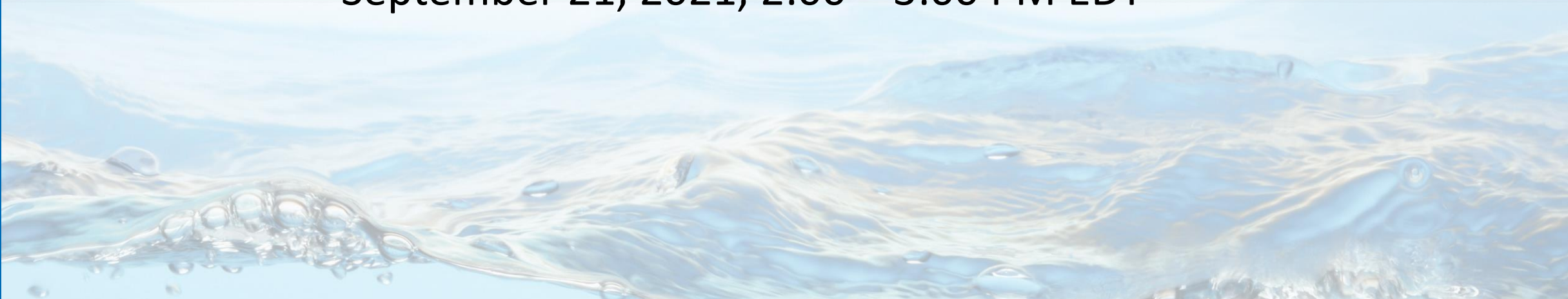




Stormwater Funding and Financing Webinar Series

Funding for Stormwater Operations and Maintenance

September 21, 2021, 2:00 – 3:00 PM EDT



Zoom Tips



- All participants will be muted during presentations
- Ask questions via the Q&A function or live:
 - Submit questions any time during presentations via the Q&A function
 - Raise your hand to ask a live question during Q&A (time permitting)
- For tech support, please note your problem via the Q&A function

Agenda



- Welcome and introductions
- Background on the Water Finance Center
- Featured speakers on frameworks and approaches to stormwater funding and equity
 - Matt Rea, OptiRTC
 - Nadia Vogt, Milwaukee Metropolitan Sewerage District
 - Julia Hilengas, PowerCorps PHL
 - Paul Harris, Buffalo Sewer Authority
- Q&A

This webinar will be recorded and made available on the EPA website at a later date.

Brightstorm

A joint venture of  &  Opti

Executive Summary

Cities were designed to treat rainwater as a problem—to move it away from people and property as quickly as possible.

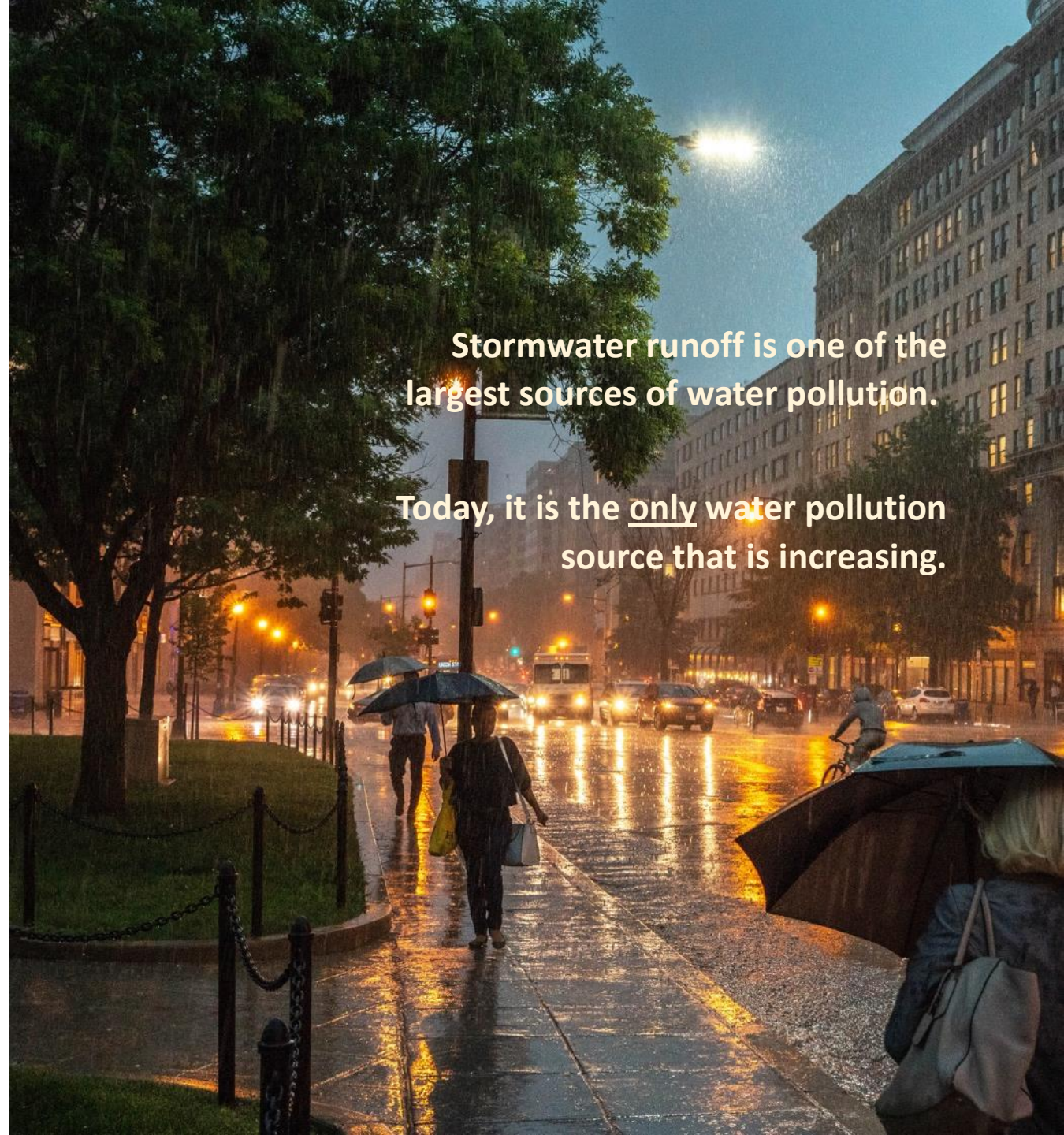
These design choices have damaged our water supplies. Stormwater runoff from cities threatens critical freshwater and marine ecosystems and limits our ability to deal with floods.

Treating stormwater runoff is the next frontier of effective water management. The need to meet federal water quality regulations and the desire for responsible corporate behavior are fueling demand for investment.

Brightstorm delivers community-scale climate resiliency by making existing water infrastructure smarter. We sell quantifiable improvements in water quality to public agencies that need Clean Water Act compliance and to corporations executing on water quality commitments.

As a joint venture between The Nature Conservancy and digital water pioneer Opti, we bring together expertise in science, technology, project procurement and delivery.

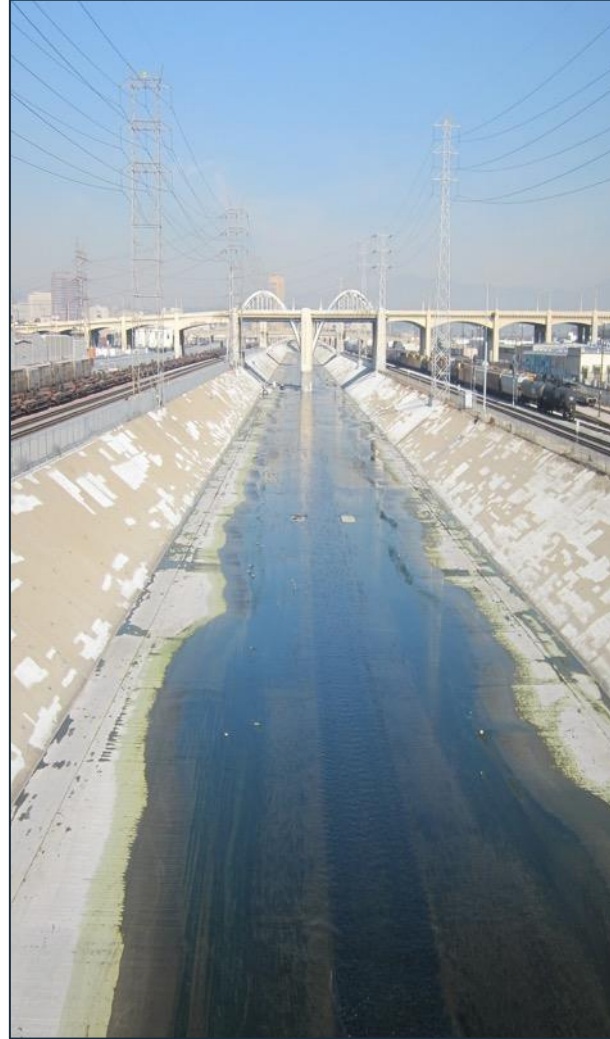
Intelligent stormwater management will vastly improve our environment. Brightstorm brings this solution to scale for cities and towns around the world.



Stormwater runoff is one of the largest sources of water pollution.

Today, it is the only water pollution source that is increasing.

The Problem with Stormwater



When rain falls in the forest, it soaks into the ground and is cleaned by nature. When rain falls in a city, it runs off pavement, picks up toxic pollution, and contaminates critical waterways. More frequent and heavier storms cause property damage and increased pollution.

More than 80% of the U.S. population is negatively affected by stormwater— and state and local governments are required to fund efforts to reduce those effects.

Historically, the main approach to managing stormwater has been to build. These projects are costly, take years to develop, and are quickly made obsolete.

We need a paradigm shift toward distributed, intelligent and cost-effective solutions for the millions of obsolete projects built over the last 30 years.

We can't tear down the cities we've built, but we can reprogram them to act more like nature.



The Urgent Need For a Better Way

● **\$150 billion**¹

needed over next 20 years to upgrade U.S.
stormwater infrastructure

● **\$35 billion**²

spent annually to meet federal water quality
goals

● **\$75 billion**³

annual cost of stormwater flooding

1: Water Environment Federation 2020 MS4 National Assessment Survey (2021)

2: EPA Clean Watersheds Needs Survey (2016)

3: NOAA National Centers for Environmental Information (2021)



Who We Are / What We Do

A joint venture between The Nature Conservancy (TNC), the world's largest NGO and digital water pioneer Opti, Brightstorm brings together expertise in science, technology, project procurement and delivery.



- » 70-year history
- » Operations in 79 countries and 50 states
- » 4,000 staff, including 600 scientists
- » 119 million acres of land protected globally
- » Expertise in finance, conservation, and policy
- » \$1.3 billion impact investment deals closed to date, and \$2 billion under development

-
- » Provide construction financing
 - » Evaluate data from projects to communicate watershed and site benefits and progress toward state or regulatory goals.
 - » Research regulatory and policy drivers to improve existing markets where Brightstorm operates
 - » Influence and evaluate future markets.



- » \$15M in capital development of stormwater management software platform
- » Microsoft and Google are strategic partners/investors
- » Over 160 projects in 20+ states
- » Regulatory approvals in target markets
- » Four US patents and extensive array of IP focused on active stormwater management control systems

-
- » Provide site identification and quantification of project benefits
 - » Oversee all design/build project management and delivery
 - » Hold SAAS contract for long term operation of the projects with Opti's software solution

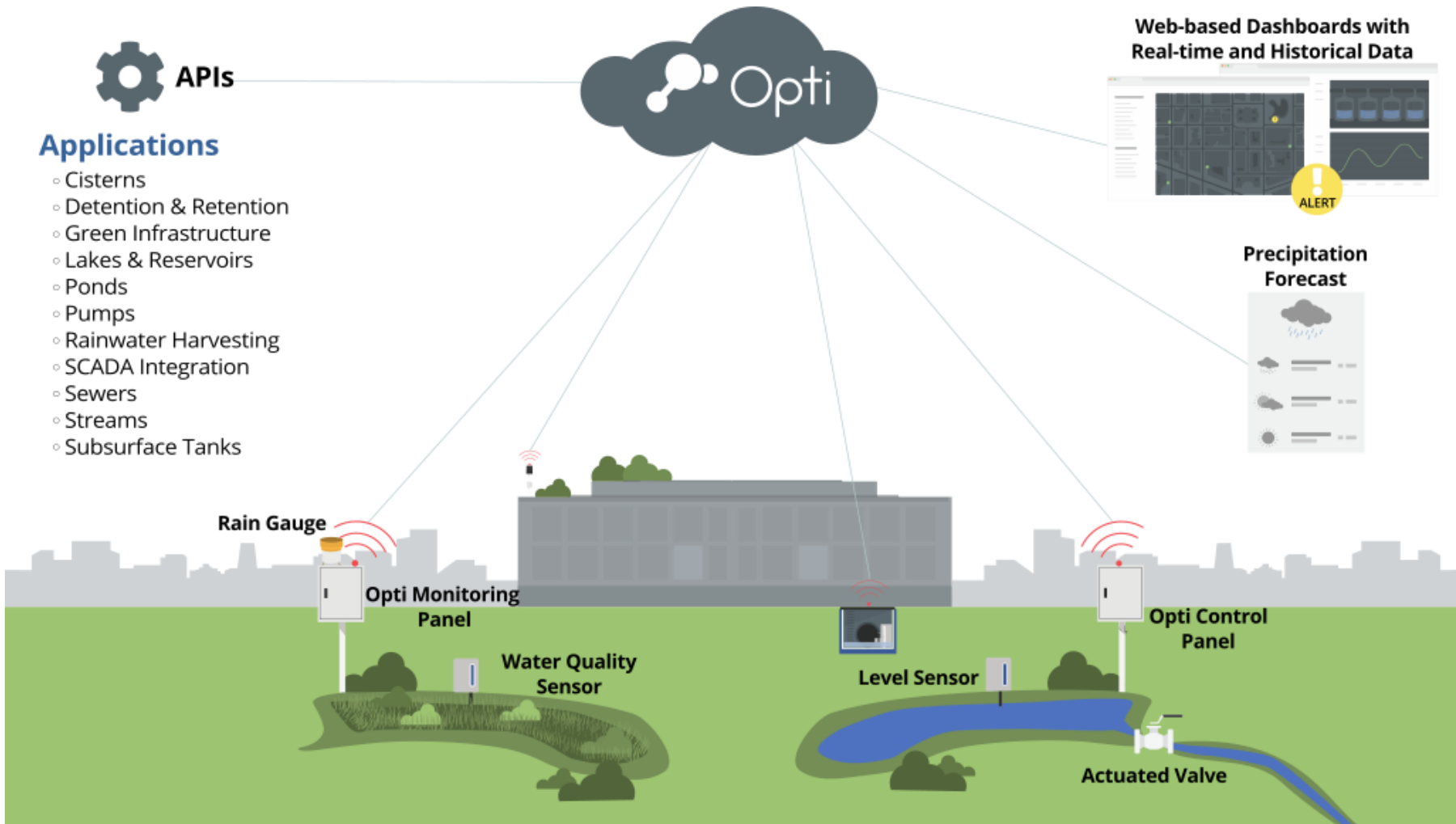
Brightstorm

- » Created in 2018 as a collaboration between TNC and Opti
- » Capitalized by loans from Prudential and TNC
- » Delivered \$3M+ revenue from projects over last 12 months, leveraging properties owned by Walmart

-
- » Solicit investor capital
 - » Hold option agreements with private landowners
 - » Negotiate and execute contracts with end buyers
 - » Provide legal & accounting services for projects



A New Solution: Intelligent Control



Predictive technology enables us to increase the effectiveness of **existing** stormwater assets and better adapt to the long-term unpredictability of a changing climate.

The Opti solution is simple to install and significantly cheaper than new construction. Millions of controllable assets (e.g., ponds, tanks, lakes) exist worldwide with the potential to make meaningful environmental lift at a scale previously not thought to be possible.

Cloud-based discharge control based on weather forecasting and data from on-site sensors generates saleable credits under a multitude of regulatory markets throughout the country.



Making a Market: Pairing Supply and Demand



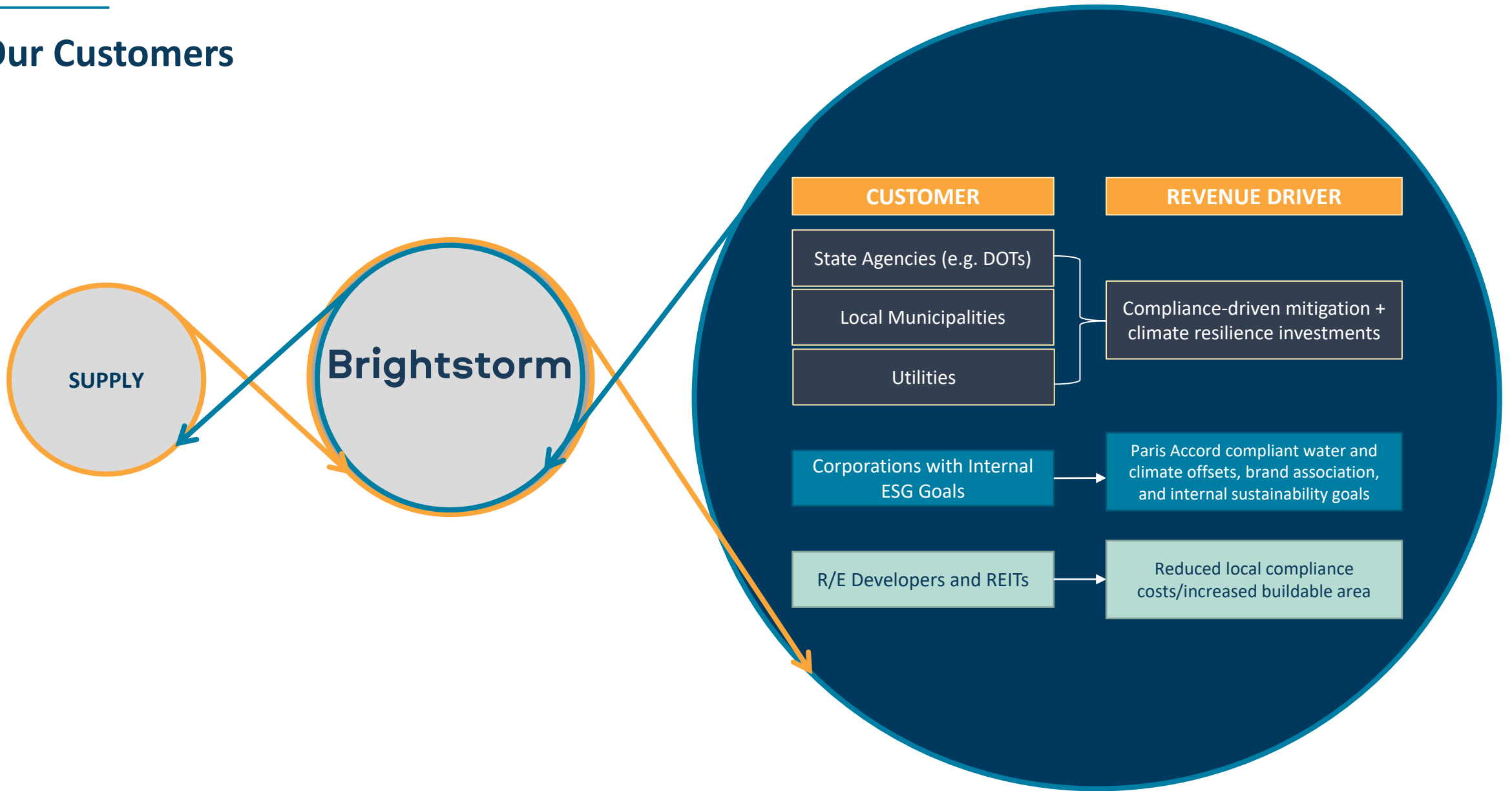
Private landowners are interested in market participation but do not have money or expertise to build and monetize stormwater management projects with public agencies.

Brightstorm bridges the gap: pairing Opti's technology products with TNC's deep relationships with public agencies and private sector landowners. Brightstorm provides a single source of compliance for public agencies, and a single source of financing to design, build, and maintain projects for property owners.

Public agencies have budgets and obligations to improve stormwater management but lack the expertise and capacity to develop individual projects with landowners.



Our Customers



Case Study: Maryland Department of Transportation

*The Maryland Department of Transportation (MDOT) is under regulation to treat runoff from 4,621 acres of impervious surfaces. To help them achieve this goal, **Brightstorm retrofitted private stormwater ponds** across the state.*

- Thousands of privately-owned stormwater ponds in the Chesapeake Bay watershed.
- Brightstorm retrofits existing stormwater ponds at Walmart stores in Maryland.
- Pond retrofits capture more pollution and reduce flood risk, creating excess water quality credits
- MDOT purchases excess credits from Brightstorm, instead of building new assets



"Brightstorm allows us to deal with an acre of stormwater runoff for less than \$40,000. The traditional approach cost us \$150,000 an acre. So, this is going to save taxpayers tens of millions of dollars."

- Maryland Department of Transportation



Case Study: Maryland Department of Transportation

EPA Region III + Maryland Department of the Environment



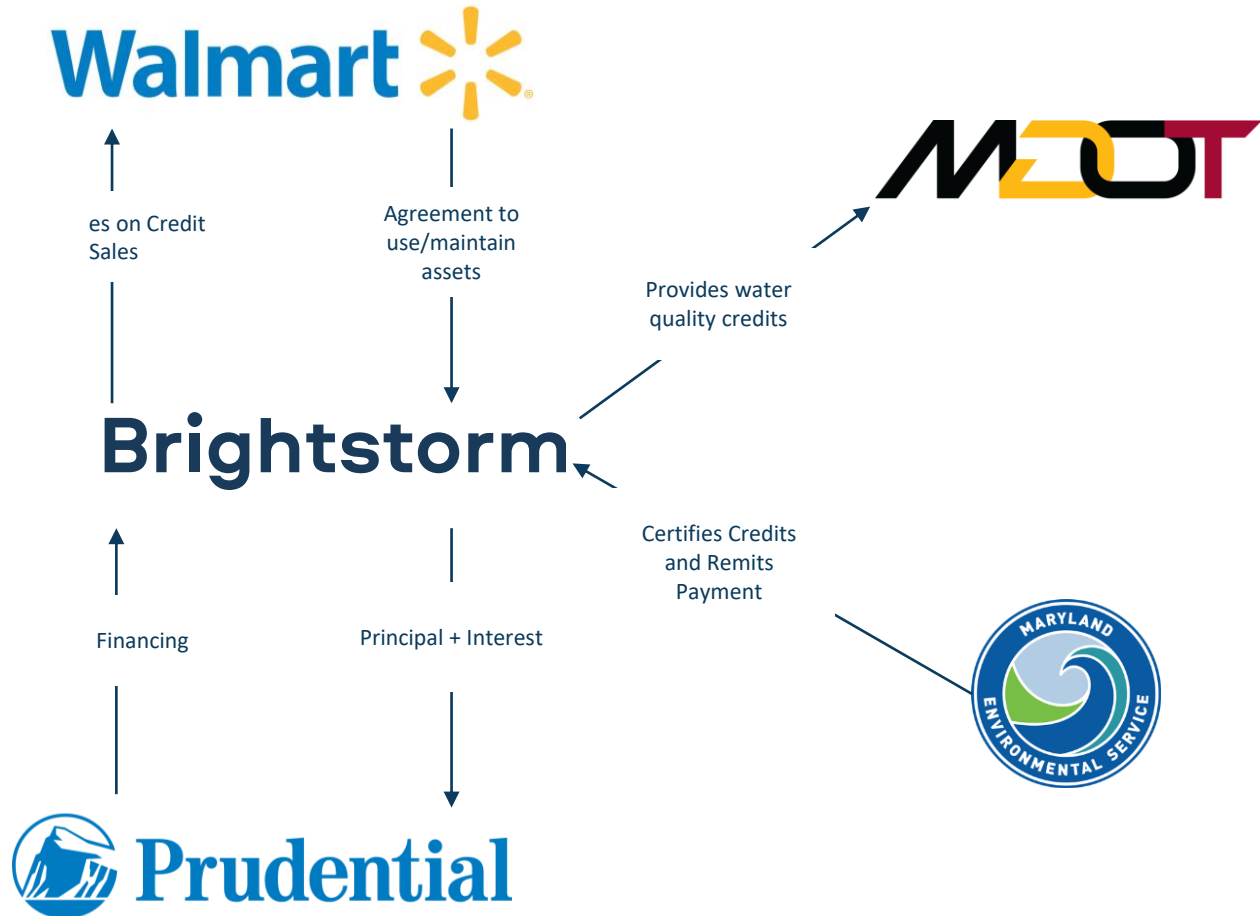
Credit Program Development and Regulatory Guidance



Gov't relations, financing, and conservation science support



Design/build and O&M services, technology support



Impact Goals & Metrics

GOALS



- **Enhance** ecosystem health and biodiversity in rivers, streams, estuaries and habitats



- **Demonstrate** technological solutions to stormwater pollution



- **Reduce** flooding and stream erosion



- **Prove** financial viability for investment returns from sale of water quality benefits.

METRICS



- **Reduce** Phosphorus, Nitrogen and Sediment discharge by 20-60% per project



- **Develop** flood capacity utilizing existing assets at less than 50% of the cost to build new storage



- **Reduce** peak flows by 75% and erosive flows by 50%



- **Repeat** transactions in project areas beyond initial pilots

KEY WATERSHEDS

Chesapeake Bay

The Gulf of Mexico

Puget Sound

Great Lakes

Mississippi River Basin

Colorado River Basin



Brightstorm

Contact

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MMSD's Approach To Stormwater Management Funding

Nadia Vogt

September 21st, 2021



Overview

Our mission is to protect public health and the environment through world-class, cost-effective water resource management, leadership, and partnership. We envision a healthier, cleaner, resilient region.



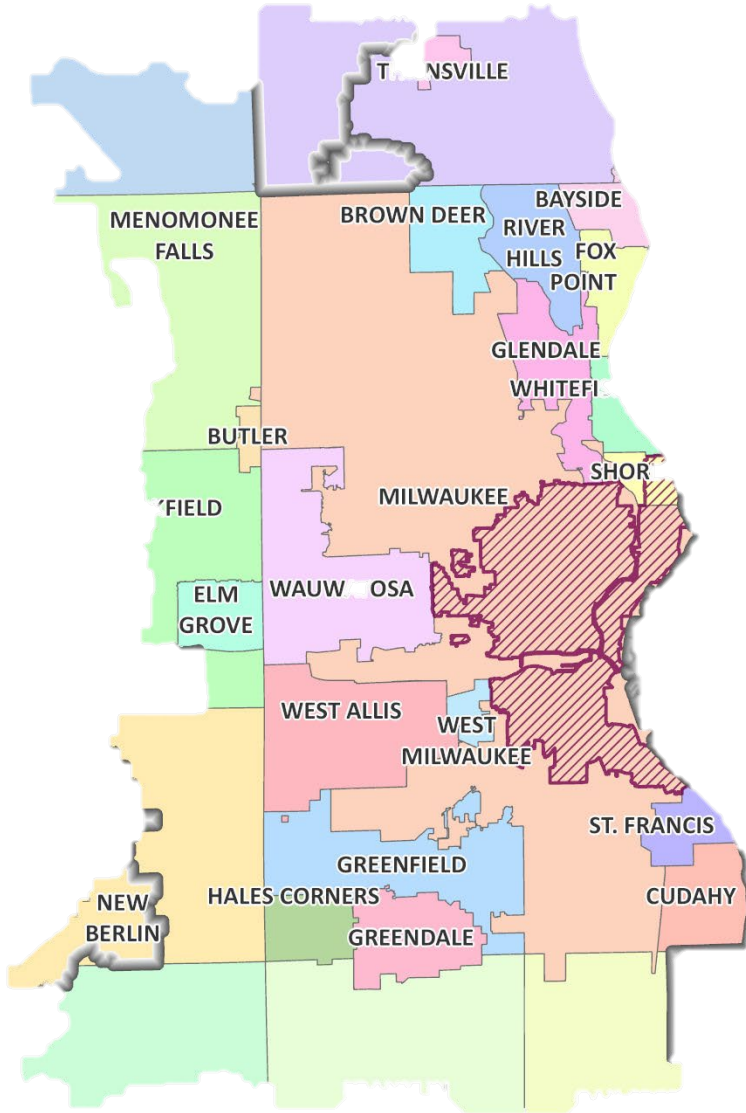
Who Does MMSD Serve?



1.1 Million Customers

28 Municipalities

411 Square Miles



What Does MMSD Do?



Wastewater Reclamation



Flood Management



Green Infrastructure

Green Infrastructure (GI) Goals

- Capture the first 0.5 inch of rainfall on impervious surfaces in service area= 740 million gallons
- Use GI to cost-effectively reduce combined sewer overflows
- Permit target of 50 million gallons by 2024
- Co-benefits of GI
 - Climate change mitigation
 - Reduce urban heat island effect
 - Replace grey with green
 - Create new green spaces



MMSD's GI Challenge & Opportunity

- Lack internal capacity to scale-up work to reach goals
- Need to approach gallons captured through innovative financing strategies.
 - Fresh Coast Protection Program (Public/Private Partnership Approach)
 - Incentive Funding Programs



Why A P3?

- Our current programs and staffing do not support the scale-up necessary to meet our goals
- P3 approach allows a new level of strategic project direction...second arm to do the work but with more flexibility, different insights, and have an incentive to perform
- Removes some of the risk from MMSD because of the performance-based contract structure (they need to capture gallons to get paid).

Fresh Coast Protection Partnership



How Are We Doing A P3?

- Several years to develop the RFP with months of negotiations with selected firm to determine best project management and financial approach.
- Contract includes site identification, planning, design, bidding, construction, warranty, and administrative work.
- We pay \$2.365 per gallon and it's a performance-based contract (fee per gallon of capture)
- Private partner has flexibility to add incentives for projects if needed like adding years of maintenance.

P3...A Phased Approach

- Multiple phases allows for adjustments
- Phase 1
 - Goal of 8.45 million gallons
 - \$20 million
 - 1-year vegetation establishment
 - 2020-2023
- Phase 2
 - Goal of 15-17 million gallons
 - \$50 million
 - 5-year vegetation establishment
 - 2023-2027





P3 Goals

Goal 1

Make GI an affordable alternative to grey infrastructure through grouping projects and standardized design

Goal 2

Reduce overflow volume and flooding issues through targeted implementation to achieve organizational goals more effectively

Goal 3

Build local capacity and private property participation in green infrastructure

P3 Take-Aways

Challenges

- Creating the process for roles, sharing information, and decision making
- Have to trust the private partner-change in role for MMSD from client to partner
- Ensure design standards are met

Wins

- Continuing design through Covid (although hindered construction)
- Have a solid framework for future projects to follow

Incentive Funding Programs

Green Solutions

Annual allocation to municipalities based on equalized value. Reimbursement program for GI with 20% able to be used for design.

2022 budget=\$5M

Green Infrastructure Partnership Program

Annual partnership funding for public, private, and not-for profit organizations. Offers incentive funding on a per-gallon-captured basis.

2022 budget=\$3M

Green Schools Program

Milwaukee schools-conceptual design for GI. Suburban schools, engineering plans for GI.

2022 budget= \$195,000 (Milwaukee & suburban contracts)

Incentive Funding Goals

- Two of the programs require either a funding match or that the partner take additional next steps. Incentive funding creates a ‘skin in the game’ approach.
- Municipal funding supports meeting stormwater management goals under fiscal constraints (municipalities have LOTS of things they need to spend money on).
- Allows flexibility for design and construction to fit various landowner needs.



Before



After

Incentive Funding Take-Aways

Challenges

- Municipalities & partners are all at different places in ability to identify and design GI
- Maintenance
 - Lack of budget
 - Lack of capacity or skill to do work
 - Need regulatory support for inspections and follow up

Wins

- Development of relationships
- Helping partners meet multiple goals
- Gallons in the ground
- MMSD trying to take the brunt of the learning curve to make it easier for partners
 - Develop O&M manuals
 - Sizing and plant selection tools
 - Research for performance of GI



Thank You & Questions

Nadia Vogt

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Advancing Community
Connecting People to Careers

September 21, 2021

Powered by





Current Operations



Current Operations



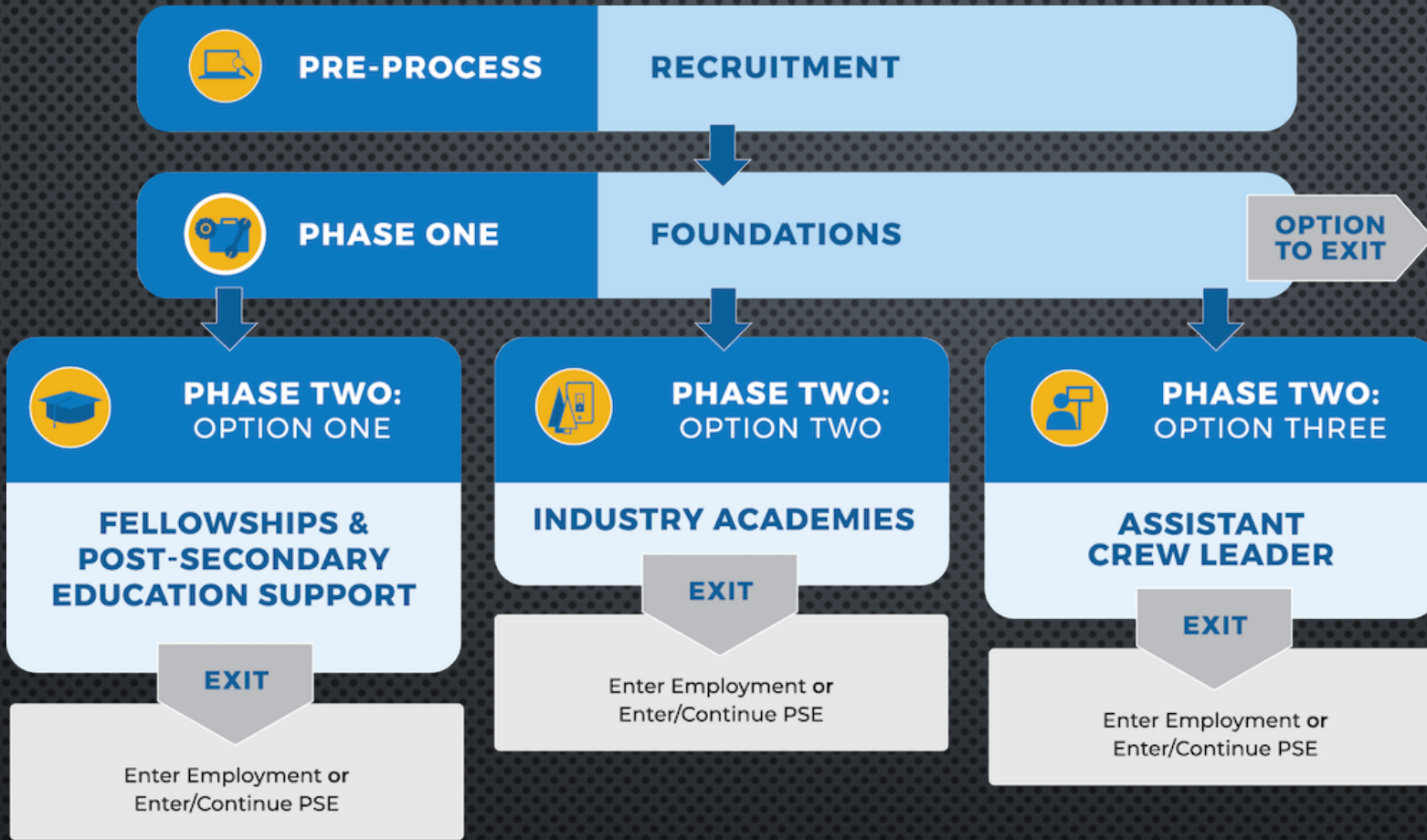
95%
Black

4%
Latinx

70%
Men

>50%
Court-
Involved

40%
Parents



Current
Operations



Recruit
Untapped
Talent

Employer
Aligned &
Co-
Designed

Paid
Training/Work
Experiences

Results in
Quality Job
Attainment &
Advancement

Individual
Success
Through
Community
Advancement



**VETTED
TALENT**



GREEN INFRASTRUCTURE

- Co-developed with Philadelphia Water
- Refined with private sector and industry group

URBAN FORESTRY

- Co-developed with private + public sector

SOLAR + ELECTRICAL

- Co-developed with private sector and industry

MASONRY

- Co-developed with private sector and historic preservation site

Current
Operations

YOUTH WORK + EDUCATION

- Piloted as formal apprenticeship in 2020; refining with Urban Institute

URBAN PARK RANGERS

- In development with Philadelphia Parks & Recreation as part of the strategic plan to re-imagine role



**EMPLOYED
IN SECTOR**





NASSIR: FROM GSI ACADEMY TO GSI APPRENTICE

National leader and model

31% of staff are alumni

70% of staff are people of color

100% of Leadership Team are POC



>90% of graduates move into employment

Starting wage range \$12/hr—\$17/hr*

3% in-program recidivism

8% one-year post-program recidivism

40% of budget = direct benefits

Achievements
and Impact



BUFFALO

SEWER AUTHORITY



RAIN BARRELS



GREEN SPACE



WETLAND &
SHORELINE BUFFER



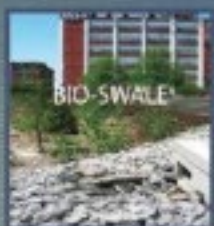
GREEN STREET



STORM PLANTER



PERMEABLE PAVERS



BIO-SWALE



RAIN GARDEN



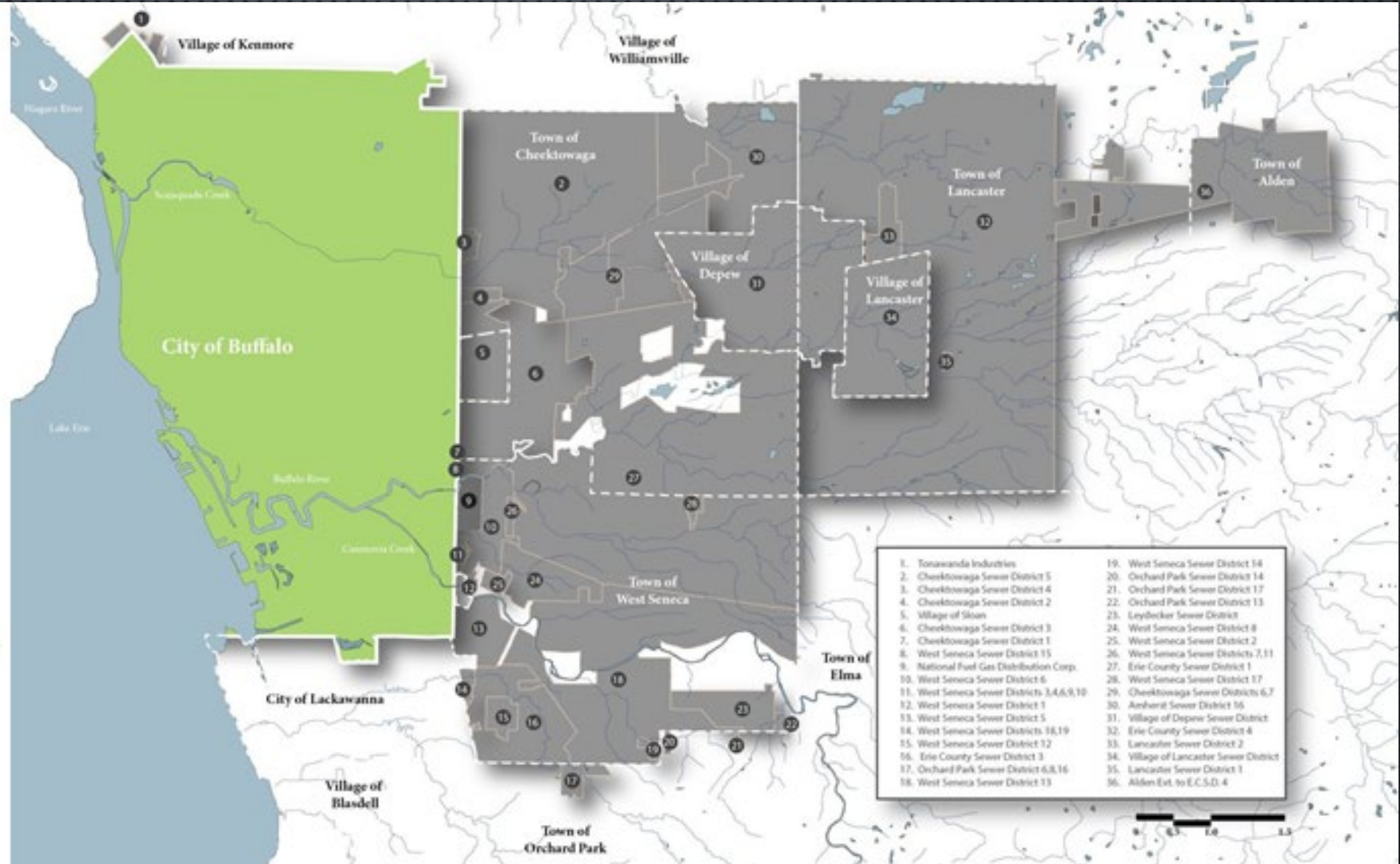
POROUS ASPHALT

BSA TREATMENT PLANT

BUFFALO
SEWER AUTHORITY



- Established in 1935
- Services the City of Buffalo, NY and 11 Surrounding Municipalities
- 110 Square Miles of Coverage, 850 miles of sewer pipe
- Serves Over 550,000 People
- Annual Operating Budget of \$54.9 Million
- Undertakes Over \$20 Million in Capital Projects Annually



MANAGE GREEN INFRASTRUCTURE

1,315 ACRES OF IMPERVIOUS SURFACE AREA WITH GREEN INFRASTRUCTURE

DEVELOP A NEW TEAM

GREEN INFRASTRUCTURE MAINTENANCE DEPARTMENT

CURRENTLY MANAGE 66 ACRES

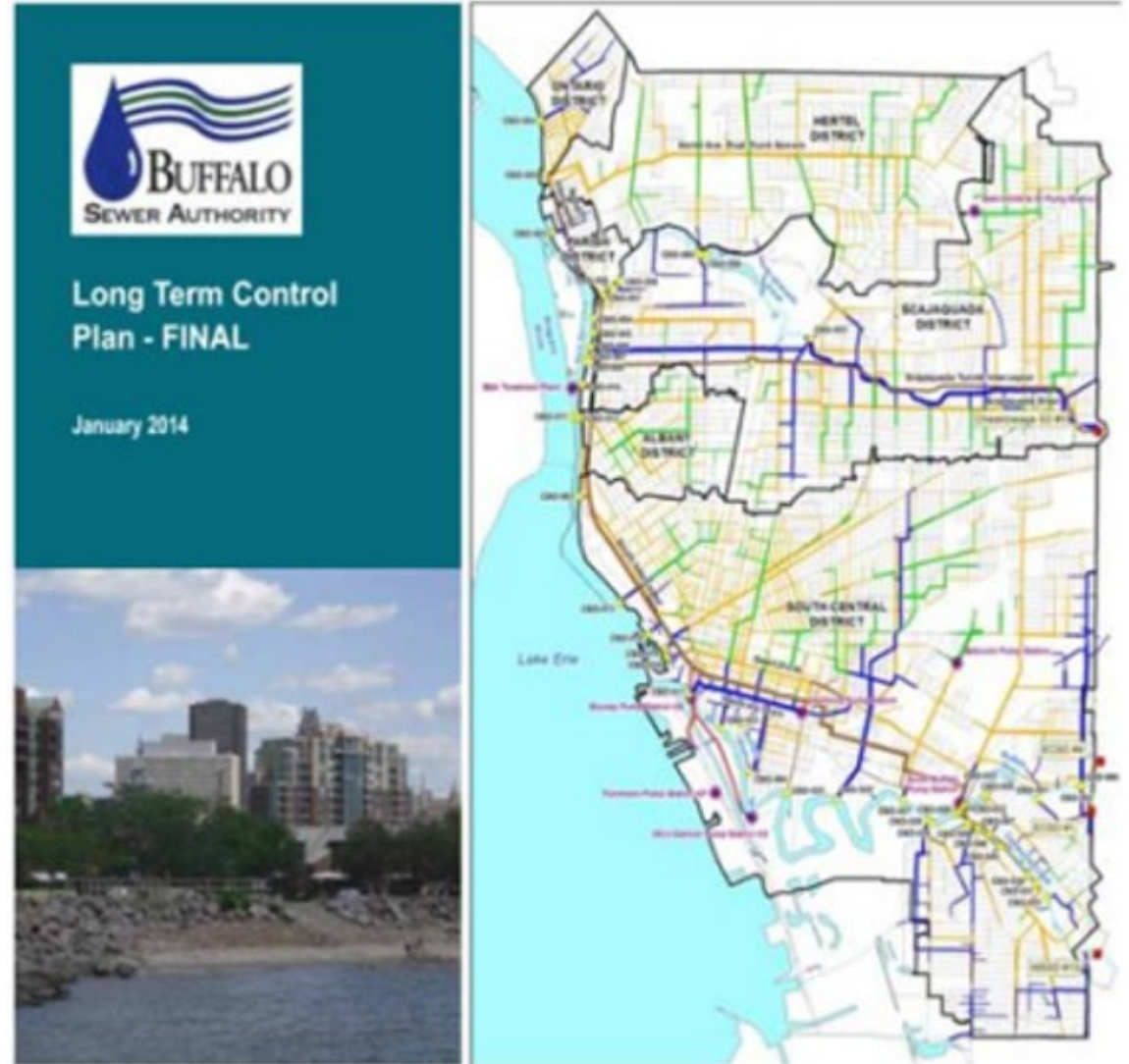
FUTURE EXPANSION TO INCLUDE 200 ACRES

TEAM

NEED 16 PEOPLE NOW

NEED POSSIBLY 50-70 PEOPLE IN THE FUTURE...

FOCUS ON EQUITY



ISSUED RFP (GREEN INFRASTRUCTURE STEWARDSHIP PROGRAM)

DEVELOP 3RD PARTY WORKFORCE DEVELOPMENT PROGRAM

FOCUS ON EQUITY (BASINS 26 & 53)

FULL WRAP AROUND SERVICES

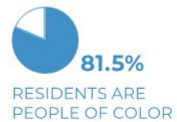
PROVIDE ALTERNATIVE PLACEMENT

Basin 26



1901 acres
TOTAL BASIN AREA

Neighborhood Profile Snapshot



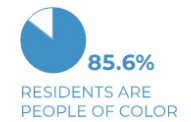
The data presented is for census tracts located within or that intersect the CSO basin boundaries, as an approximation of neighborhoods (see Appendix A for more details and methods)

Basin 53



3969 acres
TOTAL BASIN AREA

Neighborhood Profile Snapshot



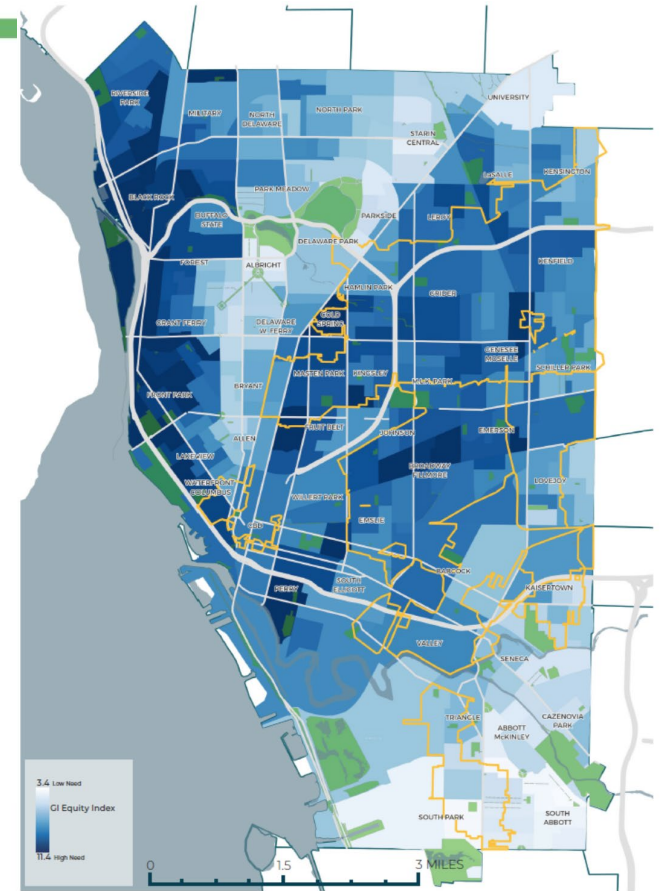
GI Equity Index Factors

Socio-economic factors:

- Race and ethnicity
- Income
- Education attainment
- Young children
- Older adults
- Owner occupancy
- Limited English speakers
- Unemployment and labor force participation

Built environment factors:

- Traffic proximity
- Ozone levels
- Particulate matter
- Access to public open space
- Tree canopy cover
- Impervious surface cover
- Vacant land
- Residential vacancy rates
- Commercial vacancy rates



BENEFITS OF IMPLEMENTING THIS MODEL VIA POWERCORPHL:

- SUPPORTING BSA'S RAINCHECK EQUITY GOALS
- ADDRESSING PIPELINE NEEDS
- PROGRAM DESIGN WORKS WELL WITH OUR SEASONAL MODEL NOW & AT FULL CAPACITY
 - 50-70 PEOPLE (HIRE 20-30)
- FUNDING:
 - WIN/WIN - JOB TRAINING / WORKLOAD OFFSET (BSA OVERALL SAVINGS)
 - GRANT FUNDING OPPORTUNITIES AVAILABLE
 - CONGRESSIONAL SUPPORT

Expanding
Impact



- **BENEFITS OF IMPLEMENTING THIS MODEL VIA POWERCORPPHL:**

- **FUNDING:**

- WIN/WIN - JOB TRAINING / WORKLOAD OFFSET (BSA OVERALL SAVINGS)
- GRANT FUNDING OPPORTUNITIES AVAILABLE
- CONGRESSIONAL SUPPORT

- EXTREMELY IMPRESSED WITH EXCITEMENT & TALENT OF FIRST ROUND CANDIDATES

Expanding
Impact



&

BUFFALO
SEWER AUTHORITY

Questions & Answers



Thank you!



- For additional questions and more information, please contact the Water Finance Center: waterfinancecenter@epa.gov

www.epa.gov/waterfinancecenter