

# Illustrative and Technical Report

## Point Cloud Park

### Concorso Internazionale di Progettazione del Cavalcavia Bussa

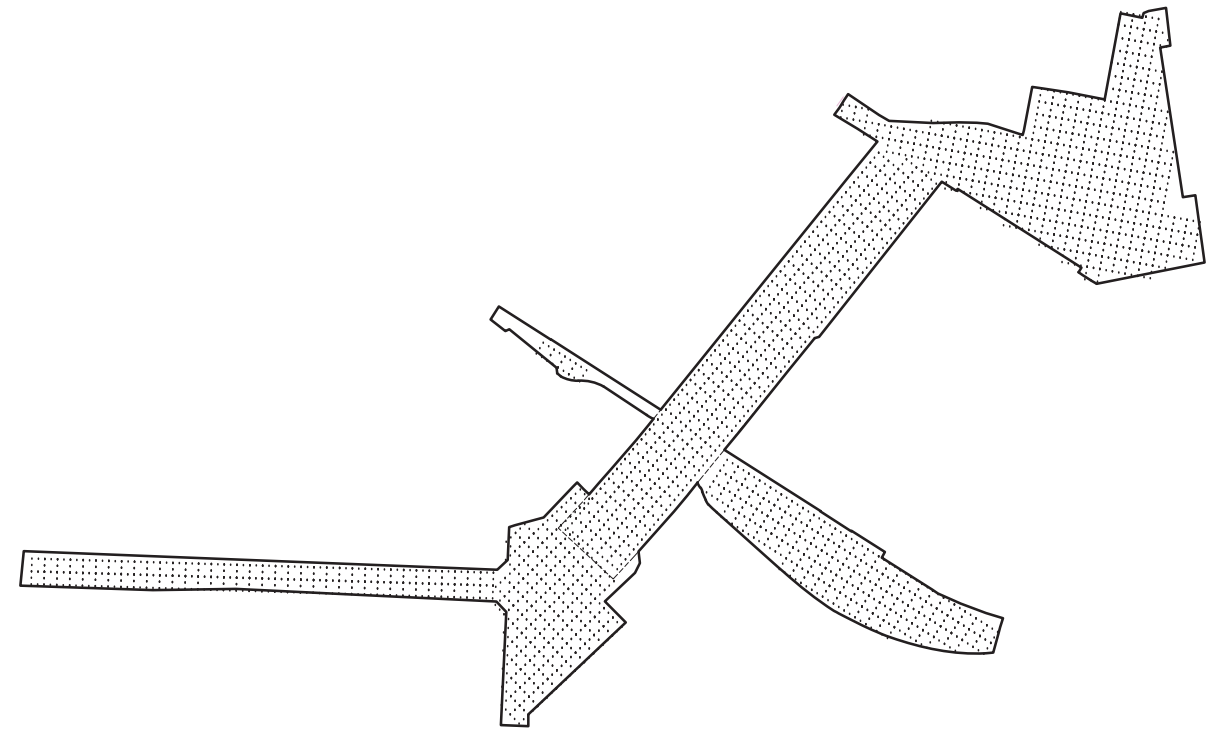
16th September 2014

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#### Key park principles

1. Biodiverse park managed using ecological principles to evolve over time to suit changing conditions
2. Smart park using collected data to manage change and minimise costs
3. Open-source park which can be used by different groups of people in creative ways
4. Low-cost park boosted with creative management of external funding sources

LA5EC6EU



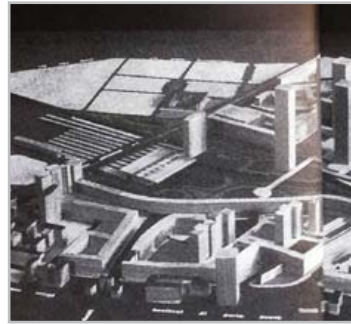
# 1. Urban context

- The site is located within a contrasting urban environment undergoing major transformation.
- The Cavalcavia Bussa has the opportunity to form a unifying public space that engages with the immediate characteristics of the adjacent neighbourhoods and removes the barriers for engaging with the wider urban context.

## 1.1 Urban condition

The following key principles define the immediate urban condition for the proposals:

- The site is located within a contrasting urban environment undergoing major transformation.
- The historic urban structure is defined by the city perimeter condition and the 19th C industrial urban fabric with its own unique character and quality.
- The site is also defined by the severance of the 20th C infrastructural developments, most obviously FS Garibaldi, and the business district aspirations of the 1960s.
- The business district designation establishes the road infrastructural intentions of which the Cavalcavia Bussa is a remnant.
- The contemporary identity is clearly influenced by the emerging Porta Nuova transformation that establishes a significant corporate identity.



## 1.2 Cavalcavia Bussa opportunity

The following summarises the key opportunities for the diverse components of the project:

- The project has the opportunity to form a unifying public space and a sophisticated new form of landscaped environment.
- The Cavalcavia Bussa can be re-imagined as a revitalised space that can remove the existing barriers between neighbourhoods and engage with the emerging transformation of the wider Garibaldi district.
- Diverse components of the site can be brought together as a coherent vision that will allow a flexible and evolving programme of landscape and use to be progressively developed as a participative and engaging social and cultural forum.
- Key interventions of accessibility and landscaping can dramatically transform the perception of the place, whilst an on-going structure and phased delivery of participative components, temporary programmes of use etc. can create a self-sustaining ecosystem of a park.
- The new park will have a prominent and highly visible presence which can both engage with providing participative interventions and local amenity as well as city-wide events, sponsorship and activities (e.g. Expo 2015).





## 2. Proposals

- Stage 1 introduced the concept of a “point-cloud” approach to the park.
- Stage 2 has developed this concept with a clear framework and sustainable vision for the phased evolution of the park.

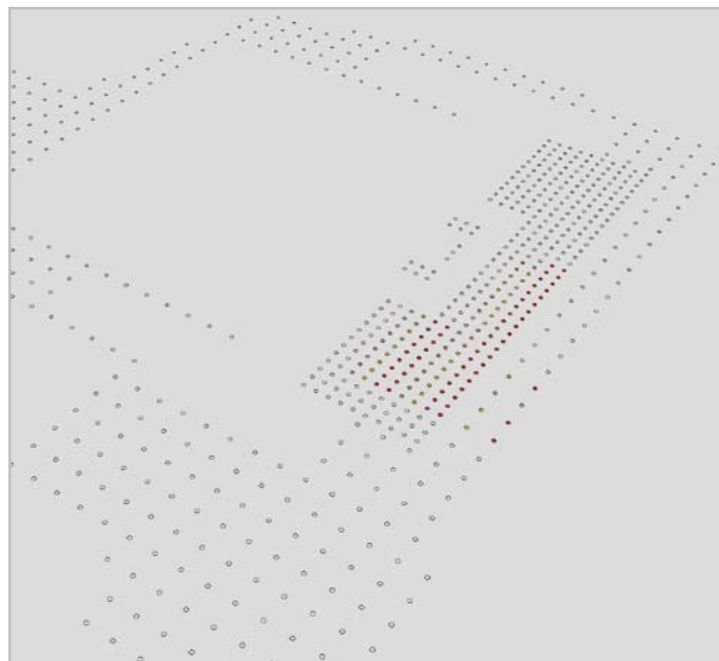
### 2.1 Stage 1 and development principles

- Stage 1 introduced the concept of a “point-cloud” approach to the park.
- The shortlisted design proposed a flexible and variable approach to the development of a new park, that would provide an on-going evolution of the landscape environment with a variety of uses.
- Stage 1 imagined the park as a cloud wrapping over the streets and railway, connecting the old neighbourhoods and the skyscrapers
- It proposed a flexible dreamscape where different possibilities can emerge depending on the changing uses, weather, seasons and people.
- The park would be an open-minded space that would provide the conditions for social, cultural and ecological programmes to develop as an inclusive and participative process.



Stage 2 has developed this approach by:

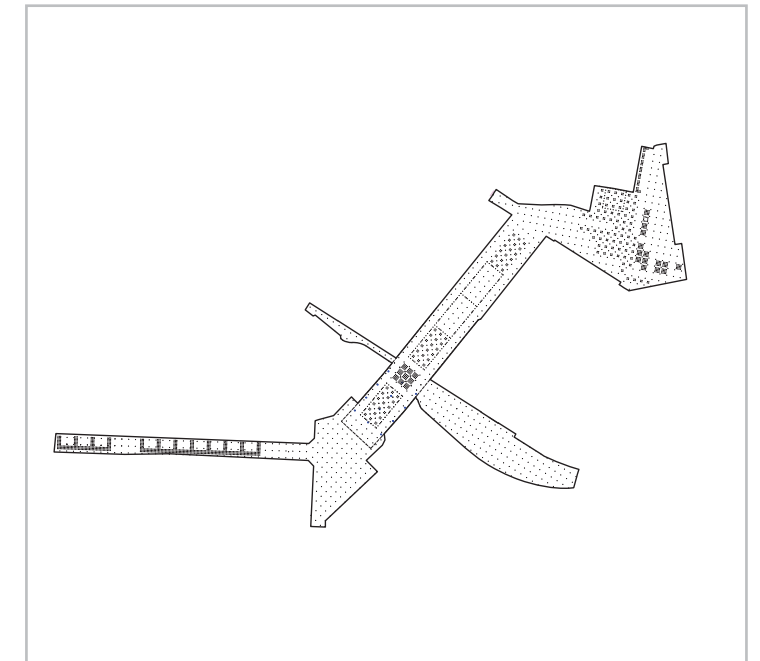
- Defining a clear and logical grid within which the evolving programme and landscape will develop;
- Providing a structure and phased approach to testing the framework with key landscape / programme interventions as an open engagement with the public;
- Defining a coherent scope of works within which the immediate framework is established in accordance with the available budget that will enable access and immediate park occupation;
- Formulating an indicative programme of transformation and use that illustrates the potential for an evolution of landscape and public facilities within an economically sustainable cycle of growth.



### 2.2 Stage 2 proposals

The Stage 2 proposals have developed the “point-cloud” concept and can be summarised in the following way:

- The proposal refines the contemporary approach to public space outlined in Stage 1, and develops as an evolving and responsive framework to the changing context;
- It will provide a unifying and inclusive “point-cloud” of landscape and programmatic opportunity within this complex and changing urban landscape;
- It will deliver key elements of access and land use transformation within budget to enable early development and engagement with the potential of the park;
- It will establish a framework for the progressive evolution of the park for the long-term, that will deliver a structure for the sustainable growth of public space accompanied by a rich and diverse programme of uses;
- It will establish an integrated approach to estate management and economic viability to ensure the long-term success of the park.



# 3. Testing

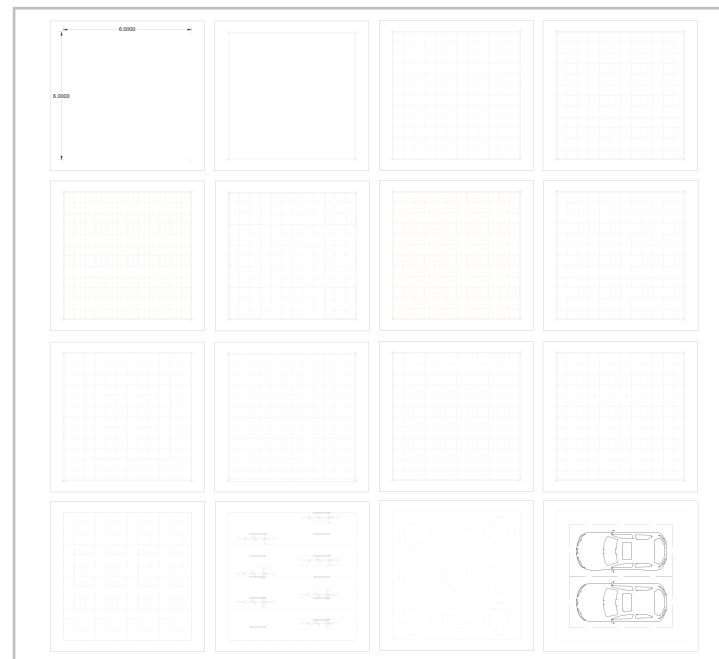
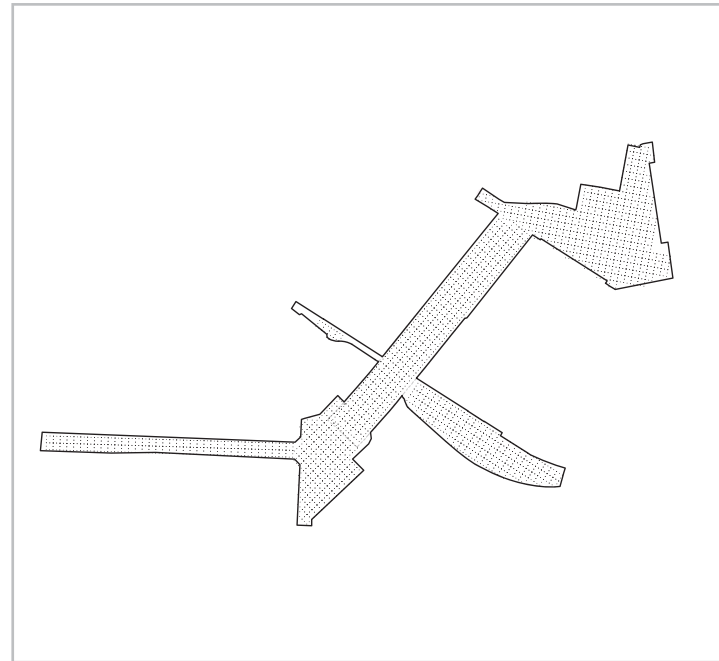
- The proposals define a coherent and logical scale and configuration of **grid**.
- There will be an open engagement and **testing** of the structure with key interventions.
- Early development will create an accessible and green park with access works, planting and a “point-cloud” **framework** delivered within budget.
- The project will develop a sustainable structure for the on-going **evolution** of a diverse and varied landscape and use programme.

## 3.1 Defining the grid

The approach to the grid is the underlying foundation to the “point-cloud” concept - creating a variable and open-ended structure of potential.

The grid is organised as a combination of a series of grid orientations that respond to the adjacent contexts, that are then unified as a field of grid components across the whole site.

- The “point-cloud” is developed as a field of 6m x 6m grid components.
- This dimension is established in order to create a flexible module that can provide the context for a full range of applications - between landscape, street furniture, built elements etc.
- The grid creates a unifying field between the disparate areas of the project, and is established in response to the specific adjacent conditions of the neighbourhoods and the Cavalcavia Bussa.
- The grid forms an array of potential “components” within the project - whereby differing combinations of landscape and use can be proposed, removed and transformed over time.

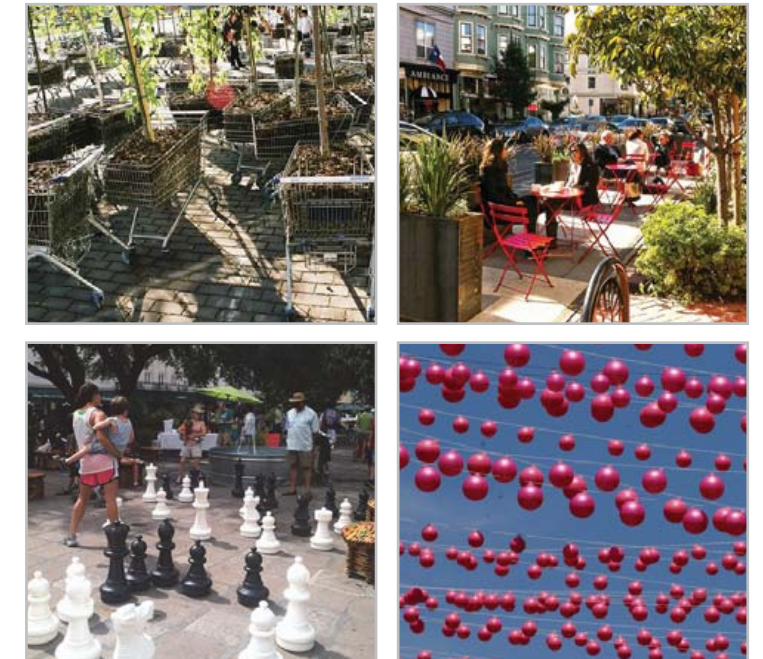
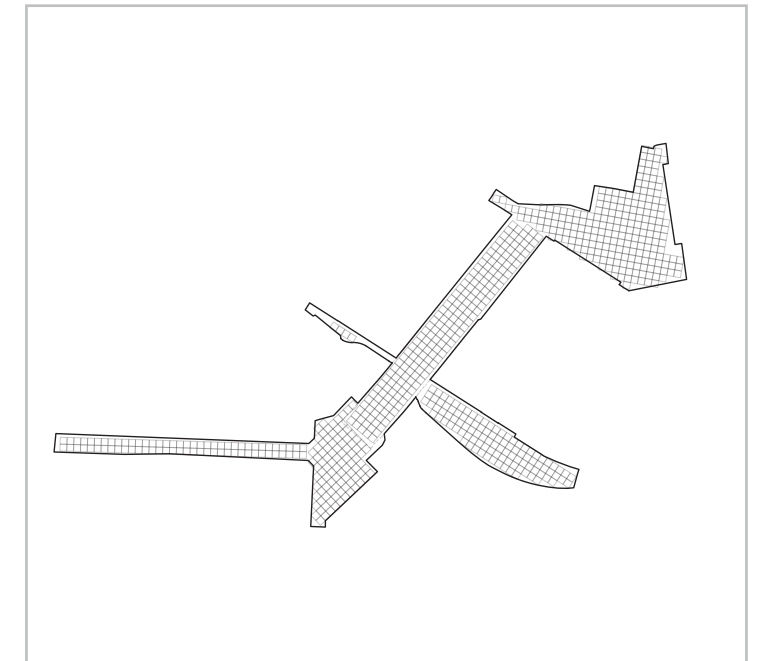


## 3.2 Testing the grid

Open engagement and testing of the structure with key interventions from the outset is a critical aspect of the proposals - to establish collective participation with the emerging “point cloud park”.

Early testing will shape the framework, evolve a collaborative vision for the site and create early visibility of the potential for the project.

- Comprehensive public engagement with the development of the park will be proposed as an active testing of the approach to the “point-cloud” concept.
- Key interventions within the grid structure will be developed as a consultative process - to test the flexibility and potential opportunities of the landscape / uses for the project;
- These early “tests” of the park will enable quick progress to be established, and the public to shape the approach to the future evolution of the park as a shared vision.





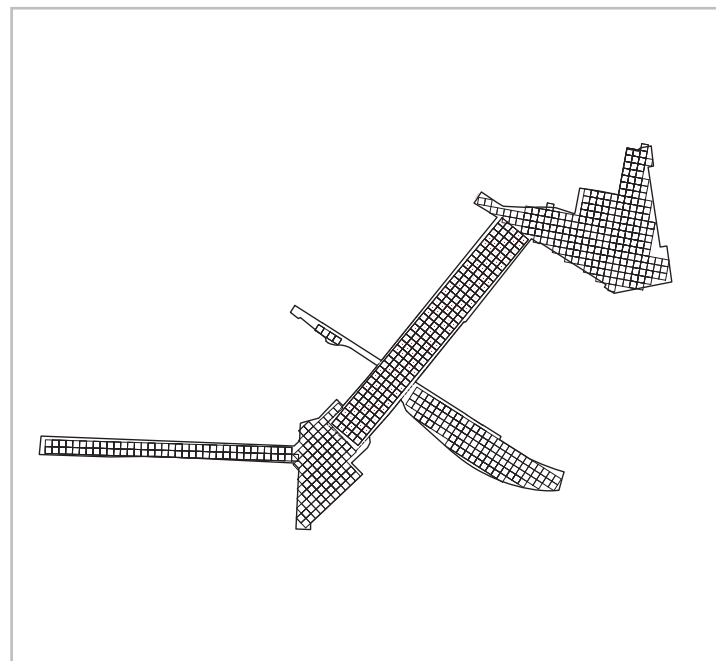
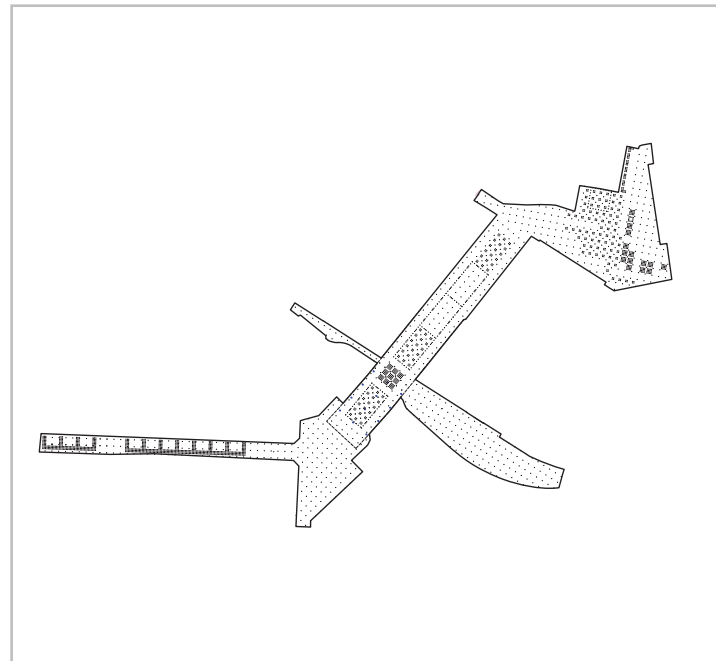
### 3.3 Framework (Phase 1)

The “framework” of the project will be the first phase of the park’s development. This initial phase of the development will create an accessible and green park with access works, planting and a “point-cloud” framework all delivered within budget.

This will deliver an accessible park with an embedded structure for future evolution.

This will establish the following:

- A new grassed landscape and an initial planting strategy across the site;
- Pedestrian and cycle access routes and cycle storage structure;
- A unifying grid structure with embedded “component” interface design as the basis for future occupation and transformation.



### 3.4 Evolution (later Phases)

The project is conceived as an evolving and phased development that builds off the initial “framework” expenditure and develops as a self-sustaining ecosystem (both commercially and environmentally).

The project will develop a sustainable structure for the on-going evolution of a diverse and varied landscape and use programme. This uses the “framework” to develop an evolving programme of occupation and manipulation of the “components” across the site.

It is envisaged that this phased development of the project will have the following characteristics:

- Participative and inclusive development of specific programmes of use;
- Commercially self-sustaining interventions (sponsorship, temporary activities);
- Key areas of amenity and local facilities;
- Redistribution of temporary uses and engagement with city-wide sites and locations;
- “Curatorship” of the site as a social and cultural programme with shifting “seasons” of activity, environment and use.



# 4. Framework

## Phase 1

- The “framework” will create an initial landscape of grass surfaces, drainage infrastructure and preliminary planting configuration.
- Critical improvements to pedestrian and cycle access will be established at the outset of the project.
- A “point-cloud” structure of grid and the definition of component plots for future growth will be established.
- This structure will enable the subsequent delivery of an evolving and flexible programme of the occupation of components and the participative engagement with the development of the park.
- Early interventions within this structure will be tested as a preliminary phase of the “point-cloud” park as active engagement.

### 4.1 Landscape

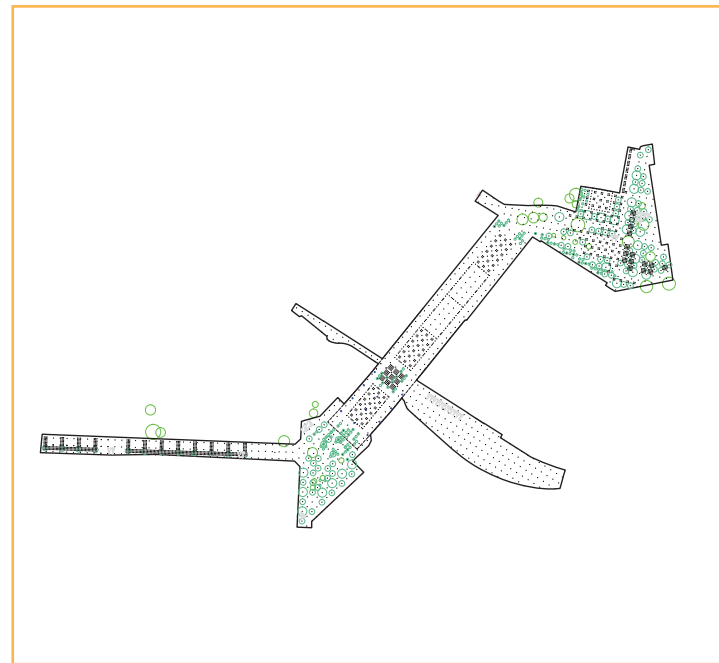
The initial phase of landscaping establishes the critical framework for the evolution of the park. It “seeds” the park ecosystem with key parameters of planting structure, density, distribution, soil condition and habitat creation.

It also establishes coherent strategies for the key spaces within the project - street, squares and the Cavalcavia Bussa - which will evolve over time with changing emphasis of vehicular movement and environmental conditions.

The landscape approach is built off the grid framework of the 6m x 6m component - allowing for multiple configurations of tree planting clusters and dense meadow planting, alongside the logistical requirements of street furniture and parking.

Key principles of the landscape established by the framework include:

- Holistic greening of the project with removal of tarmac and grass / meadow planting as a base landscape treatment;
- Planting and structural strategies specific to each larger component of the project - street, squares and Cavalcavia Bussa - established in principle with planting structure and density.
- Initiating soil conditions across the site as a basis for future evolution;
- Landscape surfaces developed in relation to the grid structure;
- Integrated drainage and utilities channels established.



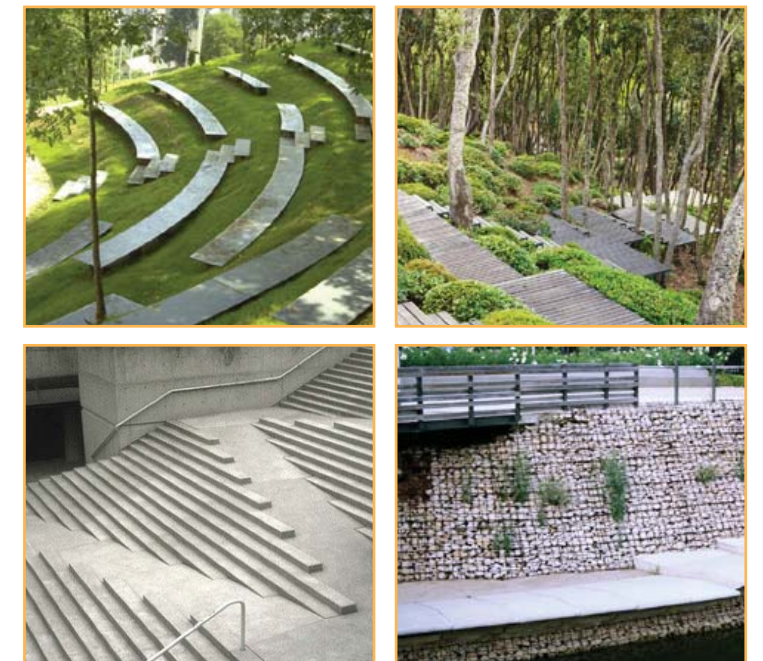
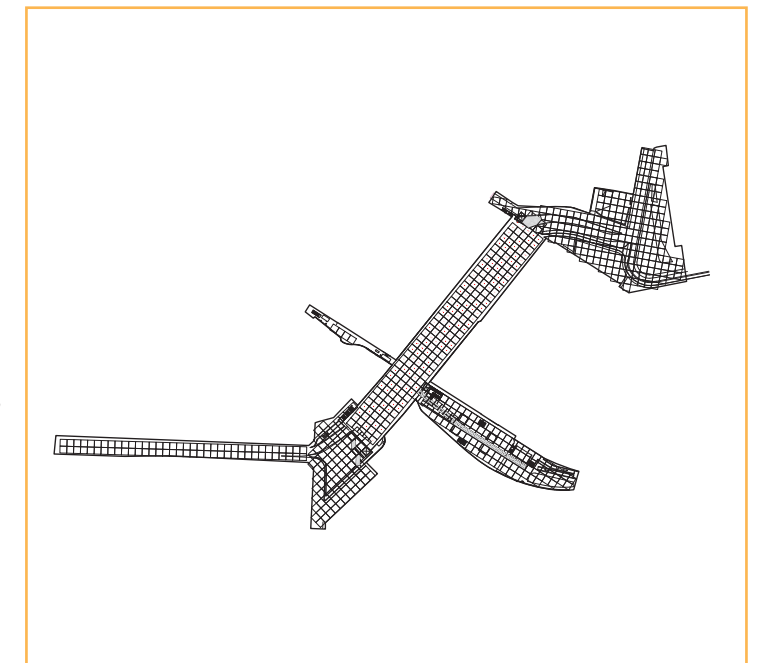
### 4.2 Access

Equally important for the implementation of the project during the initial phase of development is the creation of a series of key access points and routes. These will immediately enhance the access to the park creating public engagement and familiarity with the potential of the park. Combined with the holistic greening of the site, these new access routes will transform the perception of the Cavalcavia Bussa and the neighbouring streets and spaces.

In addition, the access improvements will remove the existing barriers and vehicular predominance of the existing infrastructure - replacing this with a well-connected pedestrian and cycle structure which will join with the wider network of both existing neighbourhoods and the emerging Porta Nuova development.

Key principles of the access strategy established by the framework include:

- Southern pedestrian access through landscaped terrace - elevated deck terracing and integrated play (and lift access);
- Northern pedestrian access as stepped contours / seating (and lift access);
- Eastern cycle ramp, field of modular cycle storage units and an integrated cycle storage tower (with pedestrian core / lift access);
- Enhanced cycle routes along Cavalcavia Bussa and integration with wider local network.





### 4.3 “Point-cloud” structure

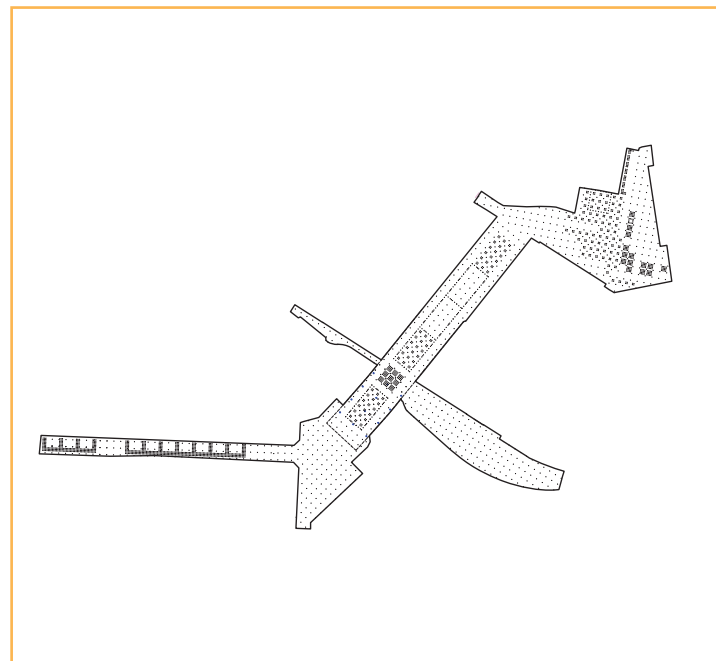
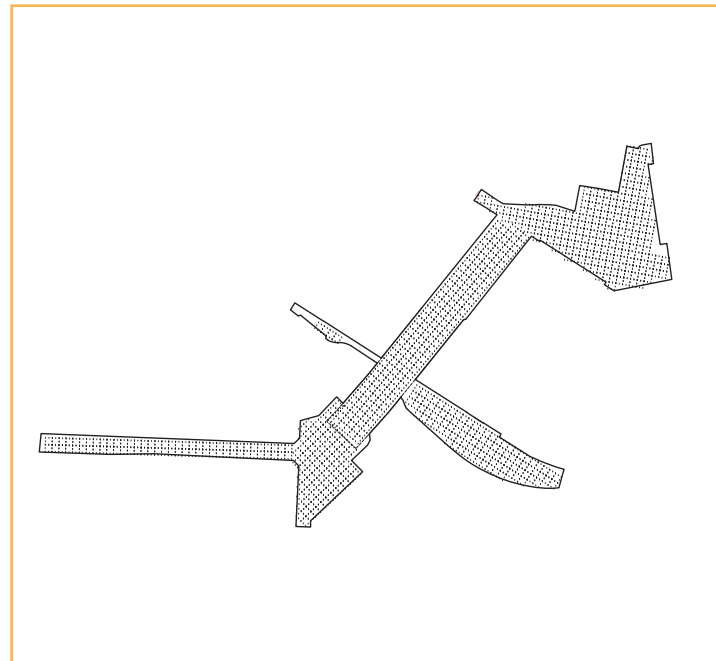
The underlying structure of the park will also be implemented at this stage - creating the framework and parameters for the subsequent evolution of the park and the varied occupation with shifting landscapes and programmes of use.

The “point-cloud” structure will be established as a system of fixing points within the newly formed ground of the site. These fixing points will reinforce the 6m x 6m grid and be the basis for subsequent occupation as detailed components are implemented over the later phases.

The fixing points will provide a built-in template for the later occupation as components - enabling the creation of structures, raised floor surfaces, scaffolding frames etc. to be implemented within a consistent module (or multiples thereof).

Key principles of the “point-cloud” structure established by the framework include:

- Embedding the grid parameters across the site.
- Delivery of a system of fixing points within this grid structure that enables the future construction of components.



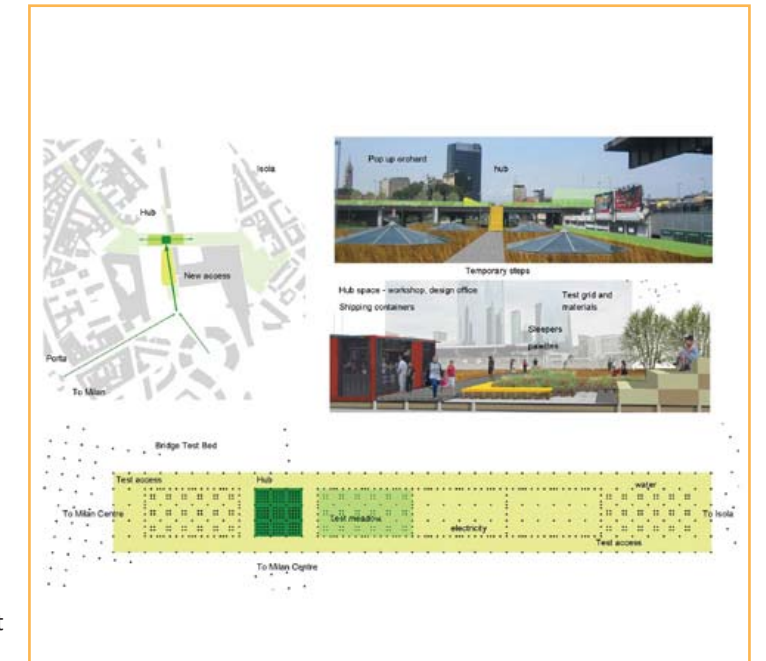
### 4.4 Early interventions

The framework phase of the project will also be used to test the “point-cloud” through a series of early interventions that will be developed as a participative process with the public. This will establish engagement with the wider community and open debate regarding the potential for the future growth of the park.

Key nodes of the “point-cloud” structure and areas with immediate local impact will be implemented. These will be developed as temporary interventions to test the implications of the framework as a precursor to the longer-term evolution of the park.

Key areas for intervention at this stage include:

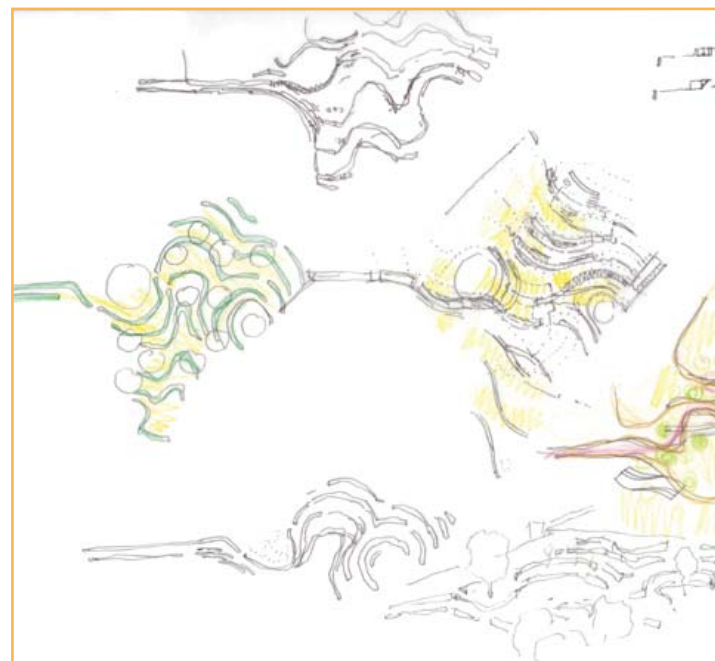
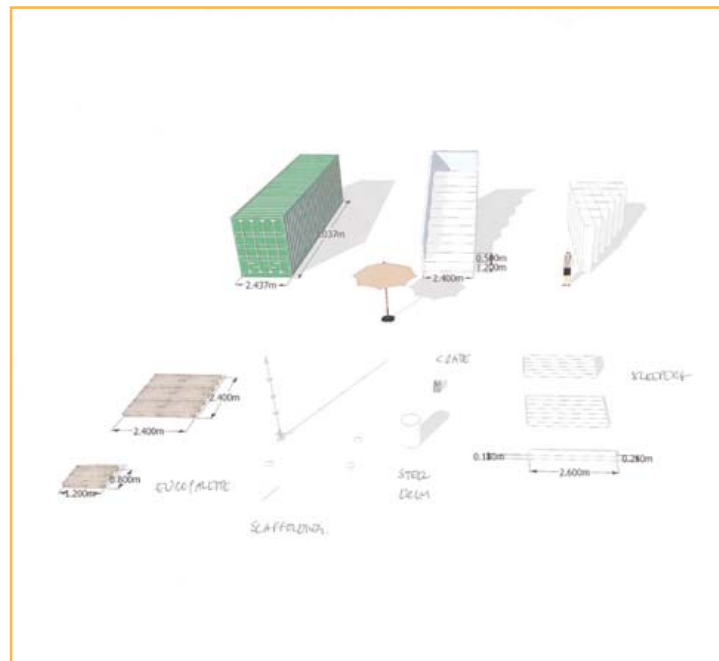
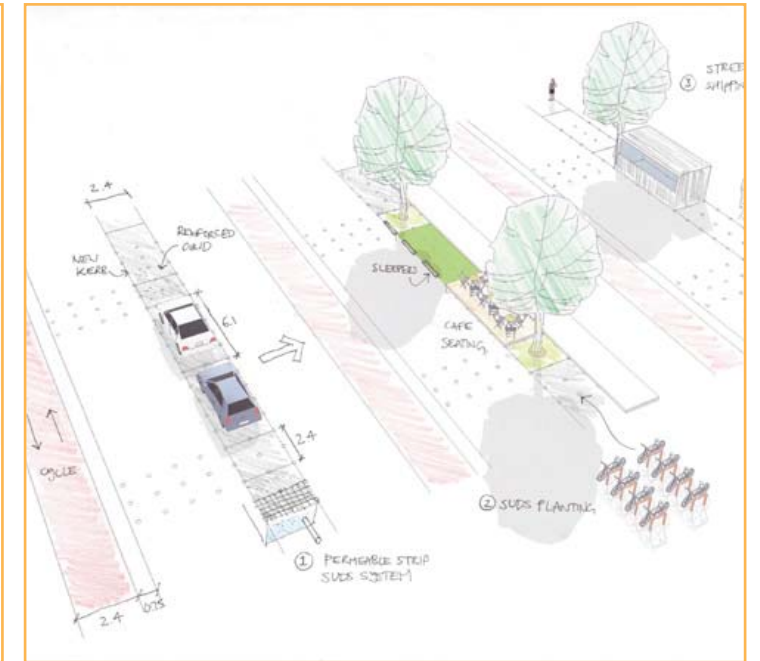
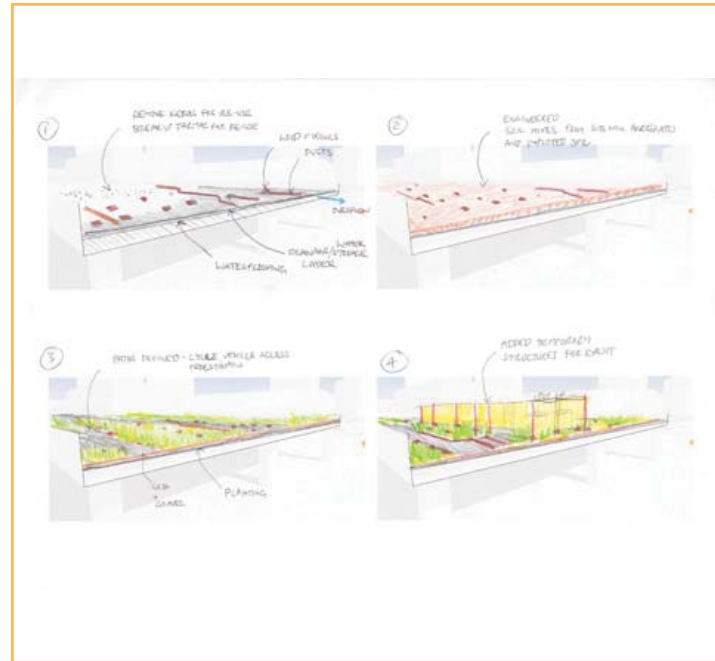
- The nodal point on the Cavalcavia Bussa at the intersection of N, S and E access routes will be developed as a “hub” for the project - initiating discussion and speculation on the project and sowing the seed for later long-term management / curatorship of the park;
- Temporary eastern access (steps to Bussa level) to integrate with the “hub” and the key gateway towards FS Garibaldi;
- Northern landscape / surface works - speculating on the transformation of the vehicular movement, parking and landscaping of this gateway to the park;
- Southern landscaping - integrated terracing and planting alongside the southern access deck;
- Street enhancements - as the initial phase of long-term transformation of the operation of the street environment.



## 4.5 Landscape strategies

The key principles that have underpinned the development of the landscape strategy for the project are the following:

- Biodiverse park managed using ecological principles to evolve over time to suit changing conditions;
- Smart park using collected data to manage change and minimise costs;
- Open source park which can be used by different groups of people in creative ways;
- Low cost park boosted with creative management of external funding sources.

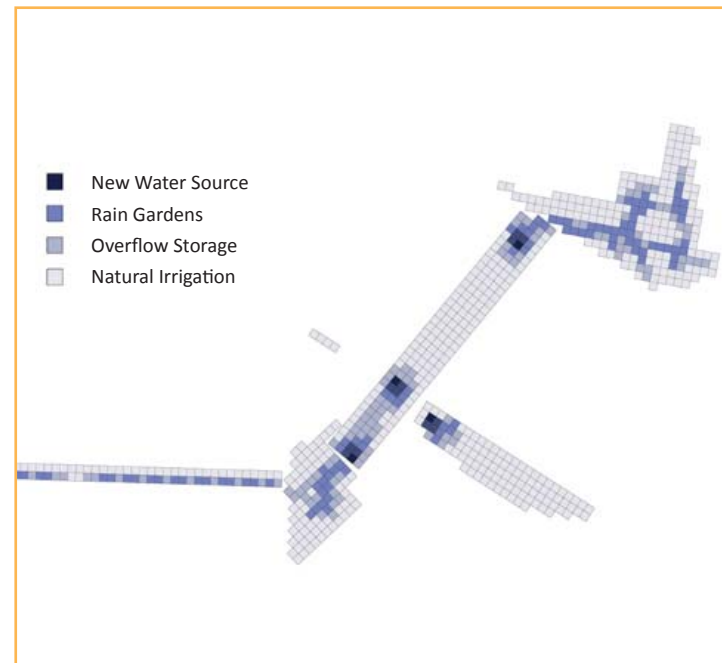




#### 4.6 Water Management strategy

The proposed water management strategy will deliver the following:

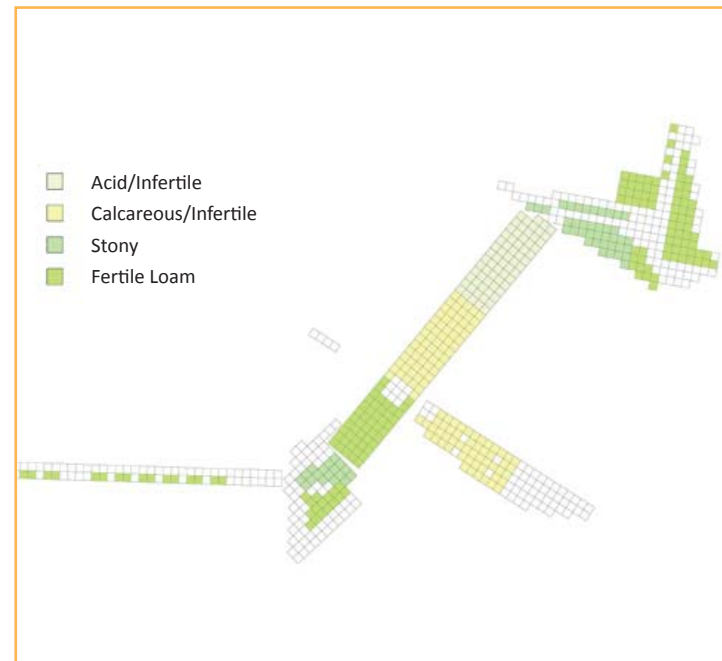
- Control flow of water to encourage plant growth;
- Create a more diverse range of soil conditions for park biodiversity;
- Store water on site to minimise risk of flooding downstream .



#### 4.7 Ground Management strategy

The proposed ground management strategy will deliver the following:

- Engineer a new range of soils based on recycling of site materials;
- Work with existing materials to create variety and encourage biodiversity.



#### 4.8 Habitat strategy

The proposed habitat plan is designed on the basis of the following principles:

- Design a variety of water, soil and microclimatic conditions to maximise park biodiversity;
- Use sensors embedded in the grid to monitor change in habitats;
- Match plants to habitats to minimise maintenance costs.



## 4.9 Access strategies

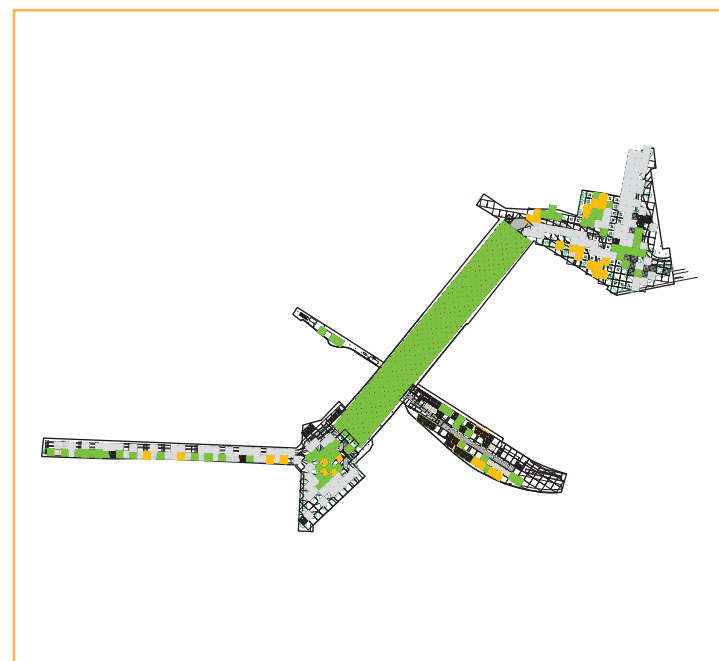
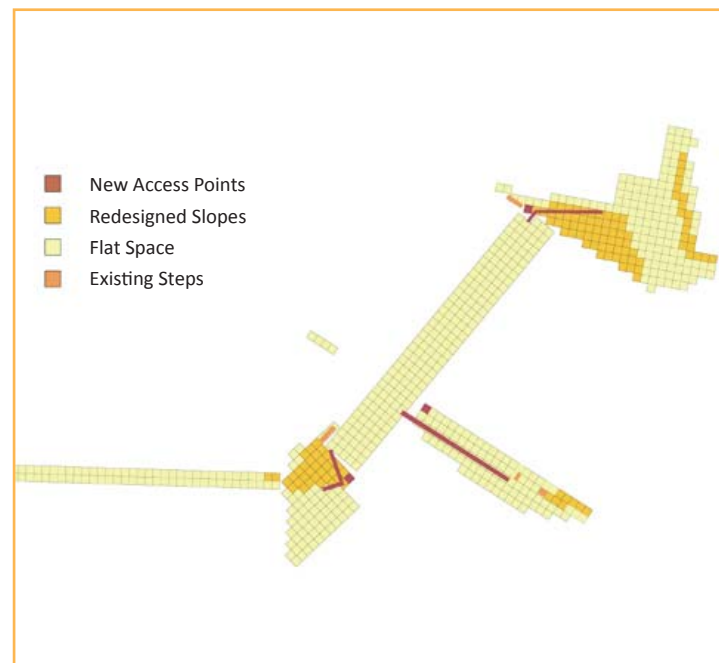
The proposed access works will create new pedestrian and cycle access “gateways” to the park from each of the key intersections with the existing context - south, east and north.

The proposed works can be summarised as:

- Southern pedestrian access through landscaped terrace - elevated deck terracing and integrated play (and lift access);
- Northern pedestrian access as stepped contours / seating (and lift access);
- Eastern cycle ramp and integrated cycle storage tower (with pedestrian core / lift access);
- Enhanced cycle routes along Cavalcavia Bussa and integration with wider local network.

The key principles of the access strategy can be summarised as follows:

- Design access to park for everyone regardless of ability
- Introduce a variety of gradients, choice of steps, ramps and possibility of adding lifts in the future
- Design signage and paving texture to be clear for everyone, including the visually impaired
- Install a new cycle ramp from the station to make the park a cycle hub

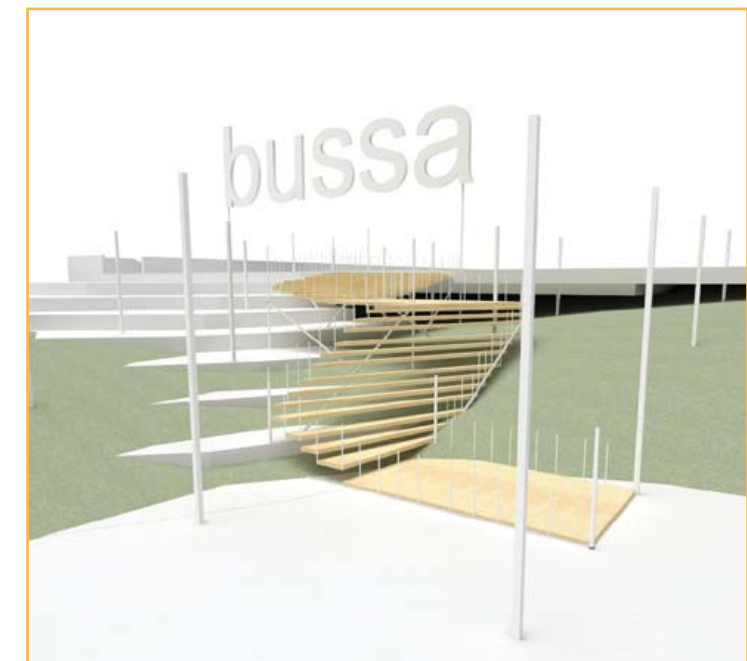


## South

The southern access is proposed as a lightweight timber deck that meanders through a terraced landscape within the grid structure of the “point-cloud”. This will create a pedestrian focus to the southern interface, and will also incorporate new lift access and integrated play.

Key aspects of this access point are:

- Timber deck with lightweight steel structural support resting on the contours of the terraced landscape;
- Lift core to Cavalcavia Bussa level;
- Gateway signage;
- Integrated slide within terracing.



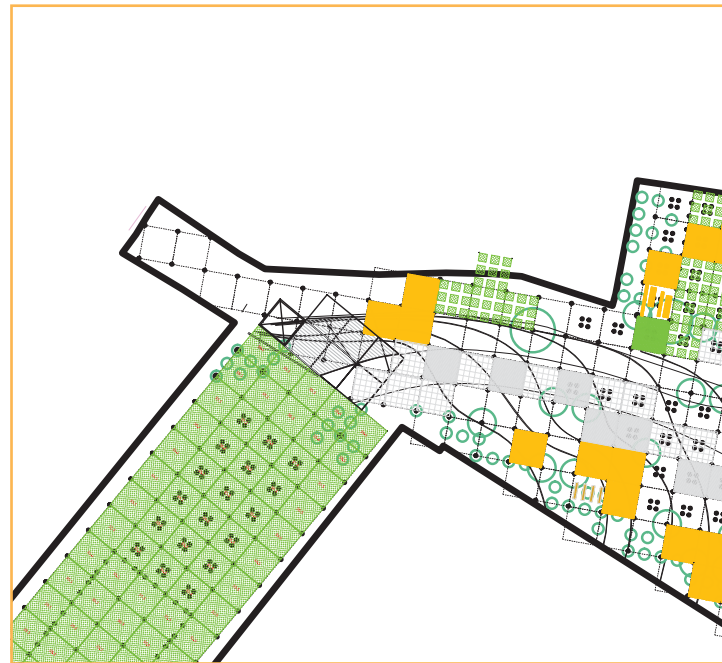


## North

The northern access is proposed as a more direct steps descent that provides integrated seating and connects with the landscaped improvements to the northern square.

Key aspects of this access point are:

- Timber steps built off ground and existing structures;
- Lift core to Cavalcavia Bussa level;
- Gateway signage.



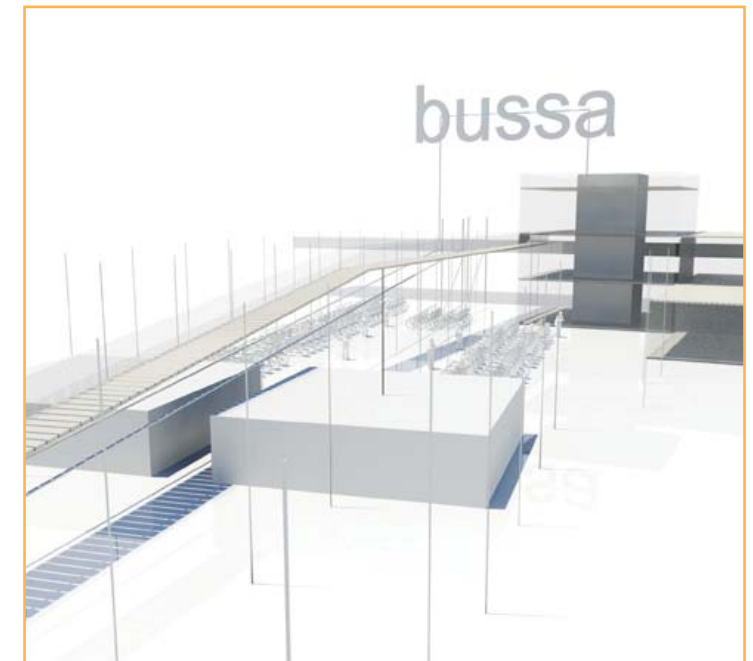
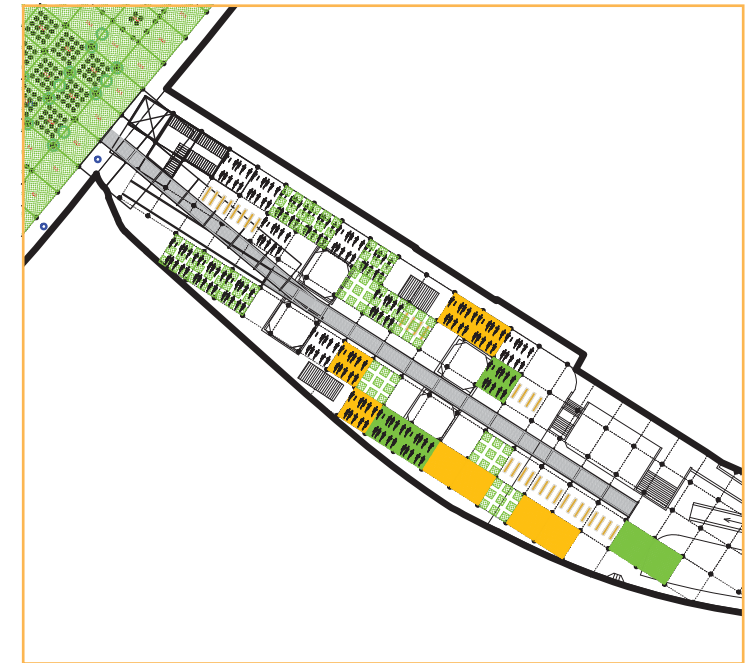
## East

The eastern access is proposed as a major interface which ultimately connects through to the FS Garibaldi main entrance and Porta Nuova development.

It is comprised of a series of interventions that create a landscape and cycle / pedestrian access focus leading up to the "hub" of the "point-cloud" at the level of the Cavalcavia Bussa.

Key aspects of this access point are:

- Timber deck ramp for a cycle access 1:20 to Cavalcavia Bussa level with lightweight steel structural support on the framework grid located between the Metro rooflights;
- Cycle storage tower over three levels with stacked cycle storage, internal ramp within mesh enclosure and direct access off cycle ramp and Bussa slab;
- Field of modular cycle storage units within "point-cloud" grid;
- Pedestrian lift core to Bussa level;
- Gateway signage.



# 5. Evolution

## Later phases

### 5.1 Indeterminate landscape and evolving ecosystem

The key principle of the park is to create a new form of evolving public space. The “framework” will deliver a structure and key parameters that are embedded within the first phase of development. Subsequent phases of “evolution” will deliver varied uses and occupation of space through participation, curatorship and collaboration to create an ever shifting ecosystem.

This “open-source” approach will generate a shifting landscape that is shaped by the initial “point-cloud” structure but also allowed to be implemented in a wide variety of ways. The park will operate a crop rotation principle - whereby landscape, amenity facilities, gardens, furniture, cultural uses, commercial activity, meadow etc. will all emerge and die-back over time.

Key principles of the evolution of the park include:

- Evolving implementation will be founded on the embedded infrastructure, soil parameters, grid and fixing points / access routes of the “framework” phase;
- The evolution phases will be co-ordinated as a managed “curatorship” with representatives from a variety of local and invited groups that consults on the respective balance of commercial and non-profit / landscape uses to ensure a self-sustaining ecosystem;
- Temporary occupation of “point-cloud” components will be redistributed within Milan - creating a cross-fertilisation of public amenity and landscape facilities;
- Seasons of “point-cloud” proposals will be encouraged with focus events, guest artists in residence etc. (e.g. Milan expo 2015, Serpentine pavilion (London)).



- The evolving park will create a shifting and open landscape as a phased growth of public space with a varied ecosystem.
- Seasonal changes of use and environment will be driven by local and city-wide aspirations for the use of the space.
- Economic viability will be choreographed as a series of phases of use and reinvestment to maintain an evolving management plan and self-sustaining park structure.
- A robust framework for the initial development of the park will be extended with the delivery of components built or planted from a range of readily available materials.

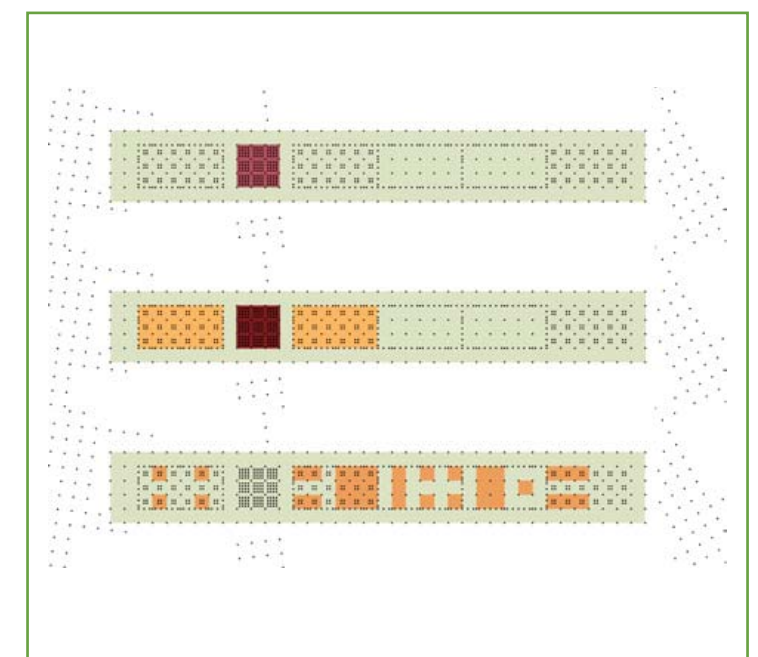
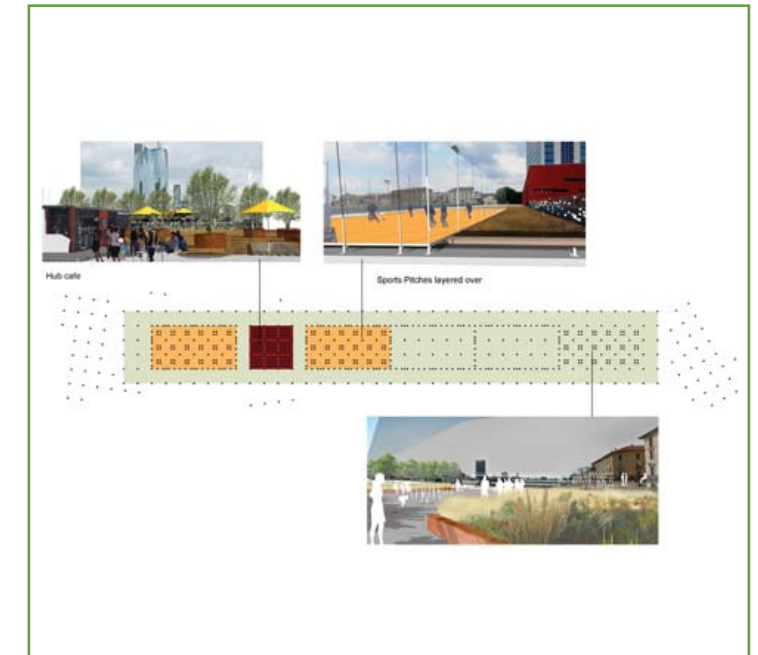
### 5.2 Participative growth and engagement

Critical to the successful evolution of the park will be a sustained engagement with both the immediate local communities and the relationship of this park with the other green spaces within Milan.

The programme of use will reflect an on-going participation and engagement with the specific requirements of the local community, combined with realising the high-profile opportunities for city-wide presence and impact.

Key principles of engagement for the park include:

- Developing an integrated programme of use during the initial testing stages of the project that responds to local aspirations and requirements;
- Embedding consultation throughout the life of the project as an on-going process of engagement.





### 5.3 Self-sustaining project with diverse “curatorship”

The “evolution” phases of the project will deliver a self-sustaining park. The approach of the “point-cloud” structure will ensure that a usable and vibrant new space will be delivered from the outset within the budget. However, the real potential for the park will emerge through a process of “curatorship” of the space - where the grid components of the park are released to landscape or programmatic uses over a managed programme.

The “Bussa” curatorship will become a key role in shaping through consultation and invited commissions a self-sustaining ecosystem that will realise the exciting potential of this flexible and diverse landscape.

Key principles of the curatorship include:

- Establishing a co-ordinated “curatorship” role through consultation and testing of the framework;
- Establishing a programme of events, invited guests, sponsorship and participation with local and city-wide groups that reflects both the profile of the location and the immediate local requirements;
- Managing the economics and sustainability of the ecosystem - with a coherent strategy of temporary installations and underlying landscaped structure.



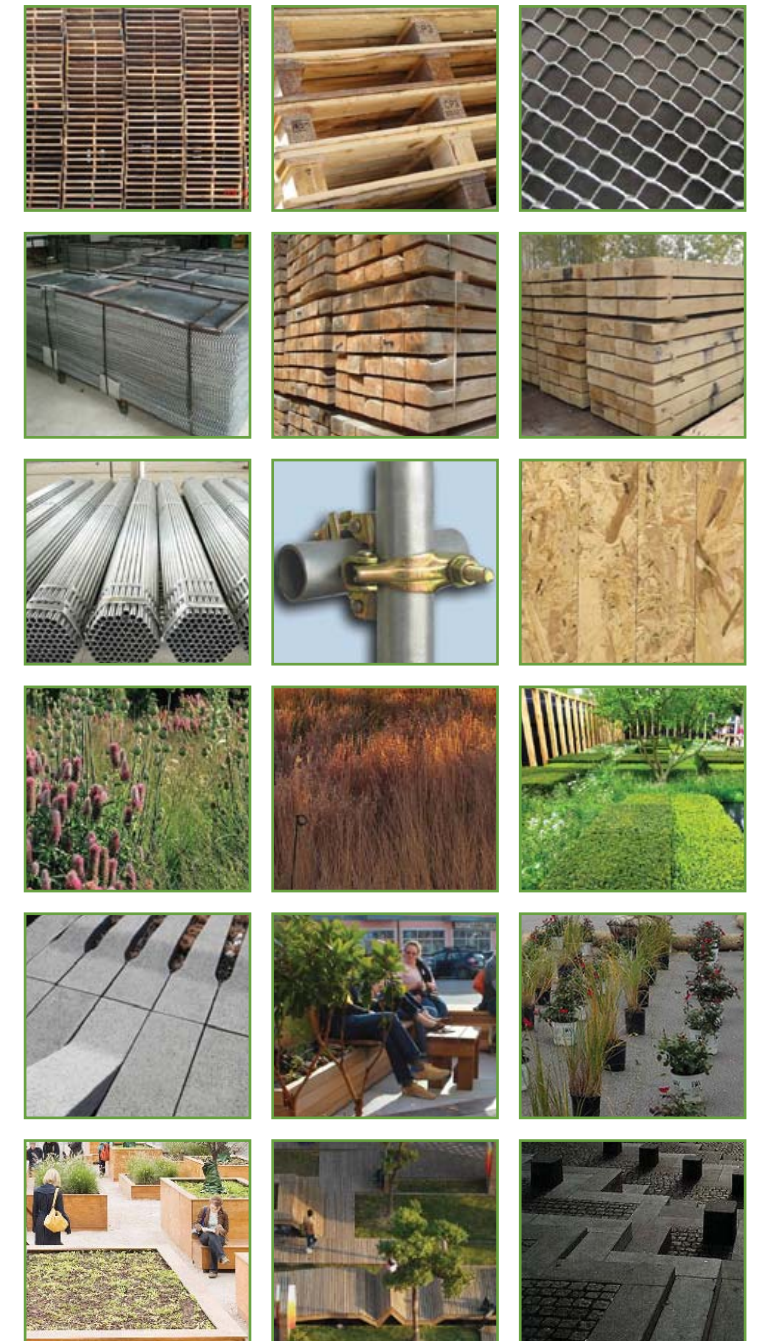
### 5.4 Economic and robust materials

The material approach will evolve over the course of the project, but it is anticipated that the initial stages of development will utilise a range of materials and planting techniques that are readily available and affordable. Basic construction materials and modules will be collected to form surfaces, flooring and spatial enclosure whilst meadow planting and flexible raised planters will define a robust but rapidly achievable landscape and programme of use at minimal cost.

As the programme evolves, the complexity and opportunity of the temporary installations and the prominence of landscape features will evolve also - and this open-sourced landscape will define the “point-cloud” park.

Key principles of the proposed materials include:

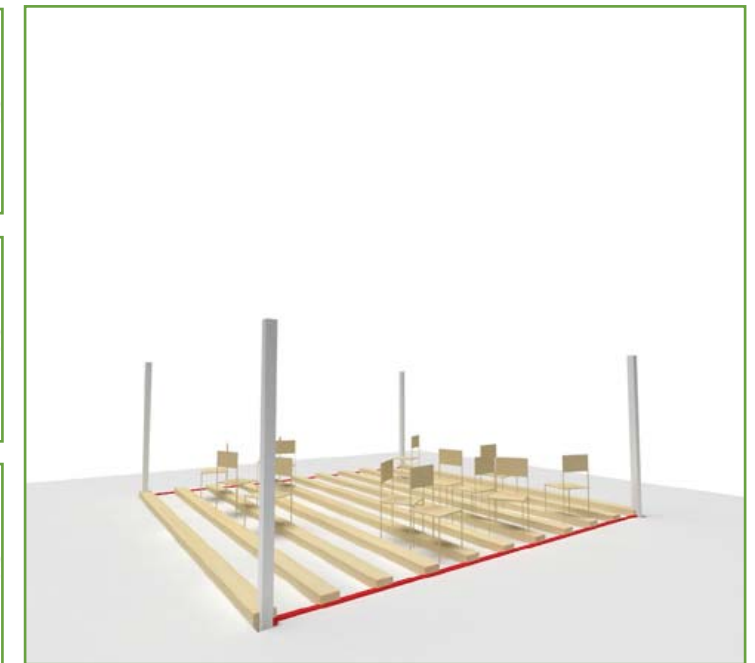
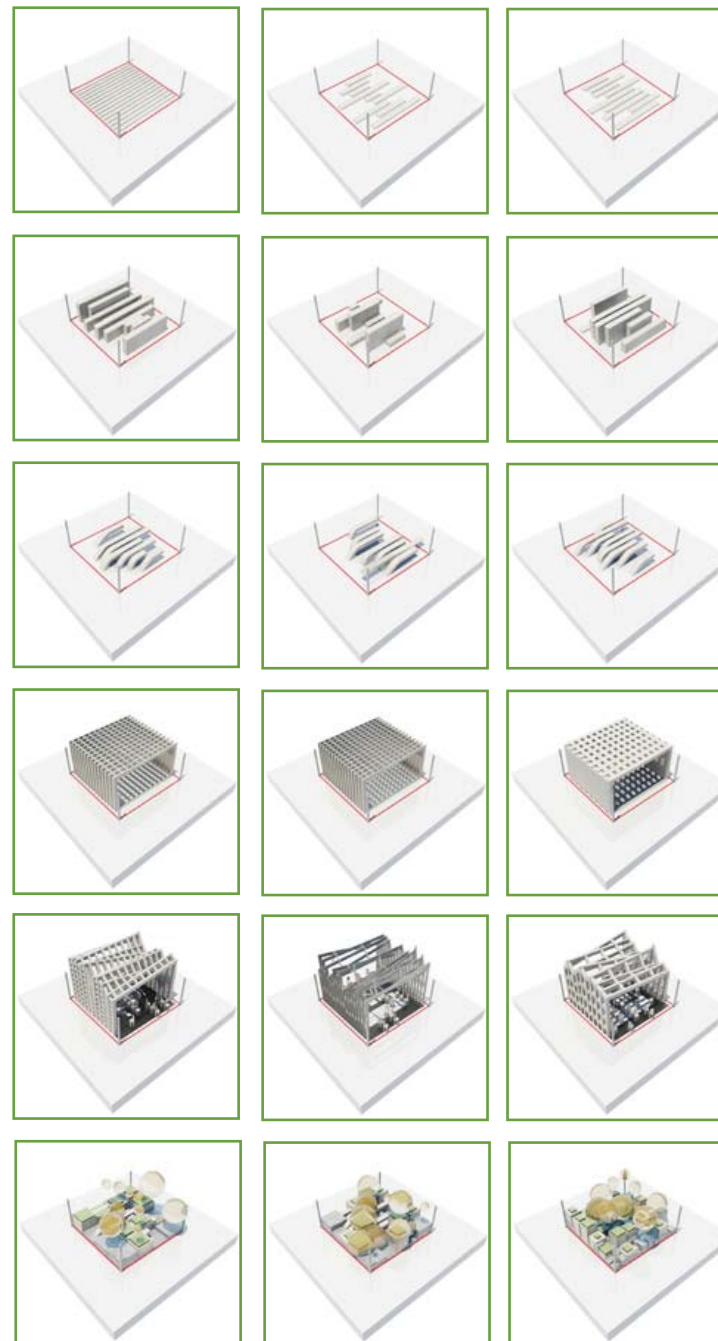
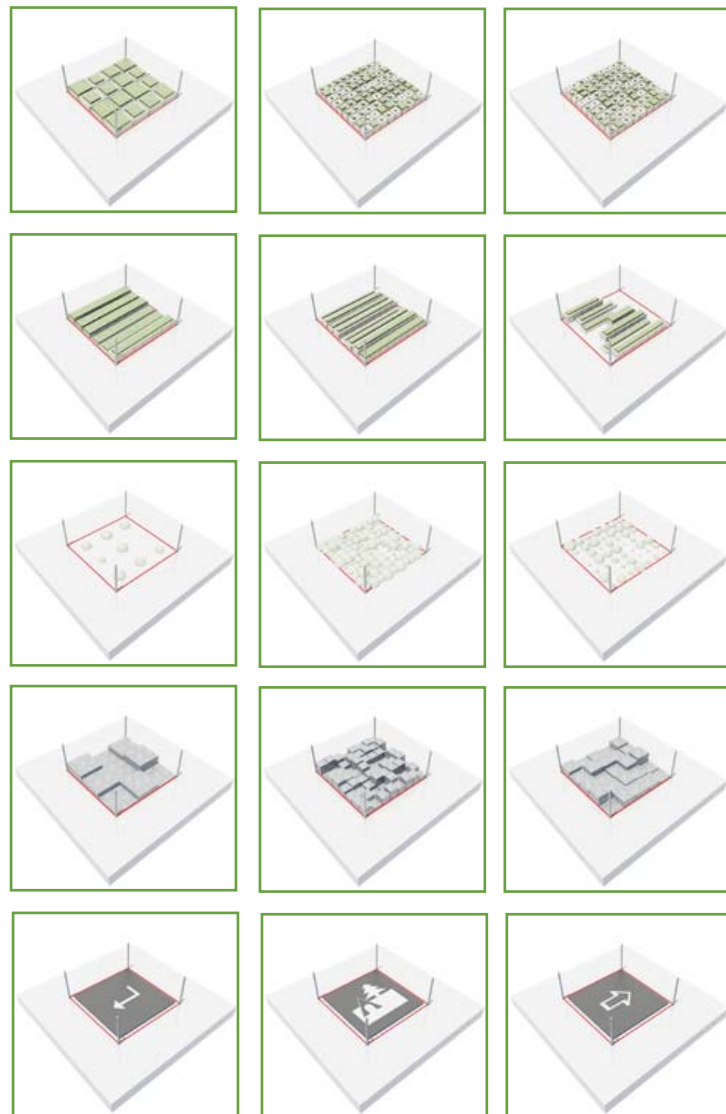
- Initial temporary interventions are proposed for the early phases that draw from the architectural and landscape languages of “pop-up” design - utilising readily accessible and low-cost materials to plug in to the embedded point-cloud structure;
- These interventions will evolve over the life of the project (dismantled, relocated, re-imagined and reconstructed) - and be determined by the ongoing “curatorship” of the park.





## 5.5 Indicative components

The following studies present indicative components within the 6m x 6m point-cloud structure as a guide to landscape and structural delineation within this module.









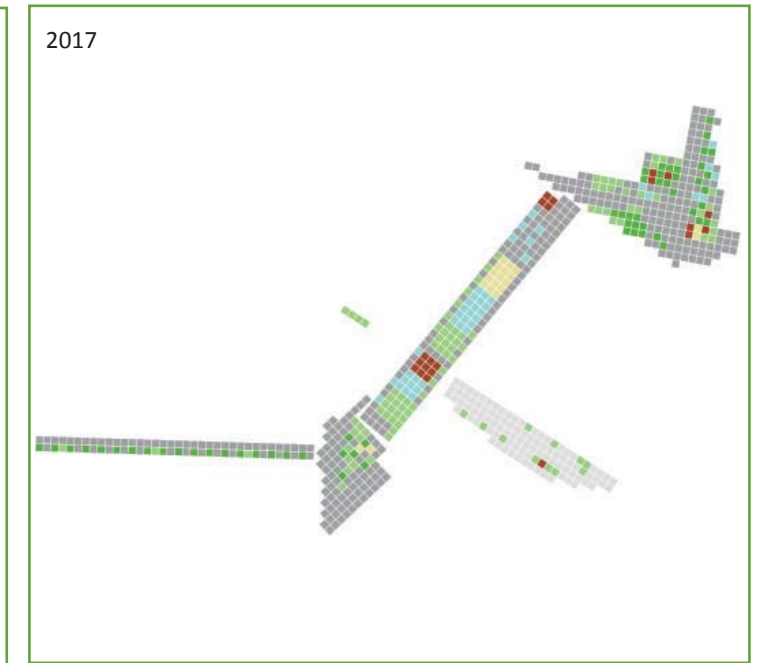
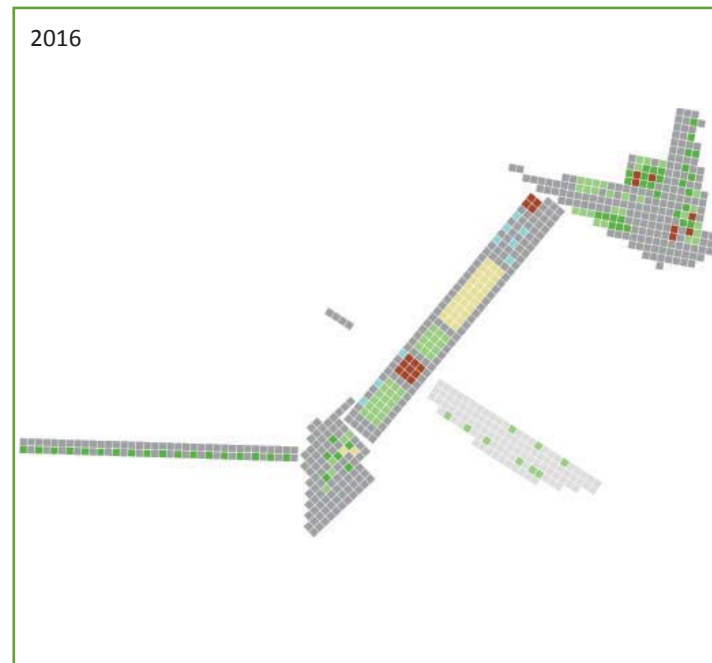
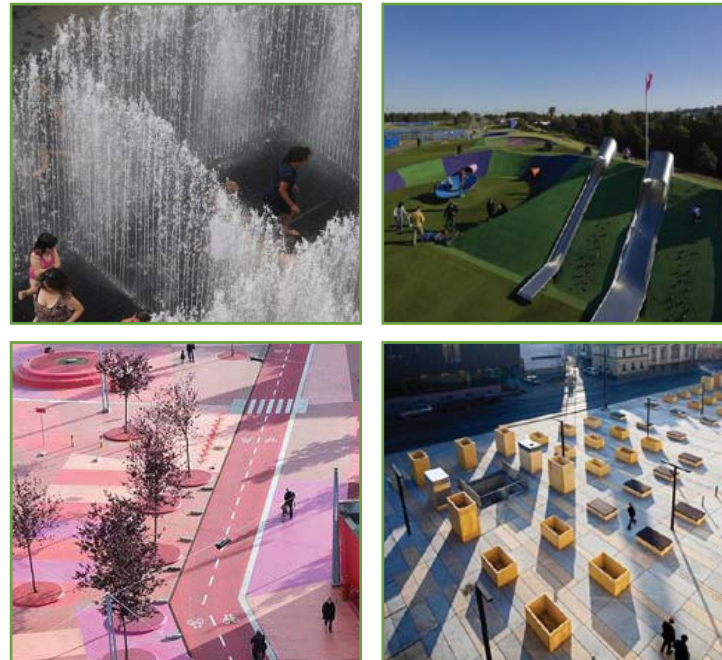


## 5.8 Sustainable and inclusive framework

The vision for the evolution of the “Point Cloud Park” is that the interaction of the natural evolution of the seeded landscape and the choreographed installations and seasonal events will create a new form of public space that reflects an ever evolving landscape and society.

The park will become an inclusive and self-sustaining ecosystem that delivers local amenity, city-wide event space, open grassland, pop-up events, play-space, cultural facilities, markets, art installations, commercial outlets etc. as a sustainable evolution of public space.

The “curatorship” of the park creating an economically and environmentally sustainable space for all to enjoy.





# 6. Delivery

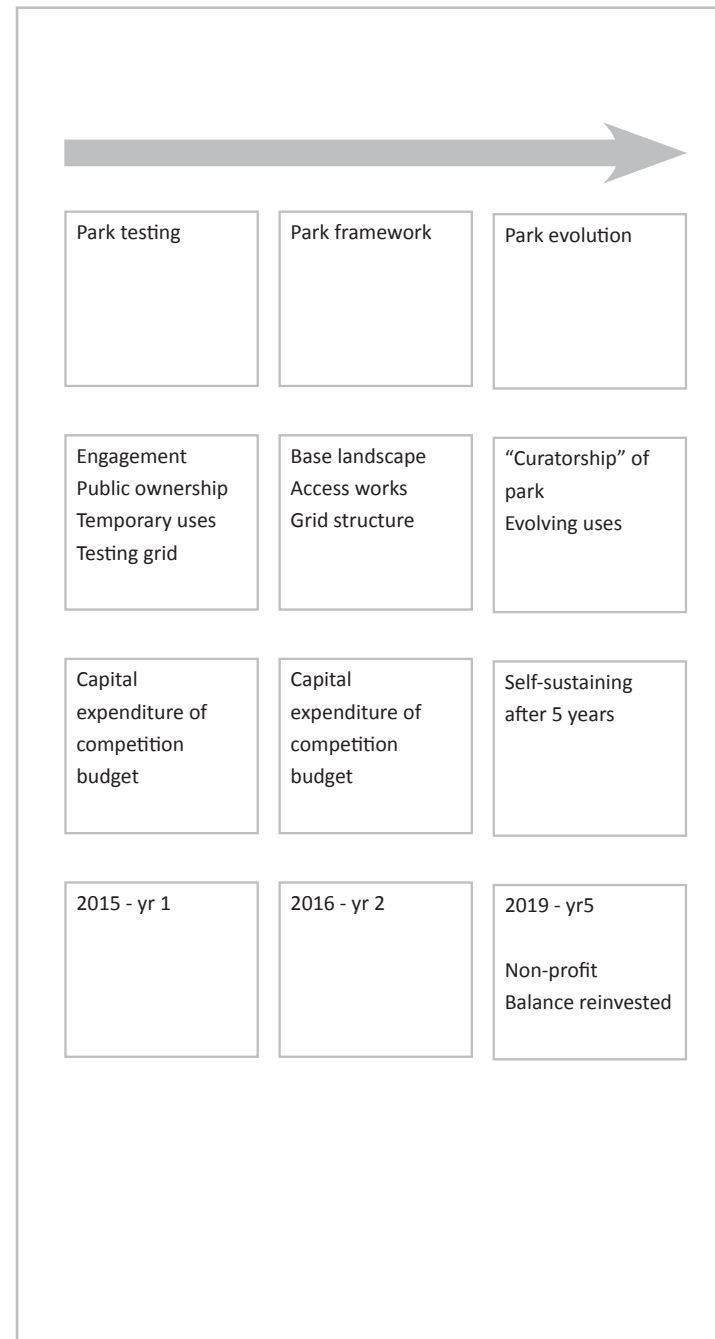
- The project will deliver a viable framework for park development and establish a self-sustaining programme;
- The park will be “curated” as a field of activity - redefining estate management as a collaborative and inclusive process;
- The project will balance capital investment and return as an evolving programme of activity;
- The construction logistics of both the framework and subsequent evolution will adopt a “light-touch” approach to the existing infrastructure.

## 6.1 Economic strategy

The economic strategy of the project is a critical aspect of the proposals and is founded on two fundamental principles:

- Securing a viable and deliverable new public space with improved access, landscape naturalisation and infrastructure within budget and at minimal programme duration;
- Establishing a structure for evolution and development of the park that becomes a self-sustaining field of activity - combining subsidised and commercially rewarding activities within an evolving landscape of activity.

We believe that this approach will enable both a quickly delivered transformation of the Cavalcavia Bussa and neighbouring spaces that will create public interest, engagement and support. This initial phase will then develop as a self-sustaining programme of activities and evolution.



## 6.2 Estate management

The delivery of the park intends to re-imagine “estate management” - by establishing an integrated and collaborative “ownership” of the project.

A “curatorship” organisation will be commissioned during the “framework” phase of the project that will define the combination of invited guests, local community participants, commercial interests and municipal representatives as the “Point Cloud” group.

This group will evolve an on-going structure of events and develop a commercial / subsidised ecosystem that is self-sustaining. This will involve an ongoing balancing of the growth and investment / return of the programme of activities.





### 6.3 Project growth and expenditure

In order to achieve this self-sustaining vision for the “Point Cloud Park”, careful monitoring and management of the project’s growth is key (both physical and environmental).

It is envisaged that the project has the opportunity to provide a unique balance of investment and commercial return as the project grows over time. The intention is for the initial budget to be spent on establishing a coherent structure for the framework of the project, and for the subsequent growth of the proposals to become self-sustaining.

An indicative approach to this growth is summarised below:

- Landscape maintenance - ongoing investment;
- Landscape enhancement / evolution - investment;
- Sports events / facilities - local facilities as public investment, sponsored events as capital return;
- Arts and culture (gallery, theatre, event) - facilities and events worst-case assumption as capital investment;
- Seasonal events (markets, performance, sporting tie-ins, shows etc.) - capital return;
- Regular local events (local markets, artist residencies, temporary planting etc..) - Subsidised (part self-funded);
- Regular / semi-permanent commercial enterprise (bars, cafes, kiosks, retailers, sponsorship, advertising) - capital return.



### 6.4 Construction logistics

The approach to the development of the park is to establish an initial framework and a structure of evolution of the park.

It is envisaged that the framework phase will involve a “light touch” to the existing condition - naturalising the Bussa surface within the limitations of the existing structure and adding lightweight interventions that are self-supporting.

Later phases will be constrained by the logic of the “point-cloud” grid that defines the dimension of the module and the distribution of interventions. It is envisaged that the park will evolve through a variety of temporary constructions and landscaping treatments that will be readily deliverable.



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