

NAMUR-DE LA SAVANE

# ENVISIONING CHANGE FOR THE HEART OF THE ISLAND



Coordinated Concept Plan | December 2019







December 19, 2019

Attn: Ms. Tanya Abramovitch  
City Manager  
City of Côte Saint-Luc  
5801 Cavendish Blvd  
Côte Saint-Luc, QC  
H4W 3C3

Attn: Mr. Rafik Salama  
Conseiller en planification  
Borough of Saint-Laurent  
777 Marcel-Laurin Blvd  
Saint-Laurent, QC  
H4M 2M7

Subject: Submission of the Namur–De la Savane Coordinated Concept Plan

Dear Ms. Abramovitch & Mr. Salama,

The Oroboro team is pleased to submit the Namur–De la Savane Coordinated Concept Plan, the final deliverable of its mandate. The land use and transportation teams have worked closely to deliver a joint plan with strategies and interventions that collectively address the needs of the sector.

This plan provides a vision for the future of the Namur–De la Savane sector to unify the actions of its various stakeholders. It is based on a comprehensive analysis of the sector’s current issues and the challenges we anticipate in the medium- to long-term. The several ongoing planning projects within the area are a testament to the vitality and central importance of this sector. We believe that this plan can contribute by highlighting the shared challenges and opportunities that need to be collectively addressed.

Building on the Situational Report presented in November 2019, this plan begins by describing the sector’s context and by providing a summary of the background analysis we conducted to inform our work. We then present our vision for the future of the sector and provide strategic orientations to ground it.

We would like to extend our appreciation for your support and your precious suggestions that made it possible for the team to complete its mandate. Oroboro feels privileged to contribute to the future of an important and vital sector for the Montréal agglomeration. We invite you to contact us should you have any further comments or questions regarding this plan.

Sincerely,

The Oroboro team

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# A NEW VISION

This Coordinated Concept Plan (CCP) prepared by Oroboro aims to provide a unified vision for the currently fragmented Namur-De la Savane (NDLS) sector.

This vision is to act as a tool to encourage future dialogue and collaboration between the sector’s multiple stakeholders. In keeping with this vision, Oroboro proposes several interventions that serve as starting points to address the needs of current and future residents of the sector, which is expected to grow significantly [see [See Figure 1].]:

- **Active green network** – a continuous network to support active transportation and biodiversity, improve environmental quality, and link upcoming developments within the sector.
- **Electric-based transportation network** – a cost-effective and aesthetic option to improve access to public transit, promote property development, and promote sector character and identity.
- **Underpass park for the A-40** – connecting active transport networks and creating more inviting spaces beneath the highway by repurposing existing infrastructure into an all-season public park.
- **Connecting Cavendish and Décarie Square to the Hippodrome** – prioritizing active and public transport on the impending Cavendish extension and creating a new connection on Clanranald Avenue under the CP rail tracks.
- **Decking over Décarie** – creating a ‘roof’ over a portion of the expressway to mitigate noise and air pollution, improve safety and aesthetics, and provide new green and public space.

- **Tackling a soft infrastructure and public space deficit** – securing land, infrastructure, and funding for schools, parks, and community centres before NDLS land values increase.
- **Future vocations** – ensuring that compatible industrial and commercial uses remain in the sector while making encouraging efficiency in logistics and use of space.
- **Last mile solutions** – reducing traffic congestion and emissions from ‘last mile’ deliveries by shifting deliveries to off-peak hours with more sustainable modes, in addition to coordinating new routes and distribution hubs.
- **Parking policy** – controlling parking supply and demand in the sector to discourage car use and reduce barriers and underutilized space as a result of excess parking.
- **Adaptable infrastructure** – designing parking facilities to meet current parking needs while anticipating repurposing and retrofitting for other uses as mode preferences change over time.
- **Form-based codes** – implementing legally binding zoning tools that regulate the character of property developments rather than their use

All of these proposals require close collaboration and coordination among the various jurisdictions.

As current legal and jurisdictional frameworks do not provide the necessary tools to address unique scenarios like the NDLS sector, new frameworks will be necessary to ensure that all stakeholder interests are considered in the development of a connected, livable, and future-proof area at the heart of the island.

# UNE NOUVELLE VISION

Le Plan conceptuel coordonné (PCC) suivant a été conçu par Oroboro et vise à fournir une vision unifiée pour le secteur Namur-De la Savane (NDLS), aujourd’hui hautement fragmenté. Cette vision agira comme un outil pour encourager le dialogue et la collaboration entre les multiples parties prenantes du secteur. Conformément à cette vision, Oroboro propose plusieurs interventions qui servent de points de départ pour répondre tant aux besoins des résidents actuels que futurs [Voir Figure 1]:

- **Réseau vert actif** - un réseau continu pour soutenir les transports actifs et la biodiversité, améliorer la qualité de l’environnement et connecter les développements futurs du secteur.
- **Réseau de transport électrique** - une option rentable et esthétique pour améliorer l’accès au transport en commun, promouvoir le développement immobilier et promouvoir le caractère et l’identité du secteur.
- **Espace public sous l’autoroute 40** - relier les réseaux de transport actif et créant des espaces plus accueillants sous l’autoroute en transformant l’espace existant en un parc public toutes saisons.
- **Relier Cavendish et Decarie Square à l’Hippodrome** - prioriser les transports en commun et actifs sur l’extension prochaine du boulevard Cavendish et créer une nouvelle connexion sur l’avenue Clanranald sous les voies ferrées du CP.
- **Recouvrement partiel de Décarie** – créer un espace vert au-dessus d’une partie de l’autoroute pour atténuer le bruit et la pollution atmosphérique, améliorer la sécurité et l’esthétisme du secteur pour fournir un nouvel espace public de rencontre.
- **S’attaquer au manque d’infrastructures et d’espaces publics** – réserver des endroits, des infrastructures et les moyens nécessaires pour doter le secteur d’écoles, de

parcs et de centres de transport avant que la valeur des terrains n’explose.

- **Vocations futures** - veiller à ce que des usages industriels et commerciaux compatibles restent dans le secteur tout en favorisant l’utilisation efficace de l’espace.
- **Solutions du « dernier kilomètre »** - réduire la congestion et les émissions provenant des livraisons du « dernier kilomètre » en les effectuant à des heures alternatives avec des modes de livraison plus durables, en plus de développer de nouveaux itinéraires pour les centres de distribution.
- **Politique de stationnement** - contrôler l’offre et la demande de stationnement dans le secteur afin de décourager l’utilisation de la voiture et de réduire les obstacles et les espaces sous-utilisés en raison d’un surplus d’espaces de stationnement.
- **Infrastructures adaptables** – implanter des structures de stationnement pour répondre aux besoins actuels en matière de déplacements automobiles tout en anticipant le réaménagement et pour d’autres usages à mesure que les préférences en matière de mode de transport évoluent.
- **« Form-based code »** - mettre en œuvre des outils de zonage qui réglementent le caractère et la forme du cadre bâti plutôt que son utilisation.

Toutes ces solutions exigent une étroite collaboration entre différents acteurs. Puisque les cadres réglementaires actuels ne fournissent pas les outils nécessaires pour aborder de façon coordonnée la situation actuelles, de nouveaux outils seront nécessaires pour s’assurer que tous les intérêts des parties prenantes sont pris en compte dans la création d’un secteur hautement connecté, habitable et à l’épreuve de l’avenir situé au cœur de l’île.





Figure 1 | View of the NDLS sector with ongoing and planned development projects.



# A COORDINATED CONCEPT PLAN

## Project Understanding

In early September 2019, the City of Côte Saint-Luc and the borough of Saint-Laurent launched a collective request for proposals for a coordinated planning vision that would guide the future of the Namur–De la Savane sector (NDLS).

The area is entering a period of substantial transformation, moving from a predominantly low-density commercial and light industrial sector to higher-density residential and retail mixed use. The proposed developments have the potential to add more than 40,000 new residents along with 600,000 square metres of new commercial, retail and office space which will requalify the sector as a new regional shopping and entertainment pole.

NDLS is one of the six strategic sectors identified in the 2015 Schéma d'aménagement et de développement de l'agglomération de Montréal. As it falls under multiple jurisdictions, the need for a unified and coherent vision is pressing, especially when considering the breadth of the projected changes.

Multiple challenges, such as a saturated road network and disjointed enclaves, need to be addressed in a coordinated way before the redevelopment projects are completed. This wave of redevelopment and private investment presents a unique opportunity for devising a planning vision that addresses questions pertaining to both transportation and land use. This must be done in a way that follows the Schéma's objectives of prioritizing active and public transportation as well as more compact and greener neighbourhoods that enable economic growth.

## Mandate

The Oroboro team received a mandate to devise a coordinated concept plan for the redevelopment of the Namur–De la Savane sector. This plan will include strategies to address the challenges posed by both transportation and land use issues. Detailed interventions, informed by real-world case studies, are presented as examples showcasing the impact of these strategies.

Oroboro's approach encompasses both the current and anticipated challenges of the sector. The plan includes strategies that should be implemented in the medium- to long- term.

## Methodology

The coordinated concept plan is the result of the following five-step process undertaken jointly by Oroboro's land use and transportation planning teams.

1. A background and context analysis of the sector and the surrounding region through a careful literature review of various official reports and data sources publicly available and produced within the last 5 years.
2. A consultation process with the public and with diverse stakeholders, as well as on-site field data collection and observations, to identify challenges and opportunities.
3. Synthesizing our findings in a Situational Report shared with our clients.

4. The development of a unifying vision statement that will lead to a framework for collaborative decision-making and a concept plan that showcases interventions to address the needs of current and future residents.

5. The presentation of the vision and concept plan to our clients and the incorporation of their comments and suggestions in this final report.

## Report Structure

This report begins by situating the NDLS sector in its wider context, understanding how it came to play a strategic role for the development of Montreal. We then summarize our key findings that were presented in the November 2019 Situational Report by highlighting the sector's key socio-economic characteristics.

This serves as a basis to introduce the main purpose of this report: devising a vision that will overcome the key challenges facing the NDLS sector. A number of specific interventions flowing from this vision are then presented. Finally, the report concludes by giving an overview of the collaborative decision-making approaches that will make it possible to enact this vision.





### *What is a Coordinated Concept Plan?*

The Coordinated Concept Plan presented here follows closely the objectives of a Programme particulier d'urbanisme (PPU), a legal instrument for special planning of complex areas within a single municipality. As the NDLS sector is shared across multiple boroughs and municipalities, the Oroboro team presents its own version of this tool to encourage inter-jurisdictional collaboration.

As per a PPU, the proposed interventions in this report are accompanied by an approximate estimate of their cost and time requirements. This document seeks to illustrate the potential of the sector and aims to serve as a stepping-stone to reach inter-jurisdictional collaboration. Once the concerned actors agree on which of the proposed interventions they want to pursue, dedicated feasibility analyses and impact assessments will have to be conducted.

Figure 2 | From left to right, the Montreal in 1734 (BANQ) overlaid in red with the modern day routes of the A-40 and A-15; current aerial view of the sector; and Texaco gas station, cite of the current Namur metro station



# YESTERDAY + TODAY

## A Brief History

This section provides a brief overview of the history of the area which influenced current land use and transportation patterns in the NDLS sector.

### Sector beginnings

From the 18th to the early 20th century, the area was predominantly agricultural land. The sector was divided into the long lots as a result of the seigneurial system, as was common across the Island of Montreal at the time. The sector was made up of the individual villages and towns of Côte Saint-Laurent, Côte Vertu, and Côte-de-Liesse in the Parish of Saint-Laurent and Côte Saint-Luc, Notre-Dame-de-Grâce and Côte-des-Neiges in the Parish of Montréal. Many waterways were also covered to create the early road networks in the area.

The Blue Bonnets horse race track, later named the Hippodrome, opened in 1907 and attracted economic development and growth within the sector. This simultaneously led to the addition of a tramway connecting the area to downtown Montreal and resulted in the first suburban residential developments in the area. The tramway remained in service until the 1950s.

### Rapid urbanization

The next era of rapid development and transformation in the sector began in the period following World War II. In 1940, the City of Montréal absorbed Côte-des-Neiges, Mount Royal, and Notre-Dame-de-Grâce, while Saint-Laurent and Côte Saint-Luc remained an independent city and village. Over the course of 15 years, the agricultural lots were subdivided and large buildings were constructed in the industrial zones of Saint-Laurent and the Town of Mount Royal. The surrounding areas saw higher density devel-

opment and the adoption of street grids as a result urbanization pressures from the City and the Town of Mount Royal’s Model City plan.

### A car-dominated landscape

During the 1960s, a series of large-scale highways and interchanges were constructed in Montreal in preparation for the Expo 67 World’s Fair. This included the Turcot and Décarie Interchanges, Trans-Canada highway, and the Décarie expressway.

This emphasis on major automobile infrastructure had a great impact on the land use patterns and built form of businesses and services in the sector. Restaurants, including Gibeau Orange Julep, were built with large surface parking lots to accommodate vehicles in the area. A portion of this evolution is captured in [See Figure 2].



**Figure 3 | Regional map situating NDLS sector**

### Mass rapid transit

The 1976 Montreal Summer Olympics generated another round of public sector investments in large-scale transportation infrastructure. The metro, which was first launched in preparation for Expo 67, was expanded in the 1980s, during which the two stations in the sector first opened: Namur and De la Savane. The site of the Namur metro station was formerly used as a gas station and used car dealership. This change in land use signifies the beginning of a shift in transportation patterns within the sector which have been continued into the present.

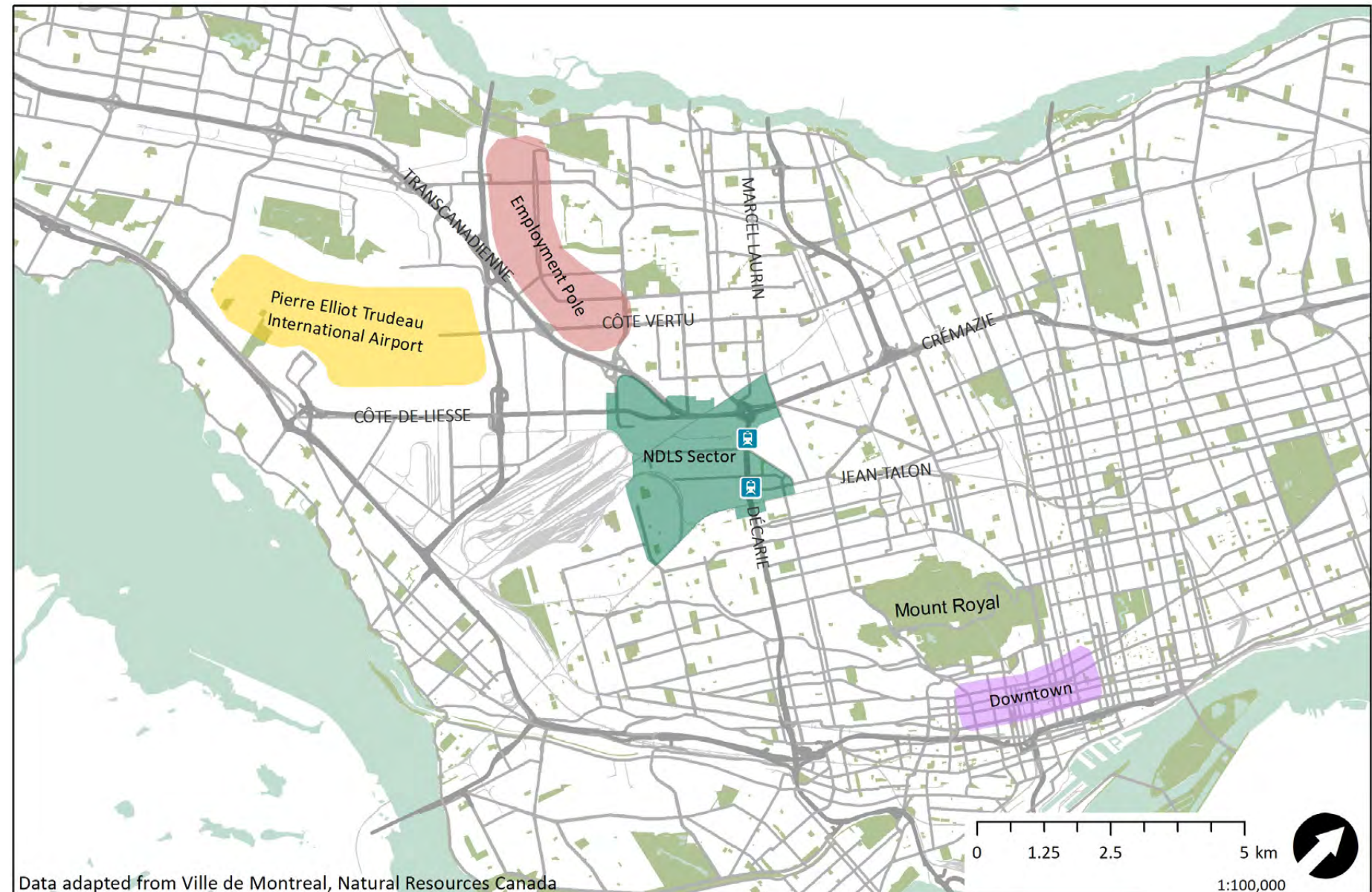
### Regional Context and NDLS Sector Today

The NDLS sector is strategically located at the heart of the Island of Montreal, between the West Island and Downtown Montreal and in close proximity to the Saint-Laurent economic pole to the west. [See Figure 3].

The sector covers an area of 7 square km and is well connected to major shipping and transportation routes including the Pierre Elliot Trudeau International Airport, Canadian National (CN) and Canadian Pacific (CP) intermodal freight terminals and yards, and the Autoroutes 40, (east-west) and 15 (north-south).

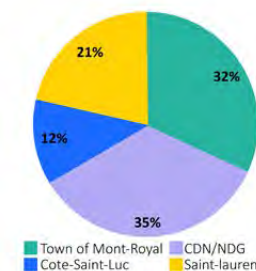
The sector is still dominated by private vehicles, although it is served by the Namur and De la Savane metro stations on the Orange Line for which the sector is named.

Traffic analyses conducted in the last decade all show that the road network has become saturated and that the future of transportation in the sector will need to be supplemented by improved active and public transport.



The sector is comprised of three cities, TMR, CSL and the City of Montreal which includes the boroughs of Saint-Laurent and CDN-NDG. The land area governed by each of the jurisdictions breaks down as follows:

- CDN-NDG- 35%
- TMR- 32%
- Saint-Laurent: 21%



- CSL- 12%

At an intersection of distinct political entities, the sector has faced many jurisdictional changes over time that have shaped both hard and soft infrastructure in the area, resulting in a lack of inter- and intra- region connections.

The current built environment reflects these tensions with the distinct visions and projects adopted by the different boroughs, municipalities, and stakeholders.

# CHARACTER + CAPACITY

*The Oroboro team conducted a thorough background analysis of the NDLS sector to inform the planning interventions suggested in this report. Drawing from the analysis, this section summarizes the key findings presented in the November 2019 Situational Report.*

### Upcoming Projects

Centrally located on the Island of Montreal with the presence of two metro stations, a significant employment hub, and much underutilized land, the NDLS sector serves as an advantageous site for development. Large developments that have been planned for the sector include Royalmount, The Triangle, Hippodrome, Cavendish mall, Decarie Square and Westbury. [See [See Figure 5].].

One common feature among these projects is the provision of large residential spaces and commercial spaces with little complementary service areas. With the assumption that all the proposed projects will be realized within the next 15 years, it is estimated that 22,000 dwelling units will be added in the sector [See [See Figure 4].].

Faced with this likely population increase, there is a significant risk that there will be inadequate services and other social infrastructure, such as elementary schools, community spaces and green spaces; employment opportunities; less pedestrian connectivity. Hence, Oroboro recommends that proportions of the developments be geared towards providing basic services and communal spaces to bridge the potential infrastructural gap that would be generated.

### Socio-Demographic Profile

With these upcoming developments, the socio-demographic profile of the NDLS sector is poised to continue experiencing significant

change. Planning for the future of the sector must address the needs of the current population and anticipate how it may rapidly evolve.

In 2016, the sector was home to an estimated 15,739 residents, a 17% increase since 2011. This currently represents just 5% of the total population of the four boroughs and municipalities intersecting the area.

Figure 4 Upcoming Projects: Unit and Resident projections

PROJECT NAME	UNITS	ESTIMATED NUMBER OF RESIDENTS
Hippodrome site	5,000	10,750
Décarie Square	700	1,505
Westbury	660	1,419
The Triangle	3,300	7,095
5196-5200 de la Savane	432	929
TOD Hodge	2,500	5,375
Royalmount	6,000	12,900
Smart Urban	1,000	2,150
Midtown City	800	1,720
Mitchell Site	1,000	2,150
Bourdon	150	323
Cavendish Mall	451	970
TOTAL	21,993	47,285

Based on predicted provincial and regional population growth figures of the Institut de la statistique du Québec, the sector’s new developments could become home to 47,285 new people, representing 21% of population growth in the entire Montreal agglomeration by 2031.

The current average household size within the sector is 2.15 people, which is slightly lower than the agglomeration’s average of 2.2 people. There is also a higher proportion of residents above 65 years old (24% in the sector vs. 17% for the agglomeration).

The sector’s population has a high level of educational achievement with 40% of its current residents holding at least a bachelor’s degree, compared with 32% for the agglomeration average. The median income of NDLS households is \$49,552, similar to the median household income for the entire agglomeration.

A careful assessment of how the population will shift as new residential projects are completed will be necessary to ensure adequate service provision in the upcoming years. In the meantime, the unit composition and marketing material for many of the future residential projects leads us to believe that higher-income earners and smaller households will choose to establish themselves in the sector. The Hippodrome site will likely, however, be subject to the city’s minimum social- and family-housing requirements.

### Land Use and Built Environment

The current built environment and land use patterns of the sector are oriented for automobile access and employment activities, with industrial, commercial and office uses occupying a majority of the area. However, industrial and commercially zoned lands are undergoing a transformation, with many areas being converted to residential and mixed-use developments.

As a result of primarily industrial and commercial uses in the sector,





Figure 5 | Map of upcoming residential developments near NDLS.

there is currently a lack of street grid. Instead, the core of the sector has a large and irregular block pattern with low-density industrial buildings surrounded by abundant surface parking lots.

Currently, residential zones are predominantly located in Côte-Saint-Luc as well as The Triangle development in CDN-NDG. The majority of the housing stock is comprised of apartment buildings less than five storeys in height. However, other building typologies across

are diverse, ranging from single-family units to 12-storey apartment buildings. A lack of green space and green cover also characterizes the area, creating one of Montreal's worst heat islands. There are currently only four parks in the area, three of which are located in Côte Saint-Luc. Similarly social services including schools, daycares, medical clinics and community centres are located only on the periphery of the sector.



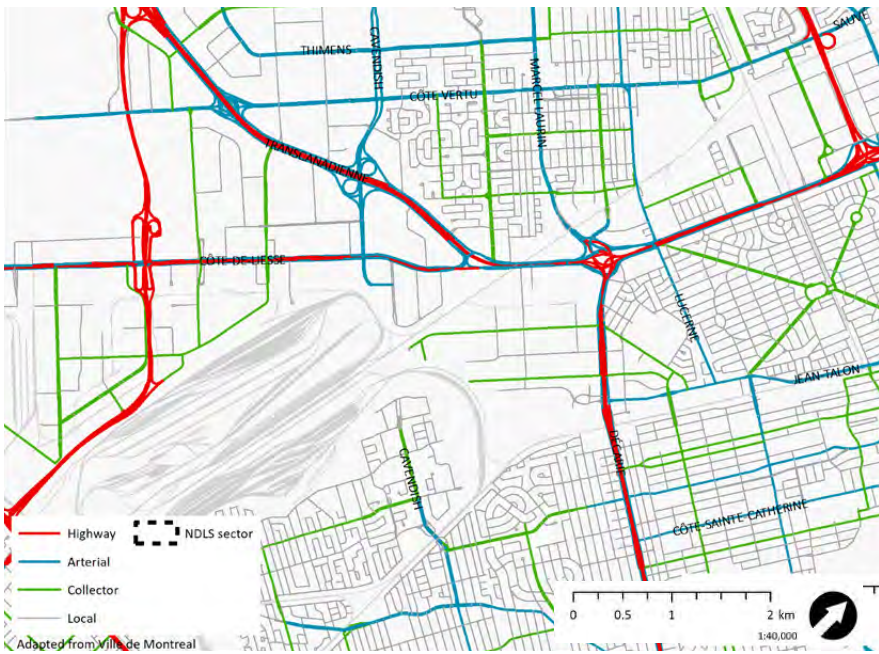


Figure 6 | Road hierarchy within and around the NDLS study area.

Changing land use patterns from industrial to mixed-use and residential will create an even more urgent need for new social infrastructure and services, particularly those that serve vulnerable groups, such as children and senior citizens.

Transportation Networks

Roadways

The NDLS sector is where the autoroutes 40, 15, and 520 meet. This provides the sector with easy access to Montreal’s main corridors, and also results in large volumes of traffic passing through the area. Autoroute 520, or Autoroute Côte-de-Liesse, provides a link to the Pierre Elliot Trudeau International Airport southeast of the sector. The Autoroute 520 also merges with the Autoroute 40, or the Metropolitan Autoroute, which is part of the Trans-Canada Highway that connects Montreal to the rest of Canada and serves as a major route to Ottawa and Quebec City. The 40 and 15 meet at the Décarie Interchange, one of the busiest interchanges in Montreal. The Décarie Interchange also provides access onto Boulevard Marcel Laurin and Décarie Boulevard. Autoroute 15, or the Décarie Expressway, provides a north-south connection towards Montreal’s downtown core and is also a primary trade corridor to the United States.

In comparison to surrounding residential areas characterized by local roads and cul-de-sac street patterns, the NDLS sector has a significant



Figure 7 | Public Transit Gap – Large portions of the NDLS sector (orange) are beyond walking distance of existing high-frequency or express bus services (blue). (STM,Google Earth)

proportion of arterial and collector roads [see [See Figure 6].]. This further facilitates travel through the sector while simultaneously discouraging travel within the sector, particularly for pedestrians and bikers.

Public transportation

The sector is well served on its eastern edge by two Orange Line metro stations, though pedestrian access to these stations from the west is unpleasant and potentially dangerous because of limited opportunities for crossing Décarie Boulevard. The sector is surrounded by commuter rail and high-quality bus service—lines with express routes or maximum 10-minute wait times between buses. However, there is limited direct access to these facilities. [See Figure 7].

Large portions of the sector are further than 250 m from the nearest bus stops with high-quality service, reducing the likelihood of public transit use. The current public transit network and service schedules result in reduced regional public-transit accessibility to jobs for some portions of the sector. Regional transit accessibility—the number of opportunities such as jobs that can be reached in a certain amount of time—is generally lower in the western areas of the sector. The areas with reduced accessibility are characterized by higher automobile use.

Active transportation

Active transit within and beyond the sector is limited by:

- Heavy infrastructure including railways, autoroutes, and other arterials. The distance between links across such barriers make significant detours necessary to traverse relatively short distances.
- The lack of pedestrian-friendly spaces. The NDLS sector currently has almost no green infrastructure, such as street trees, parks, or links to other green areas outside the sector.
- Lack of safe bike routes. The sector as a whole represents a large gap within the larger regional active transit networks. Designated bike lanes and bike-friendly roads are almost non-existent, although there are several key bike lanes just beyond the sector border.

The multiple challenges to pedestrian and cyclist mobility are reflected in the very low mode share of active transit in the sector: less than 1% of NDLS residents use cycling as their main mode of commute to work. This marks a strong contrast with the rest of Montréal island, where residents are six times more likely to bike to work. [See [See Figure 8].].

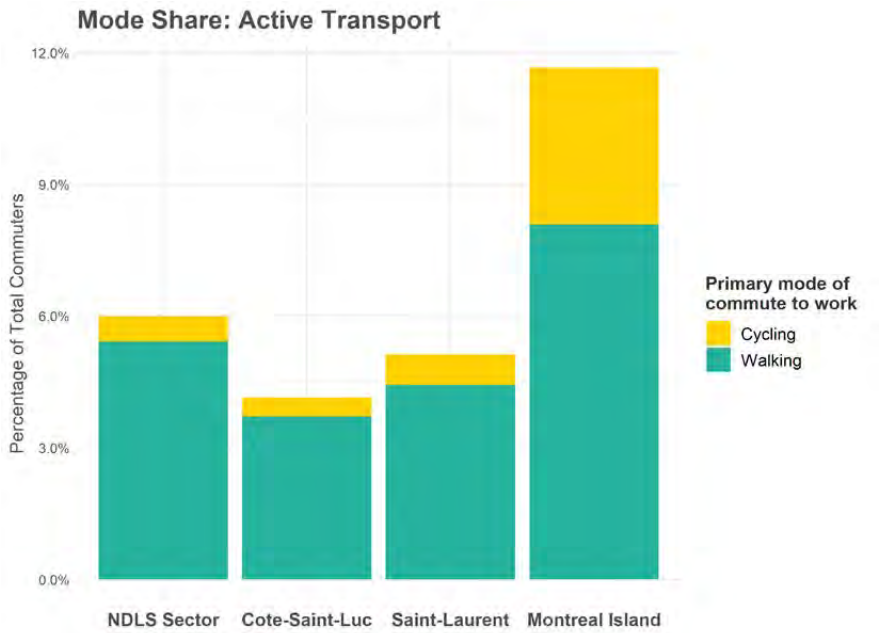


Figure 8 | Active Transit Gap – Compared with Montreal Island as a whole, NDLS has a small proportion of commuters who walk to work and an extremely small proportion who bike to work



## Economic Situation

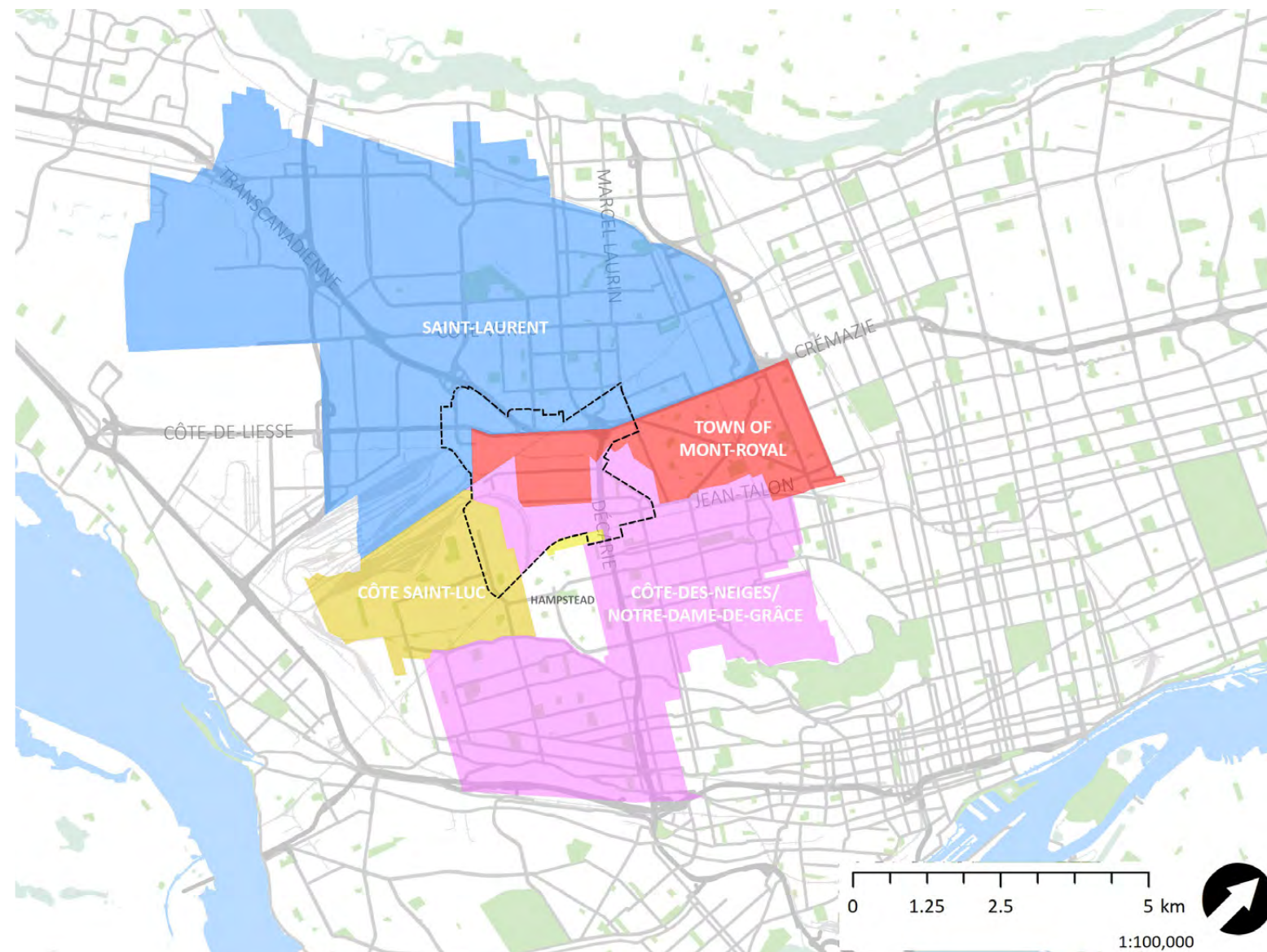
The sector has a high concentration of jobs in the manufacturing and trade sectors, which is a testament to the historic vocation and strategic location of the sector along major transportation corridors with large industrial lots. However, these employment industries have lower average wages compared to more knowledge-based industries. There has also been a decline in overall NDLS jobs as more industrial and manufacturing jobs are moved off Montreal island or overseas. A few employment statistics listed below highlight the distribution of jobs and business locations within the area:

- The area currently serves as a significant employment hub with approximately 23,000 jobs; an additional 15,000 jobs are located within a 500-meter radius of the sector. Kraft, Dollarama and Erickson are three of the largest anchor employers in the area, each with over 1,000 employees.
- Manufacturing jobs and industries employ 30% of workers, with 80% of businesses clustered in the Town of Mount-Royal industrial park and the City Scientific.
- Business services (professional and technical) accounts for 27% of employment, with higher concentrations of businesses located along Decarie and the Town of Mount-Royal industrial park.
- Whole-sale and retail trade accounts for 26% of jobs, with employment locations concentrated along Decarie and the Town of Mount-Royal industrial park.

Several large (up to 2,300 m<sup>2</sup>) office and commercial spaces are vacant or available for rent around Decarie. These vacancies could be a result of the redevelopment, traffic congestion, and lack of services and amenities for employees in the area, limiting the competitive advantage of rental spaces.

## Regulatory Context

Jurisdictional fragmentation is another key feature of the sector. The land is divided amongst three municipalities (TMR, CSL and the City of Montréal), the latter further divided into two boroughs (Saint-Laurent and CDN-NDG). [See [See Figure 10].]. The multiplicity of local governments within the sector, each with their own civic priorities, public infrastructure, regulations and decision-making mechanisms



**Figure 10 | The NDLS sector is comprised of three cities: Town of Mount-Royal, Côte-Saint-Luc, and the City of Montreal. The latter is further divided into two boroughs, Saint-Laurent and Côte-des-Neiges/Notre-Dame-de-Grâce.**

have made it difficult to coordinate planning initiatives and develop a cohesive vision for the area. Some of these governance issues have been a result of top-down political changes and the evolution of multi-scalar jurisdictional and planning bodies that have over the past 20 years.

More recently, land use planning and urban growth is guided at the regional level through the Communauté métropolitaine de Montréal (CMM), responsible for the Plan métropolitain d'aménagement et de développement (PMAD). The Montreal agglomeration council (MA) is another level of regional government, with jurisdiction for planning initiatives across the entire Island of Montreal. However, both these

planning bodies lack the explicit statutory authority for regulating site-specific zoning ordinances, or the ability to initiate multi-jurisdictional planning reviews for areas of strategic regional importance such as the NDLS sector.

Adding to this complexity, the area includes a range of physical spaces owned or operated by private and public entities that are regulated by the provincial and federal government, and therefore fall outside the purview of municipal governments.

All of these factors have resulted in isolated decision-making by the various municipalities and entities in the area.

# KEY CHALLENGES

***Our background analysis, supplemented with discussions with the public and numerous stakeholders, has led us to identify the following three broad challenges that will need to be addressed through future planning interventions in NDLS. (Additional background materials can be found in our earlier situational report : Situational Report - Namur-De la Savane (Nov. 2019)).***

## A Fragmented Sector

The NDLS sector is physically fragmented by a series of physical barriers that limit the sector's permeability and discourage active transport. This situation is the result of important planning decisions made in the past, when planning priority was given to the personal vehicle, leading to the creation of the highways that today impede circulation through the sector. [See Figure 11].

While the railways played an important role in the economic development of the sector, they today limit circulation and will be a strong nuisance for future residents. Railways also restrict nearby land uses as long as they are being used to carry dangerous goods. These physical barriers have resulted in clearly-divided areas dominated by a single land use, such as light-industrial or residential. Residents tend to resort to personal vehicles to safely cross these barriers.

The industries at the heart of our sector occupy large and impermeable lots, creating an additional set of barriers. These factors translate into reduced attractiveness for the sector's employers, who are already struggling with a labour shortage.

## Social Infrastructure and Public-Space Deficit

There is currently a scarcity of social services and green spaces within the NDLS sector. As the historic dominance of light-industrial use in the area will soon be juxtaposed with a growing residential sector, this deficit will need to be addressed to answer the needs of future residents. [See Figure 12].

While the residential areas surrounding our sector are dotted by a large number of services and green spaces, they are only designed to meet the needs of current residents. It is not possible to rely on

these to serve a growing and changing population. In combination with the existing physical barriers that isolate the sector from its surroundings, the need to ensure adequate service provision inside the sector becomes even more pressing.

## A Congested and Dangerous Sector

Bordered by the province's busiest highways, accessibility to NDLS is severely limited, and upcoming developments will only exacerbate the situation. Constant congestion reduces the sector's attractiveness for individuals and industries increasing the stress level of commuters and generating a heavy level of pollution. [See Figure 13].

The intensive automobile use in the sector also creates a dangerous situation for road users, with 3,900 reported traffic incidents in the past 5 years, further discouraging the use of active transportation. In that period, 65 reported accidents involved cyclists and 145 involved pedestrians. With the anticipated population growth in the area, there is a clear need to reframe the role played by personal vehicles and reach the Schéma's goals of improving public and active transportation usage. [See Figure 14].





Figure 11 | Key challenges 1 - Sector fragmentation by autoroute and railway infrastructure



Figure 12 | Key challenges 2 - The current social infrastructure and public space deficit within NDLS will be heightened with residential growth from future developments



Figure 13 | Key challenges 3 - Road accident map – Areas of particularly high traffic incidents are found along portions of Décarie. Cavendish Boulevard is another major area of concern for pedestrians, while most accidents involving cyclists occurred on Sainte-Croix

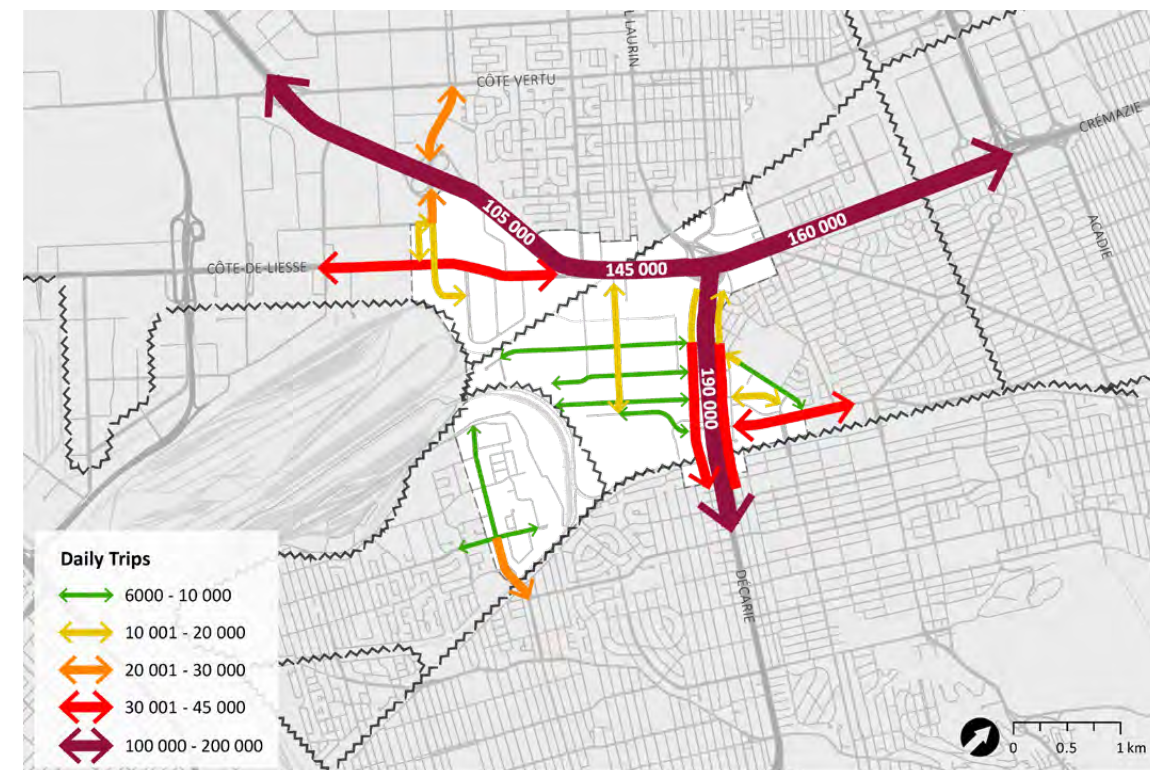


Figure 14 | Key challenges 4 - NDLS is characterized by constant heavy traffic congestion, particularly along major autoroutes that pass through the sector. Absent major reforms to shift from car-centric transportation, congestion will worsen with residential growth.



*'A CONNECTED, LIVABLE +  
FUTURE-PROOF AREA AT THE  
HEART OF THE ISLAND'*



*In an effort to address key challenges within a fragmented sector, Oroboro has formulated a unified vision for the area. This vision is to act as a framework for guiding collaboration between stakeholders in the development of a coherent, long-term development strategy: ‘A connected, livable and future-proof area at the heart of the island’*

Our vision is based on 3 guiding principles:



*A connected sector both physically and politically, linking different actors and different areas of the NDLS sector. The goal is to increase the flow of ideas and communication as well as people across the sector.*



*Livability for all by emphasizing human-scale environments that are inclusive of diverse needs. This requires balancing economic development and quality of life through mixed uses with pleasant public spaces and employment opportunities.*



*Future-proofing the sector to be capable of meeting expected and unexpected future demands. This means having flexible and adaptive plans, policies, and infrastructure that can respond to future social needs, threats posed by climate change, changes in travel behaviour, and differences in stakeholder interests.*

The following proposed interventions are derived from these principles. They are designed to serve as a starting point for future discussions and decisions surrounding policies and plans for the sector, helping find common goals between stakeholders and ensuring a cohesive environment.

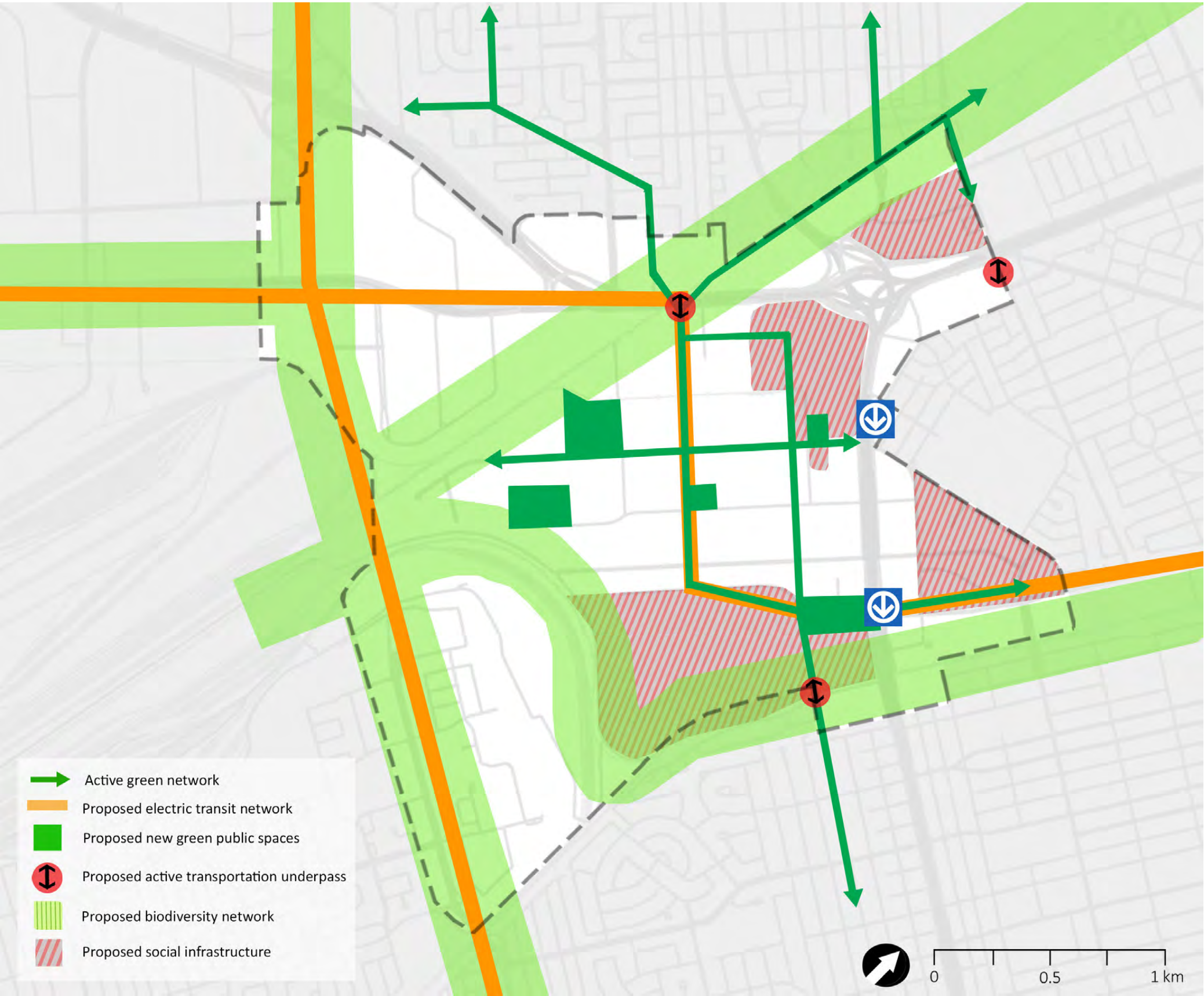
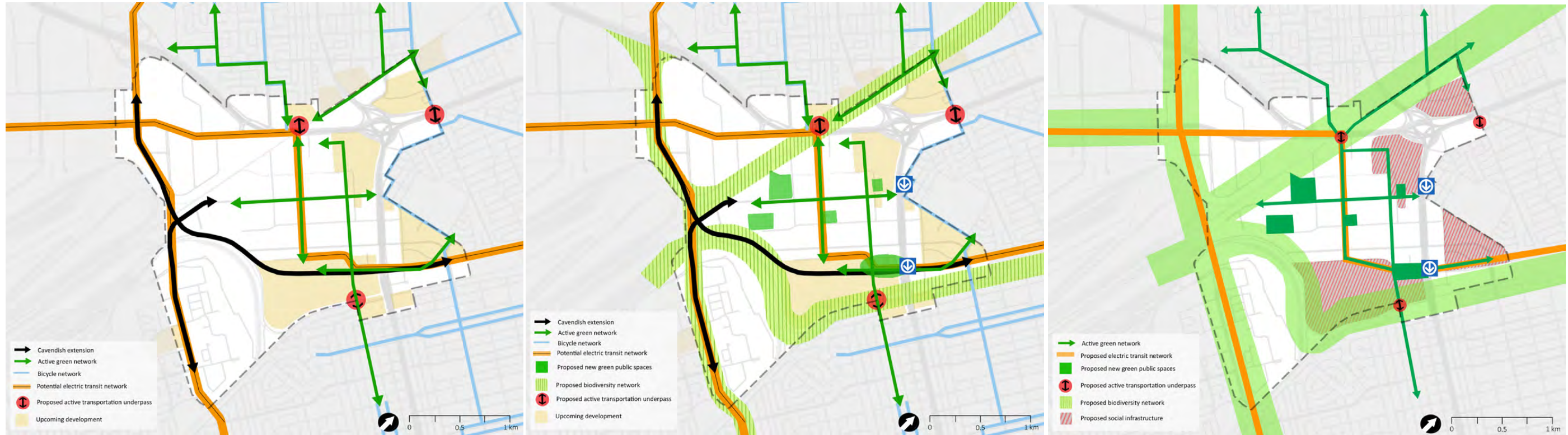


Figure 15 | The concept plan for NDLS includes new public spaces and social infrastructure, as well as proposed active green network and electric transit route to link these services with upcoming developments.





**Figure 16 | Concept plan breakdown from left to right: (a) connectivity strategies; (b) layering of new parks, biodiversity corridors, and other greenspaces; (c) final concept plan showing locations for additional social infrastructure.**

## Coordinated Concept Plan

Our analysis of the sector’s context and its key challenges allowed us to develop a concept plan to help guide medium- to long-term actions in a concerted way. The goal of this plan is to illustrate where and how interventions are required to enact a collaborative vision for the future of the sector. [See Figure 15].

The concept plan emphasizes the need to increase permeability throughout the sector and connect it in new ways to its surroundings. As well, it is meant to offer new shared spaces that will enhance the public realm and answer the needs of the sector’s future residents and visitors. The interventions that will make this possible are further detailed in the following comprehensive vision plans.

## A Comprehensive Vision

### Connected

Our plan to increase connectivity combines interventions that have already been envisioned with new elements that aim to fill the transportation gaps of the sector. [See Figure 16].

- The orange color illustrate the potential route of a new, environmentally-friendly public transit option that would become the backbone of the sector’s transportation network.
- The green arrows represent the location of the proposed active green network that will provide a safe and pleasant way to circulate on foot within NDLS, linking future developments with services and public transportation nodes. It will also create links to existing bike paths and biodiversity corridors beyond the sector.
- The red dots show where infrastructure barriers could be redesigned to allow safe and pleasant crossings for active transit.
- The black arrows demonstrate the possibilities offered by extending the Cavendish boulevard across the railways, reconnecting it to the existing road network and improving active and public transportation networks.

### Livable for all

We aim to make the sector livable for all by providing extensive green-

ery throughout the area and other spaces with opportunity for social interaction. Providing easy access to natural amenities will make the sector a more desirable and healthy place to live, work and play.

The green corridors illustrate where natural amenities are needed to enhance the public realm and to create a buffer from conflicting uses. A series of green public spaces are suggested on the lots that are currently vacant or under-utilized.

### Future proof

Finally, we can ensure that NDLS will meet future needs by ensuring that the right infrastructure and land uses are implemented in the right locations. This means ensuring that services, employment and commercial destinations are close to where we can expect the greatest population density increases. It also entails locating amenities along active and public transportation corridors to reduce reliance on private vehicles, and ensuring that proper links connect populations with services across existing barriers. Such planning tools will support complete neighbourhoods which encourage social interaction and economic revitalisation.



# AN ACTIVE GREEN NETWORK

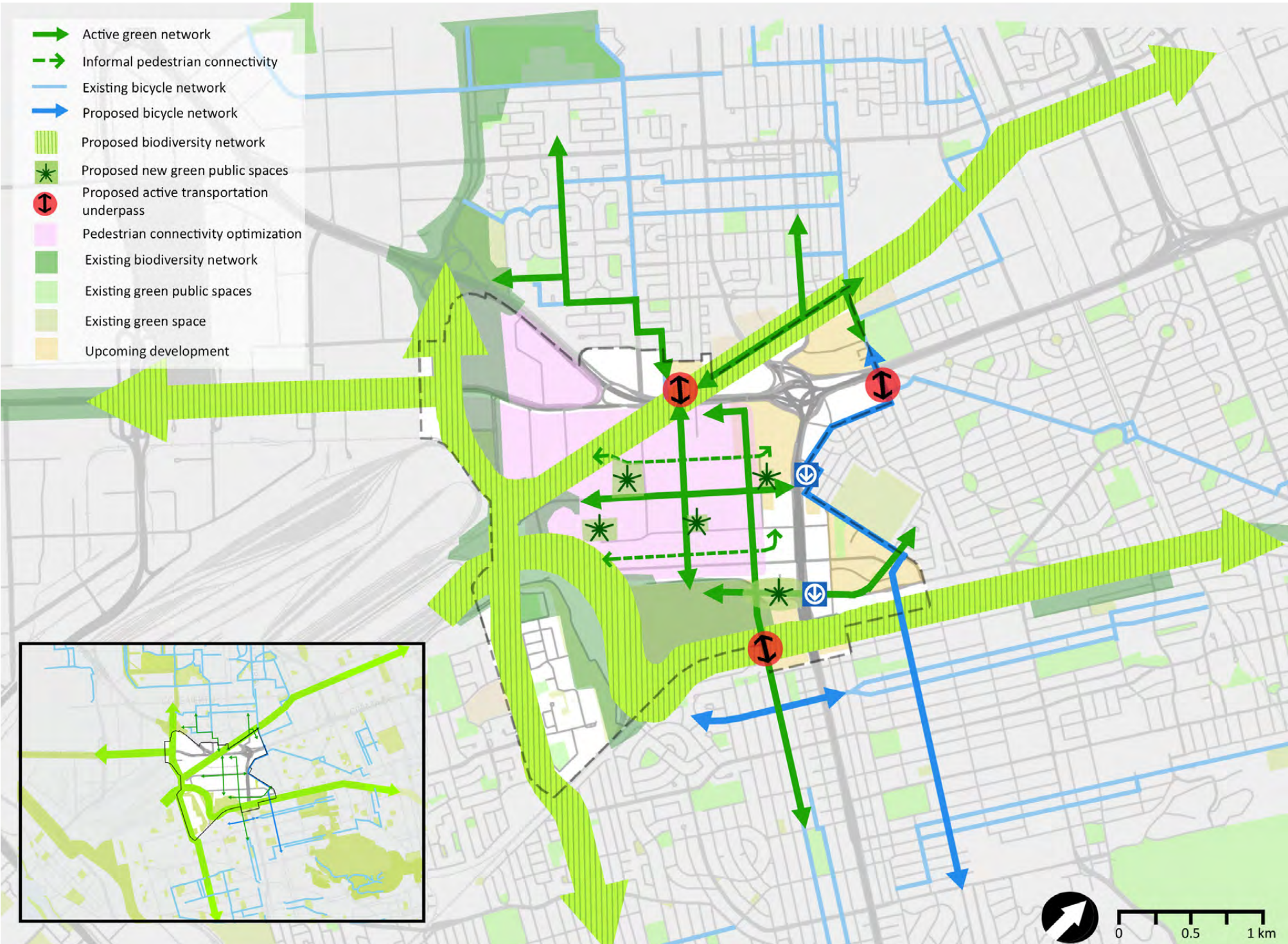


Figure 17 | An active green network is essential to addressing a number of the area’s key challenges, including pedestrian safety, car dependency, and the public space deficit.



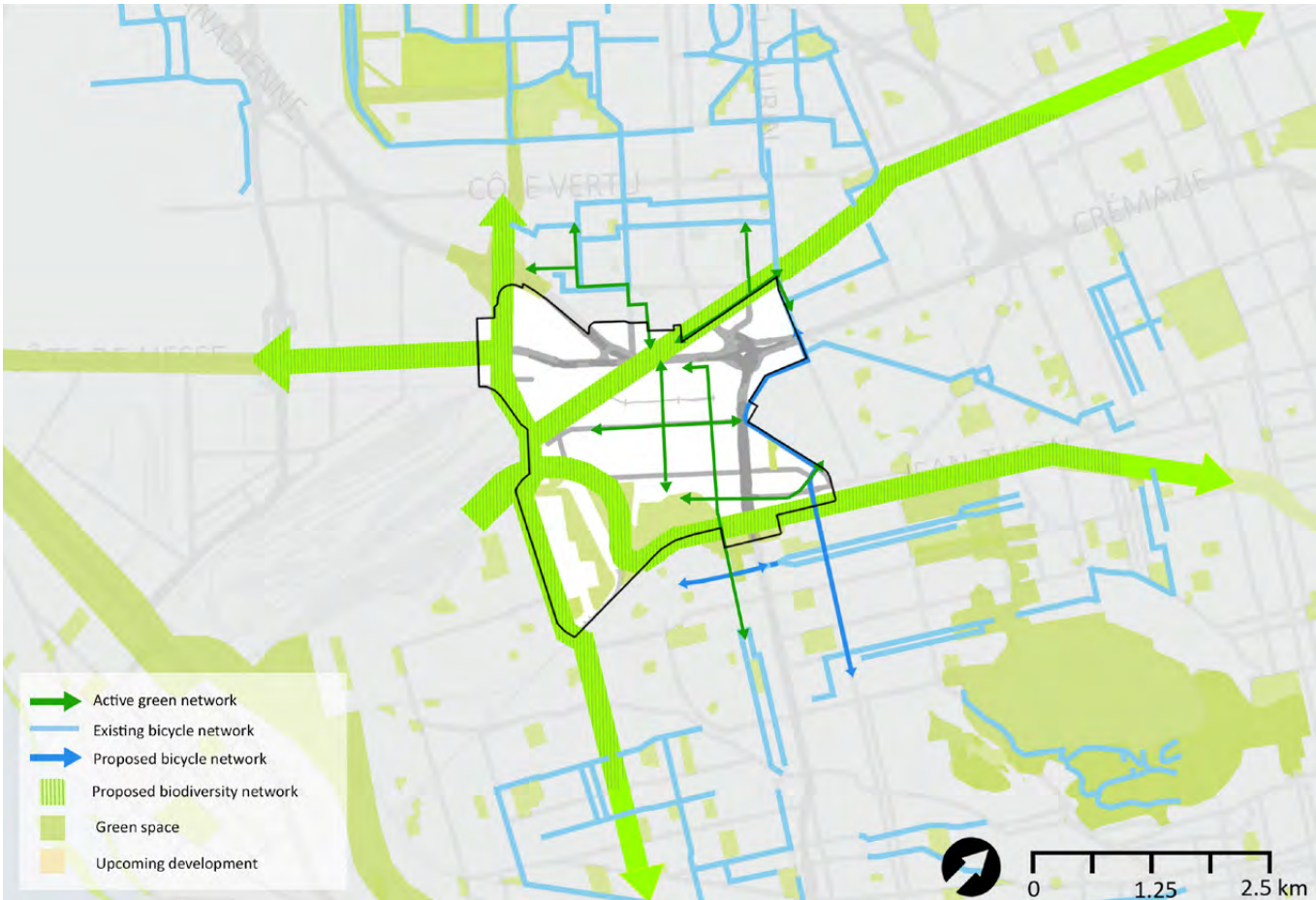


Figure 18 | The green active network could bridge gaps in existing bike networks (blue) and link regional biodiversity corridors (pale green).

**Given the highly fragmented nature of NDLS, we propose landscape connectivity as a strategy that could increase permeability throughout the sector. This would entail a continuous green network to support ease of movement and biodiversity. An active green network could provide the following benefits to the area:**

- Help knit together fragmented neighbourhoods by creating pleasant walkable connections. Three North-South connections along the network will increase permeability between key areas within the sector.
- Connect public spaces, services and transit nodes. Creating links to bike lanes and public transit networks that extend beyond NDLS will reduce car dependency. This includes connecting existing and future developments in the area with a total of six metro stations along the orange line, encouraging intermodal transit.

- Create new parks that repurpose vacant or underutilized spaces in NDLS. These parks will help address the public space deficit made more urgent with the future influx of residents. Improved access to green spaces is also linked to a number of health benefits.
- Improve safety and quality of life through visual, auditory, and physical protection from traffic.
- Support urban and migrating wildlife
- Help mitigate the heat island effect, improve rainwater drainage, and address other environmental concerns.

The active green network presented will require different interventions along different segments. [See Figure 17].

Some streets will only need small retrofitting, such as widened sidewalks, street trees, and designated bike lanes to safely link the site with broader active networks. This includes a tree-lined boulevard along Côte-de-Liesse Street in conjunction with the proposed tram network.

Other axes will benefit from fully separated active transit lanes that replace a current parking lane or car lane. These separated lanes should incorporate greenery, street furniture, and other infrastructure that helps create a physical and visual separation from car traffic. [See Figure 18].

Along the railway, we suggest implementing a biodiversity corridor accessible only to pedestrians and cyclists, which can serve as both a

linear park and as a refuge for migrating species. There are already several examples within Montréal where railway edges have been used as a biodiversity corridor or as active transit network. Notable projects include the Darlington biodiversity corridor developed by the Université de Montréal, as well as the popular Réseau-Vert that stretches 3 kilometers along the south border of Rosemont-La Petite-Patrie.

Both of these projects almost intersect, and run alongside the same CP railway that bisects the NDLS sector, suggesting that an extended biodiversity corridor and active network along the railways could connect the NDLS active green network all the way to south-eastern Rosemont with minimal new infrastructure.

The NDLS network could also serve to link these projects with the planned Saint-Laurent biodiversity corridor to the north. [See Figure 20].

NDLS jurisdictions should work with the CMM and with the City of Montreal to coordinate interventions in active transit infrastructure with broader plans. For example, the proposed NDLS active green network should complement future phases of the Réseau Express Vélo (REV), which includes plans for Cavendish Boulevard and an east-west corridor linking the Hippodrome site to the east side of Montréal.

**Stakeholders:** CSL, TMR, Hampstead, the City of Montreal, the boroughs of Saint-Laurent, CDN-NDG, Outremont and Rosemont, CP, CN, the CMM, MA, and MTQ



## Suggested Route

***While additional studies and analysis must be undertaken to determine precise routing details, we present here an example of how an active green network would improve walkability within NDLS as well as linking to broader cycling networks, public transit networks, and green spaces outside the sector. [See Figure 19].***

- Where the CN railway that runs north-east through the sector crosses Autoroute-40 at Authier and Devonshire (1), measures should be taken to improve safety and comfort for pedestrians and bikers in the underpass (see Focus Area #1).
- North of the underpass, the green network should continue along Authier street and link west to Alexis-Nihon Boulevard (2), which currently has separated bike lanes beginning just beyond the NDLS sector, linking north to Saint-Laurent.
- Several blocks north of the NDLS boundary, the green network could be extended west from Alexis-Nihon along Saint Louis and North along Bertrand Street to link with the Alexis-Nihon Park (3).
- From here, the green network will branch west to Saint-Laurent's planned Cavendish-Laurin-Liesse green corridor (4) and north towards Marcel-Laurin Park.
- Branching north-west from the Authier/Devonshire underpass, the green corridor should be extended along the railway, providing a link to the Cite Midtown development, Mitchell TOD, Hodge TOD, and connecting to the designated bike lanes along Sainte-Croix (5). These bike lanes represent a second preexisting link to active transit routes further north in Saint-Laurent, as well as linking back South to the NDLS sector.
- At the railway overpasses that crosses Decarie Boulevard, infrastructure should be provided to extend the green corridor north to reach Beaudet Park and the Du College metro station (6).
- The bike lanes along Saint Croix currently extend just to the Saint-Croix/Lucerne underpass beneath the A-40 (7). This underpass should also be upgraded to improve safety and attractiveness.
- Currently there are no designated bike lanes south of A-40 linking to paths that begin at the underpass, forcing bikers in lanes with cars along Lucerne, one of the most dangerous road segments in the sector. To provide a safer link, the underpass bike lanes should be extended to Graham Boulevard (8), where one again, bike lanes currently begin just beyond the NDLS boundary, stretching into TMR (past Glengary Avenue).
- New bike lanes should be provided to connect west from Graham, crossing Lucerne to Plymouth Avenue and turning south along Bougainville Street to connect with the De la Savane metro station (9) and continue south to link with the existing bike lanes along De la Savane street north of The Triangle (10). These lanes should also be connected west across the De la Savane overpass above the A-15 and along Royalmount Avenue (11), providing access points to the green network for future development.
- South of The Triangle, existing bike lanes along Victoria avenue should be extended further south to Queen Mary Road, connecting with the Plamondon, Côte-Sainte-Catherine, and Snowdon metro stations. This extended bike path along Victoria will also link the new active network to the Darlington biodiversity corridor (12), the Nelson Mandela Park (13), and the both Barclay / Plamondon shared bike lanes (14) and the Edouard-Monpetit / Lacombe designated bike lanes (15) that each connect with eastern CDN-NDG.
- While the Barclay / Plamondon bike lanes just south of NDLS currently end at Westbury Ave, they should be extended west along Plamondon to provide an additional active transit link on a A-15 overpass (16) and link with Rosemary-Brown Park (17).
- On the south perimeter of The Triangle, a new active green corridor along Jean-Talon West could link The Triangle and Namur metro station with the future Hippodrome development. Where Jean-Talon crosses the A-15 (18), an overpass park should be considered to create currently sparse public space, as well as providing a visual and auditory barrier from the heavy traffic below (see Focus Area #3).
- From the Hippodrome development, the green network should continue north along Devonshire Street (19) to connect with the east-west green network axis at Royalmount Avenue / de la Savane Street (11), and further north, to Authier/ Devonshire underpass (1), which in turn provides links with the railway green corridor and bike lanes north into Saint-Laurent.
- A second north-south active green network axis will stretch from active transit routes within the new Royalmount development, along Royden street (20), which should be extended south to create a more continuous street grid, intersecting with the east-west green corridor axes along Royalmount (11) and Jean Talon (18), continuing behind Decarie Square to a new underpass beneath the railway (21), and connecting with Clanranald Avenue. The green network should continue south along Clanranald to link with MacDonald Park and the bike lanes that begin at Clanranald and McLynn (22).



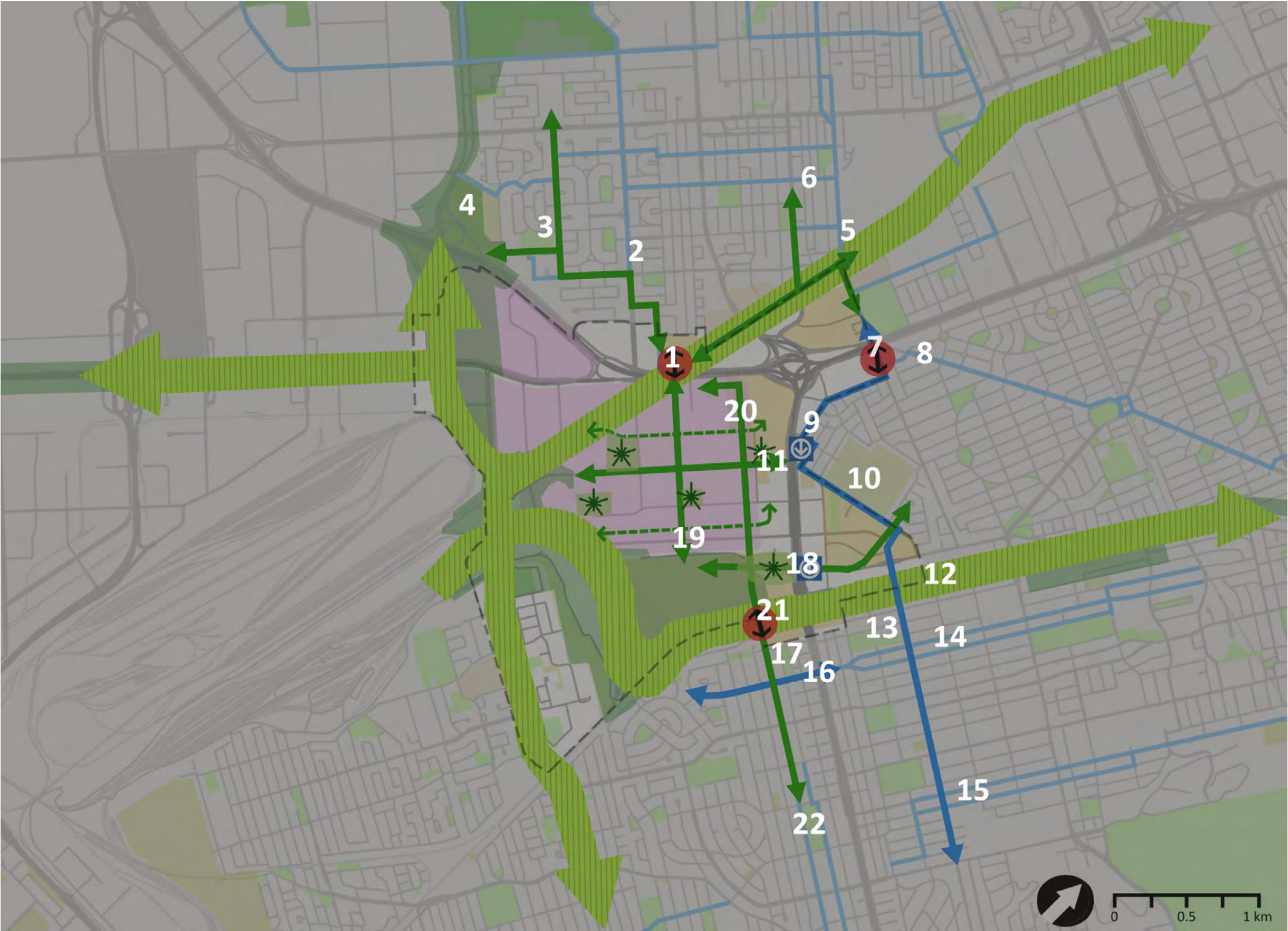


Figure 19 | Active green network suggested route.  
See p. 24 for descriptions.



Greater Biodiversity Networks | Island of Montréal

The following map shows how the biodiversity corridors suggested in this concept plan could be connected to other existing or planned corridors.

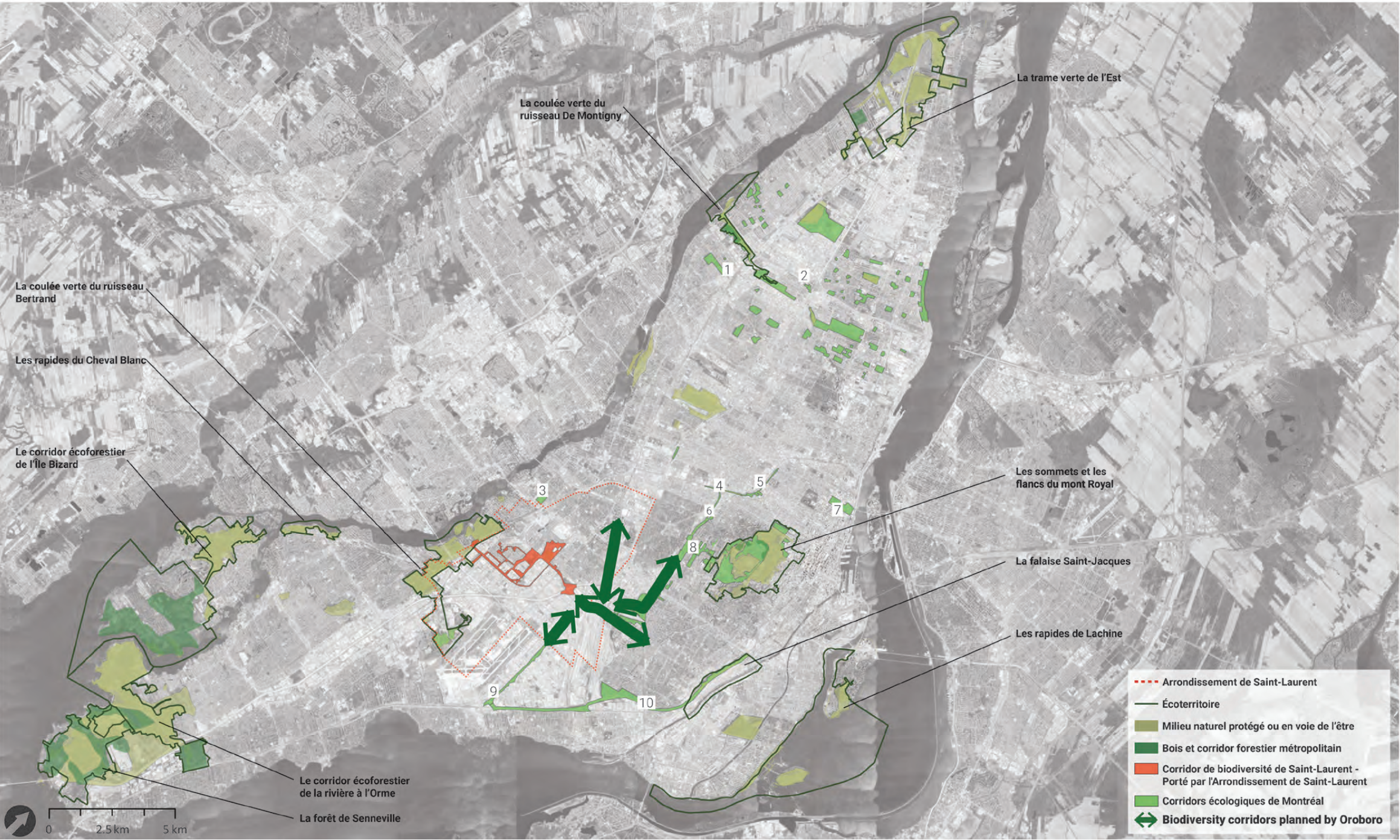


Figure 20 | Existing and planned biodiversity corridors (Table Architecture, LAND Italia, civiliti, Biodiversité Conseil)



## Case Study | Arbutus Greenway

The **Arbutus Greenway** in Vancouver represents an encouraging precedent. [See Figure 21].The City of Vancouver purchased the land, a former railway and streetcar route, from CP in 2016. The city held over 50 different events and had more than 7,000 interactions with stakeholders and public consultation to inform a design that answers the needs of the community. The final design consisted of a nine-kilometre active transportation and public space corridor with pathways, social spaces for community gathering, edible landscapes and ‘wild’ natural spaces. The Greenway serves as a connective spine between diverse neighbourhoods, with eight “character zones” along the route to meet the needs of different locales. A future streetcar route is also planned. The Greenway was constructed in phases to accommodate funding strategies and other shifting circumstances, and was integrated with a number of broader green infrastructure and ecological plans pursued by the city.



Figure 21 | Rendering of the Arbutus Greenway in Vancouver, BC. (City of Vancouver)



# PLUGGING IN | AN ALL-ELECTRIC TRANSIT NETWORK

*Just as yesterday’s largely car-centric transportation infrastructure and planning gave rise to the NDLS sector as we know it today, the choices we make now will shape its continued evolution well into the future. Currently, the area is served by a dated and inefficient transportation network that, with the arrival of new developments, will likely exacerbate existing traffic congestion and barriers to active and sustainable mobility. Indeed, the area is crisscrossed by transport infrastructure that links distant destinations but erects significant barriers to movement within and across NDLS.*

To address these challenges and “plug the sector in,” we propose a small-scale, fully electrified structural public transport network to fill current gaps and serve the needs of the over 40,000 new residents who could call the area home in the coming decades. The electric transit network expands and refines proposals already advanced by Saint-Laurent and CSL. It is intentionally conceived of as more than a transportation project designed to serve current or near-term needs, as the existing low density of residential and commercial uses would not likely justify the financial investment. Rather, this electric network has been proposed to direct and orient future growth

Properly conceived, this transit network would also facilitate the sector’s integration with existing and proposed active-transport networks to support a full suite of mobility options for residents, workers and visitors. These systems would:

- Provide high-quality local transit options within the sector.
- Generate a unifying sector identity and promote real-estate development.
- Enhance connections with other modes of transit, including the REM, for people traveling to and from the sector. The connections could also provide an important alternative to the REM by enabling better connections to the metro, similar to the proposed Orange Line extension to Bois-Franc.

## Proposed Route

The accompanying figure shows a potential core alignment with several additional options. These are preliminary alignments in areas where we anticipate the greatest need. But there are trade-offs, including the loss of vehicular access (Devonshire) or the need to acquire land. For purposes of this report, we have analyzed an approximately 26.5 kilometer network consisting of two axes with station spacing of approximately 800 metres.

- East to west from the future Canora REM station to the Dorval VIA station, largely along Jean-Talon Boulevard and the Côte-de-Liesse

Autoroute.

- North to south from the future REM station at Autoroute 13 to Montreal West, mostly along Cavendish Boulevard and its planned extension.

A two-level station located near the intersection of the future Cavendish Boulevard extension and the Cote-de-Liesse Highway would allow transfer between the two axes.

These axes were selected to:

- Fill essential gaps in the existing transit network and connect proposed developments, including the Royalmount and the Hippodrome, enhancing job and service accessibility for residents and workers in areas that could be densified.
- Link all parts of the study area to larger transportation projects unfolding beyond the sector’s borders, such as the REM at at least two points, the Metro and commuter rail at Montreal West.

Elements of the proposed alignment were also selected to advance various urban design objectives. In particular, segments adjacent to existing highways are proposed to help address challenges associated with the existing road network. Stations along these highways would support and justify the construction of new cross-barrier connections with elevated, at-grade, or underground walkways. Moreover, the trackways, when paired with landscaping, could be used to create screening barriers for new residential and commercial developments. [See Figure 22].



**Figure 22 | The Brussels tram operates on a tree-lined path, providing valuable urban greenspace. (Wikipedia)**



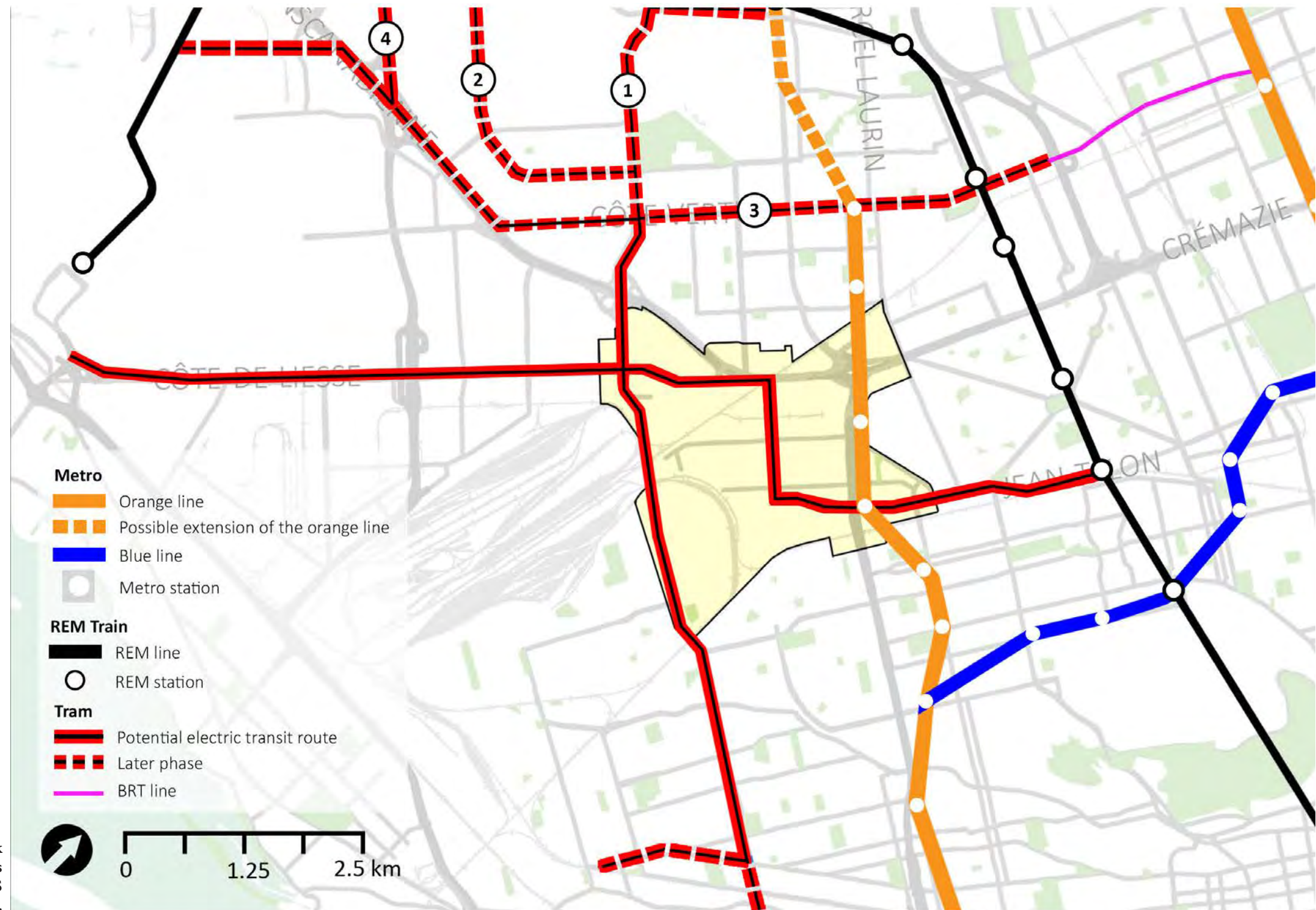


Figure 23 | The proposed electric transit network route would connect residential developments with employment poles, as well as linking NDLS with broader public transit projects.





Figure 24 | Rendering of a trackless tram in Miami-Dade County, Fla. (CityLab)



Figure 25 | CRRC trackless tram operating in China. (Peter Newman/CREATE)

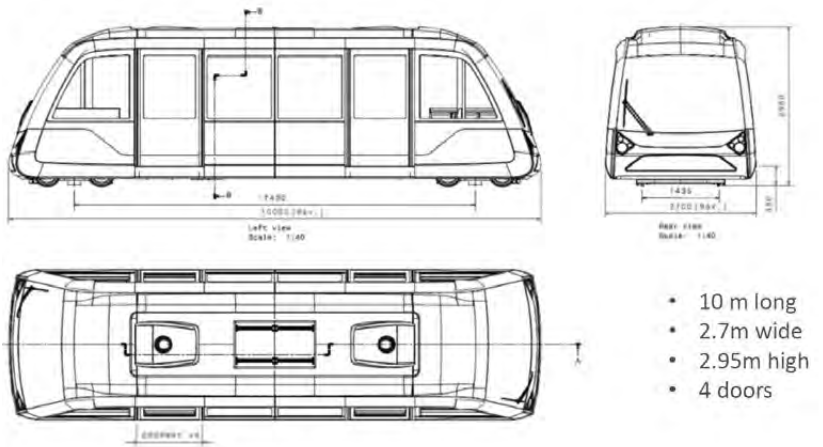


Figure 26 | Artists’ rendering and schematic drawings of the rolling stock for Coventry’s “very light rail,” which is currently in development and slated for testing in 2020 (Transport Design International, UWG, Rail-Technology.com).



## Potential Technologies

Emerging technologies are blurring the line between traditional buses and urban rail systems, potentially offering a cost-effective blend of the aesthetic and performance-related attributes of tramways with the lower capital costs and greater flexibility of rubber-tire systems.

These present the opportunity to offer a public transit solution that is more appealing than traditional buses, offering the chance for greater mode shift.

Two technologies to consider are (1) “trackless” autonomous trams operating on rubber tires or (2) recently developed “very light rail” trams, which are expected to use smaller, lightweight tracks, and onboard battery power to remove the need for expensive or unsightly catenary wires. Precedents of these might include:

- The CRRC “trackless tram” (Zhuzhou, China) – This optically-guided bus system mimics many of the attributes of traditional light rail without the costly infrastructure. Different types of vehicle-mounted cameras direct the articulated vehicle along painted “tracks”. Other possible guidance systems could include kerb- or magnetic-guided steering. The ride is reportedly smoother than a traditional bus because of the rail-like suspension and under-car equipment. Its aesthetic is also similar to that of a light rail or tram. Its makers suggest the trackless tram could be deployed for less than half the capital cost per kilometer than traditional light rail. [See Figure 25].
- “Very Light Rail” (Coventry, UK)– Though still under development, the Coventry Very Light Rail system is intended to pilot the use of smaller, lighter, self-contained rolling stock on specially adapted tracks that don’t require relocating under-street utilities. The trams will be battery powered, with station-based quick charging, and are intended to be autonomous, reducing the most significant operating costs. The developers, which include the University of Warwick, intend to offer a vehicle and track system at a fraction of the cost of traditional light rail, which can often render business cases infeasible. At the same time, the form factor and per-

manence of the installed infrastructure could be leveraged to direct and foster development in appropriate areas. [See Figure 26].

Though novel in its application, the VLR system adopts many time-tested technologies from rail, bus and automotive transit, including battery and charging technology.

Indeed, Montreal has already embarked on the electrification of its bus fleet with the pilot of battery-electric vehicles on a downtown route and the construction of the new Bellechasse maintenance facility for the future electric fleet. These ongoing initiatives will help develop and prove the viability of cold-weather battery technology of the sort that could be incorporated into a VLR.

Based on projections for the Coventry VLR system and other projects in Quebec, we have estimated capital costs for the electric network’s rail infrastructure and rolling stock of between \$9 million to \$17.2 per kilometre. These estimates assume projected savings of 70% to 84% over traditional light rail, which requires heavier rails and expensive overhead power-supply systems.

The total-system capital cost would range between \$250 million and \$600 million. Because the system is not yet in production, operations costs remain unclear. However, costs would likely be similar to or less than those of the battery-electric buses currently being tested in Montreal, particularly because the rolling stock is designed to be capable of autonomous operation.

Although significantly cheaper than other light-rail projects elsewhere in Quebec and Canada, the network would still need to be accompanied by a comprehensive land-use program focused on commercial and residential densification to justify its cost.

Stakeholders: STM, CSL, TMR, Hampstead, the City of Montreal, the boroughs of Saint-Laurent, CDN-NDG, Outremont, the City of Dorval, the CMM, MA, and MTQ





# FUTURE PROOF LAND USE, SERVICES, POLICIES + INFRASTRUCTURE PLANS

## Land Use Designations

Existing proposals for transit-oriented development (TOD) in Saint-Laurent and elsewhere in the NDLS sector are intended to facilitate a transition to more sustainable residential development and transportation patterns. Stakeholders should work closely with regional officials to define and enhance what is meant by these TOD policies to ensure optimal outcomes. To further support the goals and interventions described in this report, we propose additional changes in authorized land uses. [See Figure 27]. We also recommended changes to allowable densities and built-form regulations, particularly in the areas surrounding the proposed electric and active green transport networks. [See Figure 28].

## Tackling Social + Public Space Deficit

The proposed developments will intensify land use within the sector with increased densification of commercial and residential uses. A significant increase in the residential population will require new community amenities and services. The provision of land, infrastructure and funding should be secured in advance to orient development and also to reduce higher future costs. The location of social infrastructure—including daycares, schools, parks and community centres—should meet the socio-cultural needs of heterogeneous populations within the sector. These facilities can also aid the social

and functional integration of future populations with the surrounding neighbourhoods. A list of the most urgently needed services include:

- Four new schools, including two elementary and secondary schools, distributed across the Hippodrome site, RoyalMount and Saint-Laurent.
- Three new parks. The locations identified in the concept plan are currently underutilized and vacant lands that are centrally located within the industrial district and could be easily acquired and transformed.

New public and private daycare facilities should be secured either in upcoming redevelopment projects such as the Hippodrome and RoyalMount, or in nearby commercial zones.

A new community centre should be secured in the Hippodrome site. This should include recreational facilities, library and reading rooms, multi-use event spaces, and cultural facilities such as exhibition galleries and performance rooms.

Stakeholders: CSL, TMR, the City of Montreal, CMM, MA, and the boroughs of Saint-Laurent and CDN-NDG.

## Future Vocations

As land use patterns in the sector intensify and transform with the addition of higher density residential and mixed-use development, it is crucial to balance and preserve employment opportunities in the area. This could be achieved by:

- Ensuring certain types of industrial activities, such as manufacturing, storage and logistics, become more space-efficient, with the elimination of surface parking lots and single-storey buildings.
- Encouraging newer facilities with vertically stacked strata-titled commercial units to offer subdivided spaces at more competitive ownership or lease rates, attracting smaller businesses to the area.
- Carefully coordinating zoning bylaws and planning policies within and between jurisdictions to ensure that compatible industrial and commercial uses are permitted in proximity to residential developments.
- Identifying and pre-approving light-industrial activities that feature final stage or “clean” manufacturing without generating harmful emissions or creating noise and traffic disturbances.

One example of the latter type of industrial activity is artistic



production – for example, artisanal products with custom onsite manufacturing services. These types of uses are usually classified as live-work. However, in the case of NDLS, work-like facilities with employment or professional services as the primary use of ground floor spaces should be preserved. The Quartier Design, a place-making and employment clustering initiative attracting interior design services and custom manufacturers, is one type of light-industrial and services cluster that could be further expanded in the sector through the work-live mixed-use concept.

To maintain the current industrial employment base in the sector, ground-floor manufacturing with retail services should be considered. This policy has been successfully implemented in Vancouver and San Francisco, where one FAR of ground-floor space in certain neighbourhoods are reserved for light-industrial manufacturing use. Density bonuses or height variations are granted for higher floors to make up for potential loss of income. In these cases, the ground-floor businesses or services also help activate and animate the streetscape, creating a varied and dynamic environment for pedestrians.

Policy incentives or funding sources should be considered to encourage landowners or developers to undertake adaptive reuse or retrofitting of existing large multi-storey commercial and office buildings. For example, spaces such as Decarie and Cavendish Mall could be repurposed as shared co-working spaces with in-house amenities, attracting freelance workers or small companies with growing or seasonal employment patterns. As demolition and construction of new buildings is a significant source of energy consumption and greenhouse gas emissions; maintaining and repurposing existing buildings can serve as a means to limit emissions and maximize use of embedded carbon in older buildings.

Where possible, employment opportunities that provide jobs for locals should be incentivized. Limiting shop frontages and/or commercial unit sizes could encourage services such as affordable grocery stores and professional and personal care services, at the same time as discouraging multi-national chain stores from monopolizing retail spaces. This type of policy will be especially important in the Hip-podrome redevelopment, where a larger proportion of families and lower-income residents will be prioritized for new housing units.

The addition of significant retail and commercial services along with

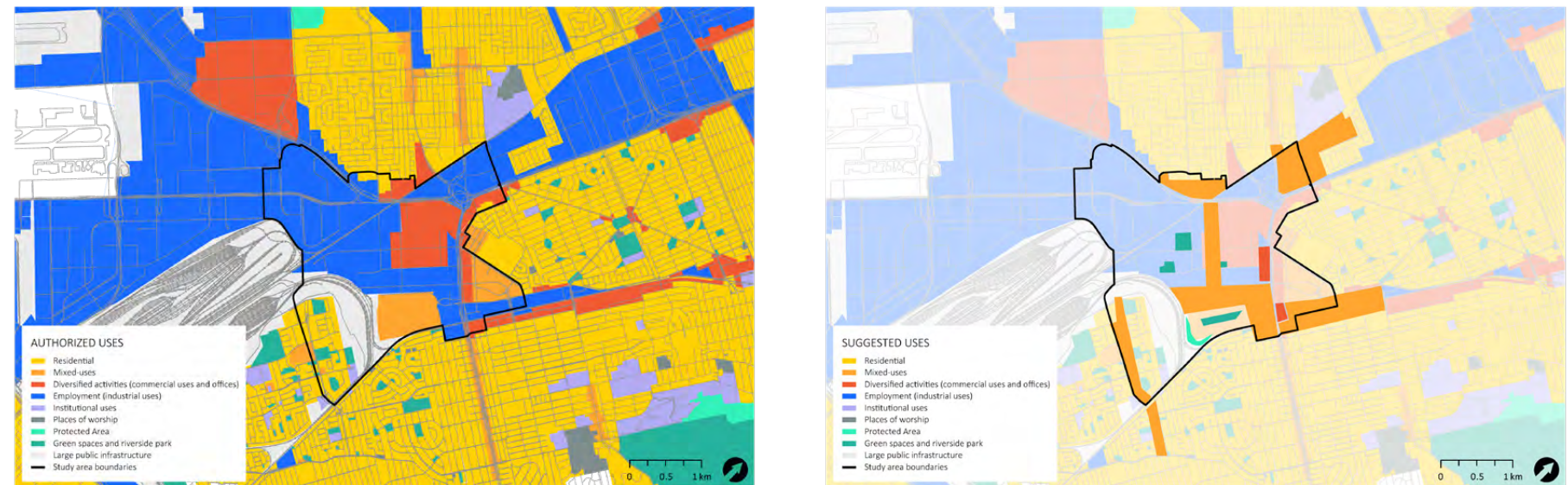


Figure 27 | Existing authorized land uses (left) and proposed changes (right) to support the vision outlined in this report. Changes are in bold colors.

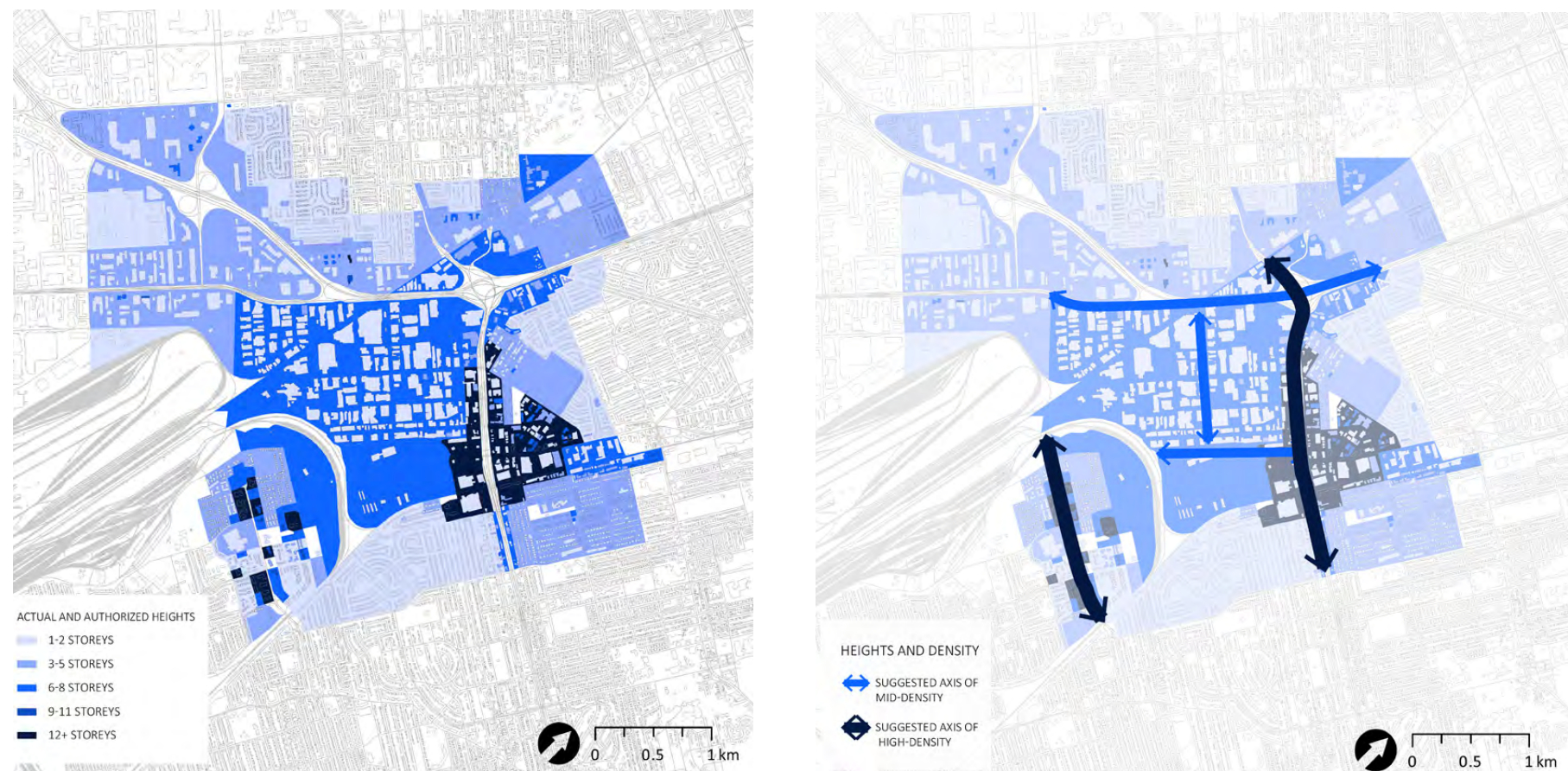


Figure 28 | Actual and authorized building heights (left) and suggested enhancement of heights and density (right).





Figure 29 | Modular bikes for the delivery of small packages in Hamburg, Germany. (Oroboro)

entertainment facilities will lead to a significant increase in NDLS service sector jobs.

While the service sector does not provide high-paying jobs, it can provide critical employment access for groups with lower labour force participation rates, facing barriers to employment as a result of language barriers or education levels. If well integrated, the new residential developments can ensure the vitality of commercial and retail services catering to the needs of local residents.

Stakeholders: CSL, TMR, Saint-Laurent, CDN-NDG

Last Mile

Changing consumption patterns alongside growth in the e-commerce sector has brought consumer goods right to the doorstep of urban residents. This has led to a substantial increase in the number of delivery vehicles—box trucks, smaller vans, and cars—on city streets, known as the ‘last mile’ problem.



Figure 30 | Community parcel distribution centre in Hamburg, Germany. (Oroboro)

It is expected that the new development in the NDLS sector will generate considerable increase in trips attributed to delivery vehicles: based on studies of consumption patterns from other North American cities, the sector could generate demand for 400 to 500 truck loads per day by 2030.

If much of this volume is distributed by smaller delivery vehicles, negative externalities, such as traffic congestion, air pollution, accidents, and noise, will be amplified. It is therefore advised that plans for mobility infrastructure consider movements of trucks and smaller delivery vehicles when planning for the future of NDLS.

In order to test new methods that mitigate delivery-related congestion, the City of Montréal has been testing the potential of cargo bikes for the last mile delivery as of 2019. A pilot was launched called Project Colibri that has turned an abandoned bus depot into a consolidation center, where goods from larger trucks get transferred to electric cargo bikes. The project is expected to reduce the negative externalities from last mile delivery in downtown Montréal.



Figure 31 | Compact electric parcel-delivery vehicle in Hamburg, Germany. (Oroboro)

We propose a similar project be considered for reduced congestion within NDLS. Such an initiative should take into account the following key considerations:

- Shifting a share of medium and large delivery vehicles to off-peak hours
- Improved zoning of all delivery vehicle movement
- Shifting to more sustainable modes of delivery—i.e. electric bikes and electric vehicles
- Interjurisdictional collaboration to allocate distribution hubs

Stakeholders: CSL, TMR, the City of Montreal, CMM, MA, and the boroughs of Saint-Laurent and CDN-NDG.





Figure 32 | Broadway Autopark. (Milt Mounts/Essential Images Photography)

## Adaptable Infrastructure

Given the current mode share in the sector, the reality is that providing parking may still be a necessity, particularly for office and commercial uses. Where parking is still thought to be a requirement, new parking garages should be designed with the future of the sector in mind. As the need for parking decreases with improved active and public transport in the sector, these valuable spaces can be repurposed for other uses. This can include work and community spaces as well as apartment units for above-ground lots, and urban agriculture, storage, and server farms for underground garages.

The current challenge with repurposing old parking garages is the cost and retrofits typically required to make them livable. They often have low ceilings, sloped floors, and lack the necessary HVAC, wiring, and plumbing. However, successful retrofits have been performed. The Broadway Autopark in Wichita, Kansas was converted into 44 high-end single-bedroom apartments over the course of 2

years and approximately \$5 million in retrofits. [See Figure 32].

An example of conversion to work and community spaces, one underused parking structure in Brixton was transformed by the organization Make Shift for \$6.7 million into studio spaces for artists and small businesses, as well as space for vendors, retailers, and markets.

In anticipation of future changes to parking demand in the sector, new parking garages can be designed with this type of repurposing in mind. Building for future retrofits is likely to be less expensive and more ecologically sustainable than having to retrofit or rebuild later on. Future-proofing the sector by planning for the adaptive reuse of new parking structures can be done by:

- Requiring that new parking structures be designed with more structural reinforcement, level floors, and higher ceilings with either removable ramps or ramps that can be leveled in future.

- Incentivizing developers to make these retrofits through ‘future use’ tax credits that can be funded through local parking revenue
- Ensuring that future parking structures be built to accommodate adaptive reuse through the use of design guidelines or form-based codes

Stakeholders: CSL, TMR, Saint-Laurent, CDN-NDG, Private Developers

## Parking Requirements

There is currently an abundance of surface parking lots and free on-street parking in the NDLS sector. With many new large-scale developments proposed, the amount of additional parking required under existing by-laws may lead to an even greater surplus in parking supply. An overabundance of parking in the area is contradictory





Figure 33 | Peckham Levels studio space configuration. (Make Shift)

to a vision of a connected, livable, and future-proof environment as it encourages driving, acts as a barrier for cyclists and pedestrians, occupies valuable land, and contributes to the urban heat island effect. To control parking supply and manage demand in the sector, Oroboro recommends the following changes to parking by-laws and management:

- Reducing parking maximums and minimums for new apartment and condominium complexes near mass transit.

- ‘Unbundling’ the cost of parking from rent and purchase prices, making housing more attractive and affordable for those who do not want or need a parking space.
- Requiring developers to reserve a certain percentage of spaces for carshare services to discourage vehicle ownership and parking demand at the building level.
- Implementing time limits and paid on-street parking in commer-

cial areas to encourage turnover and generate revenue towards investments in sustainable transport and public space within the sector.

In one recent example, the City of San Diego voted to require that developers ‘unbundle’ the cost of parking from new units and eliminate parking minimums for TODs, instead imposing a new parking maximum of one space per unit. These types of changes must be implemented in conjunction with improvements to public and active



transportation in the area to reduce the need to drive and own a vehicle. Potential parking policies should be evaluated alongside a thorough parking study to ensure that adjustments are feasible and would lead to minimal disruptions in resident quality of life.

Stakeholders: CSL, TMR, Saint-Laurent, CDN-NDG

## Form-Based codes

As previously established, fragmented neighbourhoods and auto dominance are some of the key challenges that characterize the NDLS sector. Considering the extensive development planned for this sector, it is imperative to adapt the urban fabric in order to ensure long-term livability within the sector. This involves not only walking, biking and vehicular accessibility, but also improving how people can relate to and enjoy the neighbourhood in which they live.

To achieve this vision, Oroboro recommends the adoption of Form-Based Codes (FBCs) to regulate the new developments. FBC is a “land development regulation that fosters predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle for the code”. There are increasingly common across Canada, with examples across a range of city sizes and locations. One such example is Calgary’s East Village, a former warehouse district that is now home to a range of live-work-play amenities. [See Figure 34].

The adoption of these codes would not be applied exclusively to the NDLS sector but be applicable to the other areas within each relevant borough/municipality. FBCs have been adopted in various cities in the United States and have filtered their way into Canadian system, already adopted in Ontario, and the city of Candiac, Quebec.

The adoption of FBCs in the sector and across all the municipalities/boroughs could help achieve the following:

- Mixing compatible uses, including retail shops, residential spaces, restaurants, live-work spaces, and other low-impact services.
- Increasing outdoor spaces and enlarging pedestrian walkways.
- Ensuring proportionate scales between building frontages and public spaces to support human-scale development.
- Legally bind developers to adhere to design regulations.

Regarding the implementation of Form-Based Codes, the following should be considered:

- The adoption of FBCs should be taken up by the Bureau d’audiences publiques sur l’environnement (BAPE) to create regulations that all boroughs and municipalities must adhere to, preventing jurisdictional conflicts.
- Municipalities should design their own regulations in order to respond to contextual issues, but these should still be derived from the broader design framework.

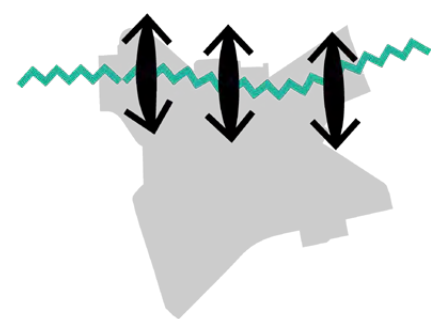
Phasing: Long-term Cost: High Impact: High  
Barriers: Developers, Property owners, Jurisdiction

Stakeholders: BAPE, CSL, TMR, Saint-Laurent, CDN-NDG, Private Developers



**Figure 34 | Calgary’s East Village project is an example of a form-based code that has been used to promote a mix of residential, commercial and cultural uses while enhancing the pedestrian experience. (Placemakers)**





# “THE NORTHERN BARRIER”

***A major obstacle to north-south movement, the only links beneath the A-40 are uninviting to foot traffic. [See Figure 38]. Creating safer and more enjoyable spaces beneath the autoroute could serve as relatively inexpensive yet effective intervention to knit together neighbourhoods separated by the A-40, as well as reclaiming underutilized space for public recreation.***

Oroboro proposes creating a more inviting underpass at the the CN railway line crossing, where Authier Street and Devonshire Road intersect with Côte-de-Liesse [See Figure 37]. This can be achieved through relatively simple interventions [See Figure 39]., including:

- Clearer signage
- Widened sidewalks and bike paths
- Attractive lighting
- Street furniture and public art
- Physical and visual separation from cars

Seasonality should be a key consideration in all plans for the active green network. Adaptable design and programming is required to make these spaces inviting and attractive to a variety of users during all seasons [See Figure 41].

Cities across North America are similarly fragmented by heavy infrastructure built in the 1960s and 70s, so many municipalities are

seeing a wave of interest in turning transit underpasses into public parks.

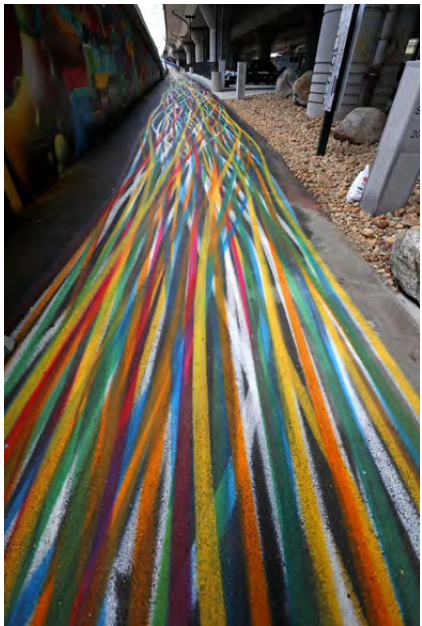
In one recent example, Toronto’s new underpass skaterink marks the first phase of the Bentway, planned to eventually encompass over a kilometer of bike and pedestrian trails and public art installations. [See Figure 36]. The park has reconnected the surrounding neighbourhoods by offering various activities year-round to ensure the livability of this new space. The portion that opened last year offers skate rentals, live music, and pop-up curling.

Stakeholders: Saint-Laurent, TMR, MTQ, Private Developers and/ or local Non-Profits

As the A-40 is managed by the Ministère des Transports Québec (MTQ), an interjurisdictional service agreement will need to be reached to redesign and manage the underpasses. The neighbouring municipalities, or perhaps a community organisation representing local populations will need to apply to be able to redesign the space on behalf of nearby residents. The MTQ has an application process in place to integrate works of art on transportation infrastructure.

Public-private partnerships could be leveraged to cover costs and manage the new public spaces.

Precedents of successfully repurposed underpasses often involve funding or management by private developers who were adding residential units in areas of the city with little existing park space. In many examples, cities delegated programming responsibilities for underpass parts to developers or non-profit organisations.



**Figure 35 | Underpass park in Boston (Boston Globe)**



**Figure 36 | Skating rink beneath the Gardiner Expressway in Toronto (BlogTO)**





Figure 37 | Key intervention: A40 underpass (Oroboro)



Figure 38 | A40 Underpass (Google Street View)



Figure 40 | Houston Underpass (Curbed)



Figure 42 | Underpass beergarden.

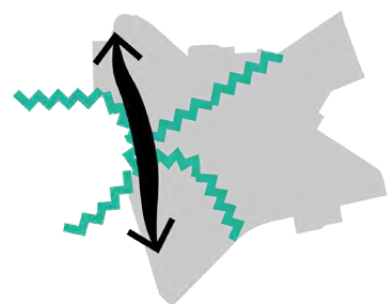


Figure 39 | Visualization of opportunities to inhabit and bring life to underpasses in summer (Oroboro)



Figure 41 | Visualization of opportunities to inhabit and bring life to underpasses in winter (Oroboro)





# “THE FRAGMENTED NEIGHBORHOOD”

**Another major barrier that residents of the sector face is created by the railway lines, concentrated in the western part of the area. The railways cut across some of the existing neighbourhoods, limiting the possibility of opening up the sector for future developments.**

The creation of links on the following corridors should be prioritized:

- Cavendish Boulevard. [See Figure 43].
- Clanranald Avenue. [See Figure 44].

Connecting the above axes will help reduce the mobility challenges and build towards a connected sector.

Cavendish Boulevard is currently separated by both the CP and CN train tracks, so rail underpasses or overpasses will be required. Under the terms of the agreement between the province and the City of Montreal for the Hippodrome, the Cavendish extension project must be listed in the City’s capital works budget.

While funding has been allocated to study the project, discussions are underway to acquire the necessary land from CN and CP.

The design of the extension should consider the opportunities that Cavendish extension offers for future-proofing the sector. The link

presents a significant opportunity to improve mobility within the isolated western reaches of NDLS.

At the same time, the extension could easily perpetuate car-dominated transportation. To capture the full range of benefits associated with the proposed extension while avoiding some of the risks, active and public transport means should be given highest priority. [See Figure 47].For example, while the project connects with the existing road network on Royalmount and Jean Talon, the space dedicated to cars could be kept as one lane per direction.

While Cavendish extension is unlikely to resolve the congestion problems on Côte-de-Liesse, Autoroute Metropolitaine or Décarie, it does carry the potential to offer dramatically improved active and public transportation for existing and future developments.



**Figure 43 | Key intervention: extension of Cavendish Boulevard (Oroboro)**

While additional studies will need to analyse options for the most suitable configuration of the project, our preliminary plan shows a possible illustration of Cavendish project [See Figure 48]. Considerations include:

- Prioritization of pedestrians and cyclists
- Dedicated public transport space
- Reduced vehicular movement space
- Increased canopy density
- Alignment with active green network



**Figure 44 | Key intervention: underpass connecting Clanranald Avenue (Oroboro)**



Another project that would help to address the fragmented western portion of NDLS is the extension of Clanranald Avenue, which is currently divided by the CP train tracks. To the east of the sector, a railway underpass is provided at Victoria Avenue. However, those living on the western portion of NDLS must use Decarie to get to the other side of the tracks, which can represent a long detour. Oroboro recommends the creation of an underpass to connect Clanranald Avenue as an active transportation corridor, linking the future developments of the Hippodrome and Décarie Square with the rest of the area.

Offering a safe and pleasant underpass for movement of pedestrians and cyclists will be essential to promoting active transportation while maintaining vehicular circulation through the area. While underpasses tend to have a bad reputation for attracting unwanted activities, simple but careful design decisions can mitigate many potential issues, such as providing adequate lighting.

Stakeholders: CSL, Borough of Saint-Laurent, City of Montreal, CMM, MA, CP, CN, and MTQ



Figure 45 | Ammarud Viaduct in the Netherlands before renovation.



Figure 46 | Ammarud Viaduct active underpass after renovation. (Reprogramming the City)

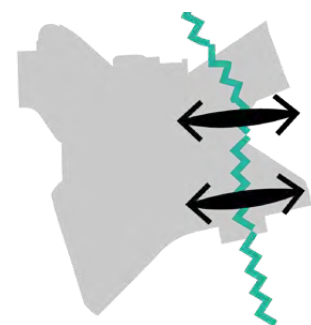


Figure 47 | Current Cavendish cul-de-sac in Côte Saint-Luc (Google Street View)



Figure 48 | Visualization of the extension of Cavendish Boulevard (Oroboro)





# “THE EASTERN BARRIER”

***Other key challenges within NDLS include the existence of dangerous nodes susceptible to accidents as well as impermeable, large blocks. Although this problem is common along the major routes within the sector, the Decarie Expressway (Autoroute-15) is the site of some of the highest rates of pedestrian and cyclist accidents.***

To ensure traffic safety, increase green cover, and encourage active transportation and livability, Oroboro recommends three strategies to be undertaken on and near the A-15:

- Decking over the A-15: constructing a “roof” over a portion of the below-grade section of the expressway, creating a new usable space on top. We propose this stretches from Des Jockey street to Jean-Talon Ouest, creating a direct connection between Namur metro station to the future residential developments in the Hippodrome. To ensure that the project is worth the high costs, we recommend that the surface be converted into a park. The presence of a park over the Autoroute would increase pedestrian safety, increase overall green cover, help

address the public space deficit, while providing a barrier from noise and pollutants generated by vehicles. [See Figure 53].

- Constructing an elevated pathway towards Royalmount. This is an intervention that has already proposed by Carbonleo that would help provide a safe and pedestrian-friendly environment for nearby residents and visitors accessing the De la Savane metro.
- Implementing a green network along the Hippodrome and its surroundings. This would connect to the A-15 overpass park, increase overall green cover and encourage active usage of public spaces and transport.

One effective example of a city utilizing existing infrastructure in a car-dominated landscape to improve livability and connectivity is Klyde Warren Park in Dallas, Texas. Providing five acres of public space above a highway, Klyde Warren is now considered a destination in itself. [See Figure 50].

Stakeholders: CSL, TMR, Hampstead, borough of CDN-NDG, City of Montreal, MTQ, Private Developers

In order to ensure successful implementation, the cost of development of the elevated pathways could be shared by the City of Montreal, the affected jurisdictions, the MTQ, and developers of adjacent real estate projects. As with the proposed A-40 underpass interventions (Focus Area #1), the management of the overpass park and green networks around the Hippodrome could be undertaken by a designated committee or non-profit organisation.



**Figure 49 | The site of Klyde Warren Park before it was transformed (Landscape Performance)**





Figure 50 | Klyde Warren Park in Dallas, Texas, today (Klydewarren.org/)



Figure 53 | Key intervention: decking over Décarie



Figure 52 | The current intersection of Decarie and Jean-Talon (Google Street View)



Figure 51 | Visualization of a deck over Decarie at Jean-Talon (Oroboro)



# PUTTING IT ALL IN MOTION

*All the proposals above will require close collaboration and coordination among various jurisdiction and stakeholders. The Namur – De la Savane working group seems to have provided an appropriate forum for this purpose, and we welcome the extension of the working group mandate to track the implementation of their recommendations.*

## New Frameworks

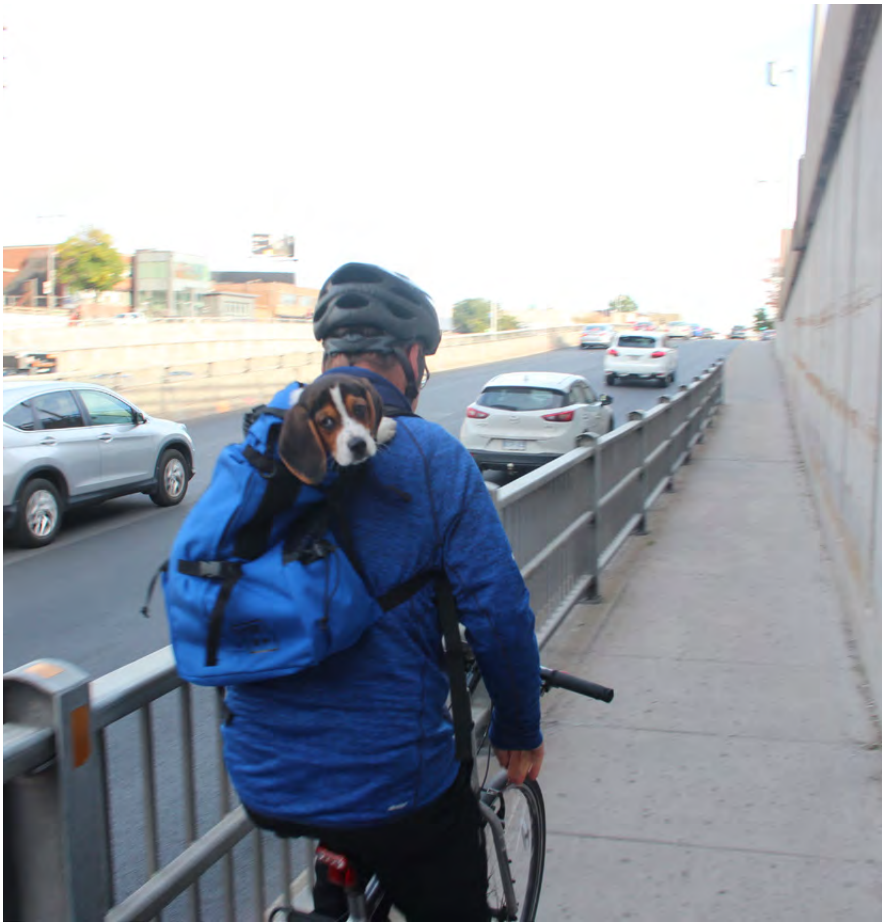
Nevertheless, the current legal and jurisdictional framework does not provide the necessary tools to address unique scenarios like the NDLS sector, where multiple municipalities must work closely. We believe it is necessary for the province to intervene in order to enable tools and legislation for regional decision-making. However, every model will have limitations, the most important of which is the fact that local autonomy will have to be constrained. The demerger process of 2006 has shown that this is an important matter to consider when devising new decision-making mechanisms. We have identified a few ways in which a new jurisdictional framework could be adapted:

- Impose strategic environmental assessment with review of large projects by the BAPE
- Require MA approval for larger projects proposed in close

proximity to municipal boundaries. This could take either the form of a conditional approval (constraint on development) or as a single approval (regional approval).

- Impose a provincial approval requirement for larger projects proposed adjacent to provincial highways.

Oroboro believes the history of development in NDLS illustrates the need for clear guidelines for new projects, including parks, social infrastructure, community amenities, and funding for public transportation infrastructures. It is important for all municipalities to create similar guidelines which would enhance the overall public realm conditions in the sector and prevent developers from placing jurisdictions in antagonistic relationships. These public realm upgrades should be funded upfront in order to avoid delays and prevent developers or other funders from later renegeing on promises to fund new infrastructure.





Preliminary Feasibility Assessment

Based on our analysis and review of background materials, we have prepared the following chart outlining the phasing and feasibility of the proposed initiatives. These should be further refined as stakeholders refine and implement this vision.

INTERVENTIONS	PHASING			IMPACT			COSTS			BARRIER		
	SHORT	MEDIUM	LONG	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH	ZONING	PROPERTY	JURISDICTION
Green network			✓			✓		✓		✓	✓	
Underpass	✓			✓			✓					✓
Decking over		✓			✓				✓		✓	✓
Public transit connectivity			✓			✓			✓	✓	✓	✓
Social infrastructure + public spaces		✓				✓			✓		✓	✓
Form based code			✓		✓		✓			✓		✓
Adaptable infrastructure		✓		✓				✓		✓	✓	
Parking policy	✓				✓		✓			✓		✓
Future work and retail strategy			✓		✓		✓				✓	✓
Last mile		✓		✓				✓		✓		✓

Conclusion

The Oroboro team believes that the vision, plans and interventions suggested in this report are key to enhancing the strategic role played by the NDLS sector for the greater Montreal region. By working collaboratively towards a unifying vision, the different jurisdictions and stakeholders will secure long-term prosperity through sustainable means. The opportunities offered by the sector can only be fully grasped through joint effort, communication, and teamwork between all the concerned parties.

The plan outlined in this report offers solutions to fight current problems caused by planning practices of the past: traffic congestion, environmental pressures and an increasingly outdated industrial sector. It is time to break with an era where cities were based around automobile dependency, turning instead toward a planning vision that prioritizes active and public transit, along with new forms of economic activities.

The proposed vision must be conceived as a stepping-stone to guide future decision-making. None of the actors, municipalities or stakeholders in NDLS can single-handedly achieve the proposed interventions. It is therefore imperative that all actors share a collective vision

that will guide the future of the NDLS sector. Once a unified vision is achieved, further detailed studies can be performed that will allow for a connected, livable for all and future-proof sector at the heart of the island.



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# OUR TEAM

## Land Use

Barbara Kuffour Asenso

Ammar Mahimwalla

Danisa Putri

Lysandre Routhier-Potvin

## Transportation

Ludovic Bilodeau Cardinal

Jamie DeWeese

Maddie Harreman-Fernandes

Lou Seltz

Yathartha Singh



