

RDOS

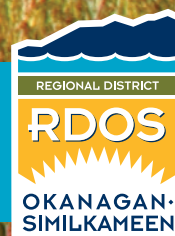
Electoral Area “E”

Official Community Plan Review



INFRASTRUCTURE REVIEW

2022



SUBMITTED BY: EcoPlan International Inc. • 131 Water St. • Vancouver, BC

Photo CCby Andrew Rusk

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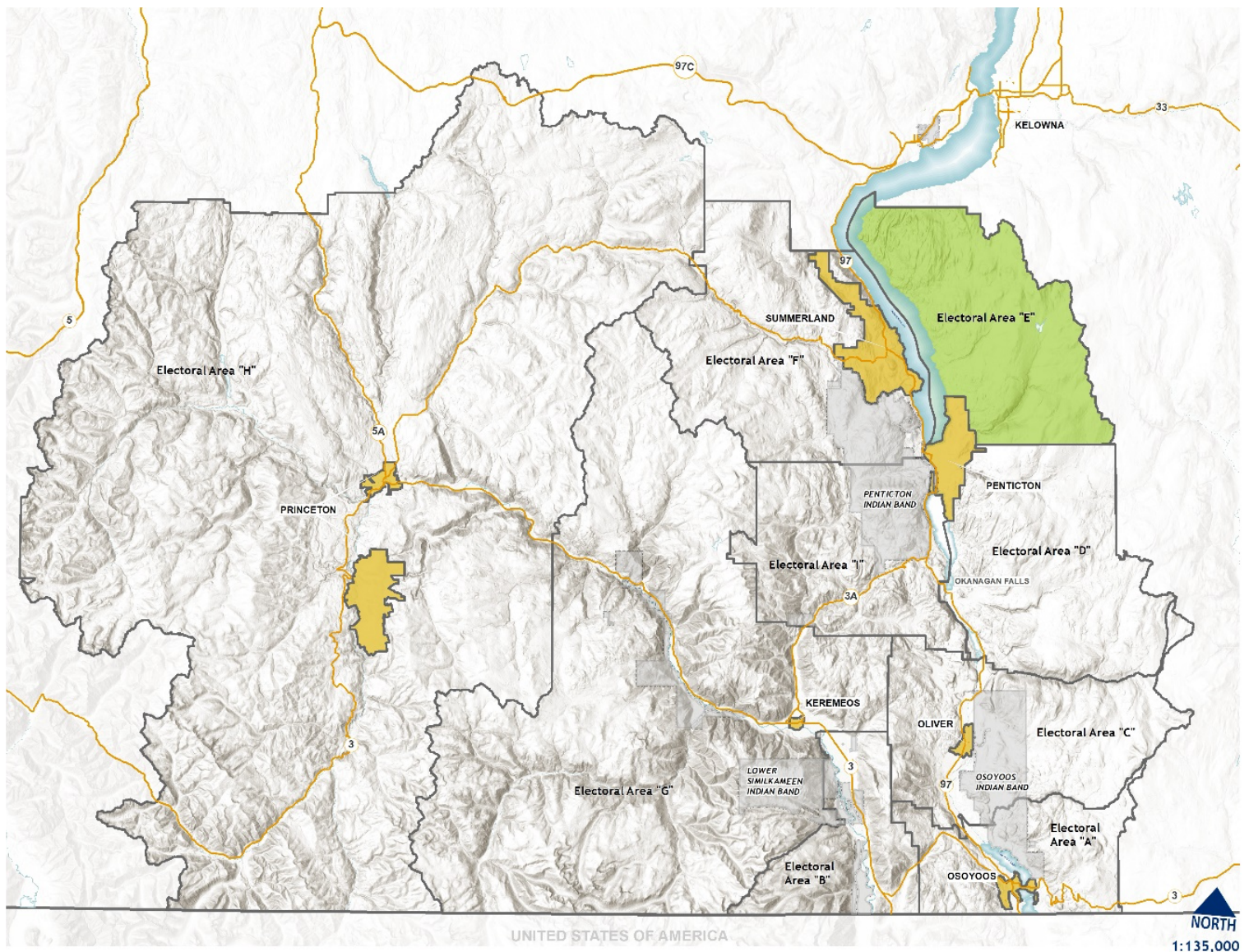
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1.0. Introduction

1.1 Description of Electoral Area "E"

Electoral Area "E," or rural Naramata, is located within the Regional District of the Okanagan-Similkameen (RDOS) on the eastern shore of Okanagan Lake and is bordered by the City of Penticton to the south and the Okanagan Mountain Provincial Park to the north. The Naramata village is 16 km from downtown Penticton. The main transportation artery throughout the Electoral Area is Naramata Road. Electoral Area "E" is 542.4 km², which is 5.1% of the total area of the RDOS (see Map 1).

In 2016, the population of Electoral Area "E" was 2,015, composing 2.2% of the entire population of the RDOS. The majority of the population resides within Naramata village.



Map 1. Electoral Area "E."

1.2 Purpose of this report

The intent of the Electoral Area “E” Infrastructure Review report is to support the Electoral Area “E” Official Community Plan Review process. This document was compiled as a desktop review and scan of currently available information and informed by staff follow-up. Other reports synthesized in this report include:

- The current Electoral Area “E” Official Community Plan
- Naramata Water System Brochure
- Naramata Water Conservation Plan 2010
- 2020 Annual Water Quality Report
- 2017 Naramata Water System Rehabilitation Project
- Naramata Water System Local Service Establishment Bylaw No. 1620, 1995
- Naramata Water System Development Cost Charge Bylaw No. 1804, 1997
- Water Use Regulation Bylaw No. 2824, 2019
- Cross Connection Control Bylaw No. 2851, 2020
- 2012 Solid Waste Management Plan
- Solid Waste Administered Landfills Regulatory Bylaw No. 2925, 2021
- Solid Waste Collection and Drop-off Service Regulation Bylaw No. 2819, 2018
- 2010 Regional Organic Waste Management Study
- Tetra Tech EBA Organic Management Consultant Task 2 – Feasibility Assessment 2015
- Tetra Tech EBA Organic Management Consultant Task 3 – Odour Mapping 2015
- 2021 Naramata Liquid Waste Management Plan (*in progress*)
- Naramata Streetlighting Local Service Establishment Bylaw No. 1618, 1995
- BC Transit Route 10 Naramata/Penticton
- Naramata Transit Service Operating Agreement Bylaw No.1904, 1999

The document provides a snapshot and review of the existing infrastructure in Electoral Area “E” with considerations for the upcoming OCP review and update.

2.0. Water

The Naramata Water System Local Service was established in 1995, following the dissolution of the original 1921 Naramata Irrigation District (NID). The Regional District administers the Naramata water system. Due to the age and sizing of the water pipes, the system requires upgrades (e.g., larger pipes) to meet contemporary and future demand. The water system has Okanagan Lake as the primary source with two backup sources in case of emergency: Robinson Creek and Naramata Creek. Properties outside the Naramata water system service area are primarily supplied by private groundwater wells or surface water licensing. The Naramata water service area, connections, and wells are shown in Map 2.

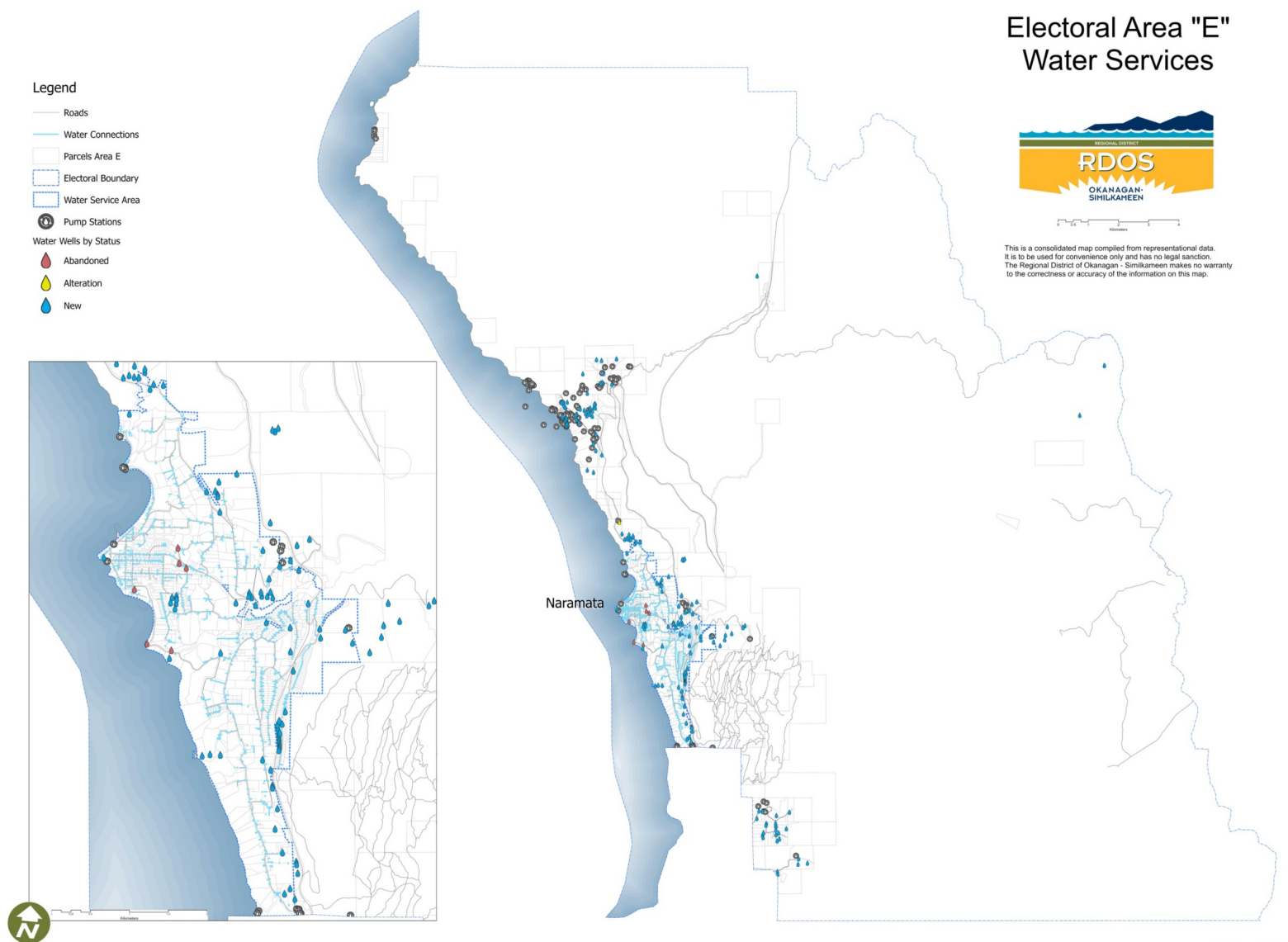
2.1 Water Use

The historic Naramata Irrigation District water system was primarily designed for irrigation and domestic water demands. Today the Naramata water system also has commercial fire flow (protection) demands and must meet various water quality standards.

Since Naramata is predominantly composed of farming-based land use, the peak water demand occurs during the summer months, with around 85% going to agricultural lands. The daily treated water volumes peak during the irrigation season in July and August, averaging $13,300 \text{ m}^3/\text{d} = 13.3 \text{ ML}/\text{D}$. Heightened water use during the irrigation season is augmented by unmetered dwellings, seasonal homes, vacation rentals, swimming pools, and visitors not familiar with water conservation practices. The agricultural Irrigation services are turned off during the fall and winter months. During the winter months, the daily treated water volumes average around $830 \text{ m}^3/\text{d} = 0.83 \text{ ML}/\text{D}$. RDOS water licences held in the Okanagan Basin are shown in Table 1.

Table 1: RDOS water licences held in the Okanagan Basin (2010)

	Storage ML	Water works ML/year	Irrigation ML/year
<i>Upland licences</i>	2405	185	8366
<i>Okanagan Lake licences</i>	0	2064	247
TOTAL WATER LICENCING	2405	2249	8613



Map 2. Electoral Area "E" Water Service Area, connections, and wells.

2.2 Water treatment and distribution

In 2007, Naramata opened an ultraviolet water treatment plant, with Okanagan Lake as the primary water source (known as a surface water source). The source water undergoes Ultraviolet (UV) light treatment to neutralize waterborne pathogens. It is then chlorinated using sodium hypochlorite as the second level of disinfection and to maintain protection within the distribution system.

Treated water is pumped through the distribution system and into elevated storage reservoirs. The distribution system has approximately 49 km of piping, with approximately 56% of the pipes over 50 years old. The prevalent pipe materials are Asbestos Cement (AC) and Poly Vinyl Chloride (PVC), constituting 61% and 31% of the total length, respectively. Capital plans for the replacement of the older and undersized pipes are underway.

Some of the main infrastructure components of the water system include:

- Okanagan Lake water intake and pump station on First Street
- Water Treatment Plant and reservoir on McKay Avenue
- Three other reservoirs in various locations: Juniper reservoir and pump station, Arawana Reservoir and Stonebrook Reservoir
- Emergency Intakes on Naramata Creek and Robinson Creek

Deficiencies of the Naramata water system include:

- No Source Water Protection Plan with control mechanisms to preserve water quality at the intake (see section 2.5)
- Inadequate water supply and pressure in Smethurst area

Key challenges facing the Naramata water system include:

- Chlorine residual becoming too low in the water system due to:
 - Seasonal issues – reduction in irrigation demand for some areas
 - Low use areas – increasing summer homes reduce the year-round demand on various areas
 - Areas with non-looped¹ mains – requires frequent flushing to ensure a chlorine residual is maintained
- Aging infrastructure which needs replacing
- Preparing for future water quality requirements
- Issues specific to the North Zone along North Naramata Road:
- Increasing demands for fire flow with additional development
 - Lower pressures
 - Seasonal fluctuations
 - Long mains without looping

In 2019, the RDOS adopted a new Water Use Regulation bylaw that outlines the terms and conditions under which water may be supplied and used for residential, commercial, industrial, or agricultural purposes in the Naramata water service area. This includes a requirement for a water meter pit, water meter, backflow preventer and any other equipment reasonably required to provide the water services. The bylaw also outlines conservation and drought condition water restrictions stages for residential, commercial, utility works, and agricultural uses.

¹ A looped water distribution system has a complete loop of large-diameter mains around the service area, allowing water to flow in more than one direction. This ensures good flow and pressure throughout the system. Non-looped systems may have dead ends, increasing the possibility for stagnation.

2.3 Additions to the Naramata Water Service Area

Over the years, the Naramata water system has expanded by property owners petitioning into the serviced area. Land use bylaw amendments also place demands for the community water system expansion. Staff determine if the water system has capacity prior to the Regional District Board approval. Typically, petitions are from the peripheral edges of the service area, which often result in capacity issues for meeting domestic and fire flow demands.

Any potential expansions of the Naramata water system to meet new pressure and capacity demands in the northern area of Naramata will require a new reservoir and booster pump(s). The water system may not be able to provide adequate pressure to some multi-storey buildings depending on their location (e.g., distance from and elevation relative to the pump station) without significant upgrades to the water system. The Regional District is currently using water modelling software to complete analysis to determine what existing pressures and flows are available and how to address any deficiencies.

Upgrades to the water system for capacity deficiencies are the responsibility of the petitioning property(s). Developers must follow the policies set by the Regional Board and are responsible for resolving capacity deficiencies as part of land use amendments.

The RDOS has two existing Development Cost Charge (DCC) bylaws: the original NID bylaw (Cost Expenditure Charge, CEC) and the RDOS DCC. These bylaws will need to be reviewed and revised based on the revised OCP and capital works review (e.g., the cost per dwelling to enter the water service area considering the current cost of installation and maintenance).

2.4 Cross-connections

Cross-connections² between the supplied treated water and potential contamination are a big concern for the Naramata water system and water quality. The Cross-Connection Control (CCC) program is one aspect of the water system that utilizes backflow prevention equipment and other techniques to reduce the risk of a contaminant entering the water system. A bylaw has been put in place, and the program is being developed for implementation in the community.

2.5 Source Water Protection

Historically, surface water sources such as Okanagan Lake have encountered many factors within their watersheds that can negatively impact the source water quality. Some examples include logging, agricultural practices, cattle grazing, storm run-off, septic systems and treated wastewater discharges. Other factors that are becoming more prevalent in recent years are extreme weather events, wildfires, and recreational activities. The RDOS is producing a Source Water Protection Plan (SWPP) that will evaluate the source water quality and identify hazards (natural and man-induced) to the water source. The SWPP will make recommendations on

² A cross-connection, as defined by the American Water Works Agency is "a connection or a potential connection between any part of a potable water system and any other environment containing other substances in a manner that, under any circumstances, would allow such substances to enter the potable water system.

protecting the water quality and prescribe mitigations to help reduce any risks identified. Completing these documents is part of Provincial regulations and is a requirement of the Permit-to-Operate issued for the Naramata water system by the Interior Health Authority (IHA).

3.0. Sewer/Septic

The current regional Liquid Waste Management Plan (LWMP) adopted in April 1994 supports on-site (individual) septic systems as the primary choice of sewerage control. Today, the majority of residents use on-site septic tank systems for their wastewater management, while a few newer developments have constructed community sewage treatment facilities that are owned and operated by private corporations.

There are two existing private community sanitary systems with treatment that serve multi-lot developments in the bench area above the Naramata village. Each is privately operated and is under the Ministry of Environment authority. There are also some small individual developments or stratas with small treatment facilities throughout Naramata.

The RDOS has commonly acquired systems once they are in disrepair or no longer meet legislated standards. Staff anticipate that the RDOS will eventually acquire the private sanitary systems, which may not meet the RDOS standards and therefore require significant upgrades. As such, RDOS staff generally do not support the development of private community sanitary systems.

Currently, the RDOS is developing an updated LWMP focusing on the village area of Naramata. The main goals of the updated plan are:

- Create a publicly supported plan
- Determine the most cost-effective method of wastewater management
- Protection of health and environment
- Conservation of water and energy
- Limit Greenhouse Gas (GHG) emissions
- Support water quality of Okanagan Lake and area creeks

As part of the LWMP, the RDOS is considering the potential to develop a new community sanitary sewer system and treatment facility in Naramata village. This LWMP is currently in stage 1 (high-level inventory, an early phase of investigation) in a three-stage process.

5.0. Utility Services

Utility services, including electrical, gas, and telecommunications, are vital services to a community. While the RDOS is not the provider of these utility services, the Regional District supports working with utility providers to ensure residents in Electoral Area “E” have access to the best possible service. Existing electrical, gas, and telecommunication pipes and transmission lines are shown in Map 3.

Electricity and gas in Electoral Area “E” are provided throughout the area by FortisBC. Originally, electricity was supplied by a single radial 63 kV line from Penticton. The demand for load in Naramata exceeded the capacity of the substation on North Naramata Road near Smethurst, so another was built at Lower Debeck and Naramata Roads (adjacent to the Naramata Fire Hall) to improve reliability in the area. The transmission lines typically align with the KVR Trail.

Telecommunications infrastructure is built and maintained by private service providers, including Rogers and TELUS. Access to telecommunications services is becoming increasingly more important for residents as technologies transform the way people communicate, work, and play.

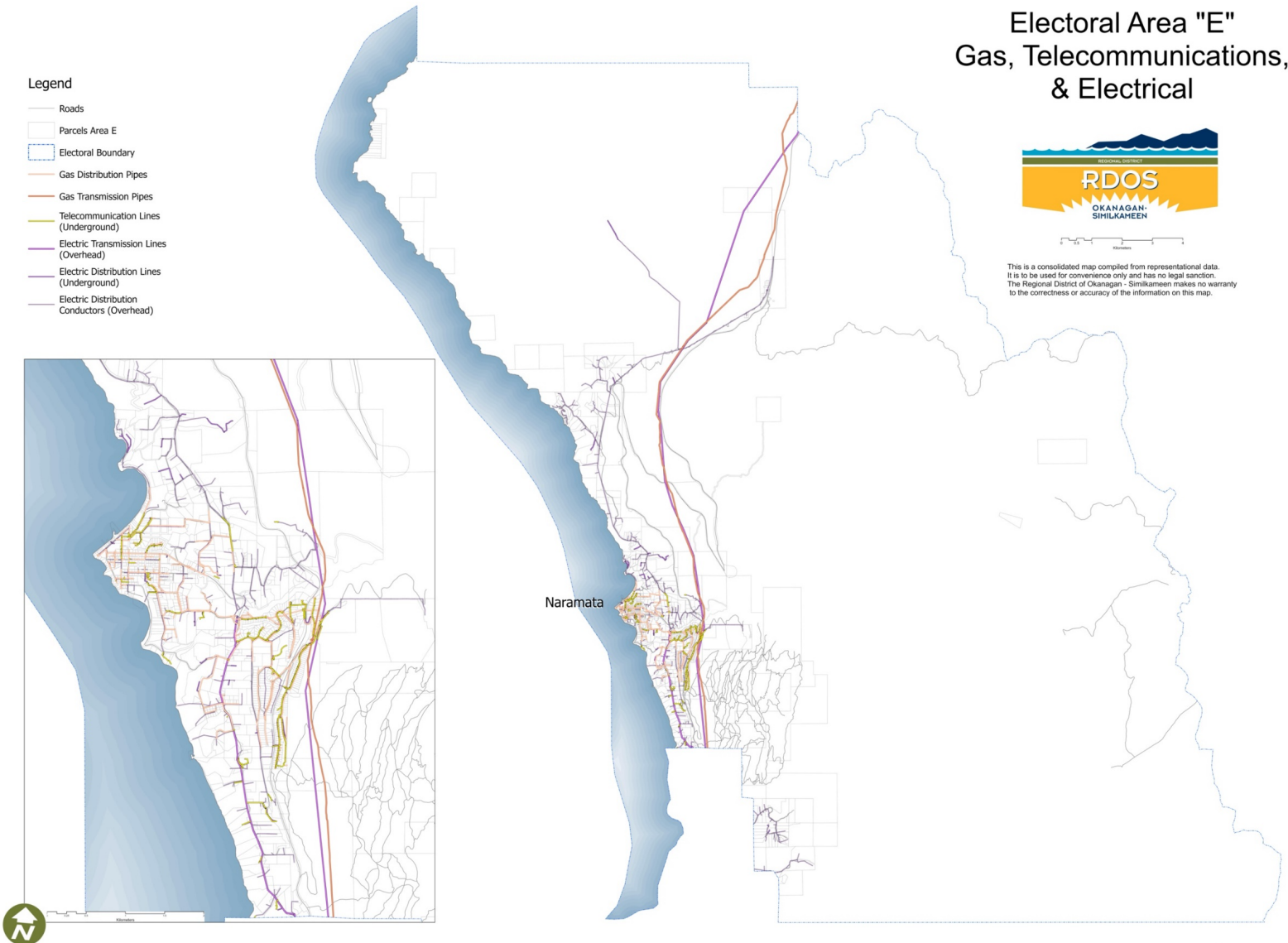
Currently, internet and cell service in Electoral Area “E” may be unreliable in some locations, and TELUS has received complaints from community members about poor wireless service. To date, none of TELUS’ proposals to build or upgrade towers to improve service have been approved by the RDOS Board of Directors. Solutions to improve telecommunications service in rural Naramata will also need to balance other values, including tourism, property values, unobstructed views, and resident health and safety.

Electoral Area "E" Gas, Telecommunications, & Electrical



This is a consolidated map compiled from representational data.
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The Regional District of Okanagan - Similkameen makes no warranty
to the correctness or accuracy of the information on this map.

- Legend**
- Roads
 - Parcels Area E
 - Electoral Boundary
 - Gas Distribution Pipes
 - Gas Transmission Pipes
 - Telecommunication Lines (Underground)
 - Electric Transmission Lines (Overhead)
 - Electric Distribution Lines (Underground)
 - Electric Distribution Conductors (Overhead)



Map 3. Electoral Area "E" infrastructure, gas, telecommunications, and electrical lines.

Date: January 28, 2021

6.0. Solid Waste Management (Service)

In September of 2012, the Regional District Board adopted a Solid Waste Management Plan, which specifies how the Regional District will manage solid waste in order to achieve a waste diversion rate of 73% versus the diversion rate of 51% recorded in 2009. This Regional Solid Waste Management Plan is a long-term vision for solid waste management in the RDOS. When adopted in 2012, the plan objectives were to:

- Maximize the diversion of organic waste from landfilling or burning through increasing composting;
- Increase recycling levels at multi-family residences and workplaces;
- Increase the reuse and recycling of construction, demolition and renovation waste; and
- Achieve these goals in a financially sustainable manner.

5.1 Curbside Collection Program

The RDOS Curbside Recycling and Garbage Collection program is a mandatory service for the majority of rural residences in all Electoral Areas. Not all roads in Electoral Area “E” have been designed to support access to curbside collection. The service consists of four main programs:

- Weekly garbage collection;
- Every other week recycling collection;
- Seasonal yard waste pickups; and
- Yearly pickup of two large items.

There are currently no provisions for businesses and multi-family dwellings that have a need for greater garbage and recycling curbside collection. New developments are required to have adequate road turn-around space for waste pick-up trucks and storage areas for the appropriate collection bins.

5.2 Campbell Mountain Landfill

Electoral Area “E” is part of the Campbell Mountain Landfill service area. Curbside material is transported directly to the Campbell Mountain site. Locals can also use the local waste management site for self-haul. The site is managed under a lease held by the RDOS from the City of Penticton, the property owners. The facility accepts many types of refuse, including municipal solid waste, recyclable materials and household hazardous waste. Soil remediation is carried out on-site for contaminated, but not hazardous, soil, which can be rehabilitated to an Urban Park standard.

The Campbell Mountain Landfill is located within the City of Penticton at 1765 Reservoir Rd, bordering Electoral Area “E.” The BC Landfill Criteria for Municipal Solid Waste requires a 500m buffer for sensitive land uses around the landfill. Sensitive land uses include but are not limited to: residents, schools, hotels, restaurants, cemeteries, food processing facilities, churches and parks.

5.3 Bear Smart Program

In 2014, Naramata was the 7th community in BC to achieve Bear Smart Status. The Bear Smart Community program has been designed by the Ministry of Environment and Climate Change Strategy in partnership with the British Columbia Conservation Foundation and the Union of British Columbia Municipalities. It is a voluntary, preventative conservation measure that encourages communities, businesses and individuals to work together. This program is based on six criteria that communities must achieve in order to be recognized as being "Bear Smart," including:

1. Prepare a bear hazard assessment.
2. Prepare a bear/human conflict management plan.
3. Revise planning and decision-making documents.
4. Implement a continuing education program.
5. Develop and maintain a bear-proof waste management system.
6. Implement Bear Smart by-laws.

5.4 Compost Facility

Currently, there is a composting facility at Campbell Mountain Landfill managed by the City of Penticton. The facility composts biosolids from the City's wastewater treatment plant. This facility will be relocated and upgraded soon, as it currently does not meet provincial regulations.

The RDOS is currently working towards building a compost facility on the adjacent parcel east of the landfill at 1313 Greyback Mountain Road, located in Electoral Area "E." The RDOS is looking to partner with the City of Penticton to build a facility that can compost the wastewater solids as well as food and yard waste organics. The facility will accommodate up to 35,000 tonnes of organic materials per year and include odour controls and impervious surfaces to collect and contain any generated leachate from the processes.

The RDOS promotes composting at home. All landfills in the RDOS accept up to 500 kg per load of yard waste free of charge for self-haul.

7.0. Street lighting

The Naramata street lighting service area was transferred to the RDOS with the dissolution of NID at the same time as the water system. At the time, the service areas of the street lighting and the water were the same. Electric lighting in Electoral Area “E” remains within the water service area boundary, as shown in Map 4.

Most of the street lighting inventory are davit arm with cobra head fixtures attached to power poles. Some recent subdivision developments have “stand-alone” poles with more ornamental style fixtures. The street lighting service is administered through the RDOS while FortisBC owns, operates and maintains the street lighting.

Dark-sky friendly street lighting tends to be the preference by residents in Electoral Area “E.” In evaluating new possible streetlights, the following *Five Principles for Responsible Outdoor Lighting Practices* may be considered:

- Useful – All (street) lighting should have a clear purpose
- Targeted – Light should be directed only to where it is needed
- Low Light Levels - Light should be no brighter than necessary
- Controlled - Light should be used only when it is useful
- Colour - Use warmer colour lights where possible

The RDOS is working with and encouraging FortisBC to change the streetlights in Electoral Area “E” to LED standards, which will be greener, more cost-effective, and better fit the dark-sky style.

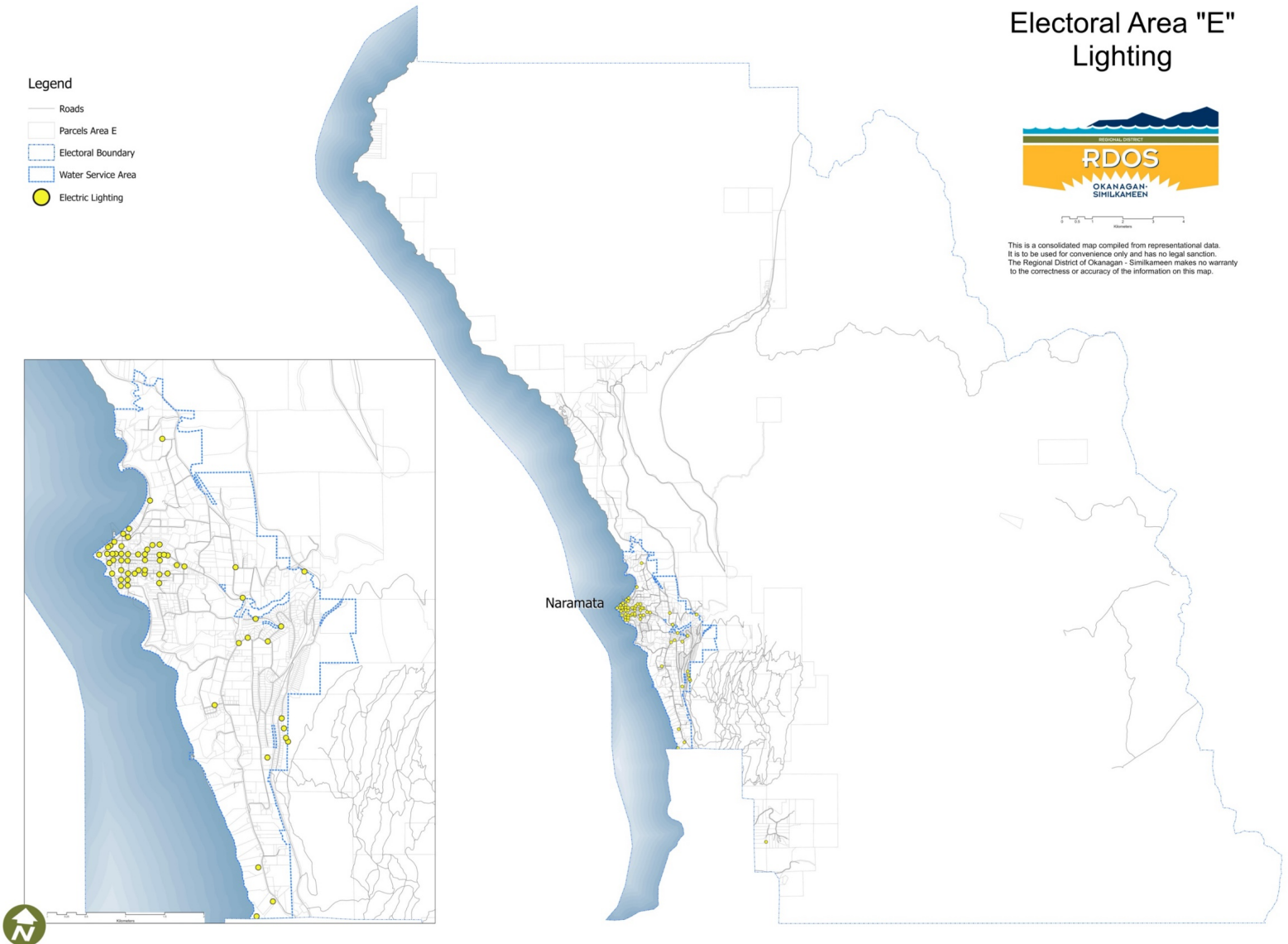
The RDOS encourages high-efficiency streetlights only in areas where there is a public safety issue or a commercial need. Lighting at intersections, blind corners, schools, parks and areas of high pedestrian traffic or safety concerns is encouraged, while lighting elsewhere is generally discouraged. New and replacement lighting installed should be the most energy-efficient lights.

Electoral Area "E" Lighting



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 - Electoral Boundary
 - Water Service Area
 - Electric Lighting

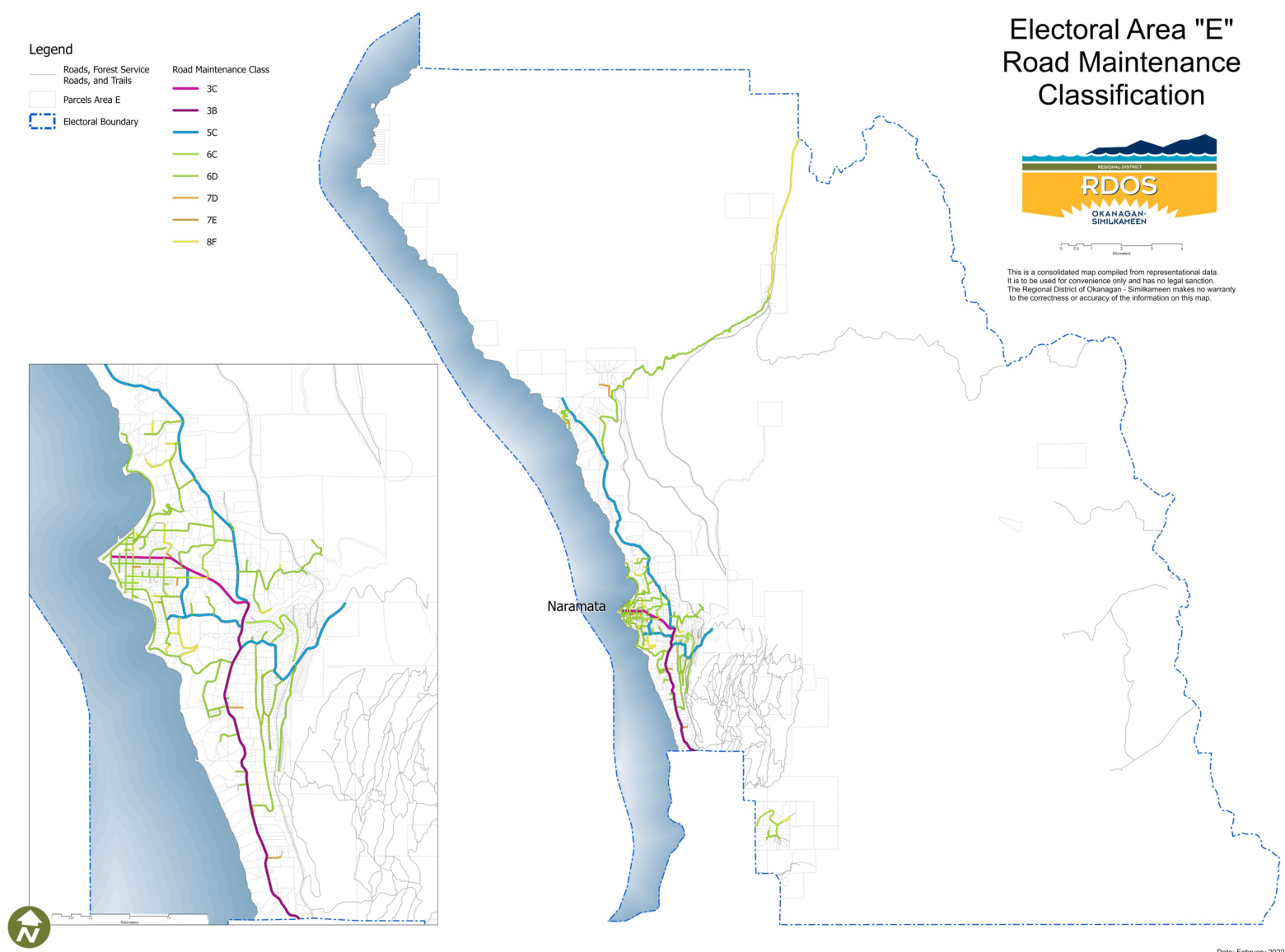


Map 4. Electoral Area "E" street lighting

Date: January 28, 2021

8.0. Transportation/Roads

Naramata Road travels north from the City of Penticton municipal boundary to Robinson Avenue and is the only developed road in or out of Electoral Area “E.” Once past the Robinson Avenue intersection, the road becomes North Naramata Road until it ends in the Indian Rock community. Residents in the Naramata village have to drive for about 20 minutes to reach Penticton, while residents further north may drive more than 30 minutes to reach city services. All Electoral Area “E” roads are shown in Map 5.



Map 5. Electoral Area “E” Roads and MoTI maintenance classifications. Note: roads, Forest Service Roads, and trails may not be maintained by MoTI.

Road construction and maintenance in Electoral Area “E” is under the authority of the Ministry of Transportation and Infrastructure (MoTI). Road maintenance is then contracted out through MoTI. The MoTI road classifications that guide maintenance are shown in Map 5 and Table 2. With the number of vehicles that use the roads each day, some roads have inadequate capacity for current uses.

Table 2: Road classifications in Electoral Area “E”

Road Classifications	km	average daily traffic	Definition
3C	1.9	1,000 - 5,000	School bus routes and industrial (truck) traffic routes (more than 25% trucks)
5C	13.5	100 – 500	School bus routes and industrial (truck) traffic routes (more than 25% trucks)
6C	8.7	10 – 100	School bus routes and industrial (truck) traffic routes (more than 25% trucks)
6D	26.0	10 – 100	Other regularly maintained winter routes
7D	11.4	0 – 10	Other regularly maintained winter routes
7E	0.1	0 – 10	Other irregularly maintained winter routes
8F	17.5	not constructed/open	Not maintained or not open in the winter, or not maintained by the Contractor

Development in Naramata is limited by the capacity of Naramata Road. This route is the only way into and out of the community, posing a risk to isolate the community if closed due to a natural disaster (landslide, wildfire, etc.). Arawana Forestry Road and Chute Lake Road could be alternate access routes/emergency access routes but are gravel, windy, and unmaintained beyond the typically used portions. Moreover, some portions of these roads are not driveable, such as a portion of Chute Lake Road northeast of Chute Lake is only a walking trail.

Naramata Road is also inundated by tourists and cyclists in the summer. Visitors to the area have many destinations such as resorts, wineries or accommodations. Cyclist use of Naramata Road is heavy due to training for cycling events and the KVR trail in the area. There are currently no bike lanes along the road to keep cyclists and motorists safe distances apart. Blind corners and increased traffic frequently cause unsafe conditions that pose safety risks.

9.0. Stormwater Management

Stormwater management along roadways is also under the authority of the MoTI as it pertains to the public road right of way. Maintenance is also contracted out to a private company by MoTI.

Adequate and reliable stormwater management within new development areas is important to consider, along with the geotechnical conditions in an area to provide safety for neighbouring areas and the road network.

10.0. Transit (Service)

Rural Naramata has a high dependency on Penticton and community hubs across the region for daily errands, groceries, work, education, medical services, pharmacies, and restaurants. The travel time may be inconvenient for many residents to access, particularly if a vehicle is unavailable to them.

The South Okanagan-Similkameen Transit Future Plan was endorsed in 2015 and guides transit in the region for the following 25 years. One BC Transit-operated route runs through Electoral Area “E,” from Penticton to Naramata on weekdays and Saturdays. A medium to long-term (6-25+ year) goal is to introduce evening service on Friday and Saturday.

The 2006 RDOS Air Quality Management Plan calls for the promotion of transportation alternatives. Some recommendations that could apply to Electoral Area “E” include:

- **Transit Schedules:** Transit Committee is encouraged to regularly review schedules to make service more convenient for riders and incorporate routes to and from significant employers.
- **Car Share Programs:** Communities should promote and provide facilities to support commuting options such as carshare, park-and-ride, carpooling and vanpooling programs.
- **Bike Paths and Trails:** RDOS and local governments should prioritize the creation of inter-municipal networks of bike paths and trails systems and encourage increased use by adding bike racks and bike lockers.
- **Telecommuting:** Encourage local government and local businesses to consider telecommuting as an option for employees.