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Sustainable Practices: Nature-Based Infrastructure Concepts in the 21st Century



Nature-Based Infrastructure - “umbrella”

Utilize design with nature philosophy

- Green Infrastructure
 - Network of natural areas and other open spaces that provides natural ecosystem functions and services
- Low Impact Development - “LIDscape”
 - Sustainable urban development practice that manages stormwater on-site using a variety of ecological and engineered features



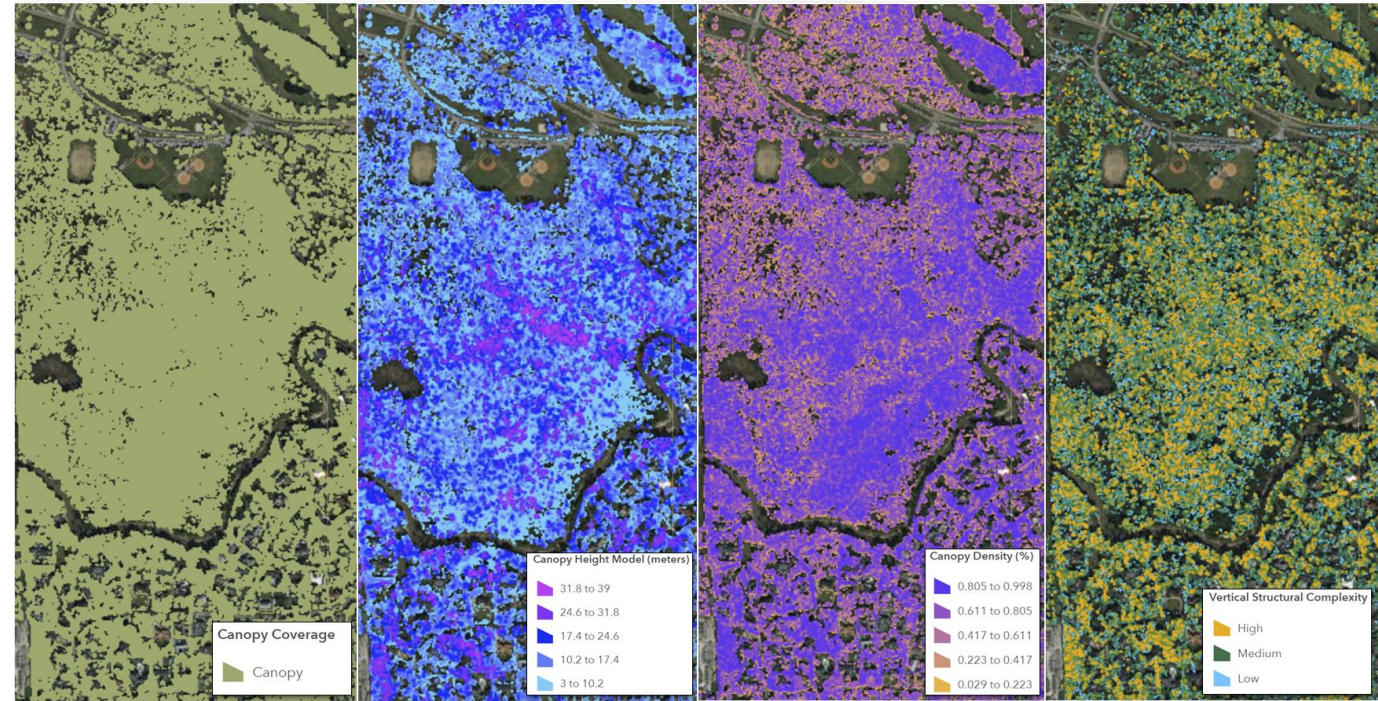
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1) Establish green infrastructure baseline with consideration to structural properties, assessment of vulnerabilities, and relationships to ecosystem benefits.

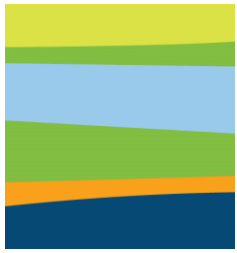
2) Novel approach to green infrastructure planning based on cutting edge data, an enhanced understanding of ecosystem service benefits, and expected future conditions.

3) Define optimization targets for green infrastructure climate adaptation strategies to cultivate varied actions based on desired outcomes.



Left to right: LiDAR derived canopy coverage, canopy height model, canopy density, and vertical structural complexity index at Memorial Park along Buffalo Bayou, Houston.





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“I think when you look at those billions [\$47 billion] of dollars for climate resilience, not only is it focused on bridges and roads, it's also focused on natural, resilient measures that we can put in place with our lakes, our streams, our rivers to prevent erosion and to have these water bodies better protected from what we know to be the extreme impacts of climate change.”

- Michael Regan, Administrator of the EPA