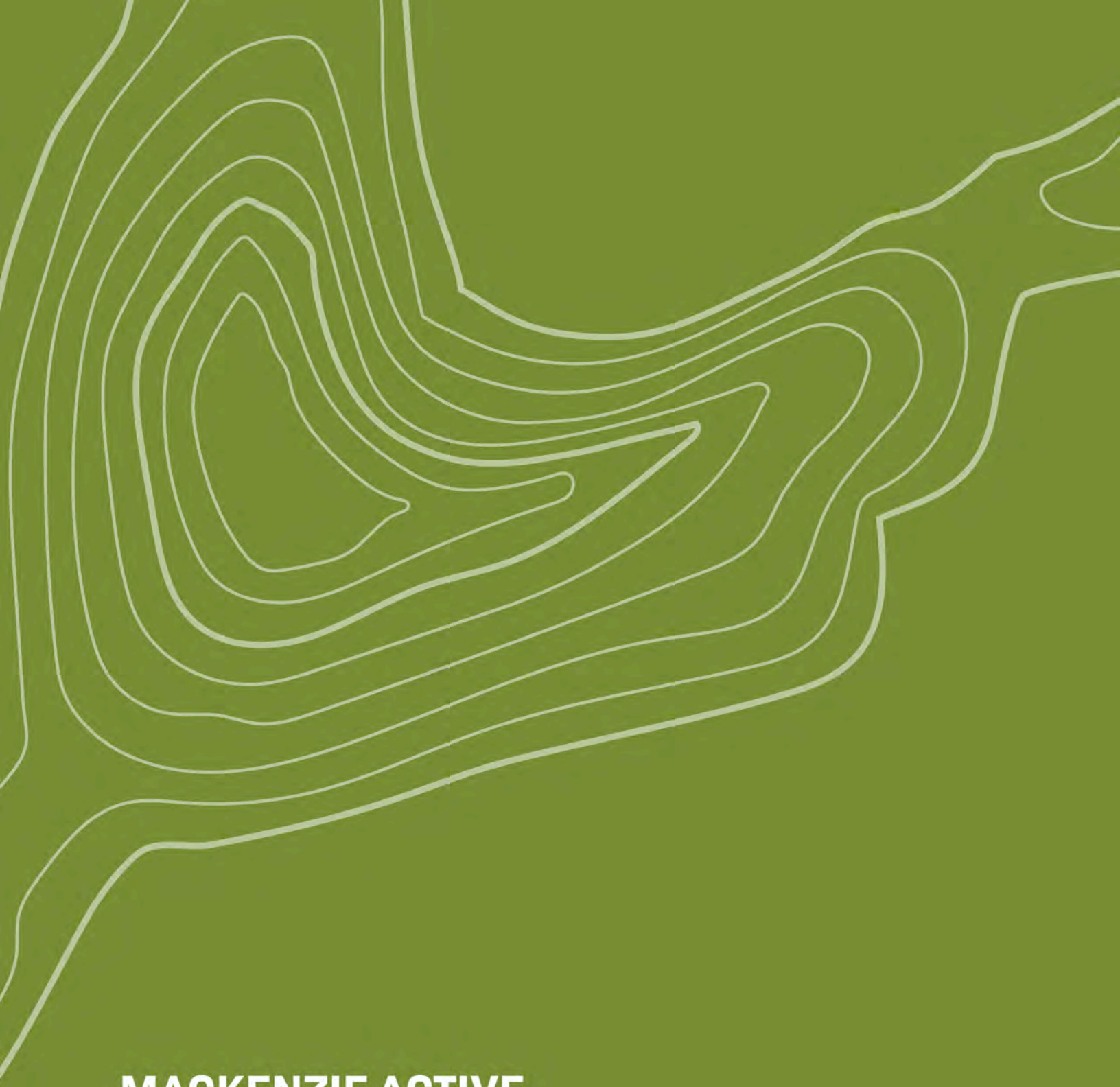


MACKENZIE ACTIVE TRANSPORTATION AND PUBLIC SPACE STRATEGY

September 23th, 2024

MACKENZIE
BRITISH COLUMBIA

ACKNOWLEDGMENTS

Many thanks to Councillors, City Staff, the Accessibility Committee and the Citizens of Mackenzie for their involvement during the public engagement process.

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This strategy offers recommendations on the traditional territory of the Tse'khene People of the McLeod Lake Indian Band. We are grateful to learn from the Nation and commit to supporting each other through creating meaningful places for the communities that live and work on this land.

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EXECUTIVE SUMMARY

The Mackenzie Active Transportation and Public Space Strategy is a framework for improving and investing in active transportation and public space improvements in Mackenzie. This strategy provides recommendations on two complimentary types of infrastructure: those that support movement and choices in how people get around, and those that give people vibrant places to spend time in so they can relax, gather, socialize and build community.

This work is funded through a $50,000 grant from Infrastructure Canada. The Active Transportation Master Plan (ATMP) is a requirement of the grant and provides a framework for future actions.

As a lumber town Mackenzie was built as a compact and walkable community. A renewed focus on livability and active transportation will renew and continue this legacy. Both tourists and residents can benefit from improved public spaces, and greater ease of movement and safety.

A 19-question survey was conducted over the course of six months from May to November 2023 allowing Mackenzie residents to provide feedback on their top priorities for active transportation and community spaces. Safety and a desire for protected bike lanes and improved crossings was the top response in the mobility topics. Residents also expressed a desire for more bike parking in the downtown area. When asked about public realm improvements, respondents asked for seating, events spaces, and family-friendly locations. They also expressed a desire for spaces that can be used year-round.

An analysis of existing infrastructure shows where there are gaps and needs that are currently being unmet. Cowpaths indicate shortcuts that people are routinely wearing down. Paving these networks and filling in gaps in the sidewalk network would make the pedestrian experience more straightforward and safer, while improving accessibility.

Improvements to active transportation and mobility infrastructure are divided into two phases. The first is temporary and low-cost improvements including painted lanes, removable barriers, and reflectors. The second will involve more permanent and higher budget interventions. This strategy allows for improvements as funding becomes available as well as the opportunity to learn from and iterate on temporary designs. Priorities include constructing sidewalks along Nechako Drive and Skeena Drive, installing more crosswalks along Mackenzie Boulevard, adding protected bike lanes along Centennia Dr., Skeena Dr., and Stuart Dr., and a mixed-use pathway (MUP) on the east side of Mackenzie Boulevard and Fraser Boulevard.

Two anchor spaces have been identified for public realm improvements. The West Anchor is the 616 Commercial Site. The first phase will transform the alleyway into an MUP for cyclists and pedestrians and will feature paving, seating, lighting and public art. The second phase will create a linear green space in part of what is currently a parking lot. This space will include a pedestrian plaza for events, a stage, a shelter with flexible seating and market stalls. The East Anchor is the Mackenzie Recreation Centre. Phase 1 will create a plaza adjoining the entrance to the building featuring public art, a splash pad, and a multi-functional covered area. Phase 2 proposes a space that can serve as a rink in the winter and a sports pitch or events space in the summer. Phase 3 would add a gravel walking path that can be flooded to become a skate loop in the winter, a picnic area and a community garden with a sheltered space.

ACTIVE TRANSPORTATION GOALS

SAFE NETWORK:
Improve the active transportation network to be inclusive of All Ages and Abilities (AAA) by providing more designated space.

WELL-CONNECTED NETWORK:
Provide a continuous active transportation network that is direct and easy to navigate.

SUSTAINABLE NETWORK:
Develop an active transportation network that encourages less reliance on cars year-round.

HEALTHY NETWORK:
Support the physical and mental health of residents by promoting an active lifestyle.

PUBLIC SPACE GOALS

FLEXIBLE SPACE:
Provide space for residents to gather year-round through programming that adapts seasonally.

ACCESSIBLE SPACE:
Support the needs of the community though inclusive design and programming.

COMFORTABLE SPACE:
Create public spaces that shelter people from the elements and feel safe to be in.

GREEN SPACE:
Introduce more meaningful natural areas within Mackenzie, increasing the many associated benefits.

MISSION

To provide Mackenzie residents with a safe and clear active transportation network, encouraging more active and sustainable lifestyles, and to create meaningful public spaces where daily activities take place year-round.

VISION

In the year 2040, Mackenzie is a flourishing town with a well-connected active transportation network and several vibrant public spaces that tie the community together.

PURPOSE

The purpose of this strategy is to support Mackenzie by identifying opportunities to enhance the livability of Mackenzie, guiding funds for future infrastructure investments.





CHAPTER 1: INTRODUCTION, BACKGROUND AND HISTORY



1.1 INTRODUCTION AND BACKGROUND

Mackenzie was originally founded to support the logging industry, but has since evolved into a hub for tourism. Nestled in the scenic landscapes of northern British Columbia, the town is in close proximity to the region's abundant natural beauty. This makes the town an attractive destination for both residents and visitors alike.

During the winter months, individuals can engage in activities such as backcountry skiing, snowshoeing, or enjoying a variety of winter activities at Little Mac and Powder King ski resorts. Come summer, nearby Morfee and Williston lakes provide ideal settings for fishing, swimming, and paddle sports. Outdoor enthusiasts can further explore an extensive trail network through mountain biking and hiking.

Within the town, the large community garden, skateboard park, pump track, community centre, and outdoor skating rink serve as social hubs throughout the year. Seasonal events, such as Rockin' the Ridgeline in the summer and Mountain Magic WinterQuest in the winter, bring nature, art and the Mackenzie community together.

The original design of Mackenzie as a compact and walkable community lays the groundwork for its continued development and growth (District of Mackenzie, 2023). As the town undergoes a shift away from its logging-centric history, there is a concerted effort to enhance the infrastructure. These initiatives will not only contribute to the overall well-being of the community but will also foster a stronger connection between residents and the surrounding landscape that will continue to draw people here.

The emphasis on creating pathways for pedestrians and cyclists will not only promote a healthier lifestyle but will also align with Mackenzie's commitment to sustainability. By integrating more active transportation routes, the District of Mackenzie aims to increase the use of sustainable modes of transportation.

The District of Mackenzie is also planning strategic investments in public spaces that will foster a closer sense of community. These spaces will serve as focal points for social interaction, recreation, and cultural activities. By providing residents with well-designed and accessible public areas, Mackenzie aims to strengthen community bonds and create a vibrant and inclusive environment for all.

1.2 ABOUT THE STRATEGY

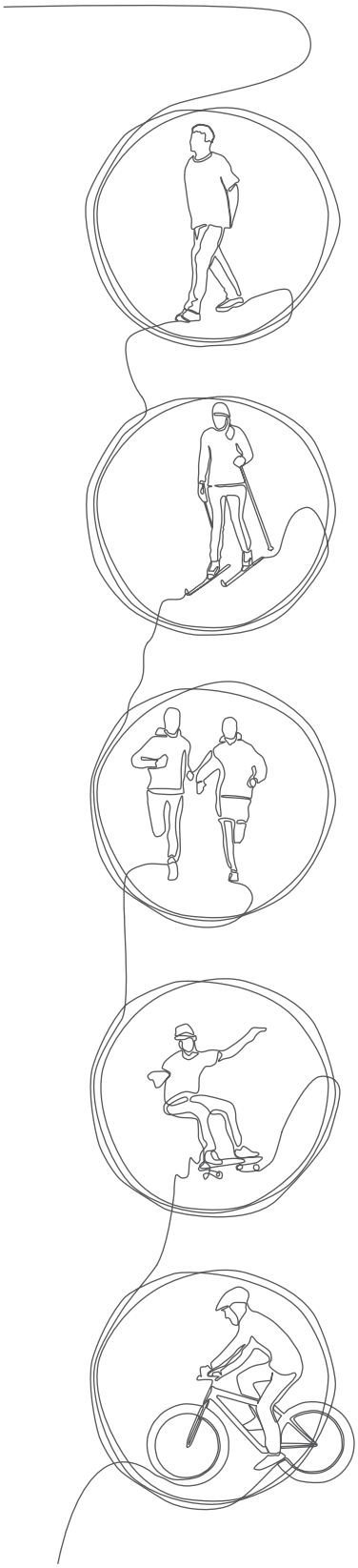
VISION

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MISSION

To provide Mackenzie residents with a safe and clear active transportation network, encouraging more active and sustainable lifestyles, and to create meaningful public spaces where daily activities take place year-round.

PROCESS TIMELINE



MAY
2023

LAUNCH

Defined objectives, allocated resources, identified key stakeholders, established communication channels, and created a project plan.

SEPTEMBER
2023

EXPLORE

Conducted site visits and analysis, identified potential challenges, and defined scope and boundaries of the strategy.

NOVEMBER
2023

LISTEN

Met with Mackenzie District Staff and Council, conducted a residents survey, and hosted a community engagement event to gather additional feedback.

DECEMBER
2023

SYNTHESIZE

Analyzed collected data and key findings, organized information, and worked with Mackenzie District Staff to draft an outline for the strategy.

FEBRUARY - AUGUST
2024

FINALIZE

Reviewed a draft of the strategy, received feedback from Mackenzie District Staff, revised the document based on feedback, finalized writing and visuals, and presented to Council for adoption.

1.3 PROJECT OVERVIEW

This strategy aims to revitalize Mackenzie by undertaking a two-fold initiative. The first step involves establishing an active transportation network, promoting healthy and sustainable modes of travel, while the second focuses on creating social anchors for community events and year-round outdoor gathering. The proposal for the 616 Commercial Site (West Anchor) involves the redevelopment of an existing alleyway and a portion of the parking lot, converting them into spaces to support an outdoor market and nearby retail. The proposal for the Recreation Centre (East Anchor) enhances outdoor spaces around the facility, introducing new recreational amenities to serve the community.

Through these plans, this strategy aspires to further transform Mackenzie into a connected, lively, and engaged community that thrives both physically and socially.

PURPOSE

The purpose of this strategy is to support Mackenzie by identifying opportunities to enhance the livability of Mackenzie, guiding funds for future infrastructure investments.

1.4 FUNDING

The Mackenzie Active Transportation and Public Space Strategy is funded through a $50,000 grant from Infrastructure Canada.

The creation of these plans is a road map for the future. They will provide clear direction, and tangible improvements that can be costed. Having these plans in place opens the door to future grant or funding requests from higher levels of government and/or private donors. This supplemental funding is necessary to make many of these plans a reality.

1.5 GOALS

ACTIVE TRANSPORTATION GOALS

SAFE NETWORK:
Improve the active transportation network to be inclusive of All Ages and Abilities (AAA) by providing more designated space.

WELL-CONNECTED NETWORK:
Provide a continuous active transportation network that is direct and easy to navigate.

SUSTAINABLE NETWORK:
Develop an active transportation network that encourages less reliance on cars year-round.

HEALTHY NETWORK:
Support the physical and mental health of residents by promoting an active lifestyle.

PUBLIC SPACE GOALS

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Provide space for residents to gather year-round through programming that adapts seasonally.

ACCESSIBLE SPACE:
Support the needs of the community though inclusive design and programming.

COMFORTABLE SPACE:
Create public spaces that shelter people from the elements and feel safe to be in.

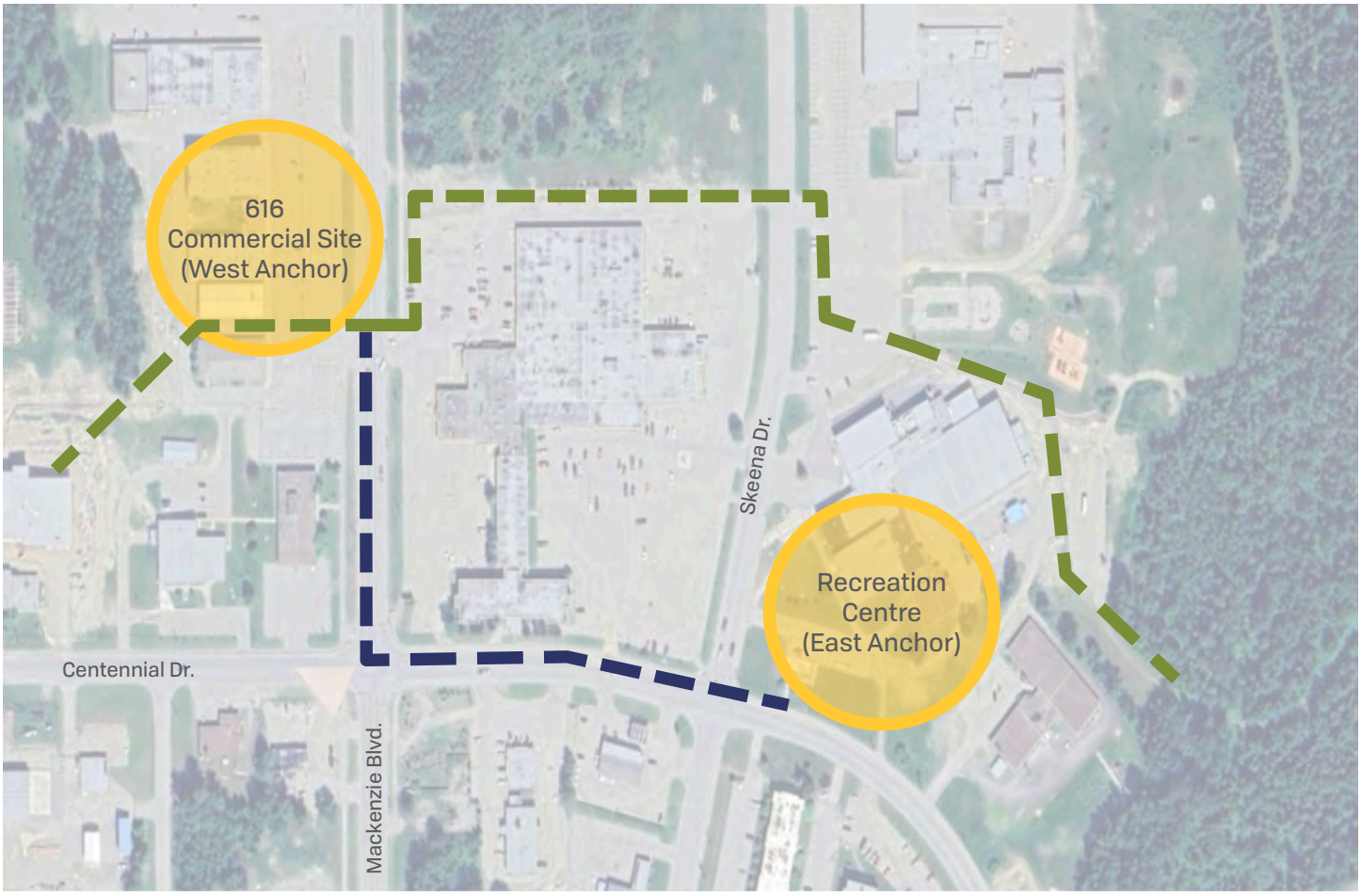
GREEN SPACE:
Introduce more meaningful natural areas within Mackenzie, increasing the many associated benefits.



616 Commercial Site (West Anchor)



Recreation Centre (East Anchor)



1.6 WHAT IS ACTIVE TRANSPORTATION?

Active transportation is the use of physical exercise as a means of travelling from one location to another. This mode of transportation emphasizes human-powered activities rather than relying on motorized vehicles (Government of Canada, 2014). The broad spectrum of activities that falls under the umbrella of active transportation includes:

- Walking
- Biking
- Skateboarding / scootering
- In-line skating/ rollerblading
- Jogging/ running
- Non-mechanized wheel chairing
- Snowshoeing
- Cross-country skiing

Of this list, biking stands out as the most versatile form of active transportation. With its relatively low cost, it is economically viable for a broad range of individuals and adaptable to cater to those with mobility challenges, fostering inclusivity. In its various forms, active transportation contributes to personal health, community engagement and sustainable practices.

It is worth noting that many traditional forms of active transportation are becoming motorized such as electric bikes, scooters and wheelchairs. These modes rely on the same sidewalks and paths.

BENEFITS

Active transportation brings widespread benefits that can greatly improve our:

- Health
- Society
- Transportation
- Economy
- Environment

It encourages regular physical activity thus contributing to improved overall health and well-being. This physical activity also fosters a sense of community by providing opportunities for social interactions and relationships. Active transportation reduces traffic, parking demand, and wear and tear on infrastructure, resulting in cost-savings for individuals through fewer vehicle-related expenses and for society as a whole through reduced infrastructure costs (Government of Canada, 2014).

Embracing active transportation not only contributes to personal health but also holds the key to substantial environmental benefits, particularly in the context of Downtown Mackenzie. Consider the environmental impact if each resident chose to substitute just one daily trip to Downtown Mackenzie with a mode of active transportation. The ripple effect of such a shift would be profound, resulting in an annual reduction of 695.22 tonnes of carbon dioxide (CO_2) emissions (calculated with Tree Canada, 2022).

The significance of this reduction becomes apparent when translated into a tangible ecological metric – the equivalent of preserving approximately 3859 trees. Trees play a pivotal role in sequestering carbon dioxide, acting as natural carbon sinks that help mitigate the adverse effects of greenhouse gas emissions. Therefore, by opting for active transportation, Mackenzie residents can collectively contribute to a substantial decrease in their community's carbon footprint.

1.7 ACTIVE TRANSPORTATION COMPARISON TOWNS

Active transportation is a well-established concept that has been implemented in population centres across the globe. To gain insights into how it has been implemented in towns of similar size and climate, this section offers an overview of initiatives in Terrace, British Columbia; Canmore, Alberta; Cuyuna, Minnesota; and Oulu, Finland. A comparative analysis with Mackenzie serves as a reference point in the table below.

TERRACE, BC, CANADA

The City of Terrace, recognizing the diverse characteristics of different areas, has categorized locations into four distinct areas: The Benches, The Horseshoe, The Downtown, and The South Side. In The Benches area, the city plans to construct staircases for navigating hilly terrain. The Horseshoe is envisioned to feature a continuous east-west pedestrian and cyclist boulevard, achieved through connectors and additional sidewalks. The Downtown area will see the installation of artist- or student-designed bike racks. The South Side is slated for the creation of a riverside trail recreation loop.

For students, the city aims to encourage walking by upgrading sidewalks within a 10-minute walk of schools. Bridges and crossings are targeted to improve walking and cycling networks with designated crossing points proposed. Addressing maintenance concerns, the city plans to collaborate with local walking and cycling advocacy groups to establish a Sidewalk Snow Removal Policy that will prioritize snow and leaf removal on streets within a 10-minute walk of schools and those with designated bicycle routes.

Education and information play a pivotal role in the city's strategy, with proposed initiatives aimed at informing cyclists and motorists about sharing the road in a safe and mutually respectful manner. Leveraging external programs like ICBC's Way to Go! School Program and the Canadian Cycling Association's CAN-BIKE education program help expand the reach of the City of Terrace's comprehensive cycling safety education. Enforcement programs to apply rules of the road and community involvement in implementation underscore the city's dedication to fostering an active and safe transportation culture that engages and benefits the entire community. (City of Terrace, 2009)

	Population	Area	Average Temp.	Average Snowfall
Mackenzie	3,280	159 (region) 9 km^2 (town)	S: 21°C; W: -8°C	1.7 m
Terrace	12,000	57 km^2	S: 19°C; W: -3°C	1.6 m
Canmore	15,990	68.47 km^2	S: 22°C; W: -4°C	2.1 m
Cuyuna	300	35 km^2	S: 27°C; W: -7°C	1.2 m
Oulu	214,650	182 km^2 (urban)	S: 20°C; W: -5°C	0.5 m

Terrace Takeaways

1. Prioritizes upgrading sidewalks near schools to encourage walking.

2. Establishes a sidewalk snow removal policy for the City along with home and business owners.

3. Promotes active transportation through education, encouragement, and enforcement.

CANMORE, AB, CANADA

With the goal of revitalizing the town centre, the Town of Canmore focuses on implementing complete streets, aiming for a comprehensive active transportation network through their 2018 Integrated Transportation Plan Update. The design principles guiding this initiative include directness, safety, comfort, continuity, and attractiveness. Recognizing the diverse needs of two primary target groups — residents and visitors, distinguishing between commuting and leisure — this approach aims to create a distinctive network of connections and places. The emphasis on this network's development does not solely rely on constructing extensive cycling and pedestrian infrastructure; instead, it prioritizes these modes within the existing car network through traffic calming measures and self-explanatory environments. Meaningful connections, such as underpasses, overpasses, and shortcuts, are established in response to the identified needs of the target groups, embodying the Town of Canmore's commitment to a well-integrated and accessible transportation system. This approach not only fosters inclusivity but also integrates various modes of transportation seamlessly, promoting a well-rounded and accessible network. Year-round maintenance is a critical aspect of sustaining the designated cycling network, showcasing the Town of Canmore's dedication to ensuring the ongoing functionality and safety of its active transportation infrastructure. (City of Canmore, 2018)

Canmore Takeaways

1. Establishes the need for a robust active transportation network that benefits both residents and tourists.

2. Uses the concepts of 'complete streets' and 'multi-modal streets' in order to re-envision the transportation network.

3. Prioritizes access to the town centre to foster greater vibrancy while allocating less space for cars.

CUYUNA, MN, USA

Once a settlement based around gold mining Cuyuna, Minnesota has evolved into a thriving recreational area, with a particular emphasis on active transportation. This change was enabled by historic development patterns that initially facilitated miners' walking commutes to work, and now support cycling as both a means of transportation and local culture. Embracing a "silent sports" policy, the city prioritizes non-motorized activities, preserving the landscape from potential erosion.

The initial goal of adding 25 miles of trails has exceeded expectations, resulting in the establishment of an extensive 70-mile single-track network. The focus has broadened to include hiking trails and adaptive bike trails, complementing the existing biking infrastructure. The creation of a "village-like" town, reminiscent of a ski resort, has not only enhanced the recreational experience but also stimulated the local economy, particularly through cycling tourism. This economic development has transcended the cycling sector, benefiting the broader community.

The town's website (Cuyuna.com) serves as a comprehensive guide, encouraging people to explore the area and showcases year-round recreational opportunities. The approach centres around working with the natural landscape to create economic vitality through recreation, exemplified by groomed single-track trails that cater to both beginners and advanced riders. The

main target group for Cuyuna's development are active families, designing trail networks where three generations can recreate together. With this, the main goal is to promote active recreation and transportation to a diverse range of people.

The success story of this transformation offers insights for other towns seeking to embrace active transportation and recreation. Building relationships beyond silos, persistence, and a focus on community-driven transformations are key elements. Widening sidewalks, providing clear signage, and establishing recommended routes contribute to creating a culture around active transportation. The transformation should be inclusive, engaging the community in a way that transcends administrative boundaries, making the initiative about the people it serves rather than a top-down mandate (Streets mn, 2023).

Cuyuna Takeaways

1. Cycling is used as a way to promote the town, attracting both new residents and tourists.

2. Prioritizes family-friendly and accessible cycling networks to encourage diversity.

3. Continual engagement with the community helps to cultivate a culture of active transportation.

OULU, FINLAND

Oulu, known as the winter cycling capital of the world, boasts impressive statistics reflecting its commitment to cycling as a means of transportation. Remarkably, 22% of all trips in the city are undertaken by bicycle, with an additional 77% of residents cycling occasionally. Notably, half of the cyclists brave the winter elements, riding throughout the year.

Rather than relying solely on weather conditions, Oulu attributes its success in promoting winter cycling to two key factors. Firstly, the city boasts an extensive network of safe bicycle paths, totalling an impressive 875 kilometres. These separated bike paths seamlessly connect every part of the city, offering cyclists both convenience and safety. Innovative strategies, such as projecting images onto the snow instead of using traditional surface paint, contribute to the visibility and efficiency of these paths. Many of these bike paths are strategically designed as shortcuts, making cycling more efficient than driving.

Ensuring that the bicycle network remains functional throughout the winter is the second crucial factor. Oulu takes pride in its robust maintenance practices, particularly during the winter months. Priority bike routes are promptly plowed within three hours of a 2cm snowfall and receive multiple plowings if necessary. Snow removal contractors guarantee that the snow depth on these paths will never exceed 4cm. The paths are meticulously maintained ensuring a surface free of ice and debris making cycling safer and more comfortable.

Recognizing the significance of bike paths as essential infrastructure, Oulu emphasizes their value despite the associated costs. While the maintenance may be costly, it represents a fraction of the expenses incurred in maintaining roads for automobiles.

In Oulu, the commitment to promoting cycling in all seasons is not only evident in its statistics but also in the thoughtful planning and meticulous maintenance of its extensive bicycle network (City of Oulu, 2024).

Oulu Takeaways

1. Well maintained and extensive bike paths have created a culture of year-round cycling.

2. The network is made safe and efficient by continuous paths, extensive 'shortcuts', and innovative wayfinding.

3. The city prioritizes bike routes as a cost-saving strategy.



CHAPTER 2: ACTIVE TRANSPORTATION AND PUBLIC SPACE IN MACKENZIE



2.1 EXISTING ACTIVE TRANSPORTATION NETWORK

The initial planning of Mackenzie aimed to create a walkable and compact community, a legacy that is still evident in the layout and path network in the town. Despite this intentional design, there is a lack of continuity between many of these paths affecting the overall coherence of the network.

Mackenzie's existing active transportation infrastructure comprises Multi-Use Paths (MUPs) along Mackenzie Blvd, sidewalks, cowpaths, and surrounding trails. While this current network provides a solid foundation, the presence of gaps makes the system difficult to navigate. Addressing gaps is paramount to enhancing the connectivity and safety of the active transportation network in Mackenzie.

2.2 ANALYSIS OF THE EXISTING NETWORK

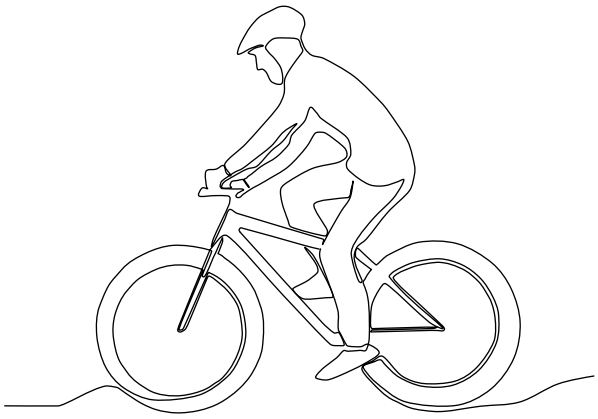
Addressing gaps in the existing active transportation network provides an opportunity to enhance continuity, ultimately resulting in a more seamless and accessible experience for users. Along Mackenzie Blvd (Highway 39), Multi-Use Paths (MUPs) serve as the primary thoroughfare with potential to be better connected and extended. Similarly, the sidewalks in Mackenzie lack connectivity, forcing pedestrians to navigate along the road before reaching the next sidewalk. These gaps, particularly along Nechako Dr. and Skeena Dr. where Morfee Elementary and Mackenzie Secondary are situated, need to be addressed for the improvement of safety and accessibility.

Within the neighbourhoods, cowpaths networks, formal and informal shortcuts for pedestrians and cyclists, indicate numerous disconnections. To improve continuity, it is important to introduce pedestrian links, such as sidewalks, between them. Informal paths should also be upgraded where possible to improve accessibility.

While Mackenzie Blvd features multiple crossings at lights and intersections, substantial gaps persist, leading to unsafe crossings outside designated areas. The addition of more designated crossings, accompanied by well-defined markings and signage, is necessary to improve the experience for pedestrians and cyclists along the highway.

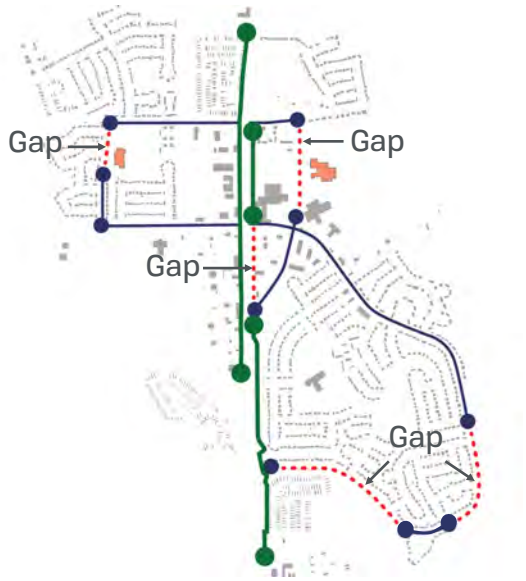
Furthermore, the town's roads have a generous width that can be utilized to enhance Mackenzie's active transportation infrastructure. Leveraging this ample space is an opportunity for creating a more robust and user-friendly network.

The following diagrams illustrate components of the existing transportation network and highlight needs and opportunities. Cowpath analysis is detailed on page 23, and the rest of the network analysis explained on page 24.



Multi-Use Paths and Sidewalks

Many Gaps in the Sidewalk and Multi-Use Path network.



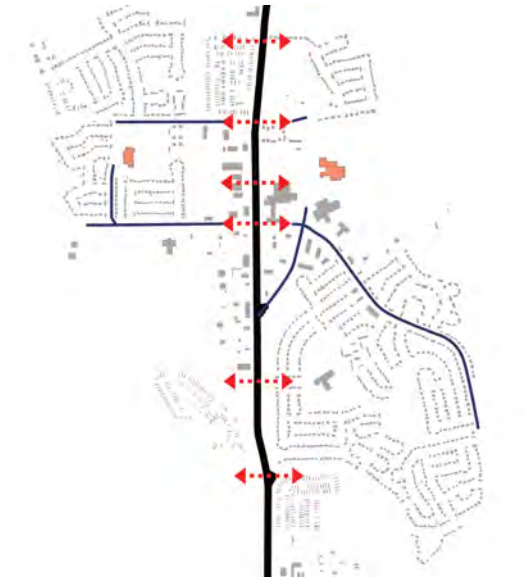
Cowpaths

'Cowpath' networks in the neighbourhoods are disconnected. Would benefit from formalized sidewalk linkages.



Pedestrian Crossings

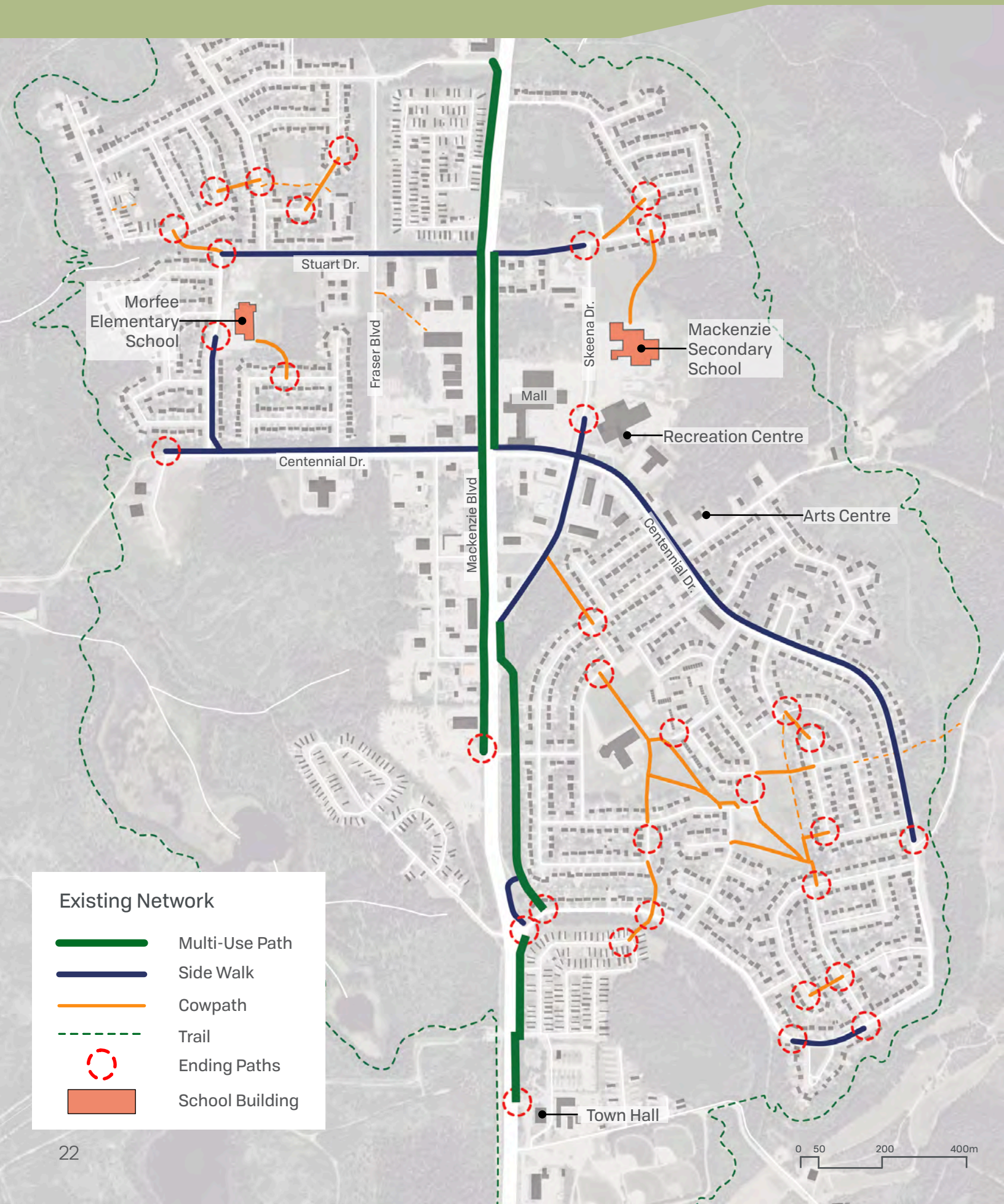
More crossings and improvement of existing crossing are needed along Mackenzie Blvd.



Residential Roads

Streets have a generous width, which could be partially used for improved pedestrian infrastructure.

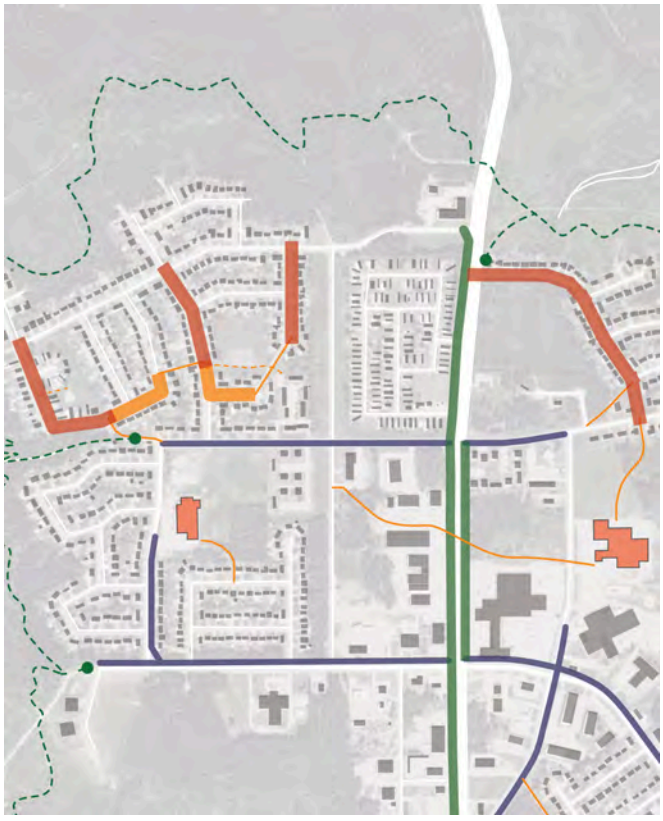



Stuart Dr.
Morfee Elementary School
Fraser Blvd
Skeena Dr.
Mackenzie Secondary School
Mall
Recreation Centre
Centennial Dr.
Mackenzie Blvd
Arts Centre
Centennial Dr.
Town Hall
Existing Network
Multi-Use Path
Side Walk
Cowpath
Trail
Ending Paths
School Building
0 50 200 400m

LEGEND:

- Cowpath
- Informal Path
- Long-Distance Cowpath Gaps
- Short-Distance Cowpath Gaps

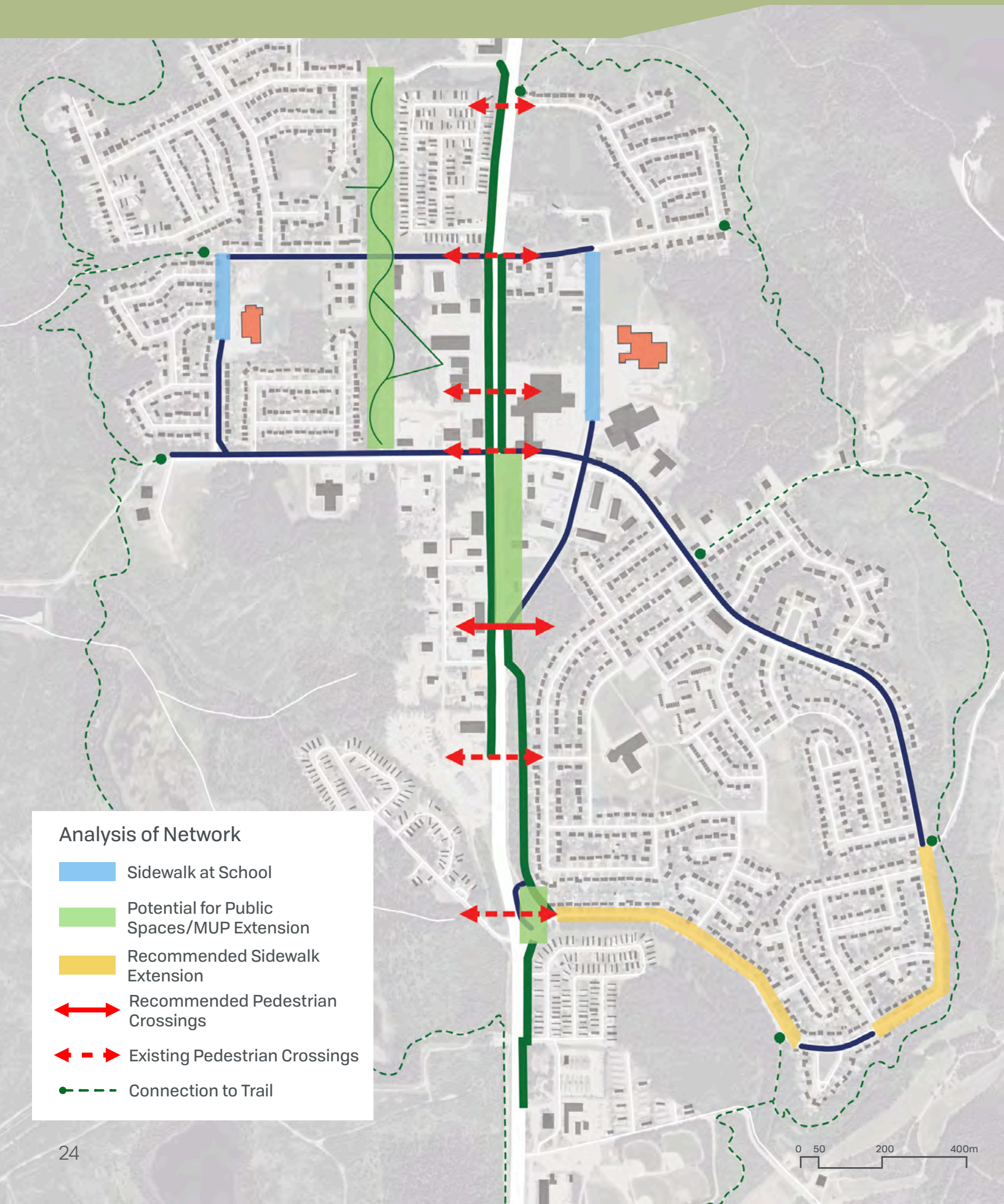
The cowpath network link the neighbourhoods across public green space. These pathways are short and disconnected by local streets making it difficult to navigate safely through the neighbourhood. The 'Gap's in the plan below show where upgraded pedestrian infrastructure would benefit most.



'Cowpath' Connections - North



'Cowpath' Connections - South


Analysis of Network
Sidewalk at School
Potential for Public Spaces/MUP Extension
Recommended Sidewalk Extension
Recommended Pedestrian Crossings
Existing Pedestrian Crossings
Connection to Trail
0 50 200 400m

2.3 PUBLIC ENGAGEMENT

For six months (from May 6, 2023, to November 5, 2023), a survey, comprising 19 questions, was available to all residents in Mackenzie to inform plans regarding both the active transportation plan and the enhancement of community spaces. The overarching goal of this survey was to assess the current demand for active transportation and to identify key factors influencing people's access to different modes of transportation and public spaces. Through the collected data, we sought to understand the community's needs, preferences, and challenges, laying the groundwork for a more inclusive and accessible town centre.

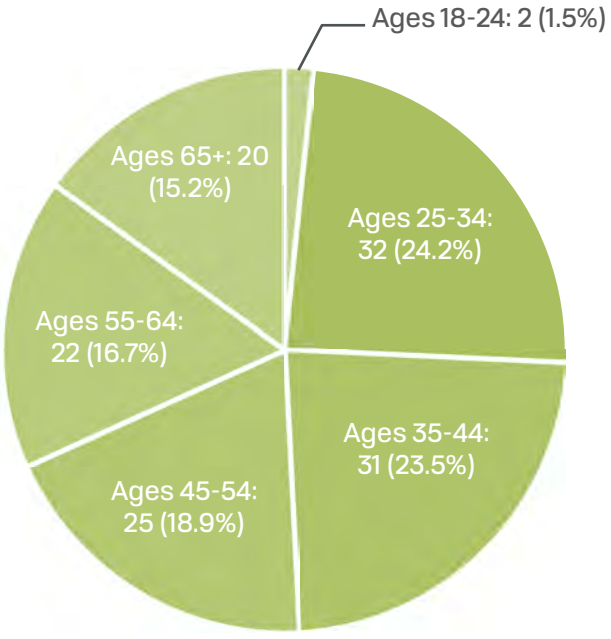
Demographically, we observed a generally equal distribution of ages, although there was a notable under-representation of respondents under the age of 25. This insight prompts a closer examination of how the younger demographic engages with and perceives active transportation and public spaces. Additionally, a noteworthy finding emerged regarding the gender distribution of responses, with an overwhelming majority coming from females within Mackenzie. Males comprised only about a quarter of the total responses, shedding light on potential gender-specific considerations in the development of active transportation and public space strategies.

In the active transportation survey, safety emerged as the primary consideration, reflecting the community's concern for well-being. Respondents emphasized the need for separating cyclists from motorists, increasing visibility, providing well-maintained paths year-round, and creating safer crossings. The demand for more bike parking in the downtown area was also identified as crucial in encouraging increased cycling for commuting purposes.

The survey included questions about the potential redevelopment of the 616 area and the Mackenzie Recreation Centre. Common themes surfaced, highlighting the community's desire for places to sit and gather, spaces for events, and family-friendly locations. Among suggested events, the need for more opportunities to gather during the winter was prioritized, underscoring the importance of year-round activities.

As a whole, the survey results indicate a collective call for safe and vibrant spaces that cater to the community's recreational and gathering needs throughout the year. The data will be instrumental in shaping policies and initiatives that align with the community's aspirations, fostering a more inclusive and responsive town centre for Mackenzie residents.

The findings were shared with the community through a presentation that included an analysis of the active transportation survey results, accompanied by a draft of the design and implementation outlined in the subsequent chapters. This platform provided Mackenzie residents with another opportunity to offer feedback on the proposed plans for the future.



2.4 ACTIVE TRANSPORTATION SURVEY OUTCOMES

1. What are the greatest factors that influence your choice to use active transportation?

72%	Exercise
35%	Safe Trails
22%	Environmentally-Friendly

2. How far is your usual active transportation commute?

63%	> 1km

3. Top three biggest improvements to encourage active transportation:

1	Buffer from vehicles
2	Bike parking downtown
3	Safe crossings

4. What safety concerns do you have when using active transportation?

68%	Winter conditions
49%	Sharing the road with vehicles
37%	Dark roads / visibility

5. What initiatives or programs would encourage more active transportation?

1	Events
2	Bike share/ rental program
3	Ride to work/ school days

2.5 PUBLIC SPACES SURVEY OUTCOMES

6. What type of amenities are lacking in Mackenzie's downtown core?

1. Spaces to gather
2. Splash plaza
3. Dedicated public plaza

7. What amenities should be included in the outdoor spaces that surround the recreation centre?

1. Shelters seating
2. Splash plaza
3. Performance stage

8. What amenities should be included in the 616 area?

1. Picnic area
2. Public Art
3. Dedicated market space

9. What events would you like to see outside of the recreation centre?

1. Winter public skates/ events
2. Outdoor concerts
3. Outdoor movie nights



CHAPTER 3: ACTIVE TRANSPORTATION DESIGN AND IMPLEMENTATION



3.1 ACTIVE TRANSPORTATION RECOMMENDATIONS

As outlined in Chapter 2, the most effective strategy to improve active transportation in Mackenzie involves extending the existing network and establishing multiple safe crossings along Mackenzie Blvd. This entails expanding the current MUPs, bike paths, sidewalks, and cowpaths.

Recommendations for the network are listed below in order of priority, from highest to lowest:

1. Construct sidewalks along Nechako Dr. and Skeena Dr. to promote pedestrian access to Morfee Elementary School and Mackenzie Secondary School.
2. Install additional connections across Mackenzie Blvd. to improve east-west connectivity.
3. Introduce separated bike lanes along Skeena Dr. and Stuart Dr. to encourage more students to cycle to school, and along Centennial Dr. to link Mackenzie's south neighbourhood with the downtown core.
4. Connect the gap in the MUP on the east side of Mackenzie Blvd. and establish one along Fraser Blvd. to increase safe routes throughout Mackenzie.
5. Formalize cowpath pedestrian connections to enhance overall accessibility and walkability by improving cowpaths and providing sidewalk links.

Implementing these recommendations with permanent solutions will take time and have a significant cost. To maximize impact, temporary solutions for bikeways and pedestrian paths are suggested. Short-term solutions also act as a trial for potential long-term upgrades.

As these priorities are put into action, it is important to develop strategies for maintenance and wayfinding, in addition to incorporating amenities such as bike parking and lighting. A sidewalk snow removal policy should be established by the City.



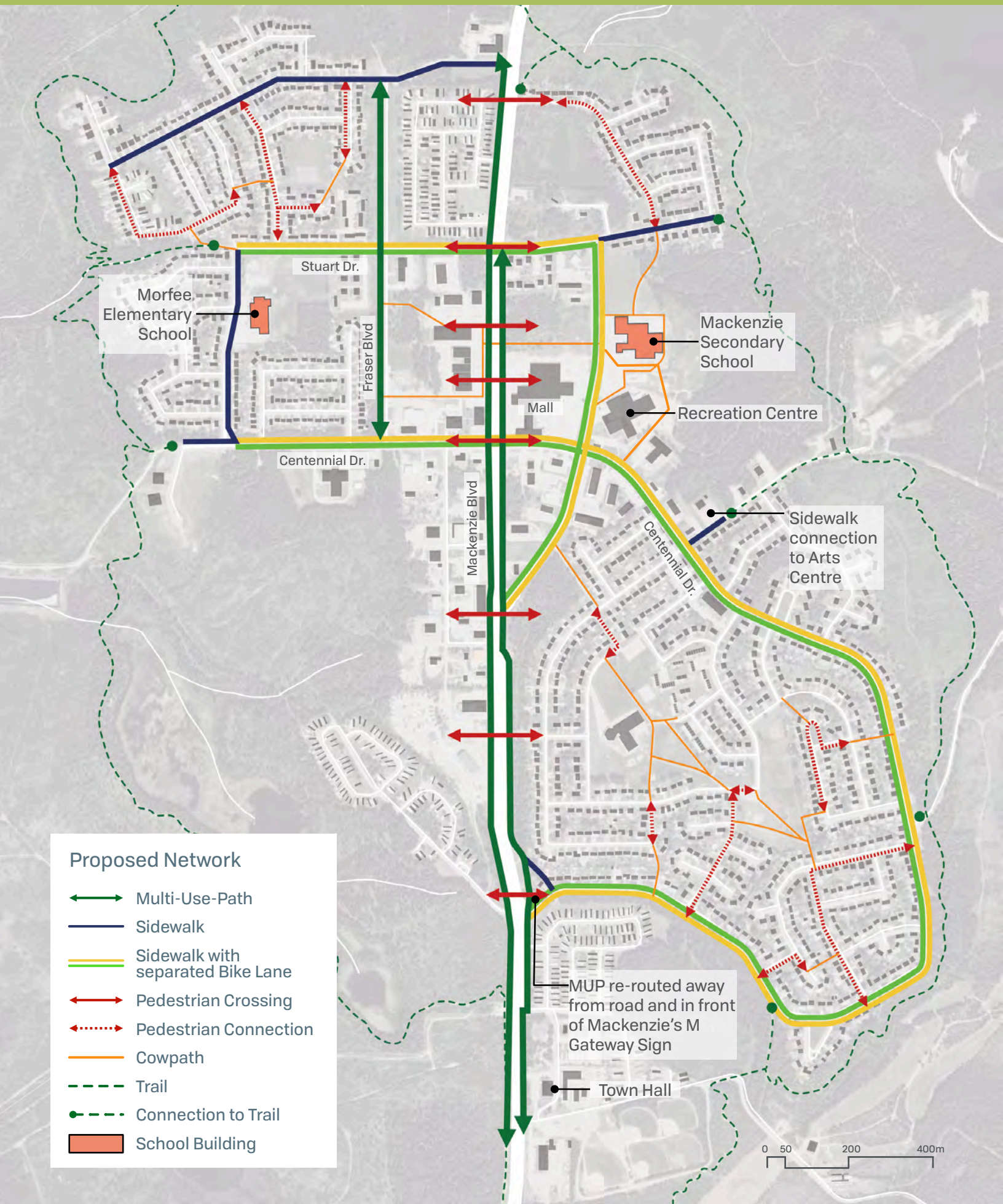
Figure 1. Seasonal Dividers For Separated Bike Lanes (City of Winnipeg, 2017).



Figure 2. Year-round Maintenance (City of Oulu, 2024).



Figure 3. Wayfinding and Lane Delineation (City of Oulu, 2024).


Stuart Dr.
Morfee Elementary School
Fraser Blvd
Mackenzie Secondary School
Mall
Recreation Centre
Centennial Dr.
Mackenzie Blvd
Centennial Dr.
Sidewalk connection to Arts Centre
MUP re-routed away from road and in front of Mackenzie's M Gateway Sign
Town Hall
Proposed Network
Multi-Use-Path
Sidewalk
Sidewalk with separated Bike Lane
Pedestrian Crossing
Pedestrian Connection
Cowpath
Trail
Connection to Trail
School Building
0 50 200 400m

3.2 ACTIVE TRANSPORTATION SHORT AND LONG-TERM PLANS

Short-Term Plan

The short-term strategy for implementing bike lanes must be both cost-effective and align with existing winter road maintenance practices. Considering this, we suggest the use of seasonal dividers (see figure 5) placed along separated bike lane roads during the spring and removed in autumn to avoid damage from snow plows. Similarly, local neighbourhood streets will see sidewalk line painting to make temporary connections prior to future road redevelopment.

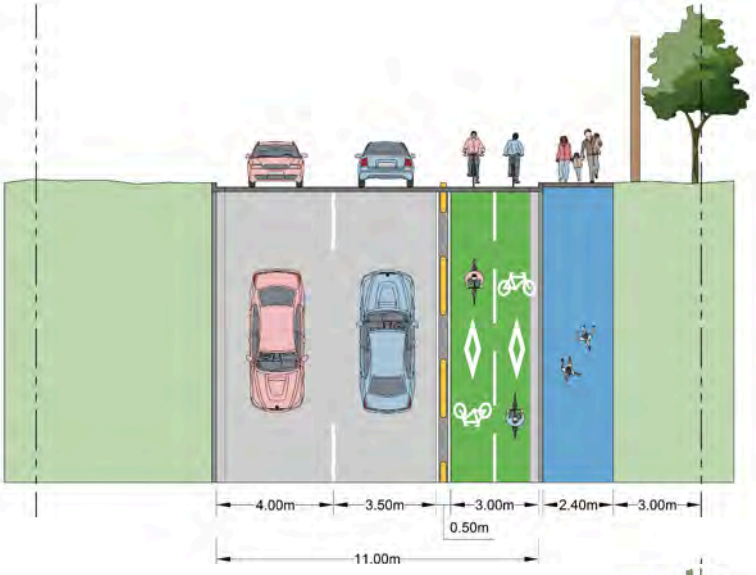


Figure 4. Short-Term Seasonal Bike Lane.

Long-Term Plan

Long-term planning will shift towards a permanent and fully separated bike lane. This includes separating the bike lane by moving the road curb to it's outer edge and raising the surface to match the sidewalk. Ideally, this transition can be synchronized with other necessary roadworks to minimize associated costs. Maintenance procedures should prioritize winter cycling.

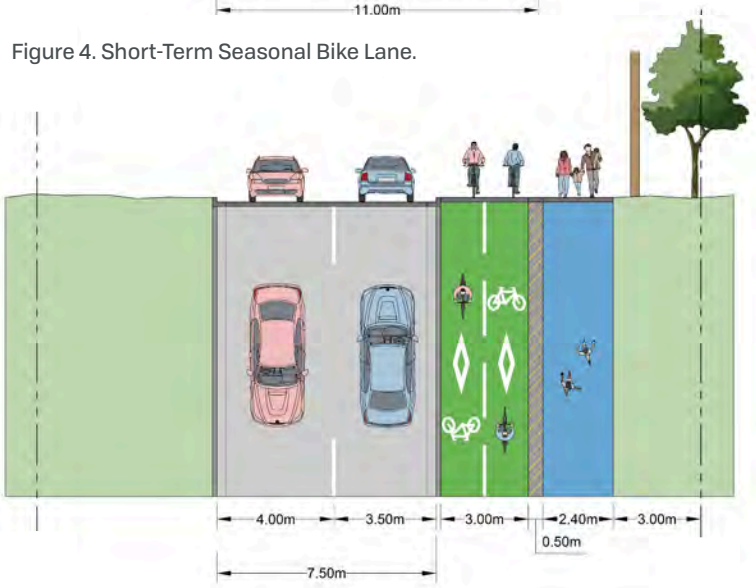


Figure 5. Long-Term Permanent Bike Lane.

Multi-Use Path (MUP)

In conjunction with the short and long-term plans for roadways, MUPs should be expanded in two locations: Mackenzie Blvd and Fraser Blvd. Both of these thoroughfares provide ample setback space, facilitating the installation of a MUP with a planted barrier between the path and the road. This design is ideal for active transportation as it not only encourages a shared space for users, but also provides a protective buffer against motorized vehicles. These MUPs are opportunities to create safe and scenic active transportation routes through Mackenzie.

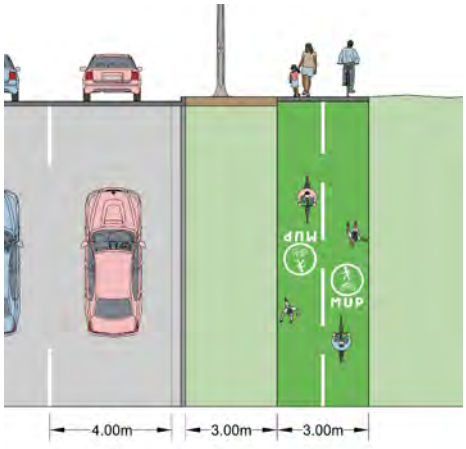


Figure 6. Typical Multi-Use Path (MUP).

3.3 ACTIVE TRANSPORTATION LANES + INTERSECTIONS

A primary concern associated with active transportation routes revolves around intersections, posing potential confusion and conflict for both drivers and users of active transportation. To enhance safety at these junctures, we suggest implementing a barrier between the active transportation lane and vehicular traffic, coupled with the application of green paint to delineate and safeguard this space for users. The diagrams presented on this page illustrate typical intersection scenarios that warrant attention in Mackenzie. While specific conditions may vary based on lane configurations, these diagrams serve as a guide as to how users would navigate these intersections safely.

The provided diagrams are to illustrate how the two way bike network would function. Development of the active transportation must be completed by a transportation engineer.

Schematic Diagrams of Intersection Movement

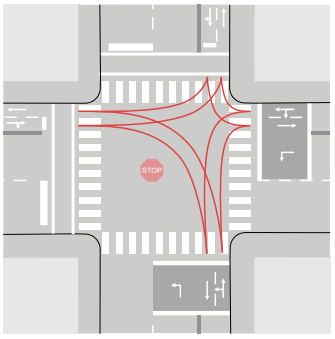


Figure 7. Bike Lane + Bike Lane
Ex. Skeena Dr. and Centennial Dr.

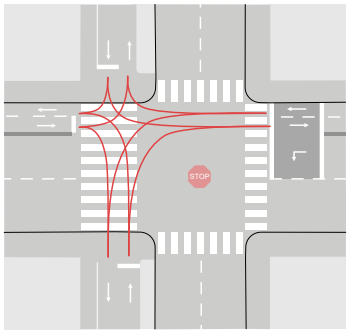


Figure 8. Bike Lane + MUP
Ex. Stuart Dr. and Fraser Blvd.

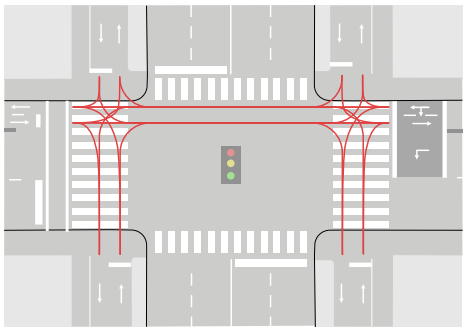


Figure 9. Bike Lane + Two MUPs
Ex. Centennial Dr. and Mackenzie Blvd.

Intersection Concepts

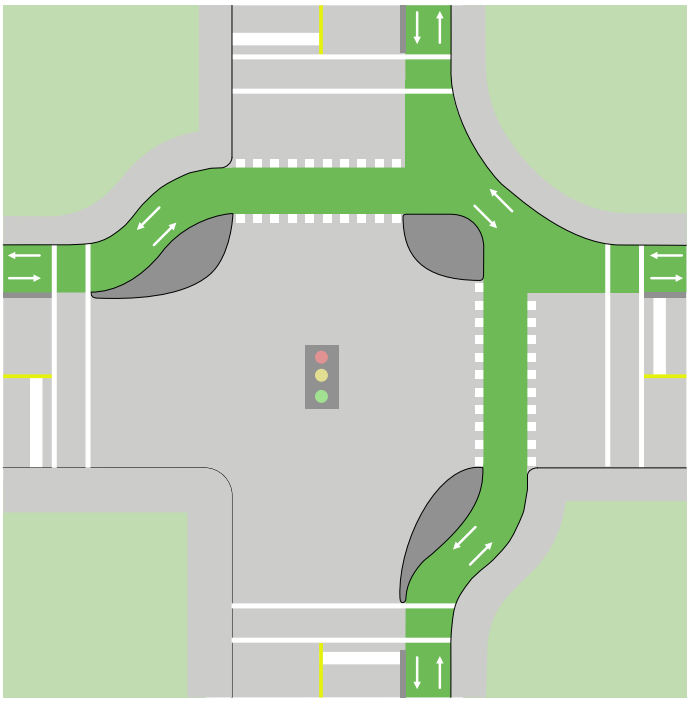


Figure 10. Concept 1 - Signalized Intersection at Intersection of Bidirectional Bike Lanes. *Requires some land acquisition

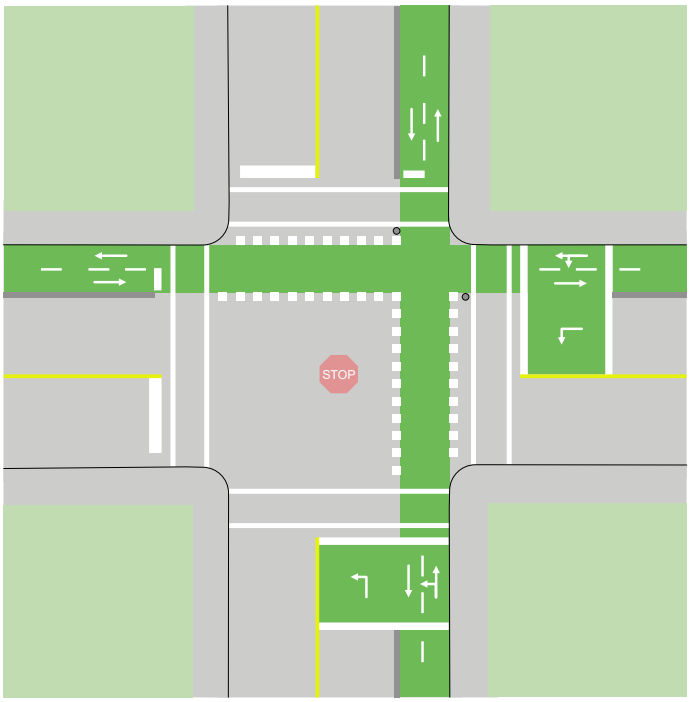


Figure 11. Concept 2 - Four-way Stop at Intersection of Bidirectional Bike Lanes. *Land acquisition not required



CHAPTER 4: PUBLIC SPACE DESIGN AND IMPLEMENTATION



4.1 616 COMMERCIAL SITE RECOMMENDATIONS

The recommendations for the 616 Commercial Site (West Anchor) is divided into four distinct areas to be constructed over two phases. The design is centred around supporting the market in the summer and nearby retail year-round.

Phase one involves the existing alley and will create a social space with a multi-use path for cyclists and pedestrians. The area will be enhanced with paving, informal seating, and lighting to make the space safe and inviting. There is an opportunity to utilize the adjacent building wall for a mural, ideally crafted by a local artist. Collaboration with local businesses will also be considered to activate the space.

In Phase 2, a portion of the parking lot will be transformed into a linear green space featuring pedestrian and multi-use paths. The area will include a pedestrian plaza for events with an at-grade stage for performers. A shelter with flexible seating will provide year-round usability. Dedicated market stalls are planned for summer use. There will also be a designated summer picnic area that can double as snow storage in the winter.

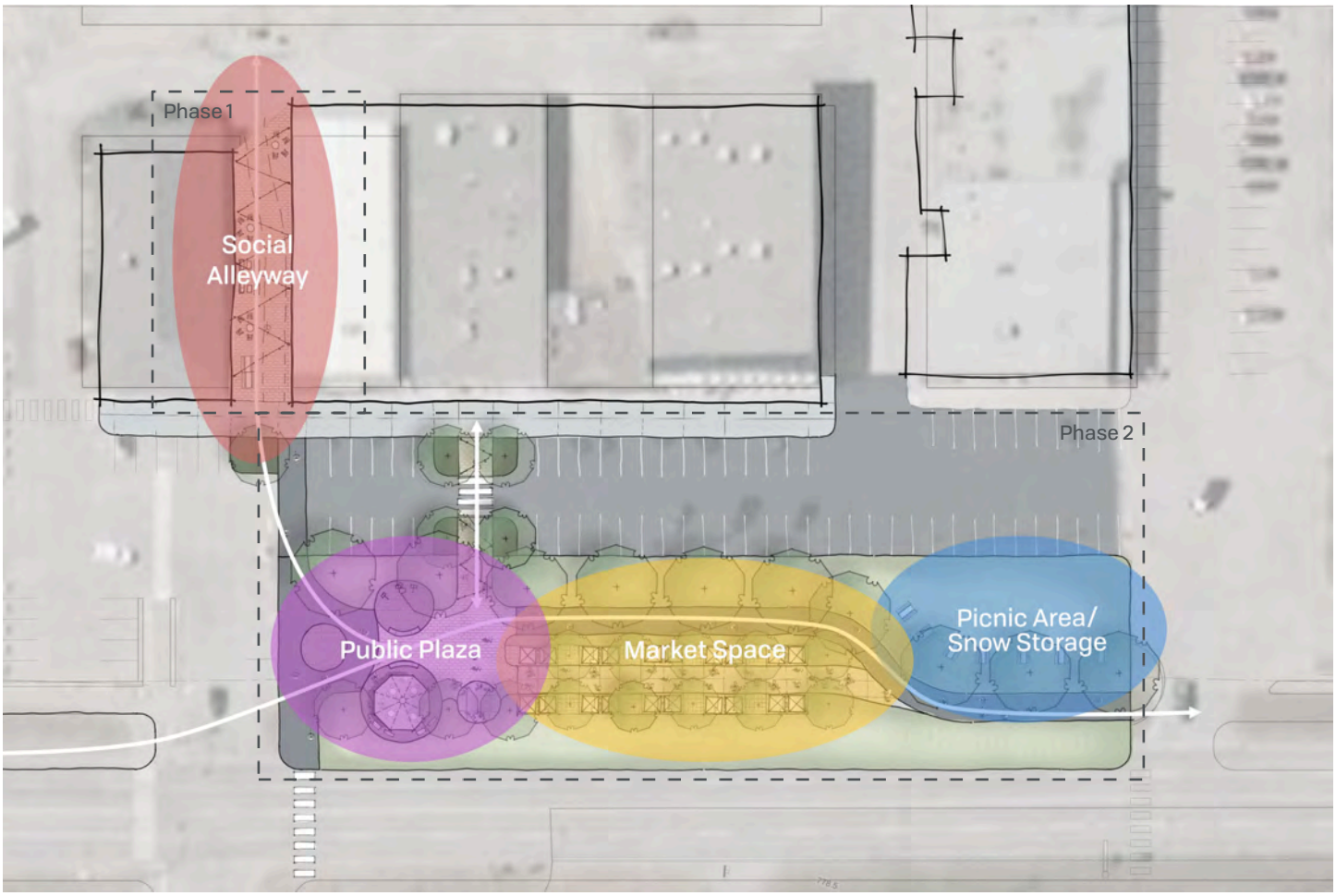




Figure 12. Alley with Overhead Lighting and Seating (SRS Group, 2022).



Figure 13. Shelter with Seating (City of Coquitlam, 2017).



Figure 14. Market Space (City of Vancouver, 2024).



Figure 15. Variety of Seating Options (Johnson, n.d.).

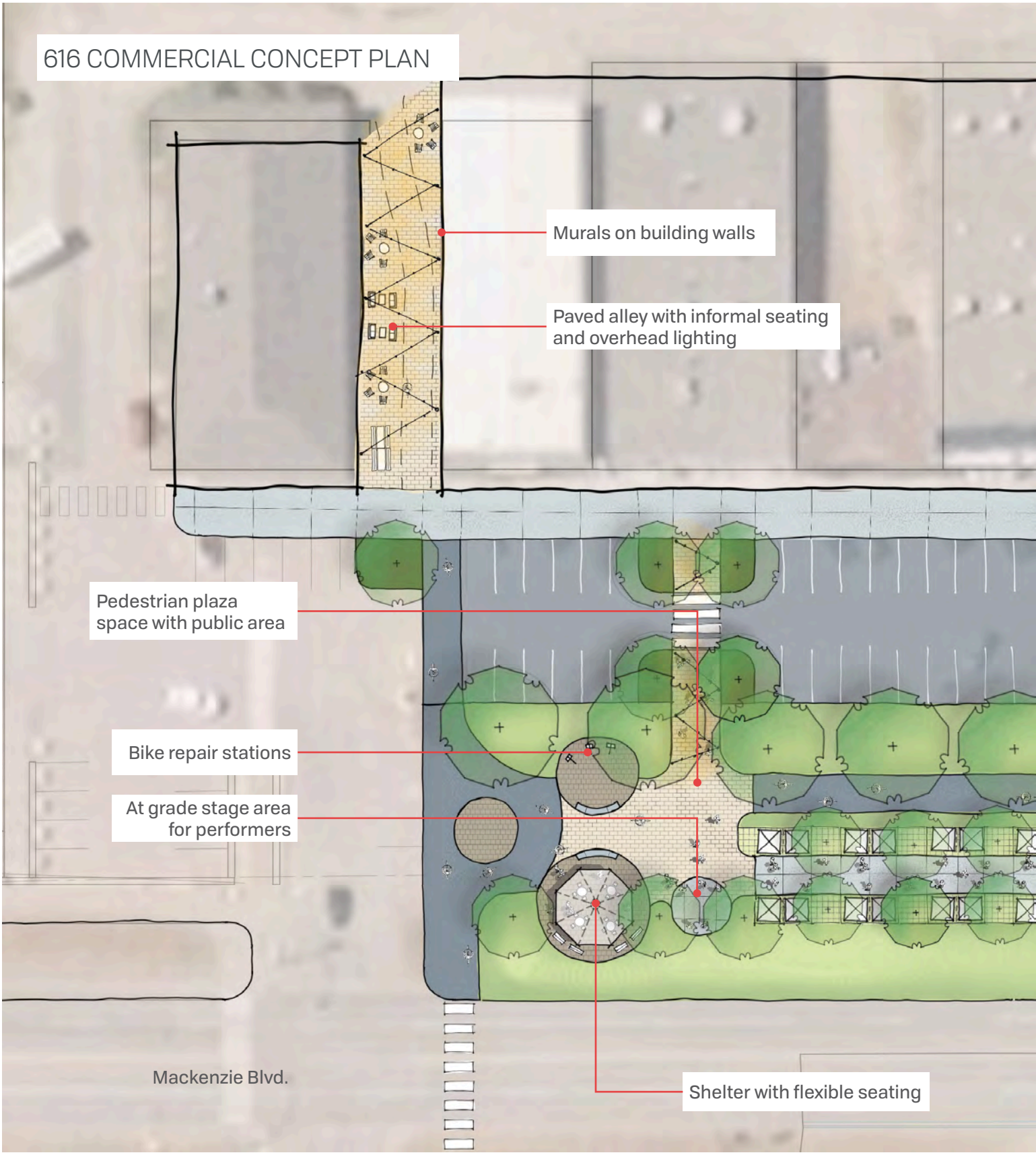


Figure 16. Bike Repair Station (Quad City Bicycle Club, n.d.).



Figure 17. Community Library (Mayes, 2023).

616 COMMERCIAL CONCEPT PLAN




18m
Snow storage area / Permeable Landscaping Material
Grass picnic area
Multi-Use Path
Dedicated market space for 20 stalls and avenue trees
Public Artwork
0
5
15
30m

4.1 MACKENZIE RECREATION CENTRE SITE RECOMMENDATIONS

The recommendations for the Mackenzie Recreation Centre Site (East Anchor) has four interconnected areas that will be built over three phases. The design focuses on adding more recreational opportunities in the public facing yards of the recreation centre.

The initial phase focuses on the entrance to the building and the creation of a public plaza adjacent to it. This plaza will feature public artwork, a splash pad, and a multi-functional covered area suitable for use as a small stage or a viewing area for Phase 2. This area will be equipped with flexible seating and fire pits.

Phase 2 proposes the development of a multi-use rink. This versatile space will function as a lacrosse pitch and a large concert venue in the summer, and will become an ice rink during the winter months.

Expanding on Phase 2, Phase 3 introduces a gravel walking path for summer that can be flooded and transformed into a skating loop during the winter. Additionally, Phase 3 includes a picnic area and community garden with a sheltered space. There are also a couple of optional items that may be included in this phase. These include the redevelopment of the existing dog park and ice rink located behind the Mackenzie Recreation Complex.





Figure 18. Skating Rink / Loop (Sun Peaks Resort, n.d.).



Figure 19. Covered Space (Port Adelaide Enfield, n.d.).



Figure 20. Gravel Walking Path / Skate Loop (Reeves, 2023).



Figure 21. Splash Plaza (Hapa Collaborative, 2021).

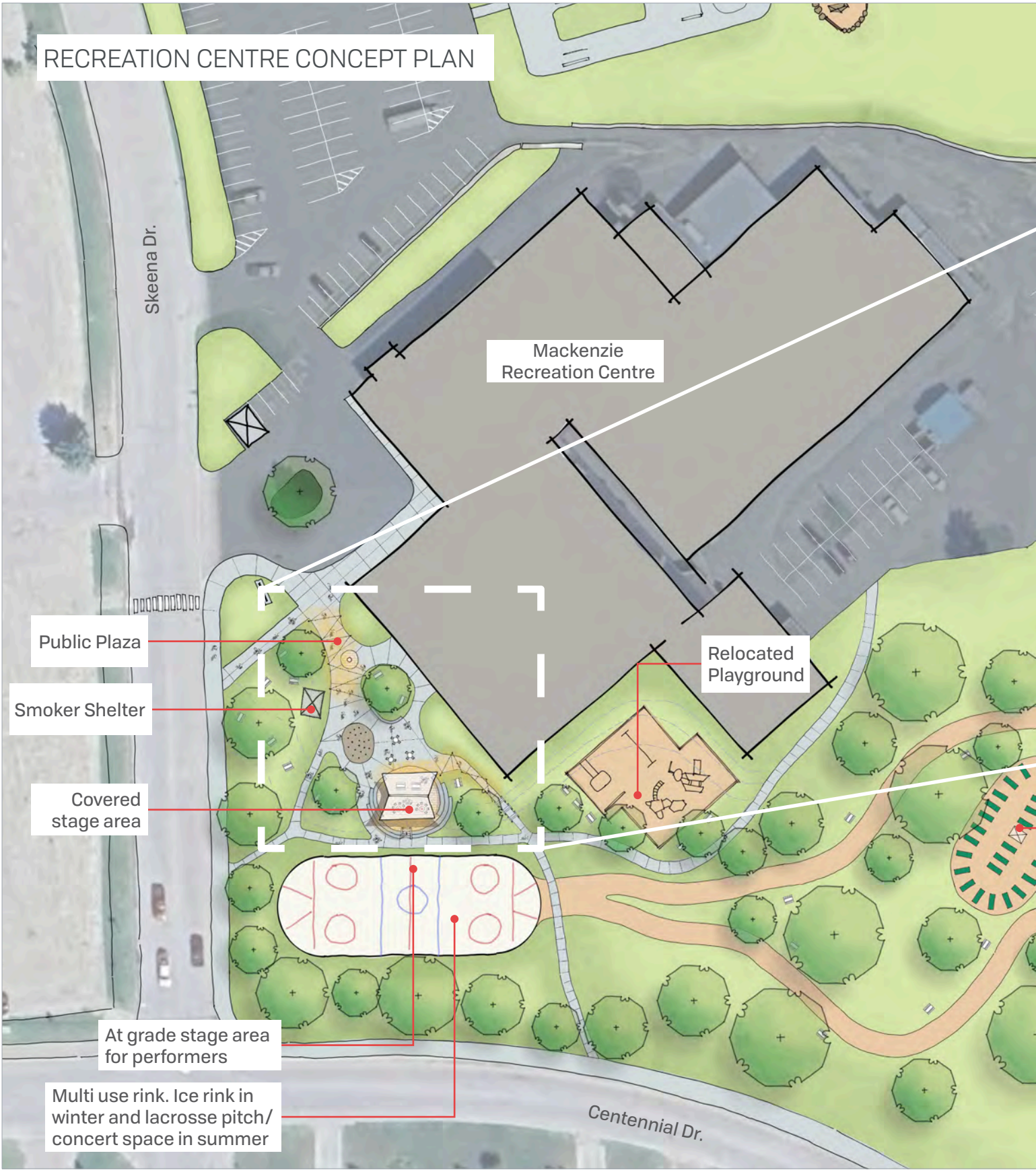


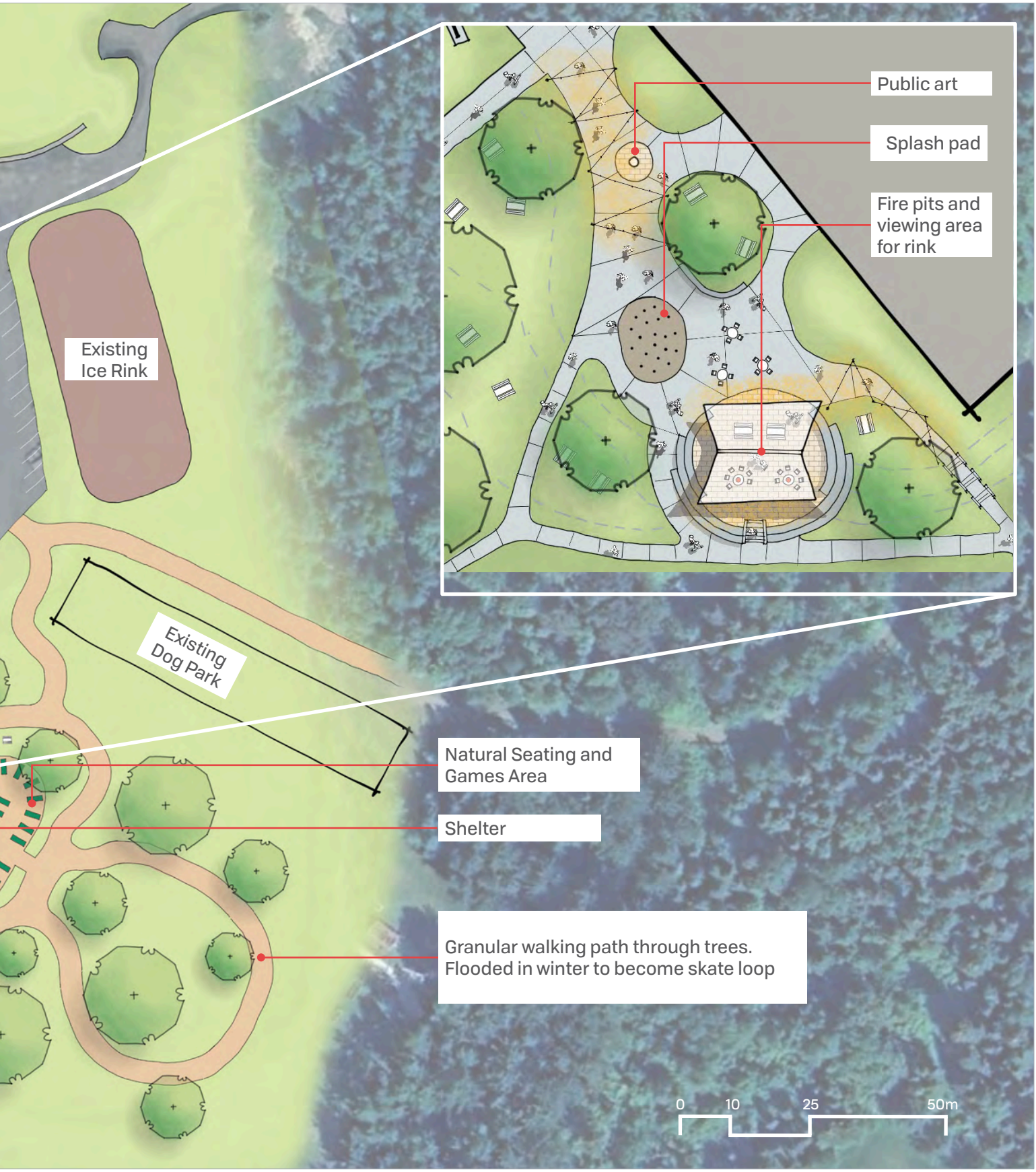
Figure 22. Natural Seating Area (North, 2023).



Figure 23. Fire Pits and Flexible Seating (Rosano, 2022).

RECREATION CENTRE CONCEPT PLAN




Public art
Splash pad
Fire pits and viewing area for rink
Existing Ice Rink
Existing Dog Park
Natural Seating and Games Area
Shelter
Granular walking path through trees. Flooded in winter to become skate loop
0
10
25
50m



APPENDICES

A.1 REFERENCES AND FIGURE SOURCES

A.2 ACTIVE TRANSPORTATION TECHNICAL SECTIONS

- LD-01 - TYPICAL STREET DETAIL WITH BIKE LAND AND SIDEWALK - LONG TERM
- LD-02 - TYPICAL STREET DETAIL WITH BIKE LANE AND SIDEWALK - SHORT TERM
- LD-03 - TYPICAL BIKE LANE AT INTERSECTION - SHORT TERM
- LD-04 - TYPICAL BIKE LANE ACROSS T-INTERSECTION - SHORT TERM
- LD-05 - BIKE LANE MARKINGS AT DRIVEWAY - SHORT TERM
- LD-06 - SIDEWALK MARKINGS - SHORT TERM
- LD-07 - ROAD MARKING SYMBOLS



A.1 REFERENCES AND IMAGE SOURCES

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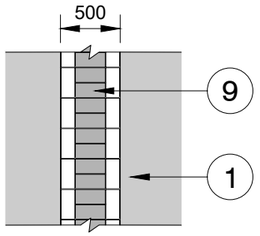
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1. Existing Asphalt Sidewalk. Cut and match with new asphalt surface to ensure flush transition
2. 500mm wide rumble strip on asphalt
3. Polyeteylene / non-woven fabric weed barrier. Extend 200mm beyond asphalt edge, typ.
4. New Pedestrian Asphalt Surface - 65mm min. upper Asphalt couse #1 (MMCD). Install as per specifications
5. Base course under asphalt to be 150mm min, 19mm minus gravel compacted to 95% M.P.D., typ.
6. Concrete Curb
7. Existing Asphalt Road - 100mm min. Asphalt (2x50mm Lifts) as per MMCD. Install as per specifications. T0 be re-paved as necessary to achieve smooth surface with proposed concrete curb
8. Min. 200mm aggregate base course under vehicular asphalt (19mm minus) compacted to 95% M.P.D.
9. Rumble strip, stamped asphalt,
10. Cut and match existing asphalt. Ensure new asphalt is flush with existing asphalt

Notes:
1. Existing Items shown in GREY. Proposed items shown in **BLACK**.
2. Where asphalt path is constructed over utility services such as sewer, storm or water trails, path must be constructed to highway loading standard as per MMCD guidelines.
3. All paths to slope to drain.

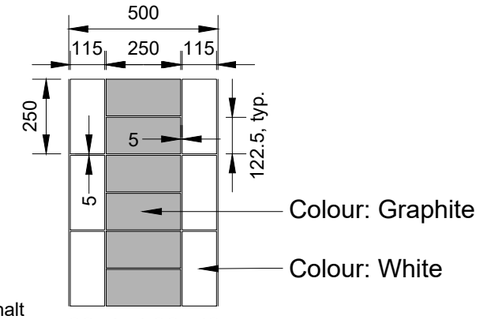


RUMBLE STRIP - PLAN VIEW

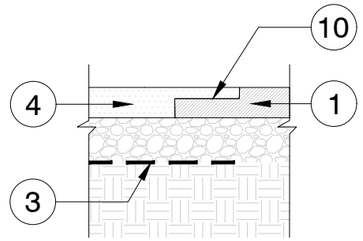
Product: Street Print, Stamped Asphalt
Pattern: Soldier Course
Colours: White, Graphite
Gaps: 5mm

Supplier: HUB Surfacing Systems
p. (604) 309-8212
e. cleve.stordy@hubss.com

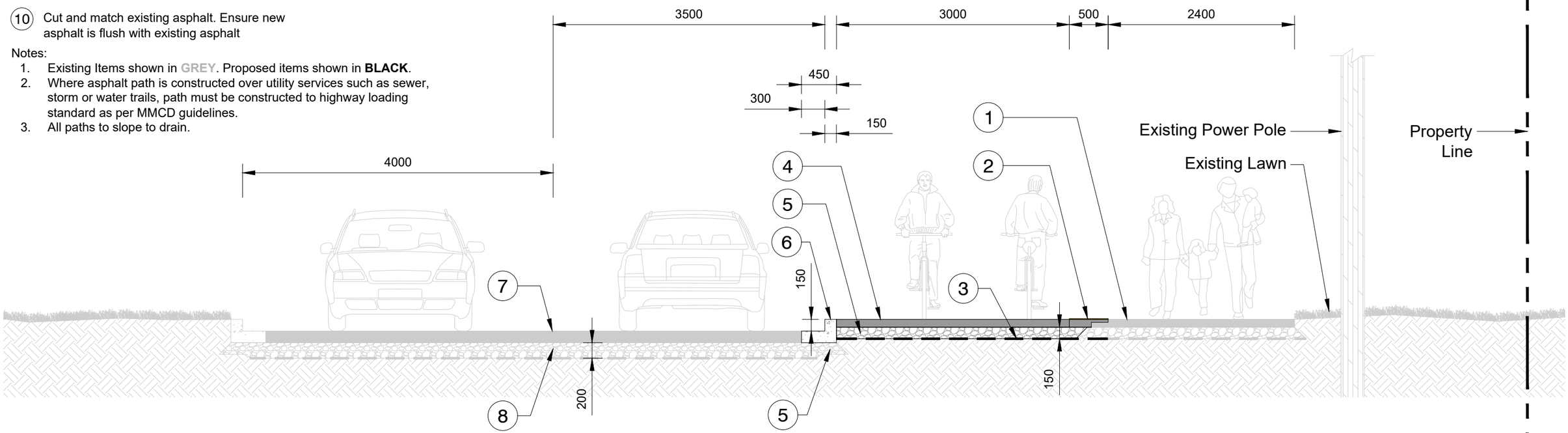
Or approved equal.



SOLDER COURSE
PATTERN ENLARGEMENT
Scale 1:20



NEW ASPHALT TO EXISTING ASPHALT
SCALE 1:20



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DRAWING TITLE
Appendix - Typical Street Detail with Bike Lane and Sidewalk - Long Term

PROJECT NO.
PR2023-23

PROJECT
MacKenzie Active Transportation Masterplan

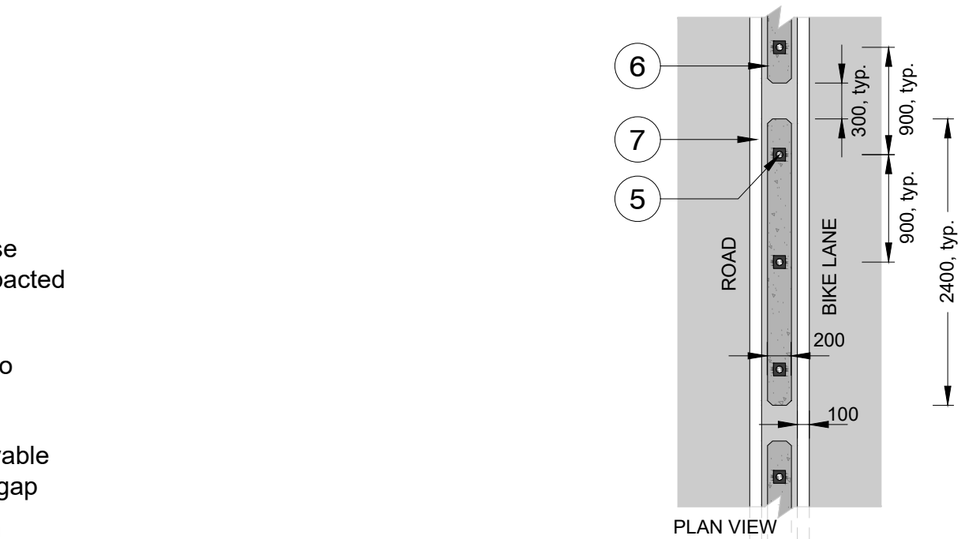
SCALE BAR
1: 50
0 0.5m 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5

DRAWN AF	SCALE 1:50
CHECKED TM	DRAWING NO. LD-01
APPROVED TM	DATE 2024.02.07

SEAL

1. Existing Asphalt Sidewalk
2. Existing Concrete Curb
3. Existing Asphalt Road
4. Min. 150mm aggregate base course under asphalt (19mm minus) compacted to 95% M.P.D.
5. Flexible Delineator Post mounted to curbs. Spaced at 900mm O.C.
6. 200mm wide, 2400mm long removable concrete curb, spaced on 300mm gap
7. 100mm wide, white painted line on either side of removable concrete curb. To have 50mm gap to curb

Notes:
1. Existing Items shown in GREY. Proposed items shown in **BLACK**.
2. Where asphalt path is constructed over utility services such as sewer, storm or water trails, path must be constructed to highway loading standard as per MMCD guidelines.
3. All paths to slope to drain.
4. Starting curbs after intersections or gaps wider than 3.5m to have one (1) additional bollard, spaced 450mm O.C. between the first 2 bollards facing the gap/intersection.



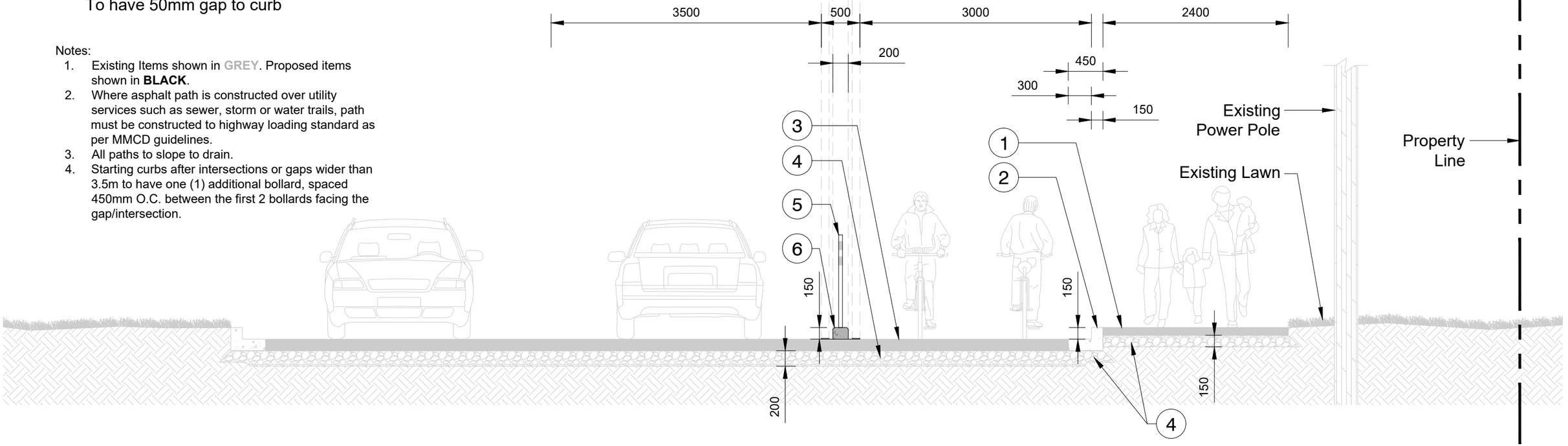
PLAN VIEW

Flexible Delineator Post: Omega Post
Colour: White
Dimensions: 1067mm H x 60mm Ø (42" H x 2.375" Ø)
Type: With Reflectors, White
Mount: Surface Mounted to curb

Supplier: Impact Recovery Systems
p. 1-800-736-5256
w. info@impactrecovery.com

Or approved equals.

Line Painting Product: Streetbond 150 Pavement Coating
Colour: White
Supplier: HUB Surfacing Systems
p. (604) 309-8212
e. cleve.stordy@hubss.com



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DRAWING TITLE
Appendix - Typical Street Detail with Bike Lane and Sidewalk - Short Term

PROJECT NO.
PR2023-23

PROJECT
MacKenzie Active Transportation Masterplan

SCALE BAR
1: 50
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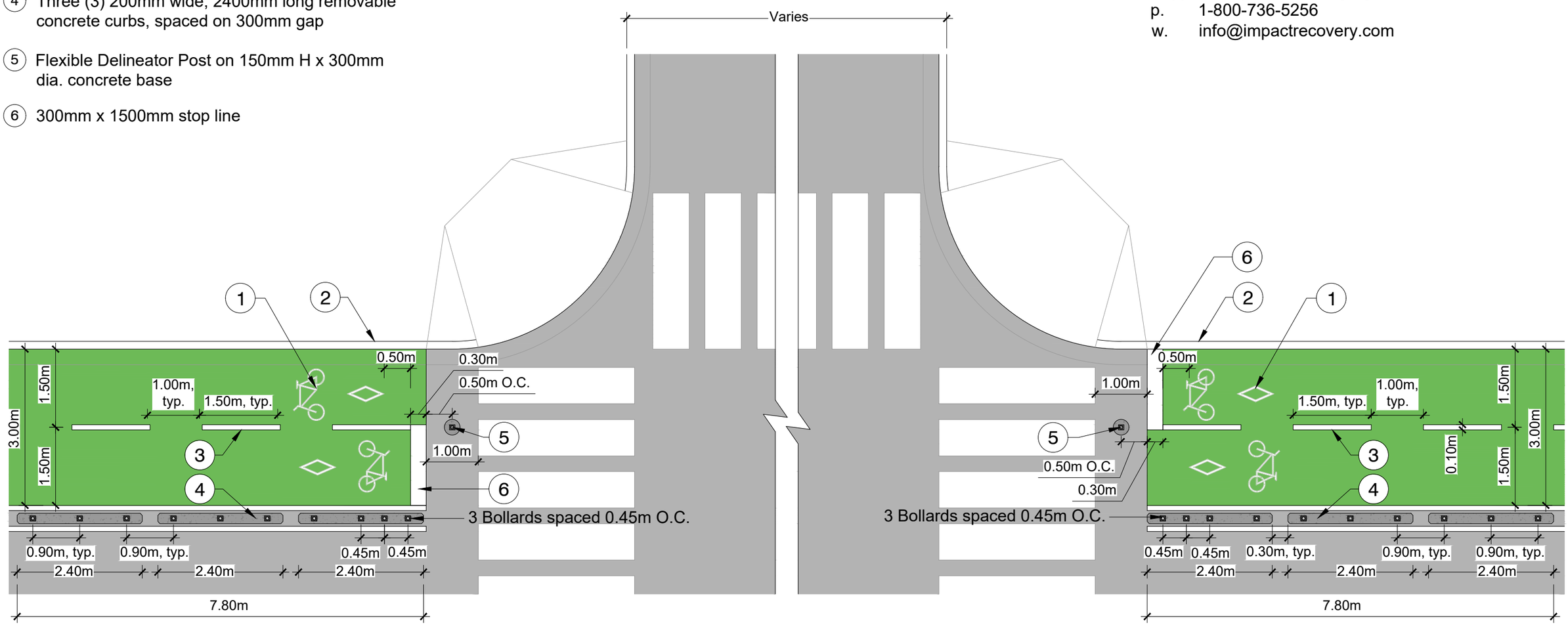
DRAWN	AF
SCALE	1:50
CHECKED	TM
DRAWING NO.	LD-02
APPROVED	TM
DATE	2024.02.07

SEAL

1. Bike Lane Symbol, as per detail
2. Curb
3. 1500mm x 100mm bike lane line markings, spaced on 1m gap
4. Three (3) 200mm wide, 2400mm long removable concrete curbs, spaced on 300mm gap
5. Flexible Delineator Post on 150mm H x 300mm dia. concrete base
6. 300mm x 1500mm stop line

Flexible Delineator Post: Omega Post
Colour: White
Dimensions: 1067mm H x 60mm Ø (42" H x 2.375" Ø)
Type: With Reflectors, White
Mount: Surface Mounted to curb

Supplier: Impact Recovery Systems
p. 1-800-736-5256
w. info@impactrecovery.com



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DRAWING TITLE
Appendix - Typical Bike Lane at Intersection - Short Term

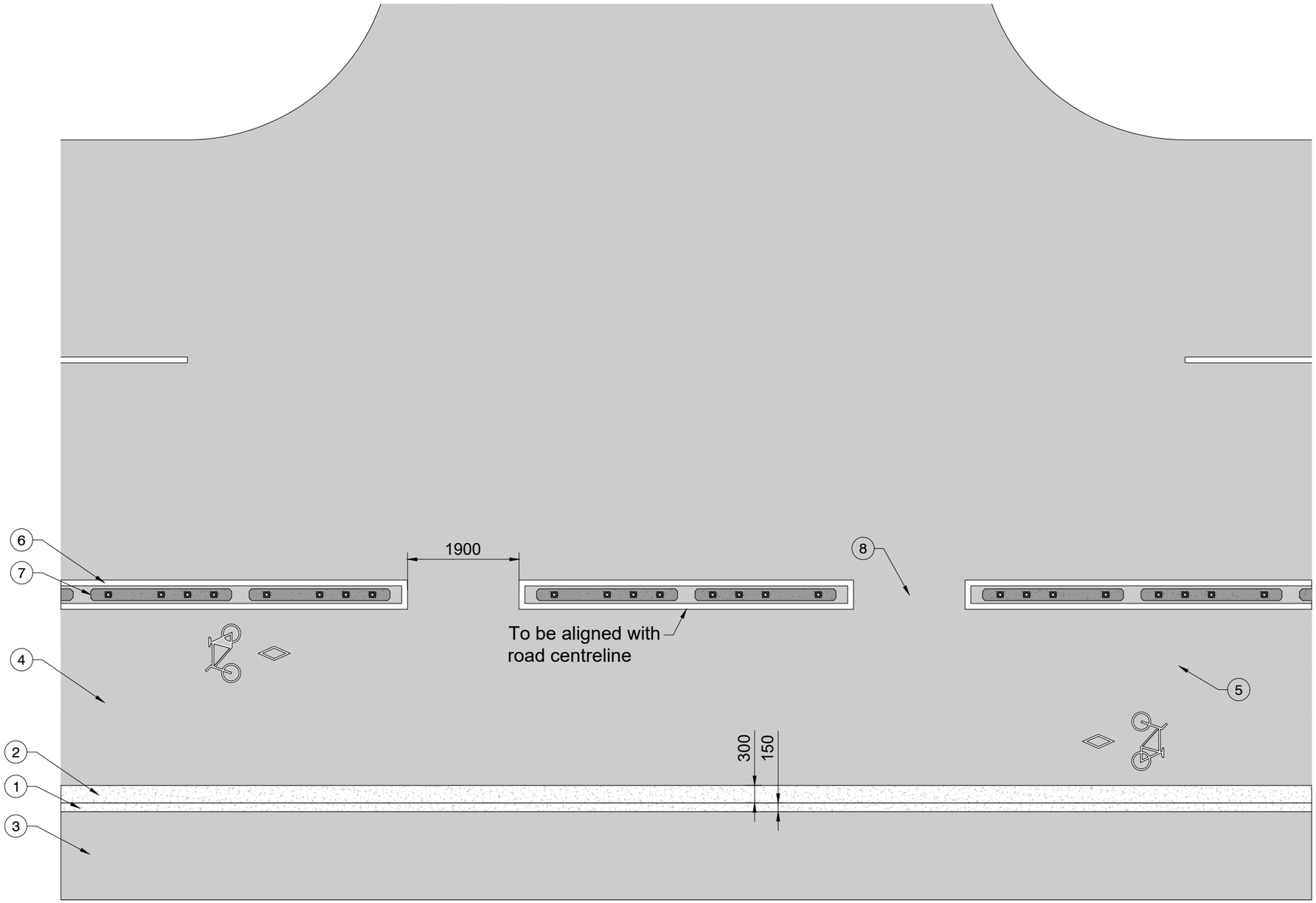
PROJECT NO.
PR2023-23

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SCALE BAR
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DRAWN	SCALE
AF	1:75
CHECKED	DRAWING NO.
TM	LD-03
APPROVED	DATE
TM	2024.04.02

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DRAWING TITLE
Appendix - Typical Bike Lane Across T-Intersection - Short Term

PROJECT NO.
PR2023-23

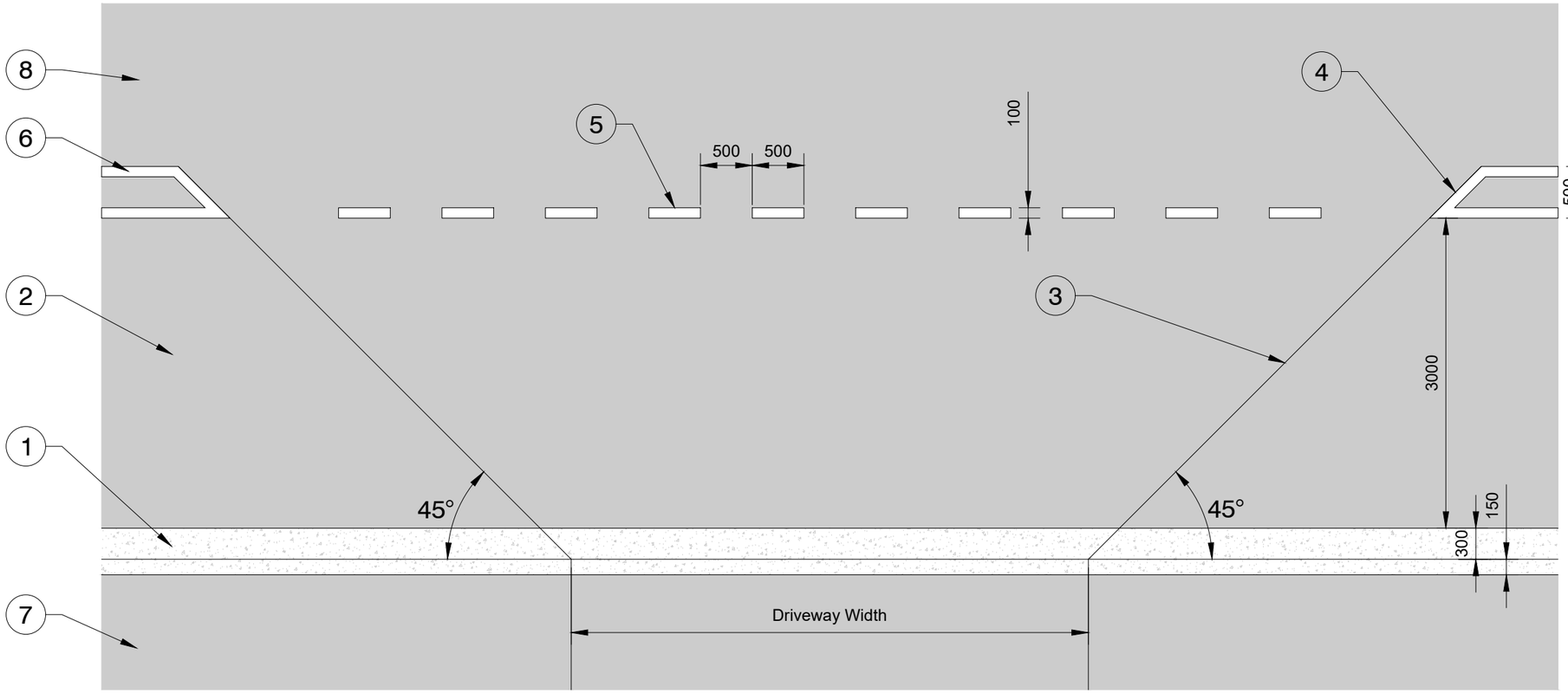
PROJECT
MacKenzie Active Transportation Masterplan

SCALE BAR
1: 75
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DRAWN RMK	SCALE 1:75
CHECKED TM	DRAWING NO. LD-04
APPROVED TM	DATE 2024.04.02

SEAL

1. Gutter
2. Bike lane
3. Driveway line
4. Solid white line
5. Dashed white line
6. Double white line
7. Sidewalk
8. Vehicle lane



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DRAWING TITLE
Appendix - Bike Lane Markings at Driveway - Short Term

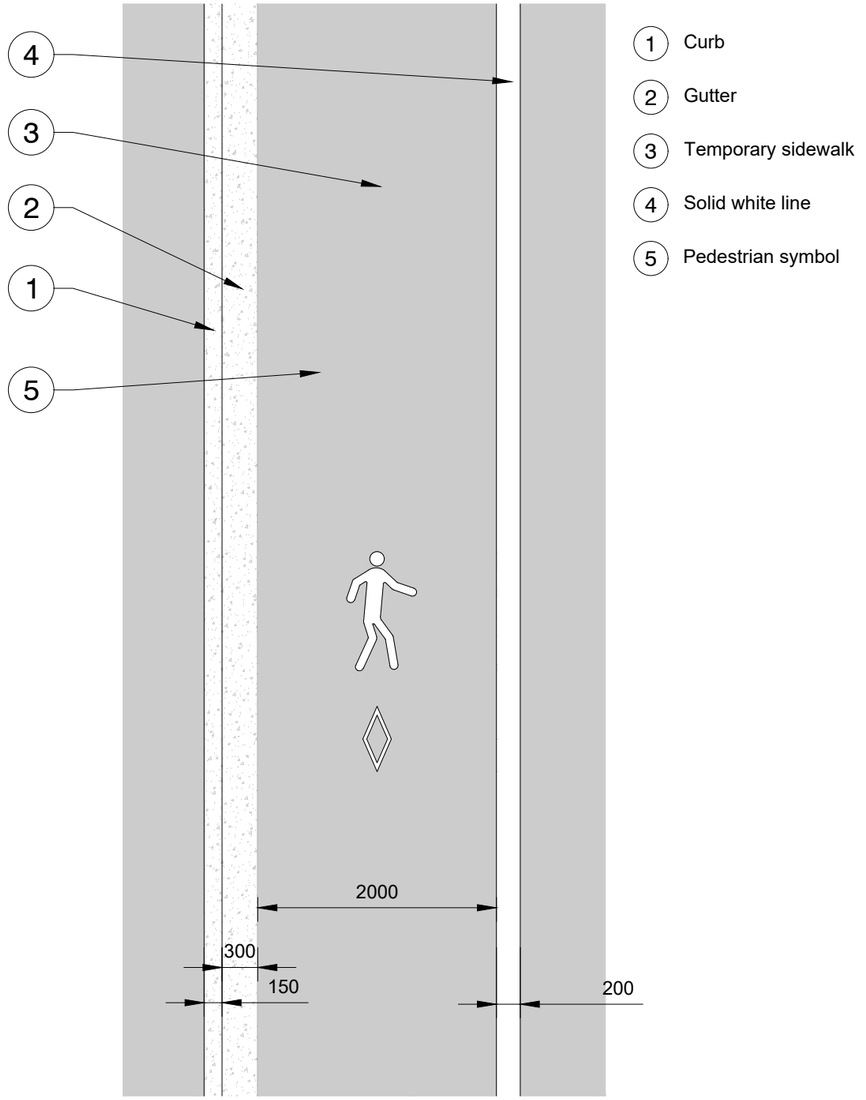
PROJECT NO.
PR2023-23

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SCALE BAR
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DRAWN	RMK
SCALE	1:50
CHECKED	TM
DRAWING NO.	LD-05
APPROVED	TM
DATE	2024.02.07

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1. Curb
2. Gutter
3. Temporary sidewalk
4. Solid white line
5. Pedestrian symbol

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DRAWING TITLE
Appendix - Sidewalk Markings - Short Term

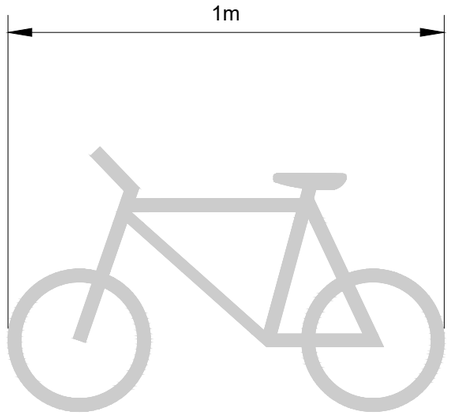
PROJECT NO.
PR2023-23

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MacKenzie Active Transportation Masterplan

SCALE BAR
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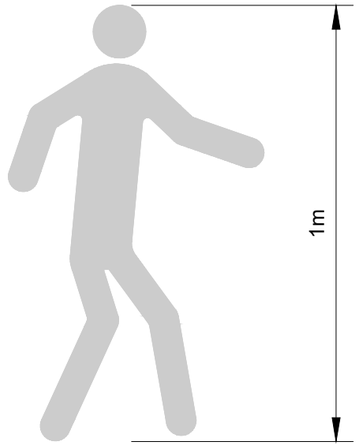
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CHECKED	TM
APPROVED	TM
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DRAWING NO.	LD-06
DATE	2024.02.07

SEAL



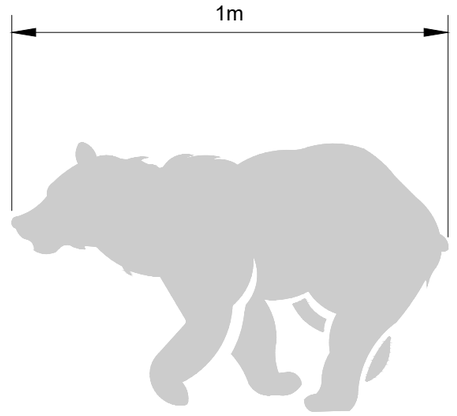
1 BIKE LANE SYMBOL

1:30



2 PAINTED SIDEWALK SYMBOL

1:30



3 BEAR SYMBOL

1:30

Notes:

1. Place symbols at beginning of each portion of bikeway or walking route, at either side of intersections whether full crossing or T intersections.
2. Integrate bear symbol periodically within biking or walking lanes to be inclusive of all residents.

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DRAWING TITLE: Appendix - Road Marking Symbols

PROJECT NO.: PR2023-23

PROJECT: MacKenzie Active Transportation Masterplan

SCALE BAR

DRAWN: RMK	SCALE:
CHECKED: TM	DRAWING NO.: LD-07
APPROVED: TM	DATE: 2024.04.02

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