

CHAPTER 6 PROGRAMME

activating the space for the city

6.1 TRANSIT HUB AND MARKET

TRANSIT HUB (24 975m ²)		
FUNCTION	REQUIREMENTS	M ²
MAIN STATION	Max capacity 40 000 commuters	5550m²
<i>Circulation space</i>	50 staff including services building	600m ²
<i>Ticket offices x3</i>	Glass separated purchasing office	100m ²
<i>Ablutions</i>	60 WC, 30 urinals, 60HWB	330m ²
<i>Food court</i>	60 Seater Movable chairs and tables	420m ²
<i>Waiting area</i>	Mechanically Assisted Ventilation	300m ²
<i>Courtyard including AMD storage tank and folly 1</i>	Security monitoring system	300m ²
<i>Train platforms</i>		2000m ²
<i>Bus platforms</i>	Steel waiting chairs	500m ²
<i>Taxi platforms</i>	Steel waiting chairs	900m ²
<i>Bicycle hire and showers</i>	Steel waiting chairs	100m ²
	10 showers, 3 basins, 10 lockers and wooden furniture	
TOTAL DEDICATED TRANSIT SPACE INCLUDING PLATFORMS:	Security monitoring system	8500m²
<i>Taxi Rank</i>	Open-air facility	2000m ²
<i>Bus Station</i>	Open-air facility	1500m ²
<i>Pedestrian Bridge</i>	Open-air facility	4800m ²
		1000m ²
SERVICE BUILDING	Equipment list to be compiled by rail specialist	725m²
<i>Signal control manager room</i>		150m ²
<i>Relay room</i>		150m ²
<i>Cable terminal room</i>		25m ²
<i>Control room</i>		100m ²
<i>Battery room</i>		25m ²
<i>Electrical power room</i>		62.5m ²
<i>Emergency power systems room</i>		62.5m ²
<i>Transmissions room</i>		50m ²
<i>Staff room</i>		50m ²
<i>Storage</i>		50m ²
OFFICES	Security monitoring system	300m²
<i>Site management offices</i>	15 Staff. Toilets included with 2WC, 2WHB	150m ²
<i>Transit Station offices</i>	Mechanically Assisted Ventilation	150m ²
START-UP BUSINES SPACES	Security monitoring system	500m²
BASEMENT PARKING	Security monitoring system	9000m²
MARKETS	Security monitoring system	3500m²

Using Booyens station as a point of departure It must be upgraded to a multi-nodal transport junction, to create a strong transport node and socially just space. This Junction aims to combine both the Metrorail and Gautrain platforms to encourage an equitable public space, with the addition of a BRT system and taxi rank. The



MAIN STAKEHOLDERS
City of Johannesburg
Department of Transport
Commuters
Gautrain
PRASA
Rae Vaya



BRT system works straight off of the road for efficiency while the taxi rank is inset off the road to interact with a market.

The main issue with Booyens station was its mono-functional nature, as a train station with no linkages to other modes of transport and as a result it has a peak capacity of 10 000 people however the new station will operate on a peak capacity of 40 000 people per day to account for Turffonteins planned growth from 81778 people to 160 000 people with the Corridor of freedom development, initially working off of the needs of Turffontein and the resulting developments while allowing for growth of not only the mining belt but also Johannesburg South. This transport hub will also link into the precincts larger walking paths and bicycle routes, offering bicycles to rent. This socio-economic activity's intention is to ACTIVATE the area effectively and provide foot traffic.

Any informal economy finds it's roots in area with high foot traffic, this makes a transit hub the perfect space to cultivate this important economic activity in the form of an informal market space. The market will feed off the taxi rank within the transit hub and provide opportunities for informal trade managed through an NGO such as exemplified in Warwick Junction, Durban which has a balanced bottom up-top down approach, the NGO being the mediator between government and traders. This empowers places such as the informal settlement across the railway tracks. The market will sell groceries, made goods, food, cosmetic items, recreational goods such as music, art and fresh produce.

The Transit Station will be the first point of entry or ACTIVATION on the site and as a result will be the start of the Junction's journey through the site.

6.2 HERITAGE LANDSCAPE

The heritage landscape is an initiative driven by heritage conservation principles such as those outlined in the Burra Charter. In order to conserve the important heritage value of the mining belt this landscape works as a series of intervention throughout the precinct. The issue of lost heritage, including narratives, time-lines, processes and ecological influences of the mining belt are to be exhibited in different ways through the use of functional follies. The Follies will become an architectonic expression of the Heritage journey. Each folly will have a theme dealing with heritage, some more integrated into the buildings than others. The follies are initiative inspired by both the cultural precedent as well as the spatial precedent of Bernard Tschumi's Parc de la Villette which is explored in the Design development chapter.

The first folly, located within the main Station will be a chronological time-line of the mining belt. Works like David Goldblatt's photos "on the mines" will be displayed here.

The second folly is located at the exit of the station. This Folly will display the two opposing narratives of the site, that being poor migrant workers and the rich Randlords. This folly will display a theme of tension and contrast feeding off of the work of Nadine Gordimer's essay, "mines of the beloved country: through the mind of a photographer and essayist" This folly will also house a smog sucking machine that cleans the air and turns the resultant smog into a compacted cube that can be used for jewelery and sold at the market

This is followed by the 3rd folly which is located at the dam edge within the water. This folly reticulated the water that has run through the artificial wetland created as a landscape intervention. This folly displays the technical mining process and has a clear connection to the ground, sky and water. A metaphysical space that encapsulates the SPIRIT OF PLACE within the nature of the site



MAIN STAKEHOLDERS
SAHRA
Department of Tourism
The city of Johannesburg and transit hub users
Educational programmes and schools



MAIN STAKEHOLDERS
Department of Tourism
The city of Johannesburg and transit hub users
Art enthusiasts and general public

HERITAGE LANDSCAPE		
FUNCTION	REQUIREMENTS	M ²
MINING TIMELINE FOLLY	Exhibition mounted to concrete AMD water Storage tank in Transit Hub Courtyard	150m ²
NARRATIVES FOLLY	Exhibition mounted to steel frame along Market Space	350m ²
TECHNICAL FOLLY	Concrete Exhibition space submerged in Dam water	450m ²
ECOLOGICAL FOLLY	In AMD Research and Treatment Facility Courtyard	350m ²
EXHIBITION FOLLY	Exhibition Space Shares the Same space as the Exhibition Landscape and forms the last folly	1000m ²

EXHIBITION LANDSCAPE (2750m ²)		
FUNCTION	REQUIREMENTS	M ²
GALLERY	Security monitoring system Max 100 Occupants	500m ²
RESTAURANT	Security monitoring system	750m ²
Kitchen		150m ²
Restaurant Floor		500m ²
Toilets		100m ²
PUBLIC SQUARE	Max 200 Occupants	1500m ²

SKILLS WORKSHOP (1490m²)

FUNCTION	REQUIREMENTS	M²
WORKSHOP	Security monitoring system, Max 50 Occupants	695m²
<i>Production storage</i>	Storage for finished projects	20m ²
<i>Assembly area</i>	Open area for project assembly	200m ²
<i>Wet zone</i>	Sinks and metal tables	125m ²
<i>Machinery area</i>	Saws, Drills and Presses to be specified	100m ²
<i>Working zone and class room</i>	1.2m high metal top tables with stools	250m ²
STAFF ROOM		85m²
<i>Ablution</i>	4WC, 2WHB	20m ²
<i>Kitchen</i>		15m ²
<i>Lounge</i>		50m ²
OFFICE	1x Wooden table and 2x interview chairs	50m²
WASTE COLLECTION POINT	Security monitoring system	265m²
<i>Reception</i>		120m ²
<i>Sorting Facility</i>	Large Steel Table	45m ²
<i>Storage Facility</i>	Steel Shelves and Cupboards	100m ²
BOARDING FACILITY	Security monitoring system	395m²
<i>Dorm Bedrooms</i>	10 Beds	120m ²
<i>Ablutions Facility</i>	5 Showers, 4WC, 4WHB	50m ²
<i>Kitchen</i>		65m ²
<i>Lounge</i>		160m ²

The 4th folly is located outside of the AMD treatment facility. It is the ecological folly which will document the ecological effect of the mining belt and will be a jagged form depicting harsh harm. This will be placed over the treated water's storage tank. It is a raised steel perforated platform with harmed landscape preserved below in the centre, outlined by a glass circular walkway. This folly is paramount in the representation of the active REGENERATION going on in the site

Finally, this journey will culminate in a circular fashion at a public square exhibition space. This folly in the form of space defining elements will speak of the future vision of the mining belt and will be one of celebration and liberation, strong yet adaptable form. This exhibition space will be supplemented by a restaurant which will use fresh produce from the green roofs on site as well as the potable water processed on site. This Exhibition space completes the sites programmes with an exhibition of the treated water and produced art. This also completes the journey of active regeneration, aptly named due to the site still being regenerated and that change-in-motion being very visible through the skills development and water treatment facility.

The materiality will speak of mining heritage, with steel and blue gum timber being the main elements as well as the bricks made from the site.

6.3 SKILLS WORKSHOP

The Skills workshop is a targeted program that will tap into a proposed recycling center for the trolley pushers. The trolley pushers and neighborhood of Johannesburg can deposit their collected useful waste and either collect a transport ticket, money or food in exchange for their selected trash. This "trash" will be used to create art and it will be exhibited within restaurant exhibition space. The Skills Workshop targets professionals like Mbongeni Buthelezi to teach targeted members of the community, key role players, the skills of the trade (art) and thus furthering their skill set. This artistic premise will be supplemented by practical skills training for the industrial activities in the Booyens area, whenever artisans or professionals need skilled workers this can form a mutually beneficial program in which the best workers are found while passing on valuable skills. The Workshop will also host night classes to educate and provide more opportunities for the trolley pushers and impoverished community. This programme is very dependent on a mediated approach between community effort and policy, a top-down bottom up approach with backward reasoning that has been used to achieve a contextually grounded response.

This precinct is named Philani Junction (approx. 10000m²) which will be the start of the journey through the mining belt. Philani, is used to signify that something is healthy or alive which is in line with the concept of active regeneration which is an essentially "live" process of regeneration. It sets out to actively deal with the 3 issues of; heritage (through the follies), ecology (through water air and site treatment) and finally socio economic-value (through the transit junction, markets and skills development workshop)



- MAIN STAKEHOLDERS**
 Department of Labour
 The city of Johannesburg
 Booyens station informal settlement
 Trolley pushers
 Professionals and Practicioners
 Educational programmes and schools

AMD WATER TREATMENT AND RESEARCH FACILITY (2895m²)

FUNCTION	REQUIREMENTS	M ²
RESEARCH FACILITY	Security monitoring system, 15 Staff	555m²
Reception	6WC, 4WHB	85m ²
Toilets		45m ²
Offices	Equipment to be specified by Research Specialist	125m ²
Labs & Cold Room		300m ²
TREATMENT FACILITY	Security monitoring system, 25 Staff	2340m²
Control Room		140m ²
Treatment Floor		1200m ²
Storage Tanks		1000m ²



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

MAIN STAKEHOLDERS
 Department of water and sanitation
 The city of Johannesburg
 Anglo American and Rand Mines
 Trailblazer Technologies
 Segra Water
 Water Affairs and Water Research Commission
 Educational programmes and schools

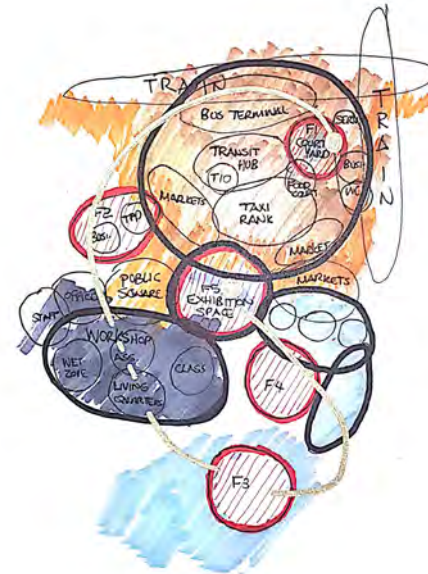


FIG 94 : formal bubble diagram of precinct spaces (Author, 2017)

CONCEPTUALIZING - a conversation of Landscapes

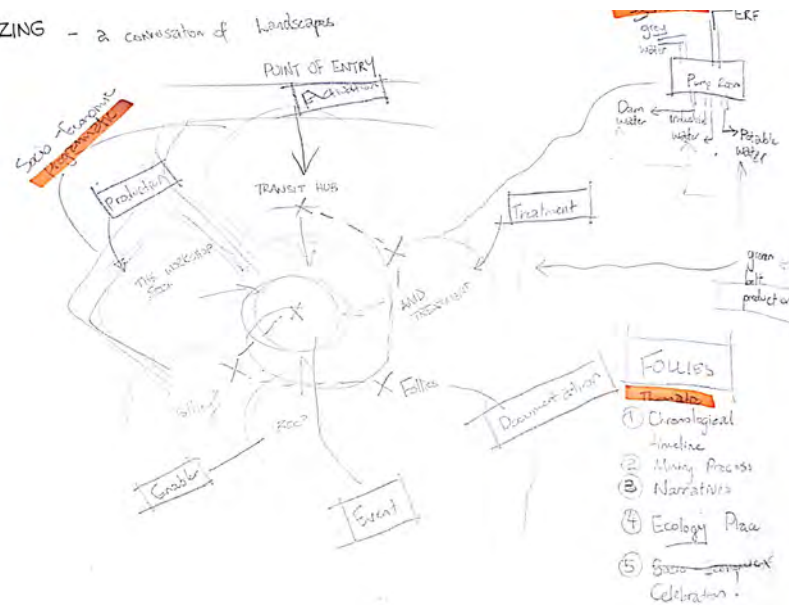


FIG 93 : Rough bubble diagram of precinct spaces (Author, 2017)

6.4 AMD RESEARCH AND TREATMENT FACILITY

This plant will house the KNeW(Potassium Nitrate Ex-Waste) process-TM by trailblazer technologies⁹. This is a scalable and profitable water treatment process that can produce water at different levels. Such as industrial Grade and Potable water. This process will be supported by a research and testing center. The water is sourced by nearby decanting stations such as Village Deep and Crown mine by tapping into the vast existing pipe network which runs just past the site. This process removes all organics, radium and uranium. It features the Additions of Palm Ash, Nitric Acid and an Ammonia Solution to produce output eluates which eventually result in water and with the addition of chlorine Potable water. The profitable outputs are mainly Potassium Nitrate and Ammonium Sulphate however, sodium chloride, dolomite and gypsum are produced on a lesser scale.

This treatment facility will continually test this process to optimize efficiencies and form as a base for research in AMD treatment. The water will be tested on site to ensure requires quality is maintained. Te water produced on site is reticulated into all water systems, such as the evaporative cooling system, toilets, showers, taps and gardening services. Grey water is reticulated back into the treatment facility lowering the Acidity of the AMD in the first storage tank thus forming a closed system. The Industrial grade water will be used within the workshop in the production of art as well as the toilet systems. According to the Gauteng City Region Reports the amount of water available is 70000 cubic meters daily which is more than sufficient to supply water to the site.

The overflow of treated water will be pumped back to rand water with existing pipe networks, And excess industrial water will be pumped to nearby industrial facilities. This intervention Forms part of the REGENERATION LANDSCAPE

6.5 ACTIVATED LANDSCAPES PROGRAMMATIC PRECEDENTS

6.5.1 PARK-STATION, JOHANNESBURG

ARCHITECT: JACOB KLINKHAMER
BUILT: 1897

Park station is the largest transit hub in Southern Africa and the spatial treatment has led to a crime ridden precinct that is segregated. This is the closest multi-nodal transit hub and more importantly shows some distinct shortcomings, due to bad planning and lack of space. The site sees 1 million commuters a day however it is not socially just in the way in which public space is treated. The space outside the Gautrain station is policed whereas the space outside the Metro stations are bustling with markets and activity. The Gautrain wall has signs all over it that do not allow any sitting or loitering whereas the Metro stations and taxi ranks aren't landscaped or policed.

There's a clear socio-economic divide just within the station whereby a small collaboration between companies could ensure people were equitably sharing public space of the same high standard.

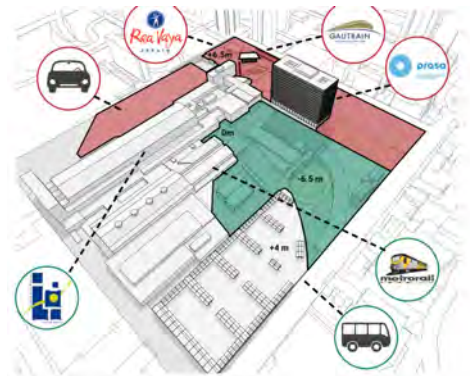


FIG 95 : Spatial condition at Park Station, Contrast between metro and Gautrain public spaces (Tyler, 2015)

6.5.2 WARWICK JUNCTION BRIDGE, DURBAN

ARCHITECT: ANDREW MAKIN
BUILT: 1910

Warwick Junction is a vibrant transit hub that sees massive foot traffic that activates a bustling informal market that turns over billions of rands in revenue every year. The markets are a huge rationalistic phenomenon located in the heart of the city and being a key example in pendulum migration some traveling hundreds of kilometers over the week to sell products. It brings a cultural hub of activity and sense of place due to the agglomeration of people. The markets actually drive down crime, with the managing agency, that has formalized the informal trade. There is a progression of market spaces and an organic journey of different experiences, from a

music bridge to a bovine market. The progression and variety offers a sensory experience and its strength and unique quality is made possible by the strong linkages the transport node has, as well as the people who contribute their narratives to this highly commercial space. This is a people centric and collaborative effort to empower informal traders and build a community in which the spatially and economically disadvantaged have an equitable public space in which to make a reliable income and build a customer base.



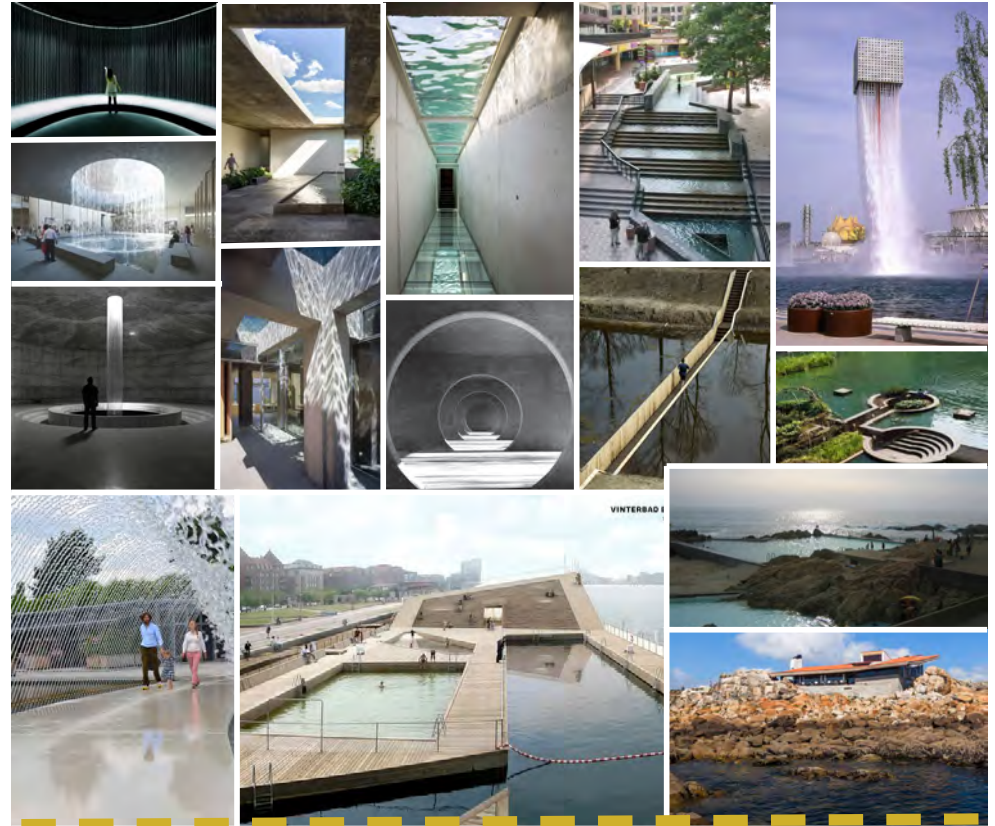
FIG 96 : Pictures exploring the aesthetic and spatial features of Warwick Junction in Durban, including people based activity and robust yet attractive design and facilitation (The KwaZulu-Natal Institute for Architecture, 2017)





FIG 97 : Markets of Warwick including baskets, adornment, jewelry, produce and services like sewing (Eason C, 2017)

STEREOTOMIC



TECTONIC



FIG 98 : Stereotomic critical regionalism vs tectonic idea collage (Author, 2017)