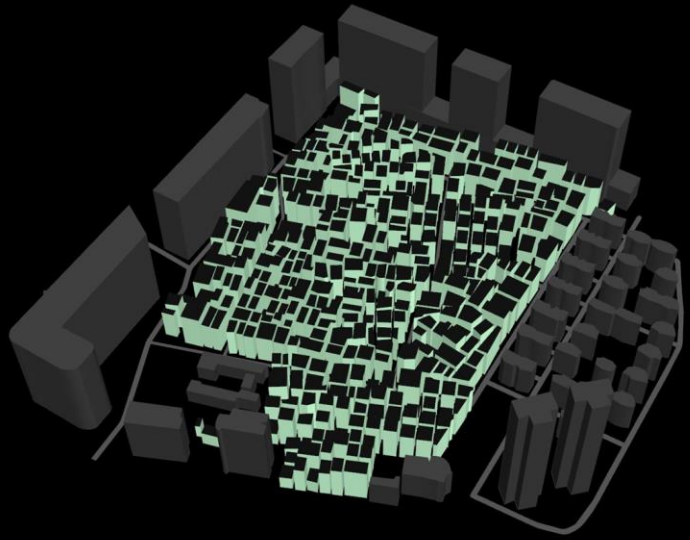
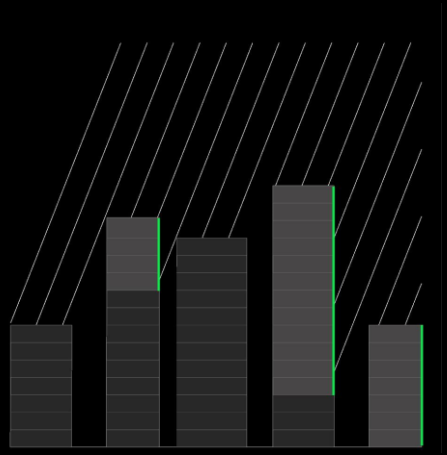


# TESTING FOR OPEN SPACE

## GANGXIA URBAN VILLAGE, SHENZHEN

SHRUTI SHUBHAM & ERIC PIETRASZKIEWICZ

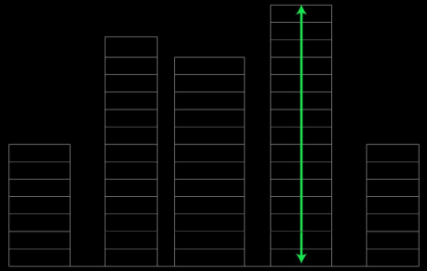

SHENZHEN
HONG KONG SAR



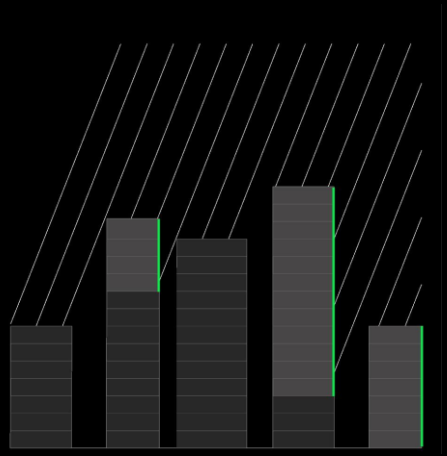
DAYLIGHT

PARK SPACE AREA

FACADE WALL LENGTH



BUILDING HEIGHT (or PARK VIEWS)



## DAYLIGHT

**Assumptions**

**Threshold** **less than one hour** of direct sunlight per day

## PARK SPACE AREA

**Assumptions**

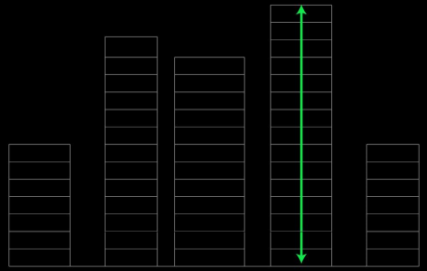
**Threshold**

## FACADE WALL LENGTH

**Assumptions** We assume that facade length is an appropriate proxy for spatial openness and economic activity.

Therefore, longer internal facade lengths imply more spatial openness and opportunities for economic exchange

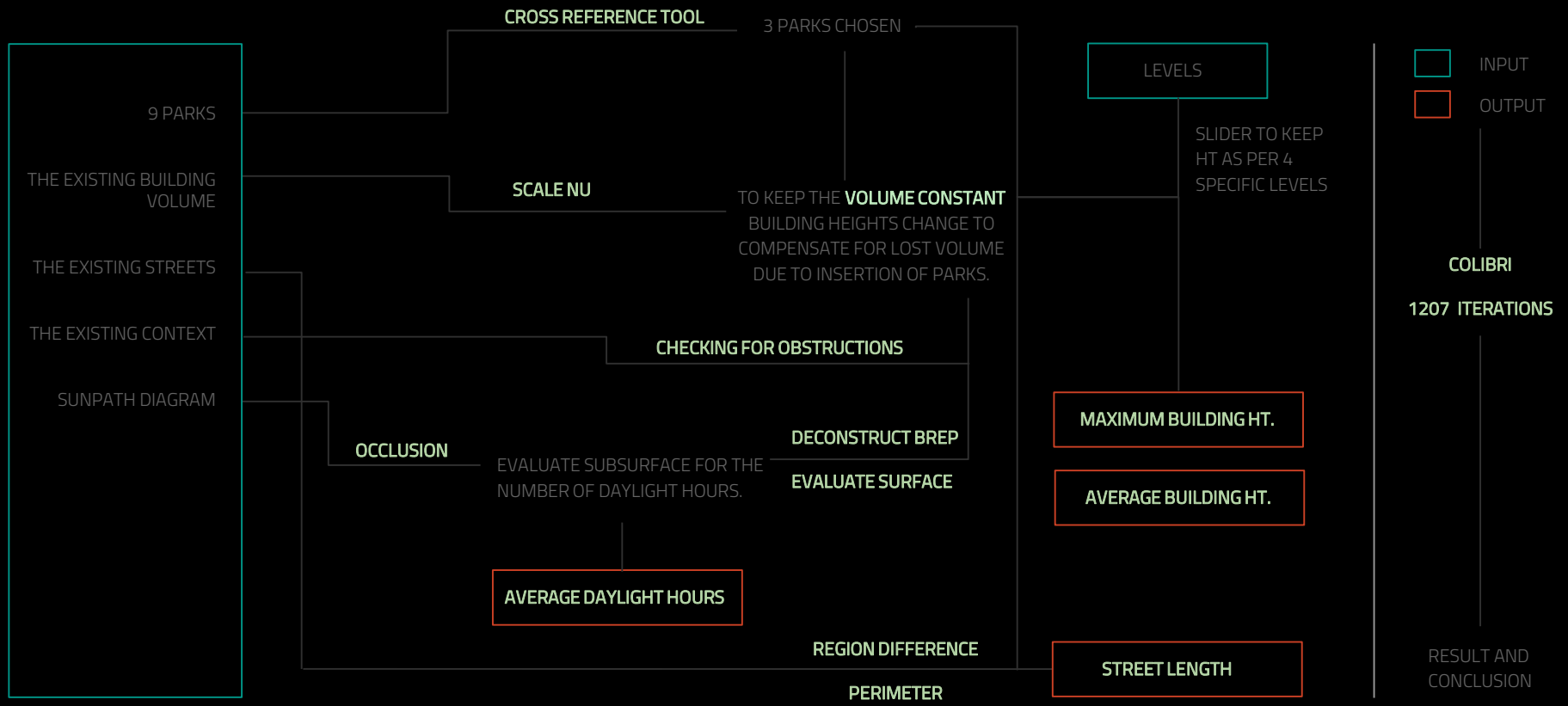
**Threshold** Variations should **maintain or increase existing** facade wall length.



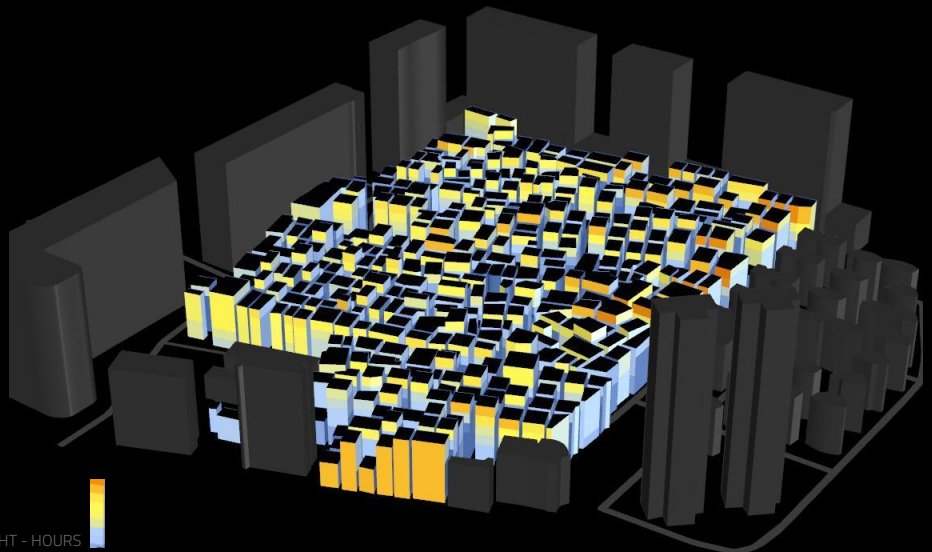
## BUILDING HEIGHT

**Assumptions** We assume that the average floor to floor height for residential buildings in this village is 10 ft.

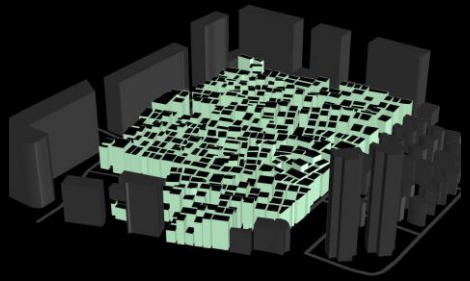
**Threshold** Generally, buildings shorter than 5 (**50 ft**) floors are not economically desirable. Buildings taller than 16 floors (**160 ft**) are too costly to construct.



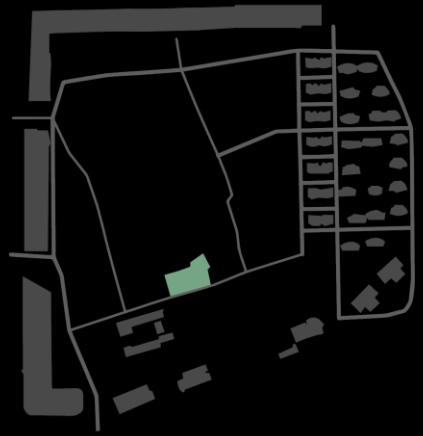

SHRUTI SHUBHAM & ERIC PIETRASZKIEWICZ




| | BENCHMARK |
|---|---|
| AVERAGE DAYLIGHT | 0.67 hours |
| PARK SPACE AREA | 0 acres |
| AVE. BUILDING HEIGHT | 110 ft. |
| STREET FACADE LENGTH | 5,950 ft. |



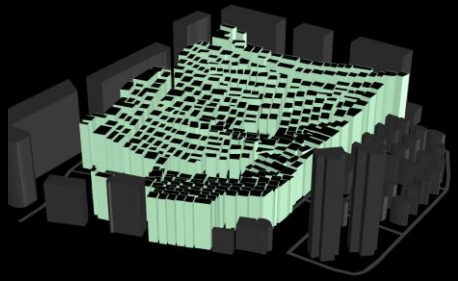
## ORIGINAL MASSING



## PARK COMBINATIONS

9 options for park locations were chosen due to their variety of areas, proximity to the village's main thoroughfares, and dispersed locations.

The model iterates through **all possible combinations of 1, 2, and 3** park spaces.



## HEIGHT VARIATION

The variation in height was applied as a scale multiplier that ranged from 1 to 4.

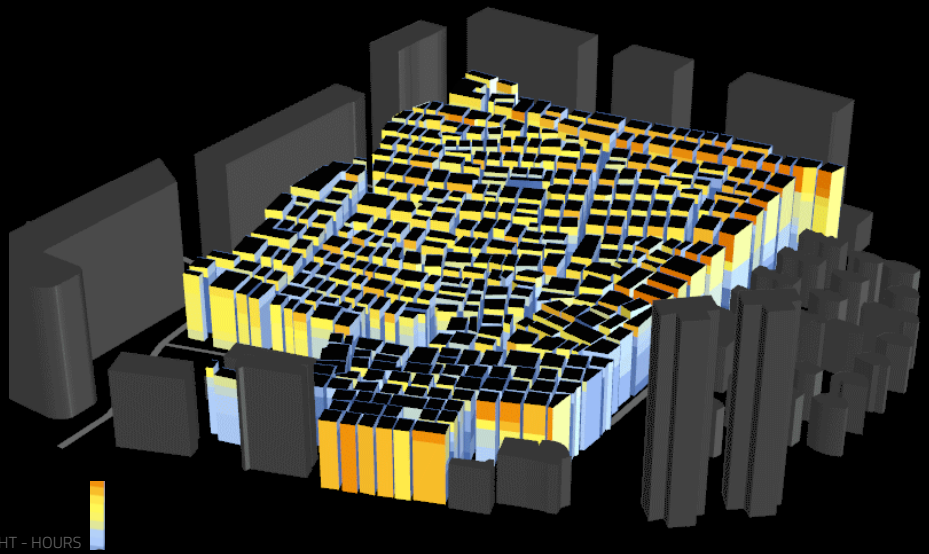
1 - no scalar multiplier effect. The Variation in building height is the smallest.

4 - The variation in building height is the most extreme, with shorter buildings adjacent to parks and taller buildings farther away.

## BUILDING FOOTPRINTS & TOTAL VOLUME

**Building footprints were fixed** throughout in order to help maintain existing property ownership among landholding people within the village.

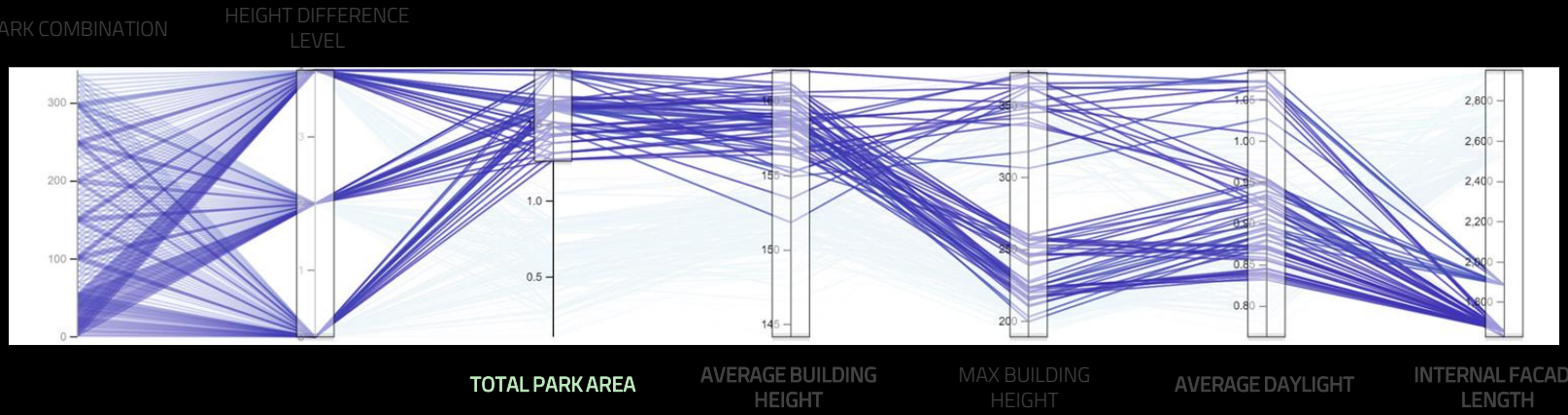
The **total volume of all buildings was maintained** in order to best accommodate the existing amount of residents.




| | |
|---|---|
| PARK COMBINATIONS | 396 |
| HEIGHT DIFFERENCE LEVELS | 3 |
| **TOTAL ITERATIONS** | **1,188** |

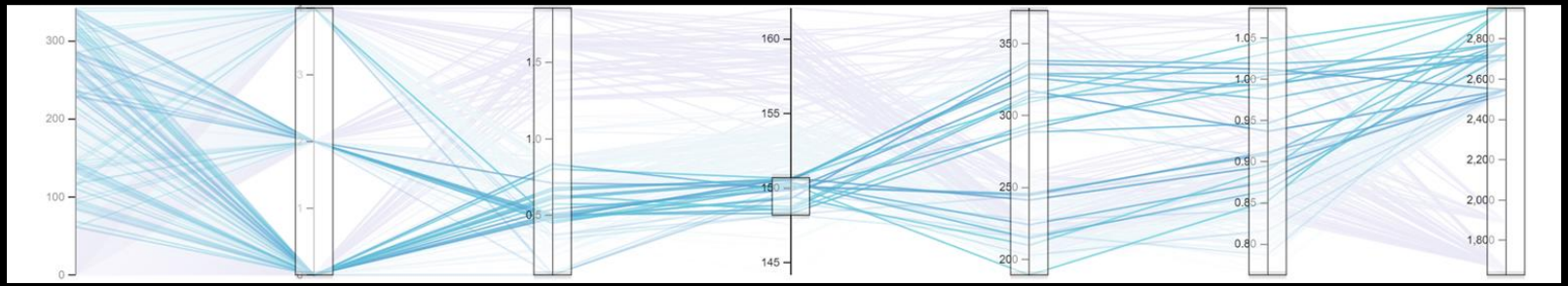
BUILDING FOOTPRINTS - CONSTANT

TOTAL BUILDING VOLUME - CONSTANT


PARK COMBINATION
HEIGHT DIFFERENCE LEVEL
TOTAL PARK AREA
AVERAGE BUILDING HEIGHT
MAX BUILDING HEIGHT
AVERAGE DAYLIGHT
INTERNAL FACADE LENGTH

PARK COMBINATION

HEIGHT DIFFERENCE LEVEL



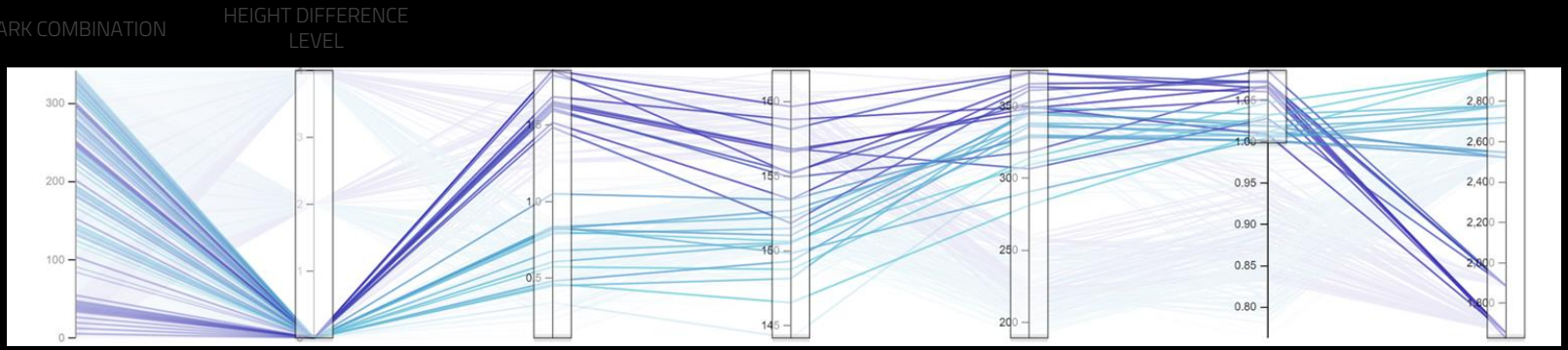

TOTAL PARK AREA

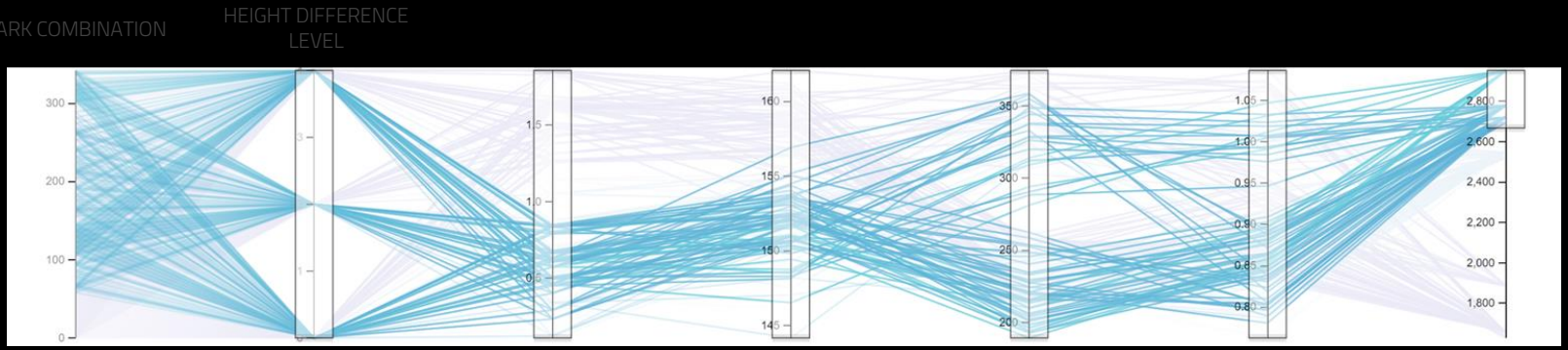
AVERAGE BUILDING HEIGHT

MAX BUILDING HEIGHT

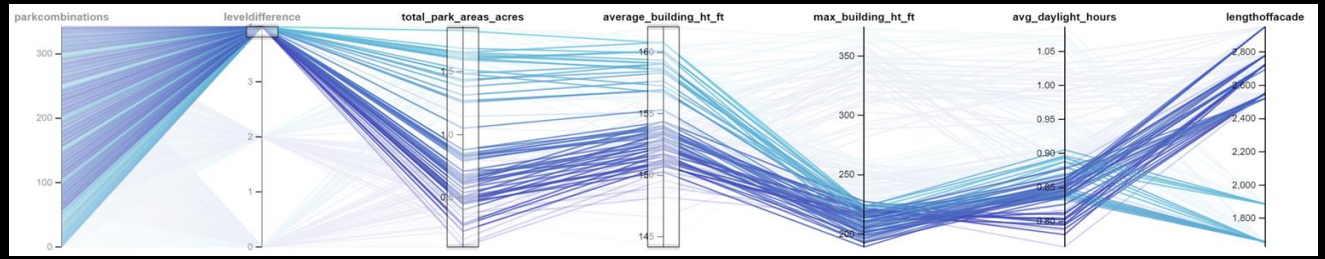
AVERAGE DAYLIGHT

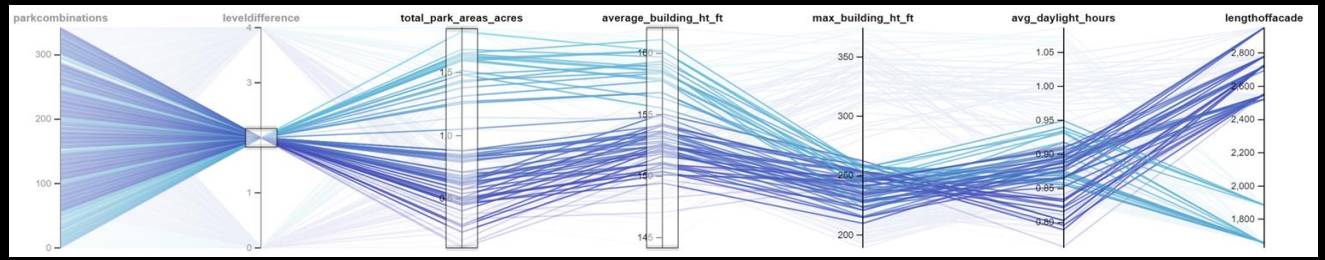
INTERNAL FACADE LENGTH

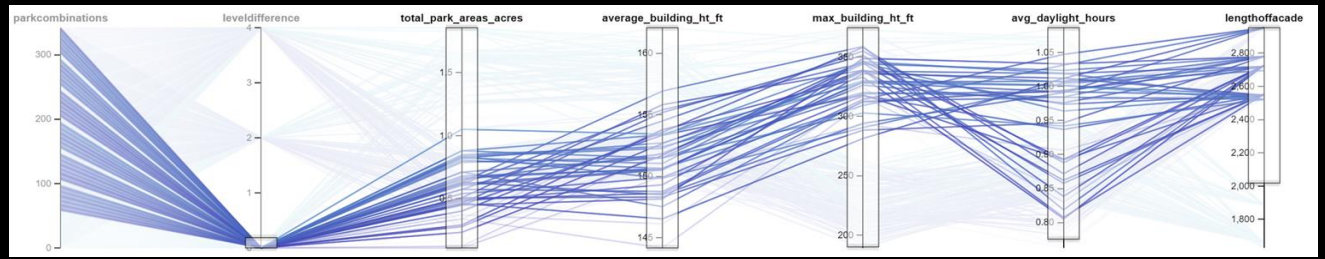

PARK COMBINATION
HEIGHT DIFFERENCE LEVEL
TOTAL PARK AREA
AVERAGE BUILDING HEIGHT
MAX BUILDING HEIGHT
AVERAGE DAYLIGHT
INTERNAL FACADE LENGTH

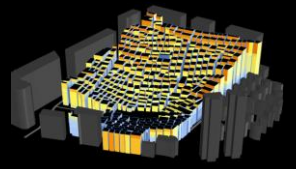

PARK COMBINATION
HEIGHT DIFFERENCE LEVEL
TOTAL PARK AREA
AVERAGE BUILDING HEIGHT
MAX BUILDING HEIGHT
AVERAGE DAYLIGHT
INTERNAL FACADE LENGTH

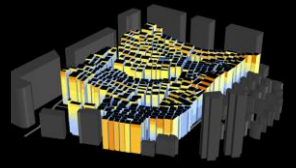
HEIGHT DIFFERENCE
LEVEL

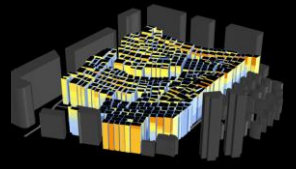


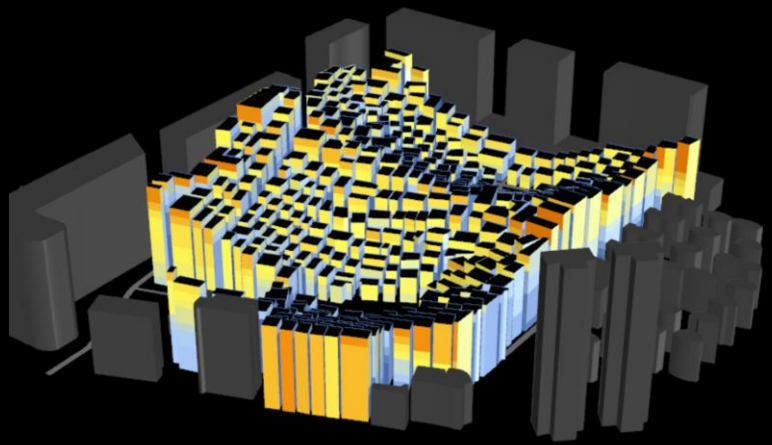



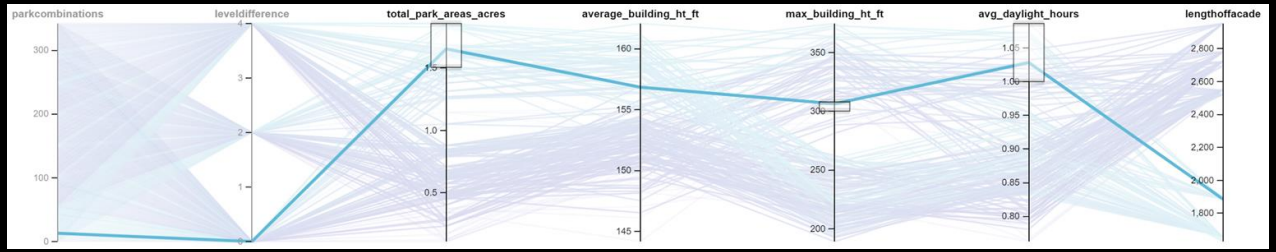


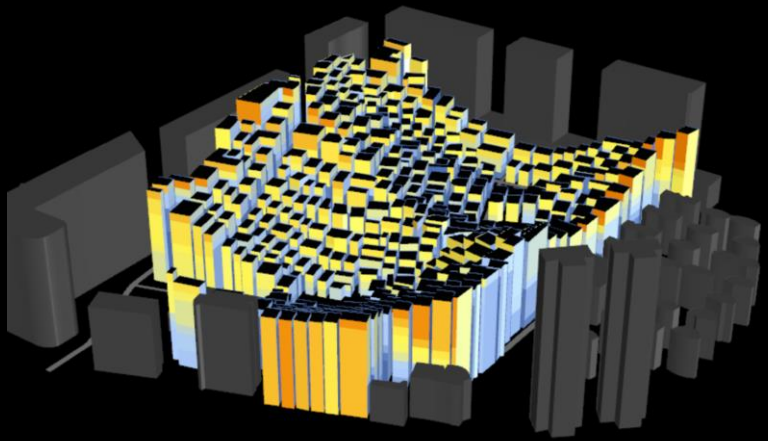




AVERAGE DAYLIGHT - HOURS

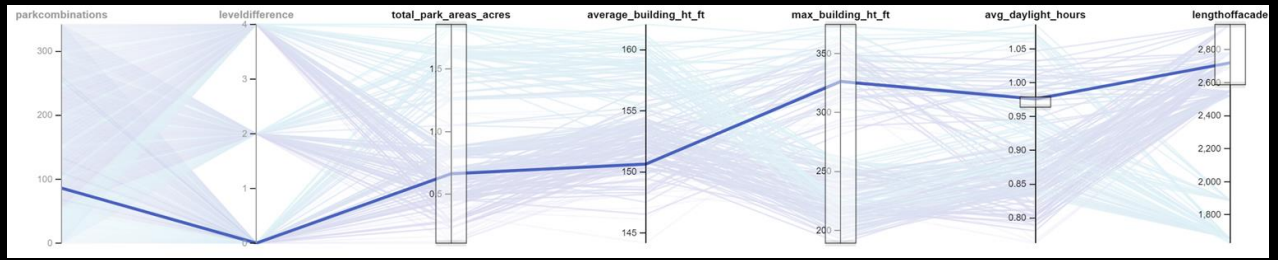
| | SCENARIO 1 LARGE PARK | BENCHMARK |
|---|---|---|
| AVERAGE DAYLIGHT | 1.03 hours | 0.67 hours |
| PARK SPACE AREA | 1.7 acres | 0 acres |
| AVE. BUILDING HEIGHT | 157 ft. | 110 ft. |
| STREET FACADE LENGTH | 8,270 ft. | 5,950 ft. |

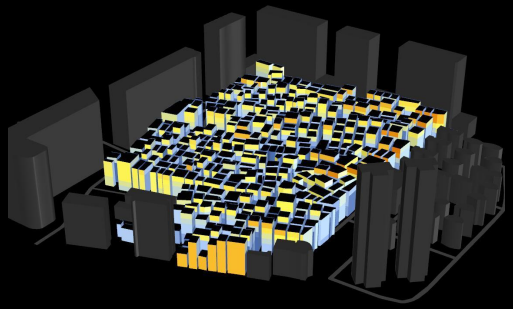


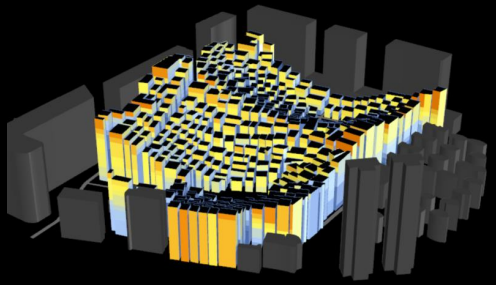


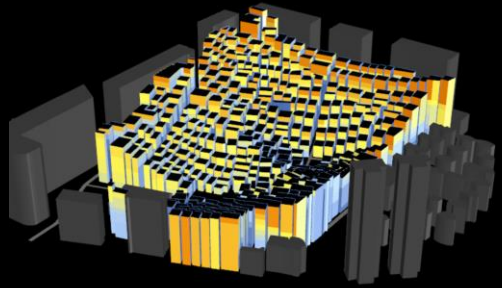
AVERAGE DAYLIGHT - HOURS

| | SCENARIO 2<br>LONG STREET FACADE | BENCHMARK |
|---|---|---|
| AVERAGE DAYLIGHT | 1.05 hours | 0.97 hours |
| PARK SPACE AREA | 0.57 acres | 0 acres |
| AVE. BUILDING HEIGHT | 147 ft. | 110 ft. |
| STREET FACADE LENGTH | 9,685 ft. | 5,950 ft. |









AVERAGE DAYLIGHT - HOURS