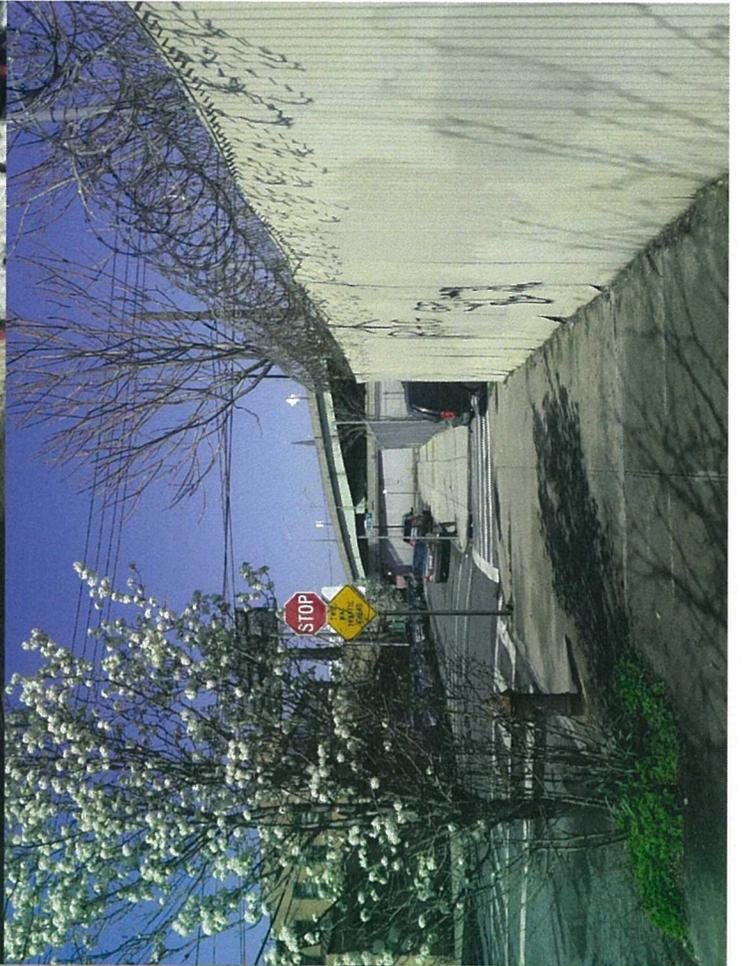


*Case Study:*  
**Red Hook Initiative WiFi &  
Tidepools**

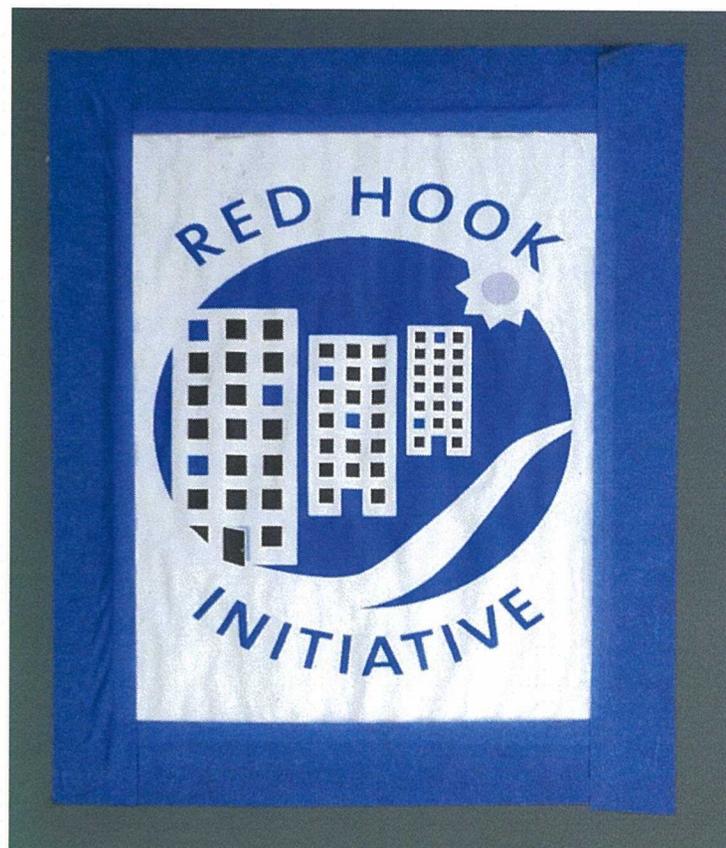
Georgia Bullen  
[georgia@opentechinstitute.org](mailto:georgia@opentechinstitute.org)



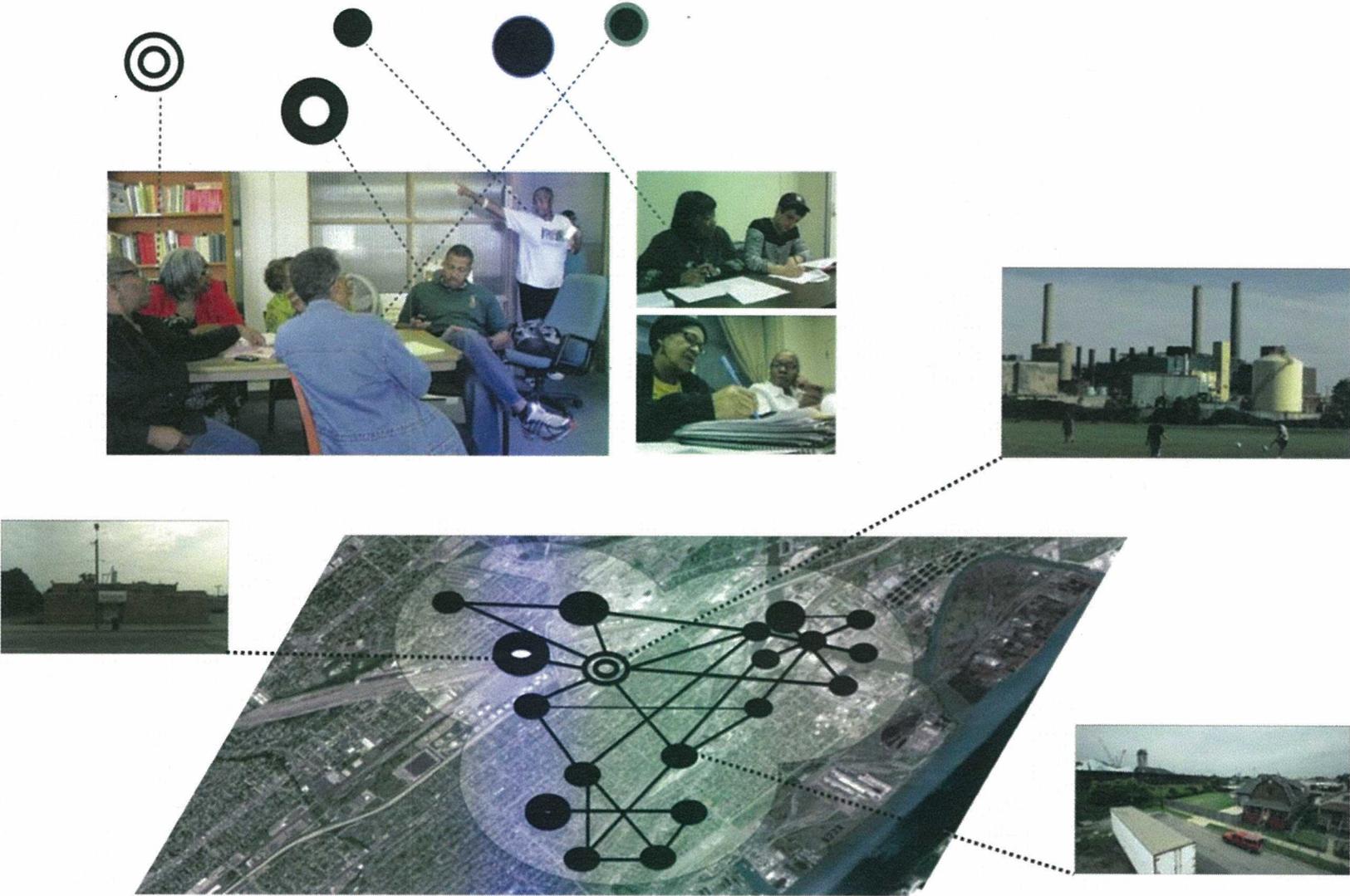


# Key Aspects: Social & Technical Infrastructure

- Main network anchors are trusted community organizations.
- Solid relationship with technical support provider from outside of the community.
- Community-led design process emphasizes local needs and enhances engagement.
- Rapid prototyping of applications designed for the local area network.

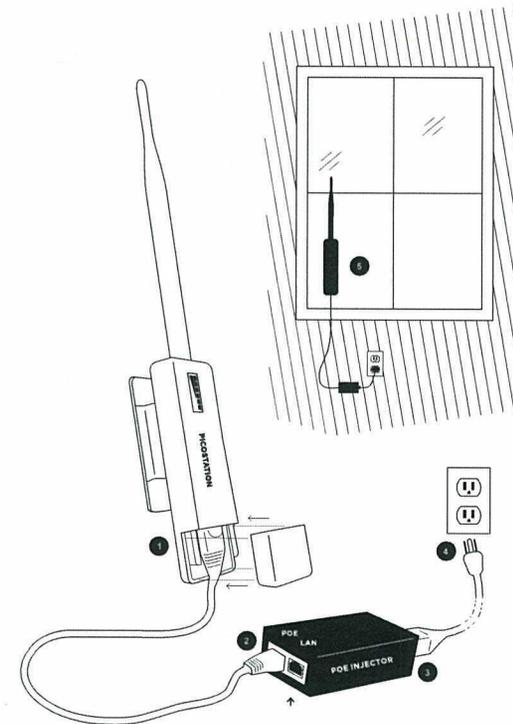


Creating digital networks is mostly a social process.



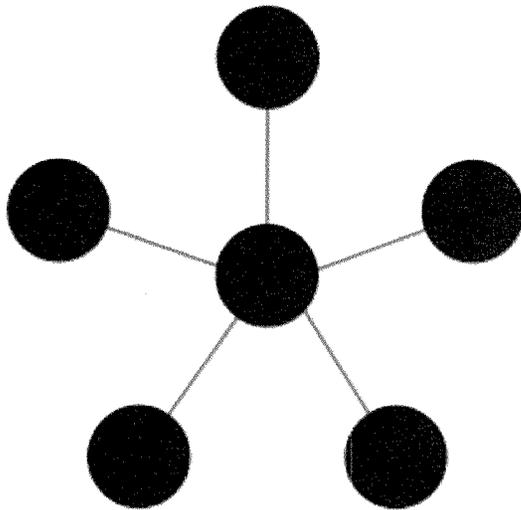
# Technology in use

- Ubiquity Routers
  - Nanostation M
  - Nanostation Loco
- Commotion
  - Ad Hoc Network Platform
  - OpenWRT
  - OLSRd Routing Protocol

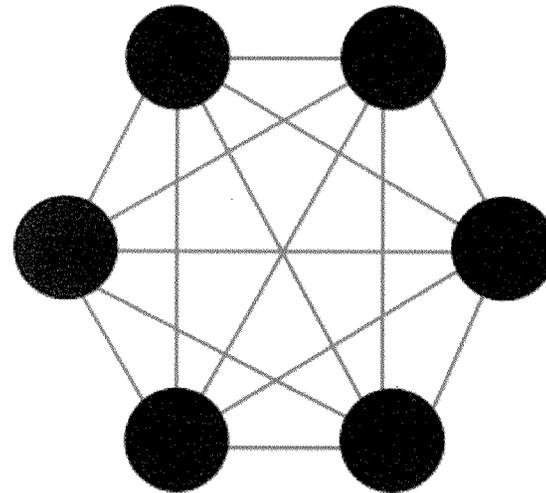


[https://code.commotionwireless.net/projects/commotion/wiki/Newbie\\_How\\_It\\_Works](https://code.commotionwireless.net/projects/commotion/wiki/Newbie_How_It_Works)

Mesh networks are distributed, non-centralized, and self-healing.



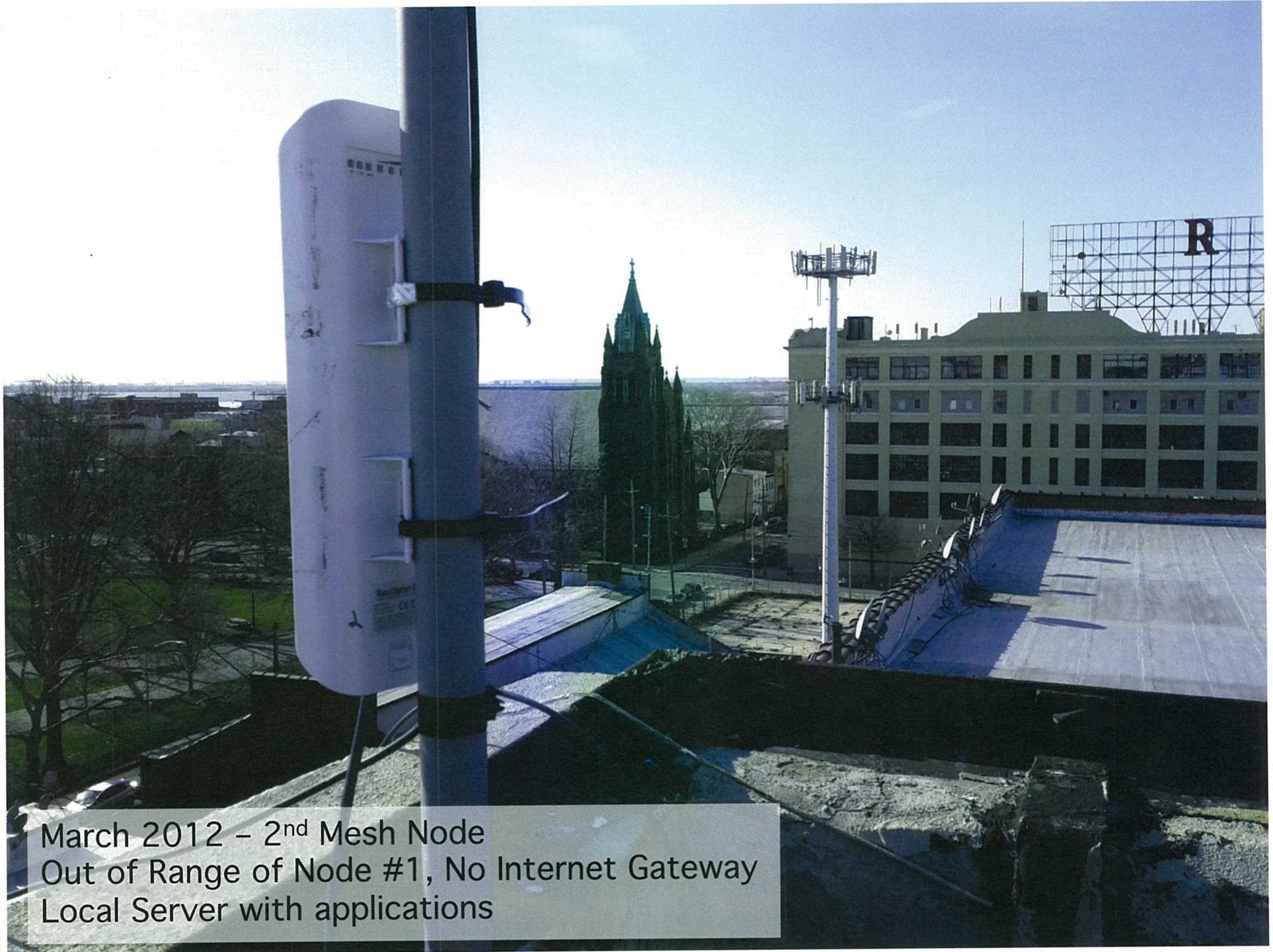
Hub and Spoke Network



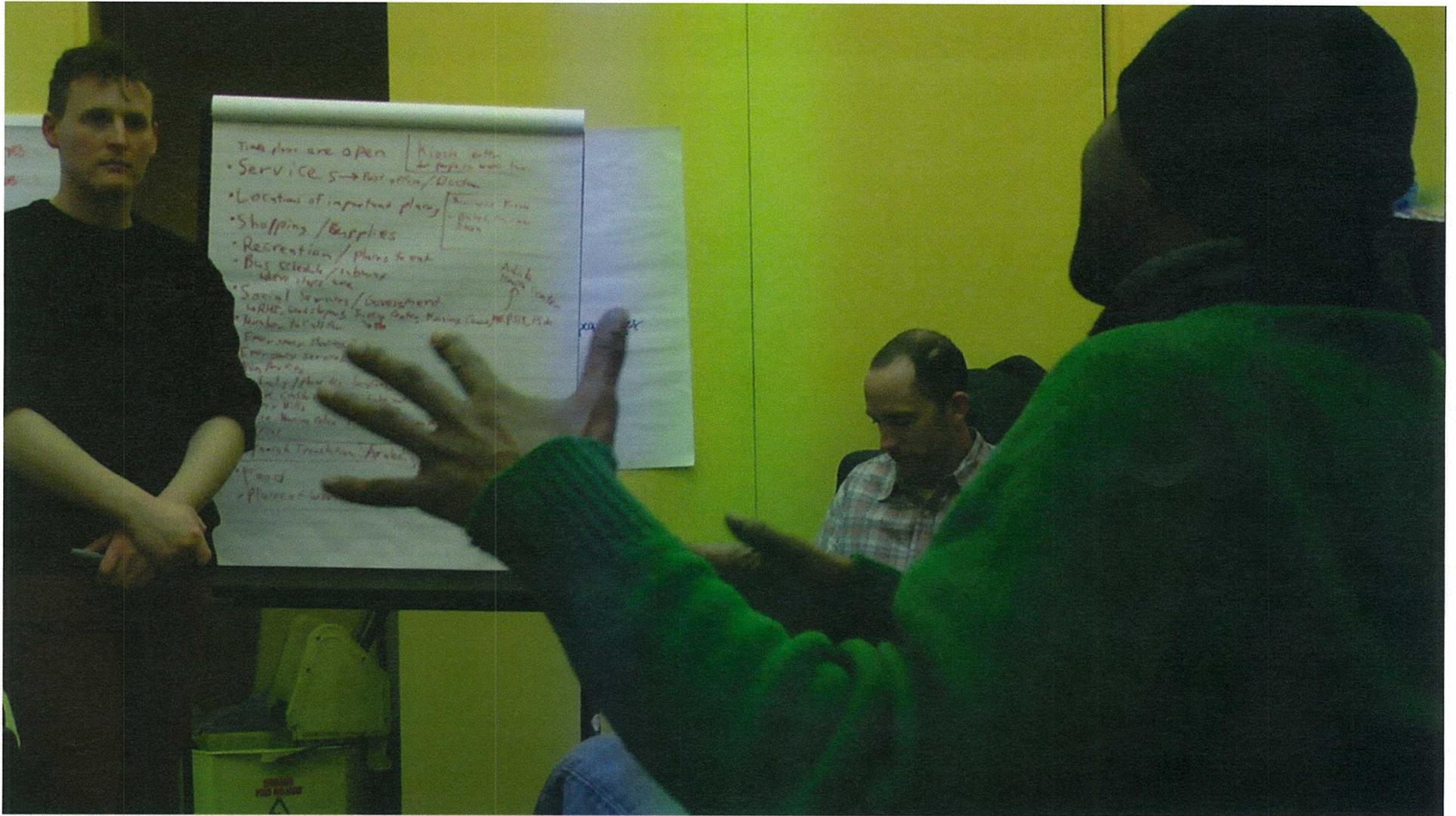
Mesh Network



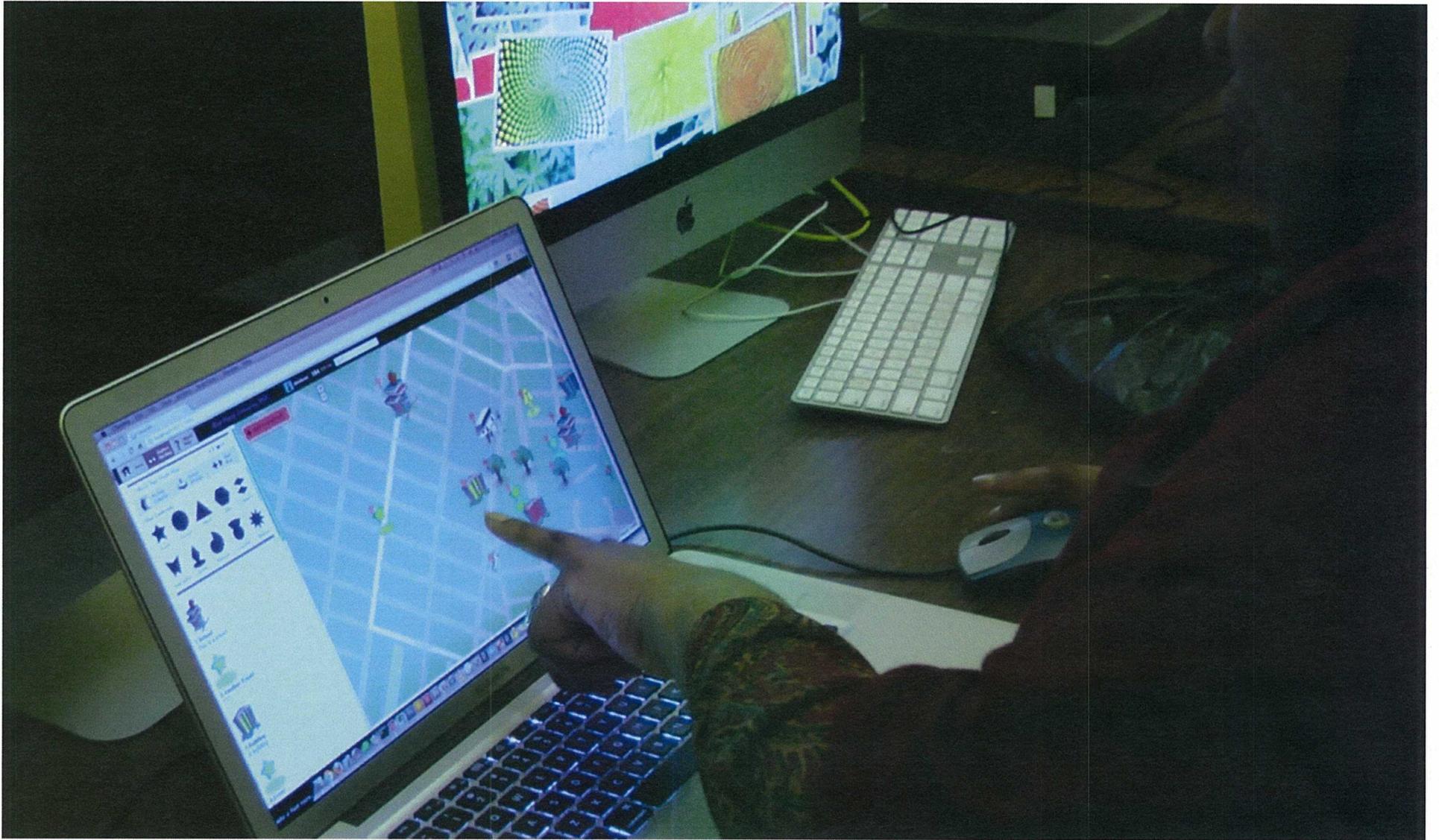
February 2012 - 1<sup>st</sup> Mesh Node  
WAP + Internet Gateway



March 2012 - 2<sup>nd</sup> Mesh Node  
Out of Range of Node #1, No Internet Gateway  
Local Server with applications

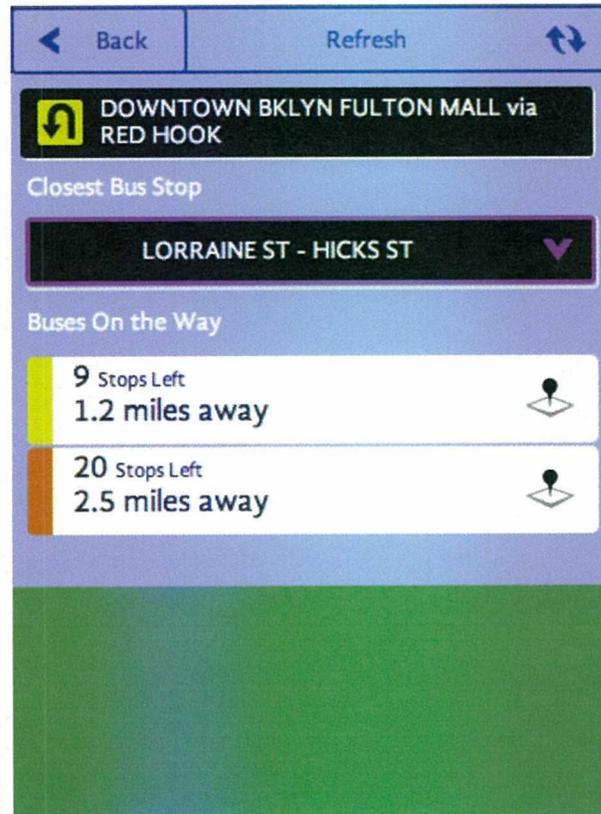
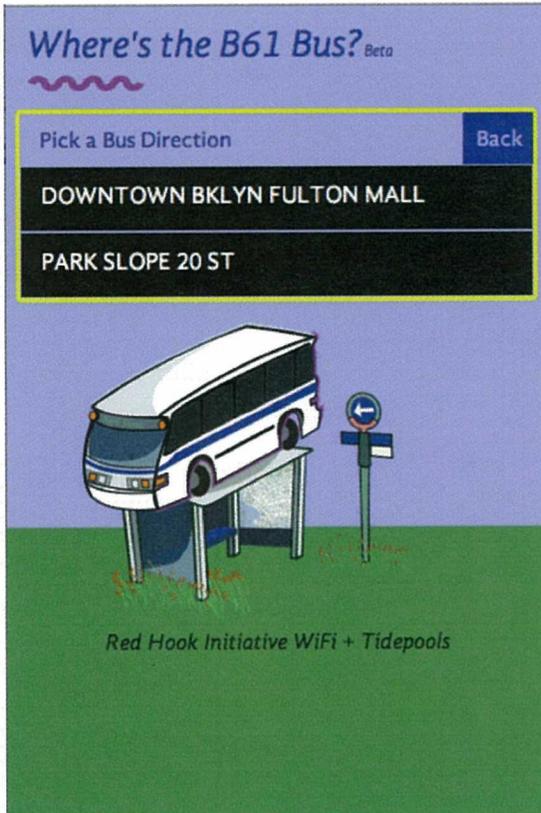


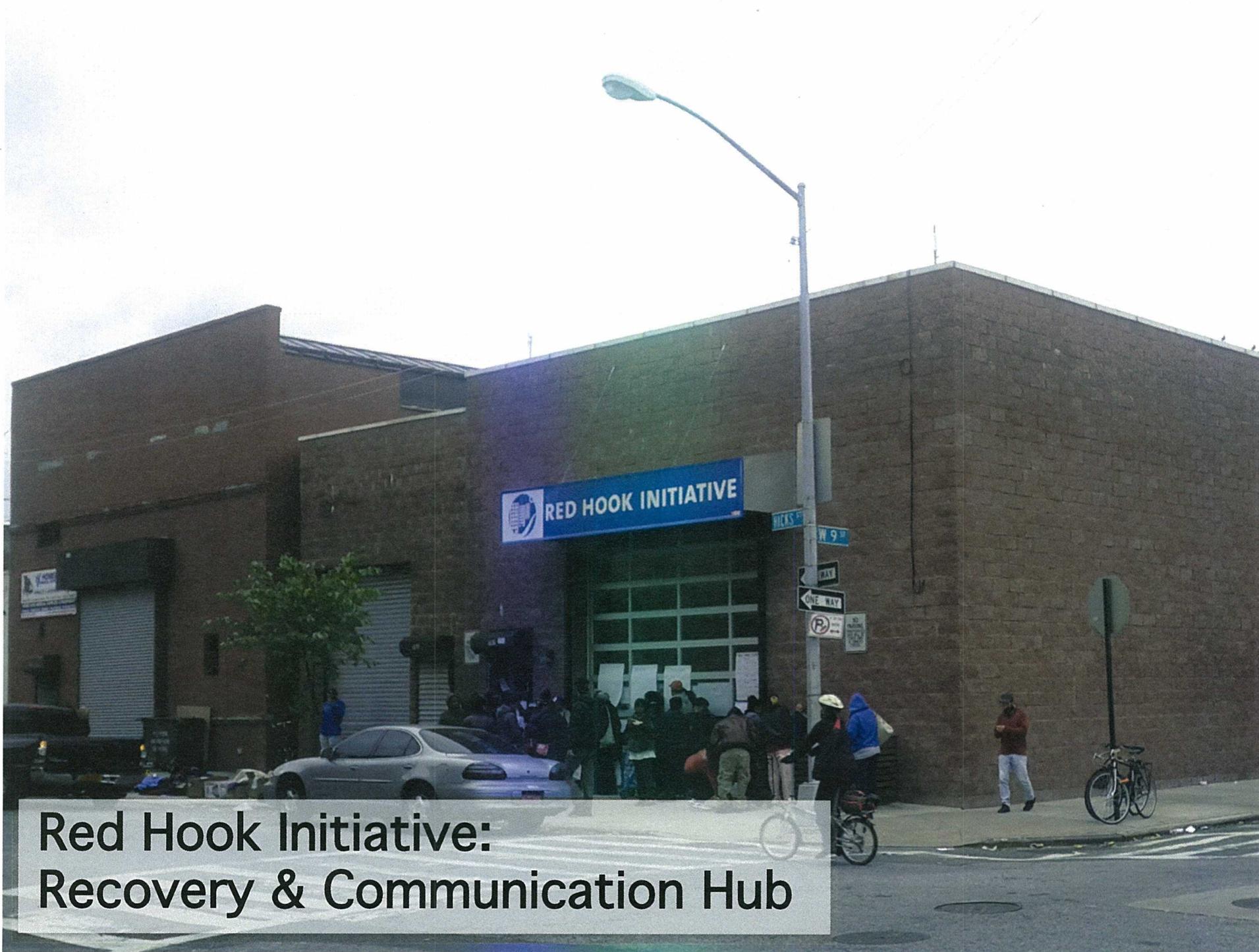
*Community Collaborative Design Workshops, Photo: Becky Kazansky*



*A resident working with Tidepools, a local Mapping Application, Photo: Becky Kazansky*

# Local Application Development





**Red Hook Initiative:  
Recovery & Communication Hub**

# RHI Status

**Red Hook Initiative WiFi**  
#SandyAid Txt Map

+ New Map    Browse All Maps

1 Events/Announcements    2 Repairs    3 Supplies

Filter Landmarks

Event    Memories    Alert!    Fix This    Free WiFi

Friend    Group    Food    Coupons    Jobs    Other

Landmarks    Chat Feed

**Red Hook Needs**  
Needs/Reports added to the map when texted.  
**RESPONDERS: Click on Icons to Send Reply Back via Txt Msg**  
(Get JSON API here) - Part of [tidepools.co](http://tidepools.co)

1 . **Red Hook Initiative**  
767 Hicks Street Brooklyn, NY 11231 Phone 718-858-6782

2 . **Food, water, supplies**  
Columbia at and centre mall Brooklyn

3 . **Gas generator, water pump**  
767 Hicks street Brooklyn

4 . **Gas, water pump**  
king street and van brundt Brooklyn

+ Drag / Click to Map

**TEXT Needs/Damages to (347)778-0570**  
Format TEXT as **Need @ Your Location**  
(i.e. "Gas, Water Pump @ Van Brundt and Pioneer Brooklyn")

Brooklyn    Manhattan    Queens  
Long Island    Staten Island    Bronx  
New Jersey

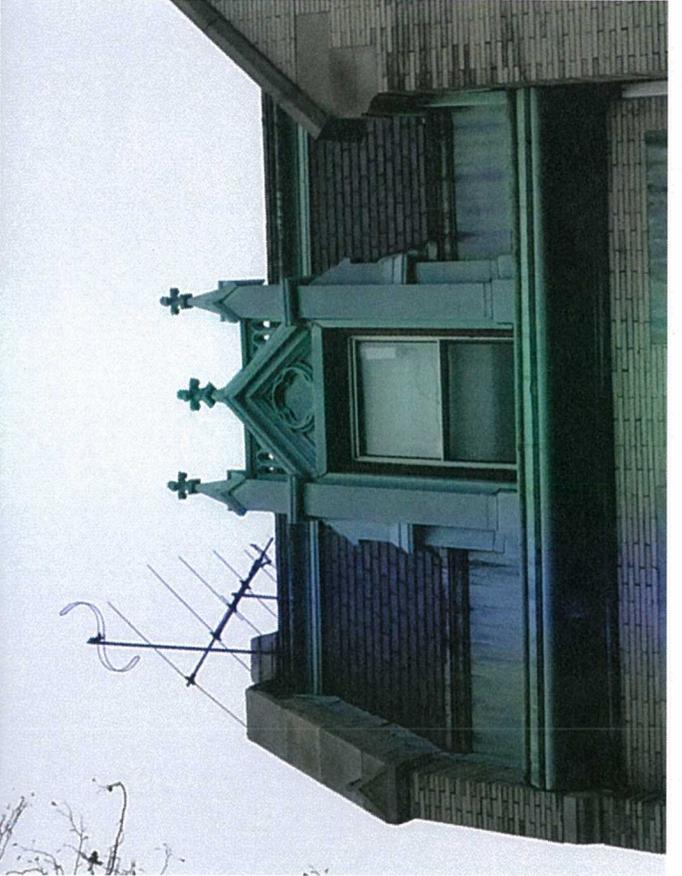
**Send SMS Text msg Back to Sender**

Name / Nickname  
Responder

Comment

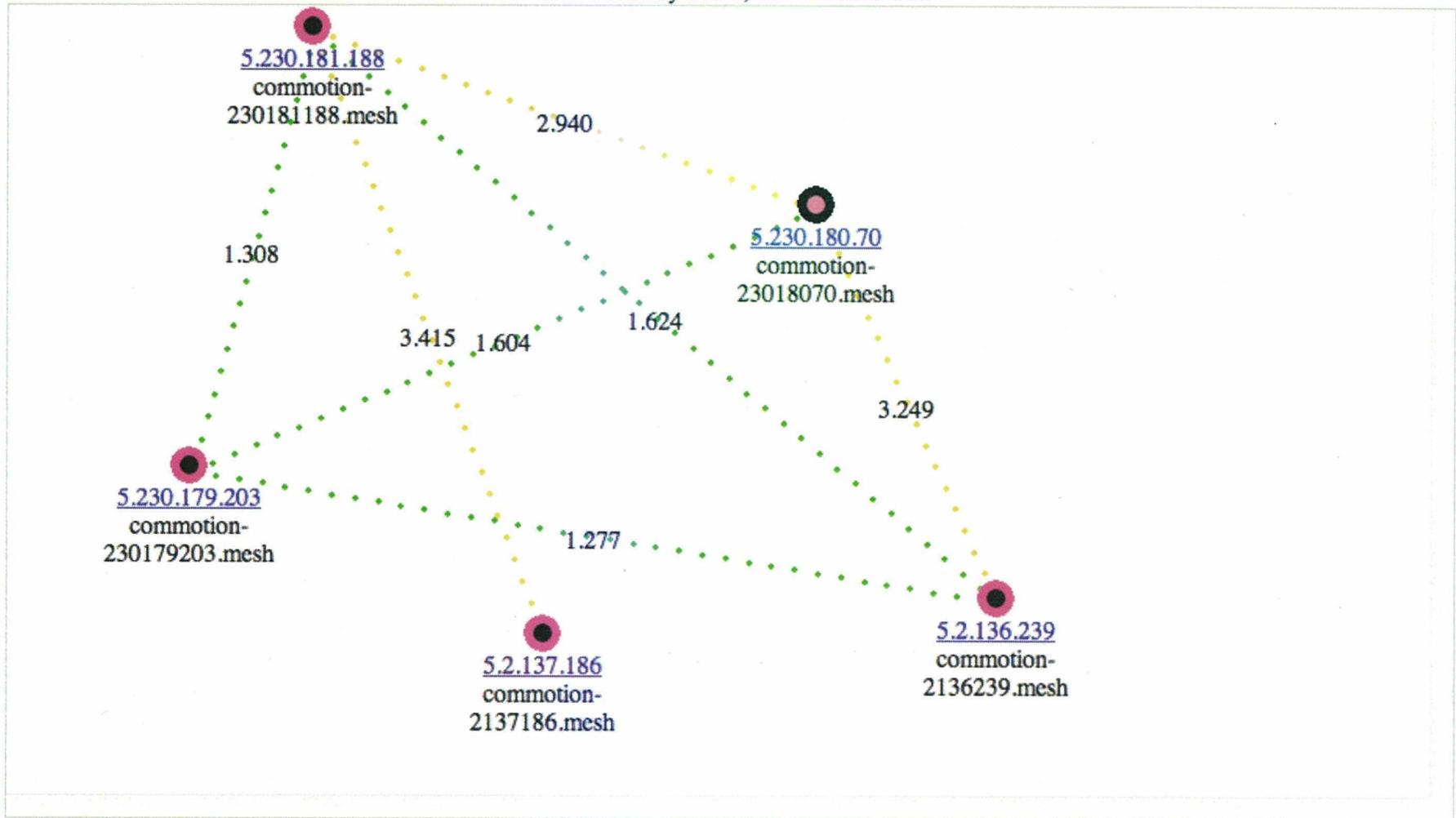
Send    Cancel

Tidepools with Leaflet & OpenStreetMaps





● - Gateway Node, ● - Basic Node



# Lessons Learned

- Having relationships and anchor wireless nodes in place prior to a disaster facilitates rapid network deployment through:
  - Already-established relationships with key community stakeholders.
  - A heightened level of technological literacy in the community.
  - Pre-positioned wireless network equipment in the neighborhood.
- The most challenging investment is in the initial organizing and design phase before any value is realized.
- Community-designed applications add value to a local network, even at a small scale.

# **Additional Materials**

# Cost of the Network

- Donated labor from local residents and technologist.
- Institutional support from RHI and OTI.
- Hardware (~\$50 to ~\$85 each router).
- Installation (3-5 work hours for two people per site).
- Bandwidth (donated by RHI, Brooklyn Fiber, and FEMA).
- Training program for local residents to maintain and expand network as part of a municipal employment program.

## More Information

<http://oti.newamerica.net>

<http://commotionwireless.net>

<http://tidepools.co>