

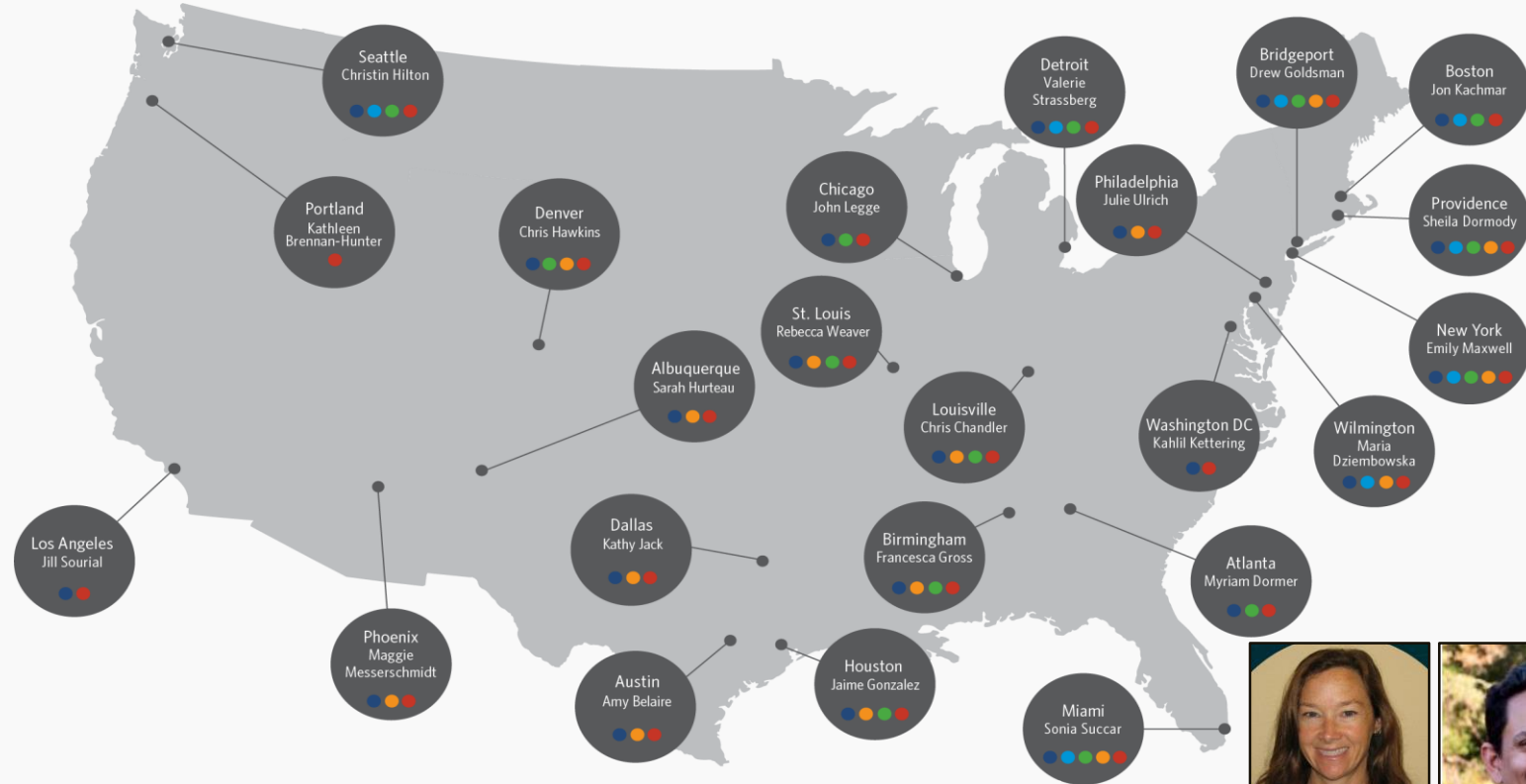


Waller Creek Watershed Biodiversity & Ecosystem Monitoring Project

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North America Cities Network



Nature's benefits in cities



WATER QUALITY & QUANTITY



BIODIVERSITY & HABITAT QUALITY



MITIGATING URBAN HEAT ISLANDS



HUMAN HEALTH & WELL-BEING

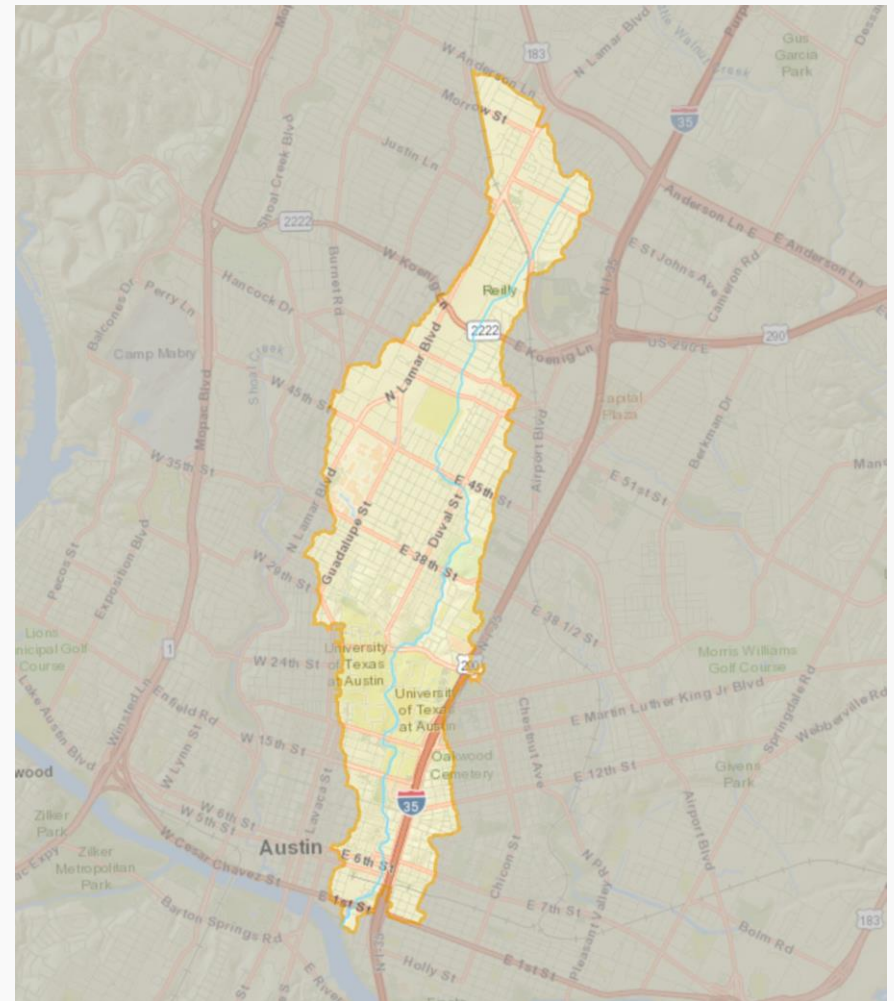


AIR QUALITY & CARBON STORAGE

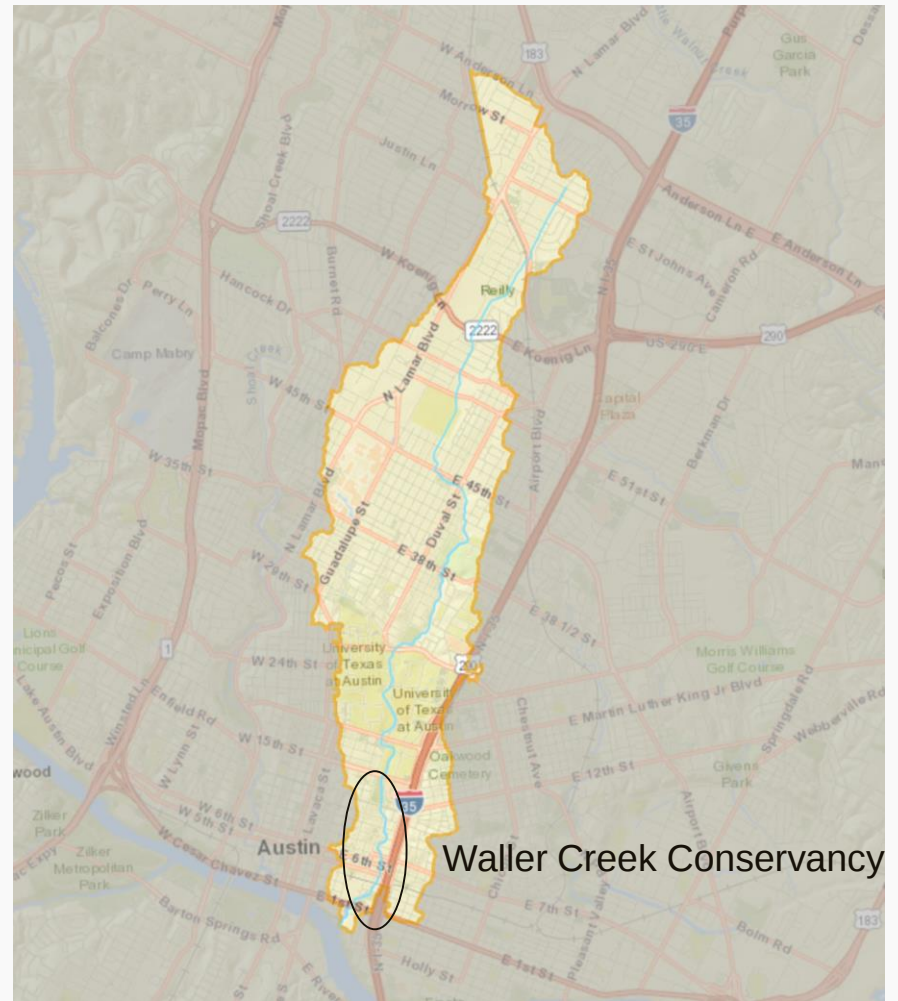
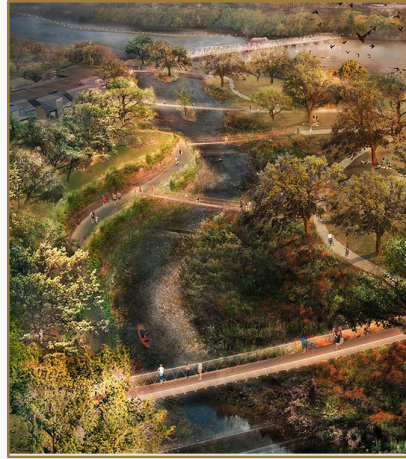


CONNECTION, EDUCATION
& STEWARDSHIP

Waller Creek watershed

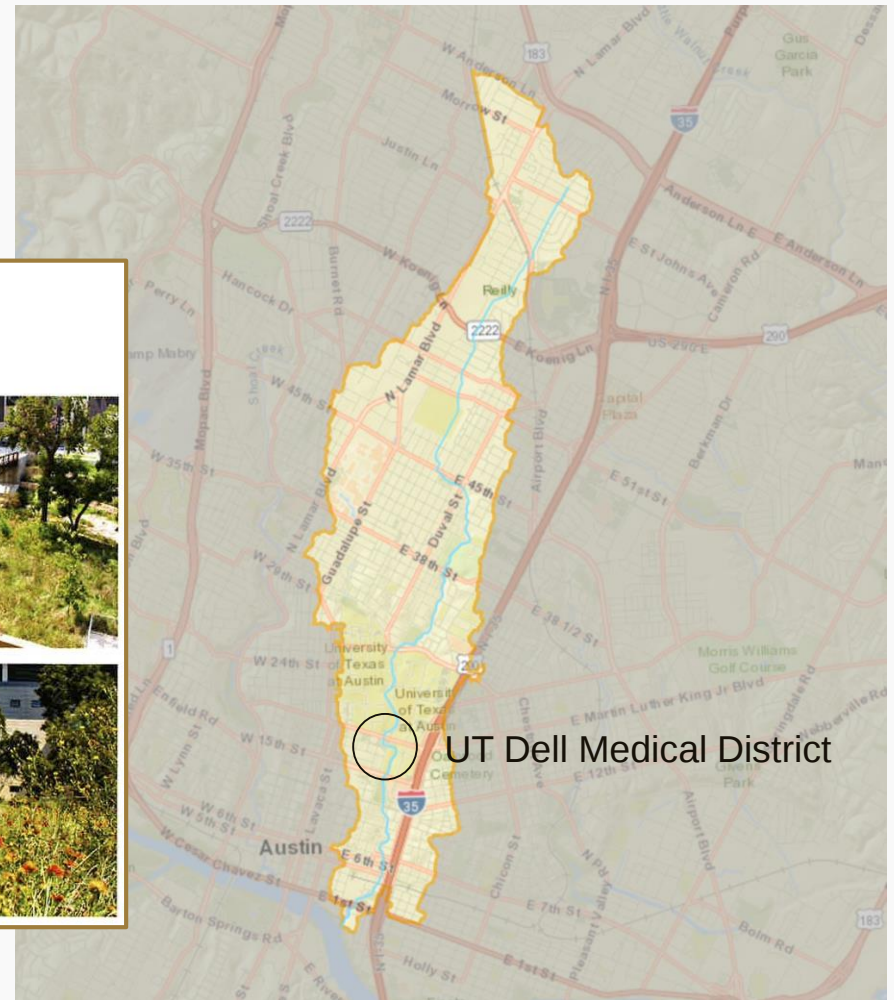


Re-integrating nature in an urban watershed

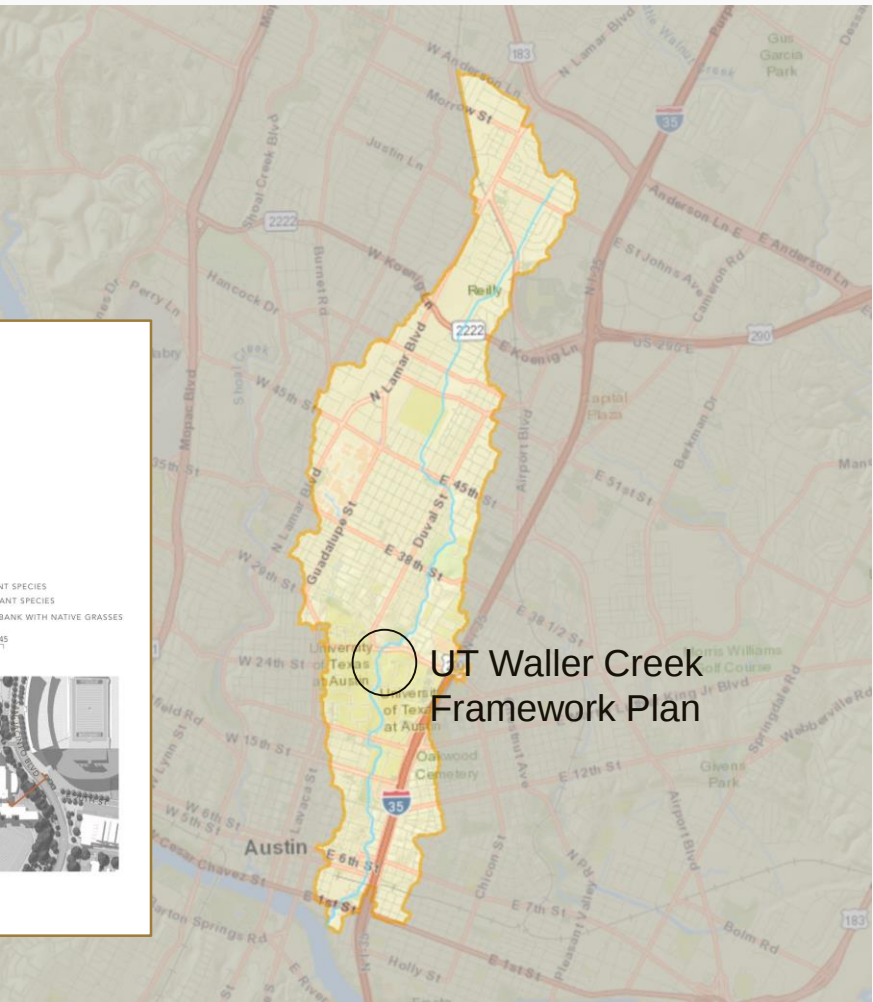
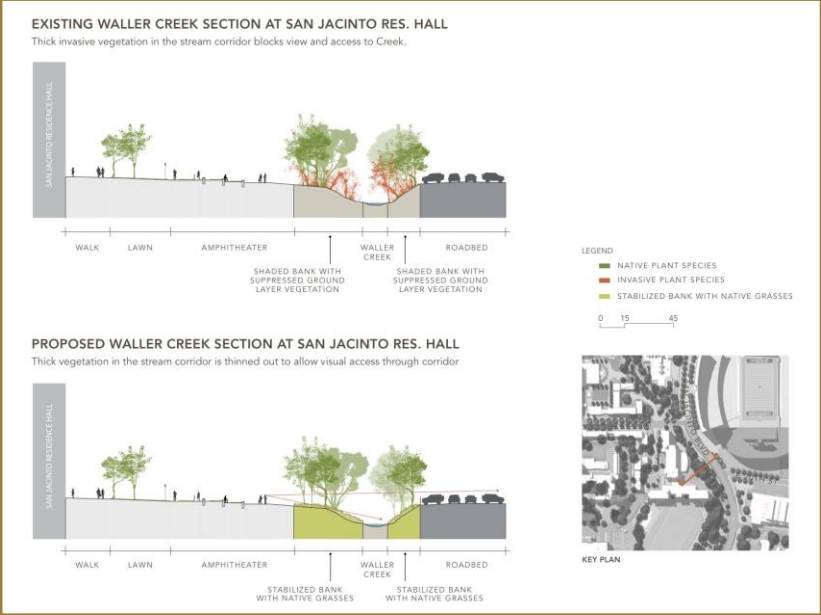


Re-integrating nature in an urban watershed

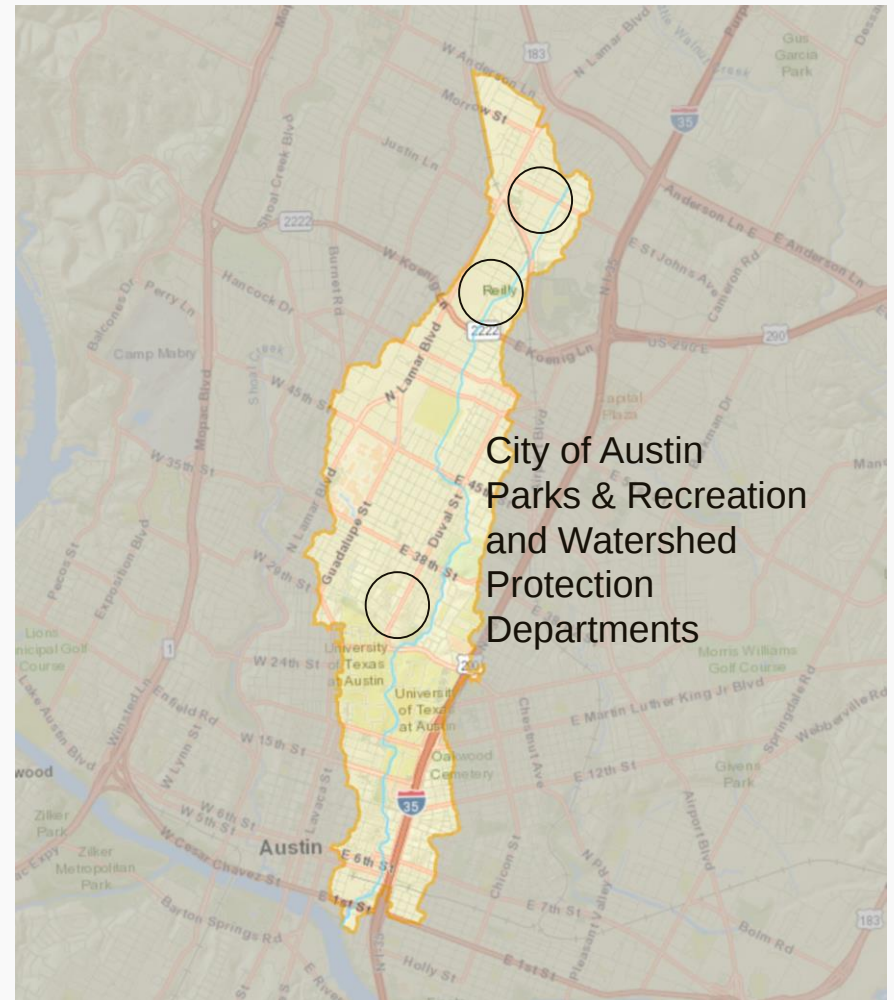
Waller Creek/Landscape SITES v2: Gold



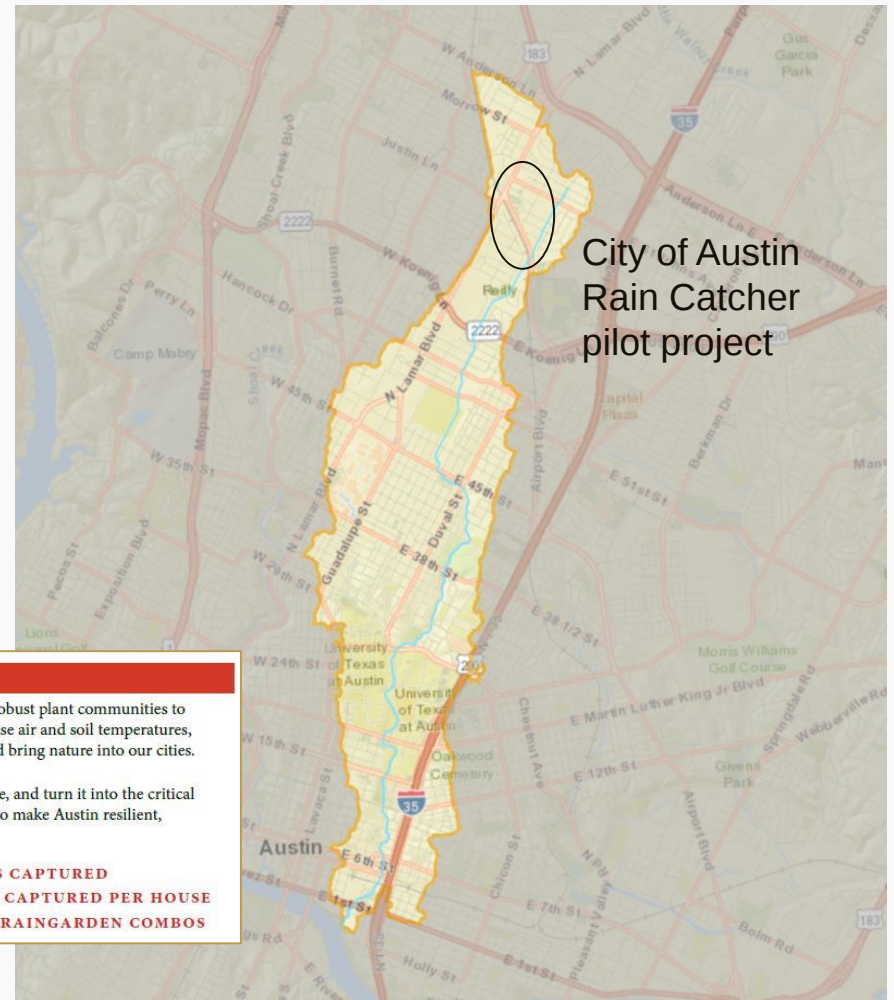
Re-integrating nature in an urban watershed



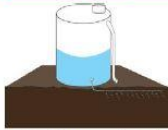
Re-integrating nature in an urban watershed



Re-integrating nature in an urban watershed



How do you fix a broken watershed?



- Build raingardens that capture cistern overflows and if possible, driveways.



- Reconnect the Waller creek channel and restore buffer areas to healthy riparian forests.

- Connect cisterns to every residential roof.

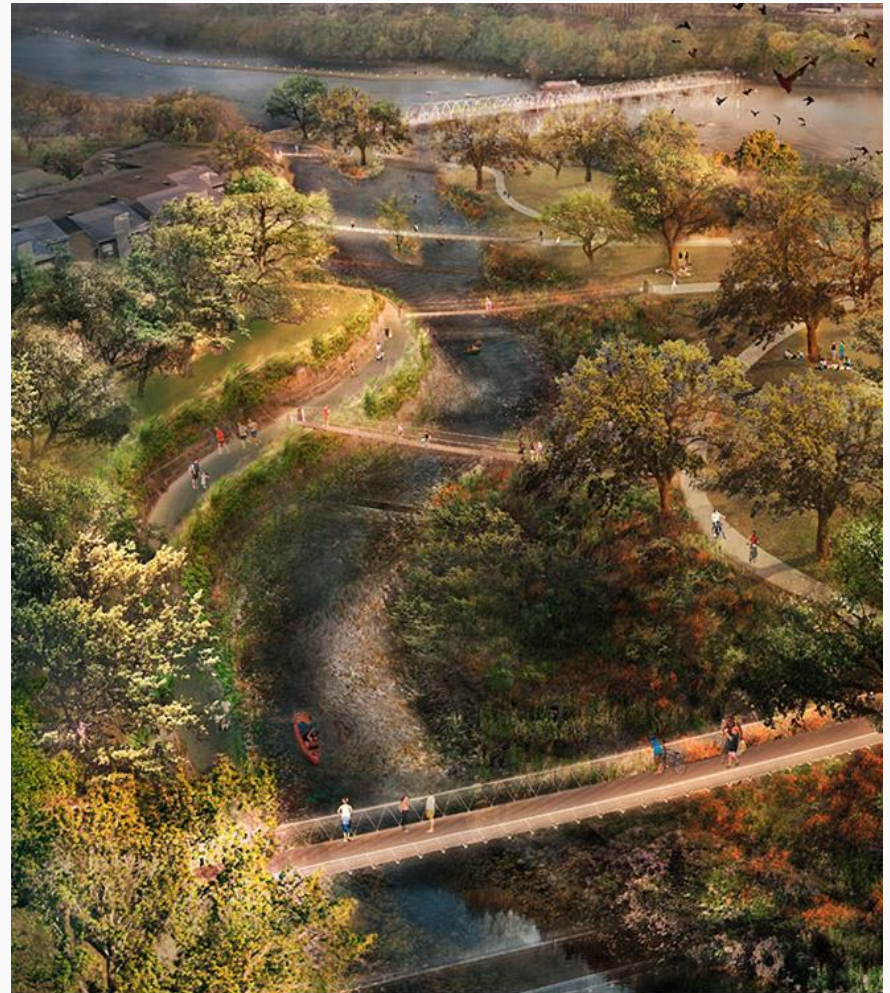
- Use healthy soil and robust plant communities to clean stormwater, decrease air and soil temperatures, increase biodiversity, and bring nature into our cities.

- Take stormwater waste, and turn it into the critical water resource that it is to make Austin resilient, green, and thriving.

- **95% OF STORMS CAPTURED**
- **2,500 GALLONS CAPTURED PER HOUSE**
- **1,250 CISTERN/RAINGARDEN COMBOS**

What are the effects?

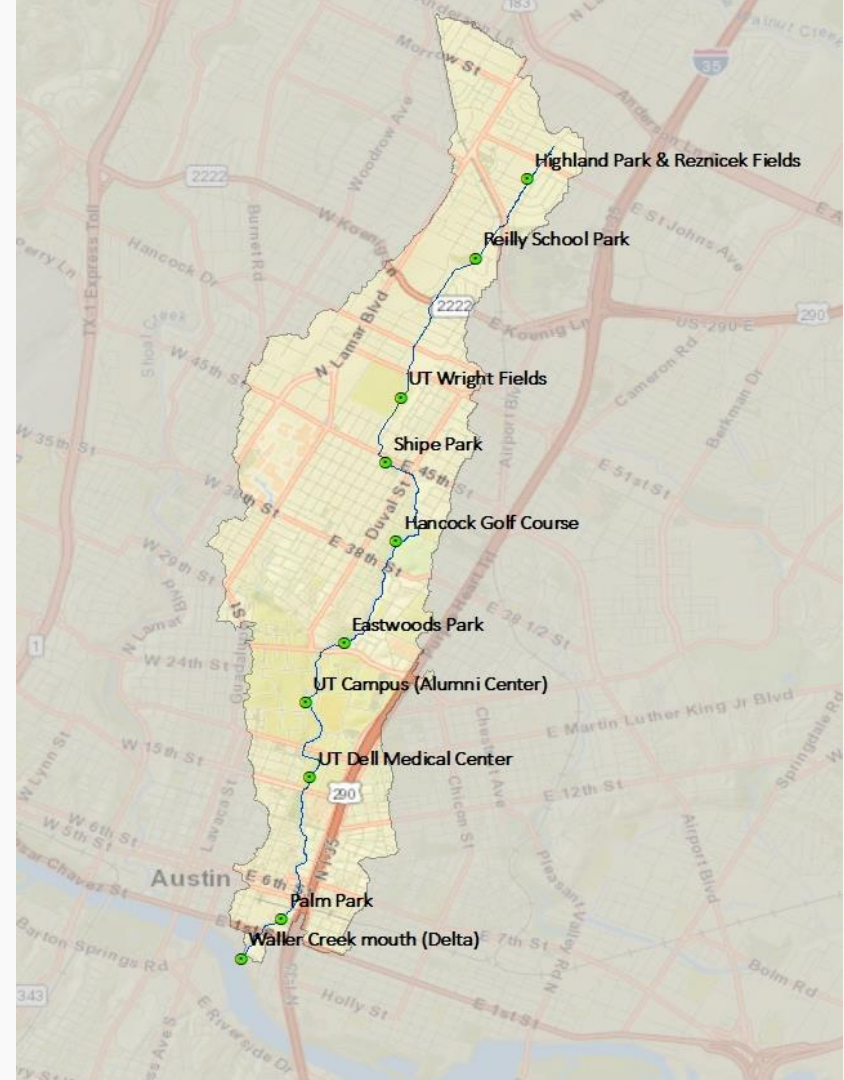
As new parks, trails, and improvement projects are completed over the next several years, the Waller Creek ecosystem may support improved ecological conditions and opportunities for people to re-connect with nature.



What are the effects?

To identify current conditions in the Waller Creek watershed and track changes over time, we have 10 sampling stations on Waller Creek.

We selected these sites to span the geographic extent of the creek, coincide with current and future restoration efforts, and overlap with additional monitoring efforts.



Data collection: biodiversity & ecosystem services

- **Biodiversity:** Pollinators, birds, mammals
- **Habitat quality:** Herbaceous and woody vegetation + floral resources
- **Air quality:** Direct measurements + estimates via US Forest Service iTree model
- **Carbon storage & avoided stormwater runoff:** estimates with iTree model
- **Microclimate:** Direct temperature measurements
- **Human dimensions:** visitor counts, activity logs, and health/well-being studies (including new methods in Summer 2019)



Data collection: students & citizen scientists



Akins High School
Park Ranger Cadet
program

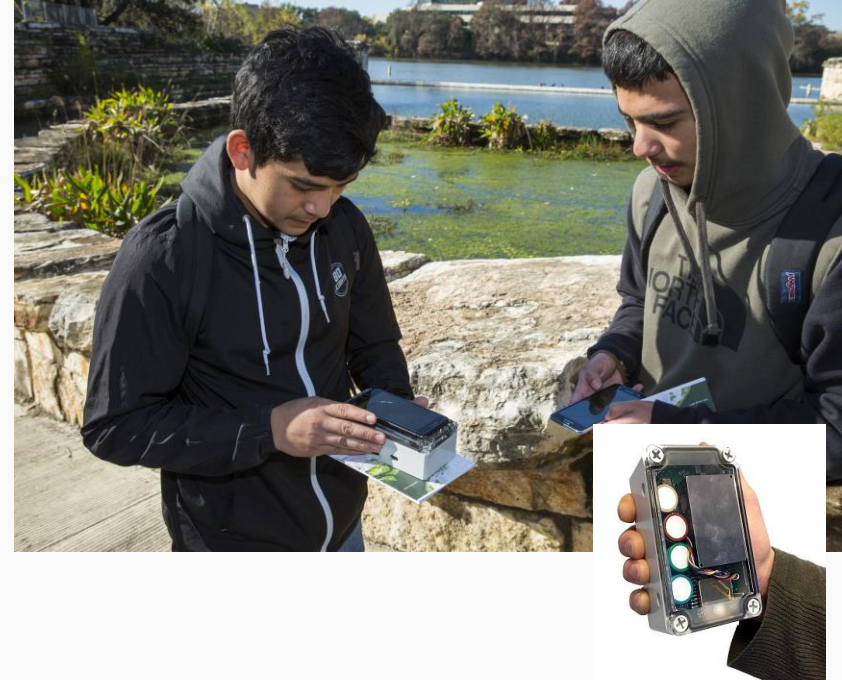
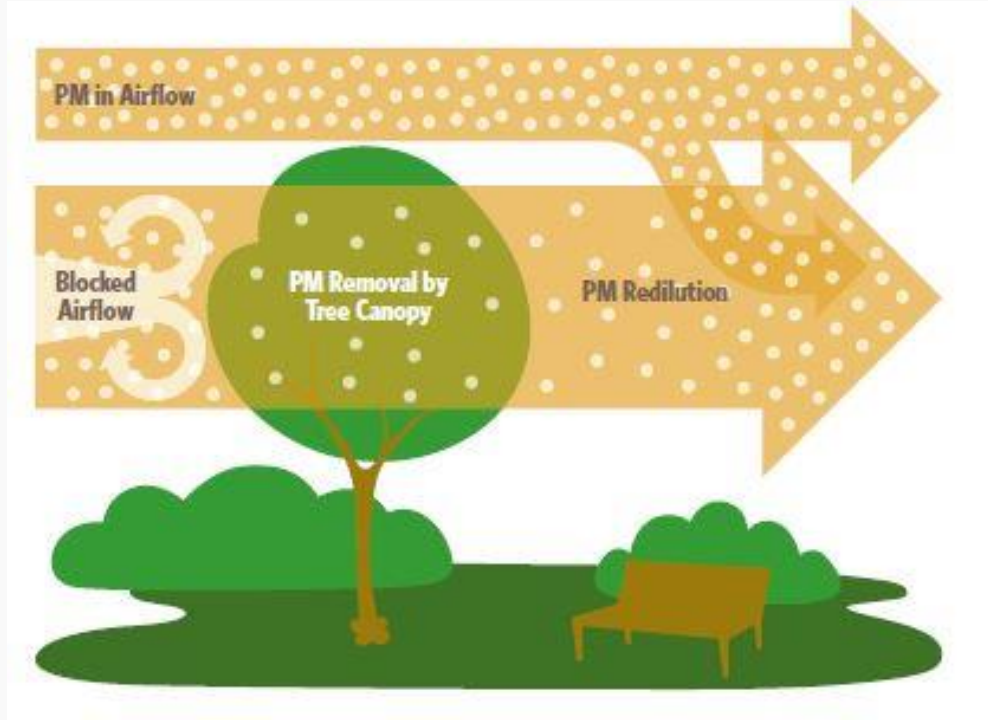
City Nature
Challenge “bioblitz”
with iNaturalist



Habitat connectivity through urban watershed



Ecosystem services in action



Design & management implications



Waller Creek/Landscape
SITES v2: Gold



- Floral diversity
- Habitat heterogeneity & structure
- Total leaf area
- Positive correlations (birds, mammals, pollinators)



Thank you!

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