

Engineering Justice: Using Community Based Research to Advance Equitable Infrastructure

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UF Water Institute Symposium 2024

Outline



Motivation
Background



Goals and
Objectives



Background on East
Tampa and USF



Methodology and
Results



Conclusions

Motivation

JUSTICE40

A WHOLE-OF-GOVERNMENT INITIATIVE



▶ ENVIRONMENTAL JUSTICE



NAE GRAND CHALLENGES
FOR ENGINEERING
NATIONAL ACADEMY OF ENGINEERING

- Federal funding for marginalized and disadvantaged communities
 - Climate Change
 - Clean Water and Wastewater Infrastructure
 - Clean Transit
 - Remediation and Reduction of Pollution
 - Training and Workforce Development

- Restore and improve urban infrastructure

Working to Eradicate Racism in Science and Engineering: WeRISE

Goal: Develop interdisciplinary, community-engaged, anti-racism training opportunities for Civil and Environmental Engineering (CEE) undergraduates at the USF to build capacity for solving complex and interconnected challenges of our time.

Research Question:

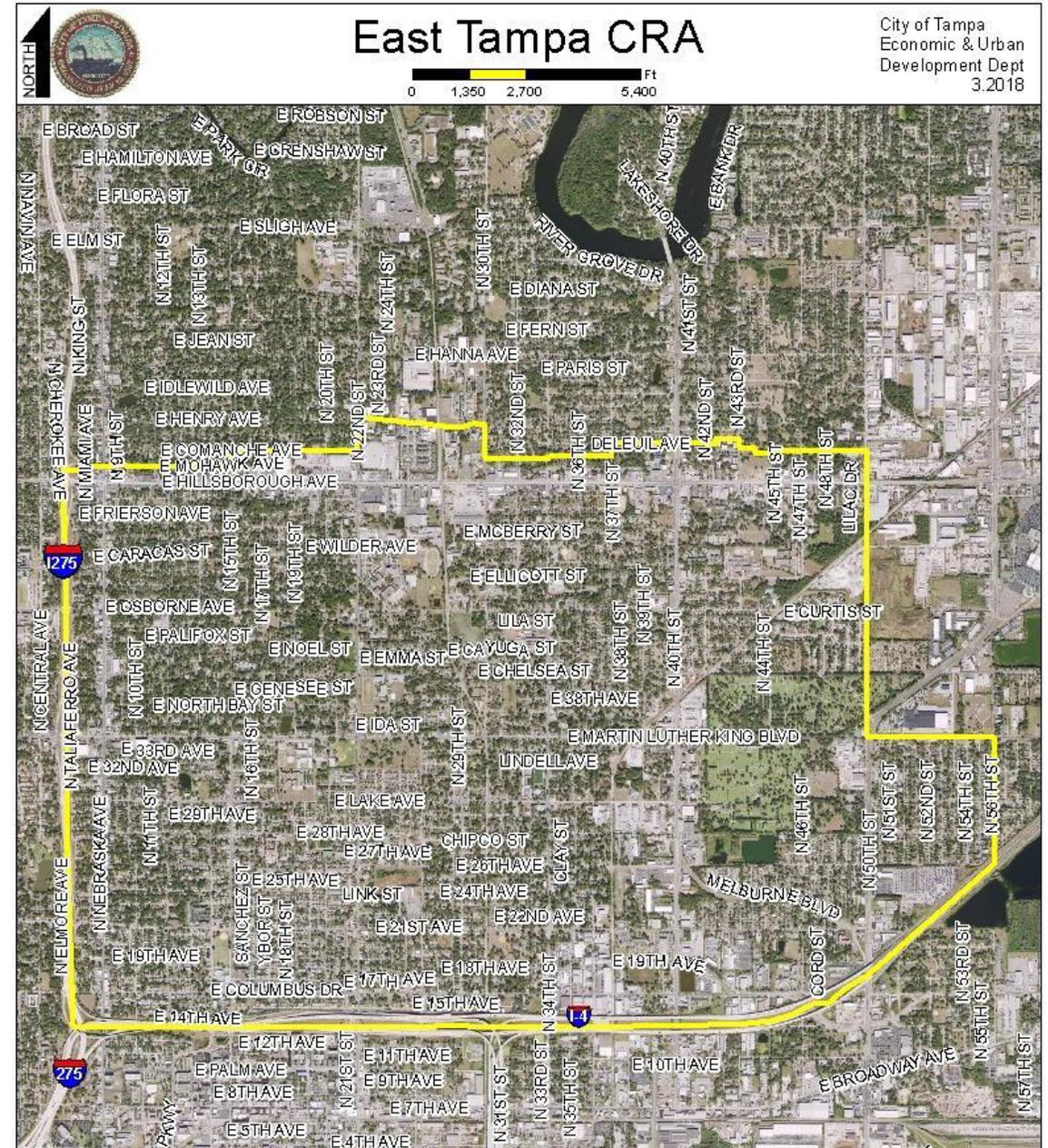
How can courses address environmental challenges, meet community needs, and consider racism's systemic impacts while providing broad educational training?



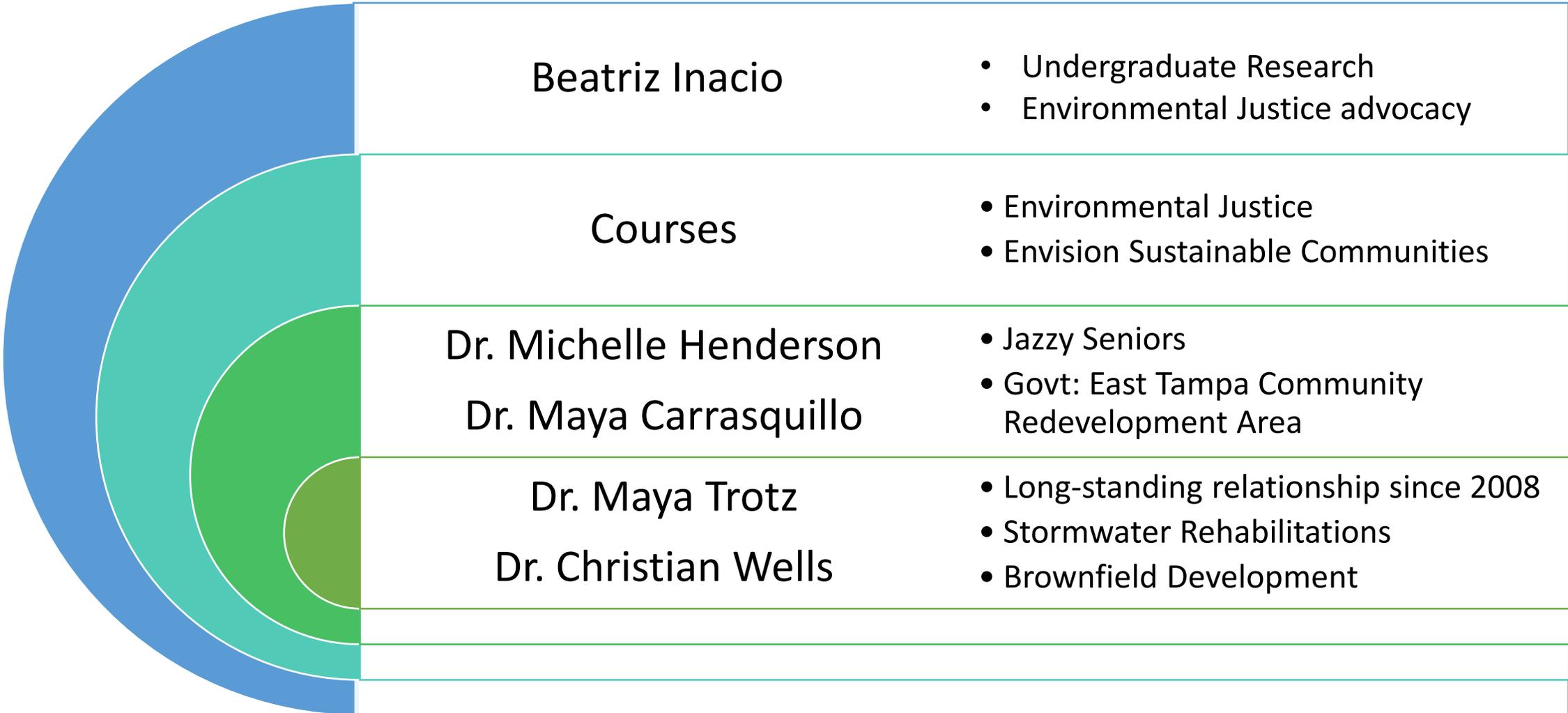
East Tampa

- Historically African-American neighborhood north of downtown Tampa encompassing: 7 square miles
- Primarily residential with 40,000 residents
- Surrounded by interstate highways Highway 275 and I4
- Characterized by :
 - Low incomes
 - High unemployment and poverty rates
 - High rates of food insecurity
 - High numbers of brownfields and polluting industries

Is there a community where you live that has similar characteristics?



Building Relationships and Collaboration



Beatriz Inacio	<ul style="list-style-type: none">• Undergraduate Research• Environmental Justice advocacy
Courses	<ul style="list-style-type: none">• Environmental Justice• Envision Sustainable Communities
Dr. Michelle Henderson Dr. Maya Carrasquillo	<ul style="list-style-type: none">• Jazzy Seniors• Govt: East Tampa Community Redevelopment Area
Dr. Maya Trotz Dr. Christian Wells	<ul style="list-style-type: none">• Long-standing relationship since 2008• Stormwater Rehabilitations• Brownfield Development



Community Advisory Council

- Connie Burton: East Tampa Community Development Area
 - Valerie Bullock: Wastewater Treatment Plant Operator and Community Leader
 - Ronda Watts: Corporation to Develop Communities (CDC) of Tampa Inc
-
- **Guided research on early in the project**
 - **Community leaders asked researchers at USF to document their stories and history**



Jazzy Seniors

- Seniors from the Tampa Bay Region
- Ages: 55+
- Predominantly African American
- 100+ members

Community Engaged Research with Jazzy Seniors

- Participant Observations
 - Visiting the seniors during their meetings
- Interviews and Oral History
 - Seniors and community members
 - Participants were compensated
- Investigative Research
 - Students conducted research on stormwater ponds in East Tampa
- Groundtruthing
 - Students presented their work to the community



Investigative Research and Interview Results

Past

- East Tampa community was redlined, labeled as a hazardous environment
- Lack of green spaces
- Rural area



Present

- Seniors need their own safe space.
- Rushing Traffic
- Expensive Housing
- Aging infrastructure

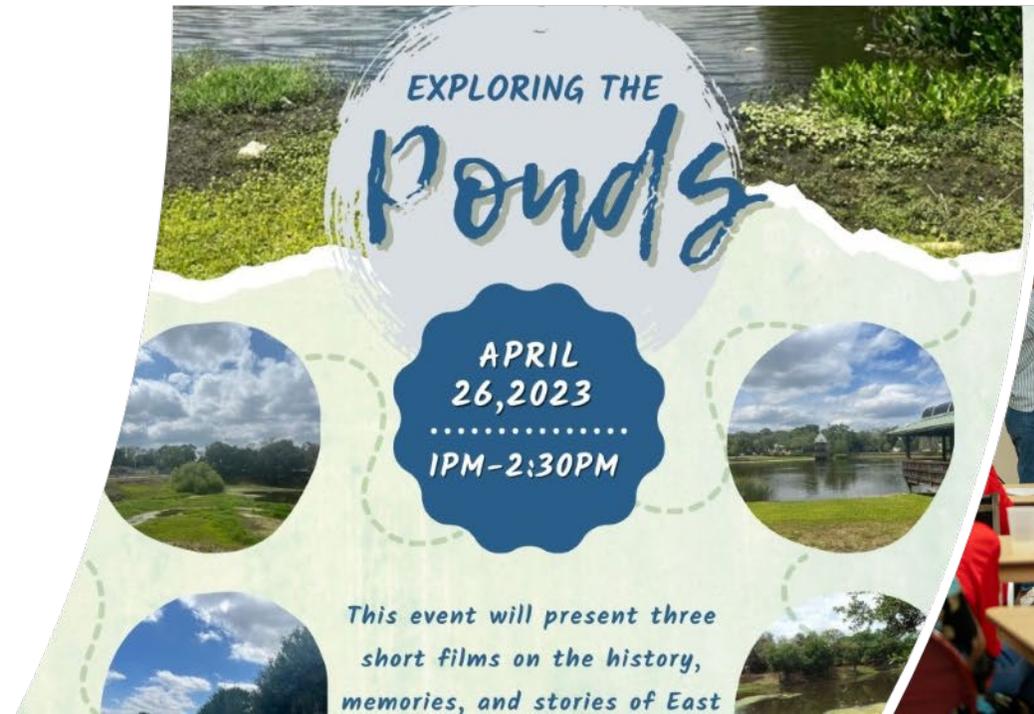


Future

- 5-year development for East Tampa
- Green Spaces
- Revitalized ponds
- Road maintenance

Presenting Results to Community

- Catered event, fliers made, announcements made with stakeholders
- 60+ attendees
- Student teams described their research, presented the videos and took questions.



Investigative Research and Interview Results Thematic Analysis

History

- Normalized segregation
- Farming
- Sharecropping
- Natural stormwater ponds



People

- Family
- Community
- Church
- Neighbors



Environment

- Lack of green spaces
- Poor infrastructure
- Pollution
- Urban heating

Interview Results



Following Up:

Multiple angle approach to obtaining information about infrastructure.

Using community voices and experiences to make decisions about infrastructure
Prioritizing specific needs from community



Infrastructure Discovery

Our focus is on stormwater pond improvement
For the Jazzy Seniors, community, safety and their own recreational space was their focus
Building workforce development



Conclusions and Recommendations

01

Begin building relationships with communities for environmental engineering and science

02

Listen to community needs and elevate local knowledge

03

Use community knowledge to discover information on infrastructure

RESEARCH TEAM



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Community Council



Connie Burton
Past Chair, East Tampa Community
Revitalization Partnership



Valerie Bullock
Community Workforce Advocate



Dominique Cobb
Community Advocate

Advisory Board



Cedric McCray

Community Redevelopment Agency,
Manager at City of Tampa



Connie Burton

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President & Board of Trustees member,
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Thank You

Website for WeRise: werise.info

YouTube: [Weriseinfo](https://www.youtube.com/Weriseinfo)

Let's connect

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