



New Jersey Water Risk Equity Map

Addressing Water Infrastructure Challenges in Overburdened Communities: Leveraging Data and Increasing Community Engagement through an Environmental Justice Lens

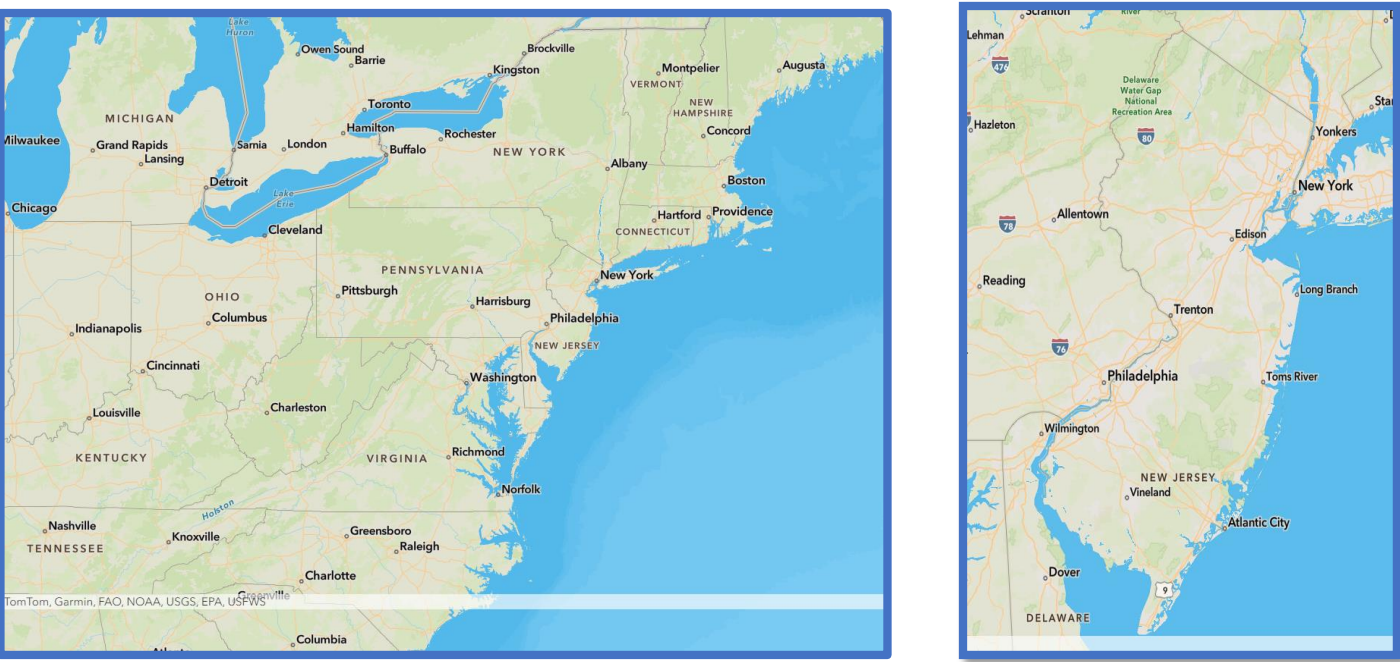
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New Jersey Future | Jersey Water Works | Jersey WaterCheck | Rutgers University



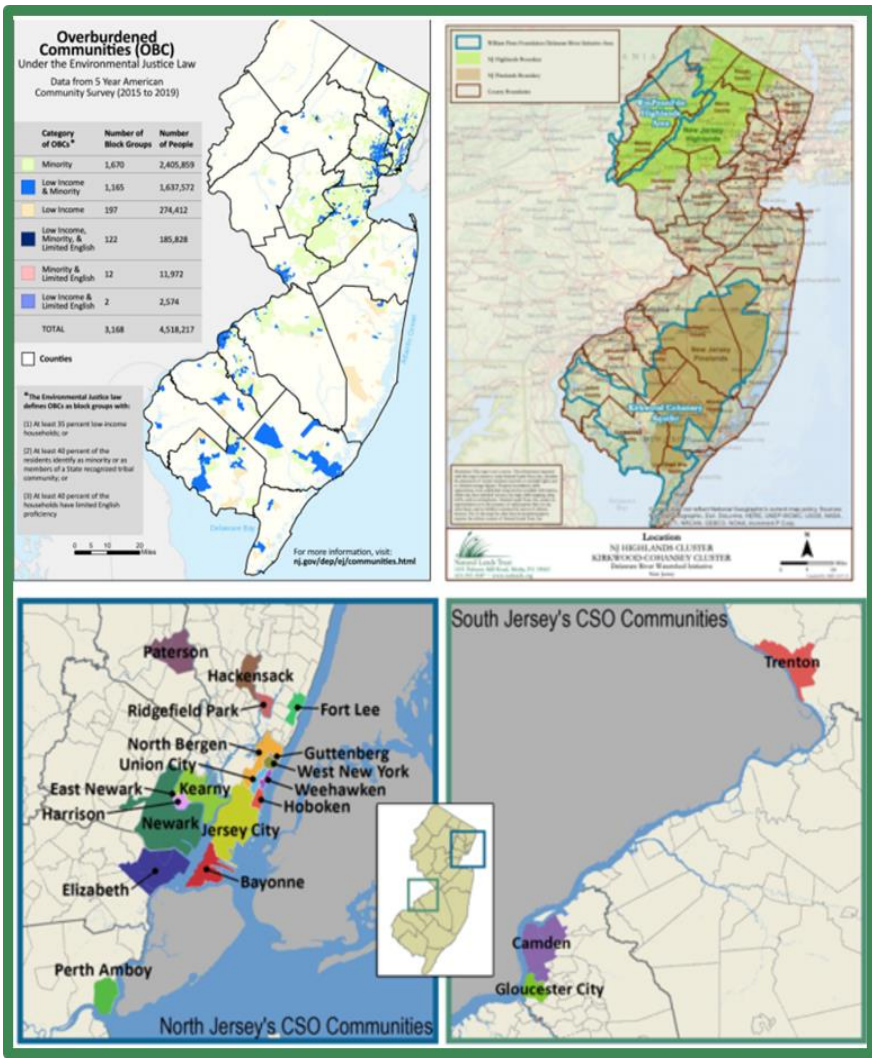
BACKGROUND

New Jersey faces a wide range of water-related risks, from **flooding** near rivers to **sea level rise** and the presence of **lead** and other contaminants in drinking water. These issues affect people differently throughout the state. The Water Risk and Equity Map contains information for residents, advocates, policymakers, and water systems to understand risks in their communities and service areas.



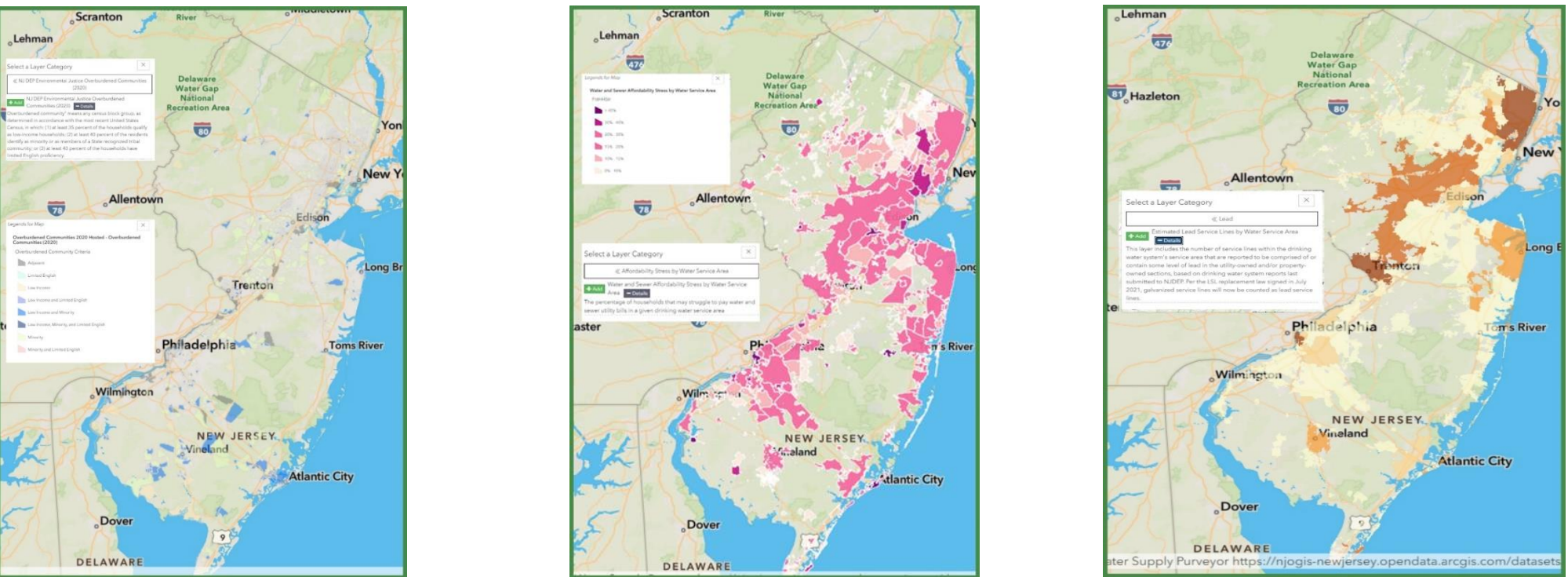
- ✓ **NJDEP Overburdened Communities (OBC)**
- ✓ **CDC's Social Vulnerability Indexes**
- ✓ **United Ways Asset-Limited, Income-Constrained, Employed (ALICE) household dataset**
- ✓ **NJ DCA Municipal Revitalization Index Distress Score**
- ✓ **Redlining**

MATERIALS



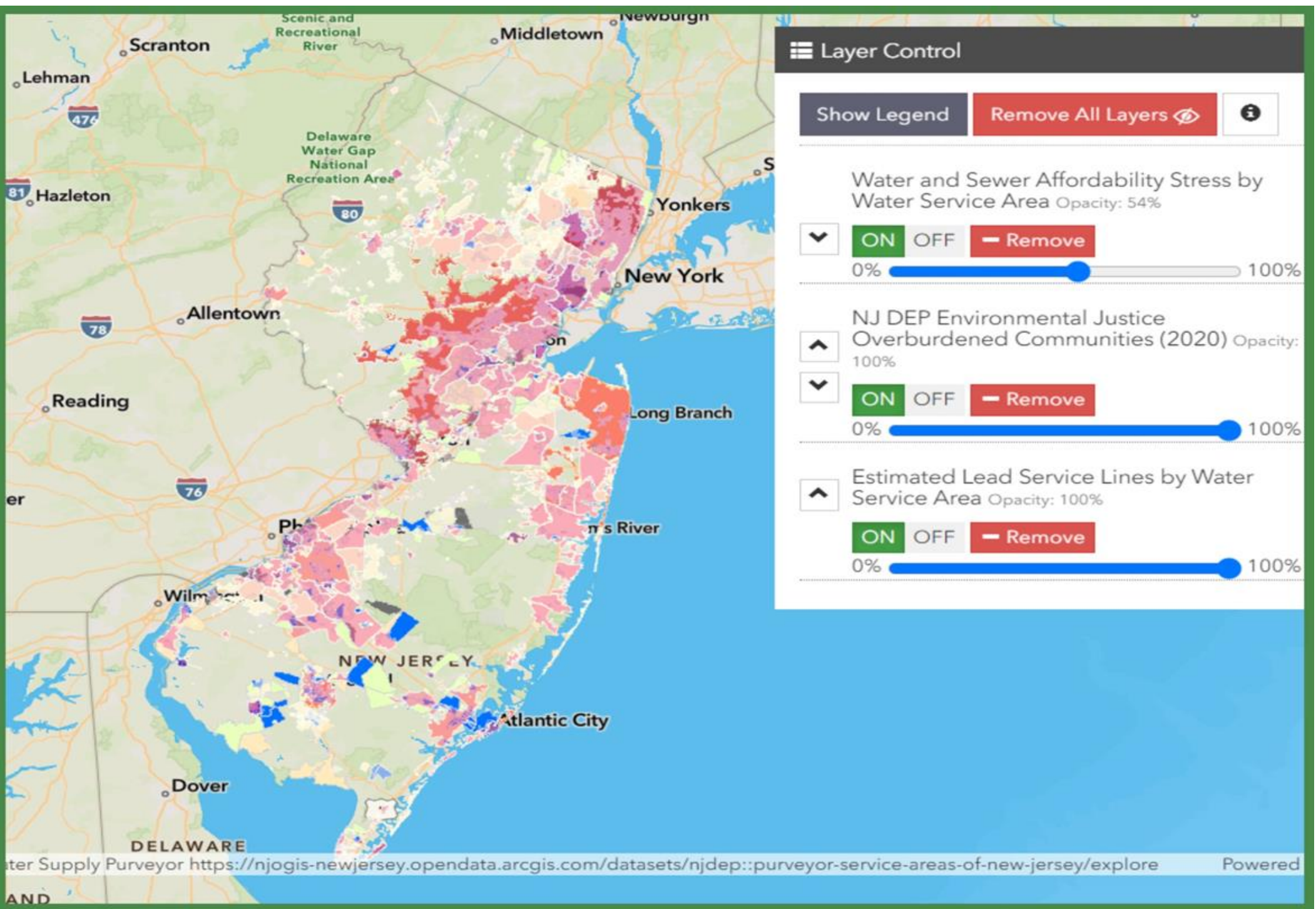
METHODOLOGY

The Water Risk and Equity Map was developed by the **Jersey Water Works Green Infrastructure Committee in partnership with New Jersey Future and Rutgers University**, who host the mapping tool. The subcommittee members include nonprofit organizations, higher education institutions, the NJ Department of Environmental Protection (NJDEP), and community and other stakeholders. The map illustrates the overlay of water risks and demographic factors and can be used to address inequities in water risk exposure. This tool makes it possible to visualize data, improve risk communication, and inform comprehensive intervention and engagement strategies. Below are screenshots of varying layers.



APPLICATION

Understanding the interplay between the distribution of **lead service lines** and the distribution of **overburdened communities and water and sewer affordability stress by service area** is essential to comprehend larger societal and environmental implications. By juxtaposing these three data sets, we glean insights to the systemic disparities and environmental injustices that plague certain communities, shedding light on the need for targeted interventions and policy reforms. Further application can delve into the factors underpinning the municipal revitalization index unraveling a web of economic, social, and infrastructural challenges. Layering these datasets presents a compelling narrative of historic neglect and systemic inequity while pointing the way to informed policy recommendations and implementation solutions.



- ✓ **Assists the public in identifying potential risks and prioritizing solutions.**
- ✓ **Provides a visual tool for effective data communication**
- ✓ **Assists in the discovery of new relationships between datasets.**

DISCUSSION

As New Jersey works to replace all lead service lines by 2031, the urgency of addressing these disparities is underscored by a looming funding gap and financial strain faced by municipal systems. The inability of overburdened communities to afford cost share for these crucial replacements exacerbates the urgency. By analyzing the distribution of lead service lines alongside the municipal revitalization index, stakeholders can identify high-priority areas that require immediate attention and targeted support. This holistic approach enables a nuanced understanding of challenges and empowers policymakers and community leaders to develop sustainable solutions that prioritize equity, environmental justice, and community well-being.

- **Water systems designing programs to identify and replace LSLs must address financial and non-financial barriers.**
- **Simple mailers on applying for assistance are not an effective way to boost participation.**
- **Addressing financial barriers alone is not sufficient to induce participation among low-income customers.**
- **Free, well-publicized, and easy-to-access programs are likely needed to garner voluntary participation in programs to replace lead service lines**

CONCLUSION

The role of community engagement in developing sustainable solutions for water infrastructure improvement is examined. The case study on Factors Influencing Customer Participation in a Program to Replace Lead Pipes for Drinking Water demonstrates the importance of understanding how communities interact with their water systems, including their needs, concerns, and cultural dynamics in marginalized and underserved areas.

ACKNOWLEDGEMENTS/REFERENCES

- Jersey Water Works Green Infrastructure Committee
- New Jersey Future staff
- Rutgers University
- Klemick, Heather & Wolverton, Ann & Parthum, Bryan & Epstein, Kristin & Kutzing, Sandra & Armstrong, Sarah. (2024). Factors Influencing Customer Participation in a Program to Replace Lead Pipes for Drinking Water. Environmental and Resource Economics. 87. 1-42. 10.1007/s10640-023-00836-9.

