

**MRT AT CULTURAL CORRIDOR
AT - SHAHBAGH NODE - BANGLADESH**

BY

**MAHBUBA AL - AMIN
STUDENT ID: 09308018**

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Abstract

In this project the basic public facility like MRT station and a public space for amenity like a cultural space were introduced and the possible opportunity it might bring together with the impact was explored. Twenty million people will live in Dhaka in 2030 if present growth trends to continue. Unhindered informal/unplanned and formal/planned growth on its fragile ecology makes it one of the most vulnerable/unlivable cities on the planet in the face of climate change and other natural calamities. The present traffic scenario is connected with this explosive urban growth and has to be treated accordingly. Dhaka city's transport network awaits a big change, as the government plans seven metro-rail and bus rapid transit routes under an integrated mass traffic system. Government officials said the state-run Dhaka Transport Coordination Authority (DTCA) and the Roads and Highways Department (RHD) would construct three metro rail transit (MRT) and four bus rapid transit (BRT) lines to ease traffic snarls in the busy metropolis.

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ACKNOWLEDGEMENT

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CHAPTER -01

MRT STATION IN CULTURAL HUB

1.1_ INTRODUCTION

Urbanization is a driver for economic growth and if managed well will bring benefits not just to the poor in urban areas but to the nations more broadly.

Bangladesh is a country of nearly 160 million people has a population of over 15 million living in its capital Dhaka. With a population density of 23,029 people per square kilometer, the city plays the multi-functional role as the administrative centre, business, trade and commercial centre as well as a traditional cultural centre.

Dhaka is one of the busiest and the fastest growing city of the world. But the road and transportation system obviously is insufficient to address this huge amount of people of the most densely populated city of the world. The only solution is MRT, the elevated one.

1.2_ BACKGROUND OF THE PROJECT

Designing a MRT station in Dhaka is very challenging because it has to accommodate a huge volume of people. But the thing that has to be in mind is the issues that how will it affect the urban fabric of the surrounding area. Will it be alienated from the urban fabric of the area or will it blend with them is the question that an architect has to answer. Also the facts that how readily and easily will people accept this new concept and avail it.

Greater Dhaka has a total road network of 2450 km of which roughly 25% are classified as primary roads. The typical width of a street normally varies between 6 to 40m. The main roadways are usually 15 to 25m wide, whereas newly built facilities are generally 40m wide. In contrast, streets in the older part of Dhaka are often less than 6 m wide (ENNO “ED” KOEHN, 2002).

Hence it is highly encouraging to introduce Mass Transit System because a well designed Mass Transit System has the potential to reduce traffic congestion and also become the single most powerful tool to consolidate the trends of urban growth, become the key engine to create new satellite cities, renew blighted urban areas and dispersing the extremely dense city centre.

Since the end of the nineteenth century urban planners around the world have used light rail systems as the key component of mass transit networks to shape the urban growth of entire regions by the means of creating satellite townships. Trams, trolleys, street cars formed the back bone of public transport in almost all major cities. Satellite cities and suburbanization eased the lives of millions of citizens.

Urban transport in Dhaka mainly utilizes the surface roadway system. The train network is used primarily for inter-city connections and waterways are designed for inter-district freight distribution. Inter-city bus transportation, which uses a fleet of 600 buses, is operated by the Road Transport Corporation.

It is estimated that 80% of the residents in Dhaka cannot afford to pay for any type of transportation and travel by foot. The main physical traffic problem is related to this mix of transport modes: rickshaws, bicycles, buses and automobiles. With due consideration of this rapid urbanization situation in Dhaka, the Government of Bangladesh (GOB), through Dhaka Transport Coordination Board (DTCB) as the implementing agency, Japan International Cooperation Agency (JICA) as the executing agency, formulated a preparatory survey on Dhaka

Urban Transport Network Development Study (Phase 1 Study) from March, 2009 to March 2010. The Phase 1 Study recommended a series of urban transport network development projects and programs. MRT Line 6 project was selected in the Phase 1 Study as the high priority project and it was later conducted further studied in the Phase 2 to confirm the feasibility, technical and economical details. (JICA, October 2011).

1.3_ THE PROJECT BRIEF

The urban transportation system is not well coordinated and does not provide people with ease to access and mobility to different places. Hence traffic pressure could be eased by connecting transportation linkages with surrounding urban areas and facility.

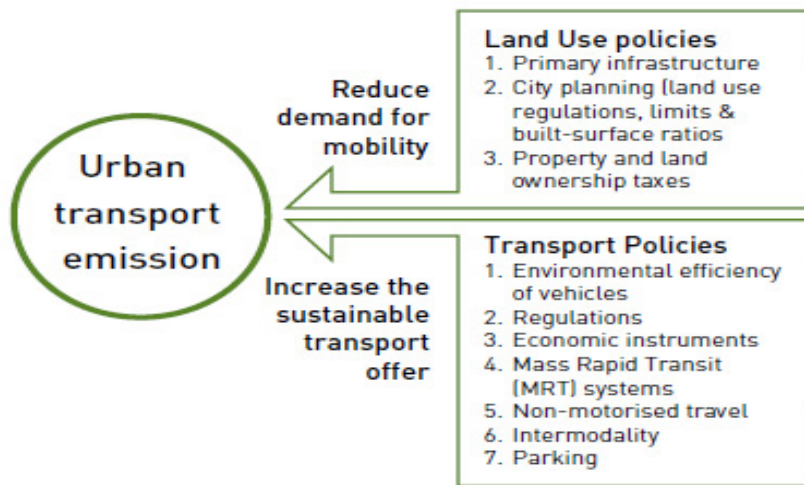
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- The urban transportation system shapes urban land use patterns by influencing the accessibility of locations within the urban area.
- To overcome the constraints of a limited land supply and manage the many demands placed on the transportation system we need to maximizing accessibility for commuters to key nodes of employment, housing, leisure and other social activities

Then the fundamental goals of transportation planning and urban would develop.

- Accessibility is determined mainly by the land use patterns and the nature of the transportation system.

- Public transportation may only seem important to a selected group of people who rely on the facility to commute. However, according to our culture there would be vendors who would reside on to the MRT station.



1.4_ ASPECT OF THE PROJECT

In this project there is a scope of incorporating architecture and urban design issues together with individual site related functions in it. This project deals with rules and issues regarding transport planning, urban Intervention, pedestrian linkage, urban regeneration. The challenge of this project is how to address these issues and simplify them into a precise interesting solution.

1.5_ GIVEN PROGRAMME OF THE PROJECT

Programs

- Administration and office
- Ticket counter
- Shopping stalls
- Indoor Restaurant and outdoor restaurant
- Circus space
- Food court
- Cyber café
- Florist
- Pharmacy
- Vendors
- Chobir haat
- News paper stall
- Waiting zone
- Water show
- Exhibition space
- Prayer space
- Staff space

1.6_SPECIFICATION OF THIS PROJECT:

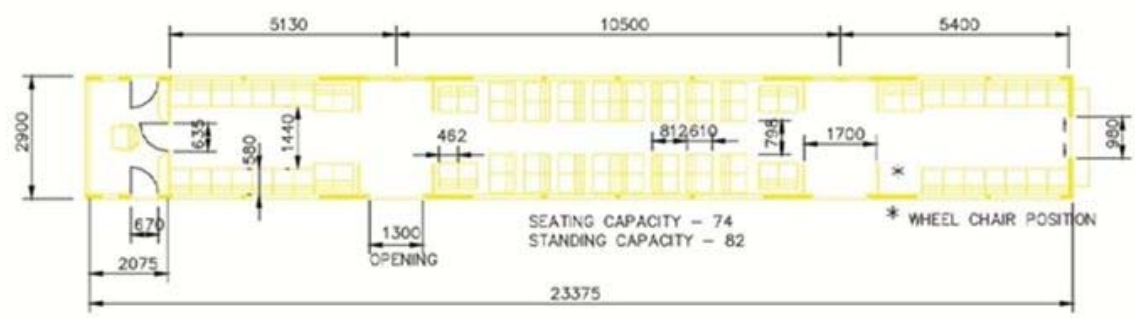
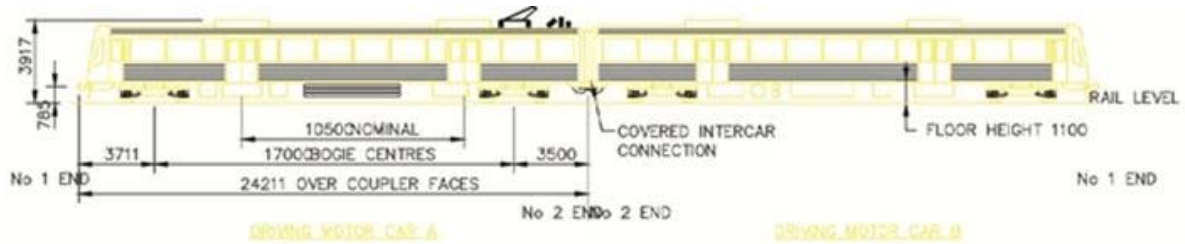
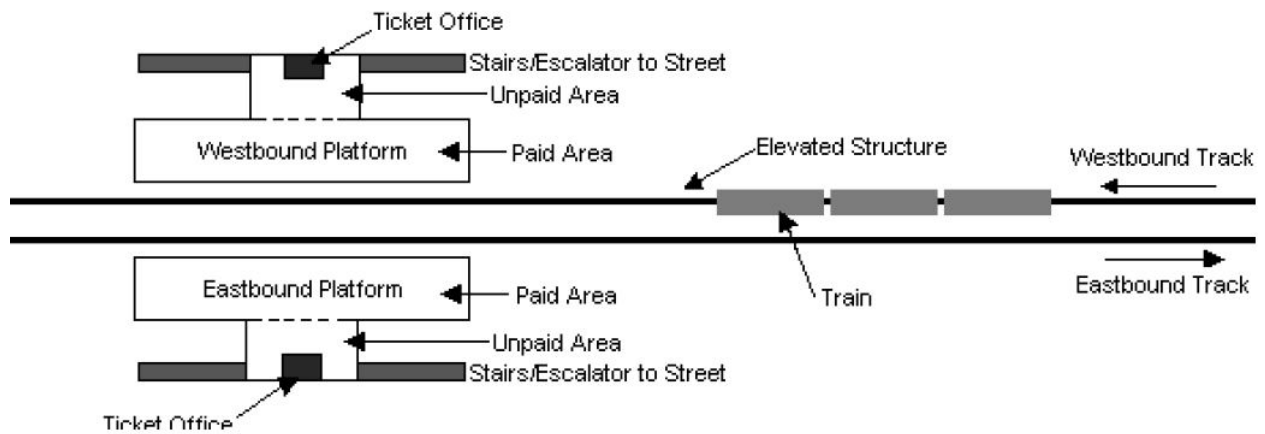
Project name: Metro Rail Transit Station And Cultural HUB

Site: Shahbagh node, Dhaka, Bangladesh.

Client: Bangladesh Government - Transportation Coordination Board and JICA.

	Item	Description
Basic Specification	Rail gauge	Standard gauge is 1435mm
	Operation in case of fire	Nonstop between station
	Earthquake	Seismic design
Alignment	Minimum radius	600m (normal case) 200m (unavoidable case) 200m (Depot Area)
	Minimum Radium (Station)	600 m (the track along the platform) 30% - 40%(between stations)
	Gradient	But level for station can vary up to 10% in unavoidable cases.
	Transition curve	Cubic parabola curve Or clothoide

	Minimum length of tangent line between transition curve	20m but two transition curve will be allowed in case its unavoidable.
	Minimum length of curve section	20m but two transition curve will be allowed in case its unavoidable
	Distance between rail center	3.6m (main tracks)



Rail structure	Rail	UIC 54kg/m(main track)
	Rail fastener	Basic torsion type
	turnout	No.10 for main track and No.8 and 10 for side track.
Station	Platform length	Train length + 10m
	Platform width	No structures are allowed 2m from the end of the platform. Minimum 4m fro lateral type platform
	Consideration of people with handicapped	Universal Design, Barrier Free (Lift, Escalator, Tactile Road for the Blind, Slope,etc)
Power supply	Electric power	Overhead catenary type DC 1,500V
Rolling stock		Body length 20,000m middle car Car weight: 28 ton Composition 6 car Design speed :110 km/hr Air conditioned.

CHAPTER -02 SITE APPRAISAL

2.1_ SITE LOCATION:

Shahbagh,Dhaka,Bangladesh

SITE AREA: 95,348 SFT

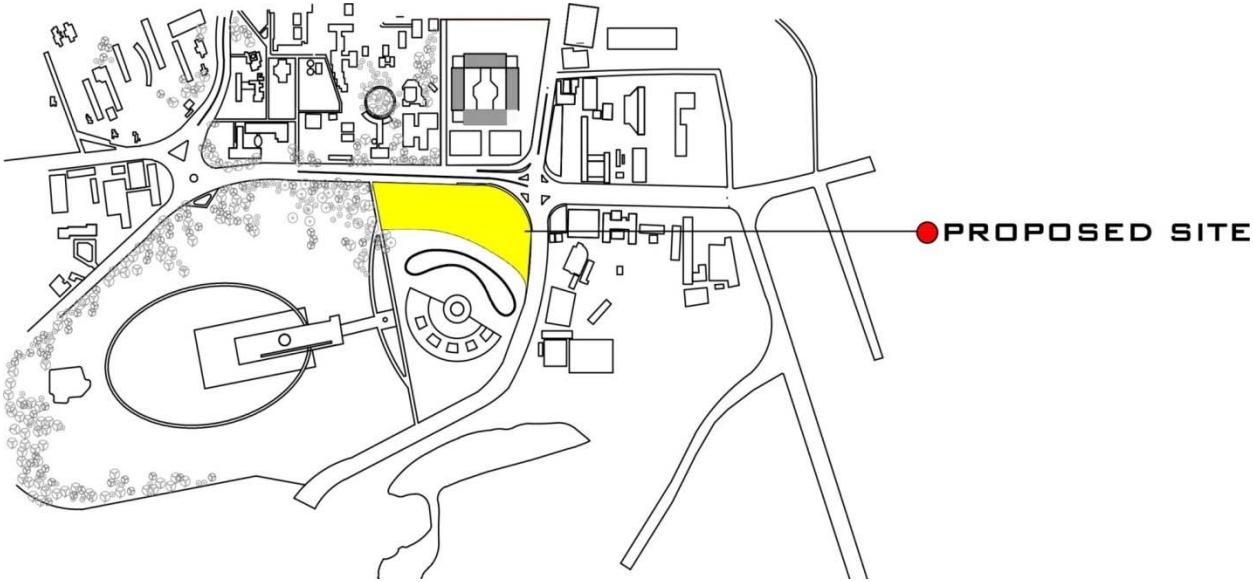
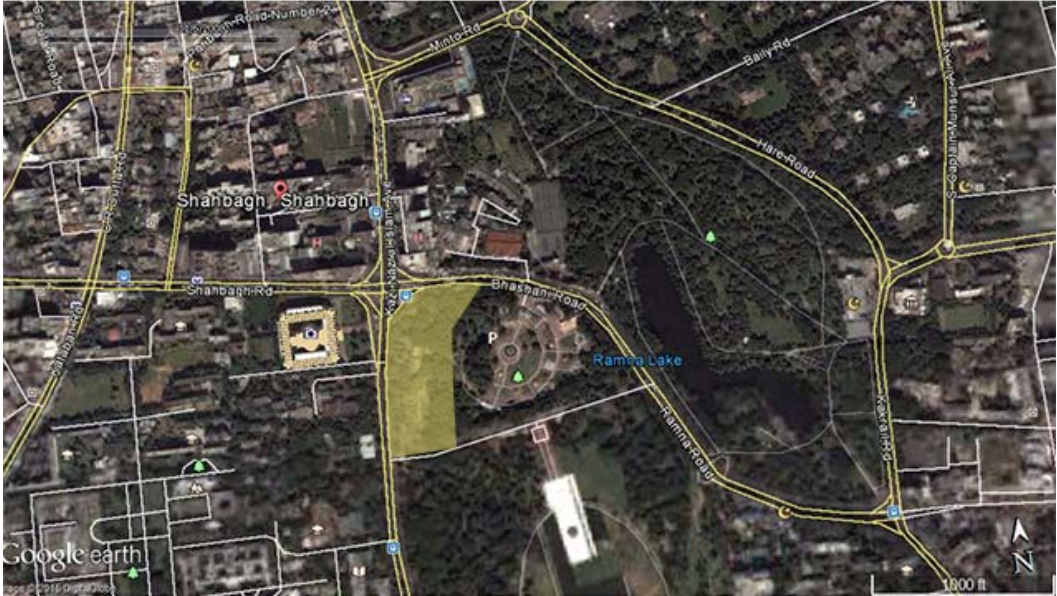


Figure 1 - Google Earth and site trace Image of the Site Location

Shahbag (also Shahbaugh, Bengali: Shabagh, is a major neighborhood and a police precinct or thana in Dhaka the capital and largest city of Bangladesh. It is also a major public transport hub. It is a junction between two contrasting sections of the city—Old Dhaka and New Dhaka—which lie, respectively, to its north and south. Developed in the 17th century during Mughal rule in Bengal, when Old Dhaka was the provincial capital and a centre of the flourishing muslin industry, the neighborhood was originally named Bagh-e-Badshahi (Persian for Garden of Kings), but later came to be called by the shortened name Shah (Persian: king) Bagh (Persian garden). In the mid-19th century, the Shahbag area was developed as New Dhaka became a provincial centre of the British Raj, ending a century of decline brought on by the passing of Mughal rule.

Shahbag is the location of the nation's leading educational and public institutions, including the University of Dhaka, the oldest and largest public university in Bangladesh, Bangabandhu Sheikh Mujib Medical University (BSMMUM), and the Bangladesh University of Engineering and Technology, the largest public university for technological studies in the country. Shahbag hosts many street markets and bazaars. Since Bangladesh achieved independence in 1971, the Shahbag area has become a venue for celebrating major festivals, such as the Bengali New Year and Basanta Utsab.

Shahbag's numerous ponds, palaces and gardens have inspired the work of writers, singers, and poets. With Dhaka University at its centre, the thana has been the origin of major political movements in the nation's 20th century history, including the All India Muslim Education Conference in 1905, which led to the All India Muslim League. In 1947, to both the partition of India and the creation of Pakistan; the Bengali Language Movement in 1952, which led to the recognition of Bengali as an official language of Pakistan; and the Six point movement in 1966, which led to the nation's independence. It was here, on 7 March 1971, that Sheikh Mujibur Rahman delivered a historic speech calling for the independence of Bangladesh from Pakistan, and here too, later that year that the Pakistani Army surrendered in the Liberation War of Bangladesh. The area has since become a staging ground for protests by students and other groups. It was the site of public protests by around 30,000 civilians on 8 February 2013, against a lenient ruling against war criminals.

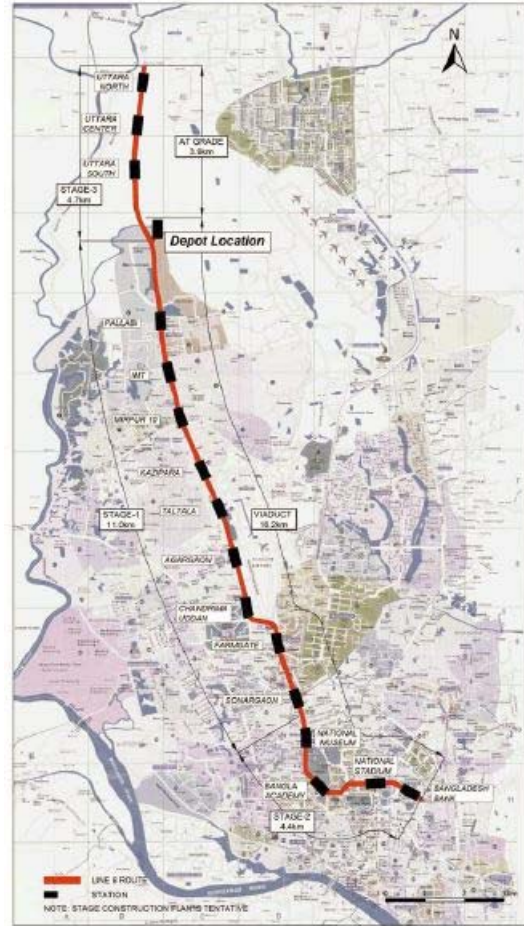
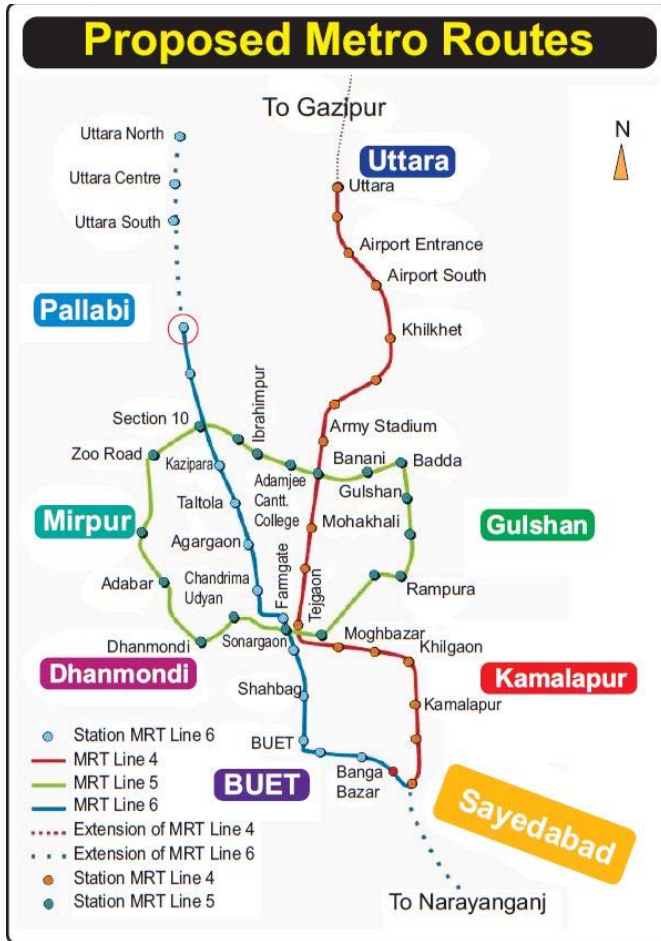


Figure 2 - MRT Route-6 and Station Location in the context of Dhaka Map

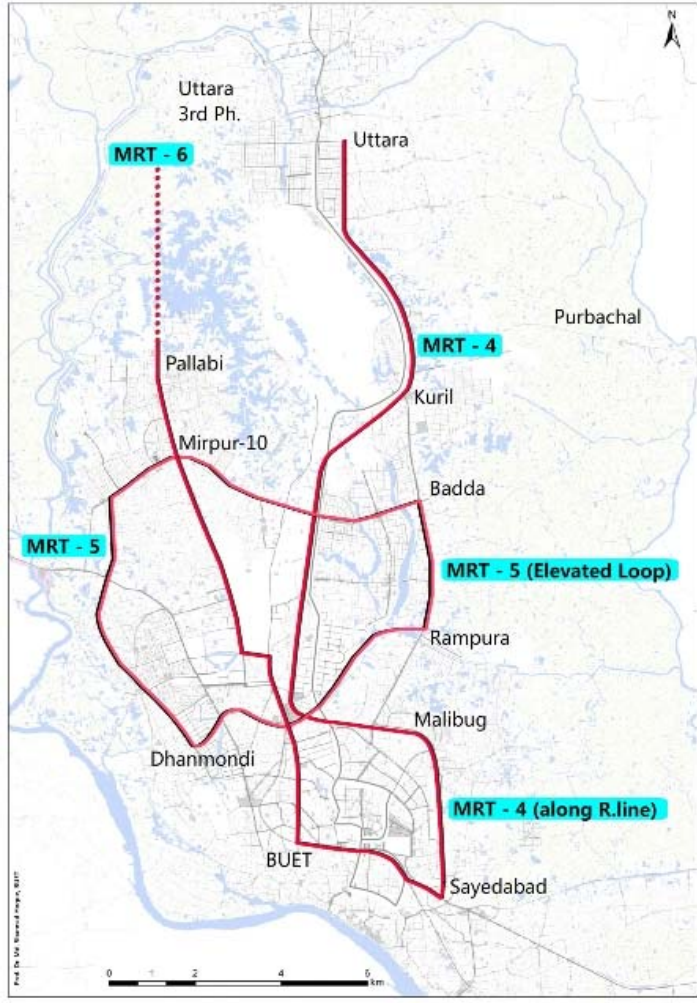


Figure 3 – All MRT Route and Station Location in the context of Dhaka Map

2.2 _ SITE FORCES



Dhaka national museum



BSMMU



PG Hospital



Bangabandhu SK Medica



RUPOSHI BANGLA HOTEL



SHISHU PARK



FLOWER STALL IN SHAHBAGH



SHAHBAGH NODE TOWARD TSC

2.3_ SITE ANALYSIS

- Invites a diverse group of people.
- Street shop invite people to congregate
- Fine art &DU invites the student & the young people group to enliven the place throughout.
- Exhibitions, cultural performances cognates a huge number of people at times of the years.

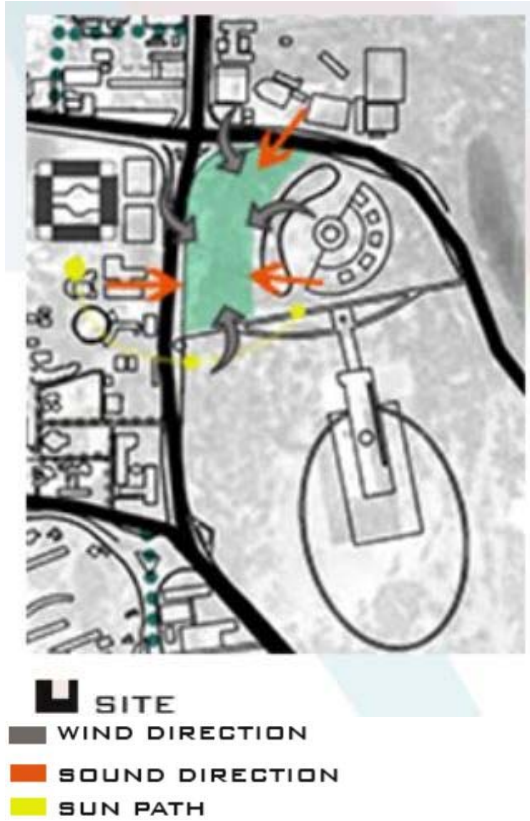


Figure 4 – site analysis



Figure 5– site sketches of vendors



Figure 6– site sketches of flower stall



Figure 7– site sketches of flower stall

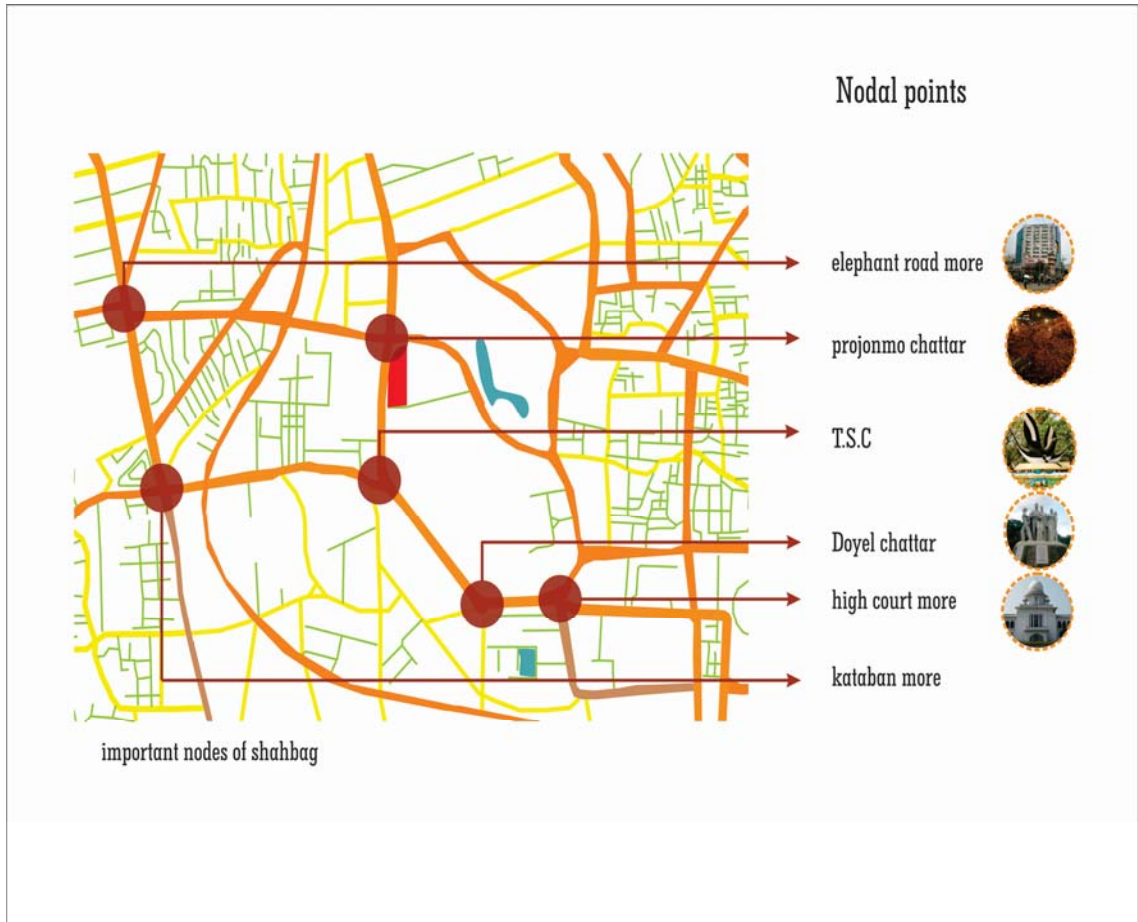
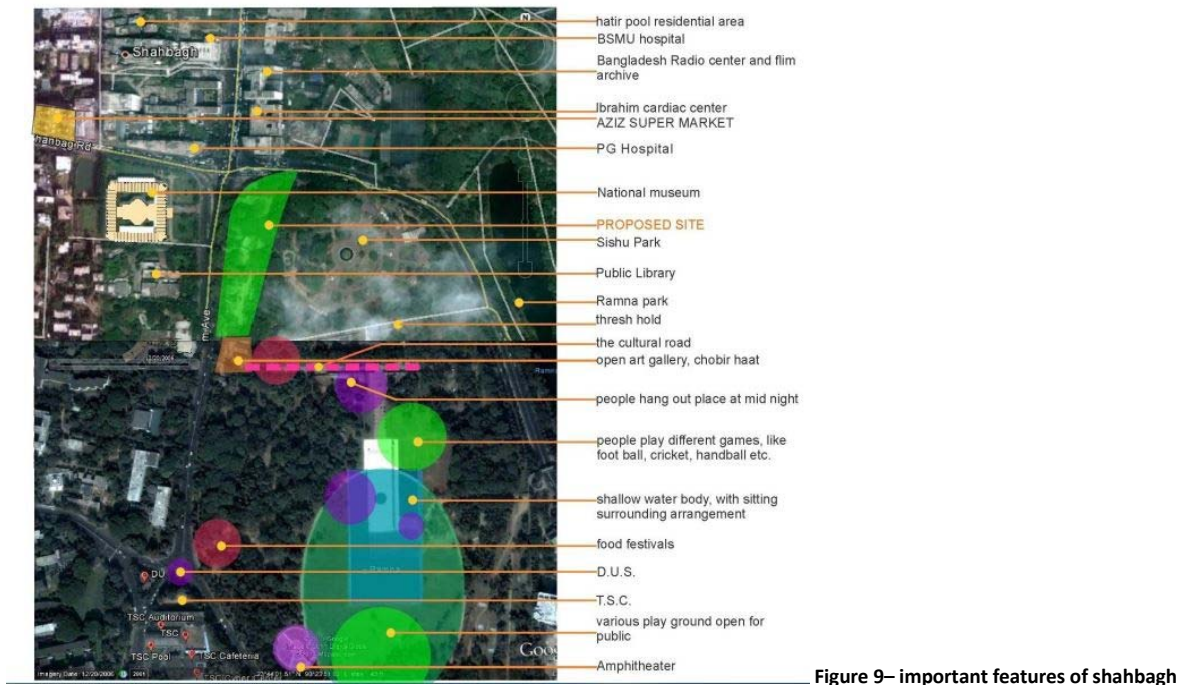


Figure 8— important nodes of shahbagh



2.4_ HERITAGE IMPORTANCE

- National meseum
- Shawardi uddan
- ART history depicted at the institution of fine arts.
- Important place for festival

2.5_ SWOT ANALYSIS

Strength

- Culturally vibrant space
- Already a node of many thing
- Transition of commercial and cultural HUB

Weakness

- Too many services at one place
- No proper well designed public streets although this place house a lot of public facility
- Huge amount of vendors

Opportunity

- Some of the open spaces can be redesigned for more proper use for the public
- The transport HUB can be redesigned fro better service

Threat

- Unplanned growth can result to a dangerous failure for the city
- Increase in crime and can become a pocket zone for crime.


2.6_ MAPS


Existing Green map:

There are a lot of green mass at the east side of the site, which is mostly accessible and are used as the park named as Ramna Park. The site itself is surrounded by greenery too but these green are restricted.



Figure map 01– green map

 dense green with big trees

 less dense green mostly shrubs

Existing road map:



Figure map 02–road map

This site links to east and west sectors of Dhaka city. It links to major north to south roads of the city that parallel run side by side each other. On the west end there is Elephant road and the east end there is old town on the north end it links to Farm gate and on the south it reaches to TSC.

Existing pedestrian and car movement map:



Figure map 02—pedestrian and car movement map

Existing Pedestrian Pattern survey through site visit examination showed that there is a dense pedestrian activity on both the north and south end of the site. There is no bus stop at the south side of the site. On the east, west and the north end consists some major bus stands and foot over bridge serving both ways. There is also modal exchange from rickshaw to bus or tempo that occurs mainly in the north end of the site where passengers coming from neighboring areas alight from rickshaws and then take a bus to other parts of the city. Vice versa passengers coming other parts of the city alight here either to make their way to the neighboring well-known educational institutes or residential zones nearby. There are two foot over pedestrian bridges connecting from one end of the route to the other always under heavy pedestrian utilization since the roads underneath are always under heavy traffic vehicular demand is high too.

CHAPTER -03 _ LITERATURE REVIEW

3.1_ Types of MRT Systems and its distinctions

Successive governments have made attempts to improve the traffic situation. The introduction of MRT Line is highly encouraging because a well designed Mass Transit System has the potential to reduce traffic congestion and also become the single most powerful tool to consolidate the trends of urban growth, become the key engine to create new satellite cities, renew blighted urban areas and dispersing the extremely dense city centre.

A rapid transit, underground, subway, elevated railway, metro or metropolitan railway system is an electric passenger railway in an urban area with a high capacity and frequency, and grade Separation from other traffic. This kind of system is typically located either in underground tunnels or on elevated rails above street level. Outside urban centers, rapid transit lines may run on grade separated ground level tracks. (Rapid transit) The distinction between MRT concepts is fluid, and many have different approaches are commonly used to distinguish the different modes and features of various MRT systems. Traditionally, MRT systems have been categorized according to technology and degree of segregation from traffic. Table-1 summarizes the key features of the MRT options.

Characteristics	Bus Rapid Transit (BRT)	Light Rail Transit (LRT)	Metro	Suburban Rail
Current Applications	Widespread in Latin America & some developing cities	Most European & North American cities	Most Developed cities & few large developing cities	Most European & North American cities
Segregation	At grade	At grade	Mostly elevated or underground	At grade
Space requirement	2-4 lanes from existing road	2-3 lanes from existing road	Little impact on existing road if elevated/underground	-
Impact on Traffic	Depends on policy & design	Depends on policy & design	Reduces congestion	Depends on frequency
Public Transit Integration	Problematic with paratransit	Often difficult	Excellent	Usually existing
Initial cost (US\$ million/km)	0.5-15	13-50	15-30 at grade 30-75 elevated 60-180 underground	-
Implementation time	Short	Medium	Long	-
Interaction with land development	Good	Very good	Excellent	Variable
Fuel	Mainly Diesel/CNG/LPG	Electricity	Electricity	Electricity
Air pollution & noise	Considerable	Low	Low	Low
Capacity (pass./hr/direction)	10-35,000	12-30,000	60,000+	30,000
Speed (km/hr)	17-20	20-50	30-80	40-45+
Traffic Accident	Minor	Minor	No	Minor (at level crossing)
System image & passenger attraction	Good	Very Good	Excellent	Variable

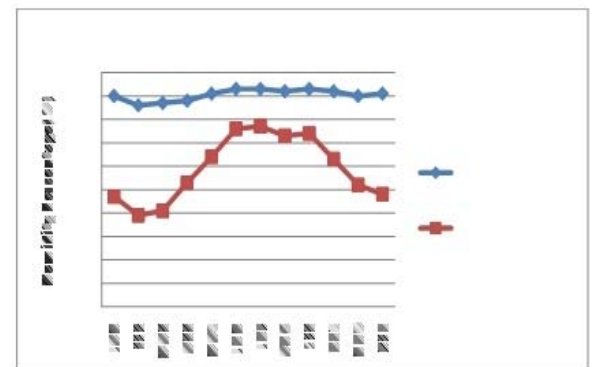
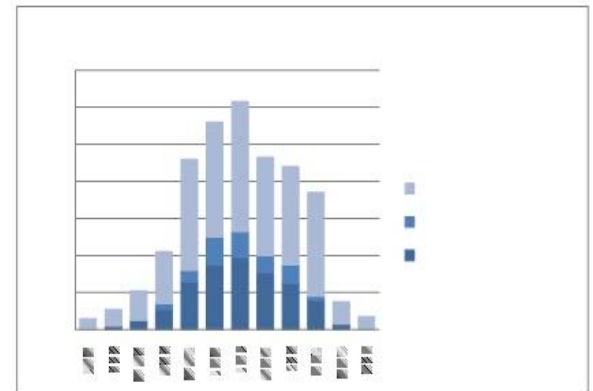
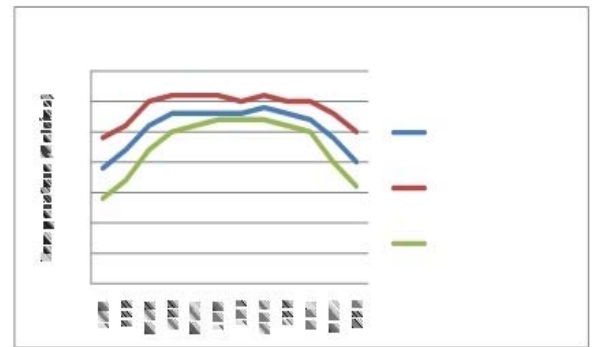
Sources: GTZ, 2005 ; World Bank, 2001 & 2002

Table1– important features of MRT

CHAPTER -04_ CONTEXTUAL ANALYSIS

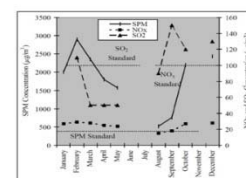
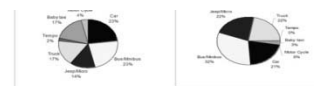
4.1_Environmental Considerations:

The climate of Dhaka experiences a hot, wet and humid tropical climate. Under the Koppen climate classification, Dhaka has a tropical wet and dry climate. The city has a distinct monsoonal season, with an annual average temperature of 25 °C (77 °F) and monthly means varying between 18 °C (64 °F) in January and 29 °C(84 °F) in August. Nearly 80% of the annual average rainfall of 1,854 millimetres (73.0 in) occurs during the monsoon season which last from May till the end of September. Increasing air and water pollution emanating from traffic congestion and industrial waste are serious problems affecting public health and the quality of life in the city. (Climate of Dhaka).Due to the high humidity and Temperature level, it is important to consider proper natural ventilation when designing in Dhaka. Mechanical devices such as escalators and generators need proper protection from the rain and the high urban flooding that occurs in Dhaka .

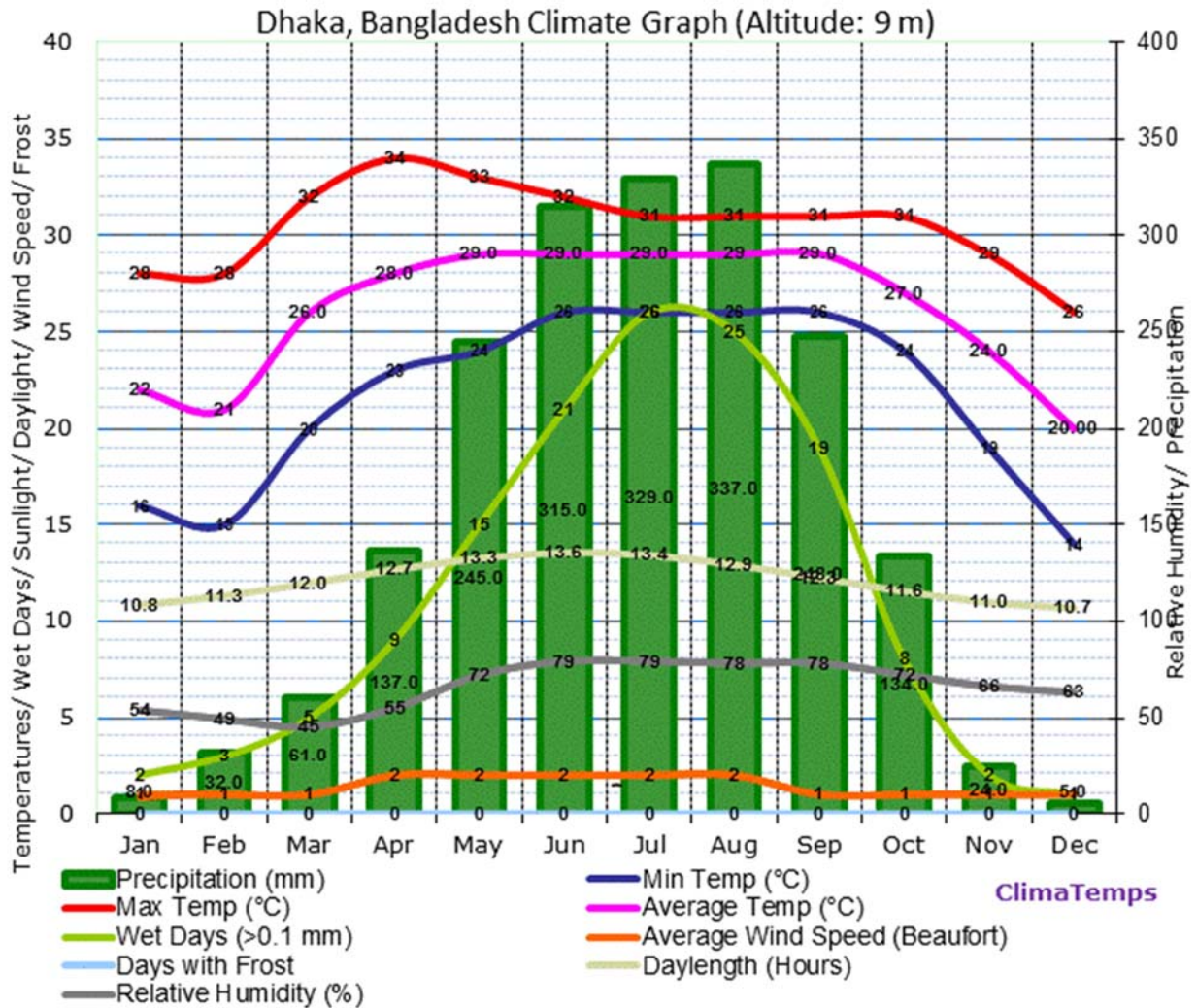


4.2 _Atmospheric Pollution Data at Shahbagh:

The quality of air are different for residential, industrial, Commercial and sensitive areas. The worst affected areas in Dhaka city include: Hatkhola, Manik Mia Avenue, Tejgaon, Farmgate, Motijheel, Lalmatia, and Mohakhali. Surveys conducted between January 1990 and December 1999 showed that the concentration of suspended particles goes up



to as high as 3,000 micrograms per cubic meter although the allowable limit is 400 micrograms per cubic meter. The sulphur dioxide in the air near Shahbagh was found to be 385 micrograms per cubic meter, where as the maximum permissible limit is 100 micrograms per cubic meter. (Air Pollution in Dhaka).



4.3 _Transportation survey:

Satellite cities are planned after carefully analyzing present and future land use patterns and density, ecosystems, utility and road infrastructure, presence of growth magnets such as industry, commerce, institutional facilities, other urban amenities, and travelling time from key urban nodes. A minimum density is required to make light rail feasible. Within a quarter mile radius of the transit station, high density mixed use/commercial growth is considered feasible and the quarter mile belt after this zone is considered a medium density zone, usually residential. This area spreading approximately half mile from the station is termed as the transit shed. In our country the informal networks of lighter public transport such as auto tempos, rickshaw vans have the potential to extend the transit shed much further. Parking lots and cycle stands are built adjacent to the stations so people can park and ride. This is a very powerful tool to reduce congestion in downtown.

Constructing and operating an extensive new underground or elevated rail network will be an extremely complex, expensive and time consuming in a flood prone earthquake zone as ours. This essay examines the potential of developing an integrated transport and urbanization scheme by upgrading the existing railway network and connecting it to a hierarchical network of new circular bus routes and more informal lighter modes of public transport for the greater Dhaka region. Barring the areas developed by the Rajdhani Unnayan Kartripakkha (RAJUK) and some private developers, Dhaka has grown almost spontaneously along the key north-south roads. Typical informal urban growth forms the edges of the wetlands and rivers to the east west and south as a consequence of not having proper road access. If the road networks are improved these areas have the potential to densify further. Such development will depend upon the success of building new roads in the east west direction and connecting them to the existing road network.

Like all cities of similar socio-economic conditions, the key resource of Dhaka is the boundless energy and ingenuity of the people. The informal transport sector of light public transport such as auto tempos of various sizes and rickshaw vans have kept the city and indeed the whole country alive and kicking. If such a network is carefully planned, the need for rickshaws will decrease.

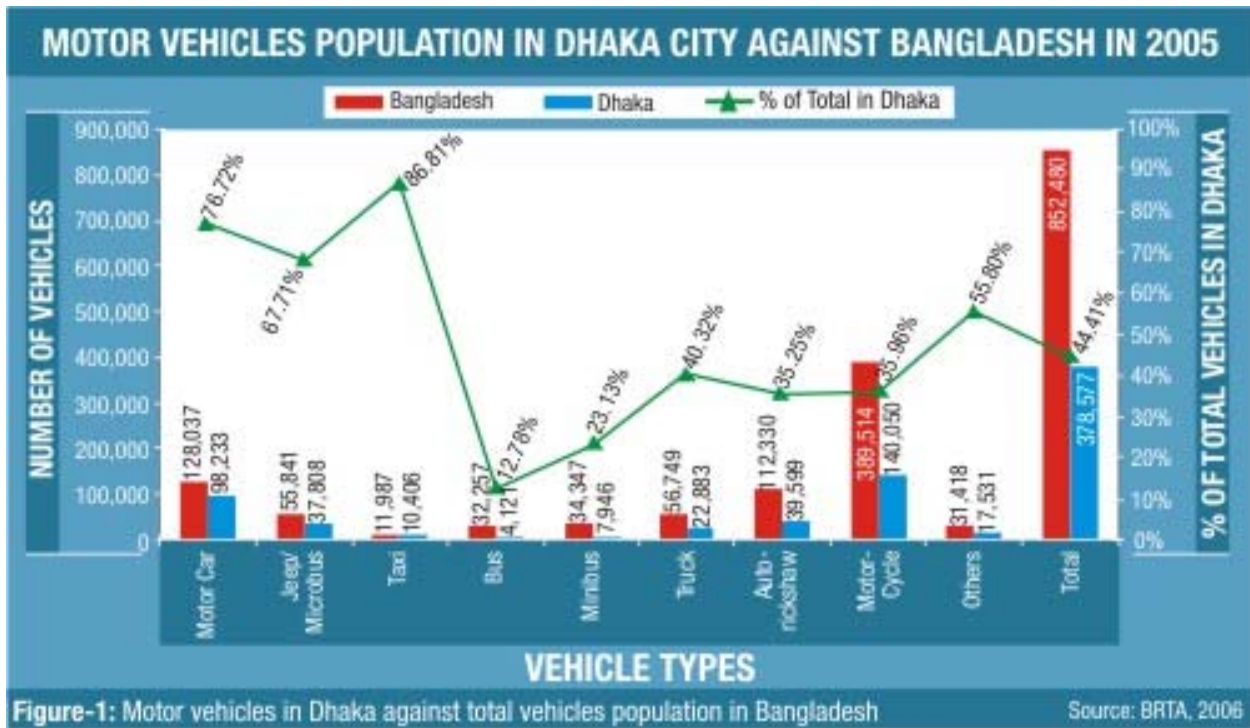


Figure 10—motor vehicle survey

CHAPTER -05 _CASE STUDIES

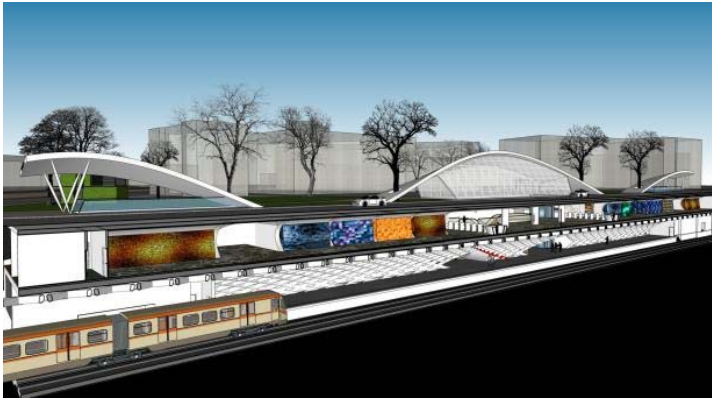
5.1 _CASE STUDY (S20 Metro Station)

By OVA Studio Ltd as Architects





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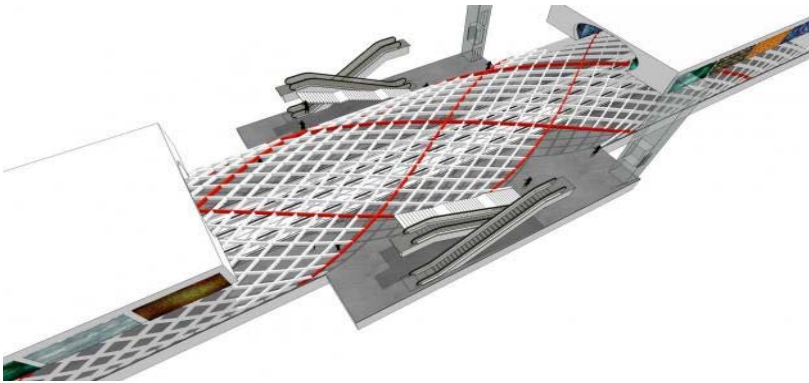
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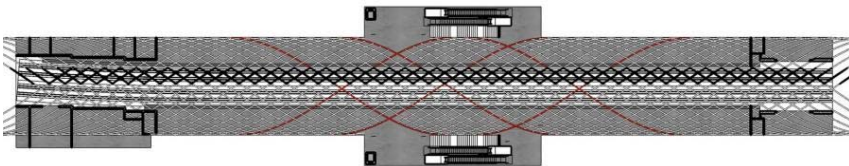
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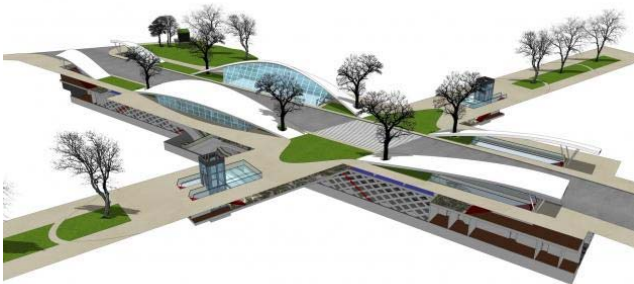
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Project Passport

Location: Bulgaria

Program

The design proposed to escape from the tunnel like feeling of many underground stations by providing a vortex mesh vault that acted as both a structural element but also as signalization and information display. One of the challenges was to bring light from the street down to the concourse and ultimately to the platform levels.

This was achieved through extensive glass wall inserted in the folds of the street landscape and slab openings for penetration to lower levels. We incorporated a retail gallery at concourse to bring animation and activities to this level. The station is divided into three different entities, the Ground floor elements, the concourse level at B1 and the train platform at level B2.

Ground Floor:

At this level we have opted for a design solution that emphasizes the linear vocabulary of the station below. This linearity is enhanced by gentle and smooth folds of the ground surface allowing for a clear marking of the entrances and exits of the station placed

at each end of the concourse on each side of Obikilna street and an expansion above the central part of the concourse from which four large glazed walls allow natural light to penetrate in the paying area of the concourse.

From ground level the pedestrian flow is "funneled" directly and seamlessly into the concourse level. The diagonal "green zone" is treated as a landscaped ripple originating from the station area. The architectural treatment of these ground elements become an unconstrained and modern treatment reminiscent of the vocabulary of Oscar Niemeyer.

Concourse Level:

The concourse level is divided into two zones, the non-paying area and the paying area after the turnstiles. Pedestrian will access this level from either the four corners of the station or from the central diagonal "green zone" equipped with disabled lifts. We have opted here for an asymmetrical design and an extension of the non-paying zones under Obikolna street to provide for retail, shops that will bring much animation to the underground level, all access to the paying area will be through this retail zone.

The paying zone is made free of all encumbrances and the original plant rooms have been

moved to the ends of the concourse level including staff toilets. This free-ups the central zone permitting a great fluidity of pedestrian traffic in and out of the vertical circulations. The paying zone is illuminated from above through four large glazed walls. An elliptical vaulting system originating for the retail area (non-paying area) is continued through into the paying area, this ceiling will comprise all service elements (Lighting, HVAC, PA, etc.). Two Customer Services counters are proposed on each sides of the paying area, while two lift allow paying customers and disabled passengers to access directly to the platform below. In the paying area we have provided for a sculpture exhibition, while the wall areas came become support for advertising.

Platform level:

We have opted here for a dynamic solution by using an asymmetrical elliptical profile composed of an interlaced grid that enhances the depth of the station. This grid system is the support for both lighting with LED introduced on major ribs and in caissons above the platform and station signage presented here as integral LCD displays which will inform passengers on time. The grids non-structural and clods a reinforced concrete vaulting that permits to suppress all columns within the platform space fluidifying traffic and space perception.

5.2_ CASE STUDY (Flinders Street Station)

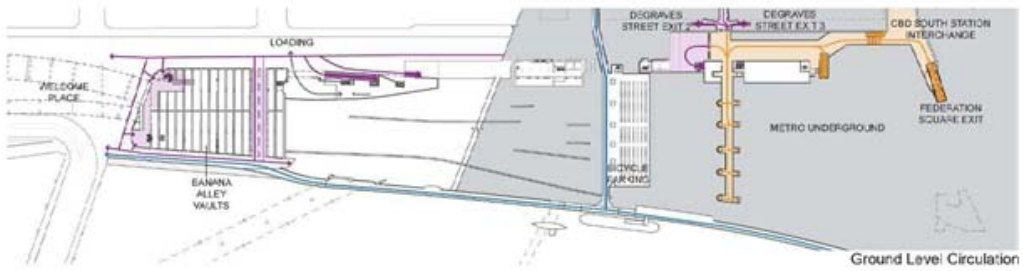


Architect: HASSELL + Herzog & de Meuron

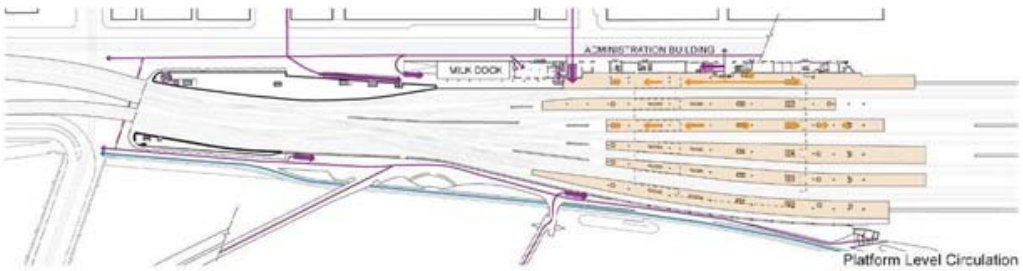
Significance:

The winning proposal for the Flinders Street Station competition comes from HASSELL + Herzog & de Meuron. The design integrates the station with the surrounding urban context, which has evolved and changed significantly since the building was designed 100 years ago. The station concept draws from many aspects - the site's historic fabric, location, and linear nature; the original 19th century design and existing heritage fabric; the river and city edge, rail, public and river-based operations as well as the station's place within the city fabric and public realm. This proposal updates the station for the 21st Century, turning it from a place to hurry through to a destination. The overall design merit of the proposal can be seen in a new, major public art gallery, public plaza, amphitheatre, marketplace, and a permanent home for arts and cultural festival organizations. But they have also delivered the glory of the first 19th Century design for Flinders Street Station.



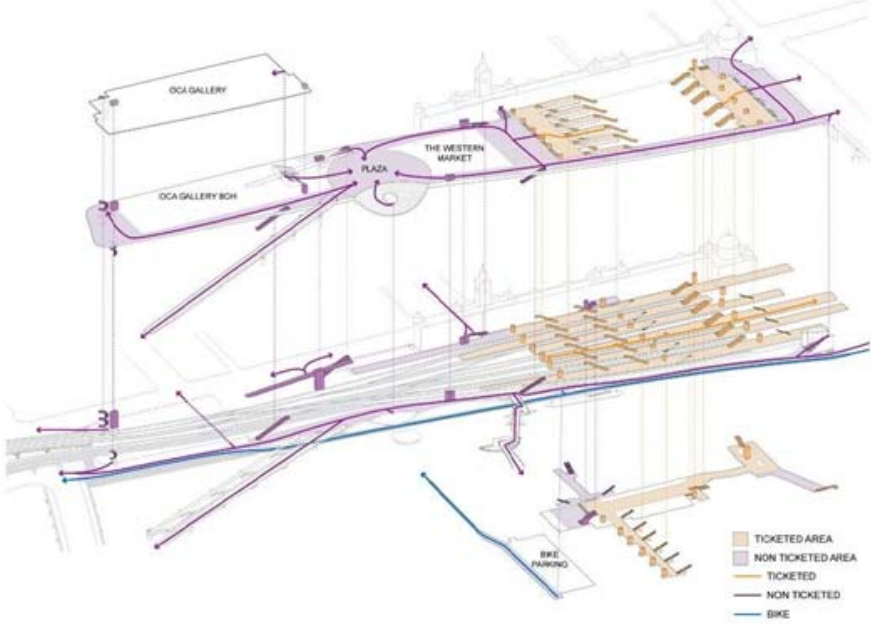


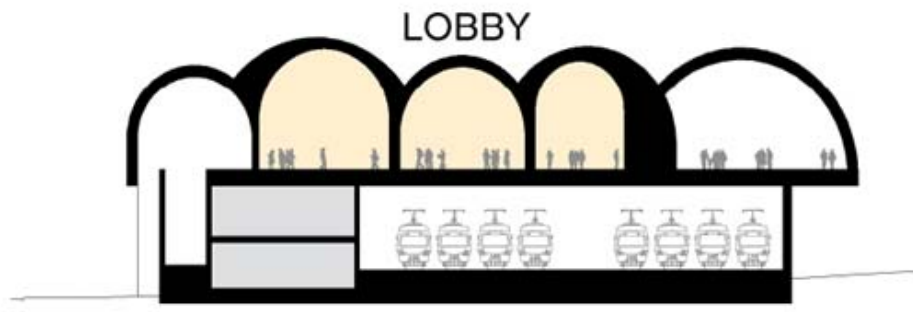
Ground Level Circulation



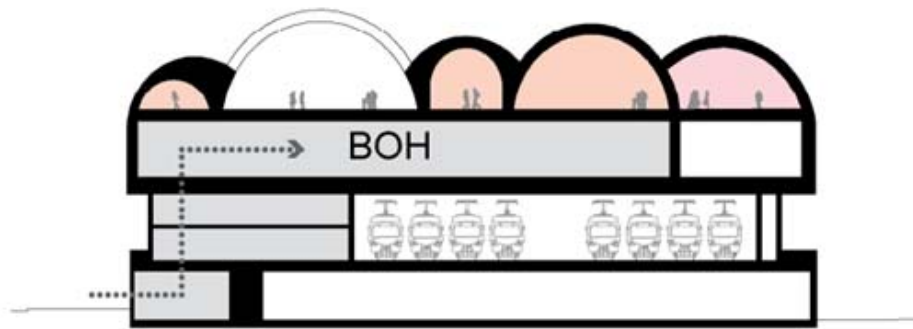
Platform Level Circulation

TRANSPORTATION

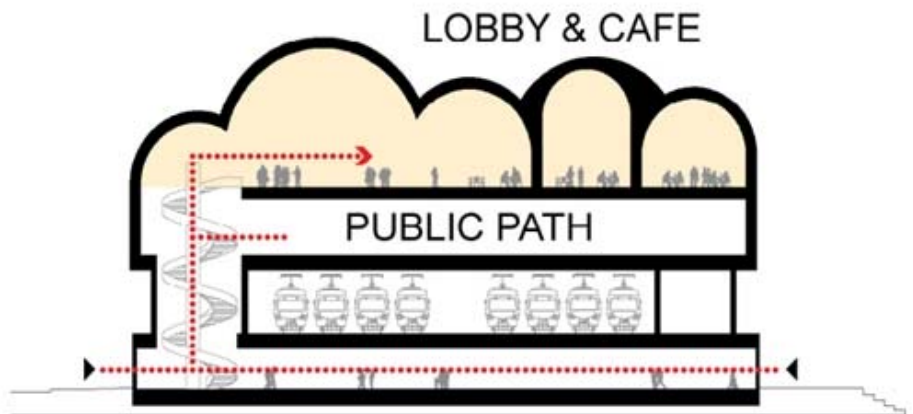




Cross Section A-A'



Cross Section B-B'



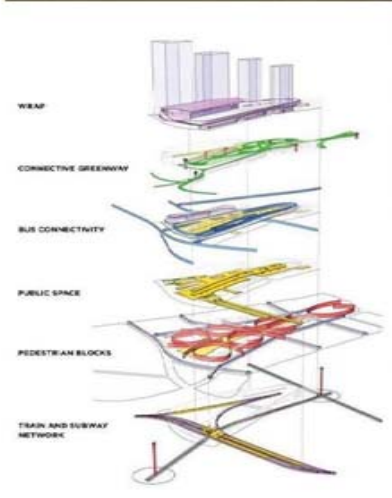
Cross Section C-C'

5.3 _CASE STUDY (Multi-Modal Passenger Terminal By Fxfowle Architects):

Multi-Modal Passenger Terminal By Fxfowle Architects:

Description: FXFOWLE's design for the Georgia Multi-Modal Passenger Terminal (MMPT), completed in 2013, was developed in association with Atlanta-based Cooper Carry Associates. MMPT creates a new regional and metropolitan transportation center, and a master plan for 119 acres of downtown Atlanta. This critical piece of infrastructure integrates service for 10 passenger train platforms, including commuter rail and high-speed rail, and 80 bus bays for local, regional and inter-city buses in a single station.





5.4_ CASE STUDY (11th Street Bridge Park)

Pair of architectural firms from the Netherlands and Philadelphia are the winners of a frenzied competition to design a \$40 million park that would traverse the Anacostia River and could help unite the communities on its banks.

The 11th Street Bridge Park project, an effort backed by the D.C. government and private donors, aims to erect a public gathering space atop piers that held up the old 11th Street Bridge before it was replaced.

More than 40 teams comprising 82 firms expressed interest in designing the project, and the field was narrowed to four finalists. Late last month, a panel of experts selected a proposal from the Office for Metropolitan Architecture (OMA), which has global headquarters in the Netherlands and U.S. offices in New York, along with Philadelphia-based Olin Studio.

The proposal, “Anacostia Crossing,” calls for a central plaza, an enclosed café, an environmental center and other elements that when combined form a sloping ‘X’ shape.

Its designers envision the park as a defining feature for a river typically characterized by the pollution it endures and a yawning gap in economic fortunes between residents on its two banks.

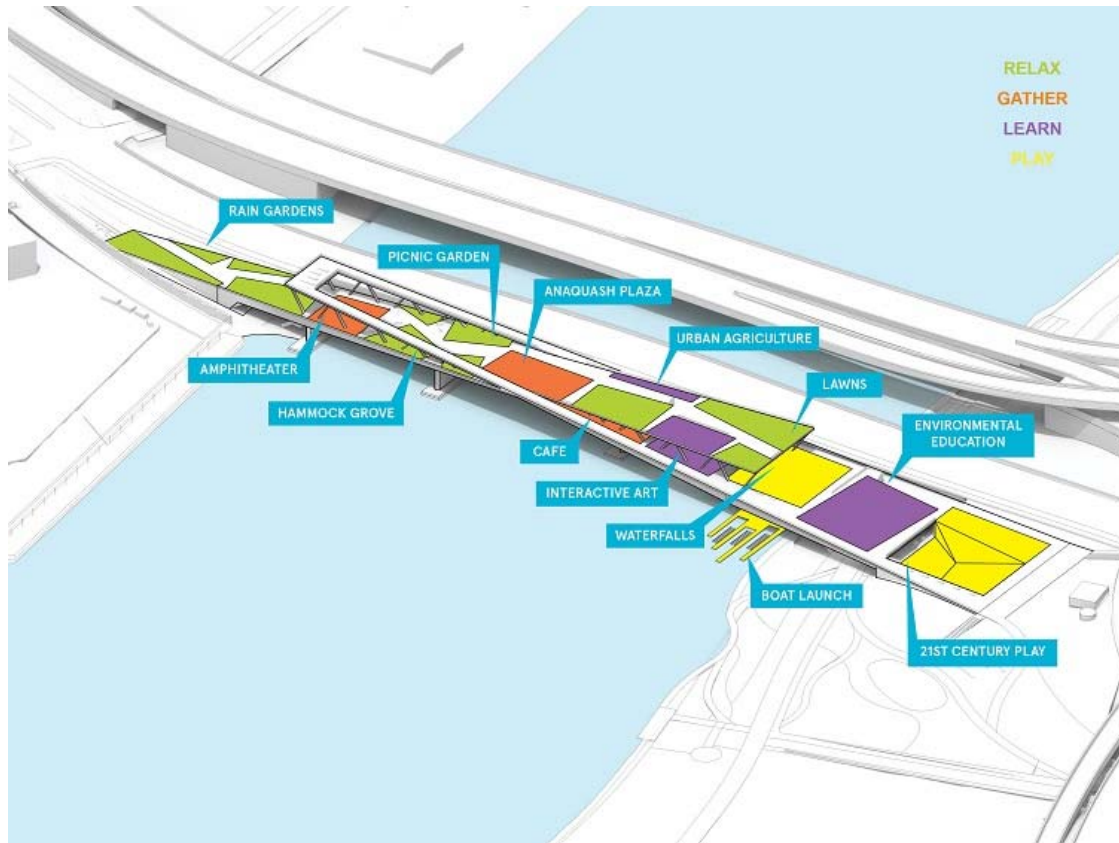
Jason Long, a partner at OMA’s New York offices, said the project — similar to New York’s High Line Park and other major municipal projects — offers the District a chance to take advantage of the abandoned bones of old transportation routes and use them to create parks, walkways and other civic spaces.



The project has four goals: create economic development, improve public health, connect communities on either side of the river and re-engage residents with the river itself.

To meet them the OMA/Olin proposed a bevy of features both along a platform above the water and on the banks on the eastern side of the river, among them boat launches, an amphitheater, an interactive art feature, a grove of hammocks and a series of nets that would allow people to dangle out over the river.

Olin partner Hallie Boyce said the design would encourage interaction between both sides of the river and become a destination for people from around the city. “We knew it had to be both connector and place,” she said.



Some of the elements of the planned park. (Courtesy OMA/Olin)

Scott Kratz, director of the 11th Street Bridge Park, and a committee of volunteers held more than 200 public meetings in order to gather input for the project and solicited online feedback from the public before a jury of professionals made the selection. He said the public and the jury agreed that Anacostia Crossing best met the project's four goals.

In many ways, however, the heavy lifting for Kratz and other backers of the project lies ahead, particularly in fundraising.

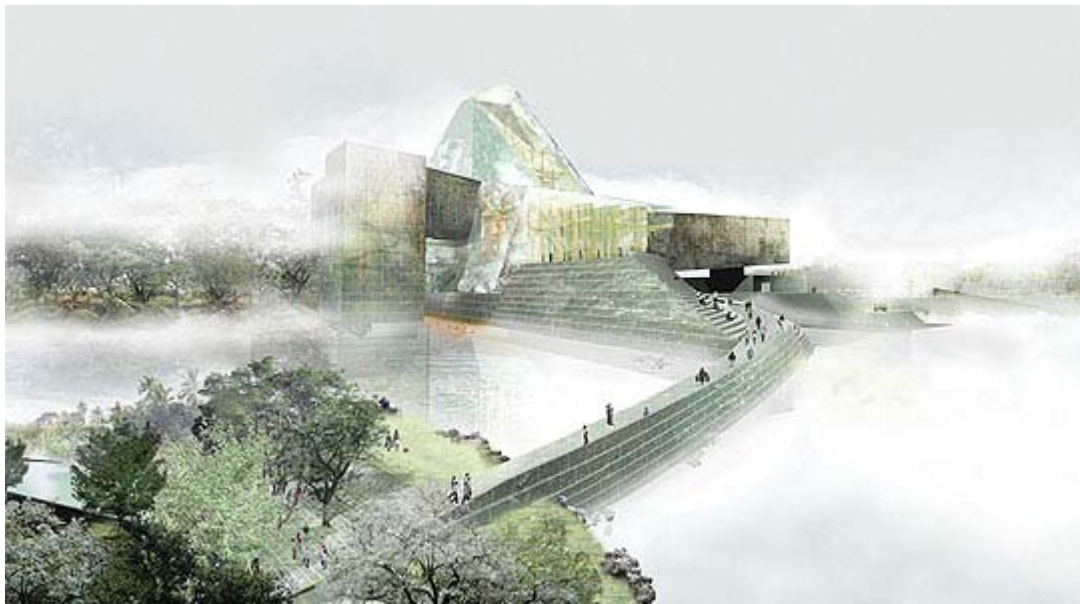
“They researched and understood the ecological context of the Anacostia River, but also the social and economical context of the Anacostia River, all of which they tried to integrate,” she said. She suggested trying to picture an environmental education center where children from

both sides of the river could learn about the river's wildlife by seeing it up close.



5.5_ CASE STUDY (The National Palace Museum Southern Branch by Antoine Predock architects)

Evoking diverse pan-Asian landscapes through the natural biomes, the Museum comes into view base on an ancient stream-washed Taroko marble.



Rising low and long out of watery mists through a slow ascending gallery spiral, an artifact of inscribed, weathered bronze embracing a mythic garden as the glass and cypress Jade Mountain dissolves into the clouds.



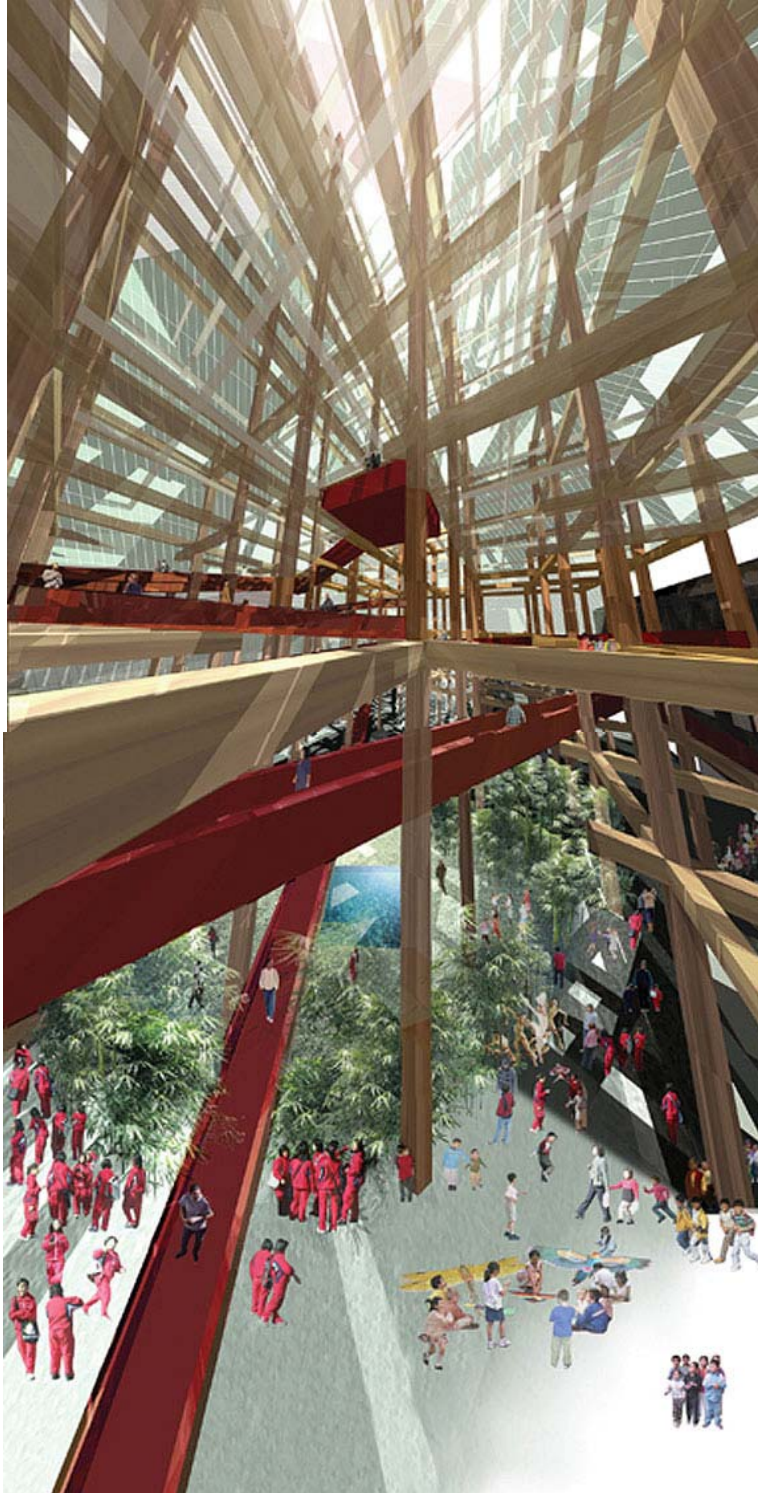
The conceptual armature of the Museum is both literal and abstract, an inhabited mythic Asian space embedded with auspicious content – symbolic of Asian reverence for nature and man’s position between heaven and earth.



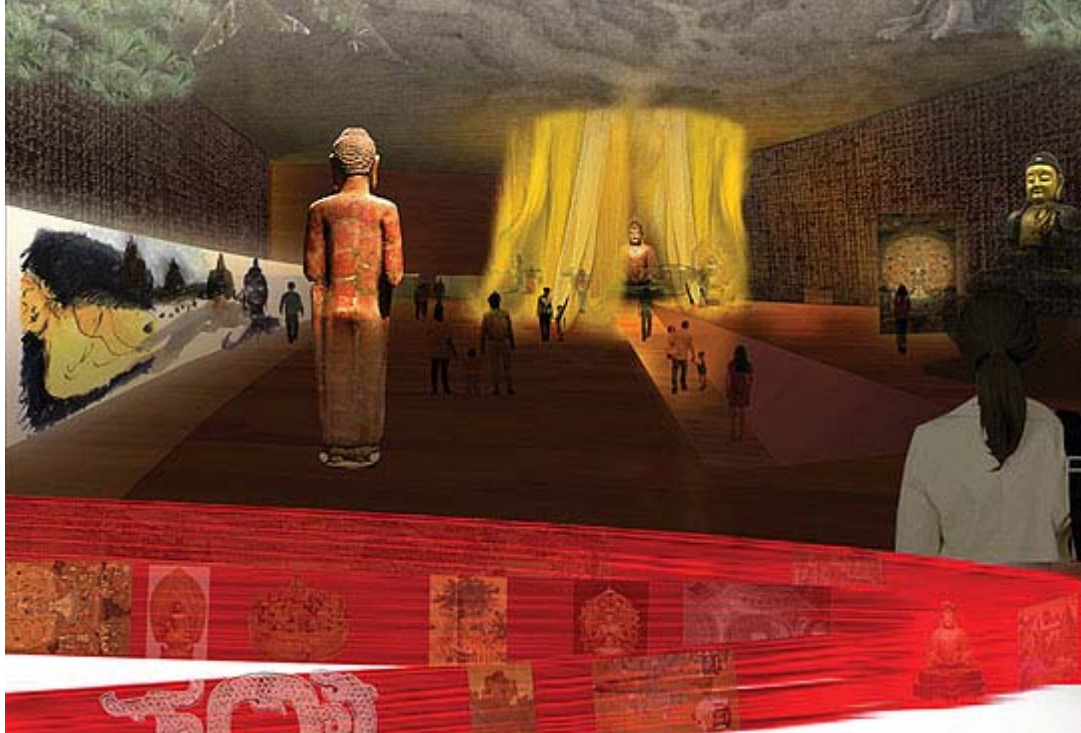
The literal Chinese definition of landscape – Shan Shui – is “mountains” and “water”. Like a calligraphic radical (the visual component set that forms the basis of Chinese characters), the Museum is a landscape, it is mountain and water.



A faceted, jade-tinted glass and cypress structure-Jade Mountain-rises from the Museum courtyard, aiming toward the tallest peak in Taiwan, Yu Shan. In Taiwanese aboriginal cosmology Yu Shan is known as Pattonkan, “Glowing Mountain” or “Quartz Mountain”.



Water flows from our Jade Mountain to the quarry-like Lotus Pond amphitheater. The “Three Friends of Winter”, Bamboo, Plum and Pine extend the courtyard garden landscape with fortuitous symbolism.



The Taroko base recalls Taiwan's geologic origins. Slowly rising, the galleries are sheathed in protective bronze skin, patinated to a color like Han chariot figures.



The Museum exhibit experience is presented as a cinematographic unfolding of space. Similar to a viewer visually traveling through a Song dynasty Shan Shui hand scroll, museum visitors accumulate experience, aided and abetted by digital media.



The viewer experiences spatial episodes, accruing a Pan-Asian perspective that continually branches, ebbs and flows. A wireless digital overlay throughout the site and all galleries, interweaves pan-Asian subtexts culminating in the glowing stone Media Lantern, a digitally painted Mogao cave.

Antoine Predock

Born 1936 in Lebanon, Missouri, as the Principal of Antoine Predock Architect PC which he established in 1967. Predock attended the University of New Mexico and later received his Bachelor of Architecture from Columbia University.



Predock first gained national attention with the La Luz community in Albuquerque, New Mexico. The Nelson Fine Arts Center at Arizona State University was his first nationally won design competition.

His influence extends to international sites with the National Palace Museum Southern Branch in Southern Taiwan and the Canadian Museum for Human Rights in Winnipeg, Manitoba, both are currently in design phases.

5.6_ CASE STUDY (Køge North station by Kengo Kuma)

a team comprising COBE, DISSING+WEITLING and COWI has been chosen to complete a major traffic hub within the Copenhagen area. 'Køge North station' will serve as a major transport interchange where high-speed trains and freeways meet. In its entirety the project consists of a pedestrian bridge, a railway station and an associated park and ride facility. The scheme is set to be finalized by 2018. The winning design, which was selected ahead of an entry by Kengo Kuma, is a 225-meter long structure that stretches across the lanes of traffic, connecting east and west. The south side of the facade is closed, functioning as a solar screen, while the north side is left open, providing panoramic views over the lively urban landscape.



the 225-meter long bridge stretches across the various lanes of traffic, padded with wooden lamellae. The bridge's interior consists of warm and inviting materials, while from the outside the

structure is covered with perforated steel plates, adding depth to the expression of the façade and matching the surrounding infrastructural fabric.

‘we have designed a symbol of the development that the city of køge is currently undergoing – a development characterized by innovation, pioneering spirit and audacity. this development will be reflected and materialized in the bridge and the surrounding park and ride facility that besides being the traffic junction of the region, also will be a distinctive landmark for the area and a symbol of denmark’s strive towards a sustainable future,’ explains dan stubbergaard, founder and creative director at COBE.



padded with wooden lamellae, the bridge’s interior consists of warm and inviting materials

køge north station *is a very unique project, both in terms of architecture and engineering.* the station will be part of many people’s everyday life. in our work we have focused on the flow across the freeway. the difference between the open side in the north and the closed side in the south, gives room for both vista and intimacy, movement and repose, and contributes to the experience, atmosphere and joy of traveling.



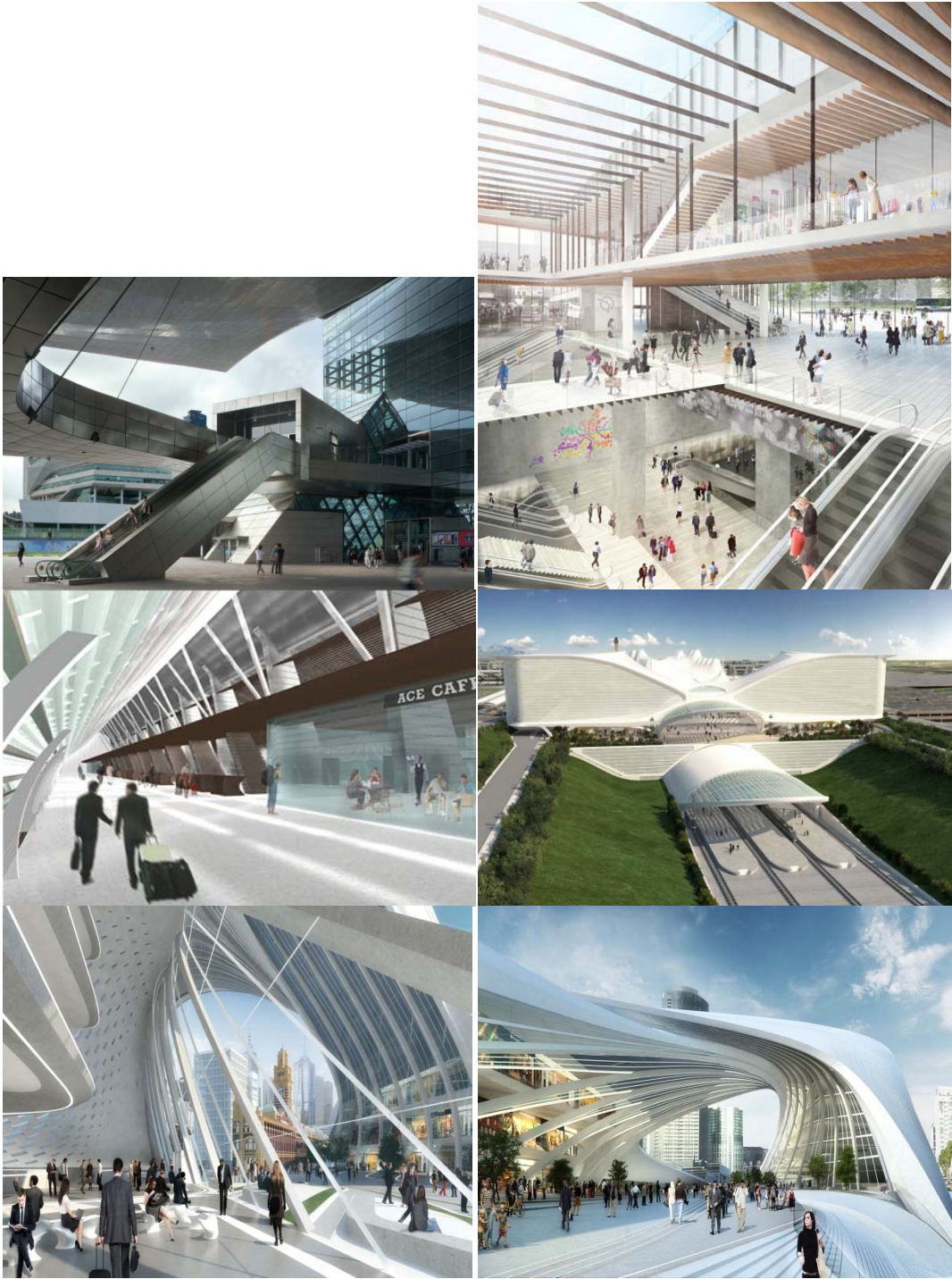
the station will serve as a major transport interchange where high-speed trains and freeways meet

'The pedestrian bridge is an elegant, simple and 225 meter long steel construction with a light superstructure. it spans the freeway with a simple grip and is developed with great consideration to creating the best possible traffic flow for the freeway, local trains and high-speed trains. the bridge is to be constructed over a relatively short time period during the winter of 2016/2017. therefore we have chosen a construction of prefabricated steel units that can be transported directly to the construction site.'

drawings

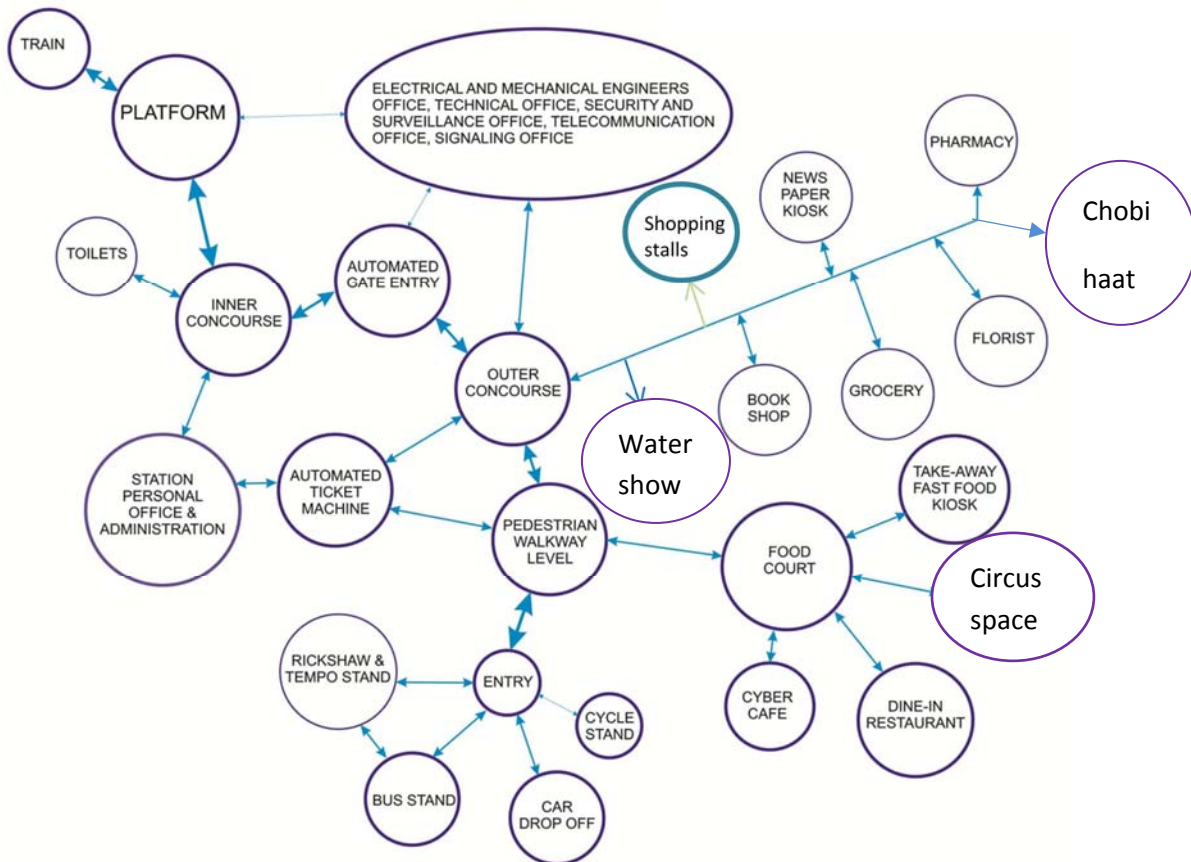


OTHERS



CHAPTER -06 _ Developed program

6.1 Flow chart



6.2 Program

- Administration and office
- Ticket counters
- Shopping stalls
- Restaurant
- Circus space
- Food court
- Station staff accommodation

- Cyber café
- Concourse
- Departmental store
- Florist
- Vendor space
- Chobir haat
- Sculpture garden
- Water show
- Pharmacy
- Ferris wheel ride
- News paper shop

6.3 _PROGRAM WITH RAIONAL AREA:

Program	Area in SFT
• Administration and office	13472
• Ticket counters	500 per counter
• Shopping stalls	3,000
• Restaurant	62,000 indoor + outdoor
• Circus space	8,000
• Food court	1,000
• Station staff accommodation	1,000
• Cyber café	5,000
• Concourse	12,565,899
• Departmental store	3,000
• Florist	8,000

Program	Area in SFT
• Vendor space	2,000
• Chobir haat	1,000
• Sculpture garden	800
• Water show	1,500
• Pharmacy	600
• Ferris wheel ride	800
• News paper shop	200

CHAPTER -07_ CONCEPTUAL STAGE AND DESIGN DEVELOPMENT

7.1_ DESIGN PHASE 01

During the design development many issues came up. In the beginning the site itself is a very prominent place with very important view of the famous cultural buildings around. As MRT station is proposed to be built above the road elevated so many sensitive views were being hindered due to that.

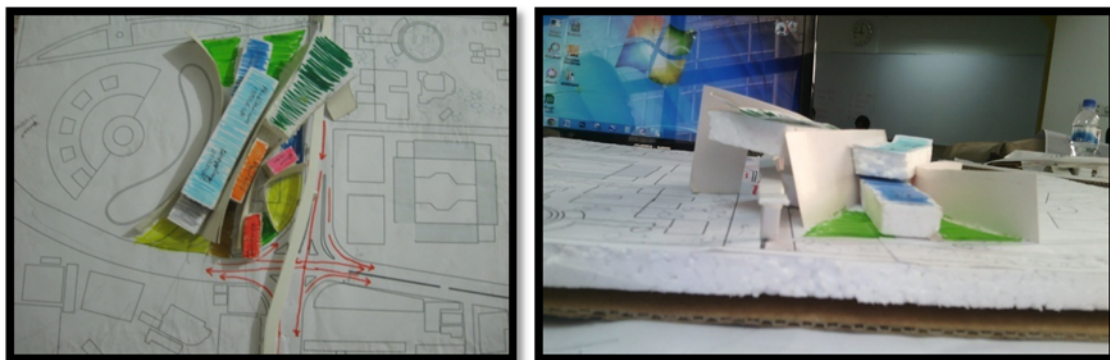
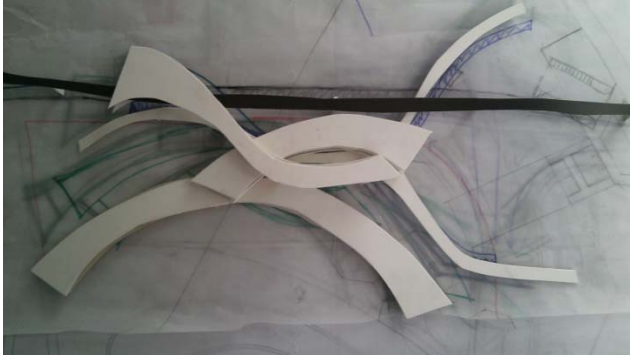


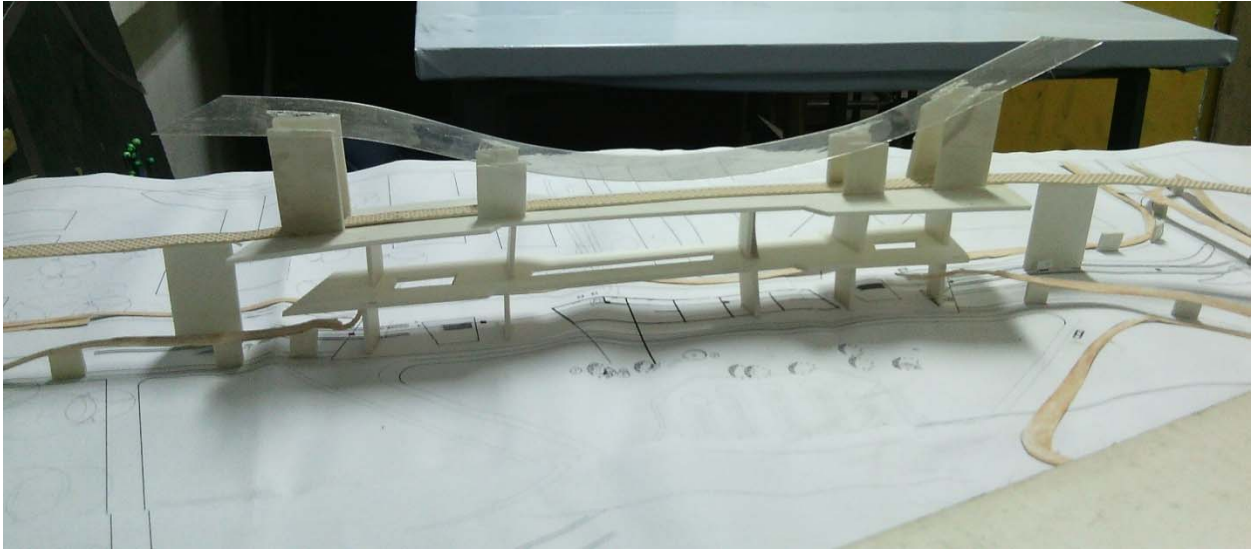
Figure 11– schematic model

7.2_ DESIGN PHASE 02

The purpose of the design was to look less massive and interesting as well as to blend with the surrounding features.

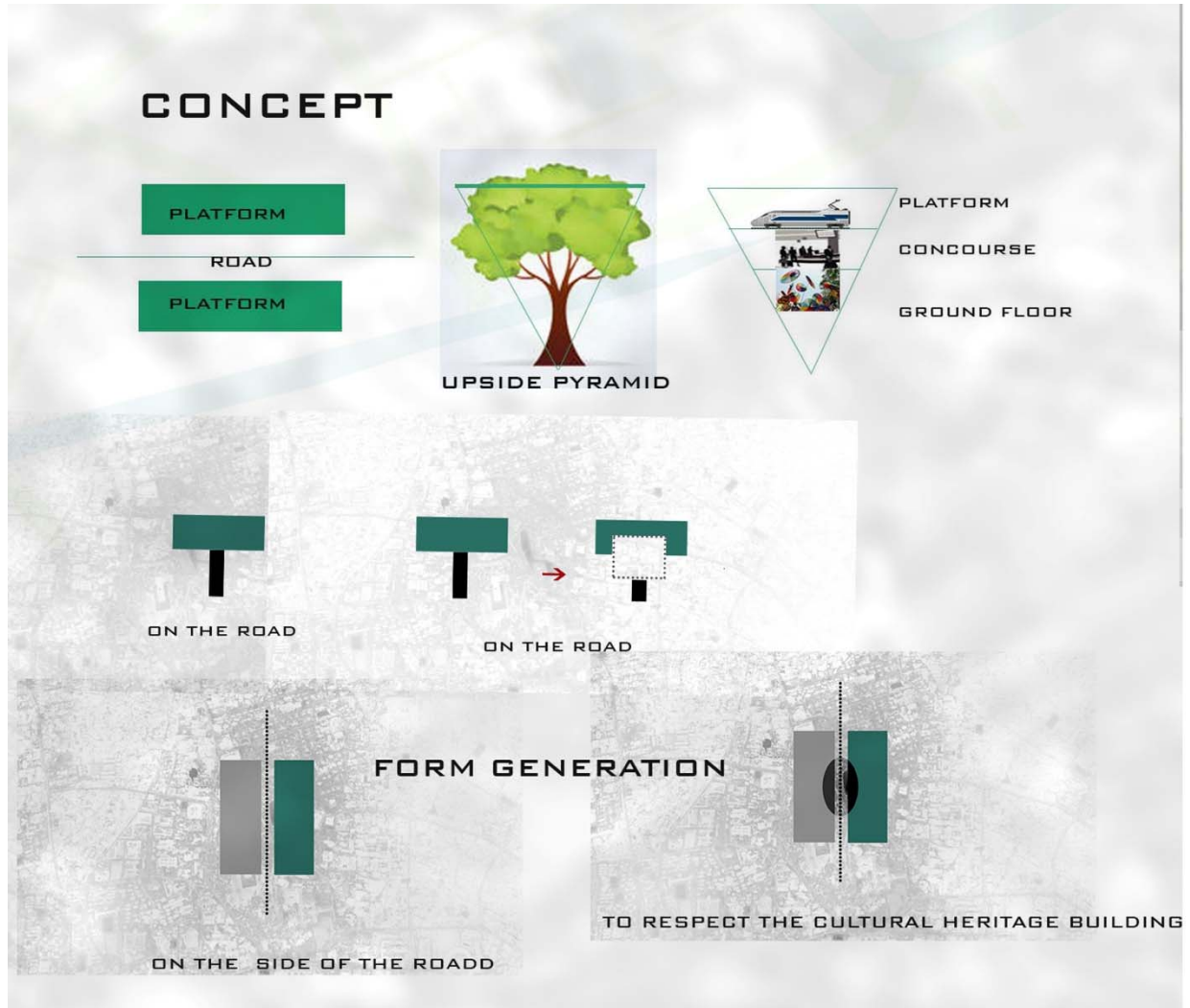


7.3_ DESIGN PHASE 03

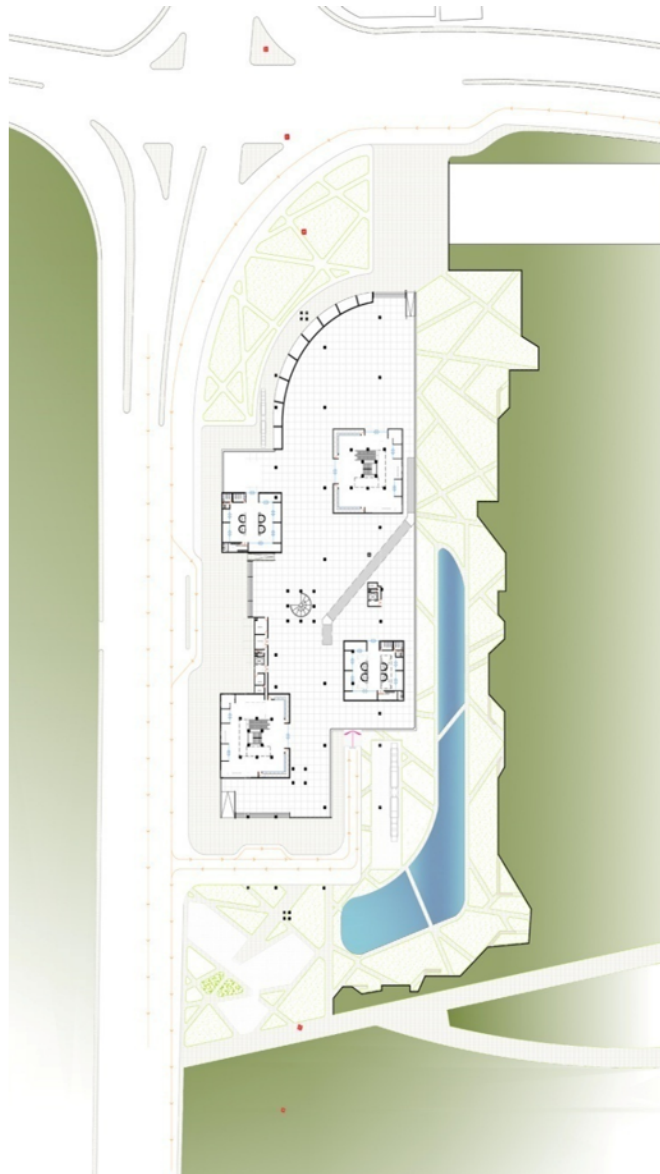


Now the purpose for the design the idea was to curve the rail track according to the MRT standard because the idea of looking the station less weight could not been achieved as long as the station was above the road. Hence the station has to go in the site for betterment.

7.4_ DESIGN PHASE 04 (THE CONCEPT DEVELOPMENT)

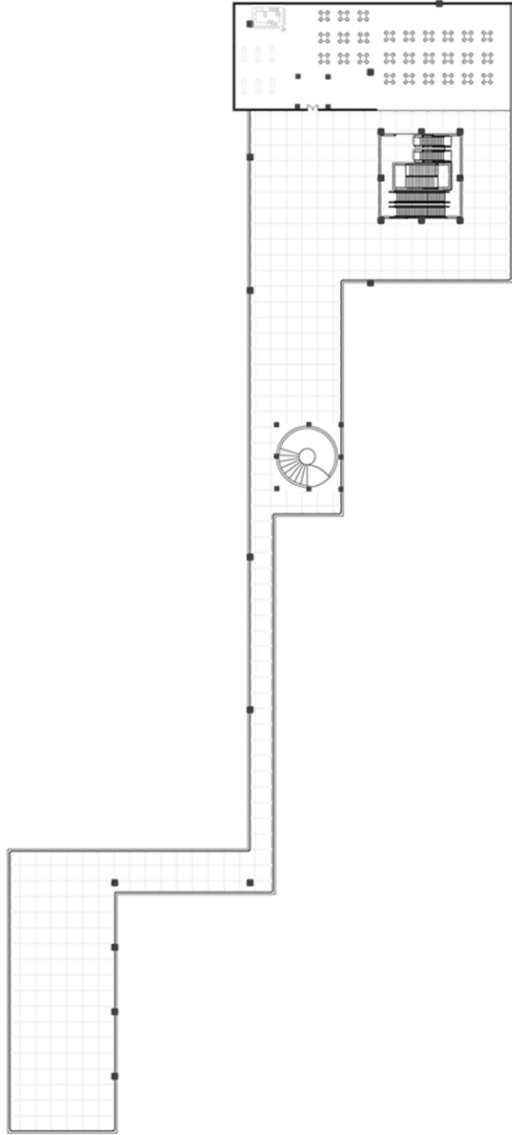


7.5_ DESIGN PHASE 04 (THE FINAL STAGE)

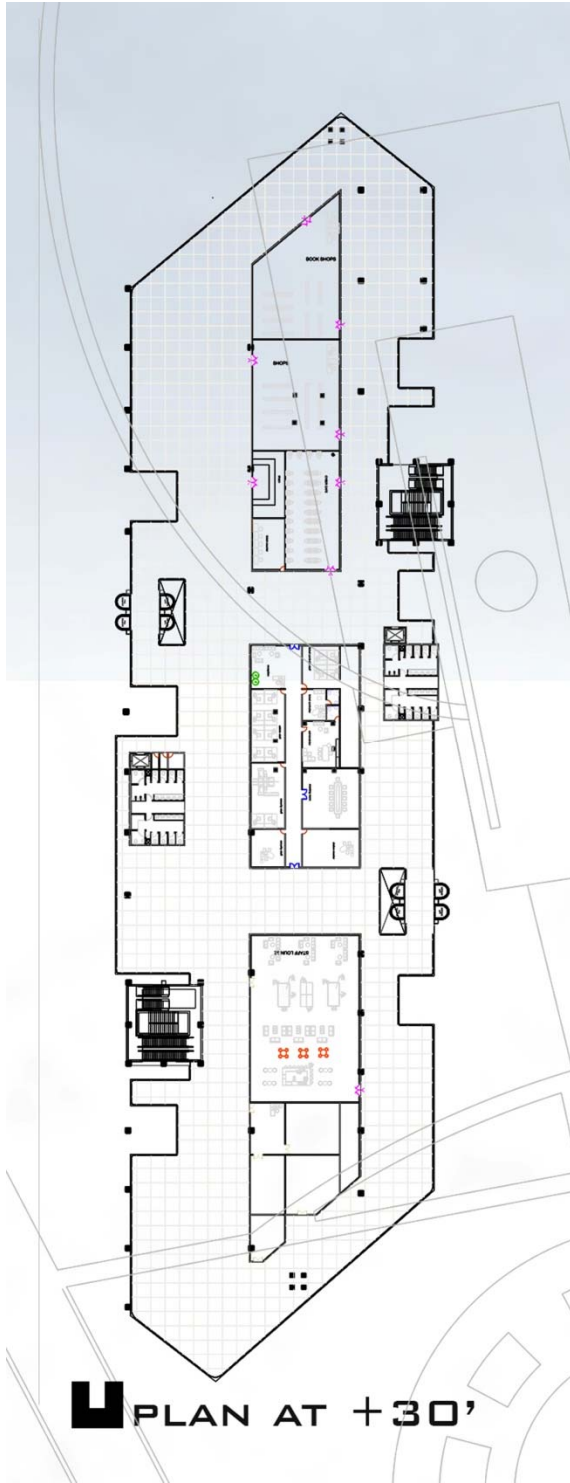


U GROUND FLOOR PLAN

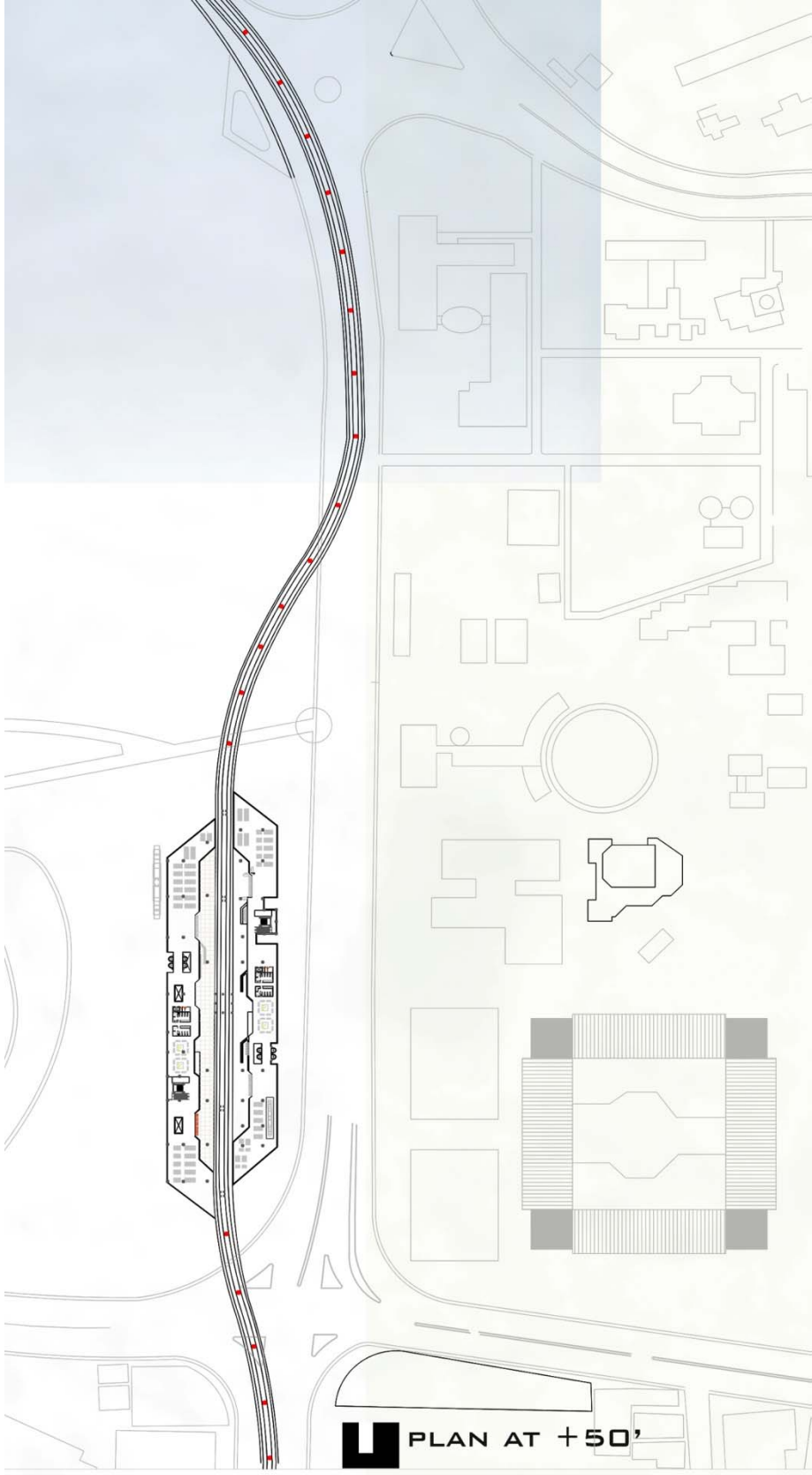
The ground floor has the street facility for the public. Vendors can have space in the ground floor for their purpose too.



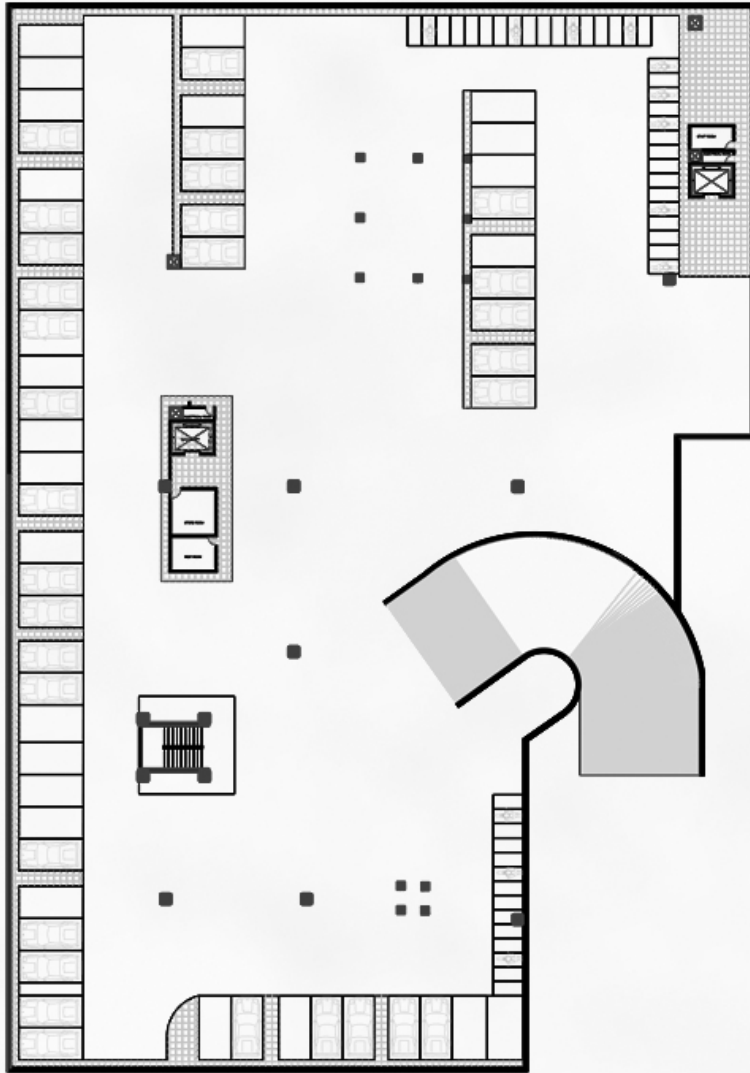
PLAN AT +20'



This is the concourse level where all the MRT office function resides together with the public ticket counter and waiting zone, lounge and cyber café etc.



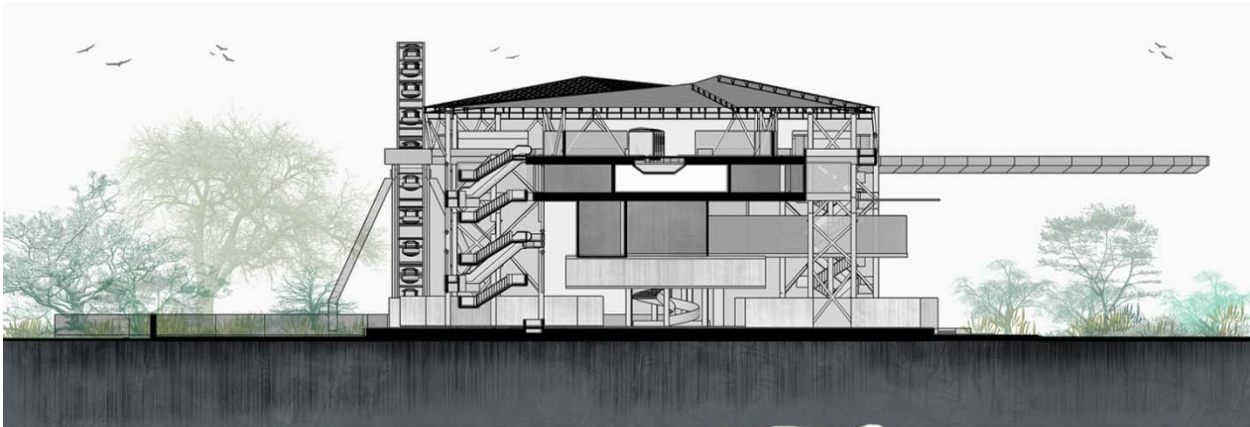
The platform level is the place where passenger will gather and wait for the train. They will depart from the train in this place too.



BASEMENT PLAN



7.6_ SECTIONS (THE FINAL STAGE)

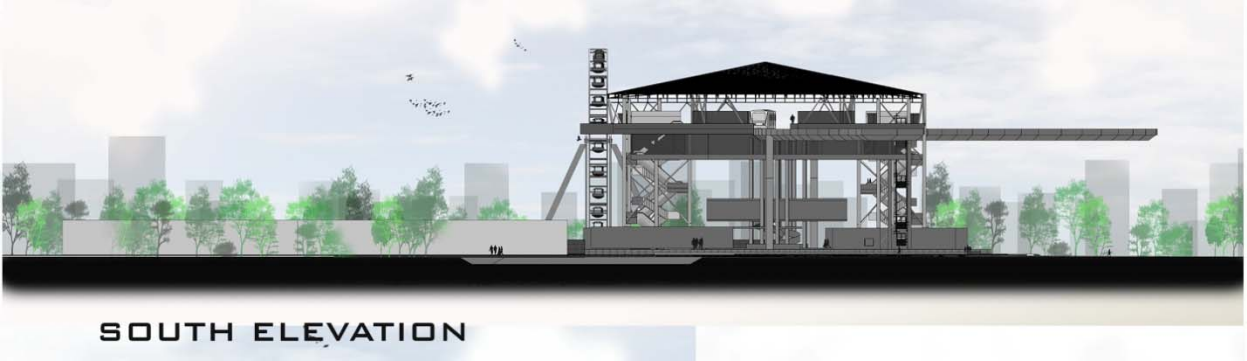
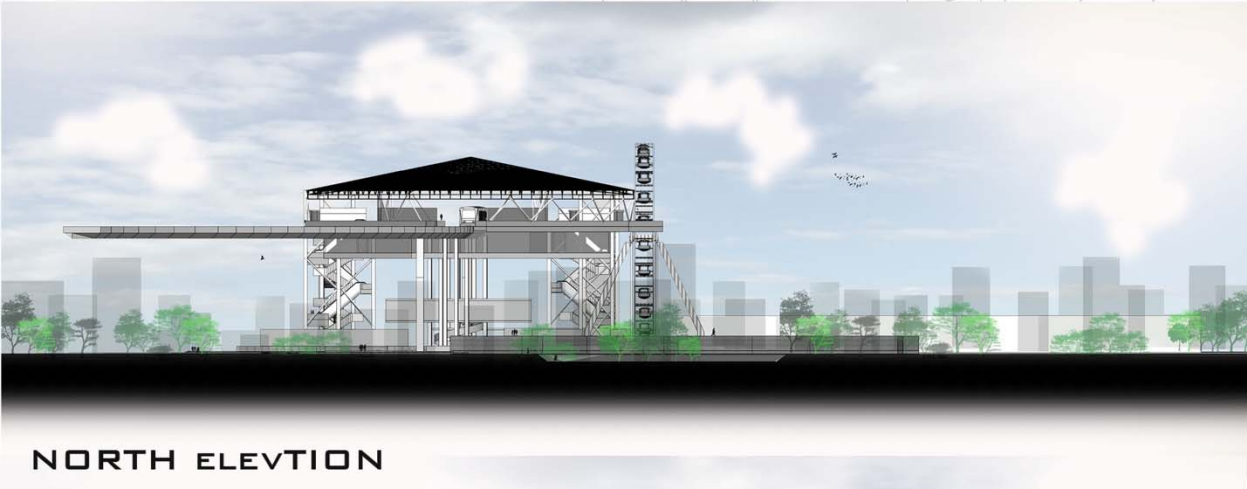


SECTION AA'



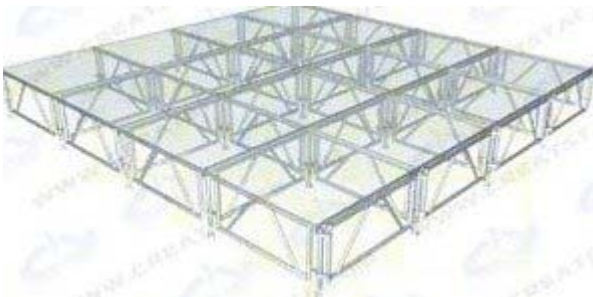
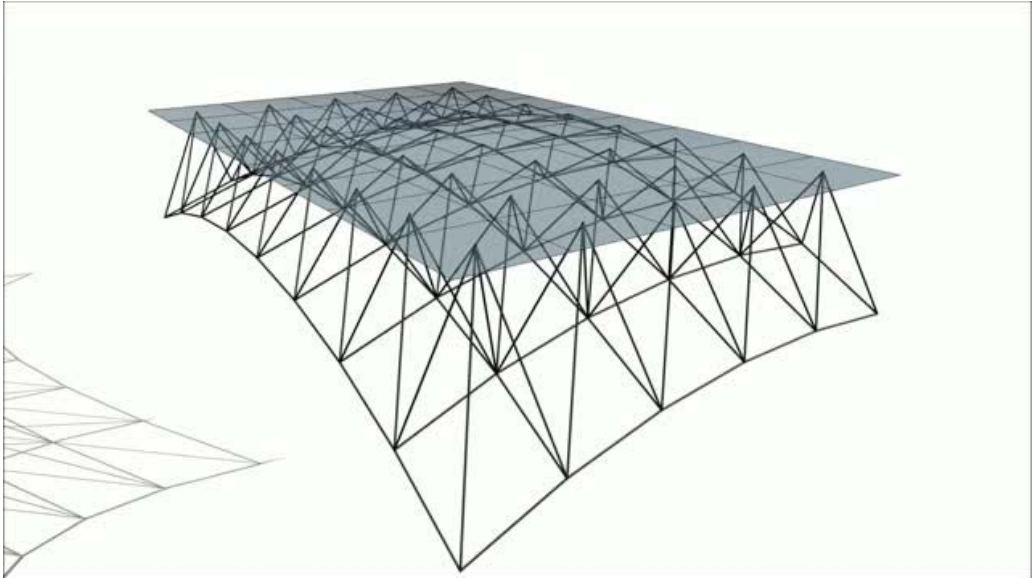
SECTION BB'

7.7_ ELEVATION (THE FINAL STAGE)

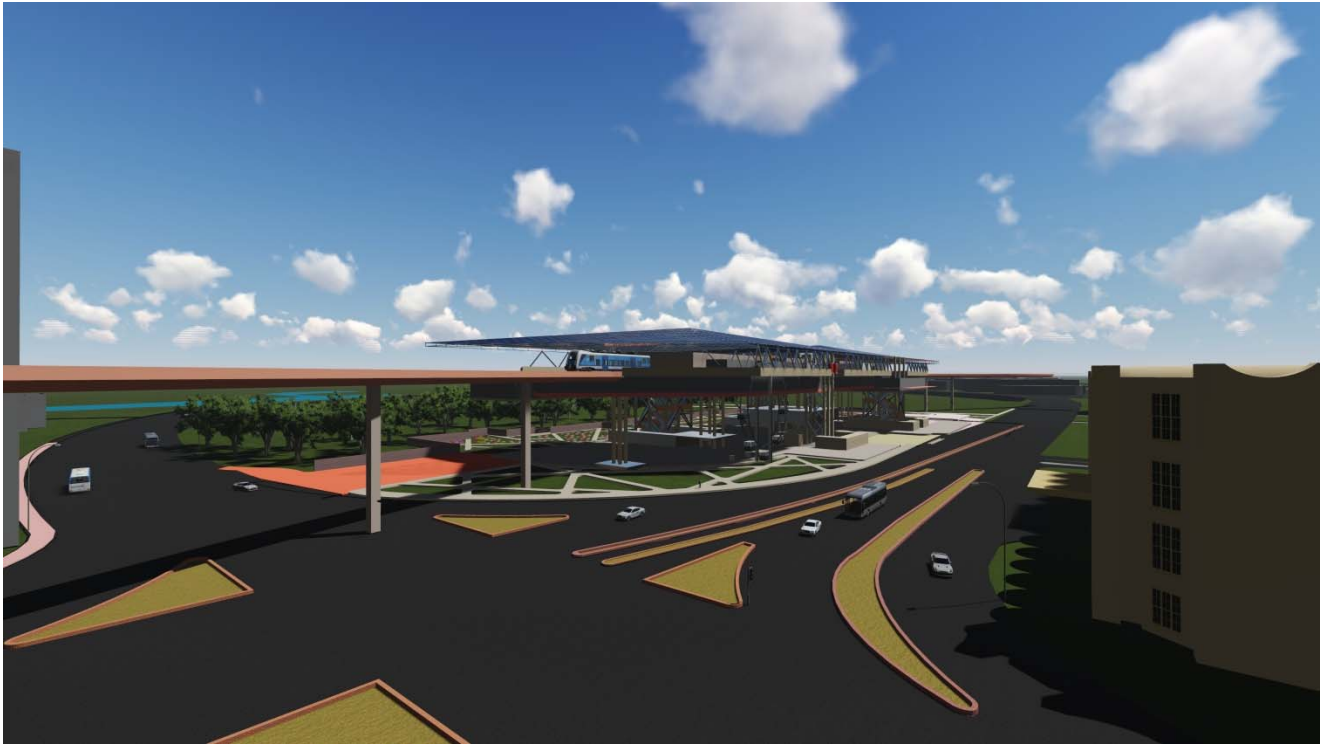
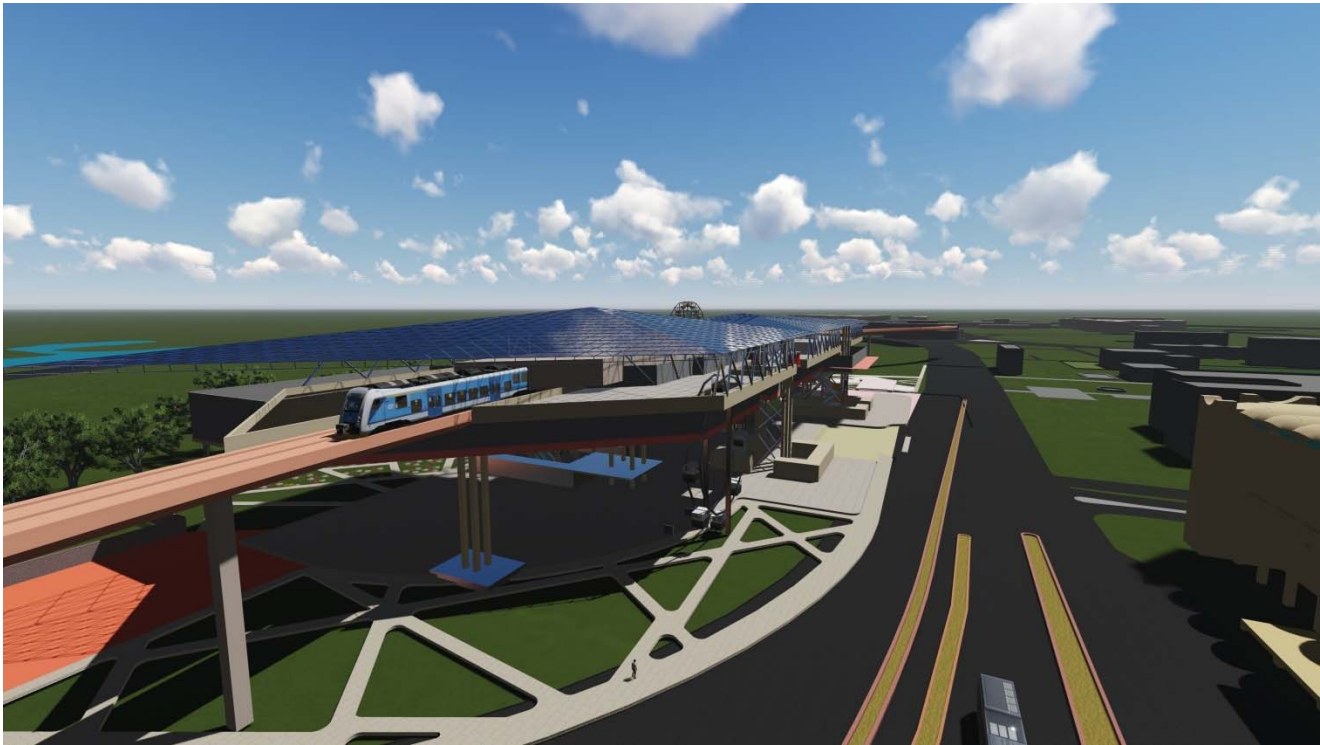


7.7_ STRUCTURE DETAIL

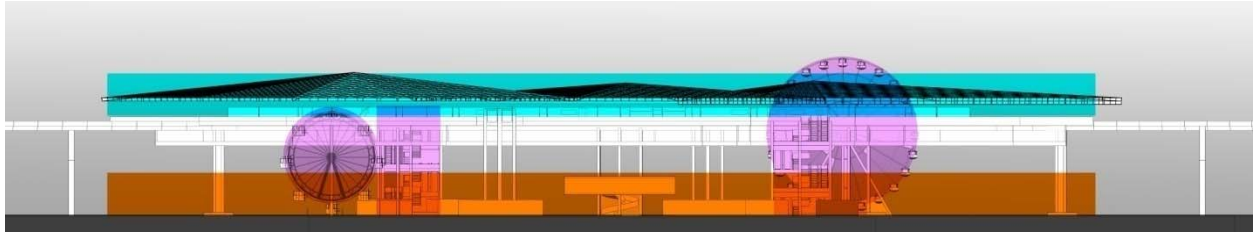
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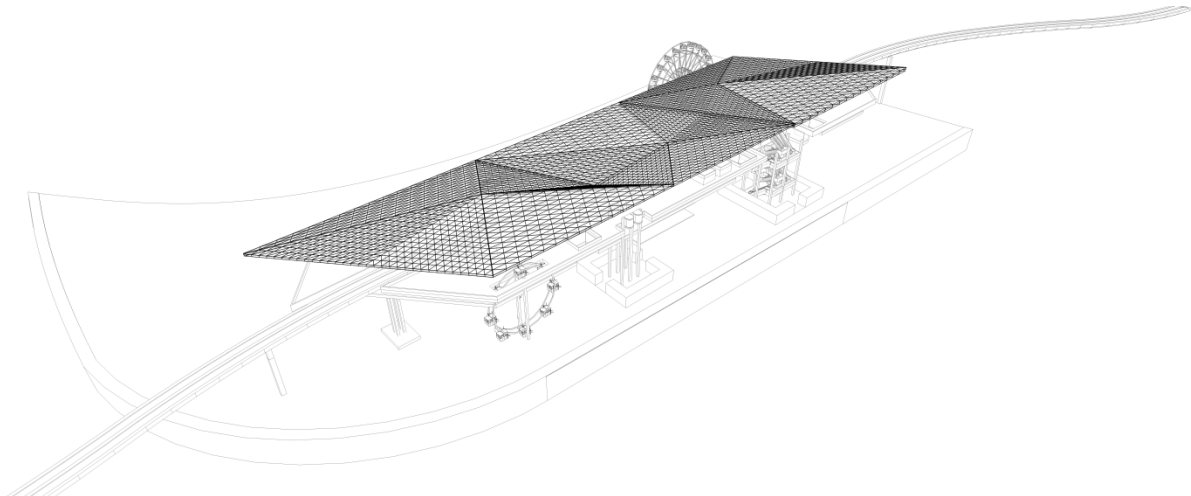
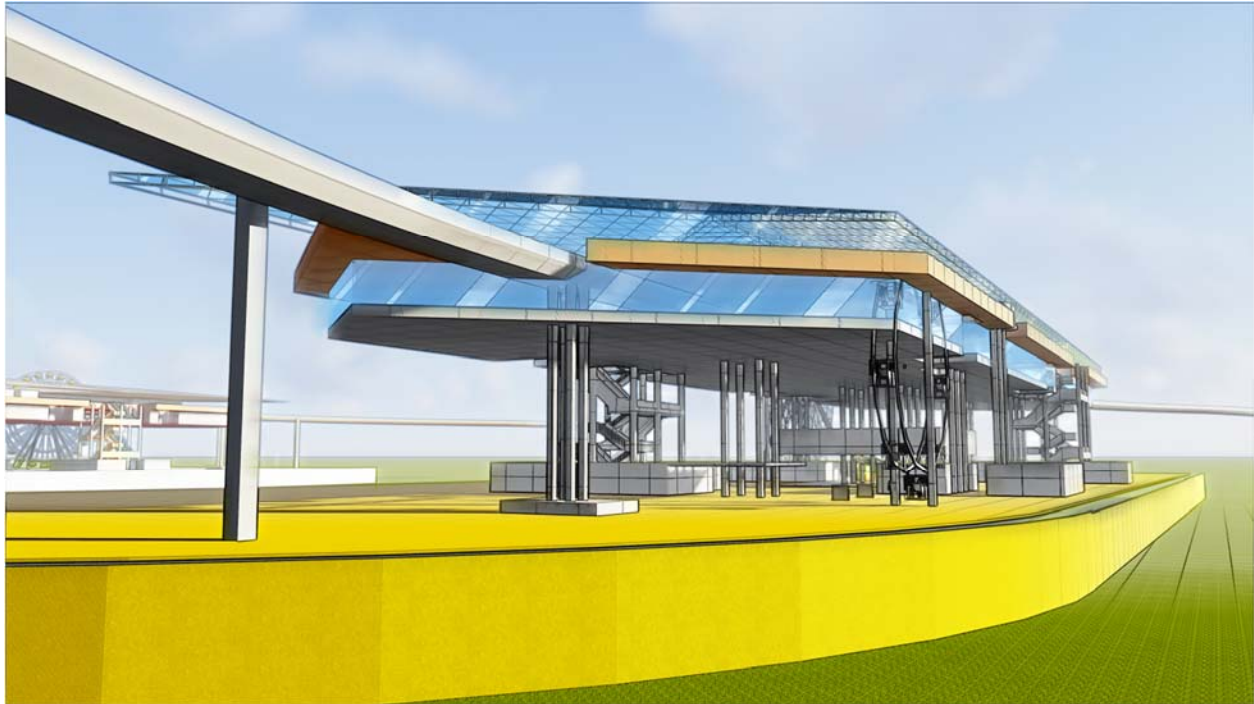
7.8_ PERSPECTIVE

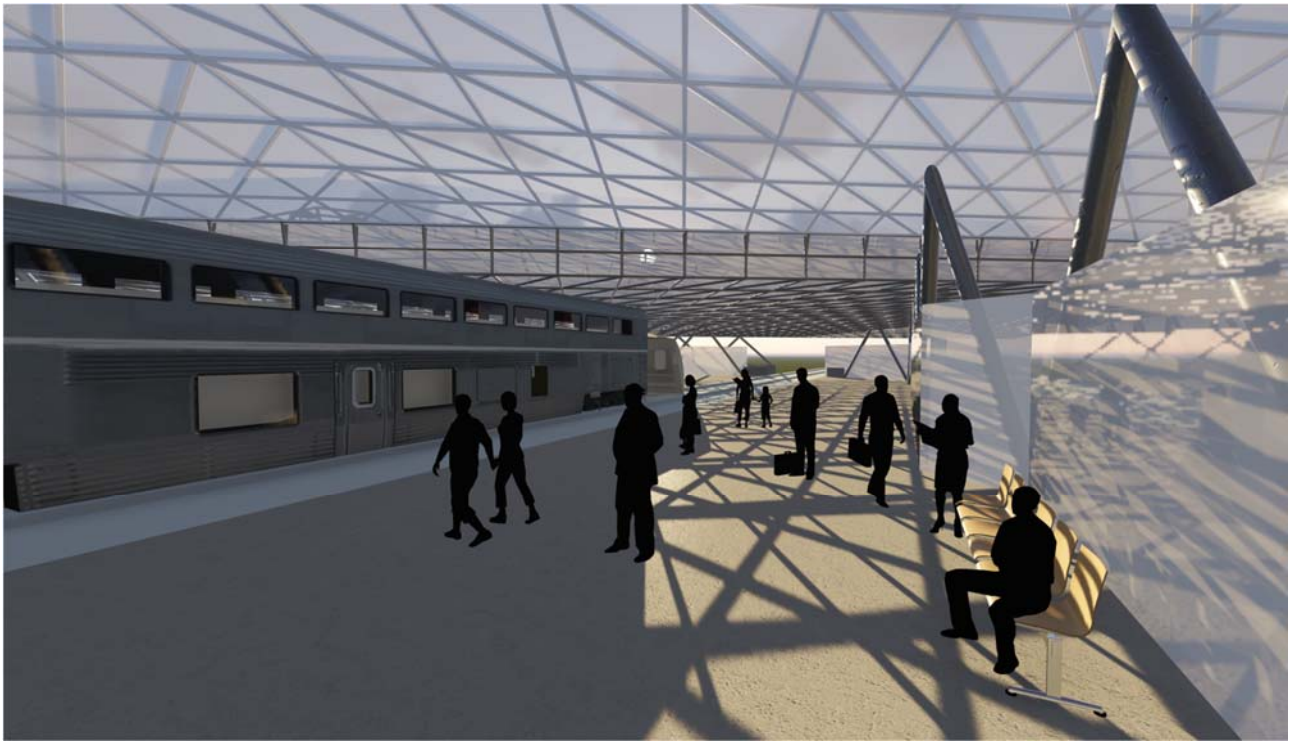
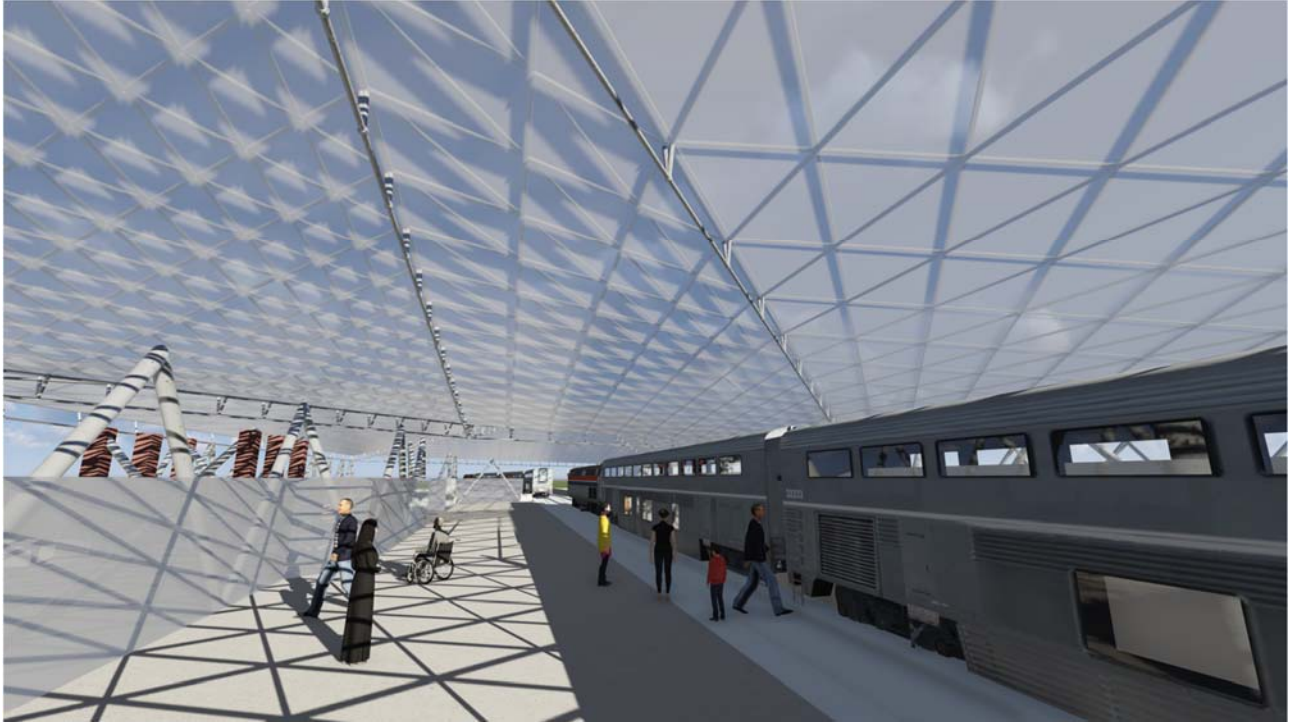




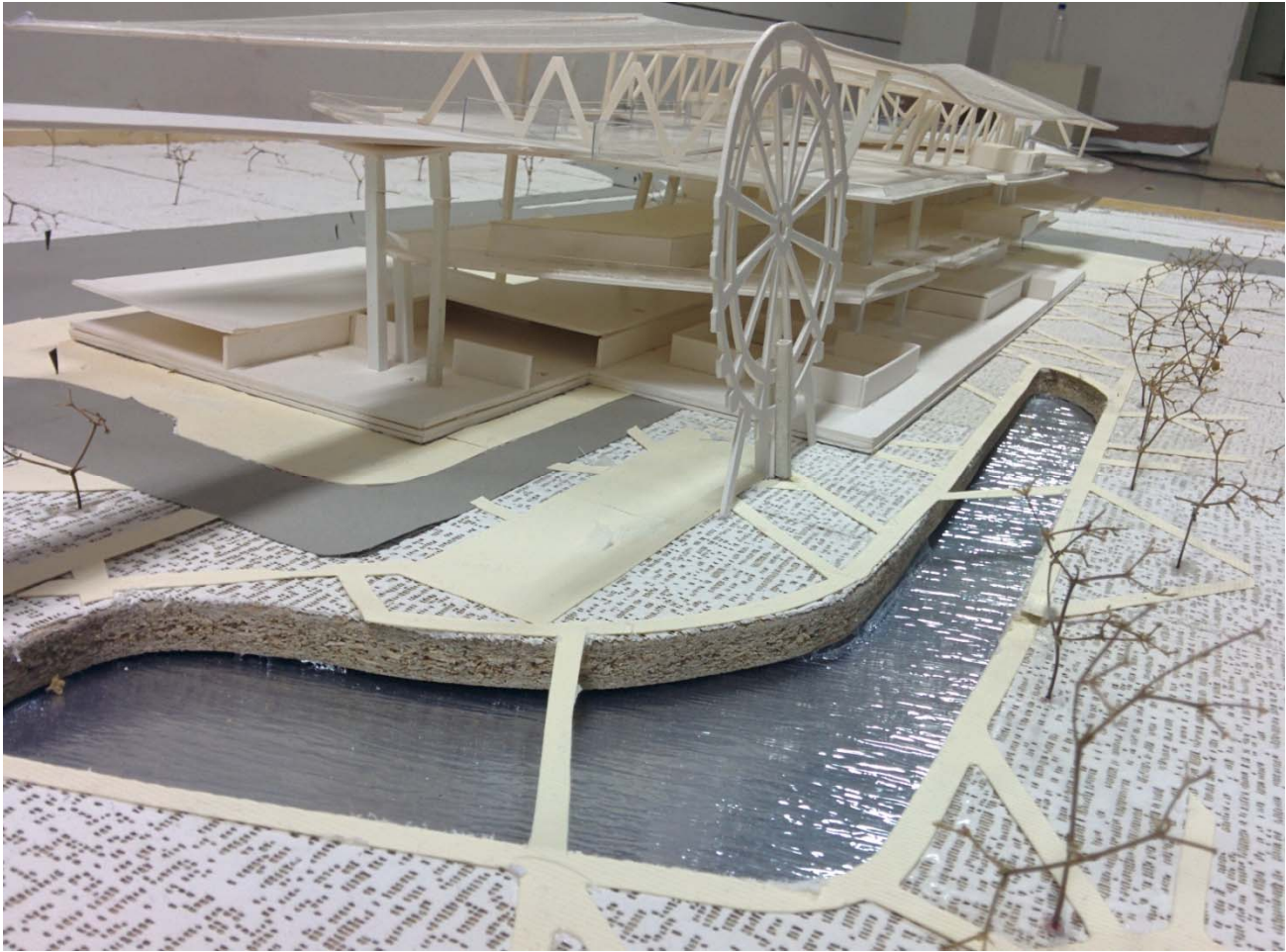


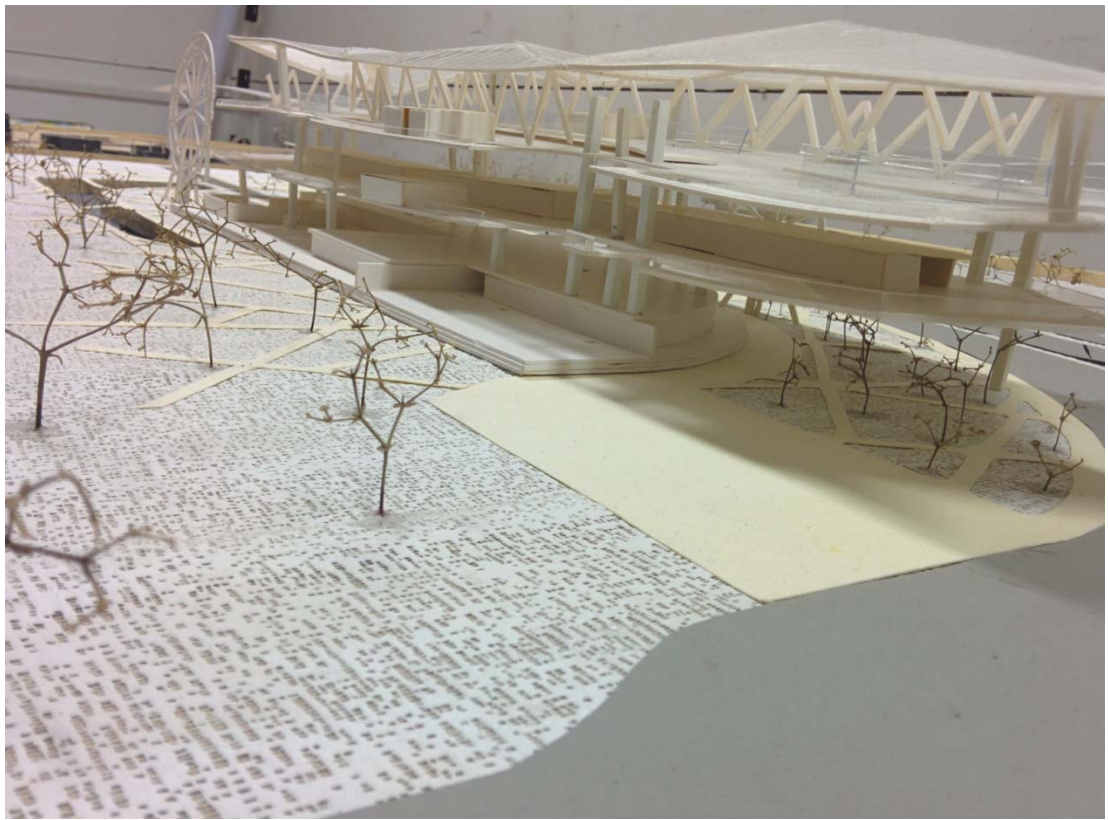
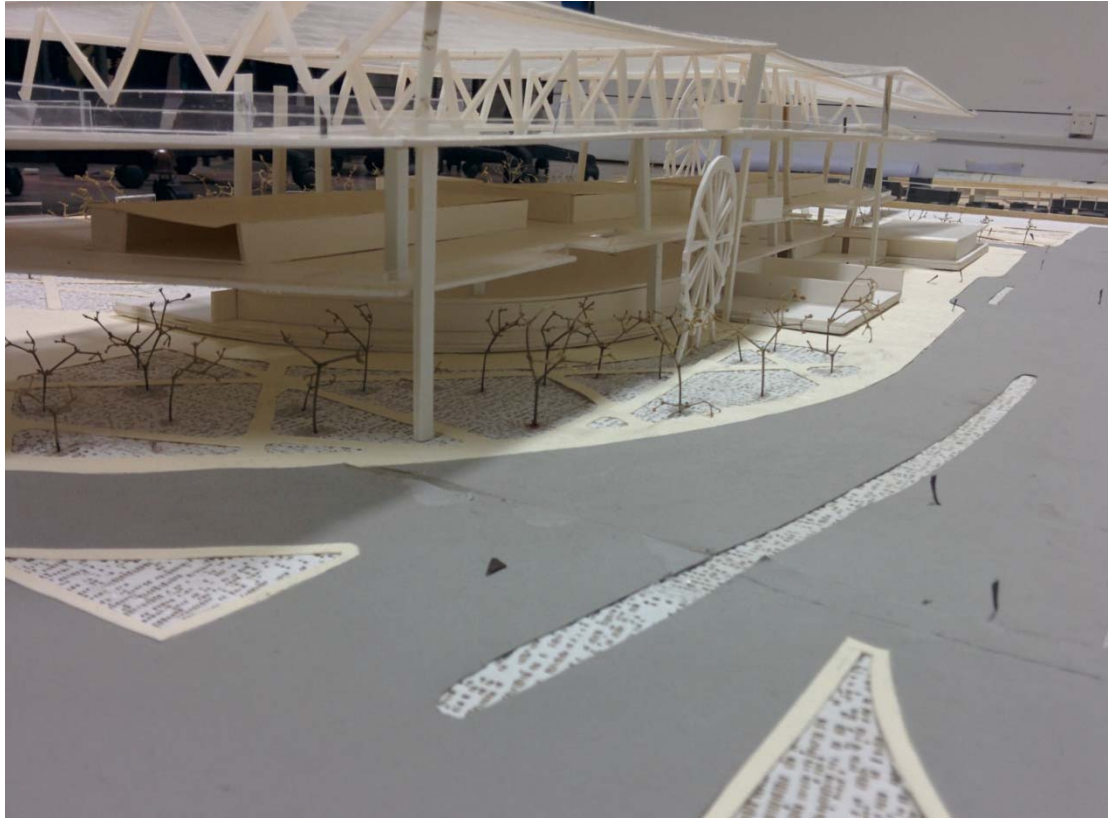
VARIOUS CIRCULATIONS





7.9_ Model





CONCLUSION

The stated above chapters include the process & journey of completion of the design of a MRT station and a cultural HUB. A station can have a huge impact on Bangladesh traffic & the rest of the urban fabric regarding the motion. The whole effort to complete the project & the learning acquired through the journey, is dedicated to the road network and how can we solve the traffic congestion problem with an effective design that would give us hopes and the fuel to dream for a better future.

ACKNOWLEDGEMENT

Special Thanks goes to:

Almighty ALLAH

My parents

All my teachers

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Joynal Abedin

Sumaiya Arzoo

Nazila

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