

Land and Mapping Challenges and Opportunities in the Caribbean

Tim Fella, Esri

Matt Woodlief, Esri

Frank Pichel, PLACE



Esri

Global Leader in GIS

Serve Our Users

Advance Spatial Literacy

Contribute to Society

- Annual Revenue > \$1.4 Billion
- 50% of global GIS market
- Privately held with zero debt
- 4200 U.S. employees – 6200 overseas
- 350,000+ Customers
- Supporting 130+ Countries
- 2500+ Partners
- Reinvests >31% in R&D

Esri Community



1,100 National Government Agencies

2,200 States & Regional Agencies

20,000 Cities & Local Governments

30,000+ Businesses

3,300 Utilities

5,000 NGO's

7,000 Colleges & Universities

Our Relationship With Our Users Is Key

REGIONAL CHALLENGES

- Capacity & skilled professionals
- Data quality and completeness
- Data accessibility
- Moving from paper to digital
- Climate and natural disasters
- Dual registry systems
- Family lands
- Absentee landlords



REGIONAL OPPORTUNITIES



- Strong leadership and good intentions
- Small geographies and populations
- Access to low-cost or free GIS software and data
- New approaches to data capture and sharing
- Shared history, culture, & economy across region
- Foreign investment

Disaster Response Program

- Assists organizations responses to disasters
- Provides data, software, configurable applications and technical support



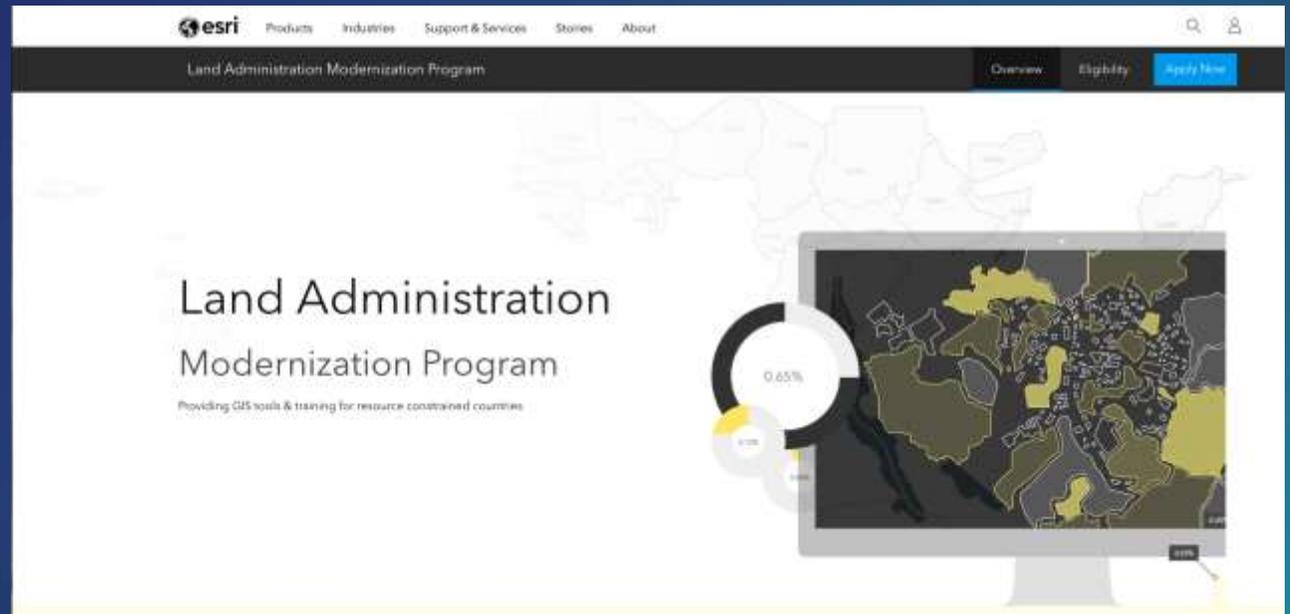
Caribbean GeoPortal

- Access to GIS training and capabilities
- Access to regional data
- Improve collaboration and information sharing



Land Administration Modernization Program (LAMP)

- Discounted software program
- Eligible for legally mandated land and mapping agencies
- 4-year program with supported technology



LAMP Offer

Software License Type	Quantity
ArcGIS Desktop Advanced or Pro	Up to 50
ArcGIS Desktop Extension Bundle (including Production Mapping)	Up to 50
ArcGIS Online Level 1 Named Users (Viewing)	Up to 50
ArcGIS Online Level 2 Named Users (Creators)	Up to 200
ArcGIS Enterprise Advanced (4-cores)	Up to 6
ArcGIS GIS Staging Server (4-cores)	Up to 6
ArcGIS Enterprise Creator Named Users	Up to 200
ArcGIS Workflow Manager Server (4-cores)	Up to 6
ArcGIS Hub Premium	1
ArcGIS Image for ArcGIS Online	5

- 80+ countries eligible
- Legally mandated cadastral organizations
- Full Esri platform
- Perpetual licenses (do not expire)
- \$40k administrative fee for 4 years of supported technology

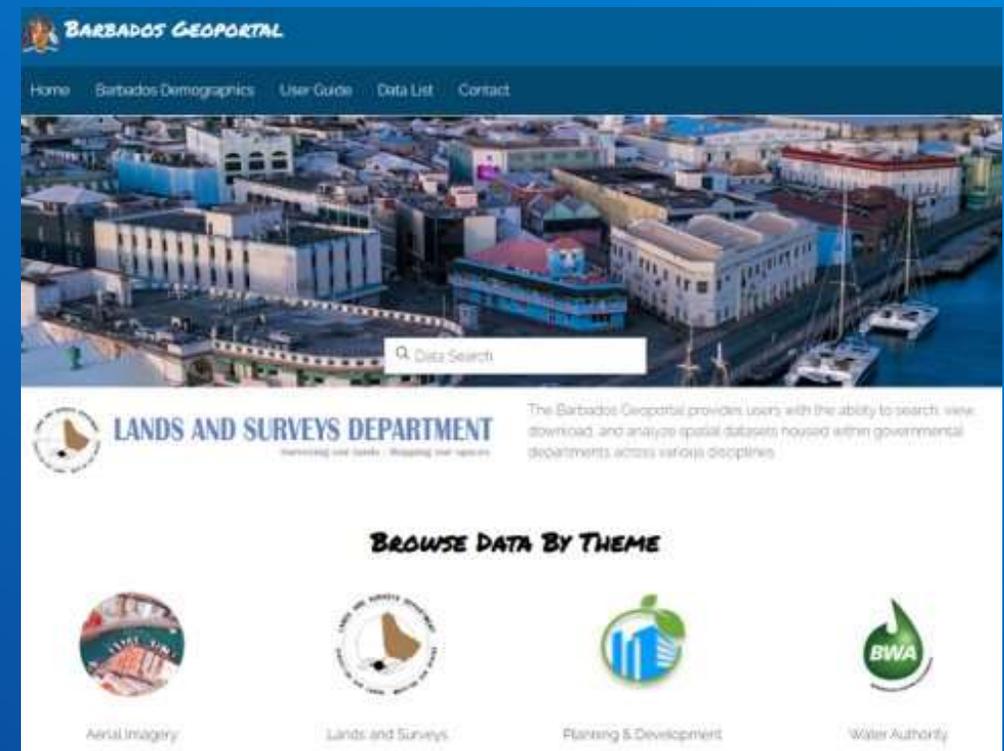
Use Cases

The background features a dark teal gradient. On the left, there are several overlapping, semi-transparent geometric shapes in shades of teal, orange, and blue, creating a layered, abstract effect. On the right, a series of parallel lines in teal, orange, and blue extend towards the bottom right corner, suggesting a sense of depth and movement.



Barbados Lands & Surveys Department

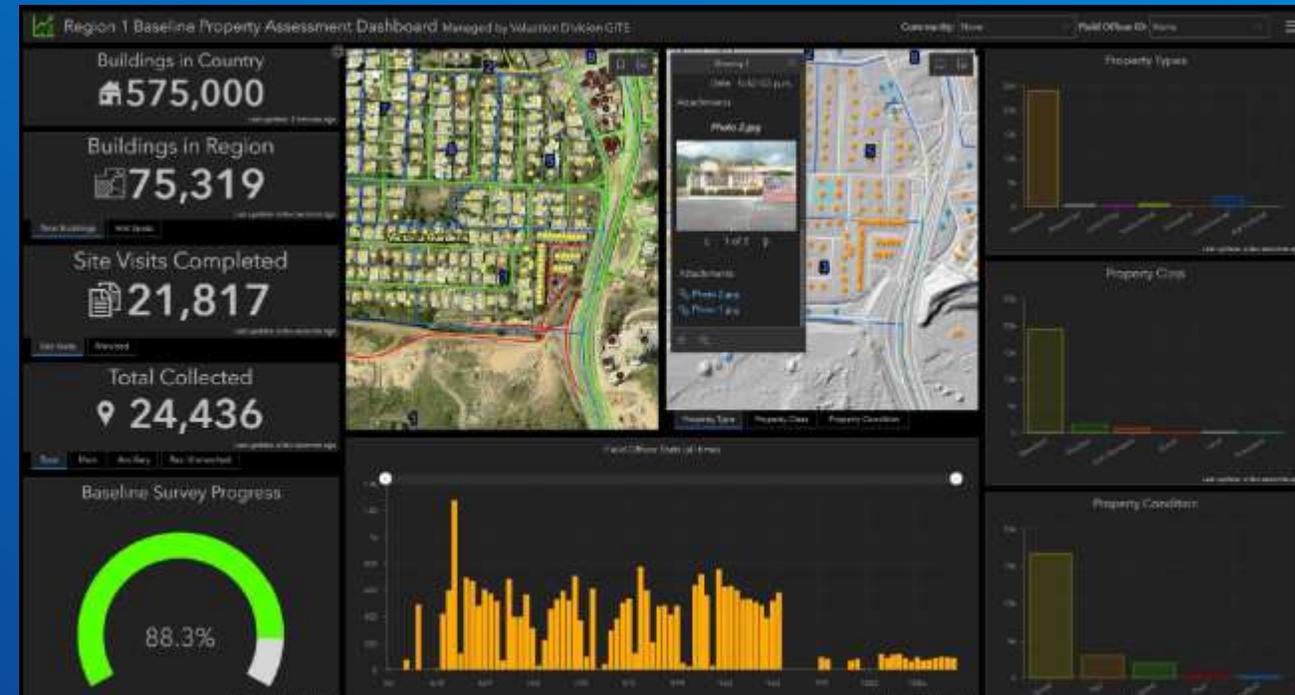
- LAMP adopted in support of several major land management initiatives
- Island-wide Parcel Fabric implementation
- Postal code system developed using GIS
- Public facing GeoPortal for data sharing
- Special Achievement in GIS (SAG) Award at Esri UC





Trinidad & Tobago

- Surveys & Mapping Division; adopted LAMP
 - Integrated with registry system – Trimble Landfolio
 - Plans to implement parcel fabric
- Valuation Division; adopted LAMP
 - Developed first-ever tax roll
 - Large deployment of field staff, data capture on all properties
 - Leveraged LAMP to support a larger field deployment, enhanced deployment of ArcGIS on-premise

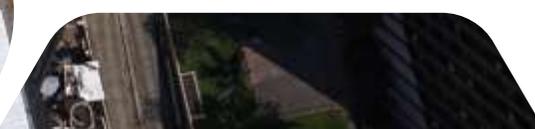


Baseline Property Assessment Dashboard



esri

THE
SCIENCE
OF
WHERE



A global non-profit
technology
organization
helping
governments map
their urban
landscapes

OUR PRODUCTS

PLACE Ground



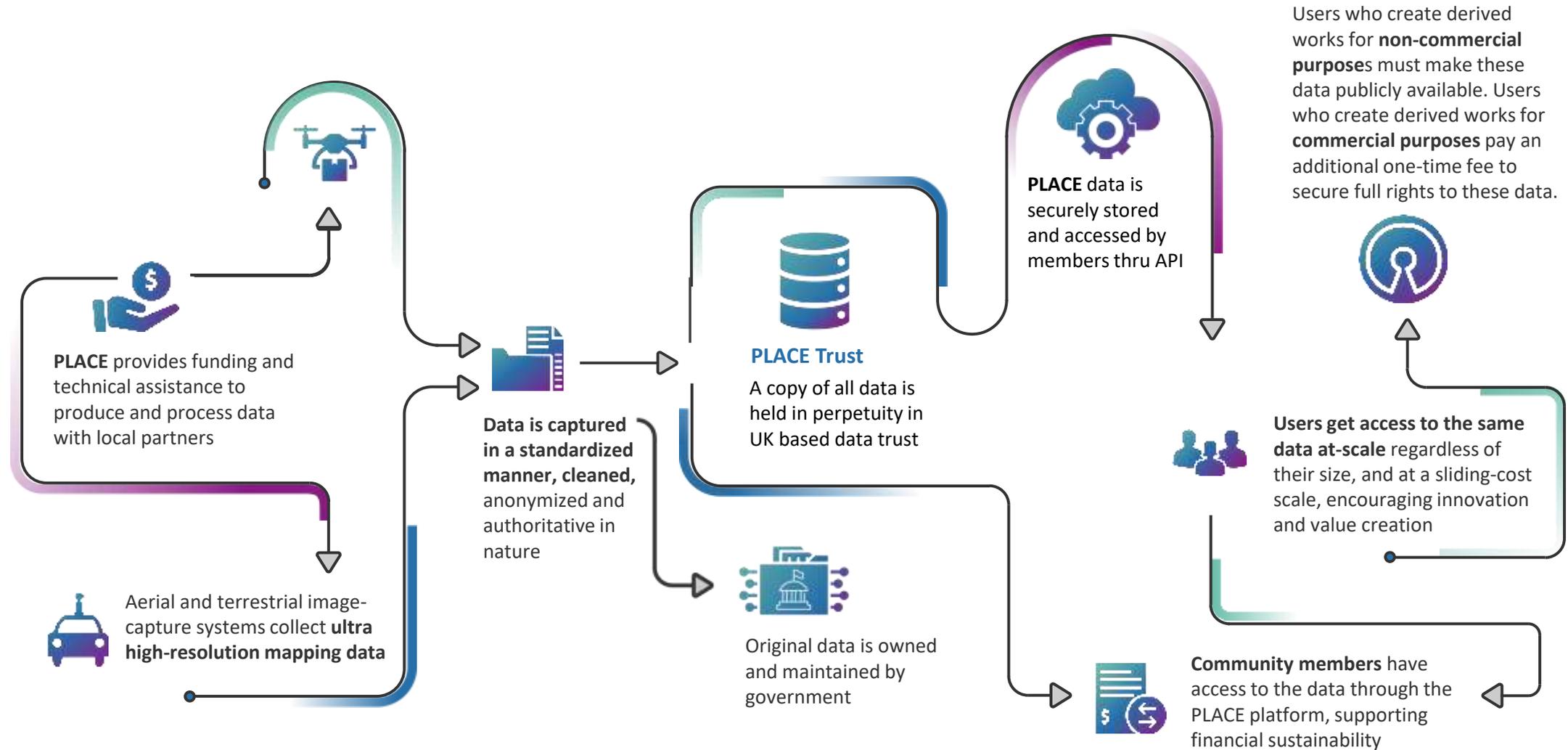
360° high-definition street view imagery
(Grand Turk Jan. 2023)

PLACE Aerial



Ultra-high resolution (5cm GSD) precisely positioned
(10cm) aerial imagery (Grand Turk Jan. 2023)

SELF-SUSTAINING ECOSYSTEM



WHAT WE SOLVE FOR

1 Funding

PLACE funds the data collection and pays all foreign costs including our training. We pay for local data collectors directly. Government costs are in kind and manageable within local budgets, i.e. transport, GCPs, per diem, housing, flight clearances and other permits and customs clearance.

2 Procurement

PLACE is a non-profit. We are not selling hardware, software or services. As a non-profit our job is to create the data, provide it to government, and manage a standard data platform for access by members. As there is no cost to Government there are no procurement requirements meaning we can move quickly to deliver actionable data.

3 Opportunity

PLACE focuses on producing high quality MINIMALLY processed imagery data. This provides members with opportunity to create their derived works. These derived works can be accessed by members through a one-time commercial license payment to PLACE for each data vintage, resulting in their full ownership in perpetuity for derived works. Derived works can also be accessed through a non-commercial license for no additional license fee but requires derived works to be put into the public space. PLACE itself does not create derived works of any type.

4 Quality Standards

All data produced by PLACE is collected using singular rigorous production specifications (see Annex) which produces a standardized product across all geographies. Data is made available in perpetual bulk download license, limited term bulk download, and COGS STAC API in AWS.

5 Inclusion

Our members have a voice in how we govern ourselves, license and price access to our data, and set our technology standards. We have three working committees that members participate in. We run a rigorous KYC process for all members. Membership is open to all organizations (not individuals) in good standing who must agree to terms and conditions of use. All members have equal access to all data. Membership in PLACE requires a minimum annual contribution of USD500 which is tax deductible for US corporations.

6 Sovereignty

All data produced by PLACE is owned by Government. PLACE receives a license from Government to a copy of the data and puts it in the PLACE Trust in the UK for use by the PLACE Community. All original data for each country is provided on disk to government solving for growing data residency and sovereignty issues from Governments.

TURKS & CAICOS ISLANDS

- One of 14 British Overseas Territory
- Population of 46,000
- Land Area – 948 Sq. Km.
- Gross Domestic Product – 1.06 bn USD

Waitzmann, E. (2023)



GEOSPATIAL CONCERNS OF TURKS & CAICOS ISLANDS

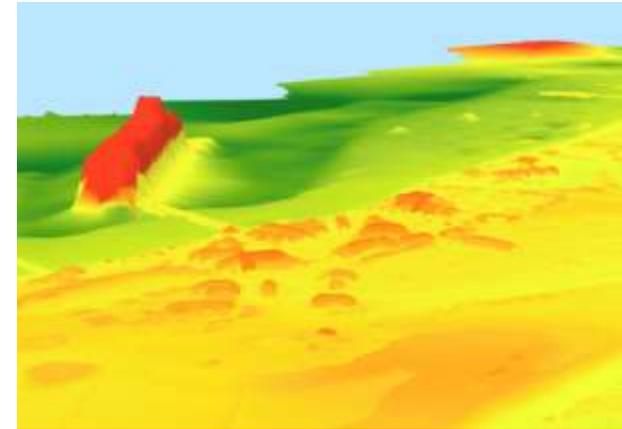
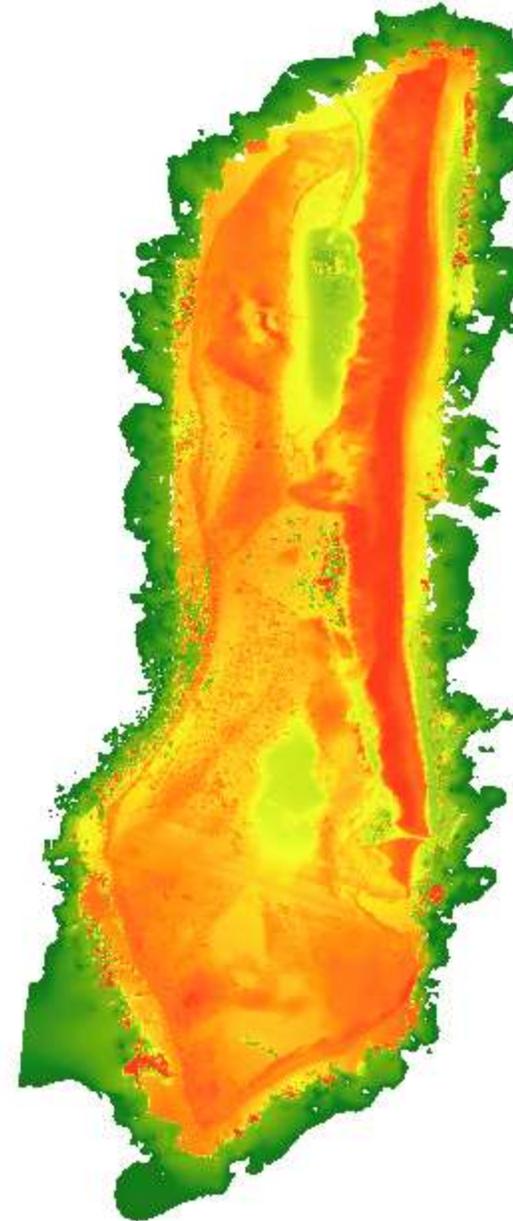
- Lack of a Homogenous Geodetic Reference Framework
- Absence of Synergy & Collaboration of Stakeholders
- Need for a Multi-Purpose Cadastre
- Glaring Knowledge, Skills & Gender Gaps
- Need for Legislative Changes

CONCLUSION

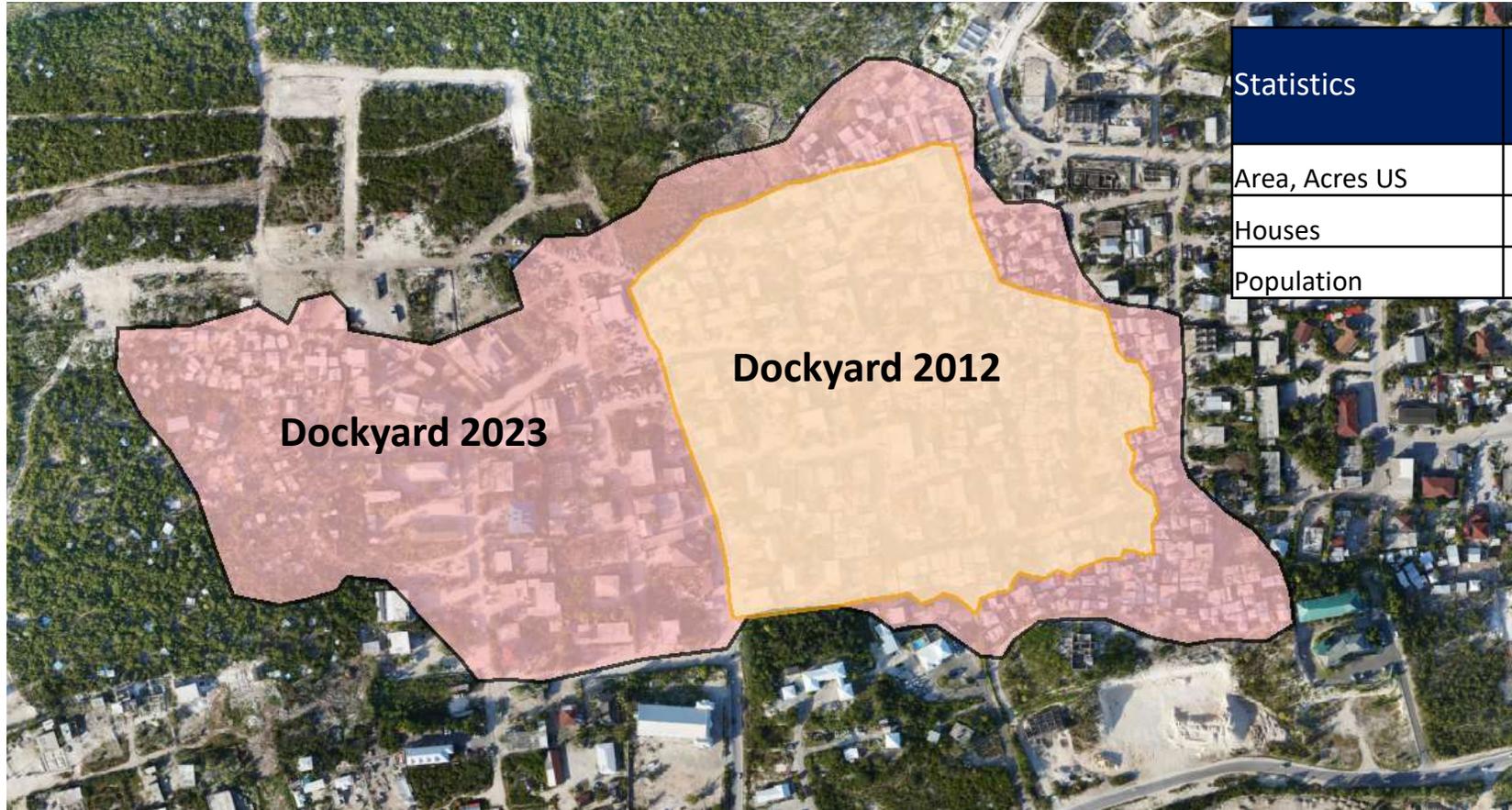
- CORS, Re-survey & Densification Existing Control Infrastructure (Ground)
- A new approach is necessary to engender collaboration internally & externally
- Re-design of GIS / LIS needed to facilitate a multiplicity of datasets
- TCICC has been engaged in delivering Geospatial Education & Female Inclusion
- Access to up to date data, and the tools to enable it's usage historical challenge

Rapid Turnaround

Island wide Digital
Elevation Model and
Orthophoto created within
3 days of data capture



Place Imagery and Urban Growth Estimation 2012-2023



Statistics	2012	2023	Increase %
Area, Acres US	15.4	38.87	152%
Houses	230	721	213.4%
Population	552	1730.4	

Potential Flood Impact and Shelter Estimation Square Footage Requirements



Hazard/ Impact	Flood Hazard	Flood Hazard with RCP 4.5	Flood Hazard with RCP 8.5
Households Impacted	10	51	66
Population Impacted	24	122	158

Type of Shelter (Duration of Occupancy)	Floor area Recommendations, Sq ft.	Flood Hazard	Flood Hazard with RCP 4.5	Flood Hazard with RCP 8.5
		Estimated Floor Area, Usable Square ft.		
General Population				
Risk Evacuation Shelter (24-72 Hrs)	26	624	3182.4	4118.4
Recovery/Short Term Shelter (72hrs to 2 weeks)	42	1008	5140.8	6652.8
Long-Term Shelter (more than 2 weeks)	60	1440	7344	9504
Special Needs Population				
Risk Evacuation Shelter (24-72 Hrs)	60	1440	7344	9504
Recovery/Short Term Shelter (72hrs to 2 weeks)	80	1920	9792	12672
Long-Term Shelter (more than 2 weeks)	100	2400	12240	15840

JOIN US

Frank Pichel
Partner, Field Operations
fpichel@thisisplace.org

Washington, DC, USA



[@PLACE](https://www.linkedin.com/company/place)



[@ThisisPLACE](https://twitter.com/ThisisPLACE)



www.thisisplace.org