OFF-SITE LEVY BACKGROUND REPORT

2022

Prepared for the Town of Black Diamond

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URBAN SYSTEMS

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OFF-SITE LEVIES BACKGROUND REPORT 2022

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INTRODUCTION

The Town of Black Diamond recently annexed 821 acres of land to continue to accommodate sustained growth. To support this growth, the Town continues to review and assess growth-related infrastructure needs. The Off-Site Levy Bylaw provides a key mechanism for municipalities to ensure future growth pays for infrastructure improvements required to service that growth.

The Background Report forms part of the Off-Site Levy Bylaw and provides a summary of the calculation methodology used to determine the Town's Off-Site Levy rates. The Background Report is divided into four sections:

1) **Off-Site Levy Guiding Principles**
   Articulates the Town's objectives related to the advancement of growth-related infrastructure.
2) **Growth Needs**
   Defines assumptions related to development area needs based on population and pattern of growth and references the studies completed by the Town to identify future growth-related infrastructure.
3) **Off-Site Levy Program**
   Describes what infrastructure is to be included within the off-site levy program and provides details on project costs, project timing, allocation of benefit and cost recovery methodology.
4) **Levy Calculation**
   Articulates cash flow components (inflation, carry costs, and interest earned) utilized within the off-site levy calculation and provides the resulting off-site levy rates.

The Background Report is intended to provide transparency to Council, the development industry and the public regarding future infrastructure needs along with the levy calculation and contribution requirements from the Town and the development industry.

1. ENABLING LEGISLATION

The *Municipal Government Act (MGA)* is a law that establishes the responsibilities and powers of municipalities. Section 648 of the *MGA* allows municipalities to impose a levy to help pay for the capital costs of new or improved infrastructure to service growth. Section 648 provides direction on what types of infrastructure can be included in an off-site levy bylaw:

- An off-site levy may be used only to pay for all or part of the capital cost of any or all of the following, as per Section 648(2):
    - *a) new or expanded facilities for the storage, transmission, treatment or supplying of water;*
    - *b) new or expanded facilities for the treatment, movement or disposal of sanitary sewage;*
    - *c) new or expanded storm sewer drainage facilities;*
    - *(c.1) new or expanded roads required for or impacted by a subdivision or development;*
    - *(c.2) subject to the regulations, new or expanded transportation infrastructure required to connect, or to improve the connection of, municipal roads to provincial highways resulting from a subdivision or development;*
    - d) *land required for or in connection with any facilities described in clauses (a) to (c.2*).
- Additionally, Section 648(2.1) specifically states:

    "In addition to the capital cost of facilities described in subsection (2), an off-site levy may be used to pay for all or part of the capital cost for any of the following purposes, including the cost of any related appurtenances and any land required for or in connection with the purpose:

    - *a) new or expanded community recreation facilities;*
    - *b) new or expanded fire hall facilities;*
    - *c) new or expanded police station facilities;*
    - *d) new or expanded libraries.*

In addition to adhering to Section 648 of the *MGA*, municipalities must also align with the *Off-Site Levies Regulation* (Alberta Regulation 187/2017) when determining their off-site levy charges. Among other things, the Regulation requires correlation between the levy and the impacts of future growth, method of calculation be clear, information used in the levy calculation be kept current and levies are determined in consultation with affected landowners and developers. Involvement of the development industry is to be consultative in nature with the goal of obtaining the industry's perspective on fairness and equity of levies.

In 2015, as part of the *MGA* review, amendments were made to the Act that allow municipalities to charge for each type of infrastructure separately and over time. Previously, if a levy had been collected for any type of infrastructure, a municipality was unable to collect another levy regardless of whether the levy was for a different type of infrastructure. This change to the *MGA* will allow municipalities to collect levies on land that has already paid levies if the levy being imposed is for a different type of infrastructure.

2. GUIDING PRINCIPLES

The off-site levies are one tool that can be utilized by municipalities to finance and fund growth-related infrastructure. Off-site levy programs, like other programs utilized by municipalities, should reflect broader objectives of the community. To support the development of the Town's Off-Site Levy Program and alignment with broader Town objectives, the following guiding principles have been developed:

Integration

The off-site levy update is in alignment with the Town's broader community goals and with governing legislation.

Financial Sustainability and Resiliency

The off-site levy update minimized the financial burden on the municipality while stimulating sustainable long-term growth.

Accountability

The off-site levy update is transparent, accessible, and understandable by stakeholders.

Fairness and Equity

The off-site levy update establishes a program that ensures those that benefit pay.

Administrative Efficiency

The off-site levy update establishes cost recovery strategies that are easily implemented, efficient, and cost effective.

Remain Competitive

The off-site levy update considers the overall costs of development and/or overall costs to residents/businesses through future financing and funding of growth-related infrastructure.

3. ANTICIPATED GROWTH

3.1. GROWTH FORECAST

In 2016, The Town completed the Joint Growth Strategy with the Town of Turner Valley to project and guide future growth within the Town communities. The Joint Growth Strategy presents three sustainable growth scenarios for a 60-year horizon (2016-2075). The information provided in the Joint Growth Strategy has been utilized to inform anticipated growth within the off-site levy update. Growth assumptions utilized in the Joint Growth Strategy are captured in **Table 1**. The anticipated hectares of growth over the next 25-year period, based on these assumptions, is captured in **Table 2**. The non-residential growth is reflective of the bulk of non-residential growth articulated in the Joint Growth Strategy, given the Town's current composition and land availability.

Table 1: Populations Growth Forecast Assumptions

Year	Population Growth Rate	Residential Units Per Acre
2020 – 2035	2.50%	5.5
2035 - 2055	2.25%	6.5
2055 - 2075	2.00%	8.0

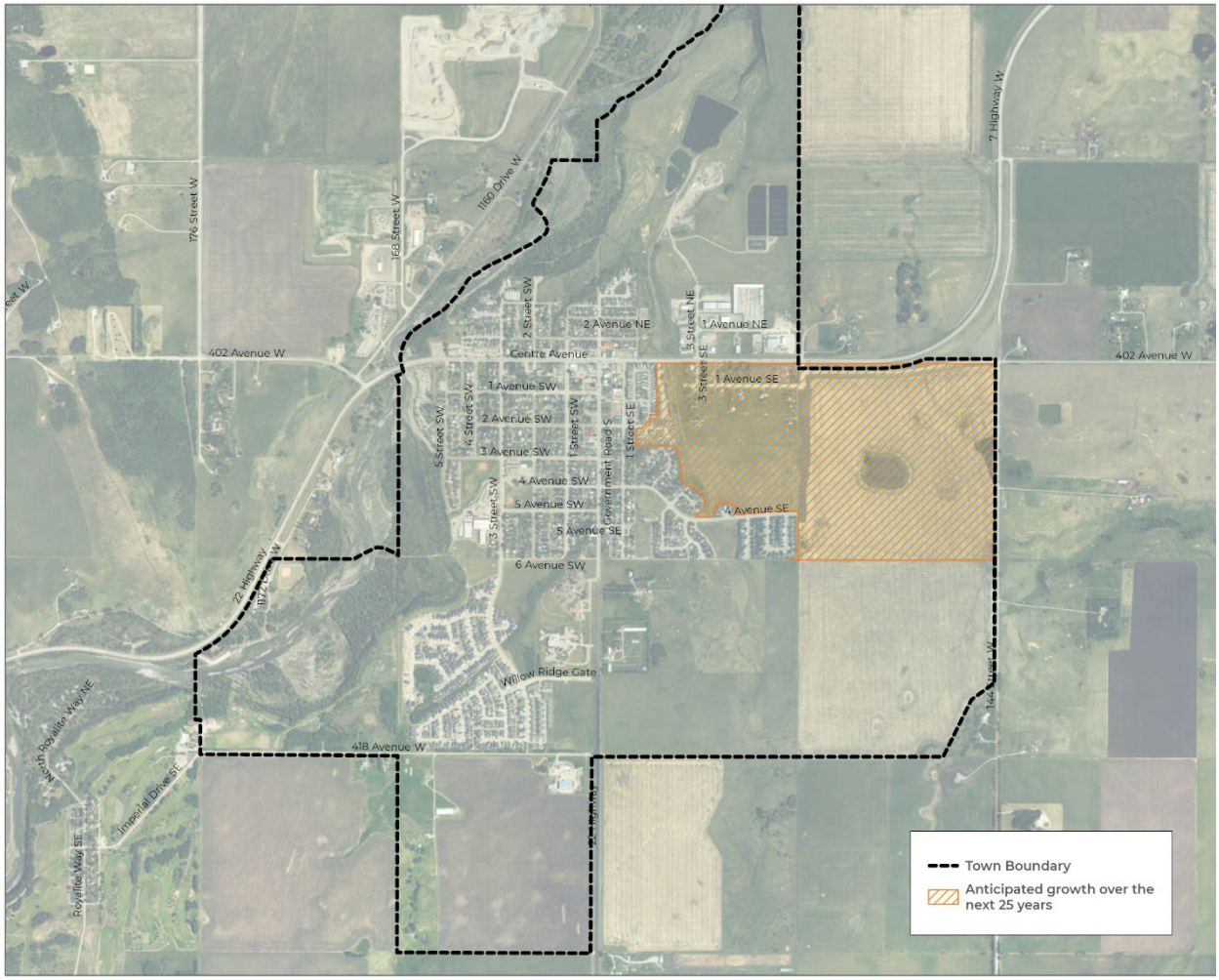
Note: The Joint Growth Strategy assumes 2.4 people per residential unit

Table 2: Population and Development Area Projections Over 25 Year Time Period

Year	Total Population (Persons)	Residential Units Per Acre		
		Residential	Non-Residential	Total
2021 (Census)	2,730			
2023 – 2047 (25 years)		64.1	10.3	74.4

3.2. GROWTH PATTERN

Projected growth in conjunction with the pattern of growth guides the Town's anticipated infrastructure needs over the next 25-yr period. The pattern of growth is informed by long-range planning completed by the Town, access to and capacity of existing infrastructure, continuity of development and other considerations. The map below displays the anticipated direction of future growth over the next 25yrs. The infrastructure included in the Off-Site Levy Bylaw has been guided by this anticipated growth pattern over the next 25yrs.



3.3. DETERMINATION OF INFRASTRUCTURE NEEDS

Over the past few years, the Town of Black Diamond has reviewed growth-related infrastructure needs based on the projected and anticipated pattern of growth. Through these assessments, master plans/studies have been updated and/or created to capture the infrastructure needs required to service future growth and form the basis for infrastructure to be considered for inclusion in the off-site levy program. The plan and studies are captured in **Table 3** for reference.

Table 3: Infrastructure Master Plans/Studies

Infrastructure	Study
All Infrastructure	• Joint Growth Strategy, May 2016 • Annexation Lands Servicing Review, Revised, February 2021
Storm	
Storm Infrastructure	• Master Drainage Plan, April 2021
Water	
Water Pumping	• Black Diamond Pump Station Feasibility Review, July 2020
Sanitary	
Sewage Collection	• Kaiser Area Structure Plan (ASP) Technical Background Report, January 2017 • Black Diamond Sanitary Servicing Considerations for Area 2 and the Kaiser Development, June 2022
Transportation	
Transportation Infrastructure	• Kaiser Transportation Impact Assessment, September 2017

3.4. INFRASTRUCTURE INCLUDED

Off-site levies are primarily utilized as a funding tool for major off-site growth-related infrastructure and offer an effective mechanism to ensure costs are shared equitably with those that benefit. Infrastructure included, allocation of benefit, and the approach to cost recovery are key components of any off-site levy program. The method to determine these key components can vary across infrastructure categories and communities based on a community's context and broader objectives. Infrastructure that can be considered for inclusion in an off-site levy program is guided by the Municipal Government Act. The Town has included major off-site infrastructure related to water, sanitary and transportation projects within their program. Actual infrastructure included in each infrastructure category is captured below in **Section 5**.

4. METHODOLOGY FOR DETERMINING OFF-SITE LEVIES

4.1. ALLOCATION OF BENEFIT

Allocation of benefit refers to the proportionate distribution of infrastructure costs to those that benefit from the infrastructure. Allocation of benefit can occur between existing development and future growth, between multiple new developments and even contemplate multi-jurisdictional allocation, depending on the infrastructure. In determining the allocation of benefit to existing development or existing users of the infrastructure, several factors are considered, including capacity allocation and asset renewal of an existing system Allocation of benefit is discussed below in **Section 5** for each infrastructure category.

4.2. REVOLVING VS. CAPACITY

When determining the most appropriate off-site levy recovery method, the time horizon for collection relative to each piece of infrastructure, there are two approaches generally utilized: capacity or revolving timeframe. If there are several projects anticipated over time, the revolving timeframe approach helps to minimize fluctuations and provides more funding flexibility. For Black Diamond's calculations a 25-year revolving timeframe is used, as this typically aligns with long-term planning and infrastructure horizons. In this timeframe, the Town has a reasonable understanding of its infrastructure needs and the costs for major infrastructure improvements.

A capacity-based time horizon considers all the projects necessary to service the build-out of a particular area / community and typically includes a long-time horizon. A capacity-based approach considers all land potentially available for build-out and is typically most appropriate for well-defined build-out areas with a limited number of projects.

For the purposes of the current levy calculations, the approach for each infrastructure type is indicated in **Table 4.**

Table 4: Summary of Levy Calculation Approach – Time Horizon

Infrastructure Type	Build-Out (capacity based)	Revolving Timeframe
Water Supply, Treatment, Storage, and Pumping	✓	
Sanitary Sewage Treatment and Disposal	✓	
Water Distribution		✓
Sewage Collection	✓	
Transportation		✓

4.3. APPLICATION OF LEVY

4.3.1. TOWN-WIDE VS. AREA SPECIFIC

Cost recovery of off-site levy infrastructure projects can be calculated and applied on a town-wide basis or on an area specific or catchment basis. The decision to apply levies by either of these methods depends on the particular infrastructure projects and whether the benefit of the projects can be definitively allocated to a specific area. That being said, in some cases, existing and/or future infrastructure capacity can be arbitrarily assigned and secured outside of defined catchments, which can lead to the inequitable application of levies. Additionally, when the benefit of projects can be reasonably allocated to a specific area, the levy may still be applied on a town-wide basis if the disparity between charges to specific areas is not great and administrative efficiency would be achieved through averaging the costs over the entire Town.

For the purposes of the current levy calculations, the approach for each infrastructure category is indicated in **Table 5**.

Table 5: Summary of Levy Calculation Approach – Benefitting Areas

Infrastructure Type	Town-Wide Levy Calculation	Area-specific Levy Calculation
Water Supply, Treatment, Storage, and Pumping	✓	
Sanitary Sewage Treatment and Disposal	✓	
Water Distribution	✓	
Sewage Collection*	✓	✓
Transportation	✓	

Note: Sewage collection benefitting areas is dependant on the project

4.3.2. REDEVELOPMENT

Redevelopment shall be subject to offsite levies where the lands have not been previously subject to an off-site levy for the same purpose. Redevelopment refers to the creation of new units, uses or lots on previously developed land. An incremental intensity calculation is utilized to determine the off-site levy applicable for redevelopment. Application of the incremental intensity calculation accounts for previous use of existing infrastructure and applies the levy to only the increased intensity of development for the lands within the development area.

[Redevelopment Levy Calculation = Off-Site Levy X Development Area X Incremental Intensity]

Incremental Intensity accounts for existing uses on the site, which may be reflected through the number of units or total floor area. Incremental Intensity will be determined by the Town of Black Diamond utilizing historical development intensity and proposed development plans to establish base line and future intensity of use levels.

4.3.3. LAND AREA TO BE CHARGED LEVIES

The land area to be charged levies includes all lands within the development area, as shown on **Figure 1** in **Appendix A**, excluding Environmental Reserve and Environmental Reserve Easement. Development area includes all lands within the Town's boundary. Levies are to be applied to all lands within the Town's boundary that benefit from the infrastructure and that have not paid for the infrastructure purpose(s) in the past.

4.3.4. GRANTS

The Town may receive project specific and/or discretionary grants that may be utilized to help fund off-site levy projects. Application of the grants within the off-site levy program will vary depending on the type of grant. Project specific grants, such as Alberta Municipal Water/Wastewater Partnership (AMWWP) are applied to the total project cost. Both the Town and developers will share the benefit of these grants based upon the allocation of benefit of the project.

Discretionary grants, such as Municipal Sustainability Initiative (MSI), gas tax or others will be applied to the Town's portion of the project costs. These grants are discretionary in nature and the Town can choose which projects to apply this funding to.

5. OFF-SITE LEVY PROJECTS

5.1. WATER SUPPLY, TREATMENT, STORAGE, AND PUMPING

The Town receives treated water from the Sheep River Regional Utility Corporation, a partnership between the Town of Black Diamond, Town of Turner Valley, Foothills County, and the Village of Longview. The Town of Black Diamond owns and operates the water storage, pumping and distribution network with the Town. Storage and pumping infrastructure and improvements have been identified as projects that support future growth and have been included in the off-site levy program.

Infrastructure Included

The off-site levy program includes an existing treated water storage reservoir, existing water pumphouse and future pumphouse upgrades.

Table 6: Summary of Projects - Water Supply, Treatment, Storage and Pumping

Project ID	Description	Cost ($)	Construction Years	Assumed Grants / Regional Contributions ($)	Allocation of Benefit to Future Growth
WS1	**Water Storage Reservoir** – Existing 1,000,00 imperial gallon treated water storage reservoir	$335,188 ($2008)	1991	$0	Amount to still be recovered: ($190,152)
WP1	**2002 Pumphouse (pumps upgraded in 2016)** – Pumphouse upgrades to improve flow rates and distribution system pressures.	$676,137 ($2008)	2002 (pumps upgraded in 2016)	$0	Amount to still be recovered: ($298,498)
WP2	**Pumphouse Upgrades** – Upgrades to the pumphouse to accommodate future growth including upsizing pumps, upgrading and upsizing piping, and electrical upgrades	$1,927,000 ($2022 projected)	2034 - 2035	$0	36%

Allocation of Benefit

When a water supply, treatment, storage, and/or pumping expansion provides capacity and/or improved service delivery to existing development, that portion of the project is allocated as benefit to existing Town residents. WS1 and WP1 are existing projects that the Town is still recovering on. The amount to still be recovered reflects the remaining portion of the project that benefits future growth.

The WP2 project is required to provide redundancy to the existing system, as well as support future growth in the Town. It is assumed these larger pumps will have a lifespan of 20 years and will need to be replaced prior to reaching full capacity. As such, the allocation of benefit is based on the existing population at the time of improvement (3,857) divided by the overall population benefiting from the improvement prior to life-cycle improvements (6,020). This equates to an allocation of benefit of 36% to future growth.

Recovery Approach

A town-wide recovery approach is used for water supply, treatment, storage, and pumping projects as they benefit all development regardless of location.

Grants

No grants have been assumed for these projects.

Fund Balance

The amount to still be recovered for WP1 is ($298,498). However, the Town has collected funds for water supply and water treatment projects that were not advanced given the impacts to the Town's water supply and treatment systems in 2013. These collections have been applied to the water pumping fund balance as they are all within the same infrastructure category and applied Town-wide. This has resulted in a positive fund balance of $36,202 moving forward.

The amount to still be recovered for WS1 is ($190,152).

5.2. SANITARY SEWAGE TREATMENT AND DISPOSAL

The Westend Regional Sewage Service Commission, a commission equally owned by the Town of Black Diamond and Town of Turner Valley, receives and treats all sewage from the Town and disposes of the treated effluent. All sanitary treatment and disposal improvements play a role in supporting future growth.

Infrastructure Included

The sanitary sewage treatment and disposal infrastructure included in this off-site levy program consist of wastewater treatment plant upgrades and expansions.

Table 7: Summary of Projects – Sanitary Sewage Treatment and Disposal

Project ID	Description	Cost ($)	Construction Years	Assumed Grants / Regional Contributions ($)	Allocation of Benefit to Future Growth
ST1	**Westend Lagoon Upgrades** – Upgrades to the lagoon system to meet regulatory requirements and to account for future growth. Includes new aeration and blowers, SAGR cells for ammonia removal, chemical injection and disk filter for phosphorus removal, UV for coliform removal, and a new diffuser/outlet for better mixing in the river	$17,340,000 ($2022 projected)	2022-2024	$6,936,000 (federal) and $5,779,422 (provincial)	49.85%

Allocation of Benefit

The ST1 project provides benefit to existing residents and future growth. The existing Town benefits through the improvement of treatment to achieve effluent requirements as well as life-cycle replacement. Improvements to the lagoon also provide benefit to future growth through additional capacity. The lagoon is anticipated to service a population of 10,649 between both Black Diamond and Turner Valley.

Given the wastewater treatment facility is a shared facility supporting both Towns, the levies have been calculated collectively. Together the Town's have a population of 5,341 residents (based on the 2021 Federal Census). Allocation of benefit to future growth is based on the future population supported by the lagoon improvements (10,649 – 5,341 = 5,308) divided by the total population serviced (10,649).

Recovery Approach

A town-wide recovery approach is used for sanitary sewage treatment and disposal projects as they benefit all development regardless of location.

Grants

Project ST1 has received grant funding from both the federal and provincial governments for amounts of $6,936,000 and $5,779,422, respectively. These grants are applied to the total project cost of $17,340,000.

Fund Balance

This is a new project, and, as such, there is no existing fund balance for this project.

5.3. WATER DISTRIBUTION

The water distribution system consists of a network of pipes that transmit water from the Town's treated water reservoir and pumphouse to businesses and residents throughout the Town. Together with water storage and pumping, the distribution system provides the necessary water pressure and fire flow distribution to serve all customers.

Infrastructure Included

The water distribution infrastructure includes all major distribution mains that have the potential to benefit multiple developments.

Table 8: Summary of Projects – Water Distribution

Project ID	Description	Cost ($)	Construction Years	Assumed Grants / Regional Contributions ($)	Allocation of Benefit to Future Growth
WD1	**4th Ave SE Main** – The existing 250mm main from the water pumphouse northeast to 4th Ave SE and the existing 250mm main on 4th Ave SE east of Maplewood Drive	$69,332 ($2008)	Prior to 1997	$0	Amount to still be recovered: $27,019
WD3	**1st Ave SE Water Main** – 250mm water main along 1 Ave SE between 6 St SE and existing main at 408 1 Ave SE to increase overall system redundancy and improve fire flows.	$551,085 ($2020)	2020-2021	$0	46%
WD4	**6th St SE Main** – 400mm water main along 6 St SE from 4 Ave to 1 Ave to increase overall system redundancy and improve fire flows.	$1,143,922 ($2020)	2020-2021	$0	46%

Allocation of Benefit

Projects included in the off-site levy program provide benefit to existing Town residents by improving redundancy and fire flows, providing capacity for future growth, and strengthening the overall water distribution network. As such, the project costs have been allocated based on population growth over the revolving timeframe (25yrs) relative to the existing Town's population. The Town's current population is 2,730 (2021 Census). The population in 25yrs is anticipated to be 5,050, resulting in an allocation of benefit of 46% to future growth.

Recovery Approach

The water distribution network is an interlinked network of pipes that together provide the necessary system water pressure, fire flow distribution and water flow to service the overall Town. As such, the water distribution projects to be included in the off-site levy program provide benefit to the existing Town and future growth regardless of location. The off-site project needs over a 25-year revolving timeframe were identified, and more projects are anticipated in the future as additional development occurs.

Grants

No grants have been assumed for these projects.

Fund Balance

The amount to still be recovery from future growth for the three projects advanced by the Town is ($763,529). This includes ($27,019) for WD1, ($212,461) for WD3, and ($524,049) for WD4.

5.4. SEWAGE COLLECTION

The sewage collection system consists of a network of gravity and pressure sanitary mains and lift stations that collect sewage and transport it to the Westend wastewater treatment facility for treatment and disposal.

Infrastructure Included

Sanitary collection infrastructure includes major trunk mains, which may include upgrades or twinning of existing infrastructure.

Table 9: Summary of Projects – Sewage Collection

Project ID	Description	Cost ($)	Construction Years	Assumed Grants / Regional Contributions ($)	Allocation of Benefit to Future Growth
SC1	**East Sanitary Main** – The east sanitary sewage collection main (east sanitary main) was initially constructed to service the Kaiser area.	$264,681 ($2008)	1998	$0	Amount to still be recovered: $126,016
SC2	**1 Ave SE Sanitary Main** – 250mm sanitary main along 1 Ave SE between 6 St SE and existing main at 408 1 Ave SE	$149,058 ($2020)	2020 – 2021	$0	87%
SC3	**Hydraulic Connection to the Westend Sanitary Sewer** – Hydraulic connection to the Westend main to allow for increased sanitary flows.	$445,000 ($2022 projected)	2026 - 2027	$0	100%

Allocation of Benefit

The benefitting areas of the sanitary collection projects are dependant on the function of the sanitary main and allocated based on capacity. SC1 is an existing project and provides benefit to the Kaiser area. As displayed on **Figure 5**, SC2 provides benefit to the existing area within Kaiser (9.1 ha) and can service ~69ha in the Kaiser and/or Area 2 catchment area. As such, 87% of SC2 project costs have been allocated to future growth. SC3 provides additional capacity within the main connection to the Westend lagoon, solely benefiting future growth. As such, the SC3 improvement has been allocated 100% to future growth.

Recovery Approach

All sanitary collection projects included in the off-site levy program are calculated on a capacity basis.

Grants

No grants have been assumed for these projects.

Fund Balance

The amount to still be recovered for SC1 is ($126,016).

The amount to still be recovered for SC2 ($129,680).

The fund balance for SC3 is $31,397. This positive fund balance reflects previous collections for the sanitary outfall trunk main project that was not built. Both projects provided Town-wide benefit.

5.5. TRANSPORTATION

The Town's transportation system consists of a network of minor and major roadways and intersections.

Infrastructure Included

Transportation infrastructure projects include infrastructure improvements required to support capacity improvements for growth. Only Highway Intersections (3rd Street and HWY 7 and 6th Street and HWY 7) have been identified in the off-site levy program at this time (i.e., not Transportation – general – projects).

Table 10: Summary of Projects – Transportation

Project ID	Description	Cost ($)	Construction Years	Assumed Grants / Regional Contributions ($)	Allocation of Benefit to Future Growth
T1	**3rd Street and HWY 7 (Centre Avenue) Intersection Upgrades** – Upgrading of intersection to a signalized intersection to account for additional traffic from growth	$1,449,000 ($2022 projected)	2027	$0	45%
T2	**6th Street and HWY 7 (Centre Avenue) Intersection Upgrades** – Upgrading of intersection to a signalized intersection to account for additional traffic from growth	$1,449,000 ($2022 projected)	2032	$0	100%

Allocation of Benefit

The T1 Highway Intersection upgrades provide benefit to the existing Town, as well as benefit to future growth by increasing intersection capacity. This intersection is currently utilized by east/west traffic travelling along HWY 7, as well as traffic generated by the Diamond Valley Industrial and future growth. It is not anticipated that this intersection upgrade will benefit east/west traffic beyond existing conditions. Based on traffic projections, it was determined that 55% of trips generated from north/south traffic will be generated by the existing industrial area, and 45% of the trips will be generated from future growth. The T2 Highway Intersection upgrades solely benefit future growth as it provides improved access to future growth areas. The T2 upgrades do not benefit the existing town, as there are very few turning movements at the existing intersection throughout the day.

Recovery Approach

These intersection upgrades provide benefit to the overall transportation system within the Town. The Town's transportation network is defined by two regional highways (HWY 7 and HWY 22). Given the regional nature of these highways all future growth benefits from improvements to the overall network. The off-site project needs over a 25-year revolving timeframe were identified, and more projects are anticipated in the future as additional development occurs.

Grants

No grants have been assumed for these projects.

Fund Balance

The fund balance for the transportation projects is $19,054. This positive fund balance is for funds previously collected for transportation infrastructure that was not built.

6. OFF-SITE LEVY CALCULATIONS

The off-site levy calculation is based on a cash flow projection that incorporates assumptions for population growth, project expenditures, payment timing, interest rate returns, borrowing costs and inflation to determine levy rates. The cash flow approach ensures full cost recovery to support fairness and equity of the levy rates. Calculation of the off-site levy charges is based on four key components and can be simplified as follows:

$$\text{OFF-SITE LEVY RATE} = \frac{\text{LEVY ACCOUNT STARTING BALANCE} + \text{COLLECTION EXPENDITURES} + \text{INTEREST EARNED CARRY COSTS}}{\text{HECTARES OF DEVELOPMENT}}$$

Anticipated growth (hectares of development) and project expenditures (costs and timing) are captured in **Sections 3** and **5**. The below provides an overview of the remaining components that feed into the calculation.

6.1. LEVY ACCOUNT BALANCES

To properly account for the previous collection of levies and/or project expenditures, off-site levy fund balances need to be brought forward into the levy calculation. The levy account starting balance reflects the aggregated total of collections received, less project expenditures, plus interest credits, less borrowing costs. This is the starting point of the levy calculation and reflects actual collections and expenditures credited and charged to the account to-date.

Accounting for the levy starting balance ensures levies collected to date for future projects are reflected in the levy calculations to avoid collecting twice for projects. Correspondingly, any deficit account balances, resulting from previously constructed projects where levies have not been fully collected, are brought forward to the new levy calculation.

As the Off-Site Levies are established using a Town wide philosophy, any changes that result from a levy update will be reflected in the fund balance. If a project costs more or less than projected, when the project is completed, the difference will be reflected in the fund balance. If a project is deleted the funds collected to date will be used to fund infrastructure of the same category.

As a result, the model starts with either a positive or negative account balance for each of the infrastructure categories. The existing fund balances are shown in **Table 11** below:

Table 11: Infrastructure Fund Balances

Infrastructure Type	Funding Balance (January 1, 2022)
Water Supply, Treatment, Storage, and Pumping	
WP1	$36,202
WS1	($190,152)
Sanitary Sewage Treatment and Disposal	$0
Water Distribution	

WD1	($27,019)
WD3	($212,461)
WD4	($524,049)
Sewage Collection	
SC1	($126,016)
SC2	($129,680)
SC3	$31,397
Transportation	
Highway Intersections	$19,054

6.2. FINANCIAL MODEL INPUTS

Financial model inputs include interest earned, carrying costs and inflation. When a projected positive fund balance occurs, interest earned is applied to the positive balance. Conversely, when a fund balance is negative (e.g., the Town front-ends infrastructure prior to collecting enough funds to cover the project costs) a borrowing cost is applied to the negative balance. For projects still to be recovered, the Town did not take on any debt. For future projects to be advanced by the Town, the Town is unclear if debt will be required. As such, no borrowing costs have been included for existing and/or future projects. An annual inflation rate is applied to future project costs and levy collections. The following are the assumptions used in the model:

Table 12: Financial Model Inputs

Input	Percentage
Interest Earned on Positive Fund Balances	0.5%
Borrowing Cost on Negative Fund Balances	0%
Inflation Rate	2%

6.3. PAYMENT TIMING

The timing of when the Town receives off-site levy payments from development is important from a cash flow perspective. Payment timing varies depending on the type of development and the granting of deferrals.

The financial model assumes levy payments for all new growth are received through two 50% payments for those development areas that require subdivision, and a single (100%) payment for those development areas not requiring subdivision. Prior to subdivision endorsement, development areas will make a payment of 50% and the second payment is assumed to be received within 1 year anniversary of

subdivision endorsement. For development areas only requiring a development permit, and not previously paying for each of the infrastructure categories in the Bylaw, 100% of the levies are due prior to development permit release.

If lands subject to subdivision are entirely commercial or industrial, the CAO may, at the CAO's discretion, defer payment of Off-Site Levies development permit release.

6.4. OFF-SITE LEVY UPDATES

The Off-Site Levies will be periodically reviewed and updated. Minor updates include updates to fund balances, interest and borrowing costs, project costs and timing updates. Major Off-Site Levy Bylaw updates are the result of a significant shift in methodology or substantial changes to anticipated project lists. Periodic updates will occur to ensure levy information remains current and to help ensure fairness and equity.

Off-Site Levy Bylaw updates may occur to all infrastructure categories or to only one infrastructure category at a time, at the CAO's discretion.

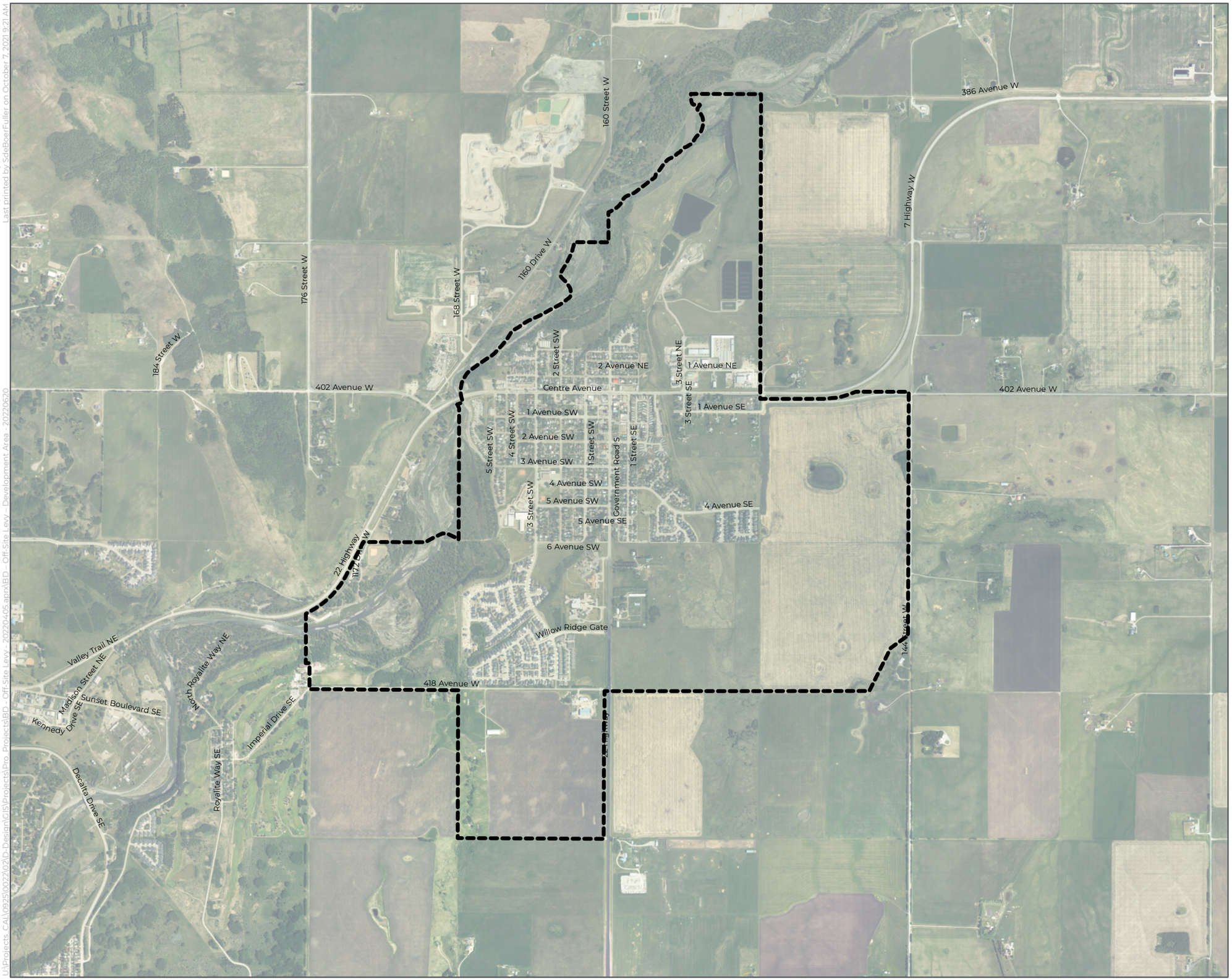
6.5. SUMMARY OF OFF-SITE LEVY RATES

The following levy calculations are based on assumptions provided in this report. The levies will be effective as of the passing of the Bylaw. The future levies are calculated using an inflation factor of 2% per year.

Table 13: Summary of Off-site Levy Rates

Infrastructure Category	Off-Site Levy ($/ha)	Application
Water Supply, Treatment, Storage, and Pumping	$6,191	Town-Wide
Sanitary Sewage Treatment and Disposal	$11,894	Town-Wide
Water Distribution	$7,926	Town-Wide
Sewage Collection		
SC1: East Sanitary Main	$7,047	Area-Specific
SC2: 1 Ave SE Sanitary Main	$1,743	Area-Specific
SC3: Hydraulic connection to Westend Sanitary Sewer	$4,282	Town-Wide
Transportation - HWY Intersections	$26,612	Town-Wide

APPENDIX A: FIGURES



U:\Projects_CA\0925\0022\02\D-Design\GIS\Projects\Pro_Projects\BD_Off-Site Levy_20220405.aprx\BD – Off-Site Levy – Development Area - 20220620

TOWN OF BLACK DIAMOND

Off-Site Levy Update

Development Area

Legend

- Development Area (Town Boundary)

The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.

0 100 200 300
Meters

Coordinate System:
NAD 1983 3TM 114

Scale: 1:20,000
(When plotted at 11"x17")

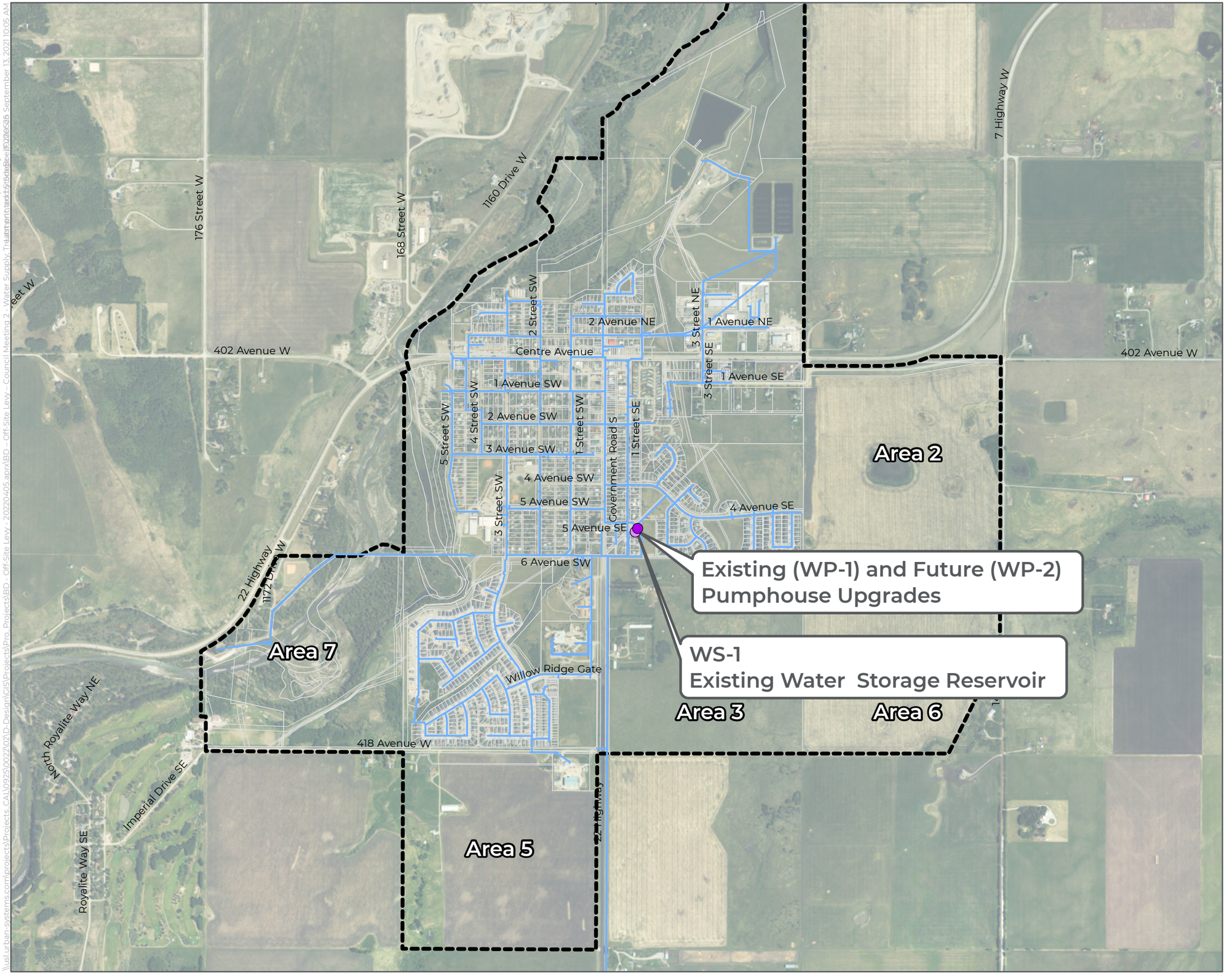
Data Sources:

- Data provided by Town of Black Diamond

Project #:	0925.0022.02
Author:	SDF
Checked:	KN
Status:	**Final**
Revision:	A
Date:	2022 / 6 / 29

URBAN SYSTEMS

FIGURE 1



Off-Site Levy Update

Water Supply, Treatment, Storage, and Pumping

Legend

- New Off-Site Levy Projects
- Existing Off-Site Levy Projects
- Existing Water Distribution System
- Town Boundary

0 100 200 300
Meters

Coordinate System:
NAD 1983 3TM 114

Scale: 1:15,000
(When plotted at 11"x17")

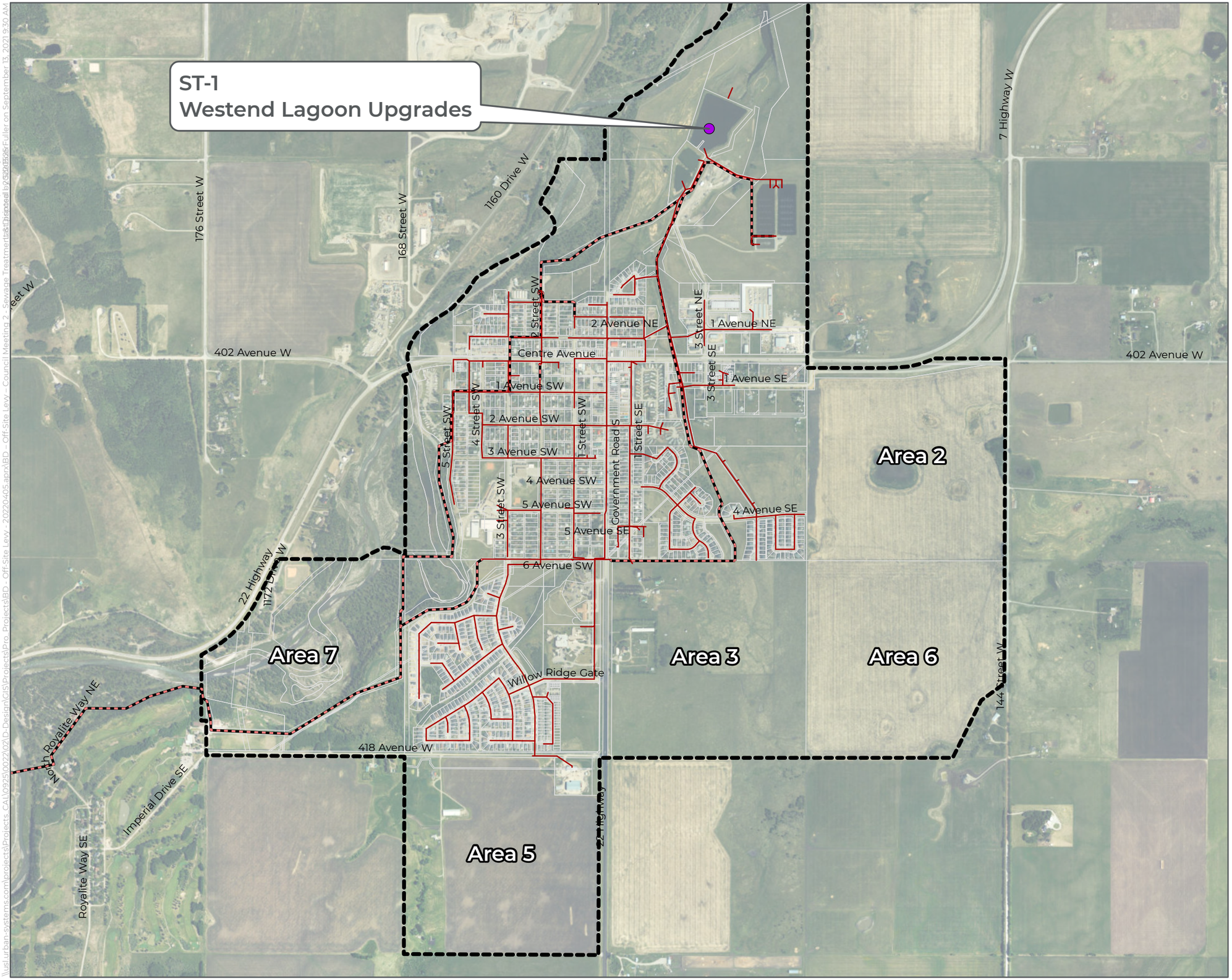
Data Sources:

- Data provided by Town of Black Diamond

Project #:	0925.0022.02
Author:	SDF
Checked:	KN
Status:	**Final**
Revision:	A
Date:	2022 / 6 / 22

URBAN SYSTEMS

FIGURE 2



TOWN OF BLACK DIAMOND

Off-Site Levy Update

Sanitary Sewage Treatment and Disposal

Legend

- New Off-Site Levy Projects
- Existing Sanitary Gravity Mains
- Existing Sanitary Pressure Mains
- Town Boundary

0 100 200 300
Meters

Coordinate System:
NAD 1983 3TM 114

Scale: 1:15,000
(When plotted at 11"x17")

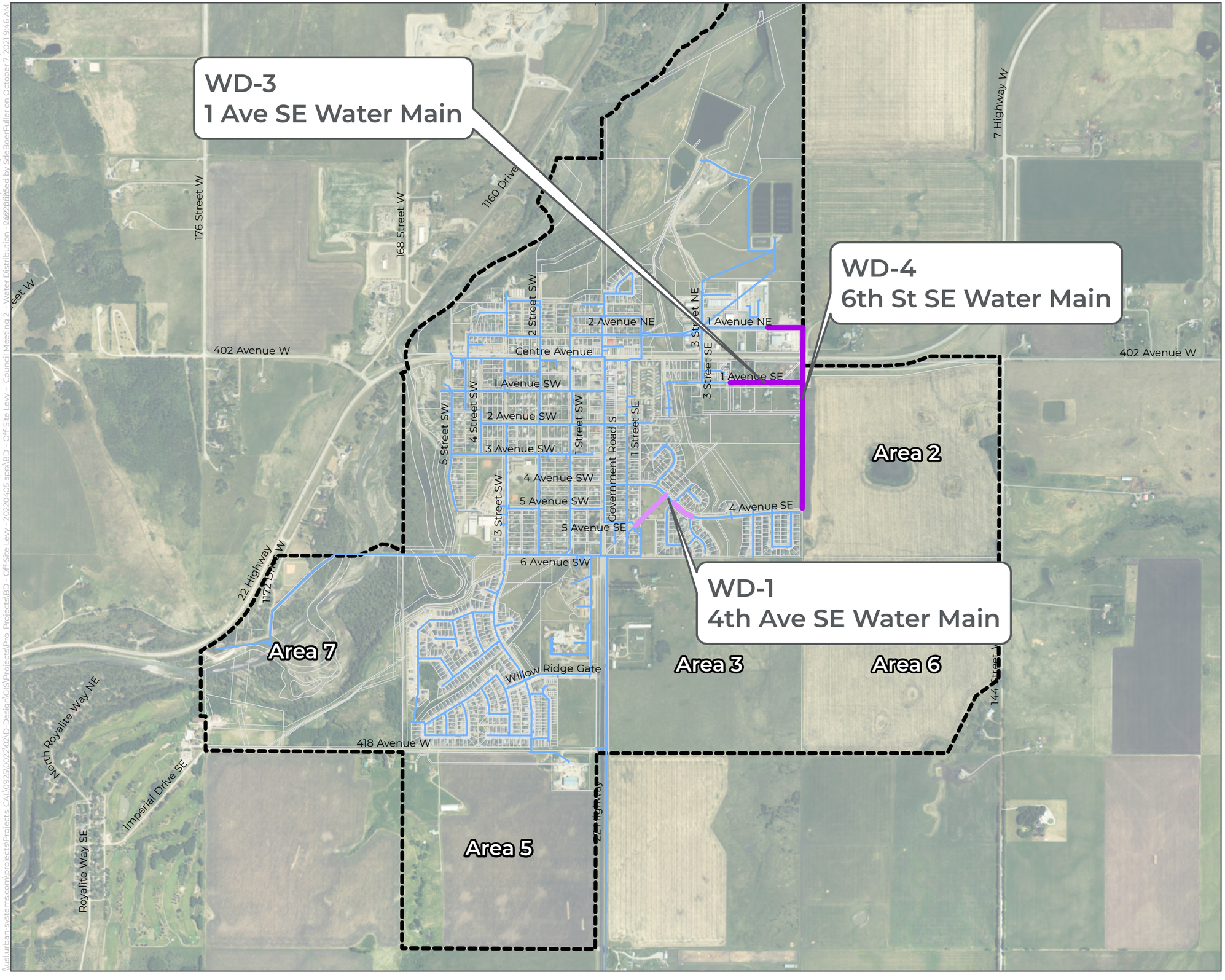
Data Sources:

- Data provided by Town of Black Diamond

Project #:	0925.0022.02
Author:	SDF
Checked:	KN
Status:	**Final**
Revision:	A
Date:	2022 / 6 / 22

URBAN SYSTEMS

FIGURE 3



TOWN OF BLACK DIAMOND

Off-Site Levy Update

Water Distribution

Legend

- New Off-Site Levy Projects
- Existing Off-Site Levy Projects
- Existing Water Distribution System
- Town Boundary

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0 100 200 300
Meters

Coordinate System:
NAD 1983 3TM 114

Scale: 1:15,000
(When plotted at 11"x17")

Data Sources:

- Data provided by Town of Black Diamond

Project #:	0925.0022.02
Author:	SDF
Checked:	KN
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Date:	2022 / 6 / 22

URBAN SYSTEMS

FIGURE 4

SC-3
Hydraulic Connection to Westend Sanitary Sewer

SC-2
1st Ave SE
Sanitary Main

SC-1
East Sanitary Main

Area 2
Area 3
Area 5
Area 6
Area 7

176 Street W
168 Street W
160 Drive W
7 Highway W
402 Avenue W
Centre Avenue
2 Street SW
3 Street SW
4 Street SW
5 Street SW
1 Street SE
3 Street SE
1 Street SW
Government Road S
1 Avenue NE
2 Avenue NE
1 Avenue SW
2 Avenue SW
3 Avenue SW
4 Avenue SW
5 Avenue SW
6 Avenue SW
1 Avenue SE
4 Avenue SE
5 Avenue SE
22 Highway
1172 Drive W
Willow Ridge Gate
418 Avenue W
North Royalite Way NE
Imperial Drive SE
Royalite Way SE
144 Street W

Off-Site Levy Update

Sewage Collection

Legend

- New Off-Site Levy Projects
- New Off-Site Levy Projects
- Existing Off-Site Levy Projects
- Existing Sanitary Gravity Mains
- Existing Sanitary Pressure Mains
- Town Boundary

0 100 200 300
Meters

Coordinate System:
NAD 1983 3TM 114

Scale: 1:15,000
(When plotted at 11"x17")

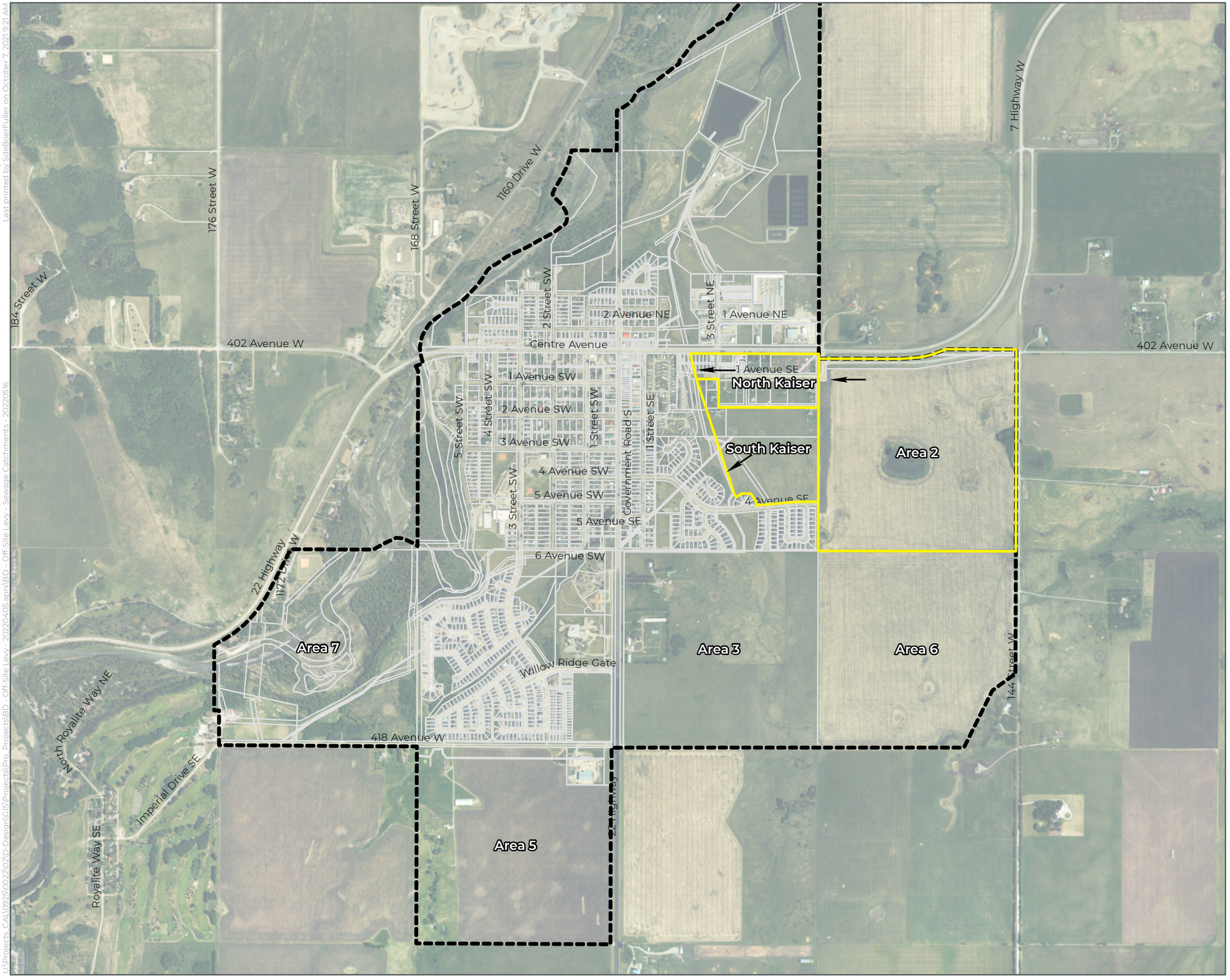
Data Sources:

- Data provided by Town of Black Diamond

Project #:	0925.0022.02
Author:	SDF
Checked:	KN
Status:	**Final**
Revision:	A
Date:	2022 / 6 / 22

URBAN SYSTEMS

FIGURE 5



Off-Site Levy Update

Sewage Catchments

Legend

- Contributing Flow
- Sewage Catchment
- Town Boundary

Notes:
The 10L/s of remaining capacity in the existing system is allocated to new development or re-development within the original town boundary.

0 100 200 300
Meters

Coordinate System:
NAD 1983 3TM 114

Scale: 1:15,000
(When plotted at 11"x17")

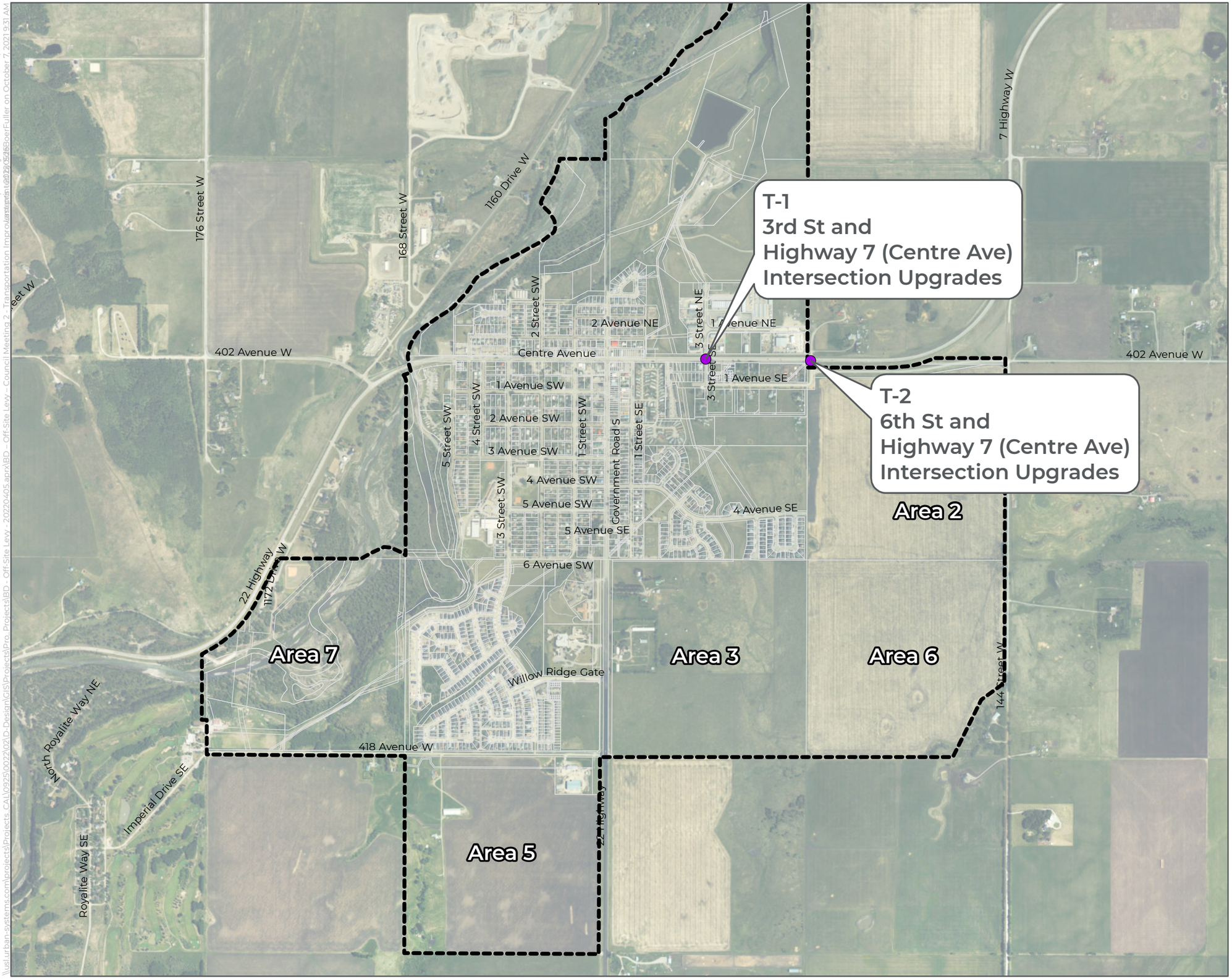
Data Sources:

- Data provided by Town of Black Diamond

Project #:	0925.0022.02
Author:	SDF
Checked:	KN
Status:	Final
Revision:	A
Date:	2022 / 6 / 29

URBAN SYSTEMS

FIGURE 06



TOWN OF BLACK DIAMOND

Off-Site Levy Update

Transportation

Legend

- New Off-Site Levy Projects
- Town Boundary

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0 100 200 300
Meters

Coordinate System:
NAD 1983 3TM 114

Scale: 1:15,000
(When plotted at 11"x17")

Data Sources:

- Data provided by Town of Black Diamond

Project #:	0925.0022.02
Author:	SDF
Checked:	KN
Status:	**Final**
Revision:	A
Date:	2022 / 6 / 22

URBAN SYSTEMS

FIGURE 7

APPENDIX B: REDEVELOPMENT CALCULATION EXAMPLES

REDEVELOPMENT CALCULATION EXAMPLES

COMMERCIAL USE TO COMMERCIAL USE

Overview

Development Area: 1 ha
Offsite Levy: $56,905* ha
Existing Use: Commercial Use - 100m2

Proposed Development

Commercial Use - 300m2
Incremental Intensity: 0.67 [(300m2 – 100m2)/300m2)]

Redevelopment Levy Calculation

$56,905* x 1 ha x 0.67 = $38,126

RESIDENTIAL USE TO RESIDENTIAL USE

Overview

Development Area: 0.25 ha
Offsite Levy: $56,905* ha
Existing Use: Residential Use - 1 units

Proposed Development

Residential Use - 2 units
Incremental Intensity: 0.5 [(2-1)/2]

Redevelopment Levy Calculation

$56,905 x 0.25 ha x 0.5 = $7,113

**Assumes parcels have not paid levies for any purpose in the past and are subject to all levies save for area specific sanitary collection levels*

Redevelopment Levy Calculation = Off-Site Levy X Development Area X Incremental Intensity

Incremental Intensity accounts for existing uses on the site, which may be reflected through the number of units or total floor area. Incremental Intensity will be determined by the Town of Black Diamond utilizing historical development intensity and proposed development plans to establish base line and future intensity of use levels.