DECLUTTERING PAHARGANJ

A case analysis to redevelop one the most densely populated regions in the National Capital Territory of Delhi

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Abstract. This case analysis was an attempt to re-envision New Delhi under the umbrella target of Viksit Bharat 2047. It will aim to decongest one of the most densely populated regions in Paharganj, NCT, Delhi with the purpose of a better quality of life. It develops a product mix based on data on demand in and around the area. This paper will also go on to formulate primary data based on a micro market analysis of hotels in Paharganj. Although the target of this paper is to create something "better" than the status quo, it also aims to be financially viable, and something that could be implemented in the future.

I. Introduction

Paharganj is a 1.2 sq. km. chunk of cluttered up land amidst the prime locations of Connaught Place, the New Delhi Railway Station, and just 3 kilometers from Janpath and Mandi House, in the heart of Delhi.

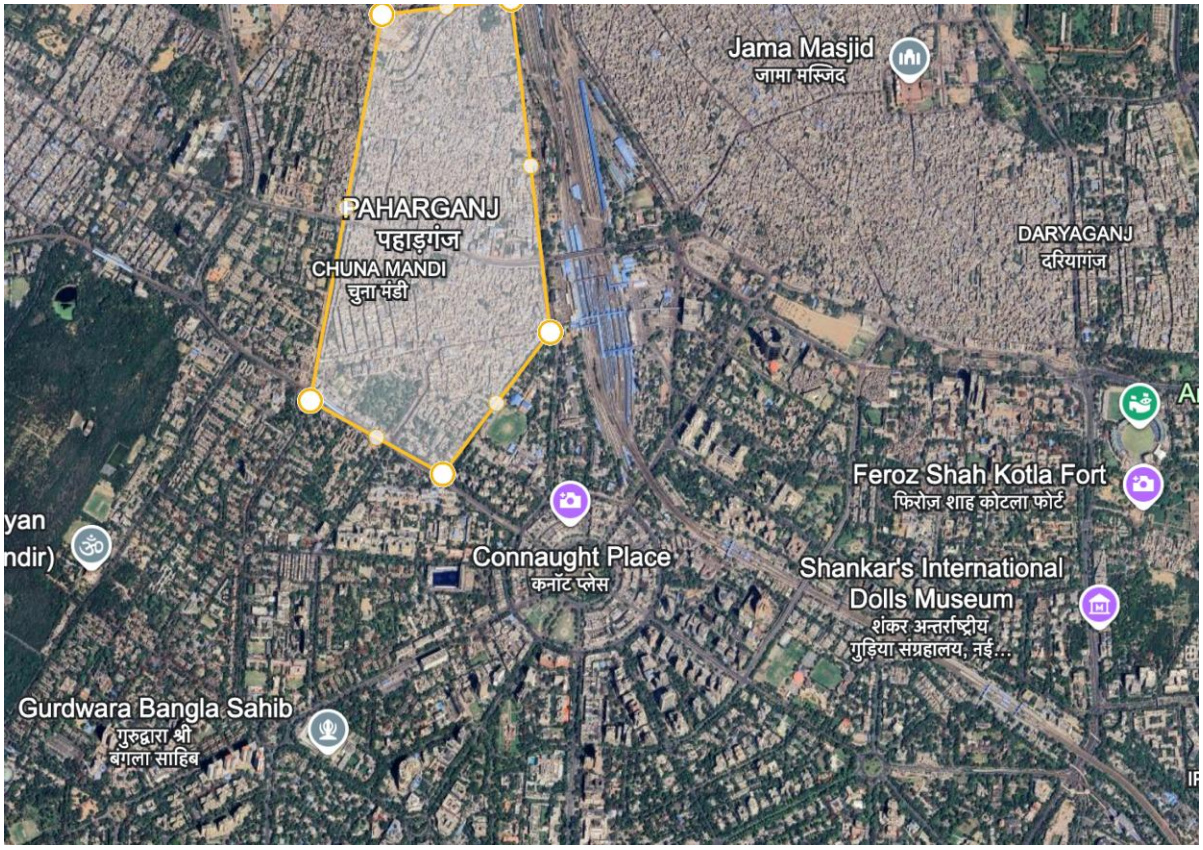

Figure 1- Paharganj and the areas around it

While areas around it seem to be well planned with green spaces and ample room for a good lifestyle, Paharganj, with the area of study marked with 25,000 households for 1,74,6131 inhabitants just within 1.2 sq. km. is not ideal. This study about the demographics, distribution of population, and the scope of improvement in the area will cover how, with the help of group housing societies for the current residents, along with commercial developments, improves the livability, creates green space, while leaving room for commercial viability, enabled by creating saleable commercial, institutional plots and spaces by maintaining the same number of households in the area and not replacing the residents of the given area either.

[1]Population of Delhi- DDA
https://online.dda.org.in/mpd2041dda/_layouts/MPD2041FINALSUGGESTION/Demography_and_Economy_Final_Report.pdf

II. Creating residential spaces for the 25,000 households

The situation As-Is:

*"**The current 1.7 lakh population is currently spread across 25,000 households of sizes ranging from 1 person households for single workers to households with 9 people**.[2]"*

Decluttering will involve pooling all land in the area and replacing it with differently sized houses for the given households."

For this analysis, we are considering three subcategories of houses, including service apartments, similarly designed to (i) studio apartments, (ii) regular apartments, and (iii) villas of sizes 55 sq.m, 171.6 sq.m, and 220 sq.m. respectively. The studio apartments being constructed shall be for single individuals, young professionals and students[3], the regular apartments will be reassigned to current land-owning residents of Paharganj, and the villas for those holding larger land parcels.

Considering the high density[4] which is approximately 13 times of the Delhi average[2], a ground coverage of 50% with an FAR of 8 for residential areas, with 16 floors will be ideal for the given purpose. Given the household sizes in Paharganj, a mix as proposed below will be ideal.

Table 1- Distribution of apartment categories

Distribution of units	Units	**Percent of units**
Regular Apartments	13,975	55.90%
Villas	5,000	20.00%
Service apartments	6,025	24.10%
Total	25,000	**100.00%**

Multiplying these 25,000 household requirements with the given sizes, with areas that are comfortably more than DDA standards, even for HIG houses in the PMAY[5], we can establish the required plinth area for residential development.

Table 2- Built-up Area for Residential Apartments Required

Distribution of units	**Units**	**Considered Area(in Sq. m.)**	**Built-up Area Reqd. (sq. m)**
Regular Apartments	13,975	171.6	23,98,110
Villas	5,000	220	11,00,000
Service Apartments	6,025	55	3,31,375
Total	25,000	-	**38,29,485**

"Given a required built-up area of 38,29,495 sq. m. and FAR of 8 for residential spaces, we get a required land use for residential areas of 4,78,685.625 sq. m., which is just 40% of the 1.2 sq. km. area in Paharganj", leaving 60% for decluttering, green spaces, playgrounds, community buildings, commercial and parking. With 50% ground coverage in these residential areas, we can work with 16 floor towers in the area, spreading the population vertically, rather than spatially/ laterally, which is currently predominant in Delhi's context.

[2]Economic Survey of Delhi 2023
https://delhiplanning.delhi.gov.in/sites/default/files/Planning/ch._19_demographic_profile.pdf
[3] Requirements as mentioned in Draft Regional Plan, 2041, NCRPB https://ncrpb.nic.in/pdf_files/DraftRegionalPlan-2041_English.pdf
[4] 174,613 people/ 1.2 sq. km. = 145,510 people per square kilometre
[5]Population Density of Delhi- DDA 2021
https://dda.gov.in/sites/default/files/Housing%20Department/brochure_of_housing_scheme_2021_1.pdf

III. Creating the right product mix using a micro market analysis in Paharganj

Hotels. Paharganj seems to follow a theme across the residential category, the theme being inconsistent and random. All notable four or five star hotels within a 2km radius from the center Paharganj are located south of it and in or near Connaught Place, although the demand for these hotels in the study area is high due to a railway station in the proximity, it seems to be fulfilled by a plethora of subpar hotels market marked as two or three star.

Table 3- Hotels rated 4 and 5 stars within 2km of Paharganj

Hotel Name	Location	Keys	Rating
The Metropolitan Hotel	Gole Market	178	5
The Park	Near Gurudwara Bangla Sahib	220	5
The Lalit	Barakhamba	461	5
The Hans	Barakhamba	-	4
Raddison Blue Marina Hotel	Connaught Place	90	4
The Connaught	Shivaji Stadium	104	4

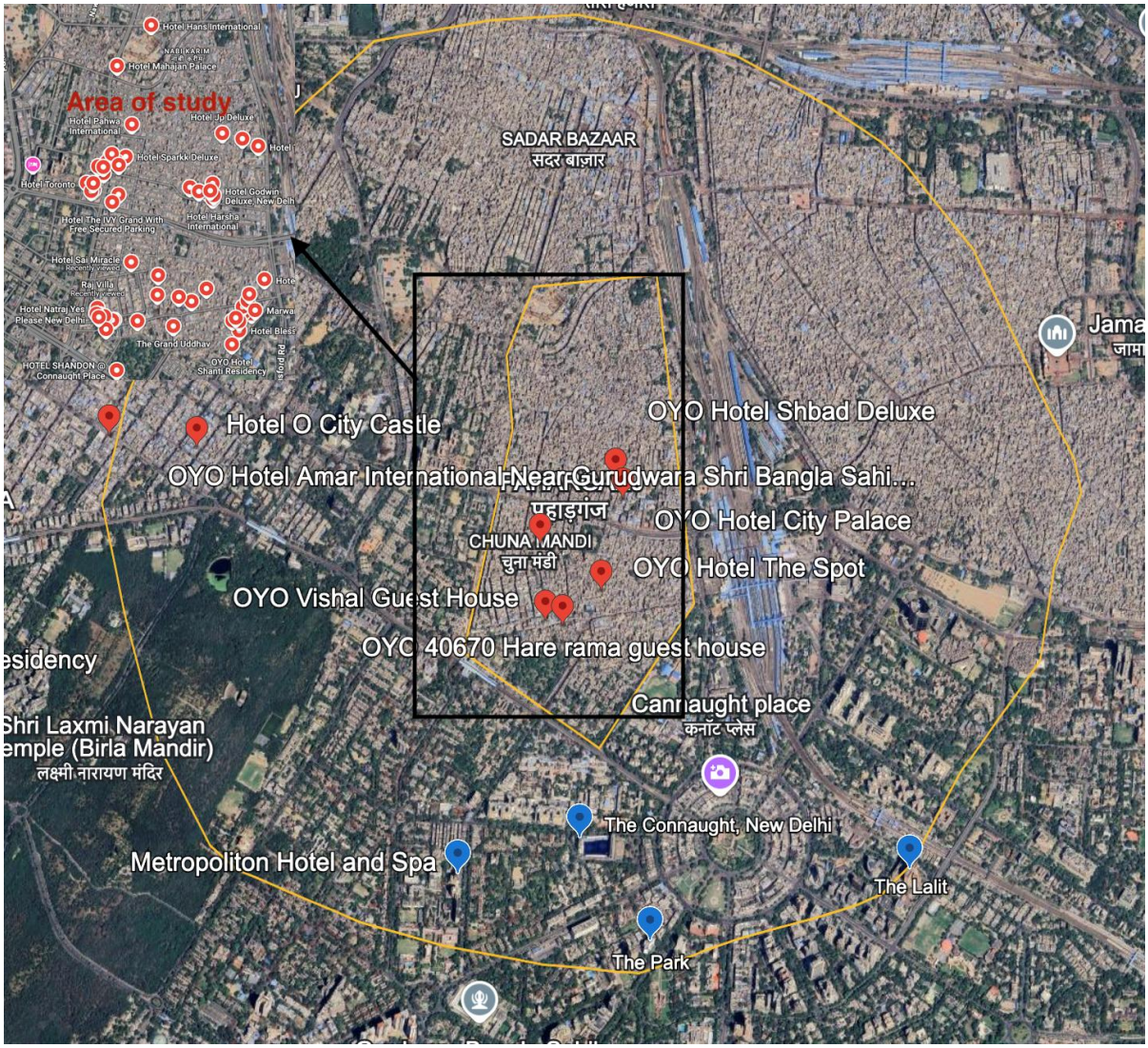

Figure 2- Overnight hotels, guest houses and homestays in and near Paharganj | 4 and 5 star hotels marked with blue and everything 3 stars and below marked with red

Three-star hotels in the same region are a mix of bed and breakfasts and an attempt by locals to earn passive income. At least 50 of these currently exist in Paharganj.[6] If investigated, these wouldn't be defined as hotels or livable but still prove the requirement for overnight housing options in the area. Living conditions in hotels around the area can be analyzed for any of the three-star hotels in the top left of the map, and all of them will yield, with the exception of a few, similar results- shabby entrances and rooms dilapidated at best.

"Although the high number of hotels sets us up as a proof of concept for considerable demand, it is nowhere satisfactory or ideal, as a product in the status quo."

IV. Product Mix for Paharganj post redevelopment

Commercial. As per Planning Norms and Controls, DDA[7], we require a minimum of 3,000 sq. m. for every 10,000 people allotted to Local Shopping Centers (LSC), for purposes including but not limited to convenience retail stores, medicines, guest houses, nursing homes and clinics along with an area of 1000 sq. m. for every 5,000 people for convenience shopping centers which may also include offices, local level service activities and restaurants. LSCs and CSCs may also be combined to a close, walking distance in case of urban extensions. From this information, we can calculate the minimum requirements for the planning of Paharganj, with a 1.7 lakh population.

Table 4- Base plate norms for commercial land use, DDA

Type	Requirements	Total for Paharganj (1.7 lakh population)
Commercial LSC	3,000 sq. m/ 10,000 people	51,000 sq. m/ 1,70,000 people
Commercial CSC	1,000 sq. m/5,000 people	34,000 sq. m/ 1,70,000 people
Local Level Commercial (CSC+LSC)	-	85,000 sq. m

Note: LSC- Local Shopping Centers; CSC- Convenience Shopping Centers.

Given this information, we require at least 85,000 square meters of commercial land use in Paharganj. Along with the massive requirement for hotels in the micro market analysis to replace at least 50 homestays, which is also categorized under commercial use, we may allot some additional area under commercials for the purpose of building hotels. Considering that 'The Lalit', located 2km from Paharganj has a size of 16,000 sq. m., at least two more hotels with similar areas and different price ranges is required to replace the plethora of subpar homestays. Proving the requirement for the Local Level Commercials, and their viability, given close proximity to Connaught Place, and the requirement for a hotel, a total land of 1,20,000 square meters can be allotted to commercial spaces.

Parking. Given the 25,000 households currently occupying Paharganj, allotting one parking space for each household, outside of the residential and commercial spaces, gives us a total requirement of 3,43,470 sq. m.[8] Consider half of this to be basement parking and the other half to be on ground, we require an area of 1,71,875 sq. m., on ground for parking.

Residential. As shown, the currently residing 25,000 households can be given new homes within 40% of the land area- Seeing the high density of Paharganj, along with single workers who might require regular apartments in the future, a provision for 5,000 regular apartments may be left, which can be sold

[6] List of hotels in the area of study
https://maps.app.goo.gl/yY24SAXuybDQZhyW9
[7]Planning Norms and Development Controls, DDA
https://dda.gov.in/sites/default/files/Ch.05Trade&Commerce-%20Commercial.pdf
[8] Considering 5m X 2.75m parking spaces for 25,000 cars = 25000*5*2.75=343,470 sq. m.

to initiate cash flow. These apartments will have a total area of 171.6 sq. m. and require a land area of 1,07,250 sq. m. with an FAR of 8.[9]

Roads and Open Spaces. Roads can account for a ballpark of 10% of the total area of Paharganj, giving us 120,000 sq. m. for roads, and leaving us with about 17% of the area of study or 202,189 sq. m. for open spaces and playgrounds for children, leaving us with the final product mix as follows.

Table 5- Land use distribution

Land use	Area in square meters	Percentage
Residential	5,85,936	49%
Commercial + Hotels	1,20,000	10%
Roads	1,20,000	10%
Parking	1,71,875	14%
Open space+ Play Grounds	2,02,189	17%
Total	12,00,000	100%

V. Costing

For this study, we will be considering the costs of road, drainage, and construction.[10]

a. **Roads.** For a total area of 120,000 square meters and a road width of 7.5 meters, we get the total length of roads to be 16km.[11] At Rs. 1,00,00,000 per km, we get the total cost for roads at Rs. 16,00,00,000.
b. **Drainage.** Drainage will include both systems on either side of the road and subsurface drainage for parking and open spaces. Total length of the drainage on both sides of the road will be 32km and at Rs. 50,00,000 per km., roadside drainage will cost another Rs. 16,00,00,000. The total area for subsurface drainage adds up to 3,74,064 sq. m. or 37.4 ha for open spaces and parking. At Rs. 2,000 per hectare, subsurface drainage costs are Rs. 75,000.
c. **Construction.** Residential construction costs for mid-range apartments will be Rs. 2,850 per sq. ft. for Service and Regular Apartments and go up to Rs. 4,000 per sq. ft. for villas. At these rates, the total cost of construction for the residences for the 25,000 households along with 5,000 regular apartments for sale is calculated here.

Table 6- Construction costs for residential units

Distribution of units	Units	Built up area. (sq. ft.)	Total Cost of Construction
Regular Apartments	18,975	3,50,48,442.43	₹99,88,80,60,922.65
Villas	5,000	1,18,40,290	₹47,36,11,60,000.00
Service Apartments	6,025	35,66,887.363	₹10,16,56,28,983.13
Totals	30,000	5,04,55,619.79	**₹1,57,41,48,49,905.78**

Commercial construction costs can be taken as Rs. 3,000 per sq. ft. of built-up area, with 85,000 square meters of ground area and an FAR of 10 gives us a total built-up area for the commercial complex as 8,50,000 sq. m. or 91,49,315 sq. ft.[12] The total construction cost adds up to Rs. 27,44,79,45,000. Construction costs for the hotel and office spaces can be taking as Rs. 4,000 per sq. ft. of built-up area, with 2,10,000 sq. m., it comes out to Rs. 904.17 crores.

Total cost: Rs. 19,422.46 crores.

[9] Total area= 5,000*171,6= 8,58,000 square meters, land area = 8,58,000/8 (FAR)=1,07,250 sq. m.
[10] All costs are taken as per government standards, as stated in Public Works Department, Schedule of Rates (PWD SOR) https://www.daojharkhandgroup.in/wp-content/uploads/2021/09/DSR-2021.pdf
[11] Length of Road= Area/ Width= 120,000/7.5=16,000m=16km
[12] 1 sq. m. = 10.7639 sq. ft.

Table 7- Costs associated with redevelopment

Purpose	Cost in crores	Percentage share
Roads	₹16.00	0.08%
Drainage	₹16.01	0.08%
Residential Construction	₹15,741.48	81.05%
Commercial Construction	₹2,744.79	14.13%
Hotel + Offices Construction	₹904.17	4.66%
Total	₹19,422.46	100.00%

VI. Revenue

This project will generate revenue by sale of regular apartments, commercial area and land for construction of hotels. For 5,000 regular apartments made for sale, a total of Rs. 8,311.88 crores can be generated.

Table 8- Revenue from the sale of the additional 5000 regular apartments

Unit	No of units.	Total Area (in sq. ft)	Probable selling rate (per sq. ft)	Total collection
Regular Apartments	5,000	92,35,426.2	₹9,000.00	₹83,11,88,35,800.00

For the commercial complex, leaving 20% of total built up area earmarked for circulation, total saleable/ rentable area comes out to be 73,19,452 sq. ft.[13] At a conservative average rent of Rs. 150 per square ft. per month for commercial and office spaces, calculating the sale value of land assuming a 12% return on investment is Rs. 15,000 per sq. ft [14] and the total value of the cumulative commercial space is Rs. 10,179.18 crores.

For the 35,000 sq. meter base plate of land allotted towards commercials and hotels, considering an FAR of 6, the total built area is 2,10,000 sq. m. Leaving aside 40% for circulation, we get 1,26,000 square meters of rooms and office spaces, which we divide in the following manner.

Table 9- Room categories for hotels, based on micro market analysis

Room Category	Area in sq. m.	No. of rooms	Total area
Base Category	25	1800	45,000
Premier Rooms	40	500	20,000
Executive suites	75	100	7,500
Two bedroom suites	100	50	5,000
Office spaces	48,500		48,500
Total area			1,26,000

Considering rates from hotels discussed in the micro market study, yearly revenue for the hotel can be calculated as shown here:

Table 10- Revenue from hotel development

Room Category	Price per night[15]	No of rooms	Yearly revenue (40% occupancy)
Base Category	3,000	1800	₹78,84,00,000.00
Premier Rooms	6,000	500	₹43,80,00,000.00
Executive suites	10,000	100	₹14,60,00,000.00
Two bedroom suites	12,000	50	₹8,76,00,000.00

[13] Reducing total built-up area of 91,49,315 sq. ft. by 20%
[14] Yearly rental = Rs. 1,800, at 12% ROI, Sale value = Rs. 1800 * 100/12 = Rs. 15,000 per sq. ft.
[15] Using market research and author's estimation

Room Category	Price per night[15]	No of rooms	Yearly revenue (40% occupancy)
		Total	**₹1,46,00,00,000.00**

Taking a room rate multiplier of 5, the hotel's worth will be in the ballpark of Rs. 730 crores. Assuming a conservative rent for an office space at Rs. 100 per square feet, the total revenue generated from 48,500 sq. m. of office space will be Rs. 62.65 crores which puts the worth of the office space at 522 crores by considering a 12% ROI.

The total value of all the assets created is 19,743.06 crores.

Table 11- Total value of assets and properties generated

Asset	Value (in crores)	Percentage Share
Regular Apartments (5,000)	₹8,311.88	42%
Commercial Complex (73,19,452 sq. ft)	₹10,179.18	52%
Hotel	₹730.00	4%
Office Spaces	₹522.00	3%
Total	₹19,743.06	100%

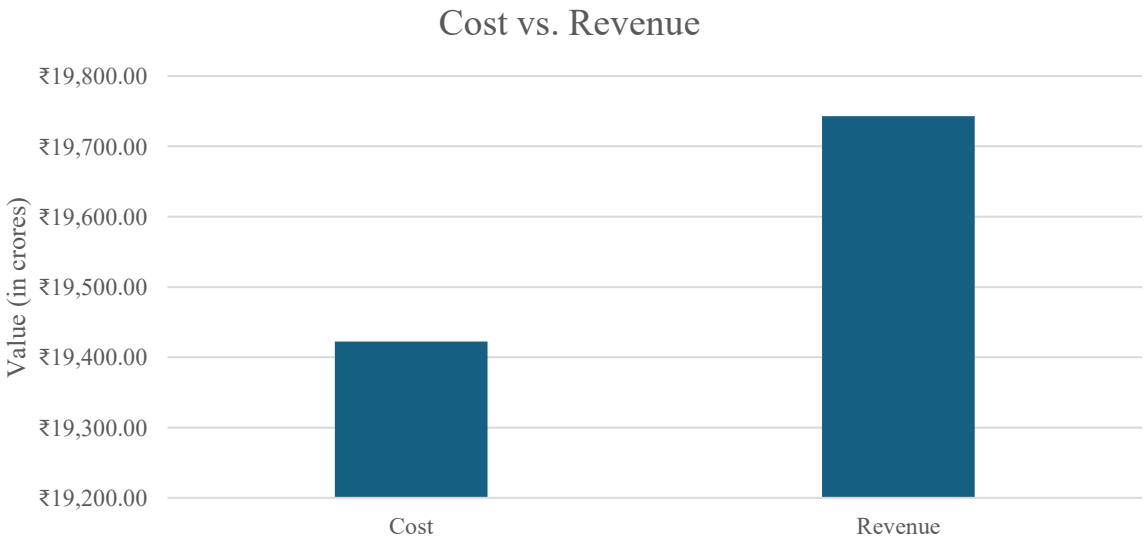

Figure 3- Cost vs. Revenue graph

Conclusion

Through this paper, we have analyzed Paharganj, the population demographic, housing, commercial and lifestyle requirements in the area and proposed urban rejuvenation in the area. All of this was worked on keeping in mind the sole objective of "something better" and was not dictated by a profit driven agenda. As an added advantage, based on the cost and revenue analysis, the proposal proves not only to be breakeven but also financially viable. This paper solely included analysis and comprehensive calculations, and not drawings, land planning and mapping. Considering that the purpose of the research project was "improvement", which was not only achieved, but also came with an added advantage of a more urbanized and overall rejuvenated area.