February 21, 2018

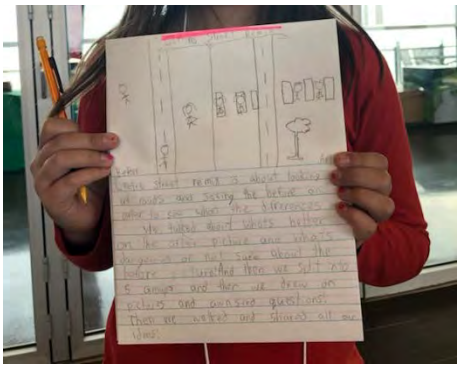
Award Committee
Educational Achievement Award
Transportation Association of Canada

Dear Committee,

It is my pleasure to share the results of a collaborative project to address the negative effects of an inner-city overpass on the walkability of a community. The pillars of the project were to transform a lost space while providing a real-world learning environment for both elementary and graduate level students. There were three main outcome areas:

1. The project showed the value of empowering students to improve our city. It also showed how popular pedestrian enhancements can be. The lasting impact of the project is a feeling that Calgarians can have a voice and make a difference in their community.
2. For City staff, the project was also a great opportunity to revisit The City's role and exposed opportunities to share decision making with the community. This coordinating role showed, at least through this project, to generate more positive and respectful conversations with the community and led to a highly supported final design.
3. The 4 Avenue Flyover project tasked kids to work on a complex transportation problem in their community. It revealed many tradeoff areas around mobility and the environment while also showing how municipal decision making happens, including community involvement. This project inspired kids to think about careers in transportation.

As a result of this project there is a renewed interest among staff in working with university and local students in Calgary. Several active projects are introducing kids to complete streets projects, as well as to test a draft walking audit tool. These projects allow kids to learn through exploring their own back yards.



CENTRE STREET COMPLETE STREET PROJECT, JANUARY 2018

4 Avenue Flyover project overview

As a demonstration project of the Pedestrian Strategy, The City of Calgary collaborated with students from Langevin School, the University of Calgary's Landscape Architecture program, the Bridgeland Riverside Community Association (BRCA), Calgary Drop-In Centre and other stakeholders to imagine how the space beneath the 4 Avenue flyover could become a valued community space and walking corridor. The project involves piloting innovative technical measures (transportation, art and bioretention) and non-traditional engagement and design approaches under the umbrella of placemaking and tactical urbanism.

Delivery of the project involved aligning City of Calgary and community goals with elementary and graduate school level curricula. This coordination was essential to allow participating students to gain unique opportunities over traditional classroom learning. Some of the opportunities were:

- University of Calgary: graduate students led design charrettes with elementary students to capitalize on imaginative solutions. They also had the opportunity to present their concepts at a City-led community engagement process and to a mixed panel of City and industry experts. Two students were hired following through the summer to finalize a preferred concept from the favoured components of the six designs.
- Langevin Science School: the grade six curriculum covers forestry, democracy and city shaping, as well as writing and showing data. Special accommodation was made on the project to coordinate with The City's urban forestry group to learn about tree selection in particularly near streets that experience high salt spray in winter months. Opportunities were also made for the students to meet with their local Councillor and present alongside City staff at Calgary Planning Commission.

Project timeline

- January, 2017: Site visit and analysis (Langevin Students)
- January, 2017: Community open house on priorities for the Flyover (City led)
- February, 2017: Design Charrette (Langevin and University of Calgary students)
- March, 2017: Design review (Langevin and University of Calgary students)
- March, 2017: Democracy and City Building Chat (Langevin students with local Councillor)
- March, 2017: Design critique (Concept presentations to technical and community experts)
- April, 2017: Community open house showing student concepts
- June, 2017: Presentation of final concept to Calgary Planning Commission
- June, 2017: Construction of temporary materials
- Summer, 2017: Site activation with ping pong tables and other events
- 2018 and ongoing: Technical drawing development and construction*

*The final concept features complex systems including an artist cooperative, a bioretention pond and permeable shared street. The project team is considering this project as a pilot of Calgary's low impact development goals. Further, Langevin students will be included in ongoing monitoring of the site, including water quality and quantity. This project as a result will align with future Langevin, grade six classes.

Submission overview

This submission includes:

- Cover letter
- Project story

Appendices:

- Class plans aligning the project to curriculum goals (Grade six and University of Calgary)
- Report to Calgary Planning Commission (including summary of public engagement)
- Select media coverage

Project team

City of Calgary core team:

- Jen Malzer, Project Manager and Transportation Engineer
- Michael Gray, Environmental Educator
- Kim Fisher, Active Modes Education Planner
- Kate Zago, Urban Design
- Amanda Burke, Environment Safety Management
- Shimin Wu, Calgary Parks
- Jonathan Chapman, Project Manager – Detailed Design

Key partners:

- Tawab Hlimi, Adjunct Professor, Landscape Architecture, University of Calgary
- Kate Logan, Grade 6 teacher, Langevin Science School
- Elaine McCrady, Grade 6 teacher, Langevin Science School
- Ali McMillan, Planning and Development, Bridgeland Riverside Community Association
- Councillor Gian Carlo Carra, Ward 9, City of Calgary
- Julie Black, Calgary Foundation

Design panel:

- Deb Lee, Community Historian, Bridgeland Riverside
- Mike Brander, Remington Development Corporation
- Craig MacFarlane, Bridge Engineer, City of Calgary
- Dale Lynch, Manager – Liveable Streets, City of Calgary
- Chris Oliver, Water Engineer, City of Calgary
- Patrick Sweet, Accessibility Technician, City of Calgary
- Jordan Hamilton, Calgary Drop In (shelter)
- Michael Alkema, Urban Forestry, City of Calgary
- Joanna Domarad, Roads, City of Calgary

- Rachael Seupersad, Public Art, City of Calgary
- Brian Whitelaw, Crime Prevention Through Environmental Design, City of Calgary
- Matthew Blair, Calgary Parks

University of Calgary, Landscape Architecture Students:

- Jennifer Bassett
- Alexia Caron-Roy
- Vincent Ellis
- Benjamin Hettinga*
- Tara Khazai
- Elham Dehkordi
- Iuliana Morar*
- Eva Stoklasova
- Emily Young

*Ben and Iuliana were hired through the summer of 2017 to advance the project design for presentation at Calgary Planning Commission and construction of the temporary measures.

Langevin Science School Students:

Serene	Zack	Kaed
Khalid	Cooper	Umer
Hala	Maria	Mariam
Cemal	Becca	Ammara
Isaac	Kyle D.	Ashim
Ethan	Talhah	Gerald
Sina	Rachan	Azlan
Ryland	Kailani	Adam
Simone	Cody	Ayyan
Lucy S.	Lucy F.	Narayan
Jayden	Hamza A.	Tyson
Sharina	Kolten	Isabelle
Aryanna	Kyle L.	Hamza E
Gabby	Reilly	Anas
Sai	Noah	Selena
Miles	Gunnar	Karanjot
Kiara	Nehaan	Unnas
Aydia	TJ	Mishaal

Khush Farooq

In closing, I would like to thank the members of the committee for considering this project for this year's Environmental Achievement Award. This project had a significant impact on Calgary's Transportation Department; how we value, empower and even teach the communities we impact, be they students big and small.

Respectfully,

Jen Malzer, PEng. MSc.

I never thought…

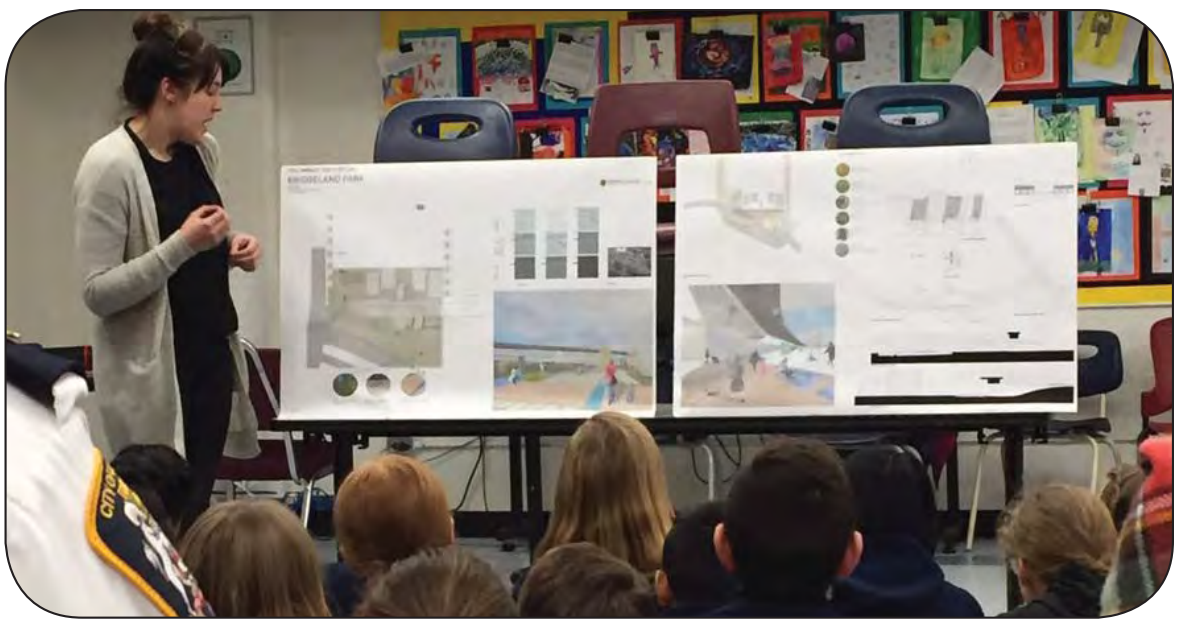
- Ethan: a project like this would help the community grow and potentially reduce the amount of crime in Bridgeland.
- Isabelle: We'd be able to make such a big difference in our community and find Wabi Sabi in an imperfect and neglected space.
- Kyle: my ideas, like painting a road would actually be turned into something realistic.
- Gunnar: I could actually be re-designing the 4th avenue flyover. I've been there before & I always thought this area could use some love.
- Ryland: we would have such a big part in the flyover project - we were able to explore the neighbourhood, talk to community members - find out what their needs are - work with designers to realize our ideas, and present our designs for real!
- Mariam: We would come this far. Usually, adults make all of the decisions but this time kids were included.

-Student statements made as part of a presentation that earned the project a Soul of The City Grant by the Calgary Foundation. These grants (ten each year) are awarded according to crowd voting at an evening event.

THE 4TH AVE. FLYOVER PHASE 1

PARTICIPATORY DESIGN CHARRETTES & PUBLIC ENGAGEMENT

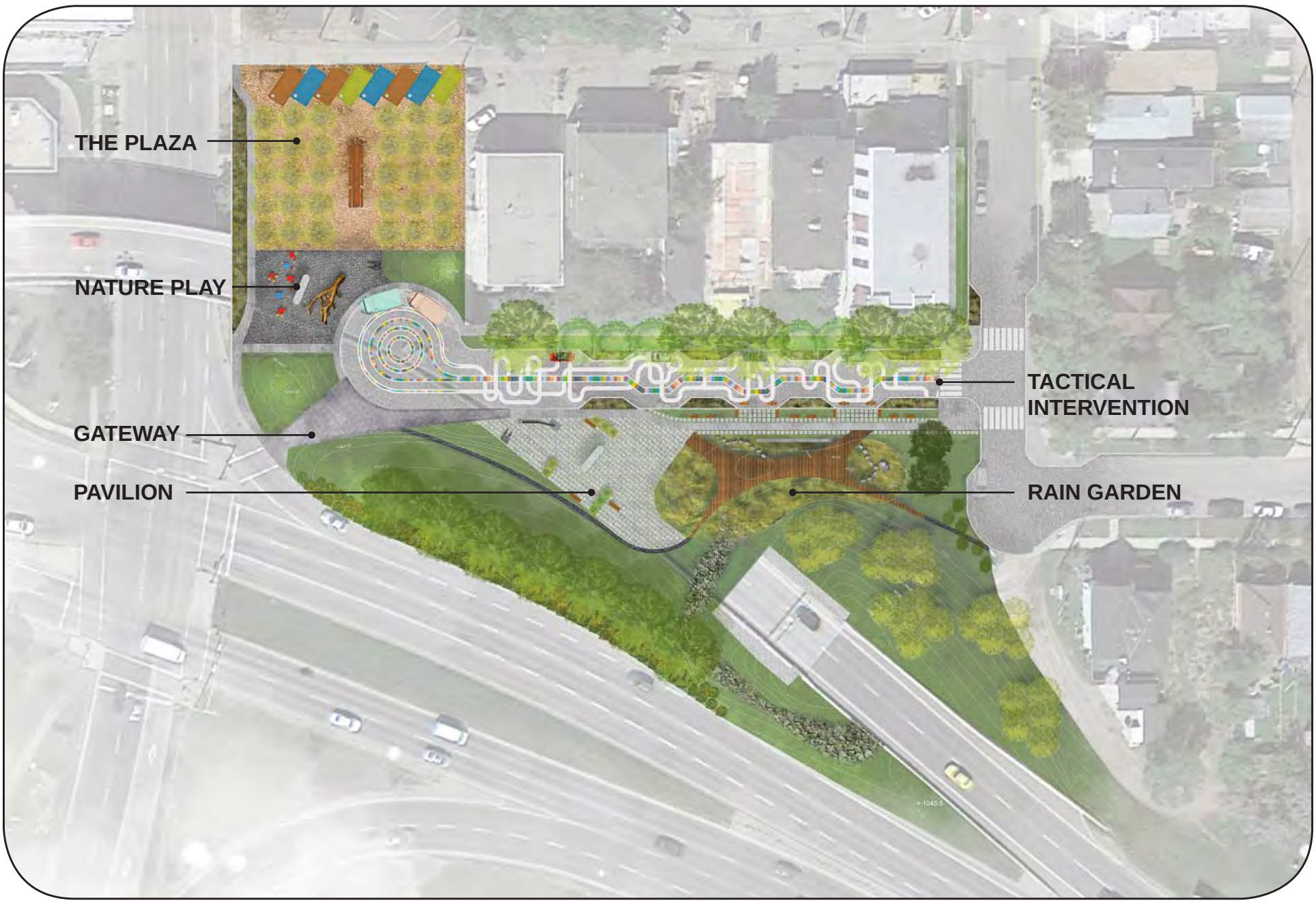
The 4th Avenue Flyover is a collaborative project between the Bridgeland-Riverside Community Association, the City of Calgary's Pedestrian Strategy, and the University of Calgary's Faculty of Environmental Design (EVDS) to revitalize the underutilized spaces of transportation infrastructure below the 4th Ave. Flyover. The project began in January of 2017, facilitated through a course on Green Infrastructure at the University of Calgary. Graduate students in landscape architecture, engaged both grade 6 students at Langevin School and the Bridgeland Riverside Community in their design process through participatory design charrettes and public open houses.



THE 4TH AVE. FLYOVER PHASE 2

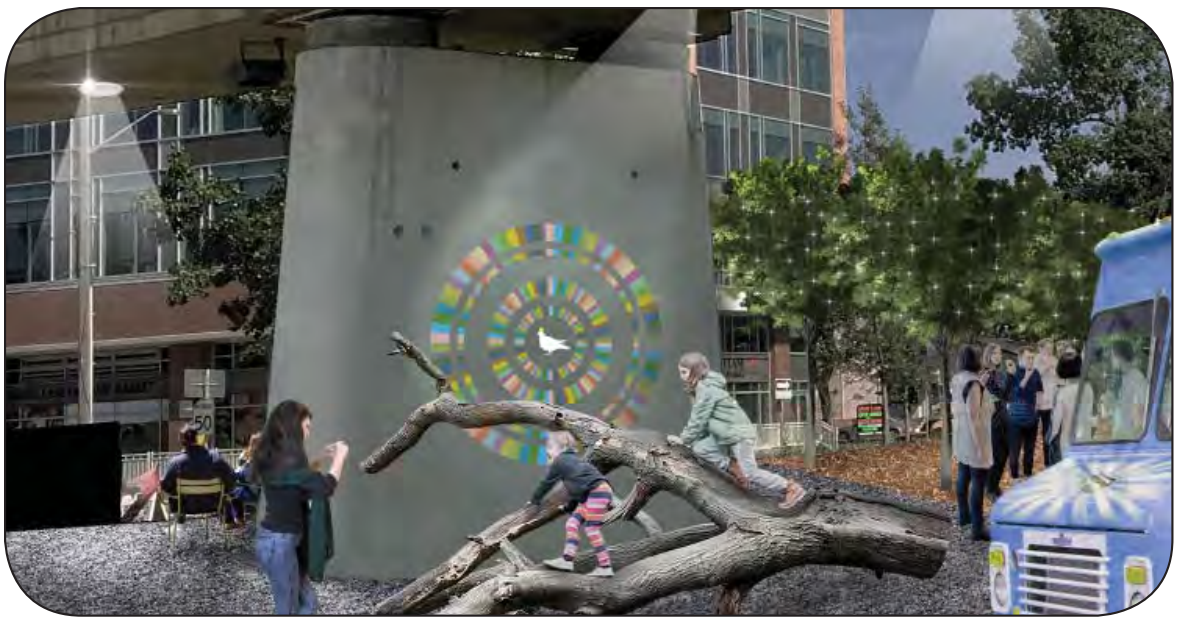
CONCEPTUAL MASTERPLAN & DESIGN DRAWINGS

Upon the completion of the academic semester, phase two of the project began. Graduate students under the supervison of their instructor produced a conceptual design responding to the feedback generated from both the partcipatory design charrettes at Langevin and public open houses. The most popular ideas produced through student work over the course of the semester were consolidated into a concept plan. In June 2017, the concept plan was approved by Calgary Planning Commission, leading to phase 3.



THE PLAZA

The plaza is defined by shipping containers along the northern perimeter which serve as space for artist workshops, activating the interior of the plaza through programs and activities. A grove of trees and a communal table enhance the space for community events. Lighting extends programming into the evening and provides a sense of safety.



NATURE PLAY

The space below the flyover is activated through a “nature play” environment with a fallen tree for climbing. Lighting extends the use of the space into the evening.

THE 4TH AVE. FLYOVER PHASE 2
CONCEPTUAL MASTERPLAN & DESIGN DRAWINGS

GATEWAY TO BRIDGELAND
A special node in the community of Bridgeland-Riverside, the flyover lifts off the ground, promoting connectivity between the community, the Bow River and downtown Calgary. There is an opportunity to celebrate/reinforce this “gateway” condition through public art and/or lighting.

PAVILION
The sheltered space below the flyover serves as a flexible open space for exhibitions, performances, games, community gatherings, etc. It is enhanced through leveling and paving the surface, lighting and public art.

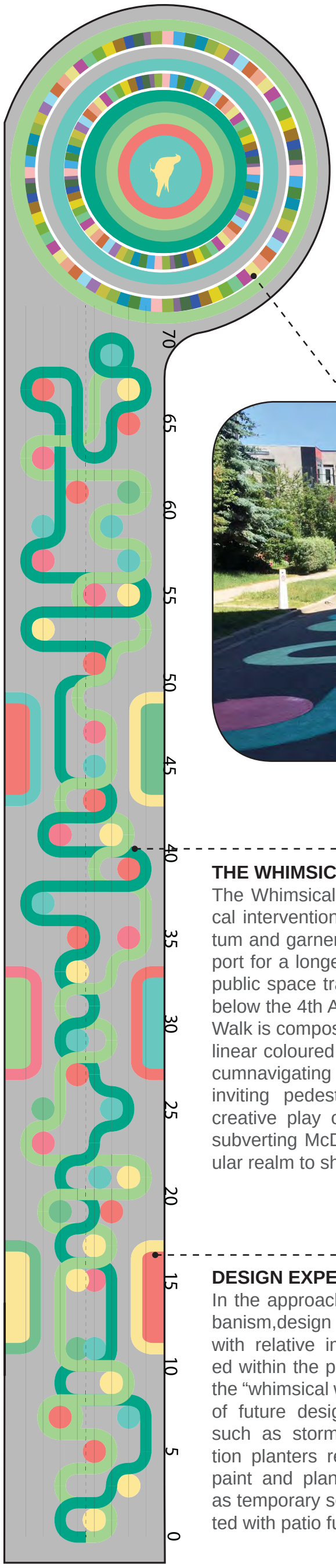
FLYOVER RAIN GARDEN
The Flyover Rain Garden is both stormwater infrastructure and nature play environment. Stormwater is channeled into the rain garden from the 4th Ave. Flyover bridge through a swale lined with riprap. Once stormwater enters the rain garden it is filtered biologically through native plants, and infiltrated into the gravel based soil, mimicking a natural hydrological system. An interpretative wooden boardwalk crosses the Rain Garden connecting to the “pavilion” below the flyover.

TACTICAL INTERVENTION
McDougall Rd NE. is proposed as a Gateway to the Bow River Pathway System, extending the walking/cycling infrastructure and greenery of the Bow River into the Community of Bridegland-Riverside through a shared/ green street. A tactical intervention to begin the process of transformation from vehicular corridor to shared street is proposed through inexpensive materials of paint, planters, and street furniture, and the engagement and empowerment of the community through implementation.

THE 4TH AVE. FLYOVER PHASE 3

THE “WHIMSICAL WALK” AS SHORT-TERM TACTICAL INTERVENTION

Phase 3 of the project was intiated in June 2017 with “The Whimsical Walk”, a tactical intervention on McDougall Rd NE, a local street ending with a cul-de-sac just below the 4th Ave. Flyover. With low vehicular traffic and high pedestrian connectivity to the Bow River pathway system, and often touted as the “Gateway to Bridgeland”, the street was identified as a potential catalyst in transforming the spaces below the 4th Avenue Flyover.



WABI SABI (above)
Drawing from the Japanese aesthetic philosophy of Wabi Sabi - finding beauty in the imperfect, transient, or incomplete, Grade 6 students from Langevin School record their insights of the spaces below the 4th. Avenue Flyover upon the ubiquitous cul-de-sac of McDougall Rd NE.

THE WHIMSICAL WALK
The Whimsical Walk is a short-term tactical intervention intended to build momentum and garner political and financial support for a longer-term and more grounded public space transformation of the spaces below the 4th Ave. Flyover. The Whimsical Walk is composed of a complexity of curvilinear coloured bands intersecting and circumnavigating brightly coloured polka dots inviting pedestrian participation through creative play opportunities, and instantly subverting McDougall Rd. NE from vehicular realm to shared public space.

DESIGN EXPERIMENT
In the approach of Tactical Urbanism,design ideas are tested with relative immediacy. Coded within the playful graphic of the “whimsical walk”, are traces of future design interventions such as stormwater bioretention planters represented with paint and plants, and serving as temporary social spaces, fitted with patio furniture.

THE 4TH AVE. FLYOVER PHASE 4

THE “GREEN” STREET AS LONG-TERM DESIGN OBJECTIVE

The “Whimsical Walk” is the beginning of a longer term and more grounded public space transformation of the spaces below the 4th Ave. Flyover. McDougall Rd. NE is envisioned as a model residential street fitted with stormwater bioretention planters that will build resilience to climate change induced storm events, enhance eco-system services by mimicking a predevelopment hydrological system which filters stormwater runoff biologically, and improves public health by promoting walking through the aesthetic experience of textures, colours, and fragrances afforded by dynamic native plant communities. (see rendering bottom of page). The 4th Ave. Flyover Project aspires to be become a model for the integration of sustainable stormwater management as a strategy in the social and ecological reclamation of marginalized spaces of transportation infrastructure.

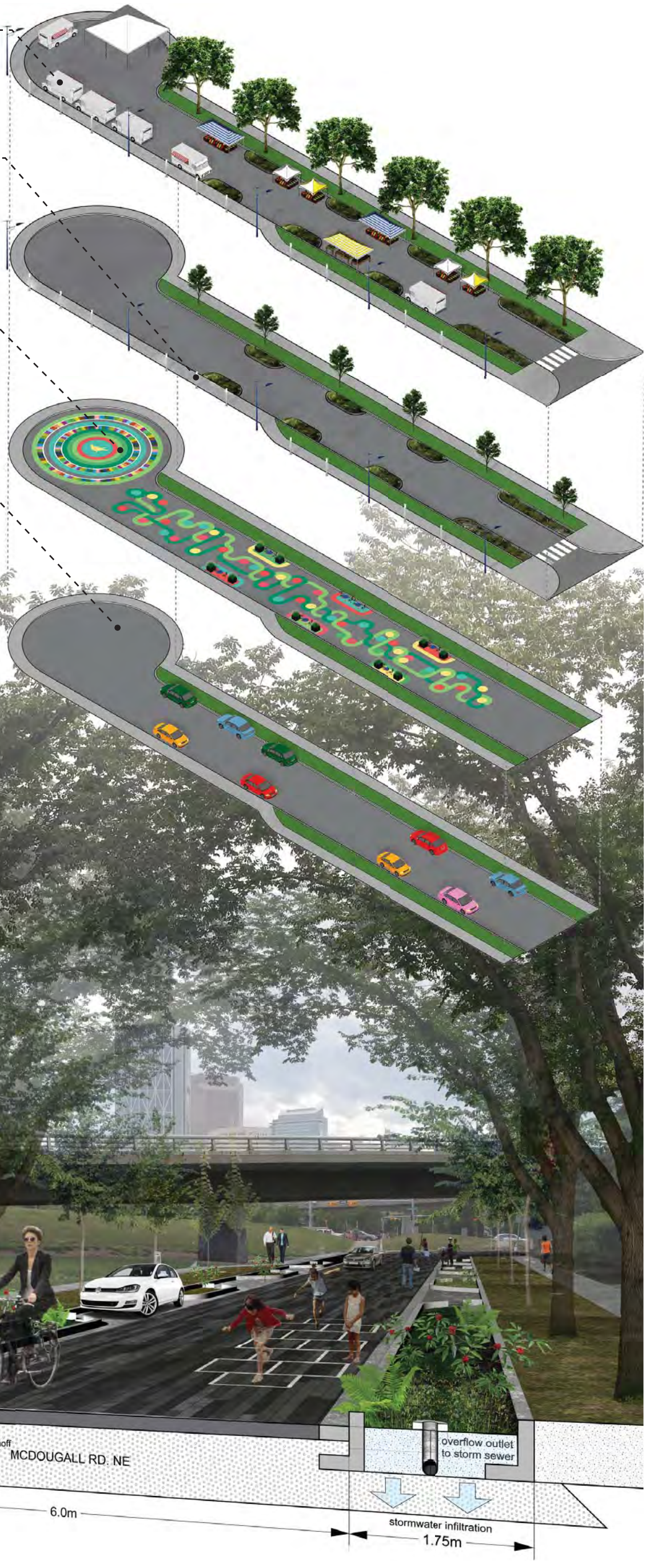
Phase 3: Event Space
Seasonal programming such as farmers markets, food trucks, and performances can activate the road on week-ends, taking advantage of of the park-like environment of the road, the open space of the cul-de-sac, and the flow of pedestrians from the Bow River pathway system.

Phase 2: Green Street
Stormwater bioretention planters manage all runoff eco-logically, reduce street width to a pedestrian scale, calm traffic through narrow crossings improving pedestrian safety, delineate parallel parking spaces, and enhance the pedestrian experience through dynamic native plant communities.

Phase 1: Tactical Intervention
Through the deployment of community action and in-expensive materials such as paint, the road is instantly transformed. The “whimsical walk” a strategic composi-tion of bands of colour flowing down the road invite play-ful interaction, initatiating the pedestrian reclamation of the road.

Existing
McDougall Rd. NE is a local street terminating in a cul-de-sac. With low vehicular traffic and high pedestrian connectivity to the Bow River path system and Down-town Calgary, the road has been identified as a catalyst in transforming the spaces below the 4th Ave. Flyover.

Rendering Below
A design projection of McDougall Rd NE, as a shared street. Stormwater planters reduce street width to 6m and organize parallel parking, pavers indicate a pedes-trian realm, and an allee of American Elms further define the space through a lush canopy.



THE 4TH AVE. FLYOVER PHASE 4

DEVELOPED MASTERPLAN

FOREST PLAZA
A stepped concrete edge elevates the plaza, taking advantage of existing site topography to serve as a growing medium for a forest of Birch trees.

WOODEN BOARDWALKS
Wooden boardwalks bridge across the plaza, separating pedestrian traffic from plantings, thus eliminating soil compaction, so that the Birch forest will thrive.

BIRCH TREE ALLES
With elegant form, papery white bark, and fast growth rate, a forest of Birch trees lends a distinct aesthetic experience and identity to the space of the plaza.

EDMONTON TRAIL RAIN GARDEN
The long linear rain garden along edmonton trail serves as both ecological infrastructure for the biological purification of stormwater runoff and a physical barrier buffering from vehicular traffic through native planting.

CUL DE SAC COMMONS
The cul de sac becomes a multifunctional space, retaining its primary purpose as vehicular transportation infrastructure and adopting a secondary use as an event space, for performances, farmers markets, food truck parking for the plaza, etc. This is defined simply through the use of a cobblestone/brick/concrete pavers to define the circular space, and extension of the plaza stepped edge to produce informal seating along its circumference.

"GATEWAY TO BRIDGELAND" ART/LIGHTING
An special node in the community of Bridgeland, the flyover lifts off the ground, to allow connection between the community and the river. As it becomes elevated, it produces an arch-like gateway. There is an opportunity to celebrate/reinforce this existing condition through public art/lighting.

THE ROCKY SCRAMBLES
A series of of three rocky scrambles interconnected with pathways take advantage of the site's unique topography, providing a playful way of navigating through the various spaces of the site.

THE SCULPTURAL BENCH
A large wooden bench around the flyover pillar subverts the pillar from barrier to a point of interest, drawing pedestrians off the sidewalk into the space below the flyover.

THE SUNNY HILL
Coined the "Sunny Hill" by grade six students at Langevin, this sloping lawn buffered from Memorial Dr. with a thick belt of vegetation serves as a place to recline either watching the cars on the flyover zipping by or the community activities below the flyover.

SOUTH-WEST BERM
TREES
Crataegus chrysocarpa (Fireberry Hawthorne)
SHRUBS
Amelanchier alnifolia (Saskatoon)
Elaeagnus commutata (Wolf Willow)
Potentilla fruticosa (Shrubby Cinquefoil)
Ribes aureum (Gold Currant)
Rosa arkansana (Prairie Rose)

THE PAVILION
The sheltered space below the flyover serves as a flexible open space for exhibitions, performances, games, community gatherings, etc. The space frames views of the Rain Garden to the North-East, and "Sunny HilL" with "rocky scrambles" to the South-West.

FLYOVER RAIN GARDEN/MAZE
The Flyover Rain Garden is both stormwater infrastructure and nature play environment. A series of weirs/checkdams double as both stormwater detention infrastructure and maze-like circulation system enabling movement through the vegetation of the rain garaden. A wooden boardwalk crosses the Rain Garden over two swales, and a terrace on the SW end of the rain garden serves as an informal seating element with a long view of the rain garden.

SHIPPING CONTAINERS
Shipping containers strategically placed along the perimeter of the plaza serve as space for artist workshops, activating the interior.

COMMUNAL TABLE
The communal table serves as a gathering space for community events, as well as an extension of artist workshop space. It can be moved where needed.

TIMBER BENCHES

MCDOUGALL SHARED/GREEN STREET
McDougall Rd is proposed as a Gateway to the Bow River Pathway System, extending the walking/cycling infrastructure and greenery of the Bow River into the Community of Bridegland through a shared/green street. Stormwater planters effectively reduce street width to 6m, and filter stormwater runoff biologically through native plant communities.

Crushed rock serves as base for parallel parking spaces, allowing for stormwater/snow to filter into the ground, and for winter sand/grit to become imbedded.

MATERIALS LEGEND
- Crushed Rock
- Asphalt
- Concrete Surface
- Concrete Retaining Wall
- Wooden Decking
- Native Planting (mesic)
- Native Planting
- Turf/Grass

FLYOVER RAIN GARDEN STORMWATER FLOW SEQUENCE

① CATCHBASIN OR CURB CUT
Stormwater flows are diverted through the first catch basin or a curb cut on the Jersey Barrier to a swale . The second catch basin remains connected to the storm sewer network, to intercept excess flows from the flyover.

② SWALE
The median between Memorial Drive and the 4th Ave. Flyover is graded into a 5% swale. The swale is lined with a synthetic liner to convey all runoff to Rain Garden for infiltration, and river rock to trap sediments and reduce runoff velocity. Contour intervals are 0.5m.

③ FLOW SPLITTER
The flow splitter is a shallow concrete basin lined with river rock. It has two outlets to distributes flows into the rain garden in two directions.

④ SWALES AND CHECK DAMS/WEIRS
Water flows on a 2% gradient throughout the rain garden, delayed at regulary intervals with check-dams to enhance biological purification and infiltration.

⑤ OUTLET
Excess stormwater exits the rain garden through an outlet at the end of the rain garden connecting to existing storm sewer network

American Elm Allee

water fountain - either at fire hydrant or piped to corner of rain garden

0.1m contour intervals to reveal rain garden topography

existing catchbasins as overflow for street rain gardens

Outlet

Swale

Curb Cut

2.0m turf barrier between road and planting

WOODEN BOARDWALK
A wooden boardwalk spans the Rain Garden connecting McDougall Rd NE with the space below the Flyover, and the "rocky scramble."
WOODEN DECK
tucked against the flyover abutment, the wooden deck conceals the sloped concrete surface of the abutment, and offers a prospect over the activities in the rain garden and the space below the flyover.

NORTH-EAST BERM: TREMBLING ASPEN FOREST
A forest of Trembling Aspens masks both the sight and sound of vehicular traffic through the white noise of the "trembling" aspen leaves.
TREES
Populus tremuloides (Trembling Aspen)
SHRUBS
Amelanchier alnifolia (Saskatoon)
Potentilla fruticosa (Shrubby Cinquefoil)
Ribes aureum (Gold Currant)
Rosa arkansana (Prairie Rose)
Shepherdia canadensis (Canada Buffaloberry)
Symphoricarpos occidentalis (Western Snowberry)

INTERSECTION AS GATEWAY
The intersection of 6th street and McDougall Rd NE is defined by streetside rain gardens, serving as stormwater infrastructure, traffic calming measure, and signal of the entry into the green space of the flyover.

HEALTHIER BOW RIVER
Rain gardens improve water quality entering the Bow River through the storm sewer network.