

7 Assessment of Potential Effects

7.1 Environmental and Socio-Economic Setting

7.1.1 Introduction

This section of the Environmental and Socio-economic Review (ESR) for the Surrey Newton-Guildford Light Rail Transit (LRT) (the Project) describes the Project's environmental and socio-economic setting. The setting is informed by the Project's geographical location, biophysical features, built environment, and land use and is based on a comprehensive review of existing information and Project-specific field surveys. The Project's setting was used to establish the context for predictions of project-related effects on Environmental and Socio-economic Review Elements and mitigation measures to limit or avoid these effects.

7.1.2 Geographical Setting

The Project is located in the South of Fraser sub-region of Metro Vancouver (Figure 2-1 in Section 2.0) and is entirely within the City of Surrey (Surrey), British Columbia (BC). Metro Vancouver is in southwestern BC on the north Pacific coast of North America; it is bordered by the Coast Mountains to the north, the Fraser Valley to the east, Washington State to the south, and the Pacific Ocean to the west. Much of Metro Vancouver is located on the Fraser River Delta, which is formed by the Fraser River.

The Project is located on lands within the Tsawwassen First Nation territory and is also within, or in proximity to, the boundaries of the traditional territories of the Katzie First Nation, Kwantlen First Nation, Kwikwetlem First Nation, and Semiahmoo First Nation, and the consultation boundaries for the Musqueam Indian Band.

7.1.3 Biophysical Setting

The northern portion of the Project is located within the dry maritime subzone (CWHdm) of the Coastal Western Hemlock (CWH) biogeoclimatic zone, which extends in a narrow strip along the Lower Fraser Valley (Figure 2 in the Vegetation and Wildlife Resources Technical Data Report). The southern portion of the Project lies within the eastern very dry maritime (CWHxm1) variant of the CWH biogeoclimatic zone (Green and Klinka 1994). The CWHdm is in the Lower Mainland between sea level and an approximate elevation of 650 m and is characterized by warm, dry summers and mild winters with low snowfall (Green and Klinka 1994). Common tree species in the CWHdm are Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*) (Green and Klinka 1994). The climate in the CWHxm1 is slightly drier and has fewer western red cedar than the CWHdm.

The Project is within two watersheds: Bear (Mahood) Creek and Bon Accord Creek. The Project is located near and/or will cross Bear Creek, Quibble Creek and Bon Accord Creek. Bear Creek and Quibble Creek are tributaries of the Serpentine River, which discharges into Mud Bay. Bon Accord Creek originates near 104 Avenue at 142 Street in Hawthorne Park and continues north until it connects with the Fraser River. These watercourses provide habitat for fish, including Pacific salmon (*Oncorhynchus* spp.), rainbow trout (*Oncorhynchus mykiss*), and coastal cutthroat trout (*Oncorhynchus clarkii clarkii*). A detailed description of each watercourse that interacts with the Project or that is in proximity to the Project is provided in Section 7.6 (Fisheries and Aquatic Resources).

Due to the developed urban context of the Project, wildlife species that occur in the area include native wildlife species that readily habituate to urban environments and non-native and invasive species. Examples of urban wildlife include the raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and coyote (*Canis latrans*). Examples of non-native invasive species include eastern grey squirrel (*Sciurus carolinensis*), green frog (*Lithobates clamitans*), and American bullfrog (*Lithobates catesbeianus*) (ISCBC 2014). Several invasive plant and noxious weed species occur in Surrey and several occurrences were identified along the Alignment during existing data reviews and project-specific field surveys. For example, Japanese knotweed (*Fallopia japonica*), a noxious weed, is known to occur near the Alignment. Policeman's helmet (*Impatiens glandulifera*) and common tansy (*Tanacetum vulgare*), both invasive species, were identified in Bear Creek Park during Project-specific field surveys. Additional detail is provided in Section 7.7 (Vegetation and Wildlife Resources).

There is potential for wildlife and plant species at risk to occur along the Alignment, such as northern red-legged frog (*Rana aurora*), great blue heron (*Ardea herodias*), Pacific water shrew (*Sorex bendirii*) and Oregon forestsnail (*Allogona townsendiana*). A comprehensive list of species at risk with potential to occur near the Project is provided in Section 7.7 (Vegetation and Wildlife Resources).

7.1.4 Socio-economic Setting

Surrey is the largest municipality based on area (317 km²) in the Metro Vancouver Regional District and has the second largest population size. The Alignment will run north-south through the communities of Surrey City Centre, Whalley, and Newton along King George Boulevard, and east-west through the communities of Surrey City Centre, Whalley, and Guildford along 104 Avenue (Figure 2-2 in Section 2.0). Surrey City Centre is one of the City's downtown core areas and includes the City Hall, Civic Plaza, Simon Fraser University (SFU), major shopping and business centers, and is well-connected to other municipalities through TransLink's SkyTrain Expo Line. Whalley is one of City's historic communities and is a busy commercial and residential center. Newton is known as a culturally diverse community and houses the Bell Centre for Performing Arts and the Newton Cultural Centre. Guildford is comprised of residential and business areas that are conveniently located close to the Trans-Canada Highway. Guildford also includes two regional parks: Tynehead Regional Park and Surrey Bend Regional Park. The Project will connect with the Surrey Central SkyTrain station and TransLink's existing SkyTrain Expo Line, as well as exiting bus, cycling, and pedestrian routes.

Current land use along the Alignment includes a mixture of commercial, industrial, and residential zoning. Surrey is the fastest growing municipality in BC and Metro Vancouver. In anticipation of the expansion of the existing rapid transit network, Surrey has set an objective to increase development densities in Surrey City Centre, Guildford Town Centre and Newton Town Centre (City of Surrey 2014b). Land use planning for 104 Avenue and King George Boulevard is centered on supporting multi-modal street design and growing transit-oriented communities. Plans include encouraging growth around light rail transit (LRT) stops, increasing higher density developments along the Project Alignment, and developing Surrey City Centre to be the primary business, cultural, and activity center for Surrey and the South of Fraser sub-region. In February 2017, Surrey City Council endorsed a vision for the Project that “Street-oriented LRT will transform Surrey into connected, complete and livable communities, making the City (Surrey) and region more vibrant, accessible, competitive and sustainable.”

The Project is adjacent to the Surrey Memorial Hospital, which is the second largest hospital in BC (Surrey Hospital & Outpatient Centre Foundation 2016). Within the communities of Newton, Guildford, Whalley, and Surrey City Centre, there are five public schools, two of which are directly adjacent to the Alignment (Hjorth Elementary and Queen Elizabeth Secondary). Simon Fraser University’s Surrey campus is located in Surrey City Centre and other post-secondary institutions in close proximity to the Project include a campus of Kwantlen Polytechnic University.

The Alignment along 104 Avenue is adjacent to Hjorth Road Park and Hawthorne Park. Along King George Boulevard, the Alignment is adjacent to Holland Park, Bear Creek Park, and Quibble Creek Greenway. These four parks and one greenway are considered in the City’s Biodiversity Conservation Strategy and are part of the City’s Green Infrastructure Network (City of Surrey 2014a).

Retail centers along the Alignment include Central City Mall, Guildford Town Centre, and Newton Town Centre, which all provide residents with access to grocery stores, banks, gyms, restaurants, and professional services. There are several large-scale retail properties and mixed-used developments along 104 Avenue and a mix of low- and high-rise commercial buildings, motels, and residential developments along King George Boulevard. Economic growth in Surrey is demonstrated, in part, by an increase in the value of commercial, institutional, and government building permits. Additional details about the community and services surrounding the Project are provided in Section 7.4 (Community and Emergency Services).

Accidents and Malfunctions will be addressed in Section 8.

In summary, the Alignment is in a regional rapid transit corridor that will connect the communities of Newton, Whalley, Guildford, and Surrey City Centre with more sustainable public transportation options. With parks, healthcare facilities, educational institutions, and retail centers situated along the Alignment, the Project will service the needs of this growing population, institutions and businesses.

7.1.5 References

City of Surrey. 2014a. Biodiversity Conservation Strategy. Available at: <http://www.surrey.ca/city-services/11565.aspx>. Accessed: November 2017.

City of Surrey. 2014b. PlanSurrey 2013: Official Community Plan. Available at: http://www.surrey.ca/bylawsandcouncillibrary/BYL_OCP_18020.pdf. Accessed March 2018.

Green, R. N. and Klinka, K. 1994. Land Management Handbook Number 28: A field guide to site identification and interpretation for the Vancouver Forest Region. Ministry of Forests Research Program.

ISCBC (Invasive Species Council of BC). 2014. Invasive Species Council of BC. Available at: <http://bcinvasives.ca/>. Accessed: January 2018.

Surrey Hospital & Outpatient Centre Foundation. 2016. Surrey Memorial Hospital. Available at: <https://championsforcare.com/about/surrey-memorial-hospital/>. Accessed: December 2017.