



# Geospatial Analysis for San Francisco Better Streets Prioritization

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FEHR  PEERS

## presentation outline



Introduction



Workflow & Analysis



Results & Communication



Lessons Learned



# INTRODUCTION

## Project Goal

Identify where the City of San Francisco should make future streetscape improvements that have the greatest benefit using a technical, data-driven approach

STREETSCAPE NETWORK





# INTRODUCTION

## background

### SCENARIO DEVELOPMENT METHODOLOGY



#### DEVELOP INVESTMENT STRATEGIES

Identify three potential investment strategies for how future projects could be selected

Identify data inputs

Identify metrics to compare across strategies



#### SELECT INVESTMENT STRATEGY

Prioritize blocks by Supervisor District

Aggregate blocks into corridors



#### DEVELOP PROJECT LIST

Design details to be determined once funding is secured

Identify funding sources and availability

Photo credit: Alamy.com - James C. Goff



## investment strategies

### SUMMARY OF INVESTMENT STRATEGIES



#### STRATEGY 1: INVEST WHERE PEOPLE WALK

**Strategy Goal:**  
Prioritize locations with high levels of pedestrian activity (top 20%).

**Data Inputs:**  
Pedestrian volumes; current + forecasted growth (AG)

Transit ridership at nearby stations



#### STRATEGY 2: TAP INTO ECONOMIC POTENTIAL

**Strategy Goal:**  
Prioritize locations with underutilized buildings yet actively growing businesses (top 20%).

**Data Inputs:**  
Presence of vacant storefronts and lots (X)

Number of change of use permits, miscellaneous permits, and new business licenses



#### STRATEGY 3: TARGET PHYSICAL DEFICIENCIES

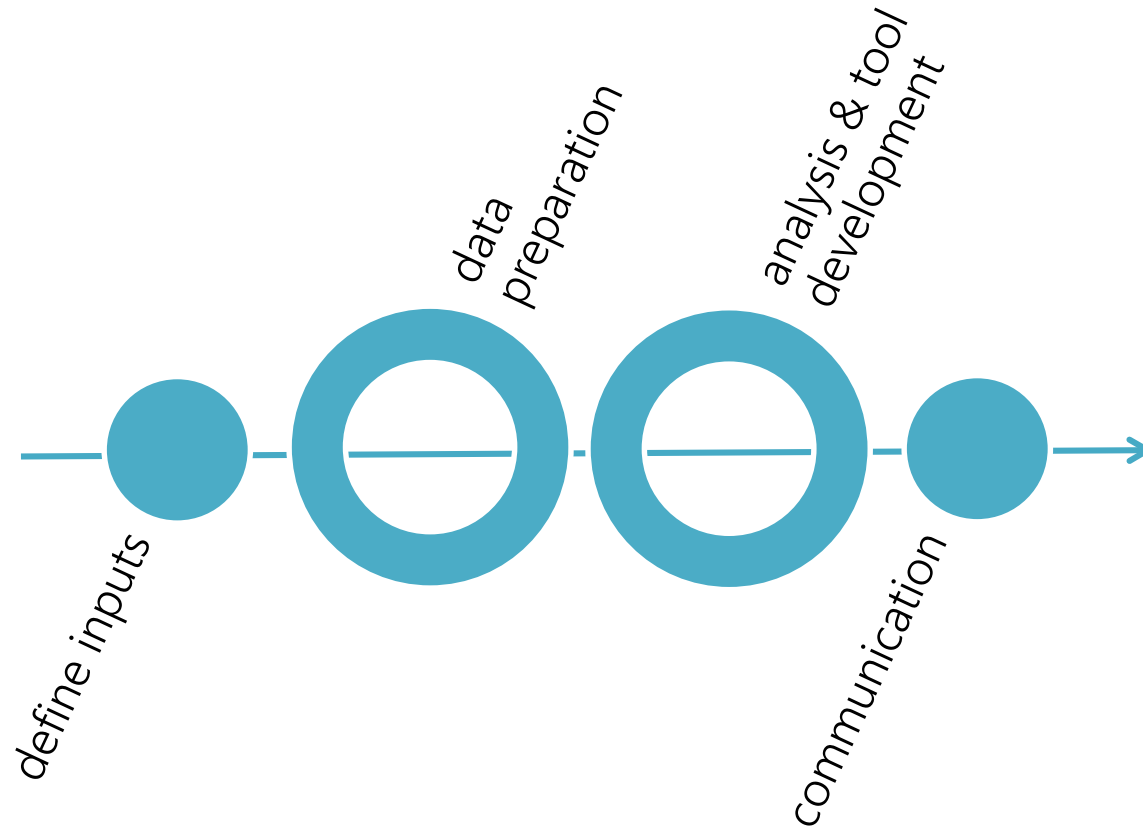
**Strategy Goal:**  
Prioritize locations with poor pedestrian infrastructure and/or surrounding environment conditions (top 20%).

**Data Inputs:**  
Score based on SFDPH's Pedestrian Environmental Quality Index (PEQI), approximated version, including traffic volume; speed limit; street/sidewalk width; presence of buffers, street trees, pedestrian plazas, parks, empty lots



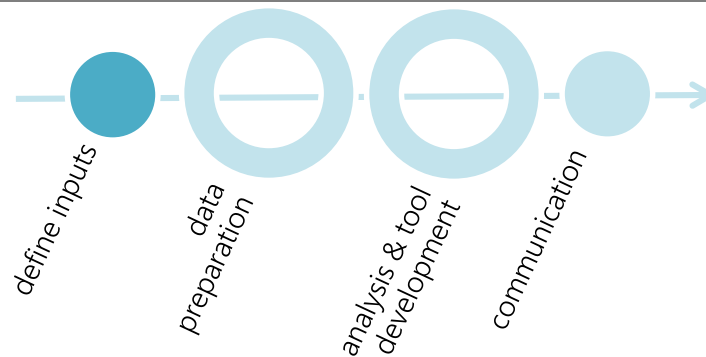
# WORKFLOW & ANALYSIS

## overview





# WORKFLOW & ANALYSIS

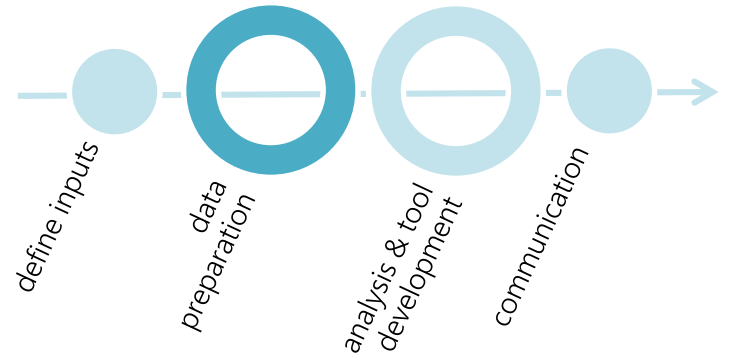
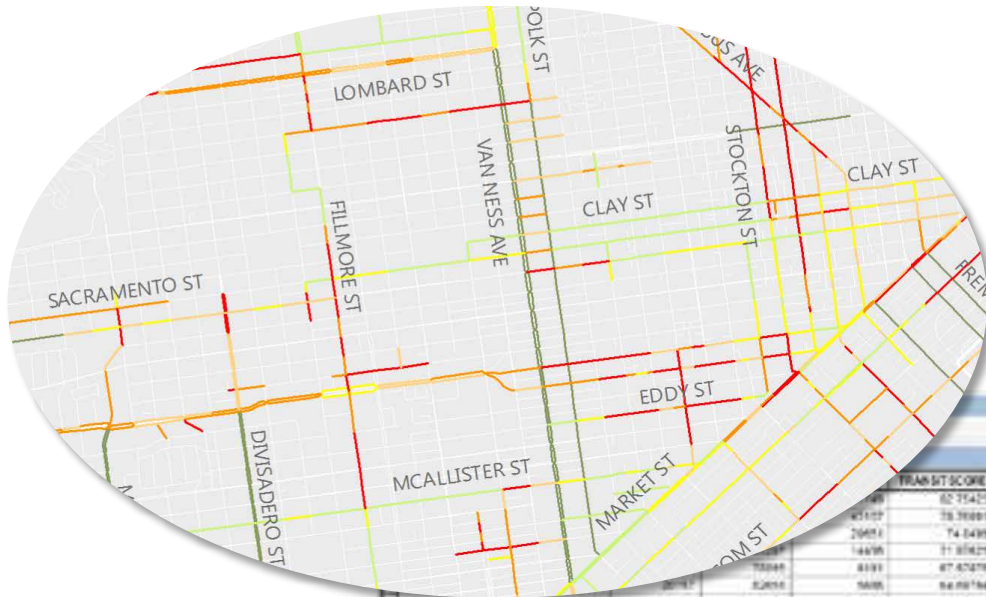


Visual Dashboard Variables		
Variable	Unit	Description
Forecasted 2030 total pedestrian volume	pedestrians per hour	Forecasted 2030 total pedestrian volume, calculated by applying SF-CHAMP model percentage growth to SFMTA model 24-hour pedestrian volume
PEQI Light score	SFDPH	SFDPH PEQI Light score, inverted to reflect higher need for lower-scored street segments
Pedestrian tourist corridor	SF Planning	Flag pedestrian tourist corridors
Neighborhood Commercial corridor	SF Planning	Flag Neighborhood Commercial corridors
Sidewalk crowding	calculated	Pedestrians per square foot, calculated using forecasted pedestrian volume and sidewalk square footage
Scenario score	calculated	Calculated based on weighted sum of normalized Scenario 4 input variables
Class by Supervisor District	calculated	Street segment class based on Scenario 4 score, by Supervisor District (5 categories with equal number of street segments)
Completed/fully funded project overlap	SF Planning	Flag overlap with completed/fully funded projects
Supervisor District	SF Planning	Designated Supervisor District, provided for street segments with no completed/fully funded project overlap

Scenario 4: Selected Scenario			
SF-CHAMP model forecasted pedestrian volume	calculated	2030	Forecasted 2030 total pedestrian volume, calculated by applying SF-CHAMP model percentage growth to SFMTA model 24-hour pedestrian volume
PEQI Light score	SFDPH	2014	SFDPH PEQI Light score, inverted to reflect higher need for lower-scored street segments
Pedestrian tourist corridor	SF Planning	2014	Flag pedestrian tourist corridors
Neighborhood Commercial corridor	SF Planning	2014	Flag Neighborhood Commercial corridors
Sidewalk crowding	calculated	2014	Pedestrians per square foot, calculated using forecasted pedestrian volume and sidewalk square footage
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# WORKFLOW & ANALYSIS

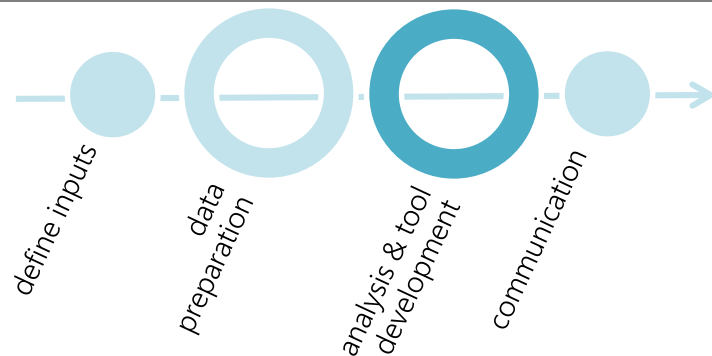


TRAM-SIT SCORE	SUMFEDSN	SUMFESABN	PCTGRDINT	FEDHNDH	PESHGRSHORH	FEDERSHORH	SCENARIO SCORE	TOP20	
217001	8679425	40771	176-8743	0.01077	30077.32	0.32003	0.32003	1.870748	1
217002	7876881	47930	137-0803	0.01077	30077.32	0.32003	0.32003	1.870748	1
217003	7474339	33401	11120643	0.01077	30077.32	0.32003	0.32003	1.870748	1
217004	7171797	24071	9070592	0.01077	30077.32	0.32003	0.32003	1.870748	1
217005	6770256	20000	8277791	0.01077	30077.32	0.32003	0.32003	1.870748	1
217006	6467714	18000	8075190	0.01077	30077.32	0.32003	0.32003	1.870748	1
217007	6165172	16000	7872589	0.01077	30077.32	0.32003	0.32003	1.870748	1
217008	5862630	14000	7670000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217009	5560088	12000	7467401	0.01077	30077.32	0.32003	0.32003	1.870748	1
217010	5257546	10000	7264802	0.01077	30077.32	0.32003	0.32003	1.870748	1
217011	4955004	8000	7062203	0.01077	30077.32	0.32003	0.32003	1.870748	1
217012	4652462	6000	6859604	0.01077	30077.32	0.32003	0.32003	1.870748	1
217013	4350000	4000	6657005	0.01077	30077.32	0.32003	0.32003	1.870748	1
217014	4047558	2000	6454406	0.01077	30077.32	0.32003	0.32003	1.870748	1
217015	3745096	1000	6251807	0.01077	30077.32	0.32003	0.32003	1.870748	1
217016	3442654	0	6049208	0.01077	30077.32	0.32003	0.32003	1.870748	1
217017	3140192	0	5846609	0.01077	30077.32	0.32003	0.32003	1.870748	1
217018	2837750	0	5644010	0.01077	30077.32	0.32003	0.32003	1.870748	1
217019	2535288	0	5441411	0.01077	30077.32	0.32003	0.32003	1.870748	1
217020	2232846	0	5238812	0.01077	30077.32	0.32003	0.32003	1.870748	1
217021	1930384	0	5036213	0.01077	30077.32	0.32003	0.32003	1.870748	1
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217024	1023038	0	4428416	0.01077	30077.32	0.32003	0.32003	1.870748	1
217025	720596	0	4225817	0.01077	30077.32	0.32003	0.32003	1.870748	1
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217037	0	0	1800000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217038	0	0	1600000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217039	0	0	1400000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217040	0	0	1200000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217041	0	0	1000000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217042	0	0	800000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217043	0	0	600000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217044	0	0	400000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217045	0	0	200000	0.01077	30077.32	0.32003	0.32003	1.870748	1
217046	0	0	0	0.01077	30077.32	0.32003	0.32003	1.870748	1





# WORKFLOW & ANALYSIS

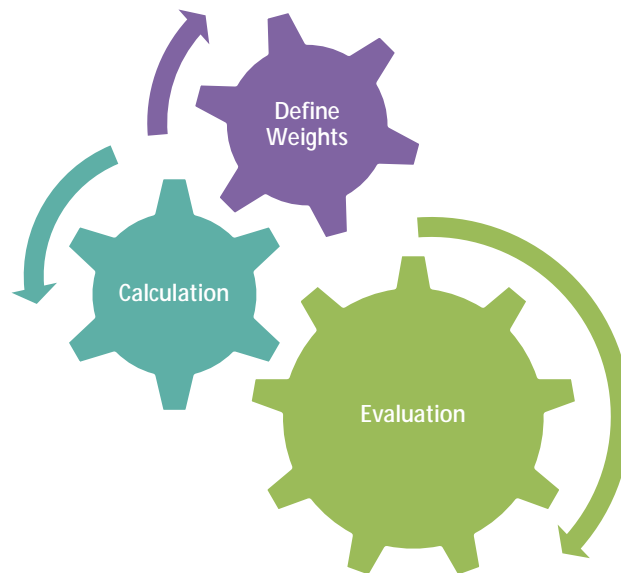


## step 1:

Set weights, normalize values,  
& calculate scenario score

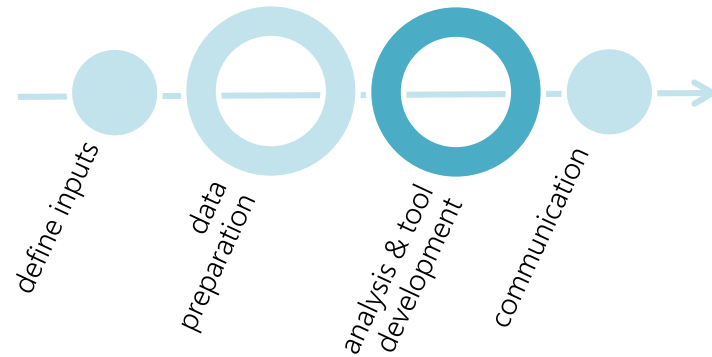
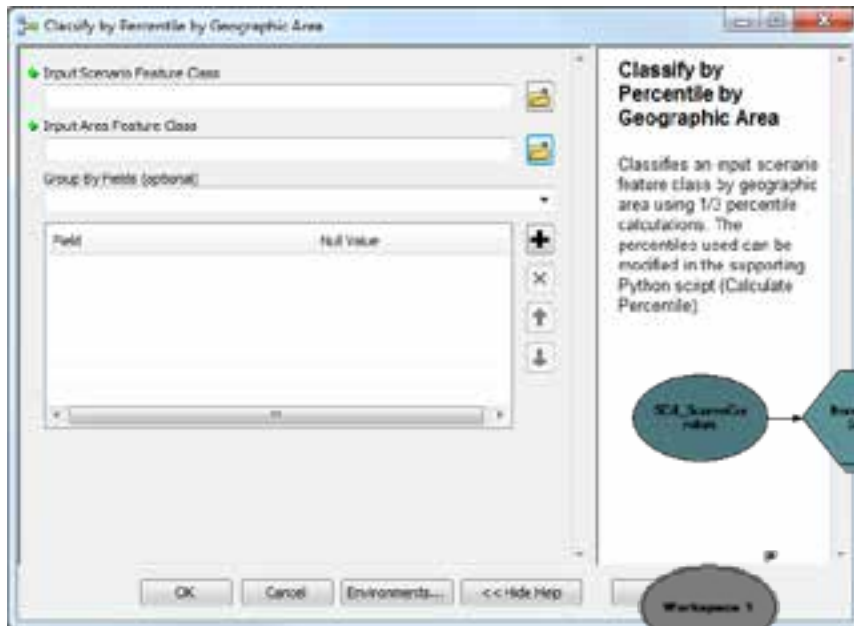
## step 2:

Evaluate segments in the top  
20<sup>th</sup> percentile



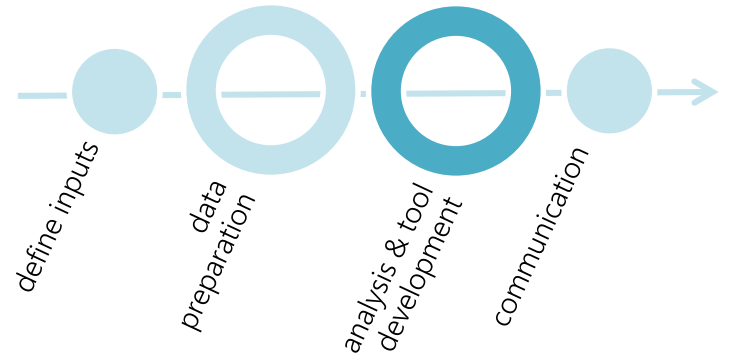


# WORKFLOW & ANALYSIS





# WORKFLOW & ANALYSIS



**High pedestrian activity**



**Poor pedestrian environment**



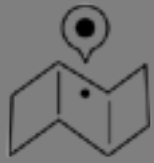
**Neighborhood commercial corridor**



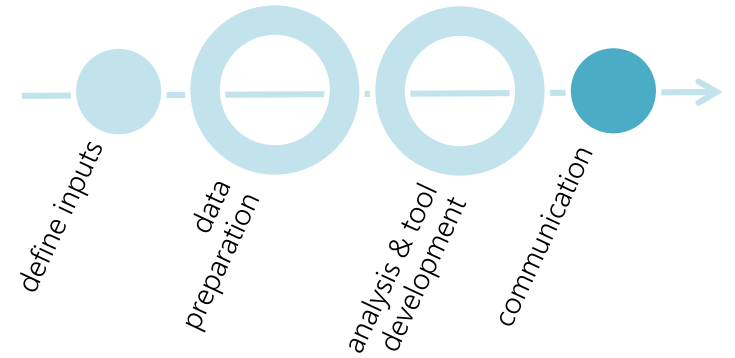
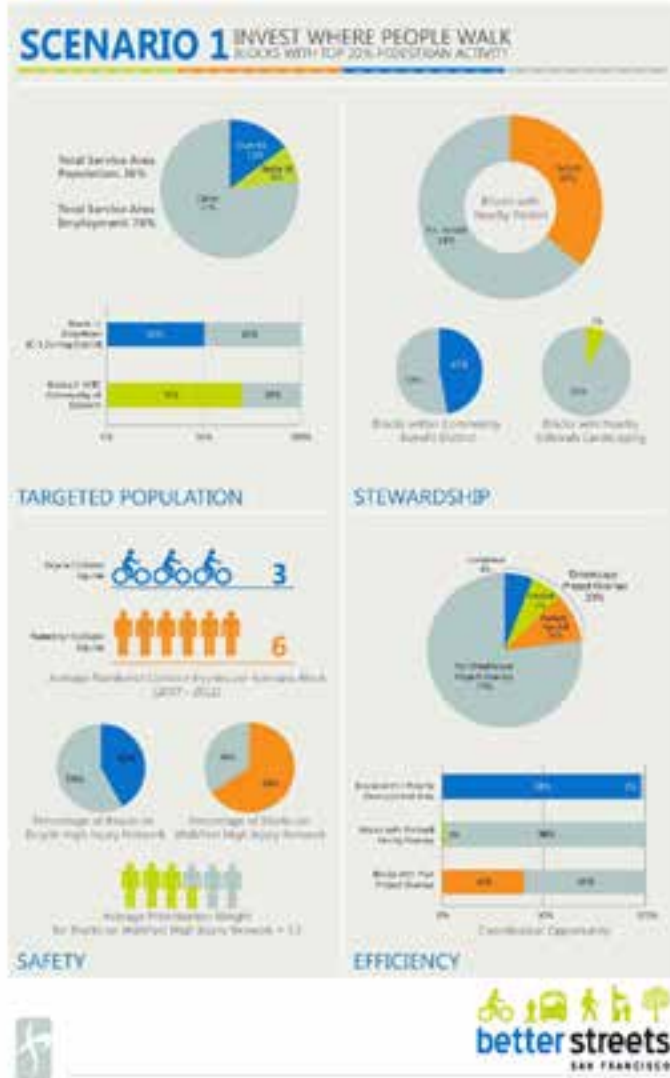
**Tourist corridor**

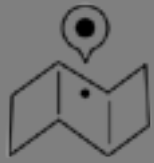
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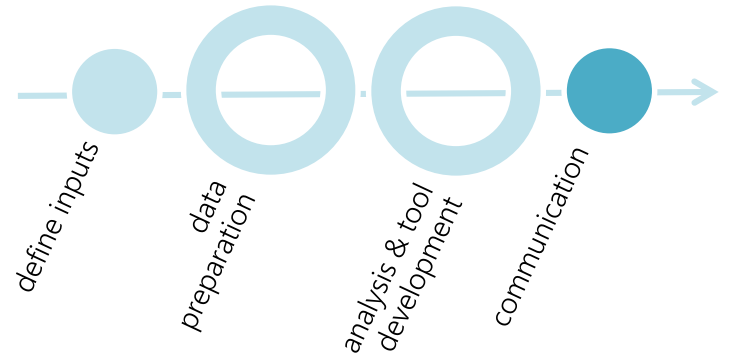
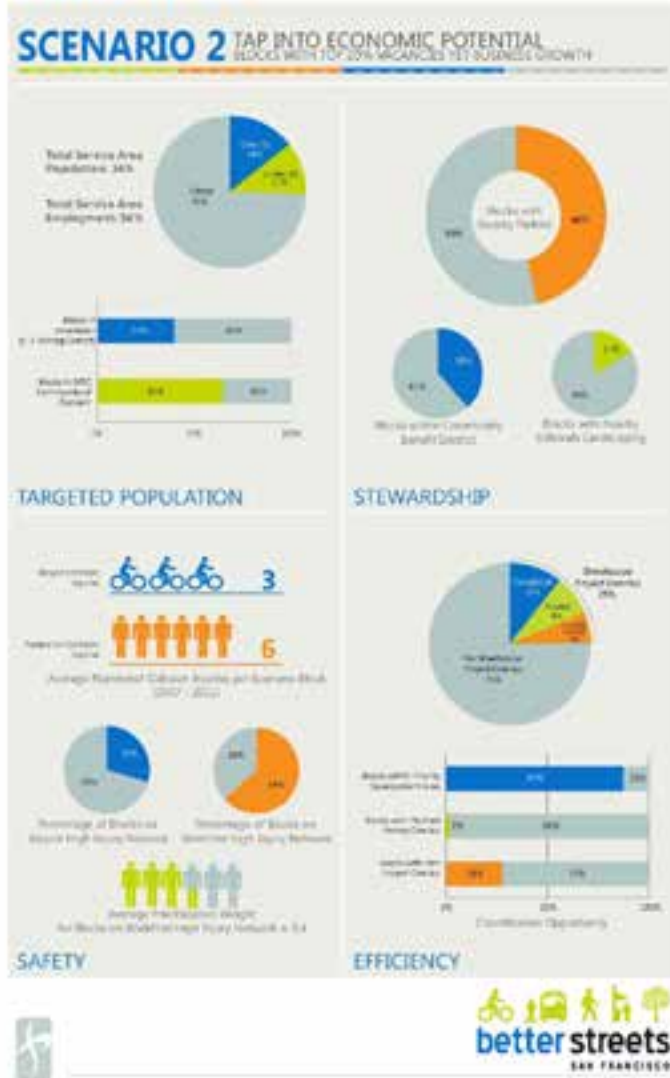


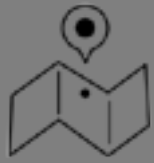
# RESULTS & COMMUNICATION



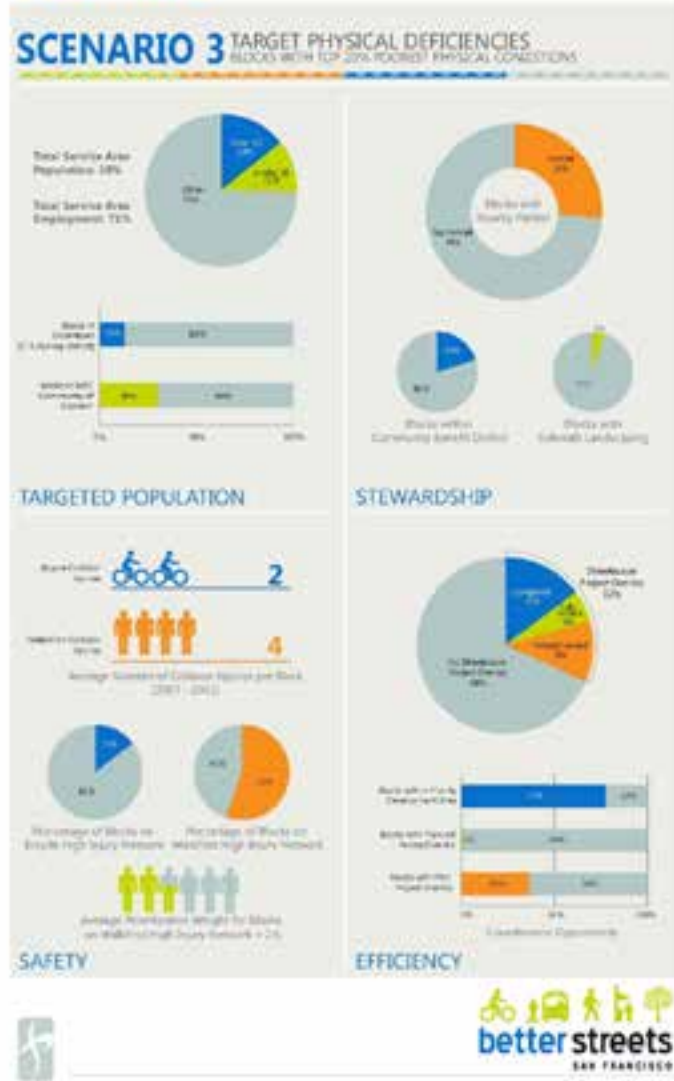
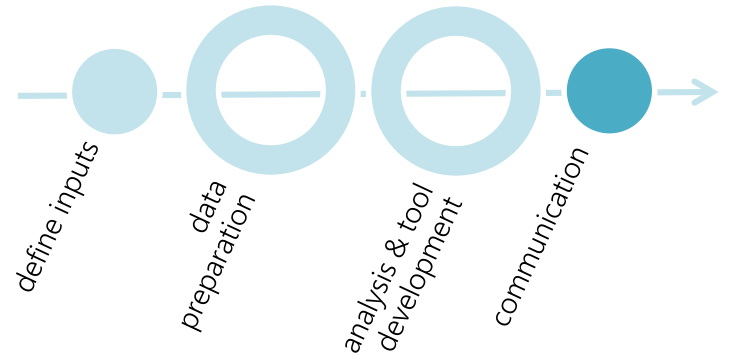


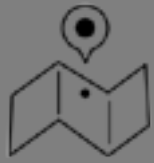
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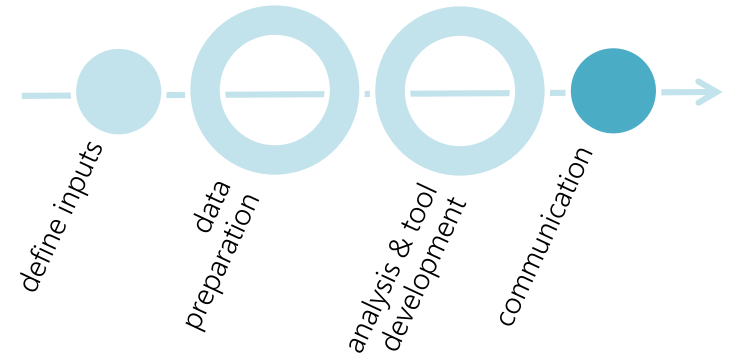
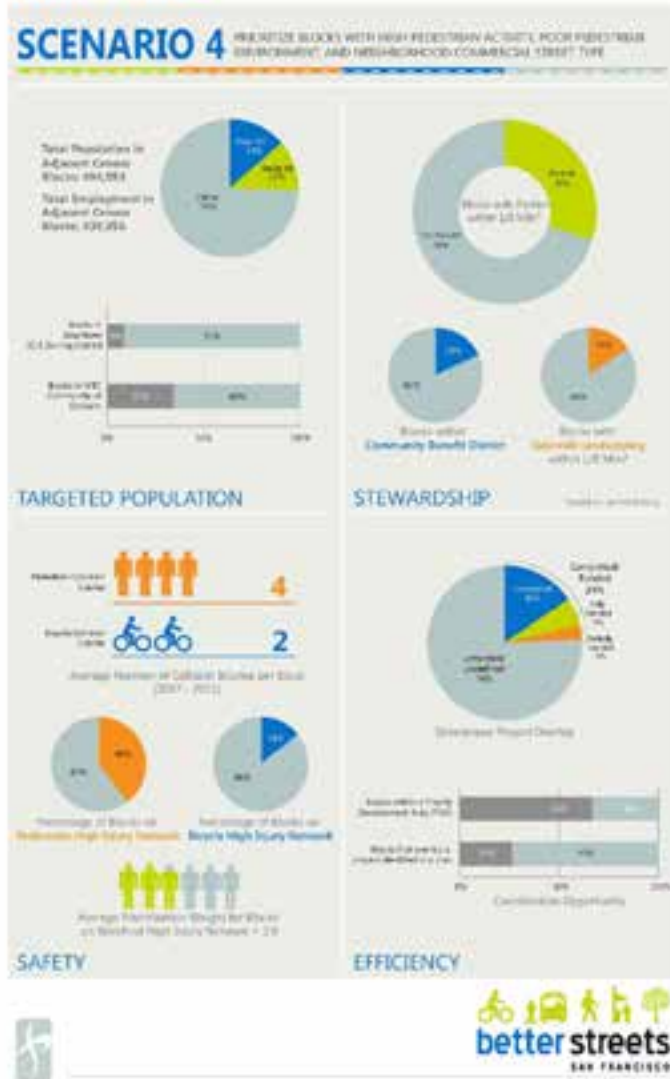


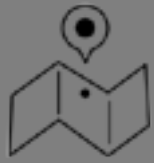
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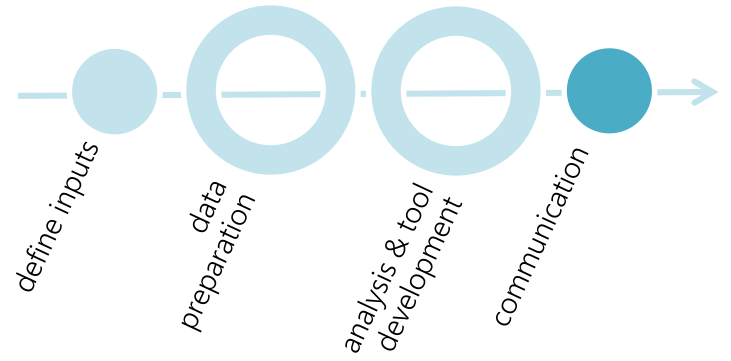


# RESULTS & COMMUNICATION





# RESULTS & COMMUNICATION



PRIORITY LOCATIONS FOR STREETScape IMPROVEMENTS (PENDING FUNDING)



POTENTIAL LOCATIONS FOR FUTURE STREETScape IMPROVEMENTS

Project	District	Notes
WYTHE	6	High volume of pedestrian activity. Need for pedestrian safety improvements.
2ND	10	Community retail design. Coverage impact fees. Neighborhood commercial street.
JAY	5	Neighborhood commercial street. Transit & neighborhood corridor.
WILKIN	7	Neighborhood commercial street. Transit corridor. Community Way for (Station 95) Ave. Adjacent to Golden Gate Park.
BENCH	2	Identified in Future-ready Street Public Realm Plan. Major transit activity.
MARKET STREET	10	Climate Priority.
GRISTLEB	3	Neighborhood commercial street. Transit corridor.
GRINCH	9	Neighborhood commercial street. Transit corridor.
CLAREMONT - 1	1	Neighborhood commercial street.
CLAREMONT - 2	1	Neighborhood commercial street.
COLUMBUS	5	Neighborhood commercial street. Transit corridor.
CURTISLAND	6	Neighborhood commercial street. Transit corridor.
CRISWELL	6	Public Realm opportunity adjacent to Farmers market.
BRIDGEWAY	10	Street/Corridor. Street. Transportation.
KEY	6	Transit corridor.
FLAMINGO	5	Neighborhood commercial street. Transit corridor.
FOLSON	6	Major transit corridor. Street. Coverage impact fees.
GEMMA	11	Highly pedestrian corridor. Community retail design. Opportunity to coordinate with future PRT project.
SLIP PEARL	6	Transit hub. Identified in San Francisco Plan.
WRIGHT - 1	3	Opportunity to add streetscape enhancements to neighborhood with transit project.
WRIGHT - 2	3	Opportunity to add streetscape enhancements to neighborhood with transit project.
WETMORE	3	Street/Corridor. Transportation. Identified in (Station 95) Street Public Realm Plan. Major transit activity.
WYOMING	4	Community retail design. Adjacent to part of Lower Commons.
ADAMS - 1	6	Neighborhood commercial street. Transit corridor. Opportunity to add streetscape enhancements to neighborhood with transit project.





# LESSONS LEARNED

- **Data preparation & accuracy is crucial for ensuring defensible results**
- **Always do a “gut” check on analysis results**
- **Recognize the power of strong visuals**