STREET SAVVY

UC Berkeley School of Information
MIMS 2014

Image Source:
Breyer Law Offices

THE TEAM

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CONTENT

Overview

Research & Insights

Design

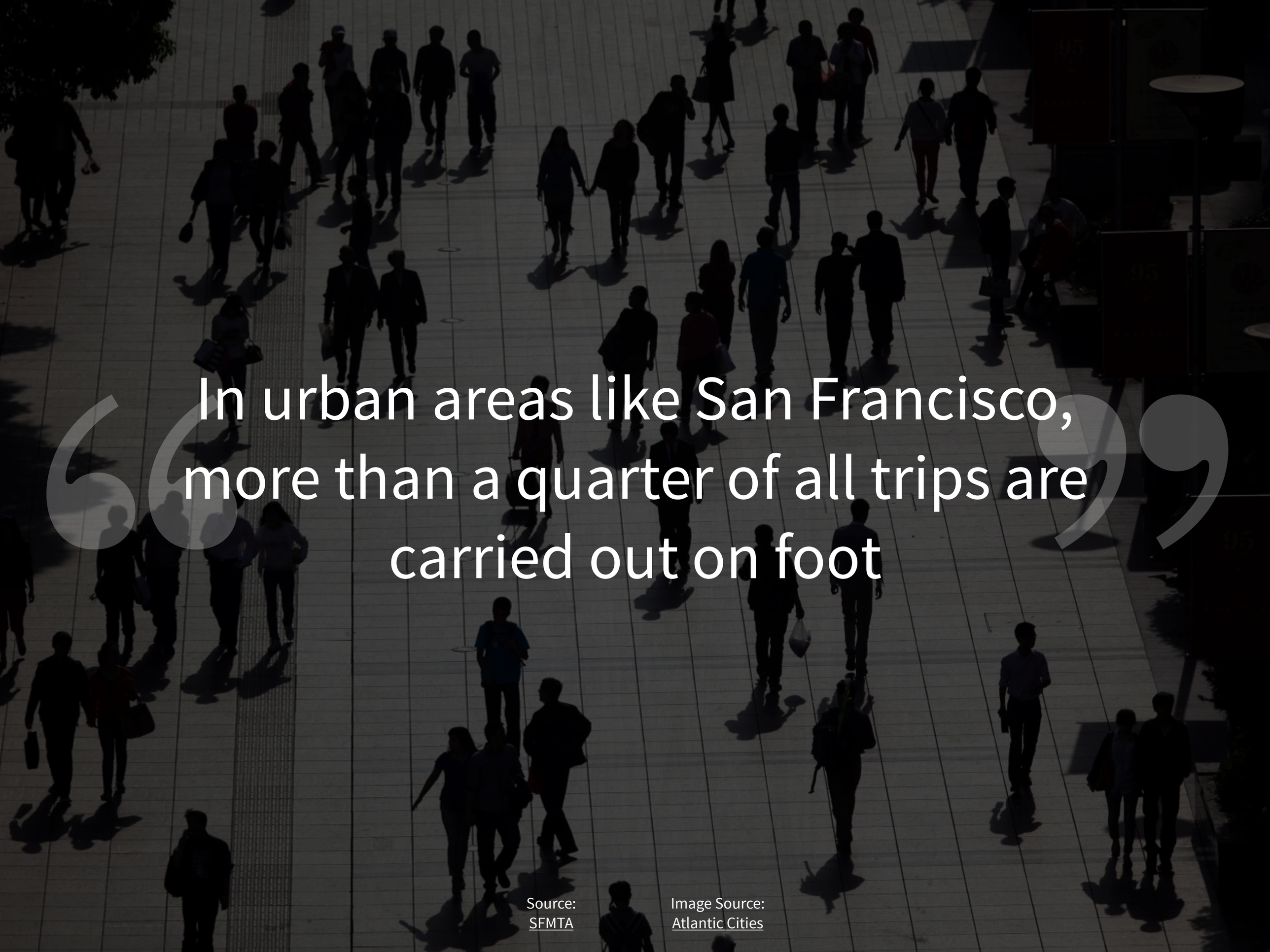
Technology

Challenges

Demo

OVERVIEW

Image Source:
Baltimore You Are Marvelous



In urban areas like San Francisco, more than a quarter of all trips are carried out on foot

Source:
SFMTA

Image Source:
Atlantic Cities

Problem

Existing navigation applications don’t take **pedestrian safety** into account

Problem

Many **women** don’t feel safe on the streets of their own city

STREET SAVVY

A web-based mobile mapping tool that helps **pedestrians make more informed decisions** about which route to take

STREET SAVVY

... but we are **not** developing
a “safety algorithm”

RESEARCH & INSIGHT

Image Source:
Desktop Wallpapers

Safety, accessibility, and aesthetics.
Each helps support walking.

—Peter Lagerwey

Regional Office Director, Toole Design Group

“How might a mobile application improve walking safety?”

I would not use a mobile application.

I wouldn’t want my phone out at night ... because I wouldn't want to get mugged.

Since most property crimes involve theft of a mobile device, using an app while walking can only make one a bigger target.

Not sure.

Pulling out a mobile might give someone a reason to jump me and steal it.

Getting mugged or getting hit by a car while looking at a walking safety app would really stink.

“How might a mobile application improve walking safety?”

The app could show the safest routes depending on the time of day you are walking around.

I’d try an app that showed nearby routes that were well lighted or had lights at all.

Visible crime stats over the map

A list of nearby open businesses would make me feel safer.

Heat maps with crime stats overlaid, highlight streets without adequate lighting, highlight streets where most businesses are closed.

Safety-Oriented

CRIMEMAPPING™.com

CrimeReports™

STREET SAVVY

General Purpose — **Pedestrian Focus**

waze

Directions-Oriented

Gender-Sensitive Concerns

+

Relevant Data Visualization

+

“Hands-Free” Directions

=

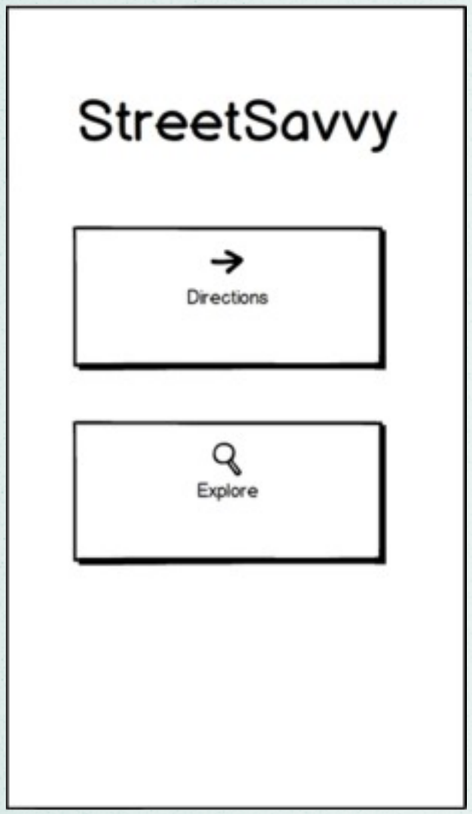
Empowered Pedestrians

Image Source:
The Noun Project

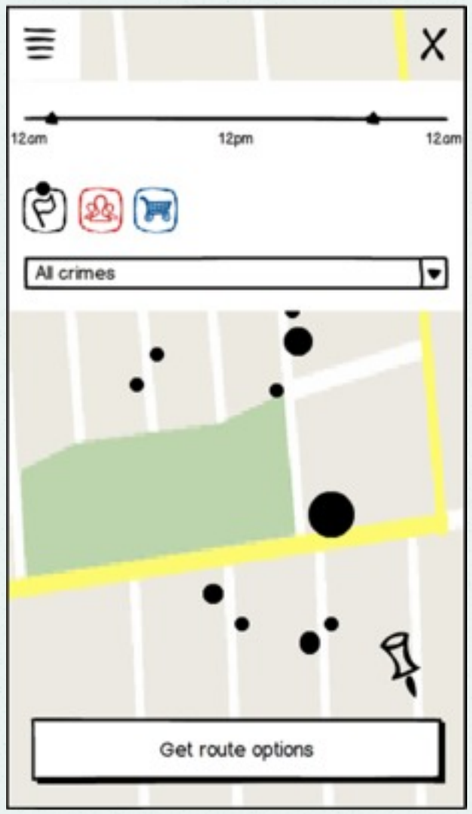
INTEGRITY
DATA FRESHNESS ?
Map View Not Helpful when Travel by Night
street view day vs night accuracy
STREET LIGHTS
light / shadows
ORIENTATION
elevation
Elevation Change
DATA VS INTUITION
PEOPLE
Unintended Users "Redlining"
CRIME ↓ DROPDOWN/ CHECKBOX ?
Size of circle = Frequency
Circle Size = Crime Frequency
Circle Size = Crime Seriousness
SWIPE MENU
side menu vs top menu
Severity
Did not notice distance between text blurbs was meaningful
directions with landmarks
pictures-only view is useless
text-based is best for some
Counting Blocks
wanting to see the map
top-bottom or bottom-top directions order
Swipe DIRECTIONS
usefulness of Street View if too many "twists and turns"
Waved Hands
Oriented Phone
Structuring Mnemonic
mnemonic has no "left" and
Rape Crime
AVOIDING CRIME ↓ WHAT TYPE
MUGGINGS'
Drug Crimes
verbal harassment and gender

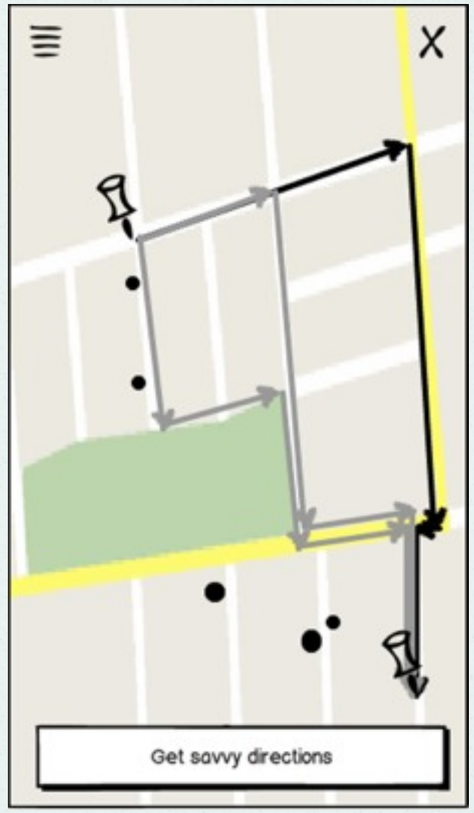
DESIGN

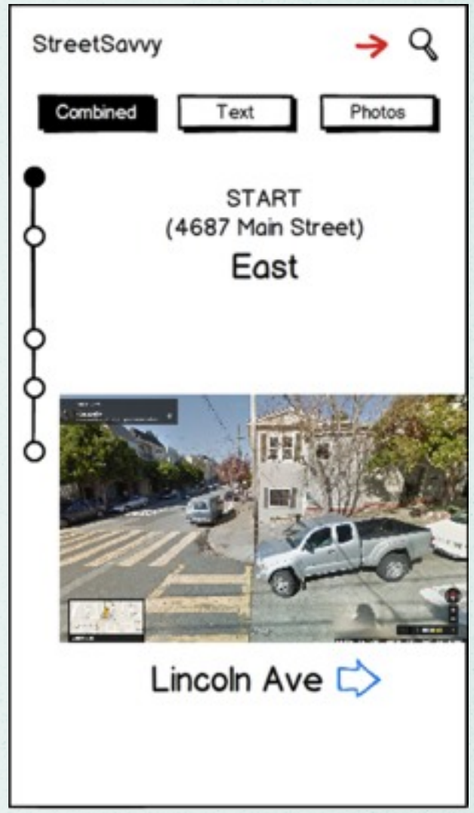
DESIGN


StreetSavvy
Directions
Explore

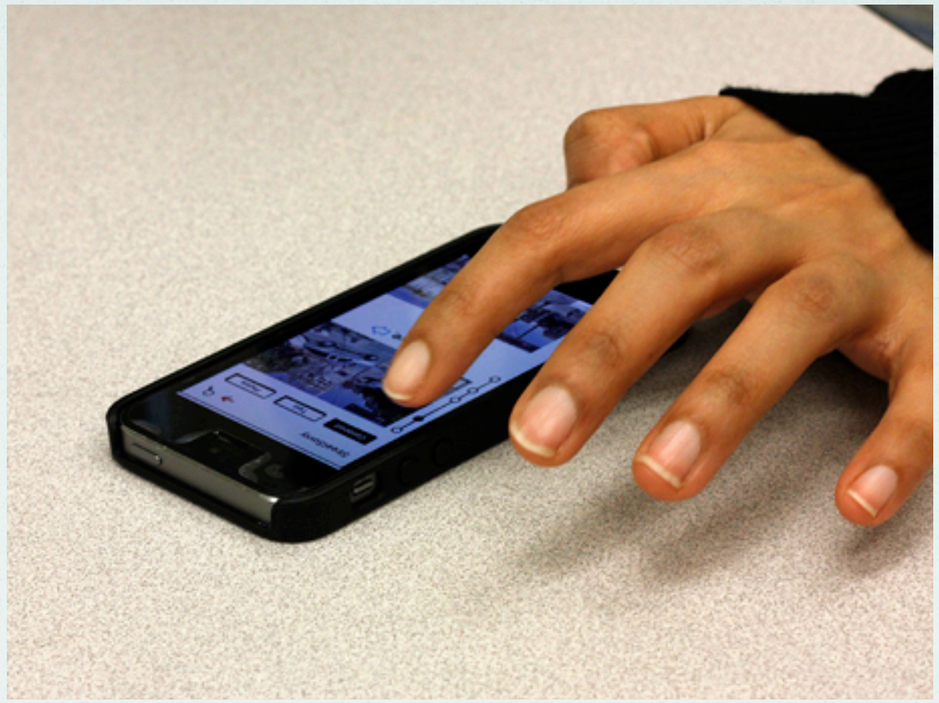
StreetSavvy
Where are you?
4687 Main Street
Where are you going?
896 Washington Ave
What are you concerned with?
Crime
All
User-generated Reviews
Shops
SEARCH

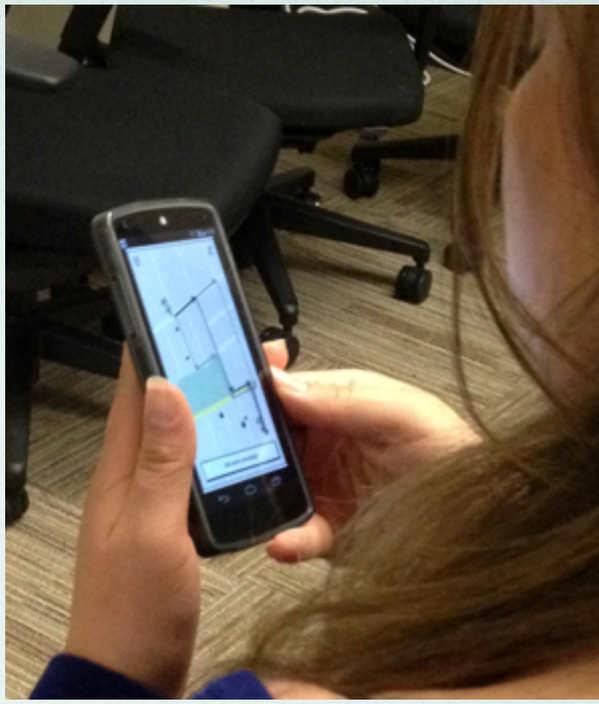

12am
12pm
12am
All crimes
Get route options


Get savvy directions

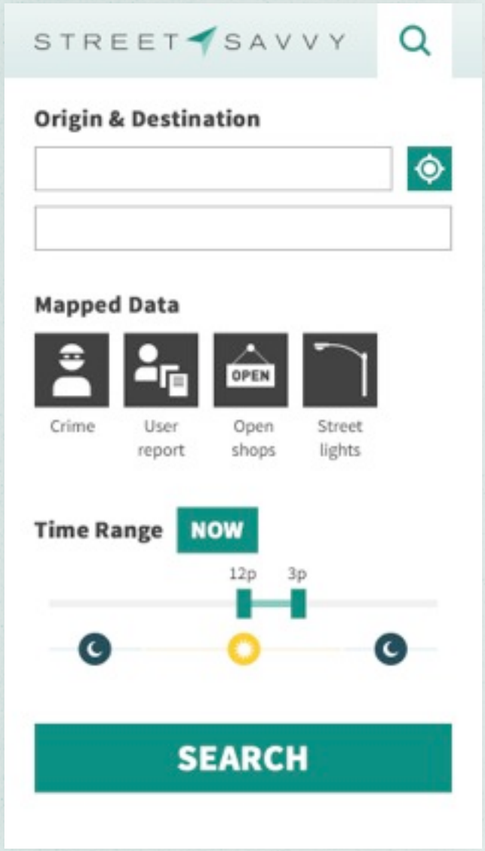

StreetSavvy
Combined
Text
Photos
START
(4687 Main Street)
East
Lincoln Ave

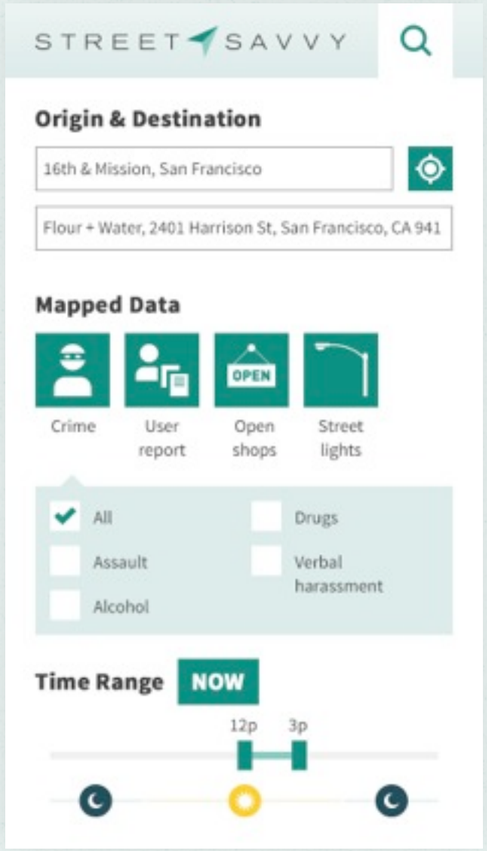
DESIGN & DEVELOPMENT

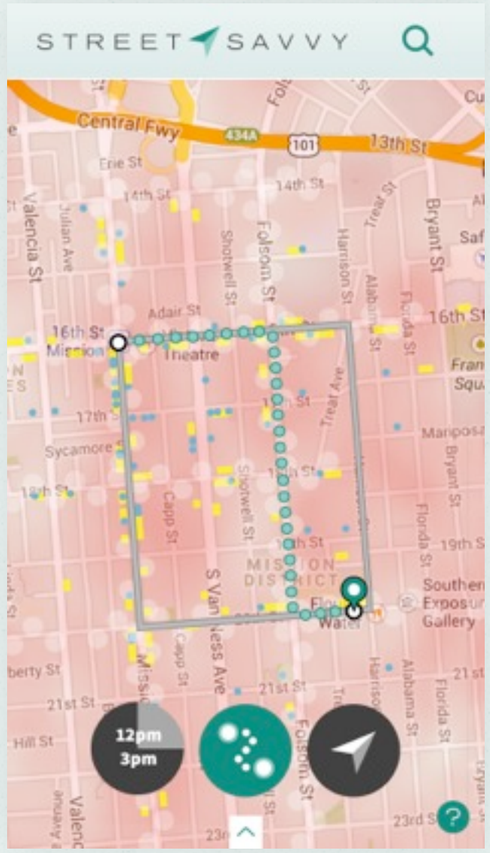


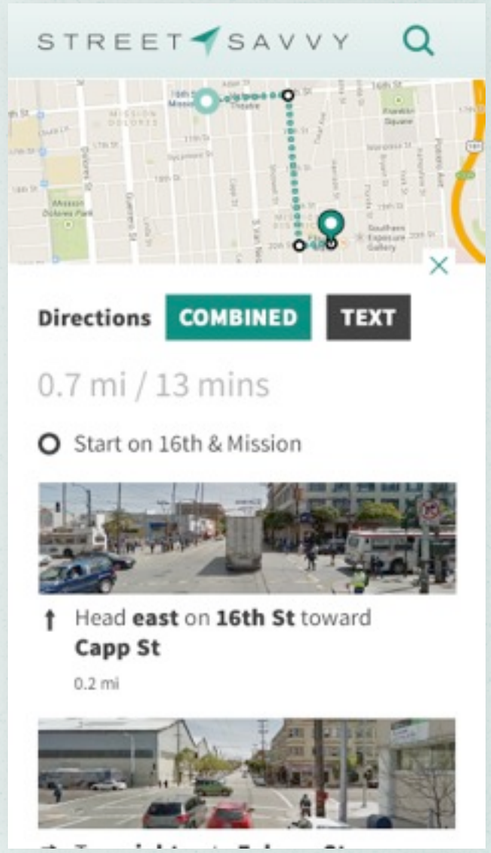


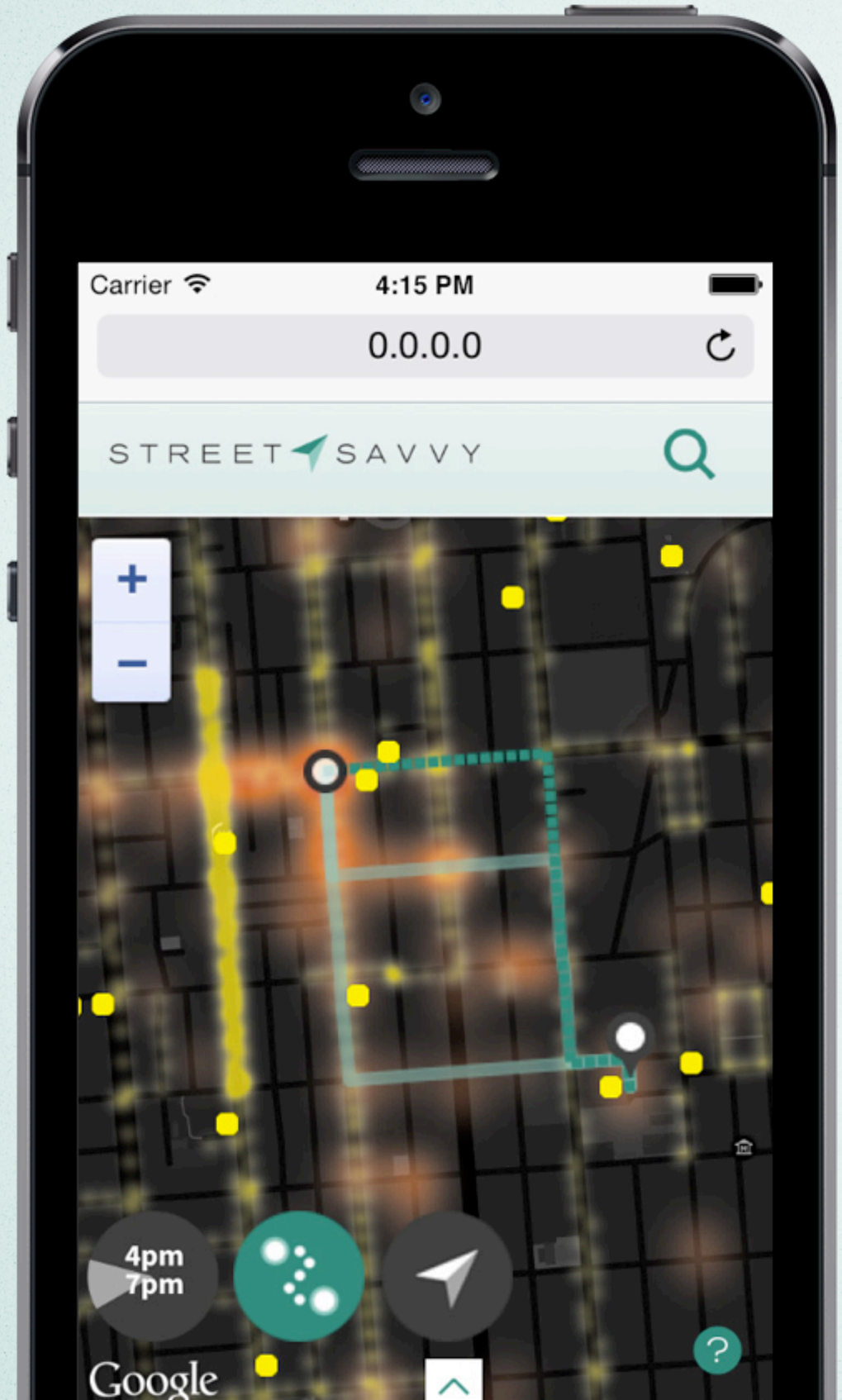
DESIGN


STREET SAVVY
Origin & Destination
Mapped Data
Crime
User report
Open shops
Street lights
Time Range
NOW
12p
3p
SEARCH


STREET SAVVY
Origin & Destination
16th & Mission, San Francisco
Flour + Water, 2401 Harrison St, San Francisco, CA 941
Mapped Data
Crime
User report
Open shops
Street lights
All
Drugs
Assault
Verbal harassment
Alcohol
Time Range
NOW
12p
3p

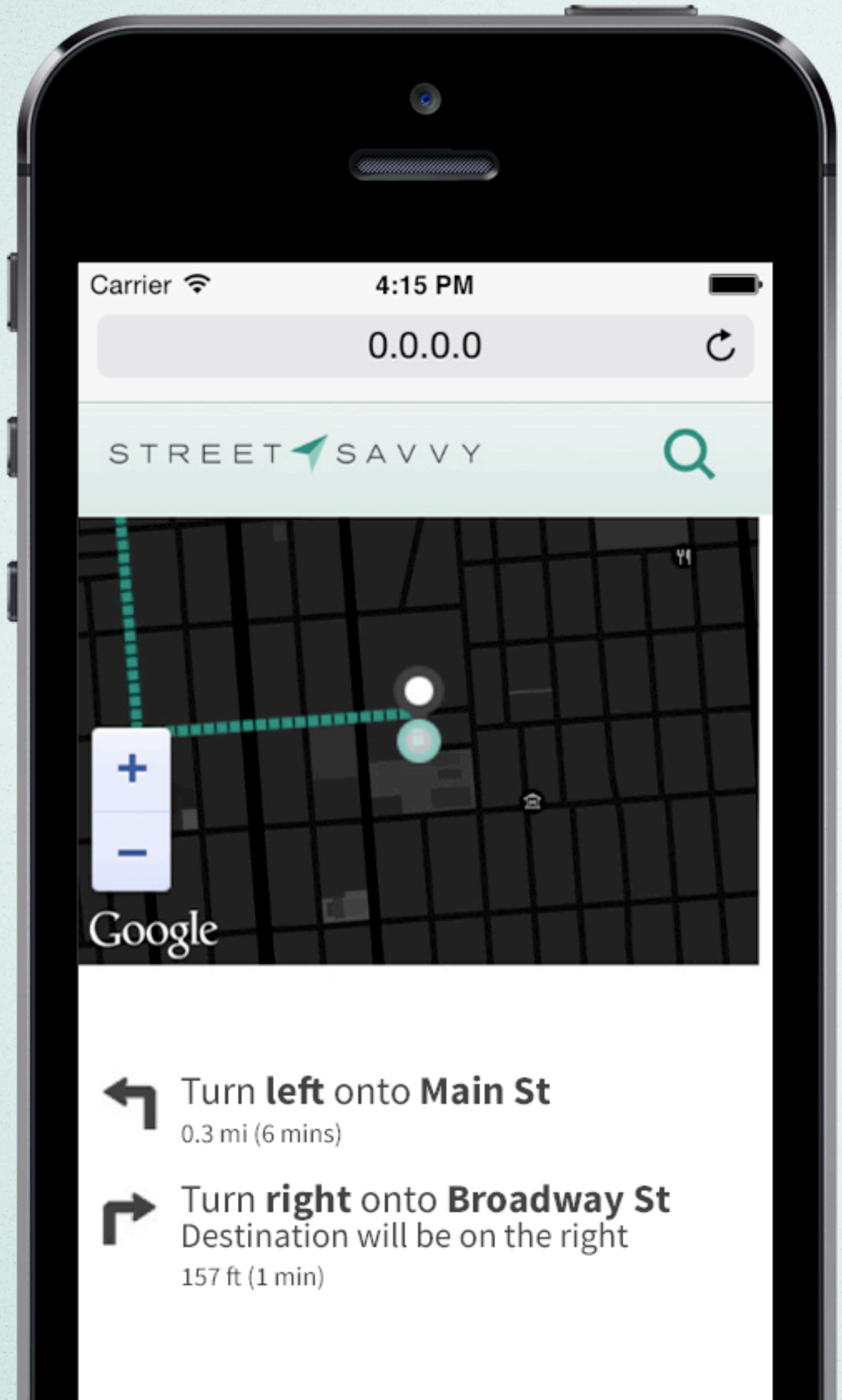

STREET SAVVY
Central Fwy
13th St
16th St
Mission
Theatre
12pm
3pm


STREET SAVVY
Directions
COMBINED
TEXT
0.7 mi / 13 mins
Start on 16th & Mission
Head east on 16th St toward Capp St
0.2 mi



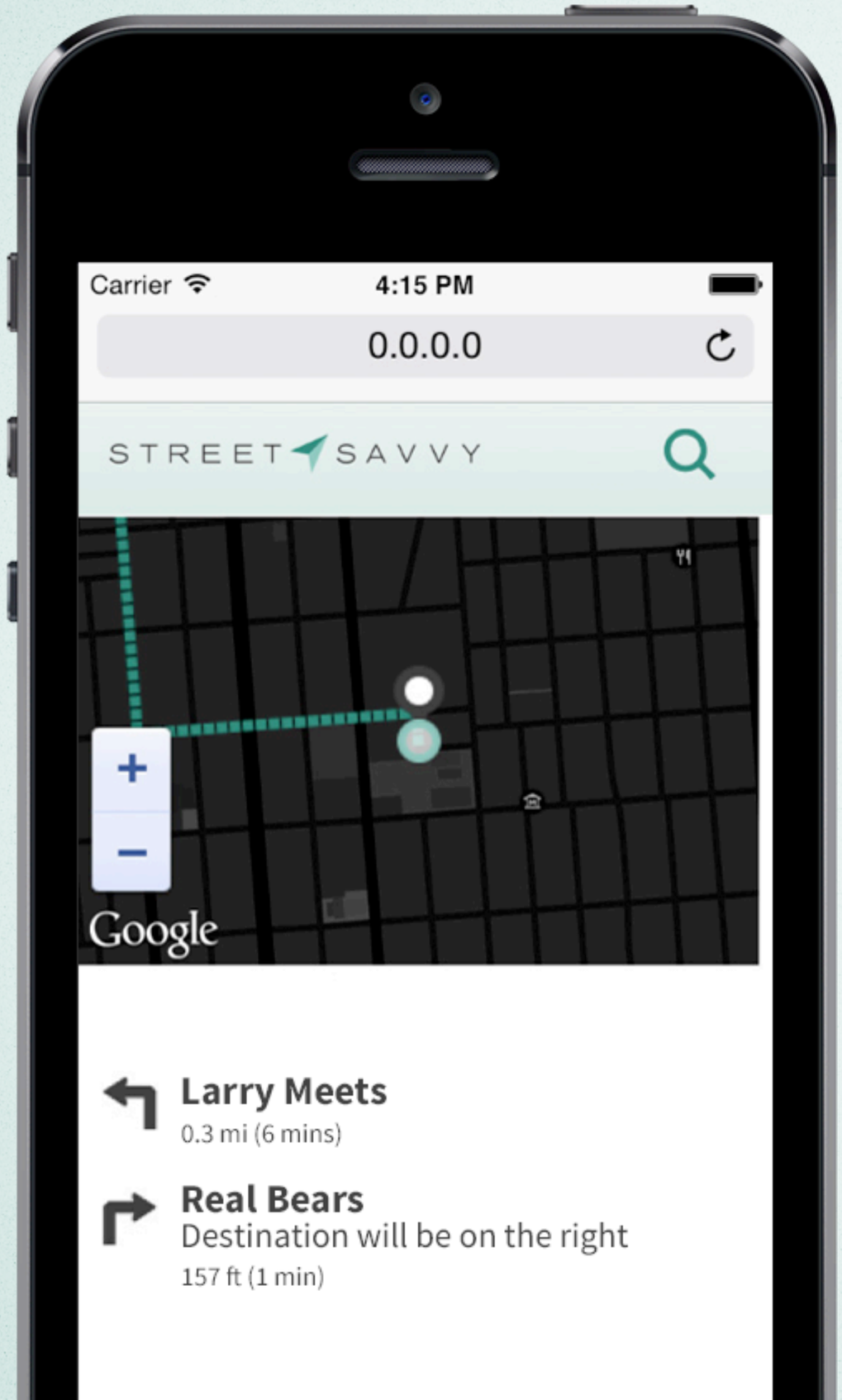
Key Feature

Pedestrian-Relevant Data Visualization



Key Feature

Mnemonic Directions



Key Feature

Mnemonic Directions

TECHNOLOGY

streetsavvy.hollaback

PK	hollabackid	integer
	lastupdated	timestamp without time zone
	title	character varying
	type	character varying
	story	character varying
	link	character varying
	latitude	double precision
	longitude	double precision
	marker	character varying

streetsavvy.sfcrime

PK	id	integer
	incidntnum	integer
	category	character varying
	descript	character varying
	dayofweek	character varying
	date	date
	time	time without time zone
	pddistrict	character varying
	resolution	character varying
	address	character varying
	longitude	double precision
	latitude	double precision

streetsavvy.sfstreetlights

PK	id	integer
	latitude	double precision
	longitude	double precision
	positionx	double precision
	positiony	double precision
	l1lamp	character varying
	l1luminaire	character varying
	l1watt	character varying
	l1side	character varying
	l1type	character varying
	l2lamp	character varying
	l2luminaire	character varying
	l2watt	character varying
	l2side	character varying
	l2type	character varying
	l3lamp	character varying
	l3luminaire	character varying
	l3watt	character varying
	l3side	character varying
	l3type	character varying
	polenumber	character varying
	streetname	character varying
	streettype	character varying
	last_updated_ts	timestamp without time

streetsavvy.artifact

PK	id	integer
	src_id	integer
	src	character varying(2)
	incident_ts	timestamp without time zone
	category	character varying
	latitude	double precision
	longitude	double precision
	geom	USER-DEFINED

streetsavvy.categories

PK	id	integer
	datasrc	character varying
	category	character varying

TECHNOLOGY

TSV

CSV

XLS

STREET SAVVY

API Access

Realtime API Calls

TECHNOLOGY

hallaback!

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

User Input

StreetSavvy Database

STREETSAVVY

Google

Directions
+
Open Shops

SAN FRANCISCO POLICE

Map + Visualization

Directions
(Pictures and/or Text)
+
Mnemonic Option

TECHNOLOGY

HTML & CSS
Javascript/jQuery

PostgreSQL
PostGIS

Python
NLTK

Mnemonic Text Generation (NLP)

Database

streetsavvy_categories

streetsavvy_artifact

streetsavvy_hollaback

streetsavvy_sfcrime

streetsavvy_streetlights

hollaback!

SAN FRANCISCO POLICE

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

CHALLENGES

Image Source:
The Indian Institute of Geographical Studies

So Many Items, So Little Screen

Open Shops

Crime

Directions

Streetlights

User-Generated Report

Time Filter

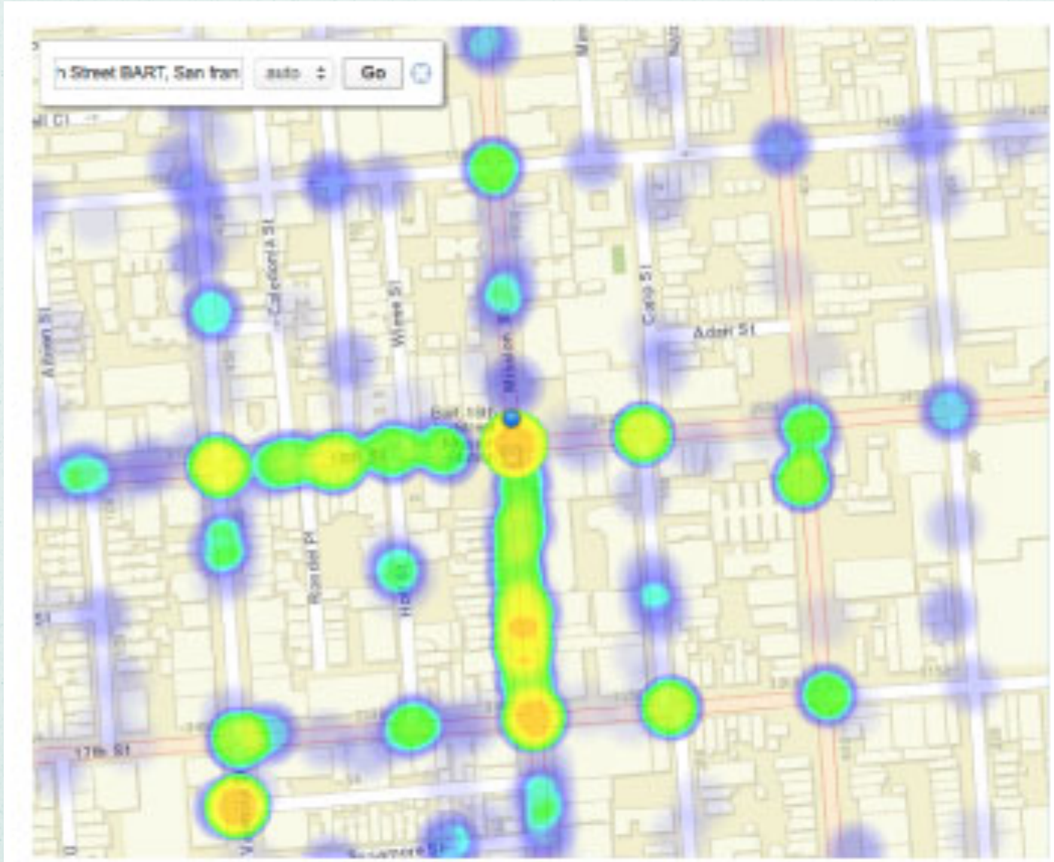
Street Map

More Data, More Problems

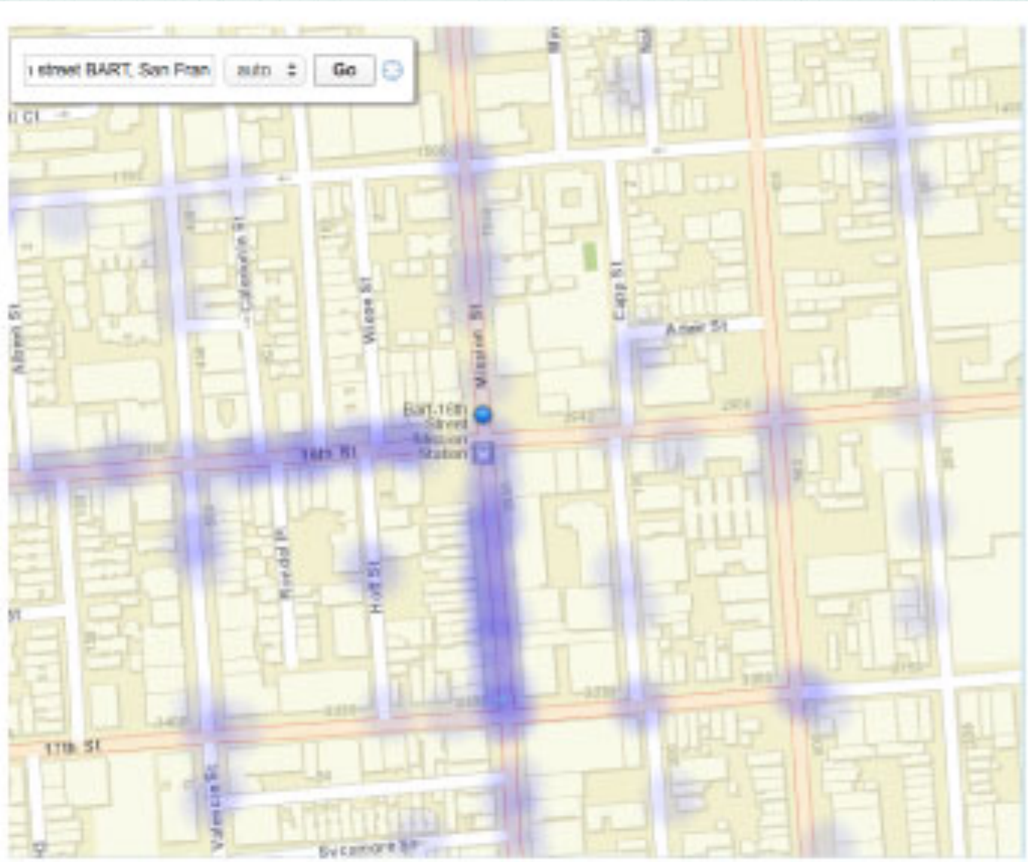
Raw crime data is exaggerated

More Data, More Problems

Visualizing crimes around 16th & Mission, San Francisco



All Crimes



Pedestrian-Relevant Crimes

More Data, More Problems

Which one of you am I going to RAPE first?

"... [m]y girlfriend and I were walking through Dolores Park when..."

—Hollaback! User

More Data, More Problems

Elusive streetlights data

CHALLENGES

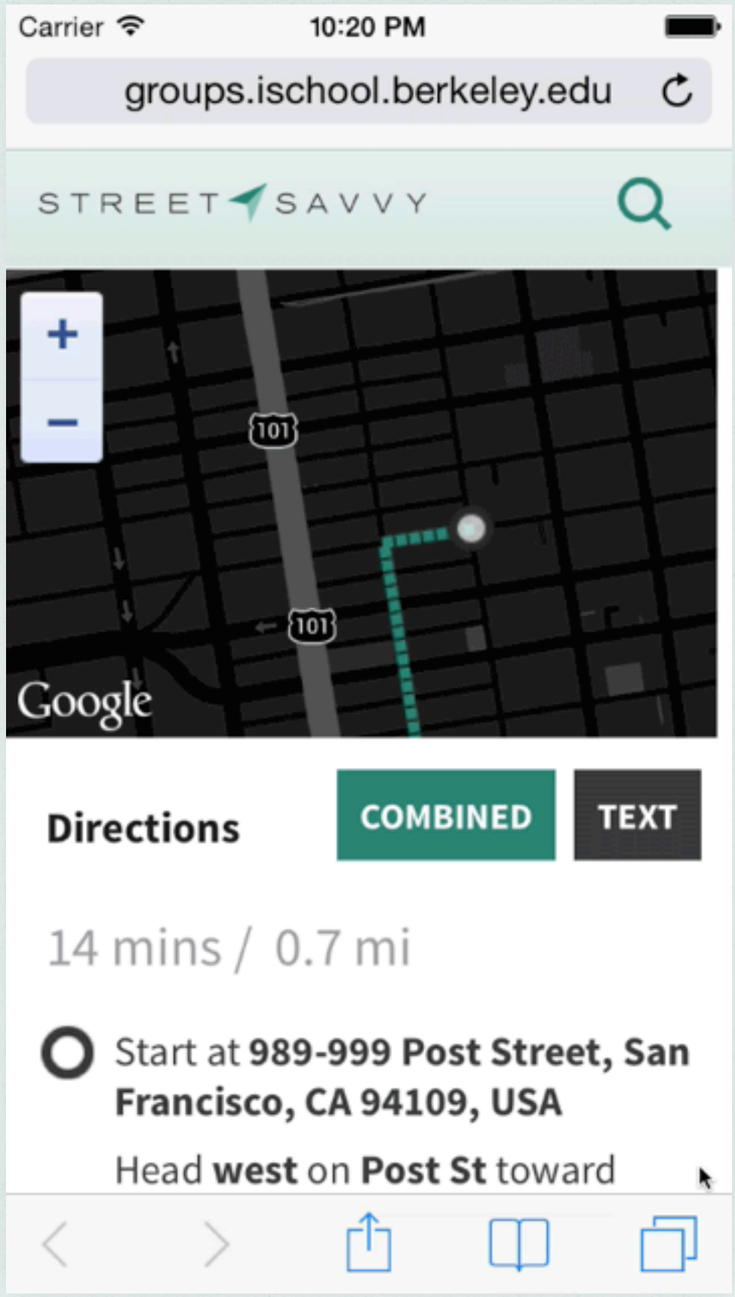
Image Source:
Flickr (naggobot)

DEMO

Scenario

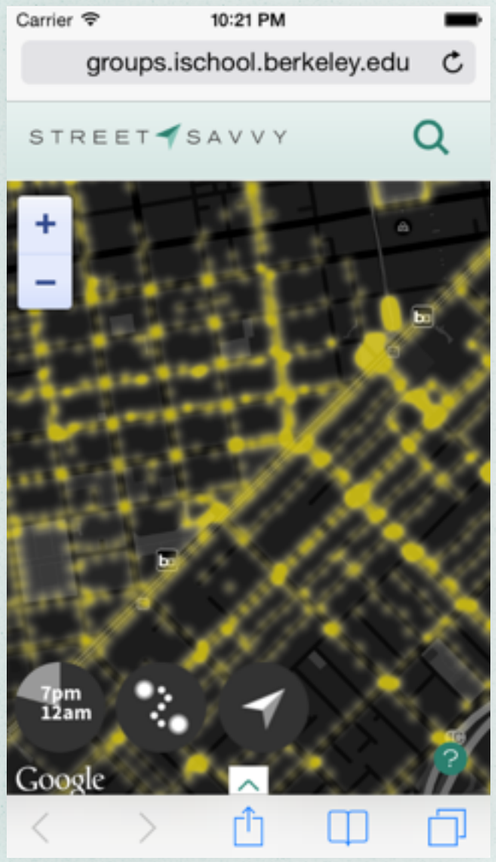
Tina lives in the Hayes Valley neighborhood of San Francisco. It's 11pm and she is about to head home from a networking event in the Tenderloin.

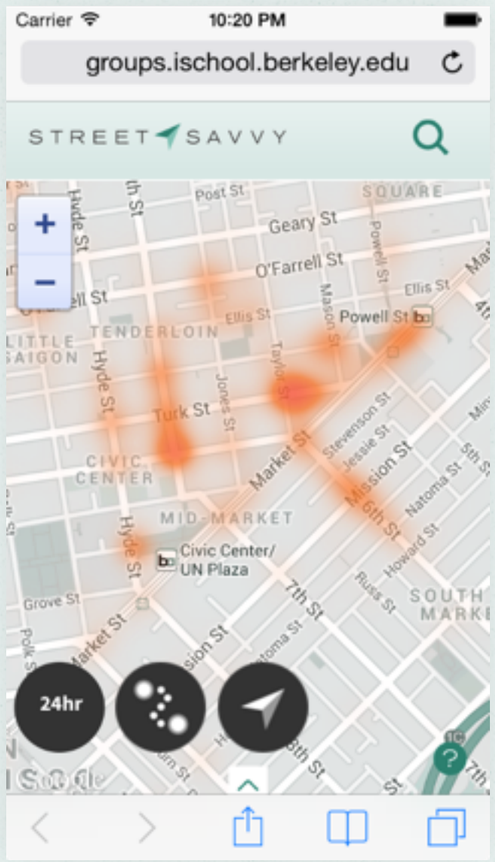
DEMO



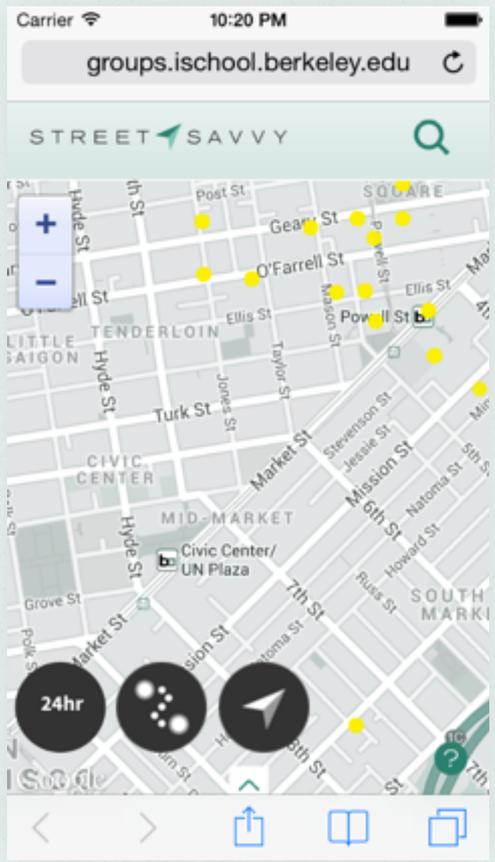
Custom Directions Renderer

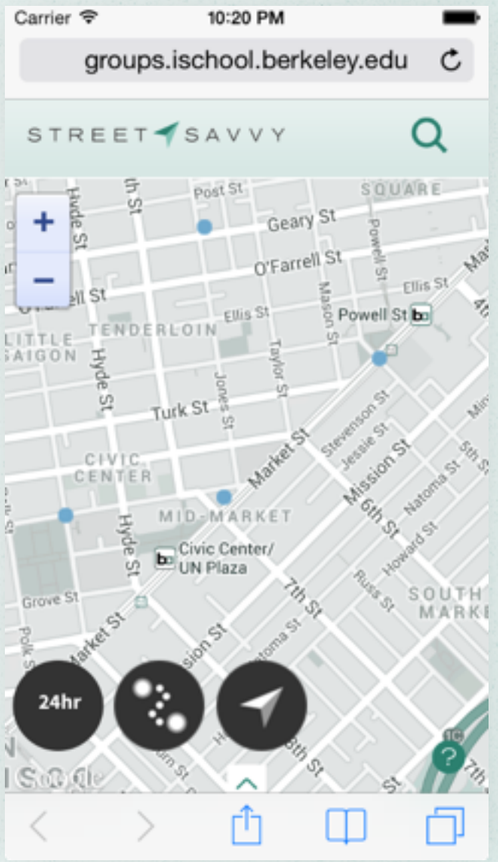
DEMO





Heatmap Components





Marker Components

STREET SAVVY

Real data

Real world problem

Real user needs

What makes people walk is what makes great places to live.

— Harriet Tregoning

Director of Office of Economic Resilience, US Department of Housing & Urban Development

Image Source:
myurbanist