PWD will remain chiefly responsible for the implementation of the “Green City” part of the plan.

¹ Estolano LeSar Perez Advisors LLC. (2013). *Green Stormwater Infrastructure: Leveraging Investments to Create Career Pathways for Low-Income Communities*. New York: Living Cities.

² GSP Consulting Corp and Ecolibrium Group. (2010). *Capturing the Storm: Profits, Jobs, and Training in Philadelphia’s Stormwater Industry*. Philadelphia: Sustainable Business Network of Greater Philadelphia.

³ Moore, E., Cooley, H., Christian-Smith, J., Donnelly, K., Ongoco, K., & Ford, D. (2013). *Sustainable Water Jobs: A National Assessment of Water-Related Green Job Opportunities*. Oakland: Pacific Institute.

⁴ Green for All. (2012). Using a Job Frame to Promote the Use of Green Infrastructure. *Urban Water Sustainability Leadership Conference* (p. na). Oakland: Green for All.

⁵ U.S. Environmental Protection Agency: Office of Wetlands, Oceans and Watersheds. (2013). *Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs*. Washington, D.C.: U.S. Environmental Protection Agency: Office of Wetlands, Oceans and Watersheds.

The LCoP recommends:

- Strengthening the manual guidance regarding vegetation to effectively require “green first” when infiltration is feasible.
- Revising the current BMP performance-based requirements used in Plan Review to better value the performance of different classes of BMPs.
- Offering stormwater credits to residential properties.

Despite the green goals of Green City Clean Waters, there are no requirements for the private sector to implement green designs. The manual states, “where infiltration is feasible, vegetated techniques are preferred” (pg. 4-11). The LCoP recommends strengthening this language to require vegetation when infiltration is feasible. Additionally, the manual states, “all areas must route a minimum of 20% of the water quality volume through a PWD-approved SMP that provides volume reduction” (pg. 4-8). The LCoP recommends increasing this minimum as a strategy to further the green goals outlined in GCCW while increasing the demand for green designs.

Engineers and designers have indicated that the current performance-based measures can be constraining and result in undervaluing the performance of some BMPs. Current performance measures that are ideal for volume-based BMPs can underestimate stormwater management capabilities of BMPs that emphasize horizontal flow and evapotranspiration. The addition of rate-based performance measures for this latter class of BMPs would allow for more flexibility in Plan Review for BMPs in which infiltration or storage is not the primary function.

To adopt a new performance-based measure for BMPs city-wide requires a predictable and straightforward test method for evaluating BMPs. The LCoP understands that refining such a test method for city wide use would likely require modeling and monitoring of BMPs, which compliment the LCoP’s proposals for increased monitoring and an Innovation Track (See Innovation, Research and Design section). The LCoP recommends leveraging the Innovation Track as well as GSI Partners’ Small Business Innovation Grant program for refining additional performance-based measures that more fully reflect the performance of all BMPs.

Offering stormwater credits for residential properties is undeniably a challenging task; however, “the vast majority of the city’s land base (42%) is residential land.”⁶ Stormwater management on residential properties is a real and compelling opportunity. Creating incentives like stormwater credits for homeowners would encourage residential scale retrofits; increase individual awareness of the importance of stormwater management; grow the Rain Check program, create the potential for community building through beautification, and, in the aggregate, capture a significant amount of runoff.

⁶ O’Neil-Dunne, J. (2011). *A Report on the City of Philadelphia’s Existing and Possible Tree Canopy*. University of Vermont Spatial Analysis Laboratory.

Process

Process improvements should be made to better support the goals of Green City Clean Waters, thereby encouraging the growth of the region's GSI industry. Process improvements that remove barriers to the approval of green and innovative designs should be implemented.

Currently, despite the existence of a Fast Track for green designs submit to Plan Review, the added time that these designs need for approval creates an added cost for contractors and developers, effectively dis-incentivizing "green first" and the submission of innovative designs.

The LCoP recommends:

- Improving the efficiency of Plan Review's Fast Track for green designs.
- Increasing Plan Review's flexibility for approval of innovative design solutions through the creation of an Innovation Track.
- Improving the communication between Conceptual and Technical Review staff.
- Developing a "concierge" service so that any given project has one point person throughout its lifetime at PWD.
- Developing additional incentives and removing dis-incentives for green and innovative BMPs.

Several contractors and developers have noted their hesitation to submit green designs because of the added cost of time that green designs spend in Plan Review (despite the Fast Track), and as such, they default to gray SMPs without always exploring the greener options. By improving the efficiency of the Fast Track, the length of time a green design takes to be approved, the associated cost, and the level of frustration would greatly decrease. This reduction would remove a significant barrier to developers and project managers who attempt green designs.

Improvements to the Fast Track would need to be done in tandem with improvements to the communication between Conceptual and Technical Review staff, and possibly the creation of a "concierge" program. A concierge program for projects seeking LEED certifications has been established in Scottsdale, Arizona and provides a successful model for reference. Developers seeking LEED certifications are provided with a "one stop shop" where they are connected with a singular point person in the Planning and Development department who provides guidance throughout the approval process.

In order for state-of-the-art green stormwater infrastructure to continue to advance, innovation needs to be encouraged, especially in the private sector. The LCoP recommends the creation of an Innovation Track in Plan Review. This track will be discussed in the next section.

Removing barriers is important, but to further actively encourage green first, the creation of an incentive program should be considered. Although SMIP grants and stormwater fee credits provide incentives for encouraging retrofits, their impact is limited. The SMIP grants are only offered once per year; have limited available funding; are restricted to retrofits, and are dependent on an owner's desire to go beyond basic stormwater fee-avoidance. Creating incentives for green infrastructure for a broader audience of property owners and the development community would

further advance the goals of Green City Clean Waters. Such an incentive program might be multi-layered, enabling it to address multiple objectives. For example, the incentives might be greater if the construction involves small, local businesses, uses innovative materials, or agrees to a more rigorous monitoring program. The GSI Partners look forward to exploring the ideas for these incentives in more detail.

Innovation and Research + Development

The LCoP favors strategies that creatively facilitate innovation and research and development, especially in the private sector, so that Philadelphia's urban stormwater management practices continue to improve; PWD and the region remain influential leaders in urban stormwater management, and the businesses that support the local initiative are given a chance to grow beyond the region with field-tested, leading-edge technology.

As acknowledged earlier, the cumbersome and time-consuming Plan Review process does not foster innovation. For Green City Clean Waters to be truly successful, innovation must be actively encouraged. Innovation works to improve design and performance; lower costs; and improve returns on investment, all of which are necessary for increasing demand, advancing the industry, and maximizing the stormwater runoff managed in the City.

The LCoP recommends:

- Creating an Innovation Track (above and beyond the existing Green Track) within Plan Review.
- Increasing monitoring of new and existing BMPs that use innovative techniques or materials.
- Encouraging innovation through the implementation of incentives and removal of dis-incentives.
- Competitive research and challenge grants to support innovative technology solutions by the private sector.

As previously mentioned, many green and innovative designs become stalled in Plan Review despite the existence of the Green Fast Track. Beyond the recommended improvements to the efficiency of the Green Track, it also would be beneficial to have a separate Innovation Track for designs that are modeled (a) to meet or exceed existing performance standards or (b) to meet different performance standards that more accurately reflect the hydrologic capabilities of the particular BMP but may not have any as-builts to show success.

Progressive BMP designs are just as important as assuring that the impact of those designs is fully valued by performance metrics that accurately account for the full capacity of a BMP. Options for ensuring these innovative designs and performance measures remain valuable for PWD and its need for regulatory compliance would include: approve a set annual maximum number of Greened Acres addressed by innovative designs for installation, require the monitoring of these projects for performance, and/or use these BMPs as demonstration sites for education and operation and maintenance training.

Monitoring needs to be better supported and encouraged, if not required, with attention to innovative mechanisms for reducing the cost and increasing the impact of BMPs. The Innovation Track provides an opportunity for implementing monitoring requirements for redevelopment projects; SMIP grants provide an opportunity in the area of retrofits.

An Innovation Track would provide an incentive to creative engineering and design firms, many of whom welcome monitoring as a way to learn from their own designs, continue to improve them, and showcase their successes. Additional stormwater credits should be offered for designs that perform better than modeled. Creating this level of engagement with innovative firms would help to advance the GSI industry in the region, further promote the inherently innovative nature of Green City Clean Waters, and further elevate the Philadelphia region as the hub for green stormwater infrastructure innovations.

Other steps can be taken to encourage research and innovation. The federal government has had substantial success cultivating research by small businesses through the highly competitive Small Business Innovation Research (SBIR) grant program. The program, which is operated independently by several federal agencies, is organized into two phases – first, demonstrate feasibility and second, commercial implementation. Phase I grants are low cost, fast (six months or less), and aimed at testing feasibility. Only firms that successfully meet or exceed feasibility tests are allowed to apply for Phase II funding, which supports solving technical problems that will lead to commercial solutions. Similar types of competitive innovation programs have also proliferated in recent years and now take many forms, including: application contests (NYC Big Apps and Apps for America), startup challenges (Knight Foundation operates the Knight News Challenge and Digital Prototype grants and StartupPHL is a local program run by the Commerce Department), Kaggle (a firm that operates competitions to improve software and math algorithms), and ChallengePost (a firm that operates technology competitions). The GSI Partners are proposing a Small Business Innovation Grant program that would follow best practices of existing competitive innovation programs. PWD, through the Soak It Up design competition, has already engaged in encouraging this type of innovation challenge, and the LCoP encourages PWD to do more, especially by supporting the GSI Partners Small Business Innovation Grant program.

Financing

Implementation cost is another major barrier to the design and installation of green stormwater infrastructure. Developers of all sizes say that the cost of on-site stormwater management is a significant challenge to already slim profit margins. Additionally, retrofits are occurring primarily thanks to the SMIP grants, but fee-avoidance without SMIP funding has not proven to be a significant driver of retrofits. While the LCoP does not advocate a perpetual subsidy, it is clear that in the near term additional incentives are necessary.

To further incentivize “green first” with private developers and facilitate the installation of more retrofits, more creative financing should be explored. Similar to the projected outcomes of the previous recommendations, more financial incentives for the installation of green stormwater infrastructure will help drive demand (which long-term would contribute to cost reductions), thereby growing the local industry, increasing the number of Greened Acres, and ultimately resulting in maximized success of Green City Clean Waters.

The LCoP recommends:

- Creative financing
- Support for project aggregation

Low-to-no interest loan programs exist for renewable energy that allow for the amortization of the upfront cost over a long period of time. PWD used to offer a loan program through PIDC. The LCoP recommends recreating this program with PIDC or other relevant entities as a strategy to facilitate the installation of more green stormwater infrastructure in private development projects and retrofits.

Small commercial and residential properties are often unable to implement the most effective BMPs due to the cost-prohibitive nature of working on that scale and/or the size and shape of their lot or building. Enabling several property owners to aggregate their efforts, costs, and benefits would enable more property owners to implement creative solutions.

Contracting and Procurement

The design, build, maintenance, and material supply firms who want to work directly with PWD and other city departments find that being a prime contractor or even a sub-contractor is challenging on many levels. The same handful of firms appear to function as PWD's prime contractors, leaving being the mandatory sub-contractor for meeting participation requirements as the only opportunity for small-, local-, woman-, minority-, or disabled-business enterprises wanting to connect with PWD's capital investment. Even when these sub-contracting opportunities exist, local sub-contractors may not be used on the project, may not have control over how the work is performed, and may be subjected to late payment.

The LCoP recommends:

- Growing the list of pre-approved stormwater contractors, especially those identified as GSI Partners.
- Increasing the number of MBE, WBE, DBE, locally-based, and small business prime contractors and subcontractors.
- Increasing participation requirements that benefit local- and small- business enterprises.
- Improving payment schedules for prime contractors, and extend to all sub-contractors.

The GSI Partners are a growing group of qualified Delaware Valley-based design, construction, maintenance, and material supply companies whose services and products relate to green stormwater infrastructure, and include W/M/DBE firms. GSI Partners are aware of the benefits and importance of GSI and indicate several reasons for participating in the GSI Partners initiative, including driving the GSI industry and innovation forward, connecting with contracts, and having the opportunity to inform policy and procedural updates that positively affect the growth of the local GSI industry. The LCoP believes it is important to capitalize on this level of interest and engagement from qualified local businesses as a strategy to maximize the success of Green City Clean Waters.

Articles such as "New York Law Strengthens Minority and Women-Owned Businesses, Forgets Locals" in Next City⁷, serve as a reminder that prioritizing local contracting is equally as important as W/M/DBE requirements. If local is not prioritized, there is no guarantee that the W/M/DBE requirements will be filled by local firms. By contracting locally and prioritizing small business enterprises, W/M/DBE firms will inevitably be included.

⁷ <http://nextcity.org/daily/entry/new-york-law-strengthens-minority-and-women-owned-businesses-forgets-locals>

Smaller firms, whether they are serving as prime contractors or sub-contractors, do not have the same level of financial solvency of larger firms, and so are more sensitive to delayed or late payments. The LCoP recommends continued improvements to the payment monitoring and compliance system for prime contractors, and extending it to sub-contractors. Doing so would give smaller firms more confidence when entering into City contracts.

Additionally, union participation and prevailing wage requirements were identified as challenges by some firms. Some of the most qualified service providers and contractors are non-union firms, but these firms are excluded from many projects because of union or prevailing wage requirements. The LCoP recognizes that this concern is not one that PWD can solve alone, and the LCoP recommends working with the Commerce Department and the Mayor's Business Action Team to explore strategies for leveraging the expertise of all GSI firms and to identify opportunities for non-union firms related to GSI.

Resources

The demand vs. supply scale needs to be tipped before the GSI industry can grow. One of the barriers hindering demand is education. The general population needs to be better educated about the value and importance of GSI; contractors need to be better trained on the installation and maintenance of GSI; developers and large landowners need to be better educated about how green stormwater management can be used to benefit their bottom line; and engineers and landscape architects need more resources that would continue to advance their knowledge and improve their competitiveness.

PWD's Public Affairs team does a great deal to increase education and outreach to the general public. PWD's recent workshop for contractors interested in working with PWD is a great beginning to more education for contractors and the attendance is indicative of the interest. The LCoP applauds PWD for its current efforts in these areas, but offers recommendation for additions.

The LCoP recommends:

- Providing RFP response training, especially for small businesses (workshops, handbook, etc.).
- Certificates for Installation, and Operation and Maintenance of BMPs.
- Continuing education opportunities for small and local firms seeking to expand their portfolio of GSI-related products and services.
- Support services for businesses regarding compliance with prevailing wage requirements.
- Open access to publicly-funded data.
- Design standardized signage for construction sites implementing BMPs.

Many qualified firms find responding to RFP's challenging. The Philadelphia Housing Authority hosts regular "how to work with PHA" workshops. PWD could offer something similar, thereby enabling all interested firms the ability to connect more directly with PWD's capital investments. PWD's successful recent meeting for contractors is an excellent start. Continuing that series would be beneficial for local businesses seeking contracts with PWD. Creating specific workshops for businesses interested in GSI-related projects would also be beneficial.

PWD currently provides on-site training sessions to contractors working on BMP installation, operation, and maintenance. The LCoP believes there is the potential to expand this existing educational outreach program by scaling it into a certificate program for general contractors interested in BMP installation, operation, and maintenance. This would likely require a partnership with a local education provider. PWD would inform the curriculum development, and the institution would provide the instruction. This program would minimize or even eliminate the need for PWD to spend time and money training contractors on site, especially if having this credential became a requirement for installation and/or operation and maintenance contracts in the future.

Prevailing wage requirements were cited as a logistical and administrative challenge. If an open-shop firm is awarded a public project, that firm needs to pay prevailing wage to their crew for the job. As a result, some of that firm's employees are making higher wages than their colleagues. This wage disparity causes understandable tension. Additionally, complying with certified payroll and other administrative requirements for public sector jobs is a significant burden. As a supplement to the LCoP's recommended discussions with relevant city departments regarding opportunities for non-union firms, the LCoP also recommends a support service to provide guidance and direction to open-shop firms navigating this challenge.

The GSI Partners offer continuing education funds for small and local businesses seeking to remain competitive in the GSI industry. These funds are currently being used by GSI Partners, but additional funds, and additional education opportunities such as certificate programs for the construction and maintenance of BMPs, would further advance the industry and the success of Green City Clean Waters. This is an area where collaboration between the PWD and GSI Partners would simultaneously expand opportunities for GSI firms and strengthen the industry organization.

Engineer and design firms have indicated their desire to continue to improve their green stormwater infrastructure designs. The data from publicly-funded BMP monitoring initiatives should be made publicly available so that engineer and design firms can better understand what designs work as as-builts, what do not, and why. The LCoP supports collaborations between GSI firms and the PWD to develop such monitoring initiatives. This information would help firms design and build better performing BMPs, thereby advancing the state of the art and the goals of Green City Clean Waters.

The LCoP understands that PWD is exploring the implementation of permanent signage to highlight successful GSI projects. The LCoP applauds this initiative, and suggests considering an extension of this concept to the construction site in order to increase public awareness of GSI installations. A sign with a bold design would communicate the quantitative impact of a particular BMP as well as identify the firms engaged with the project. Signage requirements, including zoning notices in Philadelphia and health inspection ratings in New York City, have been demonstrated to increase awareness of activities relevant to the public interest. The LCoP anticipates that temporary signage for the construction phase and permanent signage post-installation will contribute significantly to public awareness Green City Clean Waters, the triple-bottom-line benefits of green stormwater infrastructure, and the local businesses involved.

Conclusion

PWD's adoption of Green City Clean Waters has positioned Philadelphia as the national leader in urban stormwater management. The Local Community of Practice recommends improvements in six key areas as strategies to maximize

the success of Green City Clean Waters: Policy; Process; Innovation and Research and Development; Financing; Contracting and Procurement; and Resources. Improvements in these areas would catalyze the local green stormwater infrastructure ecosystem so it can achieve its full potential. The potential impact of Green City Clean Waters extends far beyond stormwater management and can lead to a thriving, local, green, innovation-based economy. SBN, GSI Partners, and the LCoP ask that this report, and its recommendations, be used as a foundation for realizing this vision we share with PWD.