Research to inform drinking water & cooling station installment and placement in City of New Westminster

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August 2024

Disclaimer

This report was produced as part of the UBC Sustainability Scholars Program, a partnership between the University of British Columbia and various local governments and organizations in support of providing graduate students with opportunities to do applied research on projects that advance sustainability and climate action across the region.

This project was conducted under the mentorship of City of New Westminster staff. The opinions and recommendations in this report and any errors are those of the author and do not necessarily reflect the views of City of New Westminster or the University of British Columbia.

Territorial Acknowledgement

The author acknowledges that the research and assessments conducted for this project were carried out on the unceded ancestral lands of the Halkomelem speaking peoples in the City of New Westminster. We recognize the impacts of colonialism that have marginalized their histories and relationships with this land. Additionally, the author acknowledges that the UBC Point Grey (Vancouver) campus, where this program is held, resides on the traditional, ancestral, unceded territory of the xʷməθkʷəy̓əm (Musqueam) First Nation. We honor and respect their ongoing connection to these territories."

Acknowledgement

The author would like to thank the following individuals for their contribution, feedback, and support throughout this project.

- Erika Pollmuller, Engineering Technologist, City of New West
- Gwenda Sulem, Asset Management & Project Engineer, City of New West
- Darren Miller, Parks Planner, Parks Operations, City of New West
- Dakota Allison, Irrigation Technician, Parks Operations, City of New West
- Ruzica Kragulj, Administrative Services Coordinator, City of New West

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Executive Summary

This report aims to enhance the City of New Westminster's Outdoor Cooling Strategy by providing a comprehensive condition assessment of existing drinking water fountains and misting stations, identifying priority neighborhoods for additional cooling infrastructure, and proposing specific locations for new installations and upgrades. The assessment of 13 newly installed drinking water fountains and misting stations, installed in 2022, indicates that most units are in good condition, but some require repairs and enhancements to improve their functionality and user experience.

The report also identifies priority neighborhoods based on the City's Outdoor Cooling Strategy, focusing on areas with high concentrations of vulnerable populations, such as seniors and low-income individuals. The report finally proposed recommendations for new installations and upgrades of the cooling infrastructures aiming to reduce health risks associated with extreme heat and ensure equitable access to cooling amenities across the city.

Overall, this research recommends installing new misting stations and drinking fountains at six strategic locations, and renovating or upgrading seven existing water access points to better serve the unique needs of their surrounding areas. By addressing the needs of these vulnerable populations and ensuring the effective use of cooling facilities, the City of New Westminster can mitigate the severe health impacts of extreme heat and enhance the well-being of its residents.

Introduction and Background

The City of New Westminster has implemented an Outdoor Cooling Strategy in response to the increasing frequency and intensity of extreme heat events, exacerbated by climate change. This strategy focuses on identifying vulnerable populations, enhancing cooling infrastructure, and engaging the public to ensure effective use of cooling facilities.

Extreme heat events pose significant health risks, particularly in urban areas where heat-retaining structures create urban heat islands. These areas can experience significantly higher temperatures compared to surrounding rural areas, leading to

increased instances of heat-related illnesses such as heat exhaustion, heat stroke, and exacerbation of pre-existing health conditions. The City's Outdoor Cooling Strategy seeks to mitigate these risks by improving access to cooling resources, especially for vulnerable populations such as seniors, low-income individuals, and people with mobility issues.

The strategy has three key objectives:

1. Identifying Vulnerable Populations and Locations: Determine which populations and areas are most at risk during extreme heat events, using data and mapping analysis to identify high-priority areas.
2. Enhancing Cooling Infrastructure: Install additional cooling facilities in high-priority areas to provide relief during extreme heat events, including misting stations, drinking fountains, outdoor pools, and splash pads.
3. Public Engagement and Awareness: Educate the public about the health risks of extreme heat and the locations of cooling facilities to ensure effective use of these resources, through outreach and education campaigns.

Existing water access points play a crucial role in providing relief during extreme heat events. Recognizing the increasing frequency and severity of heatwaves, along with population growth, the city is proactively enhancing its cooling infrastructure by adding new water access points and upgrading existing ones. This evolving strategy ensures that our city's cooling infrastructure continues to effectively meet the needs of its residents. The city aims to address the urban heat island effect by assessing the condition of existing cooling infrastructure, identifying priority neighborhoods for additional cooling facilities, and proposing specific locations for new misting stations and drinking fountain upgrades. This report provides a comprehensive assessment of the current state of cooling infrastructure in the City of New Westminster, with a focus on enhancing cooling infrastructure to support the Outdoor Cooling Strategy. By addressing the needs of vulnerable populations and ensuring equitable access to cooling amenities, the City aims mitigate the health impacts of extreme heat and enhance the well-being of its residents.

Methodology

Site Inspections in Parks and Urban Areas

The methodology for this report began with thorough site inspection in parks and urban areas across the City of New Westminster. These inspections aimed to evaluate the current state of existing drinking water fountains and misting stations, providing firsthand insight into their functionality and overall condition. The inspections covered various locations to ensure a comprehensive assessment of the city's cooling infrastructure.

Development of Condition Assessment Framework and Condition Rating Criteria

To systematically evaluate the condition of drinking water fountains and misting stations, a Drinking Water Fountain and Misting Station Condition Assessment Framework was developed. This framework includes a detailed Condition Rating Criteria, designed to assess key aspects such as functionality, water flow and spray quality, external damage, surrounding area conditions, and overall operational status. The criteria ensure a standardized approach to the assessment, allowing for consistent and accurate evaluations. The condition assessment was developed in collaboration with the Engineering Services Asset Management Team.

Use of GIS System (City View 4.0)

To supplement the site inspections, the City of New Westminster’s GIS system, City View 4.0, was utilized. This system provided valuable data on the city’s green plant coverage, water connections, and satellite imagery. The GIS data helped identify potential areas for new installations and upgrades by highlighting regions with high pedestrian traffic, insufficient cooling infrastructure, and significant vegetation that could benefit from additional cooling amenities.

Use of Google Earth

Google Earth was employed to obtain street view images of various locations within the City of New Westminster. These images offered a detailed view of the areas

surrounding the existing and proposed locations for drinking water fountains and misting stations. The street view photos were crucial for verifying the conditions observed during site inspections and for planning the precise placement of new installations to maximize accessibility and effectiveness.

By combining site inspections, a robust condition assessment framework, GIS data, and street view imagery, this research ensured a thorough and accurate evaluation of the City of New Westminster's outdoor cooling infrastructure. The findings and recommendations derived from this approach aim to enhance the city's capacity to mitigate the health impacts of extreme heat on its residents. The use of City View GIS revealed the locations of underground water services for new infrastructure connections, ensuring that the installations were done cost-effectively and connected directly to the city's water infrastructure.

Findings

Condition Assessment of Existing Drinking Water Fountains and Misting Stations

This section presents a comprehensive condition assessment of 13 newly installed drinking water fountains and misting stations across various locations in 2022 in City of New Westminster. The assessment criteria include functionality, water flow and spray quality, external damage, surrounding area conditions, and overall condition. The report also highlights specific operational details and any noted issues, providing a foundational overview for ongoing maintenance and improvement. The assessment results are summarized to a table as shown in Appendix 1.

General Condition

1. **Overall Condition:**
    - **Good**: 10 units
    - **Fair**: 2 units (Century House Bus Stop and Twelfth and London, due to missing control buttons for water spray)
    - **Poor**: 1 unit (Simcoe Park, due to the bottle filler not shutting off properly)

2. **Water Flow and Spray Quality:** All operational (Good, Fair and Poor) units exhibit good water flow and spray quality, ensuring user satisfaction and reliability.
3. **External Damage:** No external damage was observed on any of the units, indicating robust installation and resilience.
4. **Surrounding Area:** The surrounding areas of all units are generally in good condition, enhancing the overall user experience.

Specific Issues and Observations

1. **Missing Control Buttons**: Two units (Century House Bus Stop and Twelfth and London) have missing control buttons for water spray. However, this does not impact their functionality.
2. **Non-Functional Bottle Filler**: The unit at Simcoe Park has a bottle filler that does not shut off properly and requires replacement to prevent water wastage.
3. **Missing Signage**: The misting station at Agness Street Greenway is missing its sign, which does not affect its operation but may reduce user awareness and accessibility.
4. **Operating Hours**:
    - Most units operate 24 hours daily, ensuring maximum availability for users.
    - 4 units (Century House Bus Stop, Tipperary Park, Simcoe Park, and Port Royal) operate for 12 hours daily, from 8 AM to 8 PM, aligning with peak usage times.

Recommendations of Existing Misting Stations

Repairs:

- The control buttons for water spray at Century House Bus Stop and Twelfth and London should be replaced to enhance user convenience and functionality.
- The bottle filler at Simcoe Park should be replaced to restore full functionality and prevent water wastage.
- Add appropriate signage at Agness Street Greenway to improve user awareness and accessibility of the misting station.

Regular Inspections and Maintenance:

- Regular maintenance and inspections should be conducted to ensure all units remain in optimal working condition and promptly address any emerging issues. Additionally, maintaining a small inventory of nozzles and control buttons will enable quick repairs when needed.

User Feedback:

- Collect and analyze feedback from users to identify any additional potential issues or areas for improvement that may not have been captured in the current assessment.

The overall condition of the newly installed drinking water fountains and misting stations is commendable, with the majority in excellent working order and providing essential services to the public. Addressing the minor issues identified will further enhance the functionality and user experience of these facilities. Regular maintenance and prompt repairs are crucial to maintaining the high standards of these public amenities, ensuring they continue to meet community needs effectively.

Identifying City of New Westminster's Priority Neighborhoods of Outdoor Cooling

This section includes an assessment to identify the vulnerable neighborhoods that need additional cooling infrastructures based on the City of New Westminster's Outdoor Cooling Strategy, which aims to mitigate the health impacts of extreme heat and wildfire smoke. The strategy has three key objectives: identifying vulnerable populations and locations, enhancing cooling infrastructure, and engaging the public to ensure effective use of cooling facilities. To achieve these objectives, City of New West has established many water access points, including misting stations, drinking fountains, outdoor pools, and splash pads. The city has also considered the urban heat island effect, which can cause temperatures in urban areas to be significantly higher than in surrounding rural areas. This effect can lead to heat-related illnesses, such as heat exhaustion and heat stroke, and exacerbate pre-existing health conditions.

The section helps to identify areas with high concentrations of vulnerable populations, such as seniors, low-income individuals, and people with mobility issues, and limited existing cooling facilities. Based on this section, this research has identified priority neighborhoods for outdoor cooling, which will be targeted for additional cooling infrastructure, public engagement, and awareness campaigns. The goal is to reduce the health risks associated with extreme heat events and ensure that all residents have access to safe and effective cooling facilities.

Figure 1 shows all existing outdoor cooling facilities and water access points in the City of New Westminster. All parks feature abundant greenery and shaded areas, and are well-served with water access. Figure 2 is a heat map indicating temperature variations across different neighborhoods and regions within the city. Dark red areas, such as sections including Brow of the Hill, Uptown and Sapperton, suggest higher temperatures, highlighting zones that may require additional cooling infrastructure or interventions to address extreme heat conditions. By combining findings from Figures 1 and 2, areas where existing cooling facilities may be insufficient can be effectively identified, allowing for the prioritization of those locations for new installations or upgrades. This approach ensures that resources are allocated efficiently to enhance urban resilience against heatwaves. All base maps were provided by the City of New Westminster's parks team.

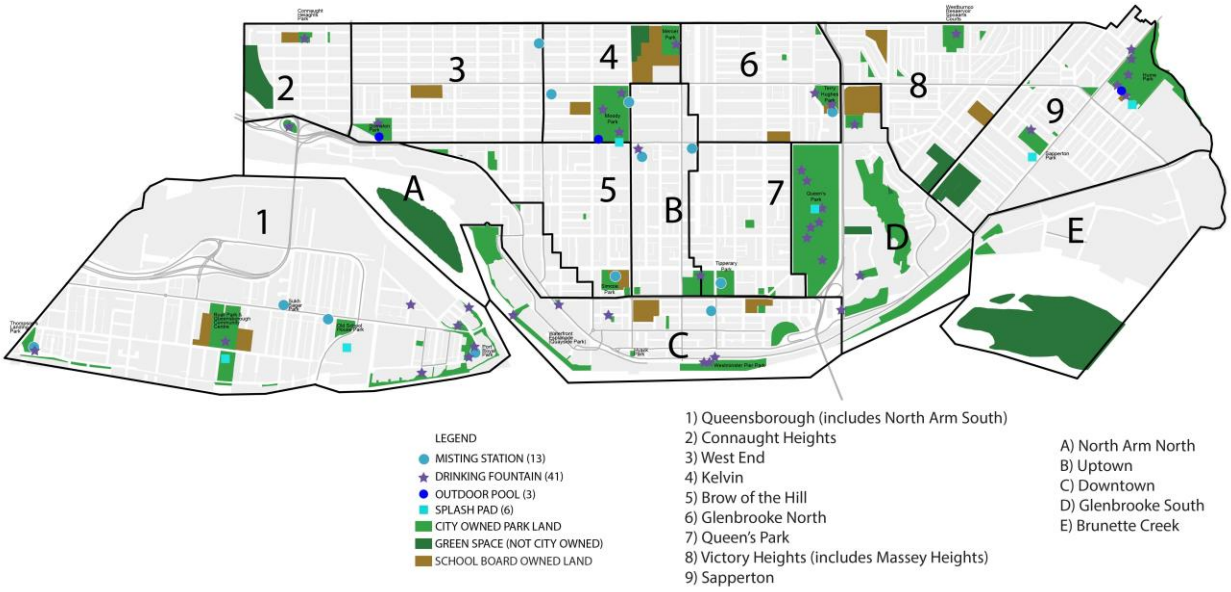


Figure 1 Existing Cooling Infrastructures in City of New Westminster

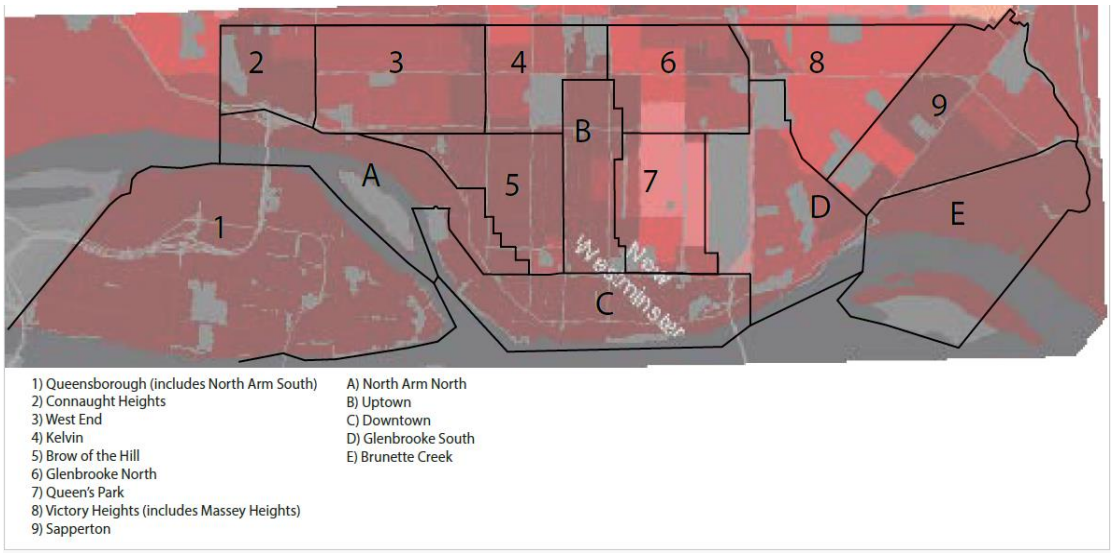


Figure 2 City of New Westminster Heat Map

Priority Neighborhoods for Additional Cooling Infrastructure

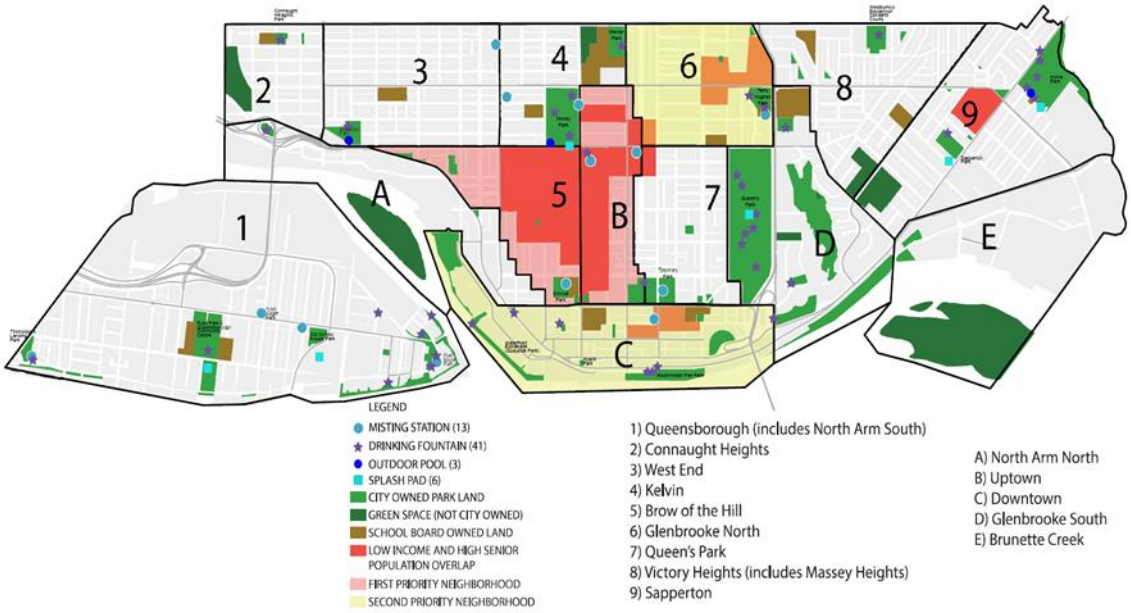


Figure 3 Existing Cooling Infrastructures and Priority Neighborhood

Figure 3, developed with the assistance of the City of New Westminster's parks team, integrates insights from Figures 1 and 2 to provide a comprehensive overview of

the city's cooling infrastructure. It highlights all existing cooling facilities, including misting stations, drinking fountains, outdoor pools, and splash pads. Additionally, the map illustrates the distribution of urban green spaces, city-owned parks, and school board-owned land. Areas with overlapping low-income and high-senior populations are marked to prioritize targeted neighborhood optimizations. This comprehensive map aids in planning and enhancing cooling infrastructure to address the needs of vulnerable populations effectively. Based on the findings from Figure 3, the neighborhoods are categorized to first and second priority areas, and other areas.

High Priority Areas

1. Brow of the Hill

Existing Facilities:

Cooling Infrastructures	Quantity	Locations
Misting Station	1	Simcoe Park

Vulnerability: High overlap of low-income and senior populations.

Notes: Since existing water access is limited in Simcoe Park, and Eighth Street lack water access despite high pedestrian traffic and its high overlap of low-income and senior populations, it's necessary to install new drinking water fountains and misting stations in Brow of the Hill. Proposed location includes The Bus Stop @ Eighth Street and Forth Avenue.

2. Uptown

Existing Facilities:

Cooling Infrastructures	Quantity	Locations
Misting Station	2	Public Library and Century House
Drinking Fountain	3	Moody Park
Splash Pad	1	Moody Park
Outdoor Pool	1	Moody Park

Vulnerability: Significant overlap of low-income and senior populations.

Notes: The existing water accesses are mostly in or near Moody Park, and Sixth Street lacks water access despite high pedestrian traffic, it is unlikely people will travel far to reach Moody Park. Therefore, new drinking water fountains and misting stations are needed in the Uptown area. Proposed locations include the Salvation Army on Sixth Street and Uptown Plaza at the intersection of Sixth Street and Belmont Street.

Second Priority Areas

1. Glenbrook North

Existing Facilities:

Cooling Infrastructures	Quantity	Locations
Misting Station	1	Terry Hughes Park
Drinking Fountain	2	Terry Hughes Park

Vulnerability: No significant overlap with vulnerable populations.

Notes: In this residential area, cooling infrastructures are concentrated in Terry Hughes Park. However, site visits revealed that the misting station on Jack Mahony-Crosstown Greenway is too hidden to be easily found. Therefore, it is recommended to replace the drinking fountain in Terry Hughes Park with a misting station, placing it near the bus stop to increase accessibility and usage.

2. Downtown

Existing Facilities: Limited cooling amenities in Pier Park.

Cooling Infrastructures	Quantity	Locations
Misting Station	1	Agness Street Greenway
Drinking Fountain	6	Pier Park and Quayside Park

Vulnerability: Low overlap with vulnerable populations.

Notes: This area is a busy commercial and transit hub. Although there are many drinking fountains in Pier Park and Quayside Park, there is no water access on Columbia Street. Therefore, Hyack Square is proposed as a location for a new drinking fountain.

Other Areas

1. Queensborough (including North Arm South)

Existing Facilities:

Cooling Infrastructures	Quantity	Locations
Misting Station	4	Thompson Landing, Ewen Ave, Port Royal Park
Drinking Fountain	6	Ryall Park and Port Royal Park
Splash Pad	2	Ryall Park and Old School Park

Vulnerability: No significant overlap with vulnerable populations.

Notes: Queensborough already has many well-used cooling infrastructures. However, site visits revealed that the drinking fountain in Old School Park is at risk of its basin being clogged with sand and dirt. Therefore, it is recommended to upgrade it to a misting station.

2. Connaught Heights, West End, Kelvin, Queen's Park, Victory Heights, North Arm North, Glenbrook South, Brunette Creek

Existing Facilities: The limited number of cooling amenities in these areas is due to their primarily residential nature, with a few strategically placed in nearby parks to ensure water access.

Vulnerability: No significant overlap with vulnerable populations.

Notes: Since these areas are primarily residential and have water access in nearby parks, it is only necessary to monitor the usage of existing amenities and assess the need for additional installations based on community feedback and usage patterns.

3. Sapperton

Existing Facilities:

Cooling Infrastructures	Quantity	Locations
Drinking Fountain	1	Sapperton Park
Splash Pad	2	Sapperton Park

Vulnerability: Low overlap with vulnerable populations.

Notes: This area is a busy commercial and transit hub, with existing water access limited to Sapperton Park. The drinking fountain in Sapperton Park is non-functional due to clogging from a nearby water play feature. Therefore, it is proposed to install a new misting station at Sapperton Plaza and upgrade the Sapperton Park drinking fountain to a bottle filler-only water access.

Based on the descriptions above, Table 1 summarizes the priorities for various neighborhoods, including the overlap of low income and high senior population areas, as well as proposed solutions including potential locations for new cooling infrastructure installations and potential upgrade sites for existing cooling infrastructures. Detailed geographic locations and the rationale for these choices will be discussed in the next section to better support decision-making and optimize resource allocation.

Table 1 Assessment of City of New West Neighborhoods with Existing Cooling Facilities

Area	Priority level	Low income and high senior population overlap	Proposed solution
1. Queensborough (includes North Arm South)	-	No overlap	Upgrade the drinking fountain to a misting station in Old School Park
2. Connaught Heights	-	No overlap	-
3. West End	-	No overlap	-
4. Kelvin	-	No overlap	-
5. Brow of the Hill	First priority	High overlap	Install new misting station at Bus Stop @ Eighth Street and Forth Avenue
6. Glenbrook North	Second priority	No overlap	Replace the drinking fountain in Terry Hughes Park with a misting station
7. Queen's Park	-	No overlap	-
8. Victory Heights (includes Massey Heights)	-	No overlap	-
9. Sapperton	-	Low overlap	Install a new misting station at Sapperton Plaza and upgrade the Sapperton Park drinking fountain to a bottle filler-only fountain
A. North Arm North	-	No overlap	-
B. Uptown	First priority	No overlap	Install new misting stations at Salvation Army on Sixth Street and Uptown Plaza at the intersection of Sixth Street and Belmont Street.
C. Downtown	Second priority	Low overlap	Install new drinking fountain at Hyack Square and upgrade the drinking fountains in Pier Park and Quayside Park
D. Glenbrook South	-	No overlap	-
E. Brunette Creek	-	No overlap	-

Potential Locations for New Installations and Upgrades

Based on the high and low priority neighborhoods identified in the previous section, specific locations were identified for the installation of new misting stations and the upgrading of existing drinking fountains. The recommendations are categorized by priority levels: High, Medium, and Low. Table 2 summarizes the priorities for, along with the specific actions and locations required.

High: The misting station should be installed in the summer of 2024

Medium: The misting station should be installed later in 2024 or next, City of New Westminster needs to procure misters/fountains

Low: The misting station should be installed later than the medium priority installations, City of New Westminster needs to procure misters/fountains

Table 2 Summary of new installations and upgrades

Location	Priority level	New / Upgrade	Area	Type of infrastructure
Uptown Plaza @ Sixth Street and Belmont Street	High	New	Uptown	Misting Station
Salvation Army @ Sixth Street and Blackford Street	High	New	Uptown	Misting Station
Bus Stop @ Eighth Street and Forth Avenue	Medium	New	Brow of the Hill	Misting Station
Hyack Square	Medium	New	Downtown	Drinking Fountain
Sapperton Plaza	Medium	New	Sapperton	Misting Station
Basketball and Tennis Courts in Moody Park	Low	New	Uptown	Misting Station
Drinking Fountain near the Washroom (ID:33) in Pier Park	Low	Upgrade	Downtown	Misting Station
Drinking Fountain (ID:42) in Old School Park	Low	Upgrade	Queensborough	Misting Station
Drinking Fountain (ID:21) near the Washroom and Spray Park in Moody Park	Medium	Upgrade	Uptown	Bottle-filler Only Fountain
Drinking Fountain (ID:12) in Sapperton Park	Medium	Upgrade	Sapperton	Bottle-filler Only Fountain
Drinking Fountain in Lower Hume Park	Low	Upgrade	Sapperton	Misting Station
Drinking Fountain (ID:9) in Terry Huges Park	Medium	Upgrade	Glenbrook North	Misting Station
Drinking Fountain at Quayside Park	Medium	Upgrade	Downtown	Bottle-filler Only Fountain

Proposed Locations for New Installations

This section shows the satellite images of the proposed locations for new installations, and the street view images are captured from Google Earth Map to ensure the proposed locations have available space for installations. The GIS maps were captured from City View System of City of New Westminster, where the red stars are the proposed locations for new infrastructures, and the blue lines indicate the water connection of City of New West. The use of City View GIS revealed the locations of underground water services for new infrastructure connections, ensuring that the installations were done cost-effectively and connected directly to the city's water infrastructure.

1. Uptown Plaza @ Sixth Street and Belmont Street, Uptown (High Priority)

In the Uptown area, most cooling infrastructure is concentrated around Moody Park. Given that Sixth Street is a central commercial zone, it is crucial to introduce new public water access to better serve the high volume of foot traffic and enhance overall comfort in the area. This busy location serves as a hub for pedestrians, many of whom stop to rest or dine. Despite the heavy foot traffic, there are currently no drinking fountains or misting stations available. Installing a misting station here would offer much-needed relief to visitors.

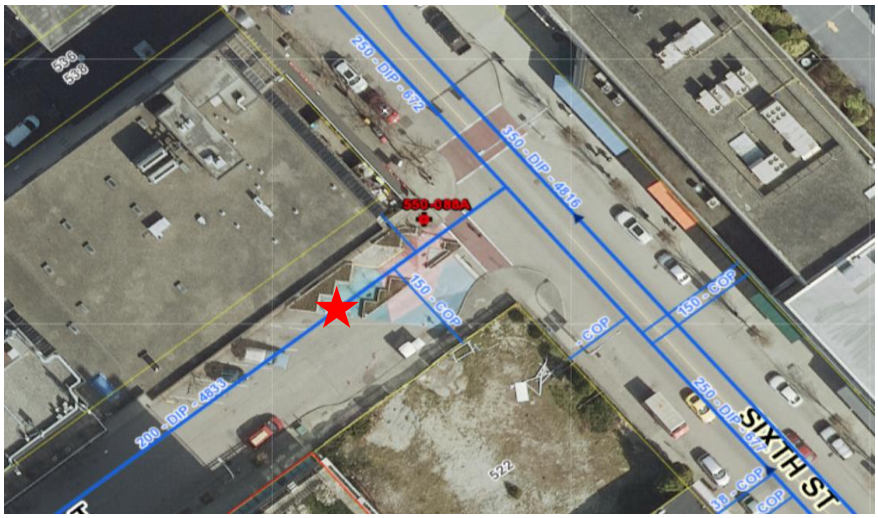


Figure 4 Satellite Map of Proposed Location for Installation

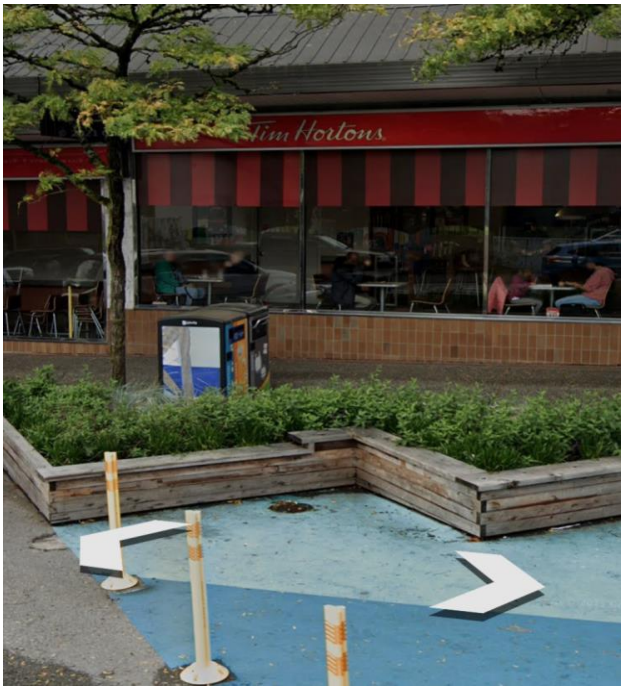


Figure 5 Proposed Location for Installation and Buffer Zone

2. Salvation Army @ Sixth Street and Blackford Street, Uptown (High Priority)

Situated near community organizations such as the Salvation Army Food Bank and a Korean Church, this area sees a significant amount of foot traffic and queues, often under limited shade. A misting station would provide immediate cooling for those waiting in this area. Combined with the new misting station to be installed in Uptown Plaza, these two stations can effectively address the lack of cooling infrastructure on Sixth Street and enhance overall comfort in the Uptown area.

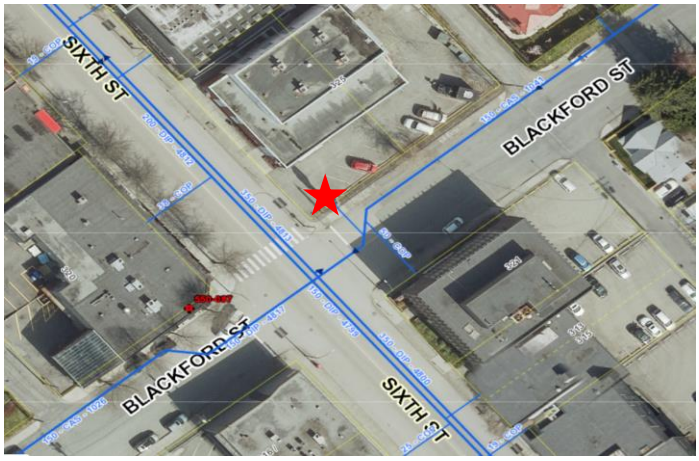


Figure 6 Satellite Map of Proposed Location for Installation

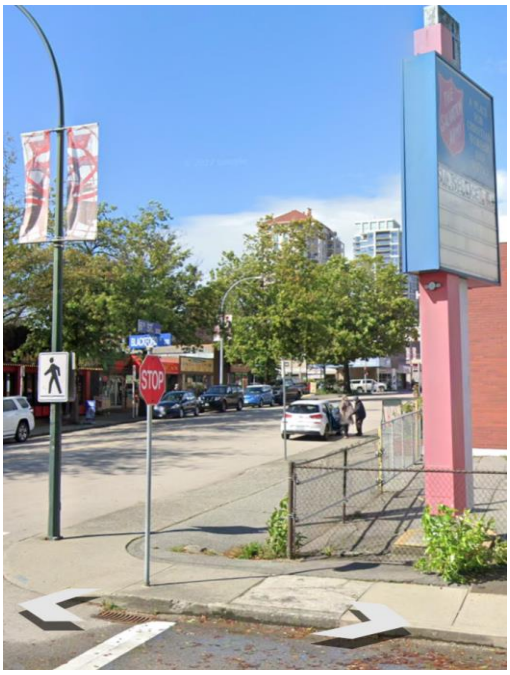


Figure 7 Proposed Location for Installation and Buffer Zone

3. Bus Stop @ Eighth Street and Forth Avenue, Uptown (Medium Priority)

Given that existing water access is limited in Simcoe Park and Eighth Street lacks water access despite high pedestrian traffic and a significant overlap of low-income and senior populations, it is essential to install new drinking water fountains and misting stations in Brow of the Hill. This location is surrounded by numerous low-rise residential buildings, with limited natural shade. Adding a misting station would help cool the area for residents and commuters.

Figure 8 Satellite Map of Proposed Location for Installation

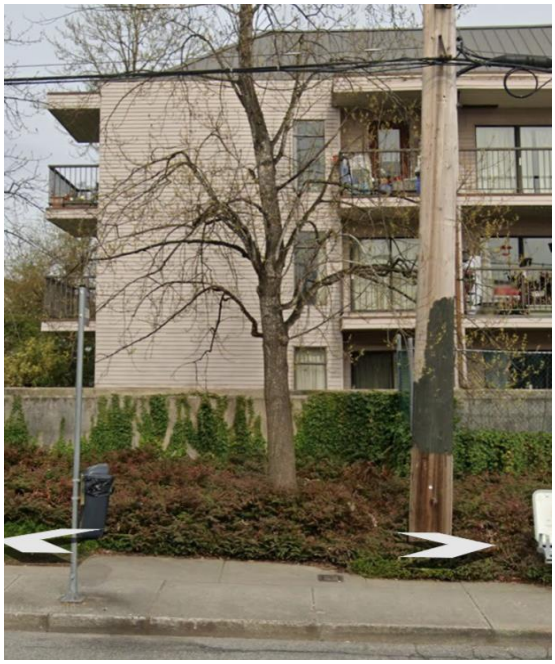


Figure 9 Proposed Location for Installation and Buffer Zone

4. Hyack Square, Downtown (Medium Priority)

As the busiest part of Downtown, this area experiences high pedestrian traffic with many people passing through or stopping. The absence of cooling amenities like drinking fountains makes it a critical spot for installation. Given the frequent city events in this area, misters are not ideal. To avoid the potential issue of overspray wetting pedestrians on the sidewalk, it is recommended to install a drinking fountain with a bottle filler along Columbia Street. It is proposed to install one new drinking fountain in Hyack Square.

Figure 10 Satellite Map of Proposed Location for Installation

Figure 11 Proposed Location for Installation and Buffer Zone

5. Sapperton Plaza, Sapperton (Medium Priority)

Located in the heart of Sapperton's commercial zone, this plaza serves numerous shoppers and pedestrians daily. The addition of a misting station here would provide significant relief to visitors by offering a refreshing cooling option. The misting station can effectively address the lack of cooling infrastructure and enhance overall comfort in the Sapperton area. In this area, there are two proposed locations for installing a misting station. One is near the roadside with a water net control box, while the other is on the west side in a grass area, which would be more cost-effective and have good drainage without impacting businesses.

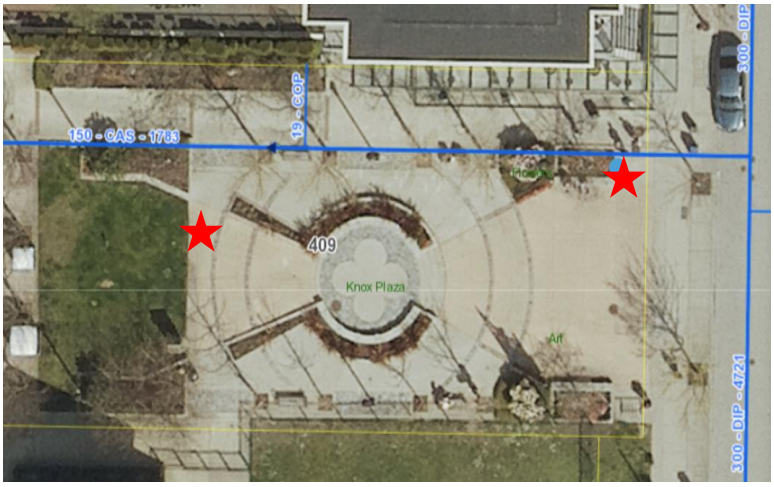


Figure 12 Satellite Map of Proposed Location for Installation

Figure 13 Proposed Location for Installation and Buffer Zone

6. Basketball and Tennis Courts in Moody Park, Uptown (Low Priority)

Moody Park currently features several drinking fountains; however, athletes engaged in high-intensity sports such as basketball and tennis often find these amenities inconveniently located. To address this issue, installing misting stations around the sports courts would provide immediate cooling relief.

Figure 14 Satellite Map of Proposed Location for Installation

Figure 15 Proposed Location for Installation and Buffer Zone

As shown in Figure 16, the addition of six new misting stations and drinking fountains significantly expands public water access, covering most of the priority areas. The blue stars on the map indicate the locations of the new installations of cooling infrastructures, while the blue circles represent the areas that will benefit from these installations. Each circle has a radius of 250 to 300 meters, which means that individuals within these zones can walk to the nearest cooling infrastructure within approximately five minutes.

This strategic expansion effectively addresses water access issues in the busy regions of Brow of the Hill and Uptown, where increased foot traffic and the need for accessible cooling resources have been identified. Additionally, it addresses the lack of water and cooling access in the Sapperton and Downtown areas, particularly along Columbia Street, where there were previously no accessible water points. These installations are designed to enhance the well-being and convenience of residents in the City of New Westminster, ensuring that critical cooling and hydration resources are readily available during extreme heat events.

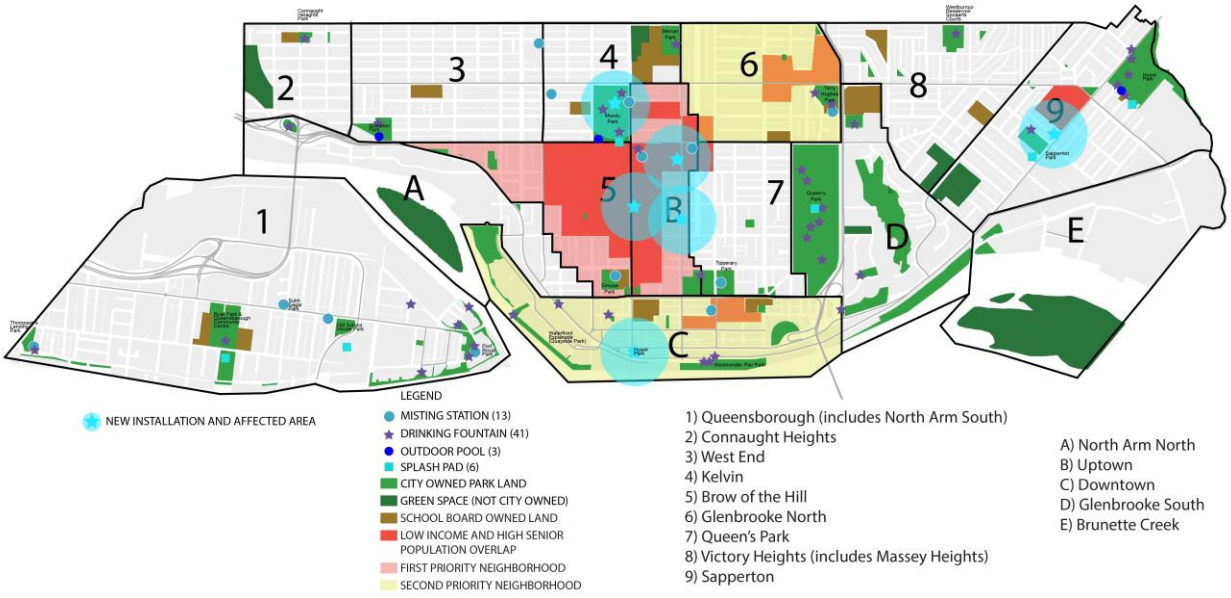


Figure 16 Priority Neighborhood after New Installations

Recommendations for Upgrading Drinking Fountains

This section shows the satellite images of the proposed locations for upgrading the existing drinking fountains, and the street view images are captured from Google Earth Maps. The blue lines indicate the water connection of City of New West, and the blue dots are existing drinking fountains. Additionally, the upgrades to these fountains will make use of the existing service connections to streamline the installation process, reduces costs, and minimizes disruption to existing infrastructure.

1. Drinking Fountain near the Washroom (ID:33) in Pier Park, Downtown (Low Priority)

The riverside area of Pier Park features restrooms and a drinking fountain, but it lacks adequate shade, which can be uncomfortable during warm weather. Upgrading to a misting station would provide significant additional cooling benefits for visitors. However, given that there are already drinking fountains in the area and the city's preference to wait until the full esplanade is completed, this installation is considered a lower priority.

Figure 17 Satellite Map of Proposed Location for Upgrade

2. Drinking Fountain (ID:42) in Old School Park, Queensborough (Low Priority)

This park is equipped with sports facilities and water play area but currently has only one drinking fountain. The presence of water play features leads to the risk of the drinking fountain basin becoming clogged with sand and dirt by misuse such as hand washing, highlights the need for enhanced cooling options. Upgrading the current drinking fountain to a misting station would significantly improve cooling for park users, making the area more comfortable and cleaner. Notably, during the site visit, the water play feature was not functioning. Therefore, addressing the drainage issues and ensuring regular maintenance of the water play feature are crucial steps to optimize the park's overall water infrastructure and usability.

Figure 18 Satellite Map of Proposed Location for Upgrade

Figure 19 Proposed Drinking Fountain for Upgrade

Figure 20 Water Play Feature in Old School Park

3. Drinking Fountain (ID:21) near the Washroom and Spray Park in Moody Park, Uptown (Medium Priority)

Given the high usage of the area for water play, upgrading the existing fountain with a bottle filler would provide both drinking water and help keep the basin and the surroundings cleaner. The current drinking fountain near the water play area in Moody Park has experienced issues, including excessive wear and misuse for hand washing. This has led to problems such as blockages from sand and dirt. Upgrading to a fountain with a bottle fille can offer a more practical solution for hydration while reducing the risk of the fountain being used inappropriately, thereby minimizing maintenance challenges and ensuring a cleaner and more functional water source.

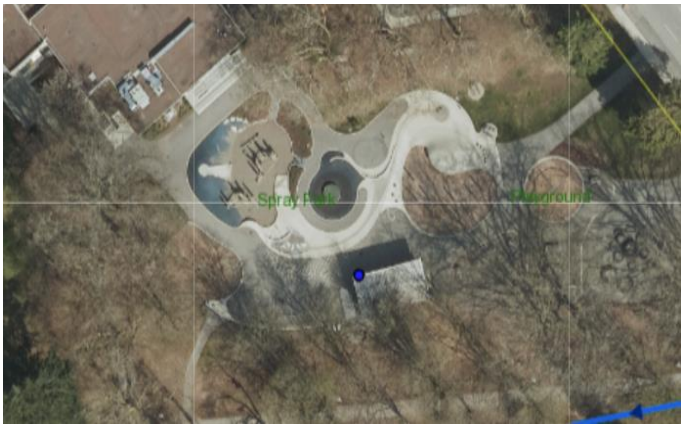


Figure 21 Satellite Map of Proposed Location for Upgrade

Figure 22 Proposed Drinking Fountain for Upgrade

4. Drinking Fountain (ID:12) in Sapperton Park, Sapperton (Medium Priority)

During the site inspection, it was observed that the basin of this drinking fountain at Sapperton Park is prone to clogging from sand and dirt, likely due to its proximity to the water play feature and hand washing. Upgrading it to a bottle filler-only fountain would enhance its functionality and help prevent issues caused by debris accumulation, ensuring a more reliable and maintenance-friendly water source.

Figure 23 Satellite Map of Proposed Location for Upgrade

Figure 24 Proposed Drinking Fountain for Upgrade

5. Drinking Fountain in Lower Hume Park, Sapperton (Low Priority)

While Hume Park already has sufficient cooling infrastructure, the fountain in Lower Hume Park, which features a baseball diamond and an extensive trail network, would benefit from an upgrade to a misting station. This enhancement would offer improved cooling features and better water access. Upgrading to a misting station would significantly enhance the comfort of park users, particularly during peak activity times, providing much-needed relief to athletes and visitors enjoying the trails and recreational facilities.

Figure 25 Satellite Map of Proposed Location for Upgrade

Figure 26 Proposed Drinking Fountain for Upgrade

6. Drinking Fountain (ID:9) in Terry Huges Park, Glenbrook North (Medium Priority)

Next to the existing drinking fountain, there is a playground with sand and dirt, which might be used for water play, potentially dirtying or even clogging the basin. Replace/Relocate the misting station at Jack Mahony – Crosstown Greenway @ 701 Park Cresent to here making the misting station more visible near the bus stop and the play ground, and provide drinking water but also offer cooling features and facilitate maintenance.

Figure 27 Satellite Map of Proposed Location for Upgrade

Figure 28 Proposed Drinking Fountain for Upgrade

7. Drinking Fountain at Quayside Park, Waterfront Esplanade (Low Priority)

Although this green park offers great shades and is a popular spot for leisure activities, it currently lacks nearby drinking fountains. Given the challenges with water connections and potential maintenance issues associated with misting stations, it is recommended to install a drinking fountain with a bottle filler and an integrated pet bowl. This setup would enhance the park's amenities by providing accessible drinking water for both people and pets without the complexities of a misting system.

Figure 29 Satellite Map of Proposed Location for Upgrade

Figure 30 Proposed Drinking Fountain for Upgrade

In summary, during site inspections, various issues with existing drinking fountains were identified, such as clogging from sand and limited functionality. The proposed upgrades aim to address these concerns effectively. Recommendations include

upgrading to misting stations and bottle fillers to improve cooling and cleanliness, especially in high-traffic areas and near water play features. These enhancements will provide cleaner water sources, better cooling options, and more reliable amenities, ultimately improving the overall comfort in City of New Westminster.

Conclusion

This report provides a detailed evaluation of the City of New Westminster's existing drinking water fountains and misting stations, identifies priority neighborhoods for additional cooling infrastructure, and proposes specific locations for new installations and upgrades. The findings underscore the importance of maintaining and expanding cooling facilities to address the needs of vulnerable populations, including seniors, low-income individuals, and people with mobility issues. By enhancing the city's cooling infrastructure, New Westminster can better mitigate the severe health impacts of extreme heat and improve the overall well-being of its residents.

The comprehensive condition assessment revealed that while most existing units are in good working order, there are specific issues that need to be addressed to ensure optimal functionality. Additionally, the identification of priority neighborhoods and the proposed new installation sites provide a strategic approach to expanding the city's cooling infrastructure where it is most needed. This proactive approach not only ensures the immediate relief for those most vulnerable but also sets a foundation for a resilient urban environment in the face of climate change.

Next Steps

1. **Immediate Repairs and Upgrades:**
    - Address the identified issues with existing drinking water fountains and misting stations, including replacing control buttons, repairing bottle fillers, completing water hookups, and adding missing signage.
    - Upgrade selected drinking fountains to misting stations or install new drinking fountains with bottle fillers where needed.

- Ensure that the repairs and upgrades are completed before the peak summer season to provide immediate relief during extreme heat events.

2. **Installation of New Cooling Facilities:**
    - Prioritize the installation of new misting stations and drinking fountains in high-priority areas such as Uptown Plaza, The Salvation Army, and busy bus stops with limited shade coverage. These areas have high pedestrian traffic and significant vulnerable populations.
    - Schedule medium and low-priority installations based on resource availability and community feedback. Medium-priority areas include Hyack Square, Sapperton Plaza, and Moody Park sports courts, while low-priority areas include Pier Park, Old School Park, and Terry Hughes Park.
    - Use GIS data and community feedback to refine the exact locations for new installations to ensure maximum accessibility and effectiveness.
3. **Regular Maintenance and Inspections:**
    - Establish a routine maintenance and inspection schedule to ensure all cooling facilities remain in optimal working condition. This includes regular checks for functionality, cleanliness, and any potential damage.
    - Promptly address any emerging issues identified during regular inspections to prevent downtime and maintain service quality. This proactive approach will help in avoiding any major breakdowns during critical times.
4. **Public Engagement and Awareness:**
    - Continue public awareness campaigns to educate residents about the locations and benefits of the cooling facilities. Use multiple platforms, including social media, local news, and community bulletins, to reach a broad audience.
    - Encourage community feedback to identify additional needs and continuously improve the cooling infrastructure. Set up feedback kiosks at cooling stations and online portals to gather input from residents.
    - Partner with local organizations and Non-Governmental Organizations to disseminate information and provide support during extreme heat events,

ensuring that even the most vulnerable populations are aware of and can access the cooling facilities.

5. **Ongoing Monitoring and Evaluation:**
    - Collect and analyze user feedback to refine the placement and functionality of cooling amenities. Conduct surveys and focus groups to gather detailed insights into the user experience.
    - Implement a performance measurement framework to evaluate the impact of the cooling infrastructure on public health and well-being, using metrics such as the number of users, reduction in heat-related illnesses, and user satisfaction levels.
6. **Long-Term Planning and Adaptation:**
    - Incorporate findings from this report into the city's long-term urban planning and climate adaptation strategies. Ensure that future developments and renovations consider the need for cooling infrastructure.
    - Explore innovative cooling solutions, such as green roofs, shaded walkways, and urban greening projects, to complement the existing water-based cooling facilities.
    - Secure funding and partnerships to sustain and expand the cooling infrastructure over the long term, ensuring that the City of New Westminster remains resilient to the increasing frequency and intensity of extreme heat events.

By taking these next steps, the City of New Westminster can ensure that its outdoor cooling strategy is effectively implemented, providing critical relief during extreme heat events and enhancing the quality of life for all residents. The city's commitment to addressing the needs of its most vulnerable populations and investing in sustainable cooling solutions will serve as a model for other urban areas facing similar challenges.

References

City of New Westminster, Parks & Recreation. (2024). *OUTDOOR COOLING STRATEGY*. New Westminster, BC.

Appendices

Appendix 1: Drinking Water Fountains and Misting Stations Condition Assessment Summary

Appendix 2: Condition Rating Criteria for Drinking Water Fountains and Misting Stations

Appendix 3: Drinking Water Fountain and Misting Station Condition Assessment Framework

Appendix 1: Drinking Water Fountains and Misting Stations Condition Assessment Summary

Infrastructure ID	Location	Installation Time	Potable Water (Yes/No)	Function (Yes/No)	Flow and Spray (Good to Poor)	External Damage	Surrounding Area (Good to Poor)	Overall Condition	Comments	Photo
1	Public Library @ 716 Sixth Avenue	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 24 hours daily	
2	Century House Bus Stop @ 620 Eighth Street	2022	Yes	Yes	Good	No	Good	**Fair (3)**	- Operating 12 hours (8AM - 8PM) daily - Missing control button for water spary but does not affect the function.	
3	Rocky Point Ice Cream @ 500 Sixth Avenue	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 24 hours daily	
4	Twelfth and London @ 918 Twelfth Street	2022	Yes	Yes	Good	No	Good	**Fair (3)**	- Operating 24 hours daily - Missing control button for water spary but does not affect the function.	
5	Twelfth and Nanaimo @ 621 Twelfth Street	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 24 hours daily	
6	Jack Mahony - Crosstown Greenway @ 701 Park Crescen	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 24 hours daily	

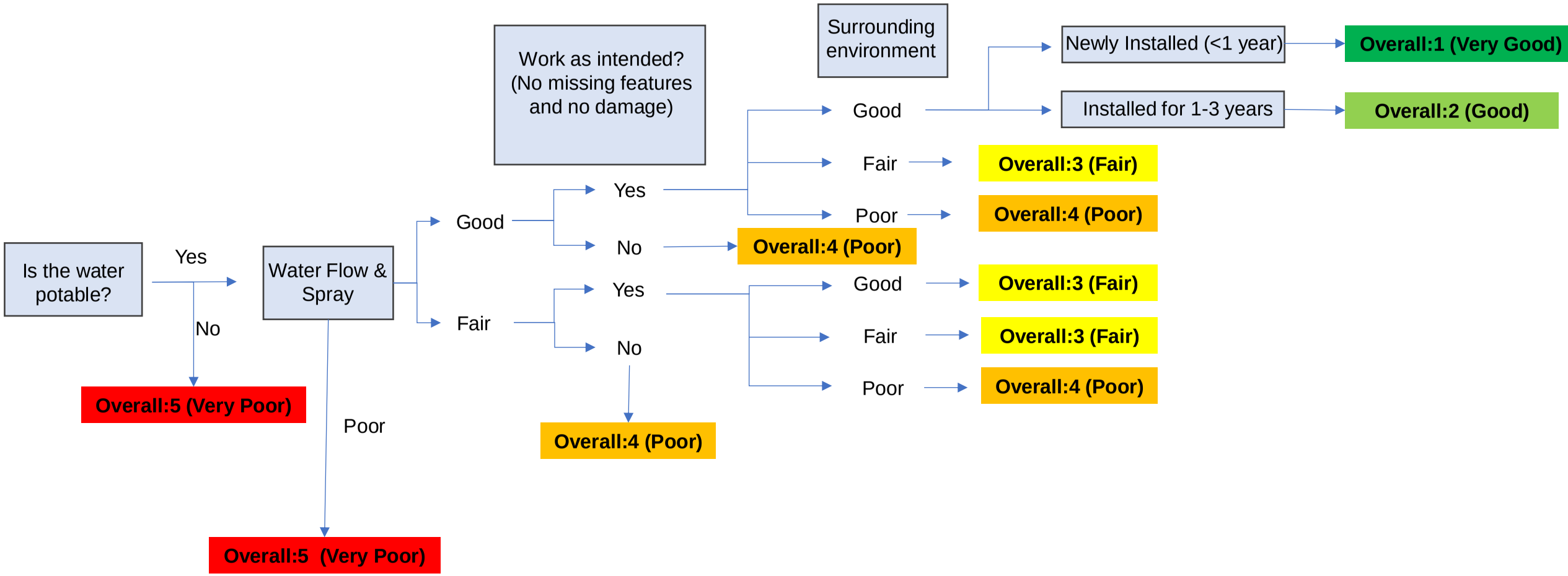
Infrastructure ID	Location	Installation Time	Potable Water (Yes/No)	Function (Yes/No)	Flow and Spray (Good to Poor)	External Damage	Surrounding Area (Good to Poor)	Overall Condition	Comments	Photo
7	Thompson Landing @ 188 Dockside Court	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 24 hours daily	
8	Ewen and Jardine @ 1129 Ewen Avenue	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 24 hours daily	
9	Sukh Sugar @ 709 Ewen Avenue	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 24 hours daily	
10	Agness Street Greenway @ 478 Agness Street	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 24 hours daily - Missing sign of misting station	
11	Tipperary Park	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 12 hours (8AM - 8PM) daily	
12	Simcoe Park	2022	Yes	No	Good	No	Good	**Poor (4)**	- Operating 12 hours (8AM - 8PM) daily - Bottle filler does not shut off properly, need replacement	

Infrastructure ID	Location	Installation Time	Potable Water (Yes/No)	Function (Yes/No)	Flow and Spray (Good to Poor)	External Damage	Surrounding Area (Good to Poor)	Overall Condition	Comments	Photo
13	Port Royal	2022	Yes	Yes	Good	No	Good	**Good (2)**	- Operating 12 hours (8AM - 8PM) daily	

Appendix 2: Condition Rating Criteria for Drinking Water Fountains and Misting Stations

Overall Condition Rating	Ranking	Description
Very good	1	This cooling and misting station (<1 year old) is in excellent condition, functioning as intended with good water flow and quality. All features are present and intact, with no damage or wear. The surrounding environment is clean and well-maintained, requiring minimal maintenance to continue optimal performance.
Good	2	This cooling and misting station (1-3 years old) is in good condition, functioning as intended with clean water and good flow. All features are present, with only minor external damage. The surrounding environment is clean and well-maintained, requiring minimal maintenance to continue effective operation.
Fair	3	This cooling and misting station (3-5 years old) is in fair condition, functioning as intended with clean water and fair flow. Some external damage, but still works well. Fair surrounding environment, requires normal maintenance to keep operating effectively.
Poor	4	This cooling and misting station is in poor condition, functioning but not as intended. Although the water is clean, the asset is missing features such as buttons, and the flow is only fair. Significant external damage is present, and the surrounding environment is poor. Repairs and maintenance are likely needed to restore optimal performance.
Very Poor	5	This cooling and misting station is in a state of disrepair and is not functioning. The water quality is suspect and may be contaminated. The flow is poor, and immediate attention is needed to address these issues. Renewal or replacement of the asset is recommended to ensure safe and effective operation.

Appendix 3: Drinking Water Fountain and Misting Station Condition Assessment Framework



This framework was last reviewed and updated on 2024-05-15