

# LOCALIA

powered by MOTHR.

# UNDERSTANDING YOUR TRAIL USERS

**Enhancing Trail Management Using  
Location Intelligence**

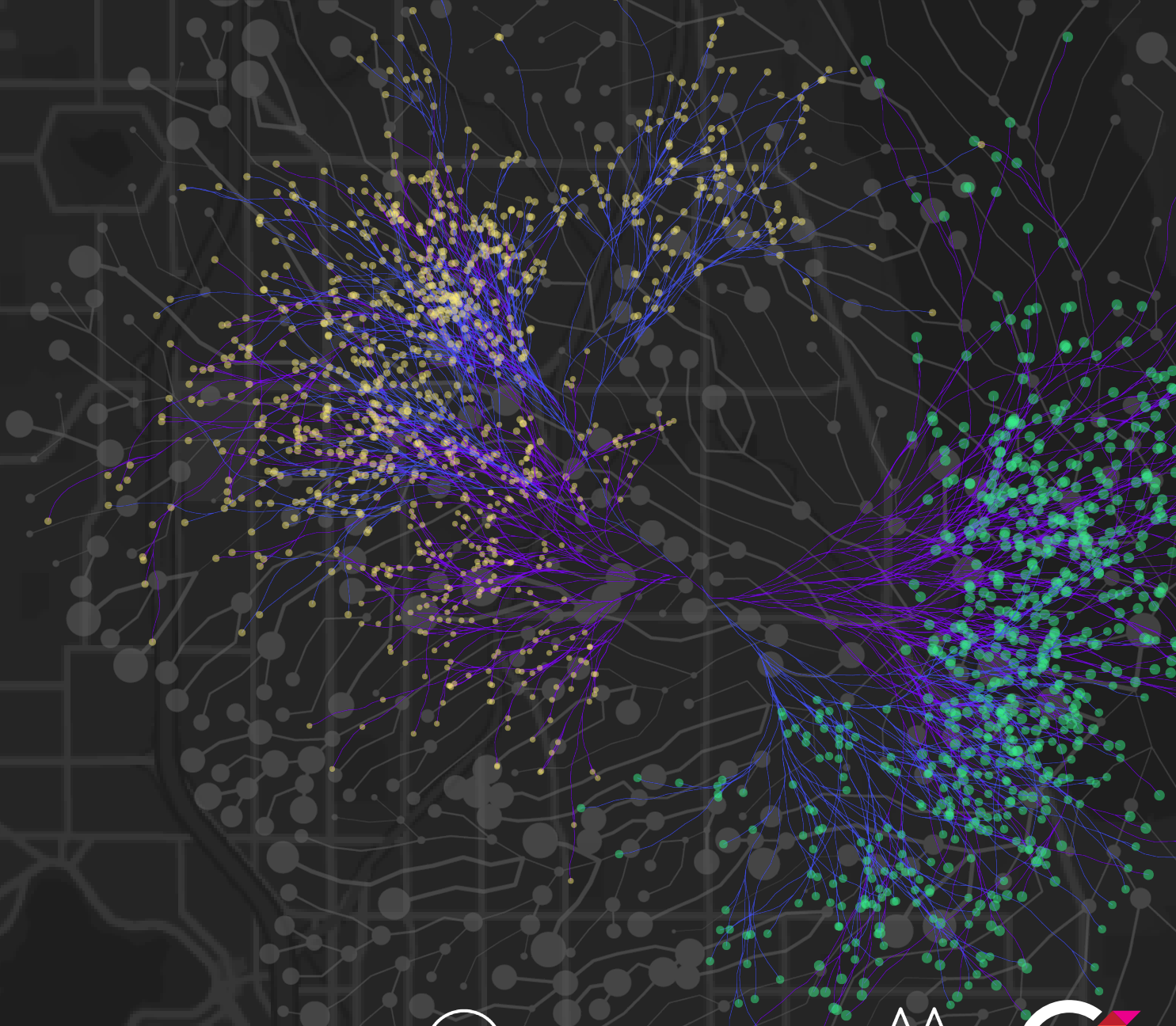
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Umang Shah,  
Director of Product, RS21

July 28, 2022



# ABOUT RS21





# WE ARE RS21.

We combine an AI engine with **custom data + design services** to empower organizations to solve complex challenges

Our mission is to **do good with data**, and help organizations do the same

Team of **Data Scientists, Data Engineers, Software Developers + User Experience Designers**

Offices in **Albuquerque, NM + Washington, DC**



# WE ARE RS21



**RS21 is a data science,  
artificial intelligence (AI)  
+ data visualization**

company operating at  
the intersection of  
science and art.



[www.rs21.io](http://www.rs21.io)

## Integrated Team

60+ Staff in Project Management, Data Science,  
Data Engineering, UX/UI Design + Software Development

## Domain Expertise

AI + analytics for protection, resilience, and recovery of critical  
infrastructure.

## Extensive Experience

Federal Government, State + Local, R&D, Healthcare



# RS21: HOW WE HELP

**Strategic Resource Allocation + Optimization**

**Social Equity + Impact**

**Land + Facilities Use**

**Location + Health Intelligence**

**Disaster Management + Resilience**

**Critical Infrastructure Network Analysis**

**Community Safety + Security**

**Anomaly + Fraud Detection**

**AI-Powered Fault Prediction**

# PEOPLE WITH PASSION

Values-based company

Highly engaged employees

Not just what we do...

...it is who we **ARE**

DO GOOD WITH DATA

EVOKE CHILDLIKE WONDER

DISRUPT

EVOLVE & LEARN

BE HUMBLE

BE REAL

SUSTAIN THE MOVEMENT

CULTIVATE OUR COMMUNITIES

LOVE HUMANITY



# ABOUT ME



**Umang Shah**

Director of Product



## At RS21

I am responsible for building products that address complex technical and socio-economic challenges using data analytics, design thinking, research and ML / AI enabled frameworks.

## Things I Love

Hitchhikers guide to the galaxy, astronomy, travel and the great outdoors



# LOCALIA

powered by MOTHR.

**Privacy-First  
Location  
Intelligence  
for Public  
Good**

**Localia Respects +  
Safeguards Individual Privacy**

**Better, Faster,  
Transparent Insights**

**Affordable +  
Accessible**





# THE DATA

Localia uses anonymized location data from consumer devices for its analysis

## 30M+ Active Daily Devices

Devices that report their location at least once a day

## 240M+ Active Monthly Devices

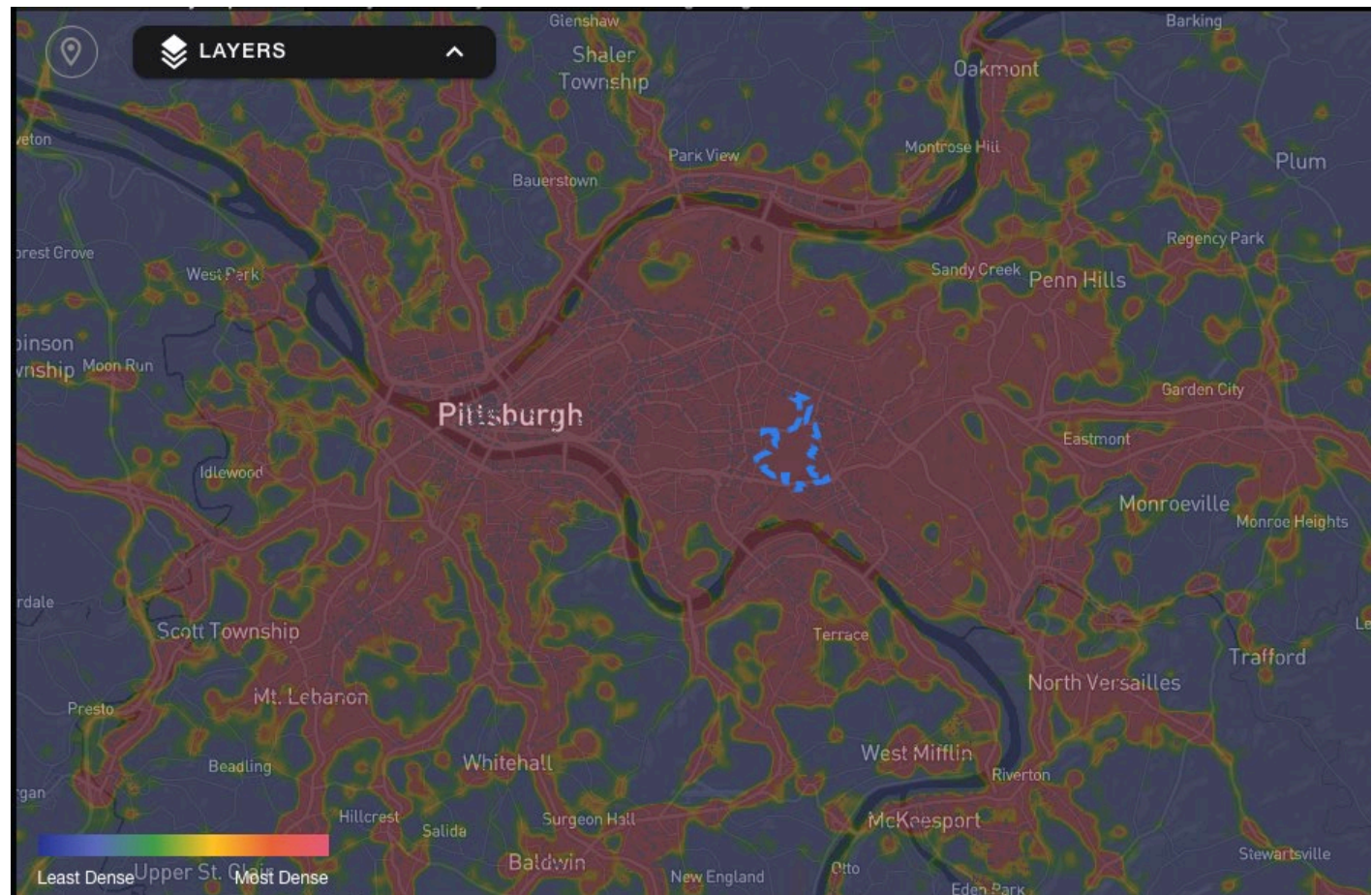
Devices that report their location at least once a day

## 30 Avg. Location reports / device

Average number of location reports received per active daily device every day

## 4TB+ data added every day

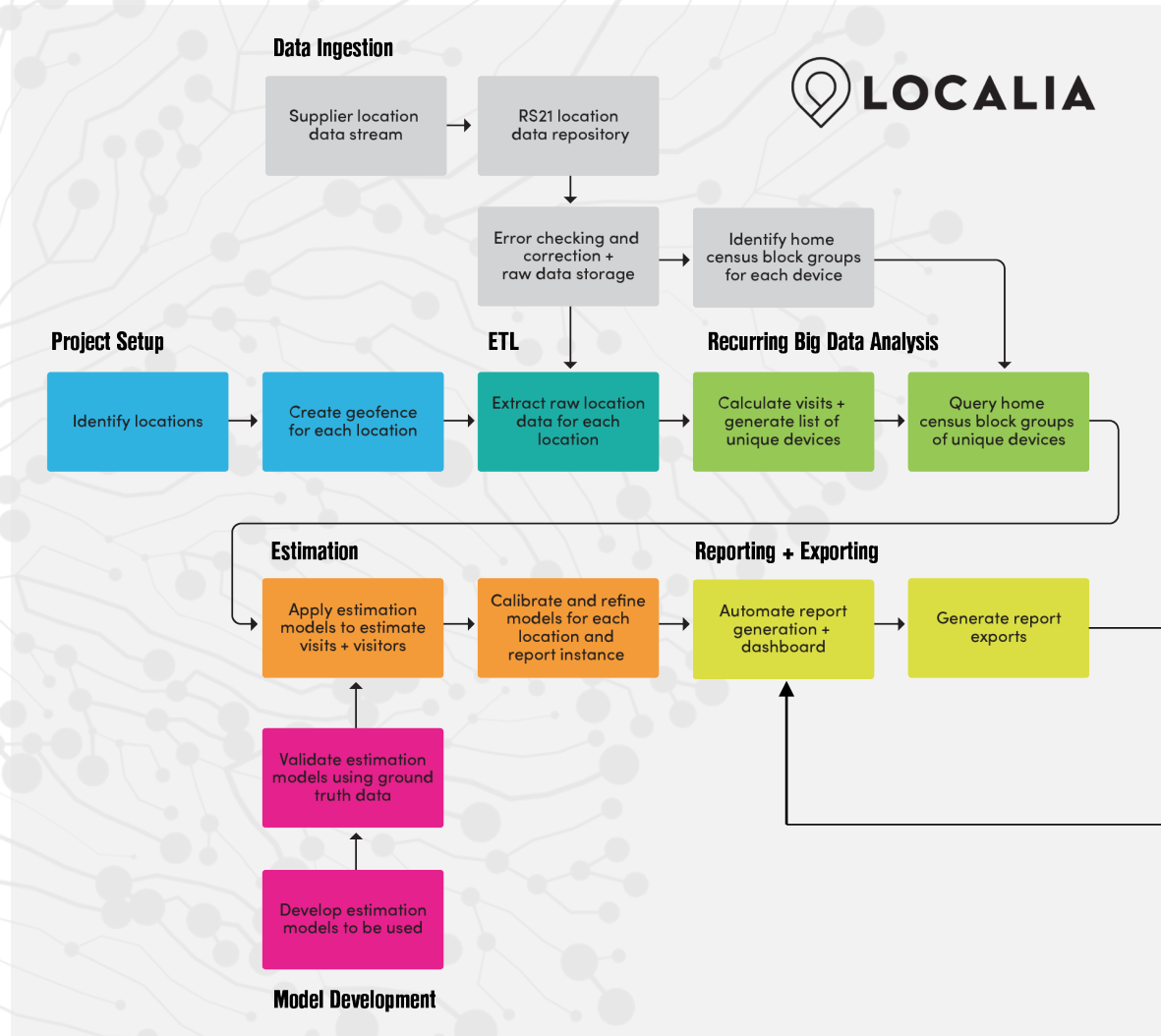
Over 800 TB of data spanning from Jan 2019 to present day



# METHODOLOGY + VALIDATION

**Identify Objectives and Desired Outcomes**

The best analysis starts with a clear understanding of the objectives, outcomes, and a good hypothesis.



**Extract Insights**

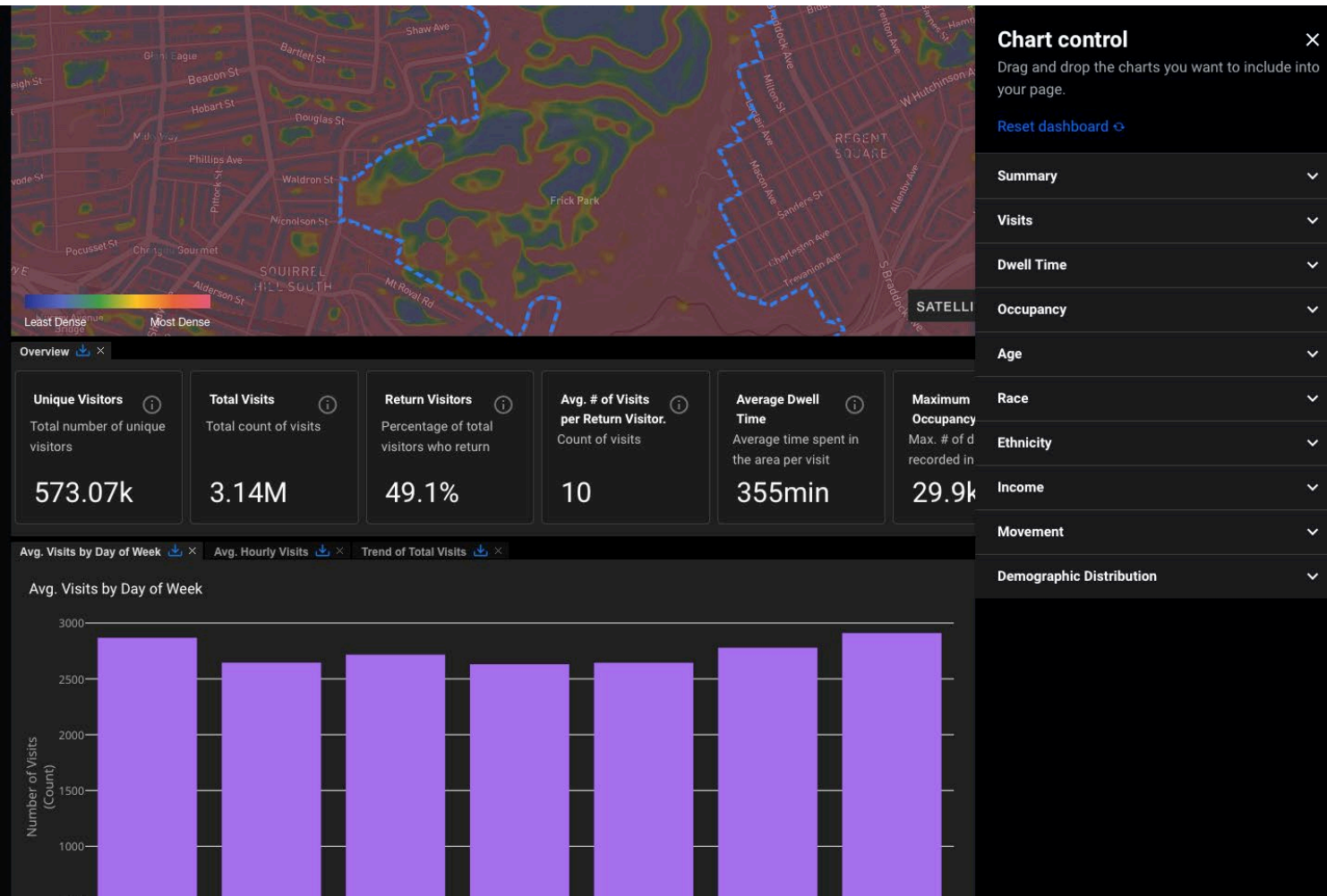
**Design + Implement Initiatives**

**Monitor + Track Impact**

Localia makes it easy to extract actionable insights that can be used to design and implement initiatives. Continued analysis projects allow you to monitor and track the impact of each initiative.

# VISITOR METRICS

What Localia can tell you about your visitors



## Visitor Summary

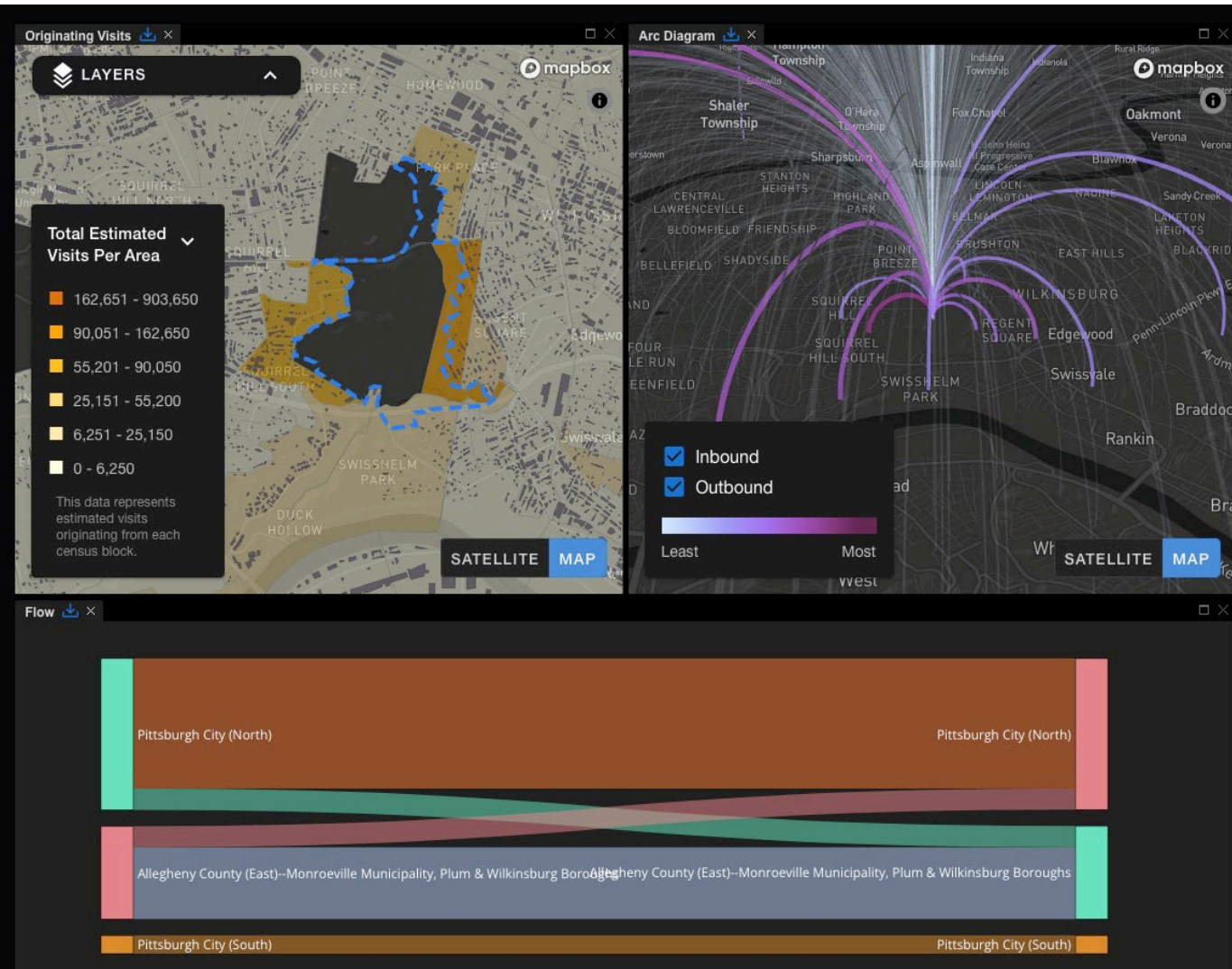
- Unique Visitor Count
- Total Visits
- Return Visitors
- Visits Per Return Visitor
- Dwell Time
- Maximum Daily Occupancy

## Visitor Demographics

- Age
- Race
- Ethnicity
- Income
- Social Vulnerability Index

# VISITOR METRICS

What Localia can tell you about your visitors



## Visitor Movement



- Home location census block groups
- Before and After Locations
- Visitor Pass through PUMA flow rate

## Custom Metrics for Trails and Parks & Rec

- Visitor Personas
- Local / Tourist visitors
- Special event analysis
- Distance Traveled
- Amenity Analysis



# GETTING FROM INSIGHT TO ACTION

## Use Cases for Trails and Parks & Rec

Category	 Insights	 Outcomes
Park / Trail Utilization	Visits, Dwell time, Occupancy, high/low density areas by day of week and hour of day, visitor home census blocks, before and after locations	Plan the right initiatives to increase park/trail visitation
Amenities	visit and visitor metrics drilldown for each amenity on the trail, such as trail heads, water bodies etc.	Increase utilization of amenities, plan new amenities in the right places
Resource Allocation	Visits, occupancy by day of week and hour of day	Deploy resources for park and trail maintenance in a more cost-efficient manner.
Grants & Funding	Visitor insights, Demographics, distance traveled and socio-economic status	Justify grant proposals and funding requests with robust data
Portfolio Analysis & Comparison	Comparative analysis of parks, trails and amenities across multiple locations	Perform periodic analysis of all parks / trails in your portfolio. Compare your trail with another trail in a similar area. Compare impact of amenities of other trails on visitor metrics and justify their inclusion within your park

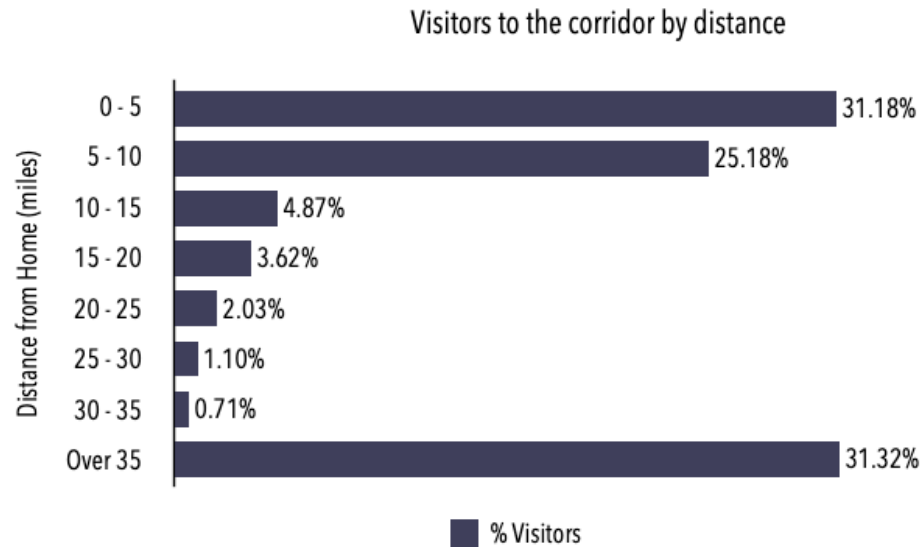
# GETTING FROM INSIGHT TO ACTION

## Use Cases for Trails and Parks & Rec

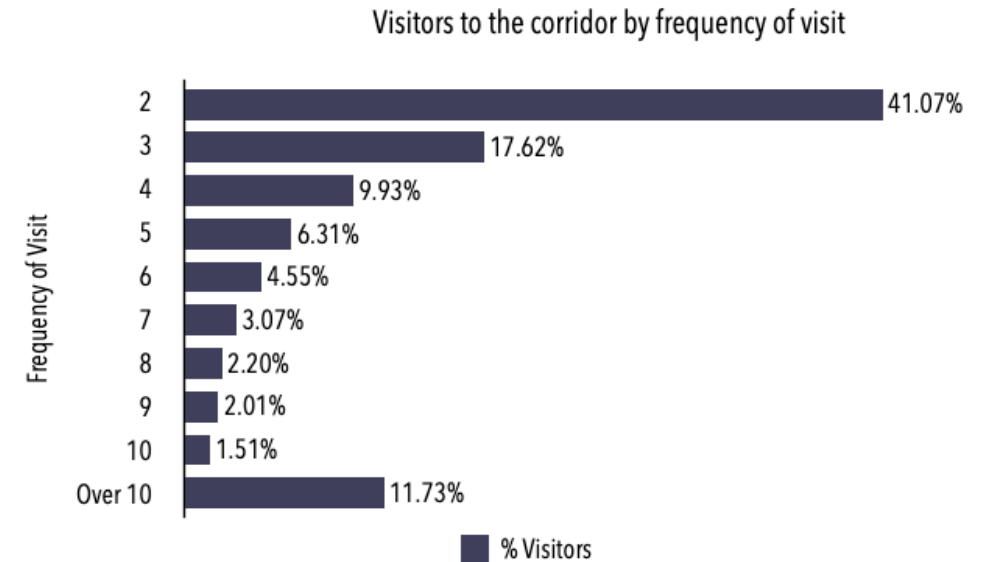
Category	 Insights	 Outcomes
<b>Social Equity</b>	Visitor demographics and social vulnerability	Estimate visitor demographics and determine if the park or trail is serving a population representative of the community. Identify and evaluate initiatives that promote equitable park / trail use.
<b>Community Impact</b>	Visitor home census block groups, distance traveled and before and after visit locations	Identify the impact a trail has on the nearby community by estimating the proportion of visitors by distance from the trail. Use mobility data to measure the economic contribution of trail visitors to nearby communities
<b>Before and After analysis</b>	Visitor metrics before, during and after an event (weather, public health event, Planned Park events etc.) initiative or a change (amenity deployment, infrastructure development etc.)	Analyze the impact events, amenities and development have on visitor metrics. Plan and Prioritize initiatives increasing utilization and public participation in projects.

# SAMPLE LOCALIA INSIGHTS

**Proportion of Visitors by Distance From Home Locations / Frequently Visited Locations:**



**Proportion of Return Visitors by Frequency of Visit:**



**Visitors by Frequency of Visit and Distance**

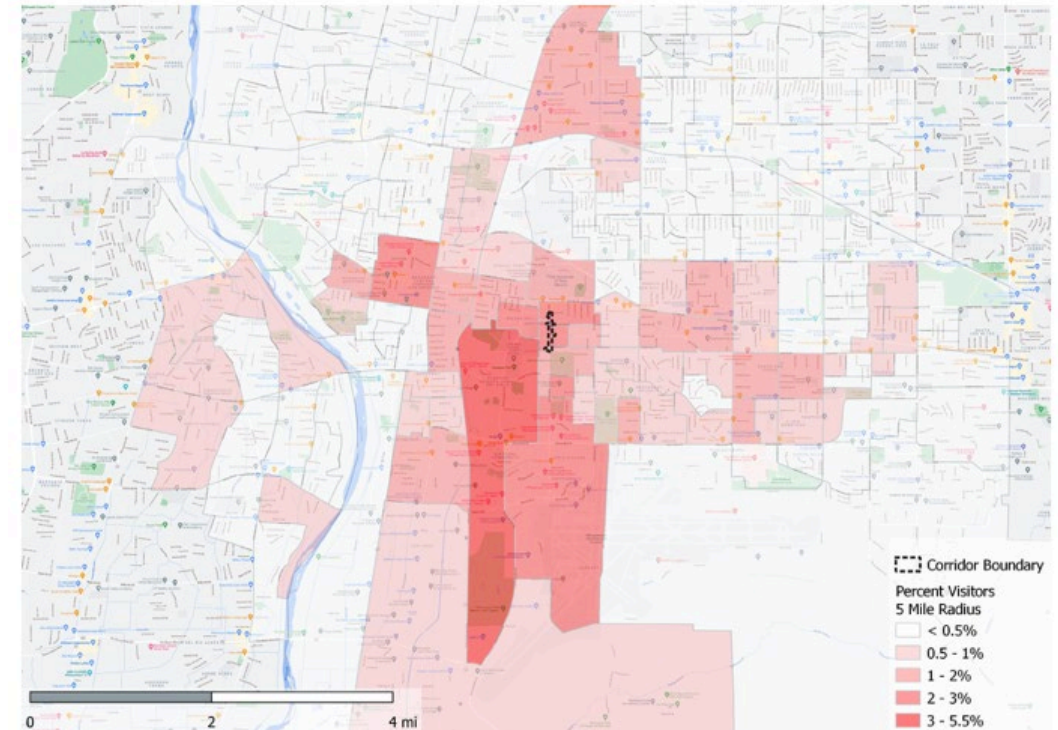
# SAMPLE LOCALIA INSIGHTS

## Visitors Originating from Census Block Groups Within 5 Miles of the Corridor:

The heat map below shows the proportion of visitors to the corridor originating from census block groups lying within a 5-mile radius of the corridor.

Proportion of total visitors that visit from census block groups whose centroids lie within a 5-mile radius:

**42%** Of all visitors



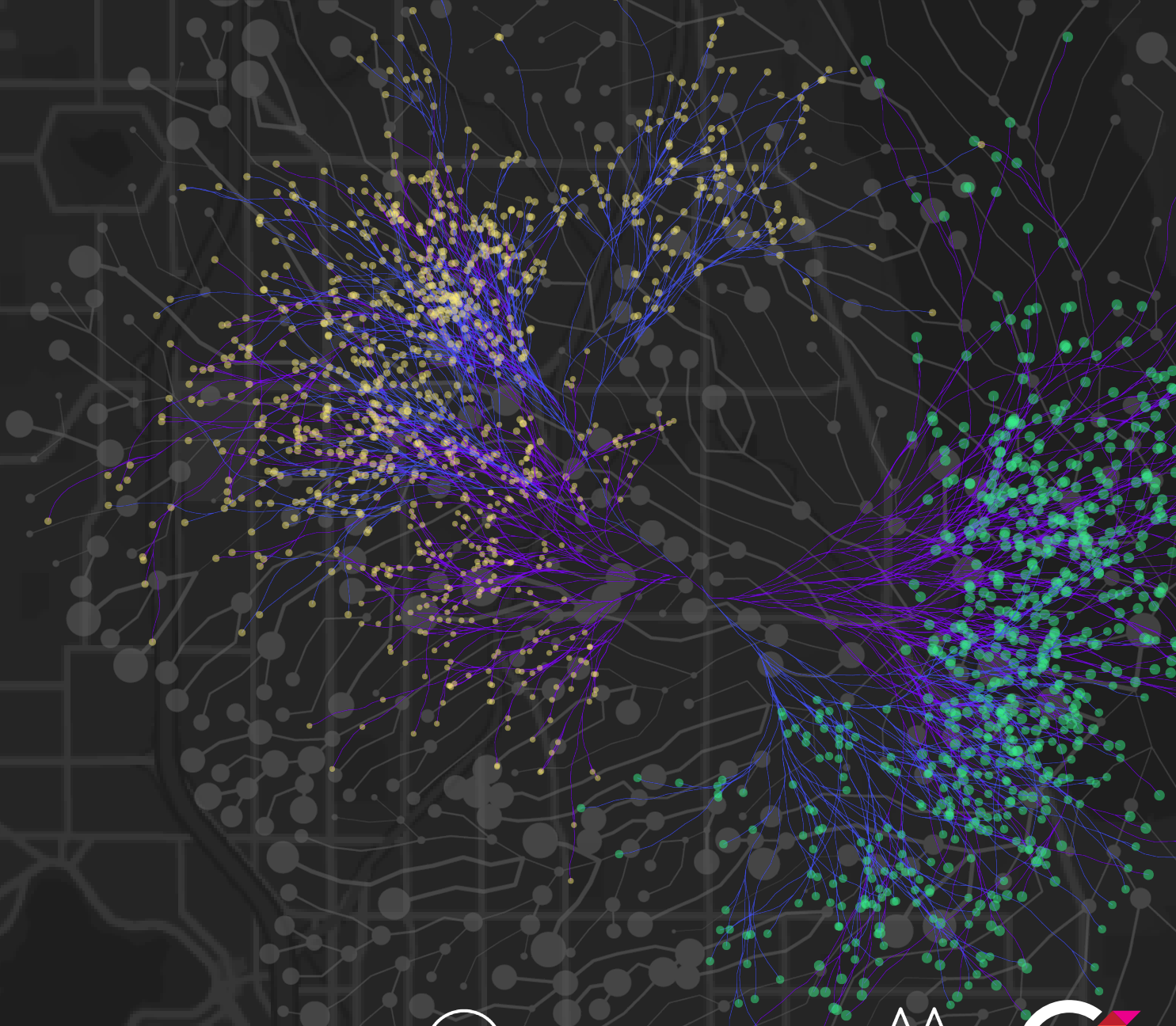
	Overall	Section 1	Section 2	Section 3	Section 4
Unique Visitors	289.04K	54.37K	190.23K	116.53K	53.39K
Total Visits	700.34K	322.15K	544.86K	459.74K	301.49k
Return Visitors	33%	65.5%	37%	50.5%	63.4%
Return Frequency	5	8	6	7	8
Avg. Dwell Time	69 mins	73 mins	74 mins	76 mins	72 mins
Max. Daily Occupancy	5.6K	2.73K	4.84K	3.18K	2.78K

Visitor metric for each section of the park or each trail

Visitors originating from a 5-mile radius



# DEMO



LOCALIA

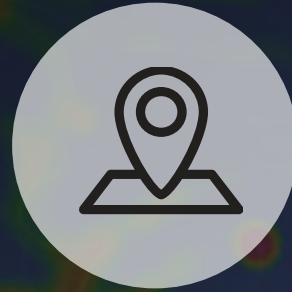


# LIMITATIONS OF LOCATION DATA



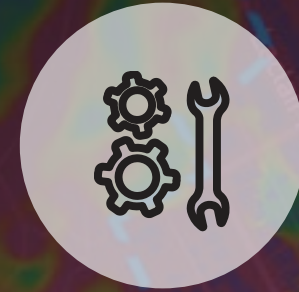
## Dependent on the Presence of Mobile Coverage

Lack of mobile coverage in certain parks or trails will result in a lower count of observed devices. This may result in inaccurate estimations of visitors and occupancy



## Cannot be Used for Real-Time Analysis

Mobile location data is available for analysis with a 3-5 day delay due to data pipeline constraints. Hence it cannot be used for real time analysis



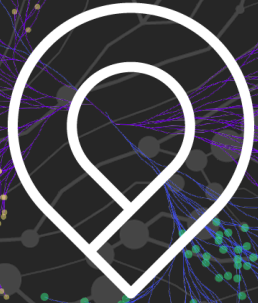
## Estimations Need to be Calibrated Periodically

As with all estimation methodologies, periodic calibration using ground truth data is necessary to maintain accuracy.

# LOCATION DATA + PRIVACY

## How Localia safeguards individual privacy

- Users cannot access and download raw mobile location data.
- All analyses and views in the Localia dashboards are geospatially aggregated to obscure individual device activity.
- All reporting and export functions only allow sharing of aggregated anonymized data.
- All production GIS heatmaps are obscured and random jitter is added. Only a fraction of sample points are displayed
- Minimum area size constraints are applied to prevent analysis of residential areas



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**THANK YOU.**

**Umang Shah**

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