

NO: R033

COUNCIL DATE: **February 6, 2017**

REGULAR COUNCIL

TO: Mayor & Council **DATE: February 2, 2017**

FROM: General Manager, Planning & Development **FILE: 6520-20**
General Manager, Engineering **(Grandview Heights**
NCP #3)

SUBJECT: Terms of Reference for Sam Hill Creek Integrated Stormwater Management
Plan and Environmental Study

RECOMMENDATION

The Planning and Development Department and the Engineering Department recommend that Council:

1. Receive this report as information; and
2. Approve the draft Terms of Reference for the Sam Hill Creek Integrated Stormwater Management Plan and Environmental Study, attached as Appendix “I”, as part of the Grandview Heights Neighbourhood Concept Plan #3 (“NCP #3”) planning process.

INTENT

This report sets out the proposed scope and content of a key environmental study that will guide land use planning for the NCP #3. The draft Terms of Reference for the Sam Hill Creek Integrated Stormwater Management Plan (“ISMP”) and Environmental Study is attached as Appendix “I” to this report. The outcome of this study will be plans, guidelines, and development practices that ensure the environmental health of the Sam Hill Creek watershed (shown in Appendix “II”) is not compromised by future urban development.

BACKGROUND

On July 25, 2016, Council approved the recommendations in Corporate Report R186; 2016, authorizing staff to undertake a planning process for the NCP #3 area, as shown in Appendix “III.” The proposed planning process, including a public consultation program, is outlined in further detail below. A key component of the planning process is the completion of an Integrated Stormwater Management Plan (“ISMP”) and Environmental Study for the Sam Hill Creek watershed, which encompasses the NCP #3 area as well as additional lands to the north and east of the NCP #3. The land use and transportation planning components of the Stage 1 NCP and the public consultation is proposed to be delivered “in-house” by City staff. An external consultant will be retained to develop the ISMP for the Sam Hill Creek watershed along with the environmental study under the direction of staff, working in close conjunction with the land use and transportation plan.

DISCUSSION

It is Council policy to complete an ISMP for each of the watersheds in the City. In 2011, an ISMP Scoping Study was completed for the Little Campbell River watershed, which divided the watershed into a set of smaller sub-watersheds at a scale allowing a level of planning detail appropriate to an ISMP. The Sam Hill Creek watershed is one of these sub-watersheds that drain into the Little Campbell River. This watershed encompasses virtually the entire Grandview Heights NCP #3 area, as well as additional lands to the north. Conducting the ISMP in conjunction with preliminary land use planning is appropriate, since there is a strong relationship between land uses and stormwater management objectives and plans.

As documented in Appendix "I", a detailed environmental study including riparian and terrestrial ecosystems is proposed as part of the ISMP. This environmental study builds on earlier, more general environmental studies, including one prepared as part of the Grandview Heights General Land Use Plan (2005), the Ecosystem Management Study (2010), and the Biodiversity Conservation Strategy (2015).

Timeline

The ISMP and Environmental Study will inform the development of land use and transportation plans for the NCP that in turn meet the objectives for environmental protection set out in the ISMP. The relationship of the ISMP to the larger Stage 1 proposed planning process and public consultation program is shown below.

Stage 1 NCP Process

Public Open House #1	November 2016
Citizen Advisory Committee Selection	January 2017
Background Studies	
• ISMP & Environmental Study Stage 1 and 2	February – October 2017
• Heritage and Cultural Landscape Study	February – March 2017
Citizen Advisory Committee Meetings	Semi-Monthly
CitySpeaks Panel Survey #1	
City Advisory Committee Presentations (DAC, HAC, AFSAC, ESAC)	Spring 2017
Interagency Meeting #1	October 2017
Develop Land Use and Transportation Concepts	February – November 2017
• School and Park Needs Assessment	
Public Open House #2	November 2017
Analysis of Public Feedback	December 2017
Citizen Advisory Committee Meetings	Semi-Monthly
CitySpeaks Panel Survey #2	
Develop Preferred Land Use and Transportation Concept	Spring 2018
• Confirm Schools and Parks Plans	
• ISMP & Environmental Study Stage 3 and 4	
• Preliminary Scoping of Engineering Servicing Strategies (Utilities)	
Interagency Meeting #2	Spring 2018
City Advisory Committee Presentations (DAC, HAC, AFSAC, ESAC)	Spring 2018

Corporate Report on Preferred Land Use & Transportation Concept	June 2018
Public Open House #3	June 2018
Analysis of Public Feedback	July 2018
Refine Stage 1 Land Use & Transportation Concept	September 2018
Corporate Report – Approval of Stage 1 Plan	Fall 2018

Stage 2 NCP Process

Develop Engineering Servicing Strategies and Financial Strategies	2018 – 2019
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SUSTAINABILITY CONSIDERATIONS

This report responds to a number of Desired Outcomes and Strategic Directions in the Sustainability Charter 2.0, including:

Built Environment & Neighbourhoods Desired Outcomes:

- Trees, green spaces and natural areas are integrated into all neighbourhoods.
- Exposure to natural hazards is minimized through appropriate location and design of development.

Built Environment & Neighbourhoods Strategic Directions:

- Integrate natural areas, ecosystems and green areas in all neighbourhoods.

Ecosystems Desired Outcomes:

- Surrey actively protects, enhances and restores its natural environment and habitats.
- Surrey protects ecosystem services and manages natural assets in order to build resilience and adapt and thrive in a changing climate.

Ecosystems Strategic Directions:

- Include natural capital and ecosystem services in all City projects at the planning phase, as well as in the City’s infrastructure services program and climate adaptation planning.

Infrastructure Desired Outcomes:

- Infrastructure systems are designed to protect human health, preserve environmental integrity and be adaptable to climate change impacts.
- Ecosystems and natural assets are an essential part of the community’s infrastructure system.

Infrastructure Strategic Directions:

- Develop and manage the green infrastructure network to continue to deliver ecosystem services.

CONCLUSION

An inter-departmental team of staff has begun the process of preparing a Neighbourhood Concept Plan for the Grandview Heights #3 Neighbourhood. A key element of this planning process is an Integrated Stormwater Management Plan (ISMP) and Environmental Study. This

study will be conducted by a consultant following the process outlined in Appendix “I”, subject to Council’s approval.

The Planning and Development Department and the Engineering Department recommend that Council:

- Receive this report as information; and
- Approve the draft Terms of Reference for the Sam Hill Creek Integrated Stormwater Management Plan and Environmental Study, attached as Appendix “I”, as part of the Grandview Heights Neighbourhood Concept Plan #3 planning process.

Original signed by
Jean Lamontagne
General Manager,
Planning and Development

Original signed by
Fraser Smith, P.Eng., MBA
General Manager,
Engineering

DL/ss

Attachments:

Appendix “I” - Terms of Reference for Sam Hill Creek Integrated Stormwater Management Plan and Environmental Study

Appendix “II” - Map of Sam Hill Creek Watershed

Appendix “III” - Map of Grandview Heights Neighbourhood Concept Plan #3

Draft Terms of Reference Sam Hill Creek Integrated Stormwater Management Plan (ISMP)

1. General Requirements

The Sam Hill Creek watershed extends from 24 Avenue and ultimately drains to the Little Campbell River at 180 Street. Figure 1 shows the study area.

For the Sam Hill Creek ISMP, the study area is approximated bounded by:

- 180 Street on the east,
- 24 Avenue on the north,
- 168 Street on the west, and
- 8 Avenue on the south.

In 2011, the Little Campbell River Integrated Stormwater Scoping Study was completed. The Little Campbell River Scoping Study divided the 7,580 ha watershed into sub-watersheds of a size suited for an ISMP assessment. For the Grandview Heights NCP #3 area, the Scoping Study recommended an ISMP for a larger sub-watershed beyond the catchment of the small NCP area. The Sam Hill Creek ISMP study area is focussed on the catchment identified in Figure 1.

The final ISMP will guide the City to maintain or enhance the overall health of the watershed while allowing for future development. Future development for the study area is not limited to the Grandview Heights NCP #3 and must look at future development potential for the entire watershed. However, much of the Sam Hill Creek watershed outside the Grandview Heights NCP #3 area is within the Agricultural Land Reserve.

2. ISMP Expectations

An ISMP is a comprehensive plan to balance land use planning, stormwater engineering, flood and erosion protection, and environmental protection in order to preserve and improve the overall health of the watershed. Rapid population growth within the Lower Mainland has caused significant strain on the local environment. Increasing development and re-development have substantially impacted natural resources such as habitat, green space, and water quality. With the ISMP process, municipalities are attempting a pro-active approach to determine how land development should proceed while addressing the needs of protecting the overall health of the watershed.

The ISMP applies to urban watershed management with the purpose to maintain and enhance the overall health of the watershed while allowing for future development. The Sam Hill Creek watershed currently follows the City’s Official Community Plan and current land use in the Sam Hill Creek ISMP study area is almost entirely agricultural with residential acreages. The Grandview Heights General Land Use Plan (GLUP) was adopted in 2005 with the purpose of providing an overall framework to guide the preparation of Neighbourhood Concept Plans (NCPs) in the future. The Grandview Heights NCP #3 is one of five NCP areas identified in the GLUP.

Key components of the ISMP provide guidance and information on how to proceed with future land development while maintaining the goals set out for the overall watershed.

The overall goals for the Plan are to:

- Protect and enhance the overall health and natural resources of the creek and watershed study area.
- Promote participation from all stakeholders to achieve a common future vision of the watershed.
- Minimize risk of life and property damages associated with flooding and provide strategies to attenuate peak flows.
- Protect and enhance watercourses and aquatic life.
- Prevent pollution and maintain/improve water quality.
- Prepare an inventory of watercourses and wildlife for the watershed study area.
- Protect the environment, wildlife, and habitat corridors.
- Identify areas of existing and future industrial, residential, commercial, agricultural, and recreational land uses.
- Integrate the potential impact of climate change on the ISMP area.
- Develop a cost effective and enforceable implementation plan.
- Establish a monitoring and assessment strategy to ensure goals are achieved, maintained, and enforced.

The Key objectives of the environmental study components of the ISMP for the Grandview Heights NCP #3 Area are as follows:

1. To identify, inventory, map, prioritize and make recommendations regarding the protection and/or restoration and enhancement of key environmental features in the Grandview Heights NCP #3 Area, including:
 - Watercourses (including associated features such as wetlands, floodplains, and riparian zones), watersheds, and groundwater recharge areas;
 - Fish utilization and fish habitat including riparian areas;
 - Critical wildlife habitat for significant wildlife species and for support of biodiversity, with an emphasis on habitat with high potential to support provincially red or blue listed wildlife or species listed as Schedule 1 under the Federal Species at Risk Act, and wildlife nest sites referenced in the Provincial Wildlife Act section 34(b);
 - Ecologically significant areas that support biodiversity including rare plants, such as rare grassland, forest types, and productive soils;
 - Significant and valuable tree stands/canopies and tree specimens, including tree species and areas that support biodiversity and has a high potential for preservation/retention;
 - Sensitive or hazardous terrain such as steep slopes, that may be sensitive to development and soils not suitable for urban development;
 - Natural recreation areas; and
 - Natural areas with the potential to provide habitat corridors, greenways or aesthetic values linking with other green spaces within and beyond the Study Area.
2. To incorporate, in the early planning stages, the environmental requirements of both the City of Surrey and relevant regulatory agencies, e.g., the Ministry of Environment, Environment Canada, and Fisheries and Oceans Canada;

3. To provide scientifically sound advice to the City based on the environmental characteristics and sensitivities within the Study Area;
4. To provide scientifically sound recommendations for the City of Surrey and Regional Green Infrastructure Network and for Biodiversity Conservation strategies to:
 - Preserve large core habitat areas;
 - Ensure connectivity between habitat areas; and
 - Provide for a long term integrated network of habitat features throughout the Study Area.
5. To prepare a final report that makes specific recommendations for the preservation and enhancement of fish habitat, groundwater resources, plant communities, wildlife (herpetofauna, mammals, and birds) habitat, rare, threatened and endangered species, and significant tree stands and specimens generally for the Study Area, including recommendations regarding the extent of the environmentally significant areas, sites, and corridors that should be protected.

3. **Scope of Work**

Complete an Integrated Stormwater Management Plan for the Sam Hill Creek study area based on the “ISMP Terms of Reference Template” prepared by Metro Vancouver. The ISMP is divided into Four Stages below; however, the City is open to proposals for alternative ISMP work plan layouts based on the Consultant’s experience with other ISMPs.

Stage 1 “What Do We Have?” - *Review Existing Information and Data Collection*

A kick-off meeting is required to discuss and clarify project details. Stakeholders and relevant government agencies are to be identified and contacted. During Stage 1, the Consultant is to inform relevant community stakeholders of the study and collect any additional information they may provide. These stakeholders may include but are not limited to:

- Surrey Engineering, Planning & Development, and Parks, Recreation & Culture Departments
- Fisheries and Oceans Canada
- Ministry of Environment
- Environment Canada
- Residents and community associations

A starting point for the Sam Hill Creek ISMP is the Little Campbell River Integrated Stormwater Scoping Study, specifically the recommendations for the proposed Sam Hill/Twin Creeks ISMP. The Consultant will review existing information including previous reports and drainage system data to assess the current condition of:

- stormwater infrastructure
- watercourses including erosion, base flows, and water quality and quantity
- fisheries habitat
- terrestrial and riparian areas including trees and wooded areas
- sensitive environmental areas

- Links with Surrey's Biodiversity Conservation Strategy
- geotechnical and soil classifications
- wildlife inventory and habitat
- floodplains
- groundwater discharge areas
- land use patterns based on the Official Community Plan

Additional field investigation and survey may be needed to supplement available data. This includes typical channel cross-sections, stream bed characteristics, erosion sites, and major outfall locations. The Consultant is to confirm the watershed and sub-catchment boundaries.

The Consultant is to develop a public consultation strategy. Typical public open houses for previous ISMPs have been sparsely attended. For recent ISMPs, a web-based public consultation process has been used through the City's website and CitySpeaks with mixed results. The City is looking for an effective strategy to increase public consultation and involvement beyond the use of standard public meetings.

Deliverables for Stage 1 include but are not limited to:

1. A kick-off meeting to present the project to City Departments (Engineering, Planning & Development, and Parks, Recreation & Culture) and other stakeholders, and to collect information and feedback on the Sam Hill Creek study area.
2. A strategy for public consultation.
3. Summary of the existing environmental features using a combination of a desktop review of existing information, aerial photography interpretation, extensive field study and "ground truthing", data syntheses, and reporting in order to achieve the stated objectives of the watershed, watercourses, environment, habitat, and land-use within the study area. This will include figures, tables, photographs, et cetera, of all pertinent data and information describing the current condition of the watershed and any areas of concern.
4. Summary of hydrological and hydraulic modeling analysis.

Stage 2: "What Do We Want?" - *Vision for Future Development*

The Consultant will define the future development condition of the Sam Hill Creek ISMP study area through detailed goals and objectives. These goals and objectives are fundamental in determining opportunities and constraints for habitat enhancement, environmental protection, and future land use. They will integrate the views of Engineering, Planning & Development, Parks, Recreation & Culture, and other stakeholders to achieve consensus in a common vision of the study area.

The ISMP is to be consistent with the City's Sustainability Charter, Official Community Plan, Biodiversity Conservation Strategy, and Climate Adaptation Strategy. The Sustainability Charter is an overarching policy document that guides the City's approach to social, cultural, environmental, and economic sustainability. Recommendations from the ISMP must be evaluated in the context of the policies in the Charter. Similarly, the plan needs to be consistent with the recommendations of the other plans noted above. These are key City strategies that form the basis of decision making.

At the end of Stage 2, the Consultant is to present the collected information and gather feedback for the ultimate vision of the watershed. It is essential that regulatory agencies are satisfied with the future watershed goals and objectives. Through the strategy developed in Stage 1, public consultation may be needed at this point in the project.

Deliverables for Stage 2 include but are not limited to:

- Summary clearly describing the ultimate vision for the Sam Hill Creek ISMP study area including goals for identified watercourses, environmental corridors, habitat, and land-use. This vision is to be endorsed by stakeholders.
- Series of maps and figures showing watercourses, wildlife corridors, environmental features, land use, and areas of opportunity and constraints in order to:
 - Update the City's existing aquatic/fisheries resources inventory and watercourse classification map, and compile a broad-based terrestrial resources inventory database, including a description of ecological features and functions;
 - Identify, map and assess tree stands and specimens that have the potential for preservation and establish canopy cover targets for different land uses;
 - Determine environmental conservation and management opportunities, including parkland acquisition strategy for the City grounded on Biodiversity Conservation objectives and City Parkland strategies as an Appendix to the Environmental Study.
- Figures comparing existing and future conditions of the watershed.
- Summary of all ultimate condition hydrological and hydraulic modeling analyses.
- Continuation of the public consultation strategy.
- Consultant will review and refine goals based on feedback from the public consultation process.

Stage 3: “How Do We Put This Into Action?” - *Implementation Plan, Funding Strategies, and Enforcement Strategies*

The Consultant will develop an implementation plan to achieve the ultimate watershed vision detailed in Stage 2. An objective of the implementation plan is to integrate concepts of the Sustainability Charter such as low impact developments (LIDs) and best management practices (BMPs) into the ISMP. The plan is to incorporate these sustainable concepts into all future developments within the Sam Hill Creek study area. The goal of the ISMP implementation plan is to prevent future problems through proactive actions such as reducing runoff volume, decreasing stream velocity, maintaining summer base flows, and providing source controls. A cost analysis is necessary to ensure cost-effective solutions are recommended.

In developing the implementation plan, the Consultant is to review the City's Design Criteria and evaluate its applicability to the Sam Hill Creek study area. Achieving long-term goals of the watershed is beyond the mandate of the City's Design Criteria; therefore, the ISMP needs to evaluate which criteria are suited for the Sam Hill Creek study area and which need to be revised or reconsidered.

In addition, the Consultant is to develop an approval procedure and a funding strategy. The approval procedure will advise the City on administrative processes, departmental responsibilities, and design criteria to implement the ISMP.

To finance the implementation plan, the Consultant will identify appropriate funding sources which may include development cost charges, area levies, or a combination of funding strategies.

An enforcement strategy is required as part of the implementation plan. The City currently has many bylaws and policies to protect watershed health; however, to achieve the goals of the ISMP, more or new types of enforcement may be needed. Surrey's Stormwater Drainage Regulation and Charges By-law No. 16610 enables the enforcement of on-site stormwater management requirements where they are prescribed in a Council approved neighbourhood plan. Any such requirements arising from this ISMP must be highlighted for approval by Council.

Deliverables for Stage 3 include but are not limited to:

- Detailed implementation plan with action items prioritized on a relative time scale. An example would be implementation within the next 5, 10, or 25 years, with consideration to the City's 10-year plan.
- Summary of requirements for future developments and re-developments. This will include recommendations for the City's Design Criteria and its applicability to the watershed.
- Annotated maps, plans, charts, illustrations, photographs, indicating areas where mitigation, improvements, or upgrades are needed, to be included in the draft and final reports as required, to describe and provide the rationale for the recommendations. The digital version will also include mapping and graphics in ArcGIS compatible format (i.e. map layer and geo-processing packages), so that the data can be used in the City's ArcGIS system.
- Summary of sustainable concepts to be implemented and how each relates to the City's Sustainability Charter.
- Cost analysis of items to be implemented.
- Procedure outlining administrative processes, departmental responsibilities and design criteria.
- Funding strategy.
- Enforcement strategy.
- Continuation and completion of the public consultation strategy.

Stage 4: "How Do We Stay on Target?" - *Monitoring and Assessment Plan*

The Consultant will provide a monitoring and assessment plan to evaluate the progress of the implementation plan based on the recommendations from the Monitoring and Adaptive Management Framework created by Metro Vancouver. The monitoring and assessment plan will identify key performance indicators and quantitative and qualitative analyses to determine areas of progressive success and failure. The implementation plan from Stage 3 is an adaptive process where results from the monitoring and assessment plan are used to modify the implementation plan in order to accomplish the long-term goals of the watershed. The recommended monitoring plan should consider value for the data gathered as monitoring can be very expensive.

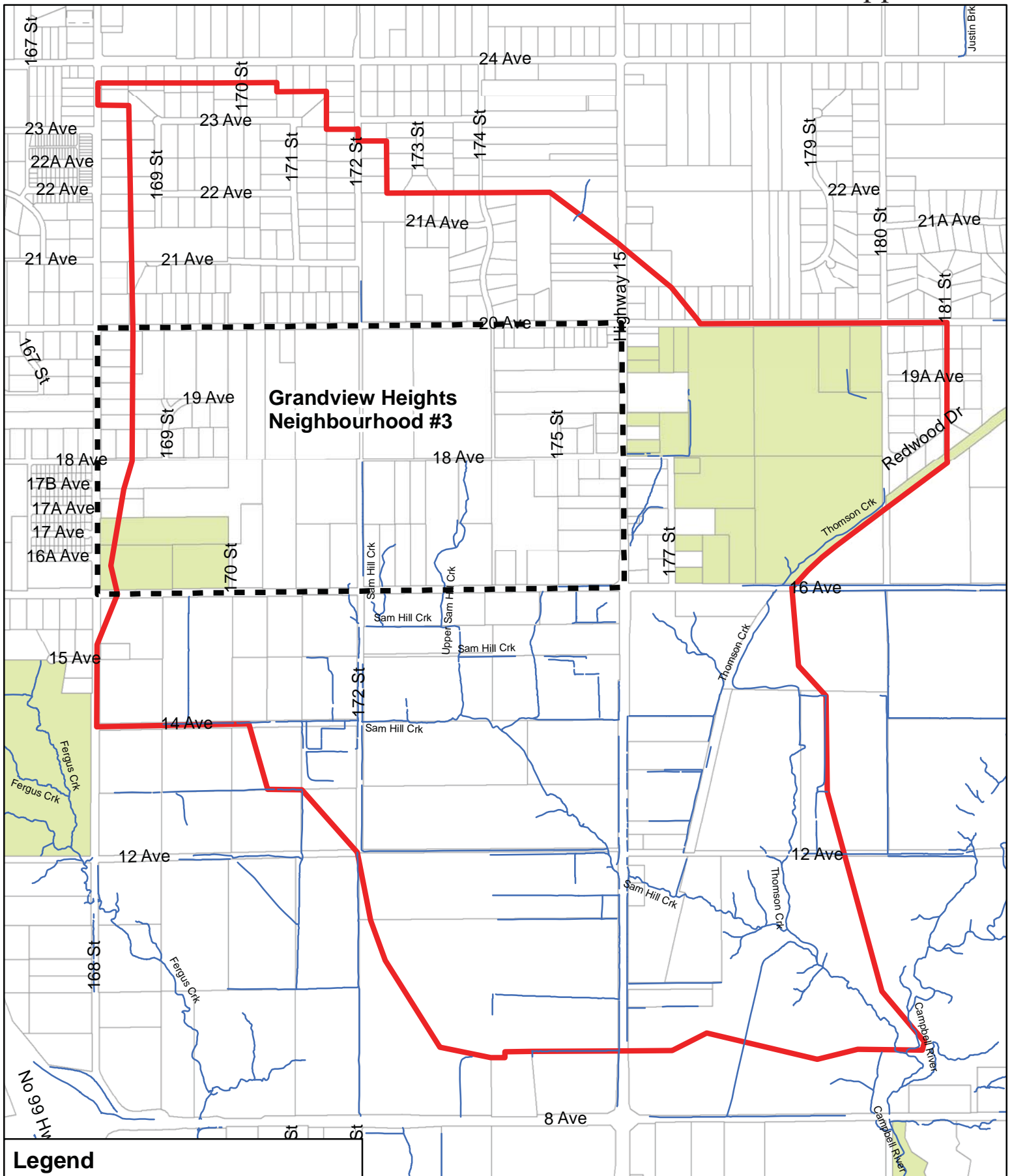
Deliverables for Stage 4 will include but are not limited to:

- Strategic plan for monitoring and assessment including explanations for why certain data needs to be monitored and how to interpret the collected data.





- Summary of key performance indicators (KPIs), both qualitative and quantitative.
- Summary of the type, duration, and frequency of monitoring associated with each KPI.

4. **Background Information**

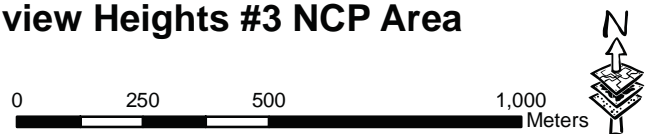
- City of Surrey's Official Community Plan
- City of Surrey's 10-Year Servicing Plan
- City of Surrey Stream Protection Regulations, Surrey Zoning Bylaw
- General Land Use Plans including Grandview Heights General Land Use Plan, 2005
- City of Surrey's Climate Adaptation Strategy
- Sustainability Charter – A Commitment to Sustainability, 2008
- Hazard Lands Development Permit Guidelines
- Sensitive Ecosystems Development Permit Guidelines
- Biodiversity Conservation Strategy by Diamond Head Consulting Ltd.
- Ecosystem Management Study (April 2011), HB Lanarc and Raincoast Environmental Consulting Ltd.
- City of Surrey by-laws including but not limited to the Stormwater Drainage Regulation and Charges By-Law #16610, the Erosion and Sedimentation Control By-Law #16138, and the Zoning By-law #12000.
- Little Campbell River Integrated Stormwater Scoping Study (March 2011), Kerr Wood Leidal Associates Limited.
- 2016 Design Criteria Manual
- Monitoring and Adaptive Management Framework for Stormwater. September 2014. Metro Vancouver
- Grandview Heights GLUP Overview Environmental Assessment



Legend

-  Grandview Heights Neighbourhood #3
-  Sam Hill Creek Watershed
-  Streams
-  Park

Map of Sam Hill Creek Watershed and Grandview Heights #3 NCP Area



Appendix "III"

Map of Grandview Heights NCP #3 Area

