Optimatics
PLAN SMARTER

CASE STUDY: BALANCING GREEN & GREY INFRASTRUCTURE INVESTMENT CITY OF ATLANTA DEPARTMENT OF WATERSHED MANAGEMENT

The City of Atlanta Department of Watershed Management (DWM) engaged Optimatics and Stantec Consulting to develop optimized Long-Term Control Plans (LTCPs) for three of their sewersheds, using the Optimizer™ platform. DWM is one of the largest utilities in the country, servicing 1.2 million customers daily. DWM places strong emphasis on sustainable stormwater management practices and utilizes green infrastructure throughout its networks.

KEY POINTS

- Balancing grey and green infrastructure investment
- Targeting basins to maximize Triple-Bottom-Line co-benefits
- Multi-objective analysis

CLIENT REFERENCE

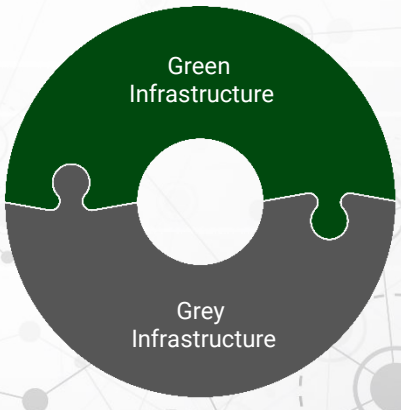
The City of Atlanta DWM

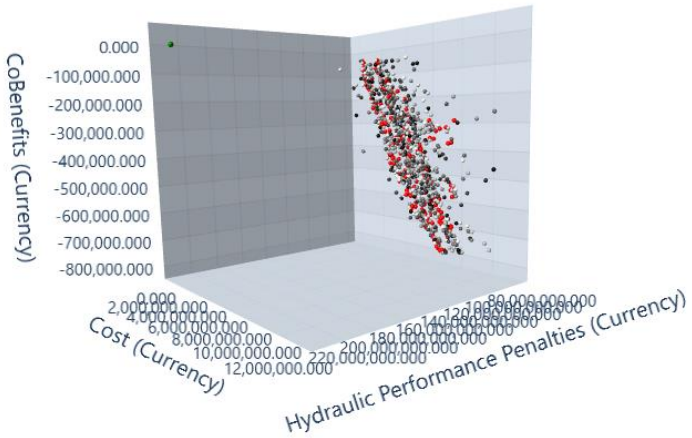
Prior to the optimization study, DWM identified a range of potential projects in the North Avenue, Clear Creek, and Intrenchment Creek basins to improve hydraulic performance and water quality. The projects involved grey (pipes, tanks etc.) and green infrastructure projects (rain gardens, swales etc.). Having identified these projects, DWM needed to determine which were the most effective to meet performance goals.

Using the Optimizer™ platform, the project team was able to develop a multi-objective optimization framework where three separate objectives could be utilized simultaneously:

- Project Costs
- Hydraulic Performance (CSOs, flooding, freeboard)
- Triple Bottom Line (TBL) Co-Benefits (social, environmental etc.)

The incorporation of the TBL objective allowed for the green infrastructure projects to be more fairly weighted in the optimization and is more beneficial than grey infrastructure.





ANALYSIS OUTCOMES

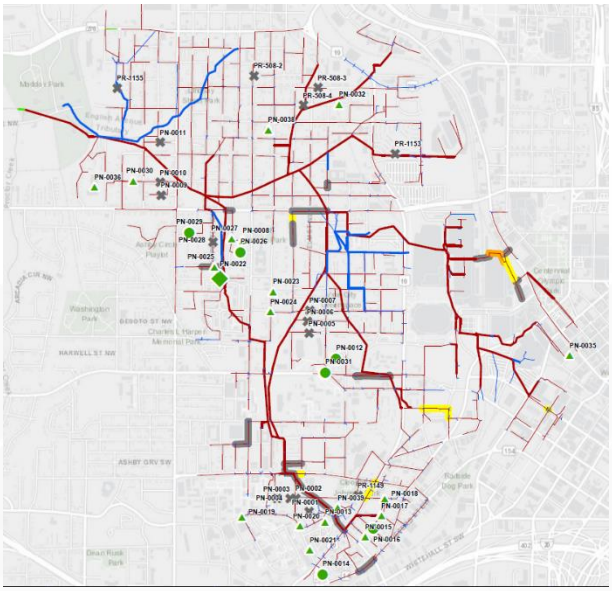
The project was able to produce hybrid LTCP solutions that cost $65M less than previously proposed grey-only solutions while achieving the same level of hydraulic performance. The proposed solution also scored well for the monetized TBL objective.

The multi objective optimization approach produced excellent results for the North Ave, Clear Creek, and Intrenchment Creek basins. This resulted in a cumulative cost savings of $65M from a previously developed LTCP strategy that was developed using traditional design methods.

CONCLUSION

The success of the optimization effort can be contributed to the following:

- Produced LTCP solutions that saved significant capital costs for DWM and provided benefits to the environment and community through the incorporation of green infrastructure projects.
- Established a repeatable framework that can be used by the City of Atlanta or other municipalities, to incorporate TBL benefits into collection system optimizations.



"The Optimizer software allowed the Department of Watershed Management to identify the best solutions that aligned with the City of Atlanta 'One Water' Vision," said Commissioner Mikita Browning. "I look forward to our continued collaboration with Optimatics and Stantec Consulting, as we work together to provide and protect the City's infrastructure & resources while supporting innovation and sustainability."

ABOUT

Optimatics is changing the trajectory of public utility economics, powering outcome-driven analytics strategies that achieve new levels of operational and community impact. With Optimatics, infrastructure leaders leverage an intelligent platform combined with their engineering judgment to explore the full range of options and tackle complex decision-making with confidence.