

From Plan to Progress:

Investing in Your Green Stormwater Infrastructure Workforce

Aaron Kirkland

Superintendent, Green Stormwater Operations

Darren Brown

Crew Chief, Green Stormwater Operations



**PHILADELPHIA
WATER
DEPARTMENT**





Green City,
Clean Waters

A Sustainable Utility in Support of a Sustainable City

Drinking Water

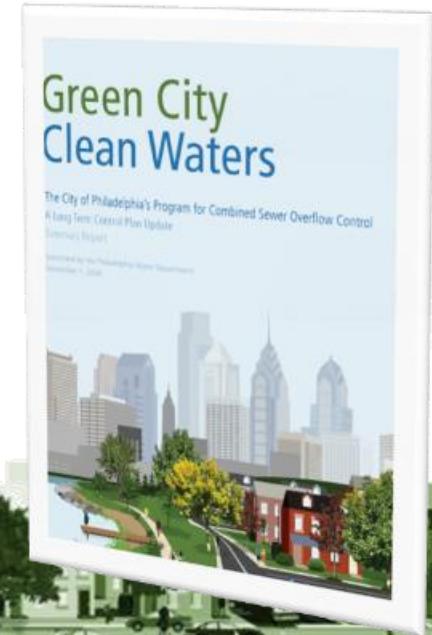
1.73 million customers in Philadelphia, Bucks, Montgomery & Delaware Counties

Wastewater

2.22 million customers in Philadelphia, Bucks, Montgomery & Delaware Counties

Stormwater

Philadelphia City/County only



STREETS



FACILITIES & VACANT LAND



Parks and Recreation Centers



Project Highlight – N. American St.



Green Stormwater Operations Overview



- GSI Maintenance Group (GSIMN) created in FY2010 in Office of Watersheds
- 2011 21 pilot sites; 100% of surface maintenance via contractor; limited PWD subsurface maintenance
- 2017 GSIMN moved to PWD Operations and became the Green Stormwater Operations (GSO) Unit
 - Technical and Grounds Maintenance staff
 - Augmented by Sewer Maintenance (Flushing) , Flow Control (CCTV), and Inlet Cleaning (Inlet Pretreatment)
 - Support from PowerCorps_PHL and contract labor for surface, subsurface, porous and repair tasks
 - Additional support from SUI Adoption partners (maintenance of DA, community engagement)
- Currently >1,900 active stormwater maintenance practices (SMPs)
FY2025 ~47,000 work orders to fulfill O&M requirements



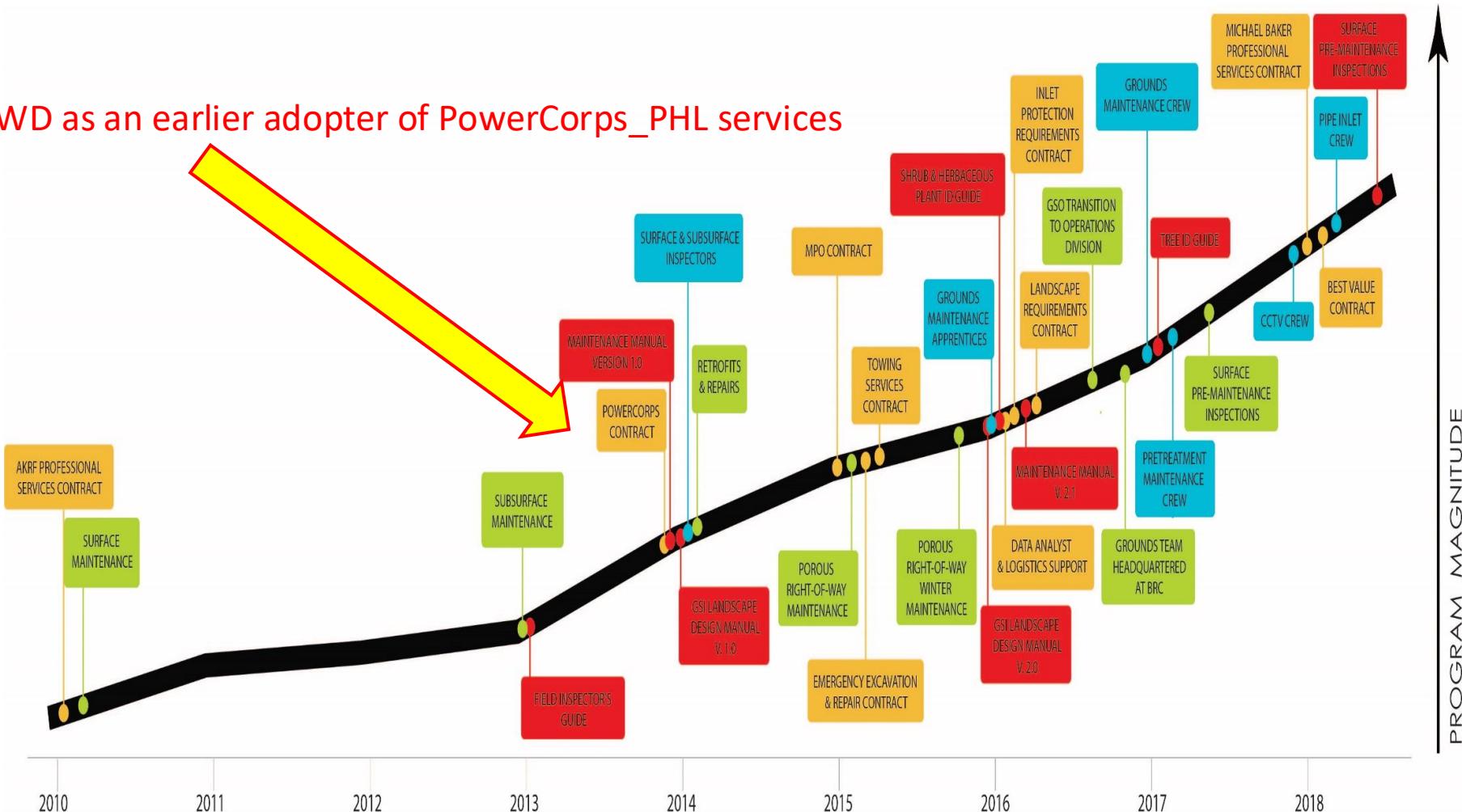
What it Takes to Get it Done: A Snapshot in Time

Work Order Type	Number of FY25 Events	Work Order Type	Number of FY25 Events
Surface	18,104	Subsurface	28,569
Surface Inspection	4,544	Subsurface – Post Construction Inspection	1,013
Surface Maintenance -Routine	6,561	Subsurface Maintenance	2,911
Surface - Mulching	817	Subsurface Inlet Cleaning	2,753
Surface - Pruning	571	Subsurface Inlet Protection Maintenance	711
Surface Maintenance -Watering	3,520	Surface Inlet Protection Maintenance	21,175
Tree Maintenance	531	Non-Standard Subsurface Inspection	0
Trench Drain Maintenance	560	Non-Standard Subsurface Maintenance	2
Work Zone Protection	1	Subsurface Structural Repair	4
Aesthetic	365	Porous	10
Signage Repair	168	Routine Porous Maintenance	10
Surface Vegetation Cutback	452	Restorative Porous Maintenance	0
Snow Removal	7	Total	47,015*
Rough Mowing	6		
Turf Mowing	1		
Surface Maintenance - Reactive	332		
Surface Vegetation Repair	138		
Earthwork	54		
Surface Structural Repair	134		
Drainage Modification	6		

*FY2025 → 7/1/2024 – 6/30/2025

GSO: The Program Development Journey

PWD as an earlier adopter of PowerCorps_PHL services



How Does PowerCorpsPHL Assist?

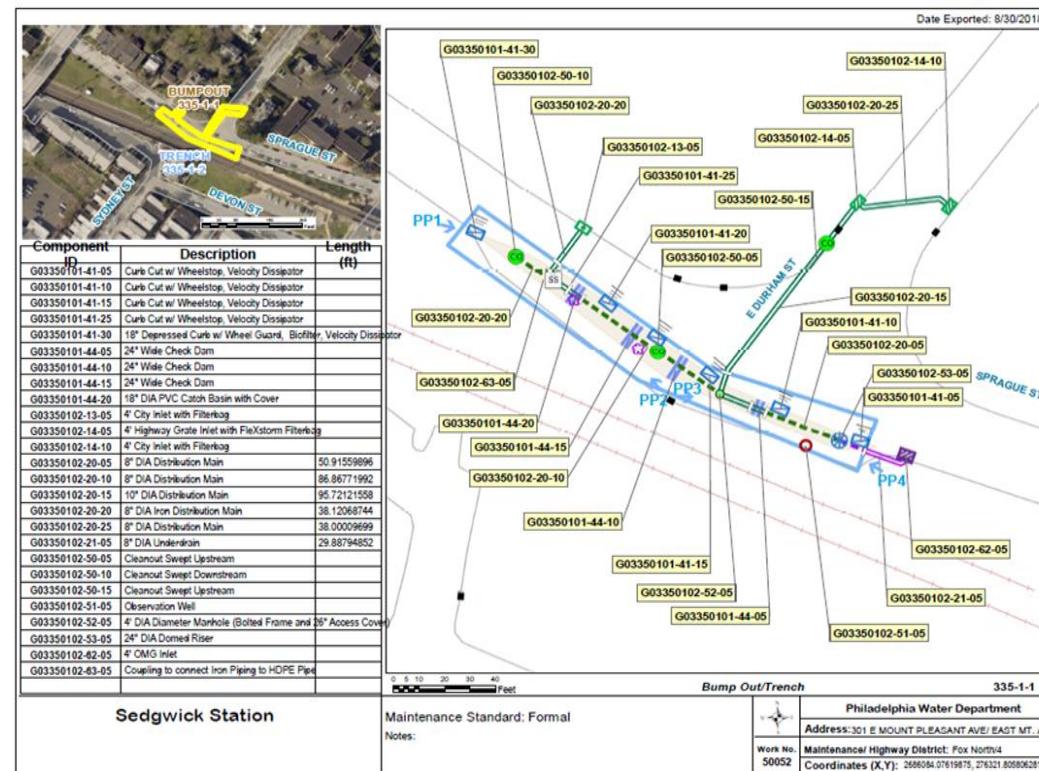


+



PowerCorpsPHL Program Expectations

- **PowerCorps_PHL Crews as City Representatives**
 - Advocates and Ambassadors for PowerCorps_PHL and PWD
 - Professional representation
- **Work Order Management & Reporting**
 - Interoperability
 - Scheduling
 - Maintenance Maps
 - Logistics Management
 - Data Collection
 - Materials Collected
 - Condition Assessment
 - Adherence to PWD Maintenance Manual



• Scope of Work

- Trash & Debris Removal
 - Organic Materials
 - Sediment
 - Construction Debris
 - Other (short dumping)
- Hand -weeding
- Collaborative projects
 - Skill transfer from PWD Staff
 - GSO Surface and Grounds Teams
 - Waterways Restoration



***PWD-Assigned Cohorts**

• Scope of Work

- Aesthetic Maintenance
- Routine Maintenance
 - Progressive Approach
 - Tree trenches → Small vegetated SMPs
 - Bump-outs
 - Planters
 - Vegetative Care
 - Watering
 - Replanting
 - Removal of noxious and non-target species
 - Mulching
 - Pruning



Building the Future Through Apprenticeship

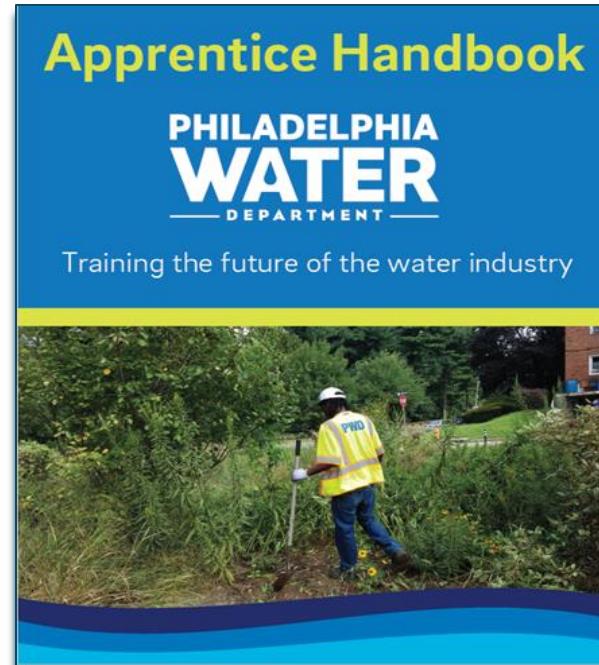


Expands the talent pipeline for the Dept

Long-term solution for hard-to-fill positions

Provides apprentices with:

- On-the-job training
- Mentorship
- Classroom instruction



Staff Trainings & Skill Development



Investing in Staff to Build Skills

Certifications & Programs

- Clean Water Certificate Program
- Pesticide Usage
- CityWorks

Field & Maintenance

- Plant Identification
- Planting/Mulching
- Structural Repairs
- Erosion Control
- Wetland Maintenance
- Hydrants

Inspection & Planning

- Surveying
- Inspections
- Landscape Plans



CREATING GREEN INDUSTRY PROFESSIONALS



How it All Comes Together

April 2014 – May 2024:

- **10,000+ Task & Work Orders completed**
 - >100 tons of residential garbage collected
 - >100 tons of organic debris collected
 - 46 tons removed in FY2021
- **742 Unique SMPs/387 GAs maintained**
 - 669,986 FT² (15.4 acres) vegetated area maintained
- **35 PowerCorps_PHL alumni transitioned to full-time PWD positions**



Key Take-Aways

- Co-evolution of GSIMN/GSO and PowerCorps_PHL
 - PowerCorps_PHL as “buffer”
 - PowerCorps_PHL as foundation of green jobs pipeline
- Intentionality
 - Data Collection
 - Progressive ramp-up
 - Routine vs On-call/Complaint Driven Regime
- Implementation Scale vs O&M Capacity
 - GSI implementation rate higher than resource development & onboarding rate [but slow growth works!]
 - Logistics management framework takes time
 - Understanding of existing, emerging & projected emerging/projected
 - Long-term trend in contracted to internal labor ratio
 - Sustainably from budget perspective

PHILADELPHIA WATER DEPARTMENT



Darren Brown

From Community Apprentice to Crew Chief

PowerCorps_PHL

Crew Member → Assistant Crew Leader

Focus: Tree care & park revitalization

Philadelphia Water Department

Community Apprentice

Grounds and Facilities Maintenance Worker I

Grounds and Facilities Maintenance Worker II

Current Role

Grounds Maintenance Crew Chief

Leads GSO Grounds Crew

Supports training & onboarding

A pathway built through experience, training and support.





Questions?

Aaron.Kirkland@phila.gov
Darren.Brown@phila.gov