BCIT Capital Plan Overview
2024/25 – 2028/29

With over 45,000 students enrolled annually (17,200 full-time and 28,300 part-time), BCIT plays a central role in province's economy by offering practical career credentials for key employment sectors. BCIT's Five Year Capital Plan for 2024/25-2028/29 will support our leadership role in demonstrating best practices in sustainable building design and infrastructure.

The BCIT Five-Yearly Capital Plan contains seven projects estimated at $246.3 million that closely align with Provincial development goals, including the pathways identified in Stronger BC – Jobs & Training, CleanBC, and the Climate Preparedness and Adaptions Strategy.

The BCIT Board of Governor's approved this 2024/25 – 2028/29 Capital Plan on June 27th, 2023.

1. Cybersecurity System Upgrade (SE12 data centre) - Phase 1 ($7.0 M)

A condition assessment identified the need to upgrade existing cybersecurity infrastructure. The scope of work includes provision of a unified security architecture, centralized IoT management, securing various student, staff and research system access controls and provision of a unified security incident event management system. This comprehensive security upgrade plan has an anticipated design and implementation timeline of 2 - 3 years.

2. Trades + Technology Complex ($17.5 M)
Carpentry Shop Renewal (NE04) + Piping Pavilion (NE06) + Welding Pavilion (NE08)

The Trades + Technology Complex proposal will enhance the Institute's standing as the largest Trades education provider in British Columbia and provide a hub of flexible learning spaces that will be adaptable to evolving industry requirements.

Carpentry, Piping and Welding trades programs are identified as critical high priority program areas. This project would enhance and improve the functioning of existing student learning areas by renewing the Carpentry Shop (NE04) and adding a Piping Pavilion beside the Piping Shop (NE06) and adding a Welding Pavilion beside the Welding Shop (NE08).

3. Trades + Technology Complex ($13.3 M)
Electrical Trades Technology Innovation Addition (SE02)

Electrical Trades programs are experiencing high demand for emerging green technologies. The proposed two-story addition to the Electrical Trades Building (SE02) would create two dedicated Robotics labs, a Renewable Energy lab and an Automation & Controls lab. The project would also enhance the front entry of the main building and enhance student social common lobby areas.

4. Trades + Technology Complex ($25.0 M)
Steel Trades Building and Yard Renewal (SE12)

A comprehensive building system renewal is planned for the Steel Trades Building (SE12) that would involve electrical, mechanical, HVAC and life safety upgrades. The renewal work would include upgrades to learning spaces, washroom and common areas, sustainability, structural seismic and building envelope improvements. The project scope includes re-configuration of the steel trades works yard to include a new Iron worker tower, enhancements to steel rebar and boiler maker work areas, and a new steel gouging facility.

5. Trades + Technology Complex ($30.0 M)
Electrical Trades Building (SE01)

A comprehensive building system renewal is planned for the Electrical Trades Building (SE01) that would involve electrical, mechanical, HVAC and life safety infrastructure upgrades. The renewal work would include upgrades to learning spaces, washroom and common areas, sustainability, structural seismic and building envelope improvements. The heating system upgrades include full electrification to eliminate gas boilers and significantly reduce carbon emissions.

6. Centre for Indigenous Learning, Ecological Restoration & Climate Adaptation ($98.0 M)

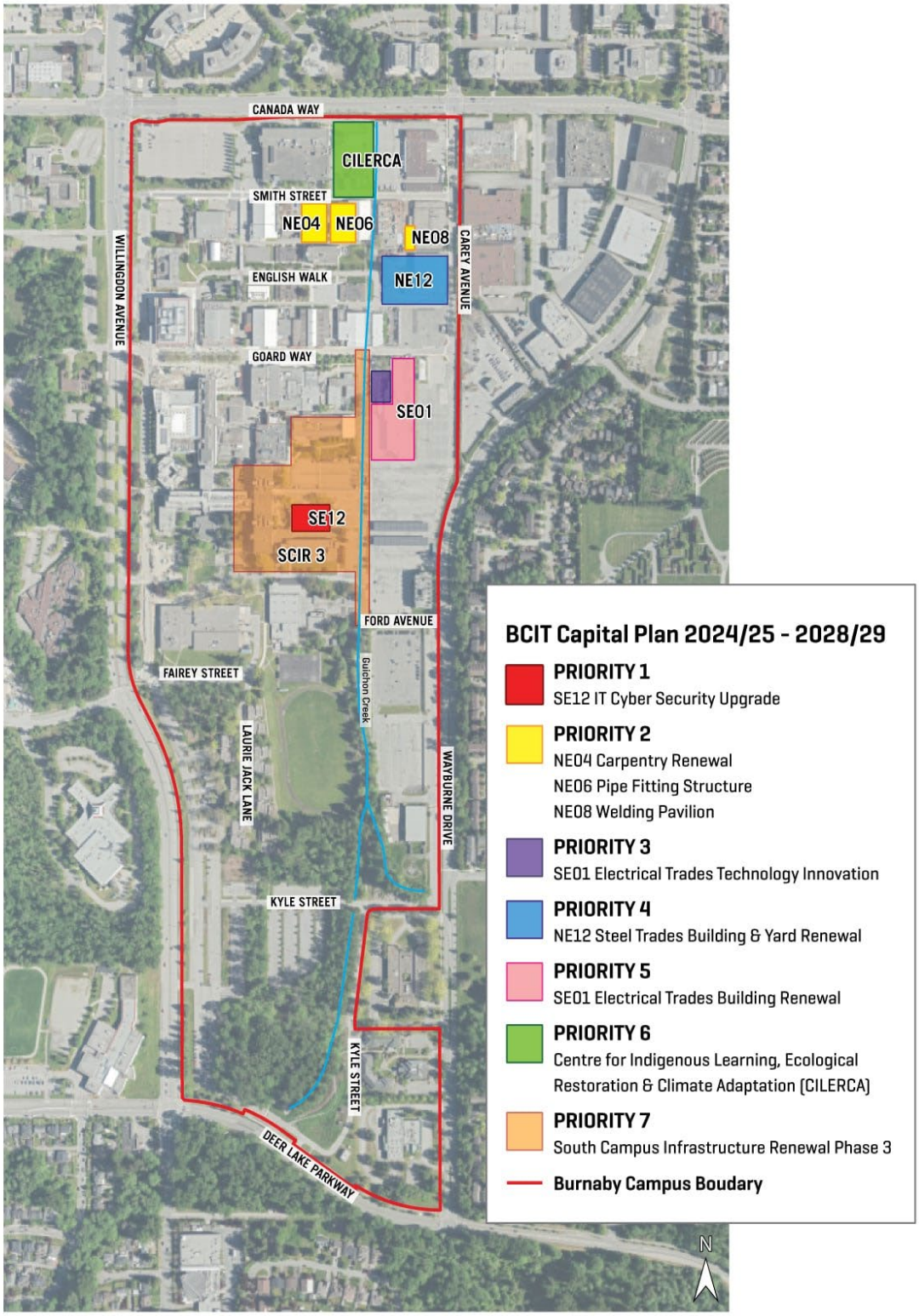
The proposed Centre for Indigenous Learning, Ecological Restoration & Climate Adaptation (CIERCA) would provide a modern facility for key education programs related to Indigenous Learning, ecological restoration and climate change adaptation, based on a strong foundation of the First Nations knowledge and practices in managing natural resources and land. With the planned daylighting of Guichon Creek, the building will serve as a living lab for sustainable design. This project is aligned with Provincial skilled labour economic recovery, Indigenous reconciliation and sustainability objectives.

This new centre will provide research and teaching centre that will solidify BCIT's role as the leader in reconciliation and ecological restoration. The centre will allow for expansion of the Ecological Restoration department's MSc and BSc programs, and support associated programs such as Fish, Wildlife and Recreation, and Forest and Natural Areas Management.

7. South Campus Infrastructure Renewal - Phase 3 ($55.5 M)

This project is aligned with Provincial resilience and sustainability objectives, including the BC Hydro program to transition electrical services in the Willingdon corridor to 25kV service (from the current 12.5kV service).

This project will replace a section of the degraded Guichon storm culvert with an ecologically restorative stream channel as outlined in the *Campus Plan*. Replacement of underground utilities along the Roper corridor also supports core educational building service reliability and provide modern infrastructure required by future development on campus.


CANADA WAY
CILERCA
SMITH STREET
NE04
NE06
NE08
NE12
CAREY AVENUE
WILLINGDON AVENUE
ENGLISH WALK
GOARD WAY
SE01
SE12
SCIR 3
FORD AVENUE
FAIREY STREET
Guichon Creek
LAURIE JACK LANE
WAYBURNE DRIVE
KYLE STREET
KYLE STREET
DEER LAKE PARKWAY
N
BCIT Capital Plan 2024/25 - 2028/29
PRIORITY 1
SE12 IT Cyber Security Upgrade
PRIORITY 2
NE04 Carpentry Renewal
NE06 Pipe Fitting Structure
NE08 Welding Pavilion
PRIORITY 3
SE01 Electrical Trades Technology Innovation
PRIORITY 4
NE12 Steel Trades Building & Yard Renewal
PRIORITY 5
SE01 Electrical Trades Building Renewal
PRIORITY 6
Centre for Indigenous Learning, Ecological Restoration & Climate Adaptation (CILERCA)
PRIORITY 7
South Campus Infrastructure Renewal Phase 3
Burnaby Campus Boudary

Attachment 2: Project Overview

5-Year Capital Plan (2024/25 – 2028/29)

Project Detail		
Institution	**Campus/City**	**Project Priority**
BCIT	Burnaby	1 of 7
Project Title		
Cybersecurity Protection for Facilities, Research and Campus Networks		
Project Category		**Program Type**
IM/IT - Security & Privacy		Public Safety / Security
Project Budget ($ millions)		
Total Project Cost	**Provincial Funding**	**PSI / Donor Funding**
$7.0	$6.3	$0.7

- BCIT will allocate $0.7 M Routine Capital budget to this project.
- Based on the technology shifts from capital to operating, the project will leverage cloud computing resources and associated expenses will be based in OPEX
- The ongoing OPEX of processing data and storage has been included for 5 years.

Strategic Alignment	
CleanBC Targets	**DRIPA Response**
Not Applicable, as this project involves IT hardware and software upgrades.	Not Applicable, as this project involves IT hardware and software upgrades.
Mass Timber Eligibility	**Community Benefits**
Not Applicable, as this project involves IT hardware and software upgrades.	• **Protecting sensitive information**: BCIT collects and stores a vast amount of sensitive information about students, faculty, staff, and research. Cybersecurity measures will help protect this information from unauthorized access or theft, which can prevent identity theft, financial fraud, and other forms of cybercrime. • **Maintaining continuity of operations**: The increase of Internet of Things (IoT) and digital footprint of all thing's internet requires serious attention to protect BCIT infrastructure and operations. Cybersecurity protection will help

	ensure that BCIT systems and networks remain operational even in the face of cyberattacks or other security incidents. This can prevent disruptions to institute facilities and supply chain operations, teaching, research, critical infrastructure (Microgrid) and administrative functions. • **Enhancing reputation**: BCIT with strong cybersecurity practices will enhance its reputation among students, faculty, and other stakeholders. This will lead to increased enrollment, improved faculty recruitment/retention, and a better overall image in the academic community. • **Compliance with regulations**: BCIT is subject to various regulations under FIPPA related to data protection and cybersecurity, such as mandatory privacy data breach reporting. Implementing cybersecurity measures will help ensure compliance with these regulations and avoid costly penalties. • **Encouraging innovation**: A secure and robust cybersecurity environment will encourage innovation and experimentation by researchers and students. This can lead to new discoveries and breakthroughs in fields such as artificial intelligence, machine learning, and cybersecurity itself.

- **Describe how the project aligns with the Environmental, Social and Governance Framework for Capital (ESGFC)**

Cybersecurity is aligned with the Environmental, Social, and Governance (ESG) framework in several ways:

- **Environmental**: Cybersecurity will help protect against environmental risks such as data breaches and cybercrime attacks that can have negative environmental impacts.
- **Social**: Cybersecurity will help protect against social risks such as privacy violations, identity theft, and cyberbullying. By safeguarding sensitive information, cybersecurity measures can help protect individuals' social wellbeing.
- **Governance**: Cybersecurity is an important aspect of good governance as it ensures that sensitive information is protected and that BCIT comply with relevant regulations and standards. Implementing strong cybersecurity protection will demonstrate good governance and help build trust with BCIT community and stakeholders.

Cybersecurity protection investments align with the government’s priorities for investment in new training and employment opportunities in several ways:

- **Skills development**: the project will create new training and employment opportunities in the cybersecurity field for professionals working and supporting BC, as well as supporting skills development for existing BCIT employees.

- **Economic growth**: Cybersecurity is a rapidly growing industry, and investing in it will help stimulate economic growth by attracting businesses and creating new job opportunities. By developing a strong cybersecurity industry, the government can support the growth of other industries that depend on secure technology, such as critical infrastructure, finance and healthcare.
- **Protection of critical infrastructure**: Cybersecurity investments will help protect critical infrastructure, such as BCIT's Smart grid systems, health sciences operations, and facilities and related utilities, from cyber threats. By investing in cybersecurity, the government will ensure the resilience of critical infrastructure and safeguard BCIT's community and the general public.
- **Innovation**: Investing in cybersecurity will promote innovation by encouraging the development of new tools and technologies and solutions to address emerging cyber threats. This can lead to the creation of new intellectual property, new products and services, and new business opportunities.

BCIT's strategic plan highlights a key commitment to redesign processes and systems. Cybersecurity touches people, processes and technologies and the investments are aligned to improve overall security of systems and operations across institute.

- **Applied education and research**: BCIT's strategic plan emphasizes applied education and research that prepares students for careers in emerging fields. As with all thing's internet today, applied education and research needs to be secured from various cybersecurity risks to enable and prepare students for careers in applied areas and support the development of new technologies and solutions.
- **Industry partnerships**: BCIT's strategic plan emphasizes partnerships with industry to ensure that its programs and research align with the needs of employers. Cybersecurity is an area where strong partnerships with industry are essential, as businesses and organizations are increasingly reliant on secure technology to operate. BCIT has established key industry partnerships with BCNET, Cisco, Fortinet and Palo Alto for cybersecurity needs.
- **Innovation and entrepreneurship**: BCIT's strategic plan emphasizes innovation and entrepreneurship as a key driver of economic growth and competitiveness. With innovation in new technologies and solutions by students and researchers; protecting intellectual property, data and personal identifiable information, cybersecurity protective controls are a must to address emerging cyber threats from nation-states.
- **Social and environmental responsibility**: BCIT's strategic plan emphasizes social and environmental responsibility, recognizing the important role that education and research can play in addressing social and environmental challenges. Cybersecurity is an area where social responsibility is particularly important, as cyber threats can have serious consequences for our community and stakeholders.
- **Diversity and inclusion**: BCIT's strategic plan emphasizes diversity and inclusion as a core value, recognizing that a diverse and inclusive community is essential for innovation and success. Cybersecurity is an area where diversity and inclusion are particularly important, as cyber threats can affect individuals and organizations from all backgrounds and sectors.

Project Schedule		
Target Bus. Plan Approval Date	**Target Construction Start Date**	**Target Occupancy Date**
March 2024	January 2025	August 2026

The overall project schedule assumes Ministry notional approval November 2023, Business Plan submission January 2024 and Ministry Business Plan approval March 2024.

Project Scope & Objectives

Project Scope

Rebuild BCIT's cybersecurity protection end-to-end, including Internet of Things (IOT) related endpoints and securing building operations, supply chain operations, research related critical infrastructure like Smart Grids and IT related networks interconnecting various zones across five BCIT campuses across lower mainland.

Project Objectives

- Secure BCIT from end to end using a unified approach.
    - Unified Security Architecture across various critical business and academic functions.
    - Centralized IoT management and security
    - Securing Operational Technologies (Industrial Control Systems)
    - Securing Research Networks (Smart Grid, etc)
    - Securing Student Sandbox environments
    - Securing Bring Your Own Devices (BYOD) for community
    - Securing Student Labs both on-premises and cloud
    - Secure Virtual Desktop Infrastructure (VDI) environments
    - Securing and monitoring of East-West network traffic and protection of data centre (micro-segmentation)
    - Building a Unified Security Incident Event Management (SIEM) Implementation
    - Securing and integrating distance learning tools

Key Risks

- Available BCIT staff resources to manage the project.
- The risk mitigations available will be to leverage BCNET procurement services.

Options Considered

- BCIT has reviewed at shared security services from BCNET but they cannot offer something effective to meet BCIT's scale and complexity.
- BCIT can leverage BCNET as a procurement vehicle to build an Integrated Security Architecture as they have relationships with all the major vendors.
- BCIT has been actively reviewing the security architecture with expert vendors and it's evident that the size of BCIT's operations is unique and align with large university environments.

Current Situation

- Cyber Security at BCIT is currently haphazard with no unified Security Architecture making it easier to miss things.
    - No centralized monitoring of industrial control systems (ICS), and in fact little insight at all to ICS systems
    - BCIT has specific IT logging capabilities but lacks SIEM and is not able to correlate disparate security events to paint a full picture of potential threats from other inter-connected networks.
    - ICS security is managed in an inconsistent fashion.
    - Some of our legacy systems prevent protecting everything at the same level.
    - "Identity assets" is foundational to good security and while BCIT is making strides in their identity, it is still not in a position to fully support a Zero Trust architecture.

- Impact if project not funded.
    - It's been well said, "it's not about if, it's a matter of when". BCIT's network complexity requires immediate attention.
    - BCIT will continue to be partially blind and especially in the Industrial Networks.
    - BCIT will continue to be more reactive vs proactive and strategic with our security stance.

IM/IT Project Detail

Project History:

☒ New

☐ Mandatory (if mandatory, specify source of requirement):

-

☐ Refresh (if refresh, specify previous project):

-

BCNET Offering:

Yes: please specify which service.

- Cybersecurity Services
- Procurement Services

No (please provide rationale):

Attachment 2: Project Overview

5-Year Capital Plan (2024/25 – 2028/29)

Project Detail		
Institution	**Campus/City**	**Project Priority**
BCIT	Burnaby	2 of 7
Project Title		
Trades and Technology Complex: Carpentry Shop Renewal (NE04) + Piping Pavilion (NE06) + Welding Pavilion (NE08)		
Project Category		**Program Type**
Whole Asset Replacement or Renewal		Trades

Project Budget ($ millions)		
Total Project Cost	**Provincial Funding**	**PSI / Donor Funding**
$17.5	$14.9	$2.6

- $2.0 Million donor contributions are secured (to date) towards the total $2.6 M fundraising target.
- This project involves interior renovations and small addition to the Carpentry Shop (NE04) and the provision of a Piping Pavilion (NE06) and Welding Pavilion (NE08) to improve the quality, efficiency and life safety conditions of existing instructional areas.
- This project involves improving the quality, efficiency, and life safety of existing trades education facilities, and will involve the reallocation of existing educational resources.
- The renewal of existing facilities will enhance facility scheduling and permit modest intake increases to existing trades programs.

Strategic Alignment	
CleanBC Targets	**DRIPA Response**
• This project contributes to a strong sustainable economy that works for everyone, and directly supports the Clean BC Strategy. • Renewal of the Carpentry Shop (NE04) will include modernization of existing HVAC and Lighting systems with high efficiency infrastructure. • The new Piping and Welding pavilions will meet STEP 4 energy code design requirements. • These renovations will assist in the expansion of the workforce for low carbon industries, contributing to GHG reduction objectives.	• BCIT's Indigenous Initiatives Office participates in the design process for all major capital projects. • During the design phase, Indigenous Initiatives will focus on design issues, such as culturally appropriate interior and exterior design, sustainability, and safe spaces for Indigenous students. • When facilities are nearing occupancy, Indigenous Initiatives will focus on partnership opportunities; cultural awareness and cultural safety workshops for staff, faculty, and students; indigenizing curriculum; and Indigenous student support services.

Mass Timber Eligibility	Community Benefits
• Mass timber technology may be used to construct the Piping Shop Pavilion (NE06) and, together with Carpentry Shop (NE04), will contribute to education in mass timber construction. • The Carpentry Shop (NE04) renewal will help fill the training gap for carpenters in the mass timber sector. Education programming at BCIT includes the *Associate Certificate in Construction of Mass Timber Structures*.	• The Trades and Technology Complex is part of the transformation of the Burnaby Campus, as BCIT becomes a leader and model for sustainability development with the graduates it produces and the facilities it builds. • Renovations for energy efficiency and new clean energy systems will contribute to a strong sustainable economy.

- This project aligns with the Mass Timber and Clean BC components of the Environmental, Social and Governance Framework for Capital (ESGFC)
- This project aligns with Stronger BC and assists in the implementation of its economic plan, particularly with BCIT's training for the jobs of tomorrow.
- This project aligns with BCIT's Vision and Mission to renew Trades facilities and expand opportunities for growth in training programs.

Project Schedule

Target Bus. Plan Approval Date	Target Construction Start Date	Target Occupancy Date
March 2024	July 2026	December 2027

The overall project schedule assumes Ministry notional approval November 2023, *Business Plan* submission January 2024, and Ministry *Business Plan* approval March 2024.

Project Scope & Objectives

Project Scope

A Strong Sustainable Economy That Works For Everyone

The BCIT Trades & Technology Complex Business Case (submitted to the Ministry June 2020) comprises a series of phased projects that will replace and modernize existing functionally inadequate buildings, and enhance and expand the Institute's Trades & Technology instructional space.

This project involves interior renovations and small addition to the Carpentry Shop (NE04) and the provision of Piping Pavilion (NE06) and Welding Pavilion (NE08) to improve the quality, efficiency and life safety conditions of existing instructional areas.

Project Objectives

- Provide modern trades learning spaces and facilities.
- Increase student intake, including Indigenous persons, and reduce waitlists.
- Support programs that align with emerging opportunities for skilled personnel presented by high-tech industries, such as construction, renewable energy, and pipelines.
- Improve the Campus' profile, specifically the Trades program's image and recruitment opportunities.
- Provide industry partnership and journeyman upgrading opportunities.
- Reduce energy use and operating costs.
- Provide safer workshops and outdoor work areas that are more functional and use space more efficiently.

Key Risks

- A progressively widening gap between existing and modern 21st century learning environments;
- That BCIT will be constrained in meeting student demand for the Trades & Technology training places;
- Negative impacts on the recruitment of students, faculty, and staff; and
- The Province's ability to achieve Stronger BC trades training priorities.

Options Considered

Status Quo. This option does not address functional requirement and program expansion opportunities.

Non-Capital Site Option. The off-site lease option is also deemed not viable. These programs are an integral part of the overall trades training taught at BCIT. Students need to be in proximity to other shops, structures, and classrooms within the larger Trades' training complex.

New & Renewed Facilities. Preferred. This option best meets project objectives.

Current Situation

CURRENT STATUS	USE	EXISTING SIZE	ADDITIONAL NEW SPACE	YEAR BUILT	FACILITY CONDITION INDEX	VFA REPLACEMENT VALUE	BUILDING OUTCOME	PROGRAM FTE 2022/23
NE04 Carpentry Shop	Classroom /Shop	2,057 m^2	157 m^2	1959	0.27	$14,446,684	Renovated + Addition	938
NE06 Piping Shop	Classroom /Shop	2,571 m^2	1,570 m^2	1961	0.45	$11,397,612	Addition	607
NE08 Welding Shop	Classroom /Shop	2,395 m^2	150 m^2	1981	0.34	$9,458,689	Addition	180

Attachment 2: Project Overview

5-Year Capital Plan (2024/25 – 2028/29)

Project Detail		
Institution	**Campus/City**	**Project Priority**
BCIT	Burnaby	3 of 7
Project Title		
Trades and Technology Complex: Electrical Technology Innovation Centre (SE01)		
Project Category		**Program Type**
New Priority		Trades

Project Budget ($ millions)		
Total Project Cost	**Provincial Funding**	**PSI / Donor Funding**
$13.3	$7.3	$6.0

- $3.5 Million donor contributions are secured (to date) towards the total $6.0 M fundraising target.
- This project involves the addition of four specialty laboratories to provide approximately 48 FTE lab spaces which will enhance facility scheduling and permit modest intake increases to existing Electrical Trades programs.
- The project involves reallocation of existing educational resources.
- This addition would involve the removal an existing dining lounge area (226 m2) that has considerable deferred maintenance and energy performance issues.

Strategic Alignment	
CleanBC Targets	**DRIPA Response**
• This project contributes to a strong sustainable economy that works for everyone, and directly supports the Clean BC Strategy. • The new addition would be designed to meet STEP 4 of the Energy Code and Net GHG ready. • This addition will directly assist in the expansion of the workforce for low carbon industries, contributing to GHG reduction objectives.	• BCIT's Indigenous Initiatives Office participates in the design process for all major capital projects. • During the design phase, Indigenous Initiatives will focus on design issues, such as culturally appropriate interior and exterior design, sustainability, and safe spaces for Indigenous students. • When facilities are nearing occupancy, Indigenous Initiatives will focus on partnership opportunities; cultural awareness and cultural safety workshops for staff, faculty, and students; indigenizing curriculum; and Indigenous student support services.

Mass Timber Eligibility	Community Benefits
• Mass timber materials will be used to construct this two-story addition.	• The Trades and Technology Complex is part of the transformation of the Burnaby Campus, as BCIT becomes a leader and model for sustainability development with the graduates it produces and the facilities it builds. • This addition will be design for high energy efficiency and new clean energy systems will contribute to a strong sustainable economy.

- This project aligns with the Mass Timber and Clean BC components of the Environmental, Social and Governance Framework for Capital (ESGFC)
- This project aligns with Stronger BC and assists in the implementation of its economic plan, particularly with BCIT's training for the jobs of tomorrow.
- This project aligns with BCIT's Vision and Mission to renew Trades facilities and expand opportunities for growth in training programs.

Project Schedule

Target Bus. Plan Approval Date	Target Construction Start Date	Target Occupancy Date
March 2025	July 2026	August 2027

The overall project schedule assumes Ministry notional approval in March 2024, *Business Plan* submission in November 2024, and Ministry *Business Plan* approval in March 2025.

Project Scope & Objectives

Project Scope

A Strong Sustainable Economy That Works For Everyone

The BCIT Trades & Technology Complex Business Case (submitted to the Ministry June 2020) comprises a series of phased projects that will replace and modernize existing functionally inadequate buildings, and enhance and expand the Institute's Trades & Technology instructional space.

This project involves the addition of four specialty laboratories to provide approximately 48 FTE lab spaces which will enhance facility scheduling and permit modest intake increases to existing Electrical Trades programs.

Project Objectives

- Provide modern trades learning spaces and facilities.
- Increase student intake, including Indigenous persons, and reduce waitlists.
- Support programs that align with emerging opportunities for skilled personnel presented by high-tech industries, such as construction, renewable energy, and pipelines.
- Improve the Campus' profile, specifically the Trades program's image and recruitment opportunities.
- Provide industry partnership and journeyman upgrading opportunities.
- Reduce energy use and operating costs.

- Provide safer workshops and outdoor work areas that are more functional and use space more efficiently.
- Demonstrate "Living Lab" principles by employing leading edge building science principles in design and construction.

Key Risks

If the project does not proceed, the key risks are:

- A progressively widening gap between existing and modern 21st century learning environments;
- That BCIT will be constrained in meeting student demand for the Trades & Technology training places;
- Negative impacts on the recruitment of students, faculty, and staff; and
- The Province's ability to successfully implement its strategic priorities and initiatives will be limited.

Options Considered

Status Quo. This option does not address functional requirements and program expansion opportunities.

Non-Capital Site Option. The off-site lease option is also deemed not viable. This program is an integral part of the overall trades training taught at BCIT. Students need to be in proximity to other shops, structures, and classrooms within the larger Trades' training complex.

New & Renewed Facilities. Preferred. This option best meets project objectives.

Current Situation

CURRENT STATUS	USE	EXISTING SIZE	ADDITIONAL NEW SPACE	YEAR BUILT	FACILITY CONDITION INDEX	VFA REPLACEMENT VALUE	BUILDING OUTCOME	PROGRAM FTE 2022/23
SE01 Electrical Trades Centre	Classroom /Labs	7,213 m^2	796 m^2	1980	0.29	$28,984,867	Addition	2,019

Attachment 2: Project Overview

5-Year Capital Plan (2024/25 – 2028/29)

Project Detail		
Institution	**Campus/City**	**Project Priority**
BCIT	Burnaby	4 of 7
Project Title		
Trades and Technology Complex: Steel Trades Building and Yard Renewal (NE12)		
Project Category		**Program Type**
Whole Asset Replacement or Renewal		Trades

Project Budget ($ millions)		
Total Project Cost	**Provincial Funding**	**PSI / Donor Funding**
$25.0	$21.2	$3.8

- $2.6 Million donor contributions are secured to date towards the total $3.8 M fundraising target.
- This project involves a comprehensive building system renewal including electrical, mechanical, HVAC and life safety upgrades. The renewal work includes upgrades to learning spaces, gender inclusive washroom, building accessibility, sustainability, structural seismic and building envelope improvements.
- The renewal of existing facilities will enhance facility scheduling and permit modest intake increases to existing Steel Trades programs.

Strategic Alignment	
CleanBC Targets	**DRIPA Response**
• This project contributes to a strong sustainable economy that works for everyone, and directly supports the Clean BC Strategy. • Renewal of the Steel Trades (NE12) will include modernization of existing HVAC and Lighting systems with high efficiency infrastructure.	• BCIT's Indigenous Initiatives Office participates in the design process for all major capital projects. • During the design phase, Indigenous Initiatives will focus on design issues, such as culturally appropriate interior and exterior design, sustainability, and safe spaces for Indigenous students. • When facilities are nearing occupancy, Indigenous Initiatives will focus on partnership opportunities; cultural awareness and cultural safety workshops for staff, faculty, and students; indigenizing curriculum; and Indigenous student support services.

Mass Timber Eligibility	Community Benefits
• As this project involves the renewal of an existing concrete and steel building, Mass Timber is not a viable option for this project.	• The Trades and Technology Complex is part of the transformation of the Burnaby Campus, as BCIT becomes a leader and model for sustainability development with the graduates it produces and the facilities it builds. • Renovations for energy efficiency and new clean energy systems will contribute to a strong sustainable economy.

- This project aligns with the Clean BC and Social components of the Environmental, Social and Governance Framework for Capital (ESGFC) by providing gender inclusive washrooms and building accessibility upgrades.
- This project aligns with Stronger BC, and assists in the implementation of its economic plan, particularly with BCIT's training for the jobs of tomorrow.
- This project aligns with BCIT's Vision and Mission. This project is critical to renewing Trades buildings and expanding opportunities for growth in training programs.

Project Schedule

Target Bus. Plan Approval Date	Target Construction Start Date	Target Occupancy Date
March 2025	August 2026	December 2027

The overall project schedule assumes Ministry notional approval in March 2024, *Business Plan* submission in October 2024, and Ministry *Business Plan* approval in March 2025.

Project Scope & Objectives

Project Scope

A Strong Sustainable Economy That Works For Everyone

The BCIT Trades & Technology Complex Business Case (submitted to the Ministry June 2020) comprises a series of phased projects that will replace and modernize existing functionally inadequate buildings, and enhance and expand the Institute's Trades & Technology instructional space.

This project involves a comprehensive building system renewal including electrical, mechanical, HVAC and life safety upgrades. The renewal work includes upgrades to learning spaces, gender inclusive washroom, building accessibility, sustainability, structural seismic and building envelope improvements.

The project scope includes re-configuration of the steel trades works yard to include a new Iron worker tower, enhancements to steel rebar and boiler maker work areas, and a new steel gouging facility.

It should be noted that the Gantry Crane project, currently in the design phase, will function as an extension to the Steel Trades works yard and complement the educational programming within the overall facility.

Project Objectives

- Provide modern trades learning spaces and facilities.
- Increase student intake, including Indigenous persons, and reduce waitlists.
- Support programs that align with emerging opportunities for skilled personnel presented by high-tech industries, such as construction, renewable energy, and pipelines.
- Improve the Campus' profile, specifically the Trades program's image and recruitment opportunities.
- Provide industry partnership and journeyman upgrading opportunities.
- Reduce energy use and operating costs.
- Provide safer workshops and outdoor work areas that are more functional and use space more efficiently.
- Demonstrate "Living Lab" principles by employing leading edge building science principles in design and construction.

Key Risks

- Retention of a building that does not meet current seismic, life safety and accessibility standards;
- A progressively widening gap between existing and modern 21st century learning environments;
- BCIT will be constrained in meeting student demand for the Trades & Technology training places;
- Limit the Province's ability to successfully implement its *Stronger BC* trades training priorities.

Options Considered

Status Quo. This option does not address functional requirements and program expansion opportunities.

Non-Capital Site Option. The off-site lease option is also deemed not viable. These programs are an integral part of the overall trades training taught at BCIT. Students need to be in proximity to other shops, structures, and classrooms within the larger Trades' training complex.

New & Renewed Facilities. Preferred. This option best meets project objectives.

Current Situation

CURRENT STATUS	USE	EXISTING SIZE	ADDITIONAL NEW SPACE	YEAR BUILT	FACILITY CONDITION INDEX	VFA REPLACEMENT VALUE	BUILDING OUTCOME	PROGRAM FTE 2022/23
NE12 Steel Trades Shop	Classroom /Shop	2,935 m^2	0	1972	0.45	$8,941,286	Renovated	445

Attachment 2: Project Overview

5-Year Capital Plan (2024/25 – 2028/29)

Project Detail		
Institution	**Campus/City**	**Project Priority**
BCIT	Burnaby	5 of 7
Project Title		
Trades and Technology Complex: Electrical Trades Building Renewal (SE01)		
Project Category		**Program Type**
Whole Asset Replacement or Renewal		Trades

Project Budget ($ millions)		
Total Project Cost	**Provincial Funding**	**PSI / Donor Funding**
$30.0	$25.5	$4.5

- This project involves renewing structural seismic, life safety, building systems, architectural finishes and building envelop. The project primarily involves reallocation of existing educational resources.
- The renewal of existing facilities will enhance facility scheduling and permit modest intake increases to existing Electrical Trades programs.

Strategic Alignment	
CleanBC Targets	**DRIPA Response**
• This project contributes to a strong sustainable economy that works for everyone, and directly supports the Clean BC Strategy. • Renewal of the Electrical Trades (SE01) will include modernization of existing HVAC and Lighting systems with high efficiency infrastructure, including replacement of gas boilers with electric boilers. • These renovations will assist in the expansion of the workforce for low carbon industries, contributing to GHG reduction objectives.	• BCIT's Indigenous Initiatives Office participates in the design process for all major capital projects. • During the design phase, Indigenous Initiatives will focus on design issues, such as culturally appropriate interior and exterior design, sustainability, and safe spaces for Indigenous students. • When facilities are nearing occupancy, Indigenous Initiatives will focus on partnership opportunities; cultural awareness and cultural safety workshops for staff, faculty, and students; indigenizing curriculum; and Indigenous student support services.

Mass Timber Eligibility	Community Benefits
• As this project involves the renewal of an existing concrete and steel building, Mass Timber is not a viable option for this project.	• The Trades and Technology Complex is part of the transformation of the Burnaby Campus, as BCIT becomes a leader and model for sustainability development with the graduates it produces and the facilities it builds. • Renovations for energy efficiency and new clean energy systems will contribute to a strong sustainable economy.

- This project aligns with the Clean BC and Social components of the Environmental, Social and Governance Framework for Capital (ESGFC) by providing gender inclusive washrooms upgrades.
- This project aligns with Stronger BC and assists in the implementation of its economic plan, particularly with BCIT's training for the jobs of tomorrow.
- This project aligns with BCIT's Vision and Mission to renew Trades facilities and expand opportunities for growth in training programs.

Project Schedule

Target Bus. Plan Approval Date	Target Construction Start Date	Target Occupancy Date
March 2026	August 2027	July 2029

The overall project schedule assumes Ministry notional approval in March 2025, *Business Plan* submission in October 2025, and Ministry *Business Plan* approval in March 2026.

Project Scope & Objectives

Project Scope

A Strong Sustainable Economy That Works For Everyone

The BCIT Trades & Technology Complex Business Case (submitted to the Ministry June 2020) comprises a series of phased projects that will replace and modernize existing functionally inadequate buildings, and enhance and expand the Institute's Trades & Technology instructional space.

This project involves comprehensive building system renewal including electrical, mechanical, HVAC and life safety infrastructure upgrades. The renewal work would include upgrades to learning spaces, gender inclusive washrooms, sustainability, structural seismic and building envelope improvements. The heating system upgrades include full electrification to eliminate gas boilers and significantly reduce carbon emissions.

It should be noted that the proposed Electrical Trades Technology Innovation Addition (Priority #2 of 7) would function as an extension to the Electrical Trades Building and complement the educational programming within of the overall facility.

CURRENT OR PROPOSED BUILDING	USE	EXISTING SIZE	ADDITIONALNEW SPACE	YEAR BUILT	FACILITY CONDITION INDEX	DEFERRED MAINTENANCE	BUILDING OUTCOME	STUDENT FTE
SE01 Electrical Trades Centre	Classroom /Labs	7,213 m^2	0	1980	0.29	$8,260,708	Renovated	240

Project Objectives

- Provide modern trades learning spaces and facilities.
- Increase student intake, including Indigenous persons, and reduce waitlists.
- Support programs that align with emerging opportunities for skilled personnel presented by high-tech industries, such as construction, renewable energy, and pipelines.
- Improve the Campus' profile, specifically the Trades program's image and recruitment opportunities.
- Provide industry partnership and journeyman upgrading opportunities.
- Reduce energy use and operating costs.
- Provide safer workshops and outdoor work areas that are more functional and use space more efficiently.
- Demonstrate "Living Lab" principles by employing leading edge building science principles in design and construction.

Key Risks

- Retention of a building that does not meet current seismic standards;
- A progressively widening gap between existing and modern 21st century learning environments;
- BCIT will be constrained in meeting student demand for the Trades & Technology training places;
- Limit the Province's ability to successfully implement its *Stronger BC* trades training priorities.

Options Considered

Status Quo. This option does not address functional requirements and program expansion opportunities.

Non-Capital Site Option. The off-site lease option is also deemed not viable. These programs are an integral part of the overall trades training taught at BCIT. Students need to be in proximity to other shops, structures, and classrooms within the larger Trades' training complex.

New & Renewed Facilities. Preferred. This option best meets project objectives.

Current Situation

CURRENT STATUS	USE	EXISTING SIZE	ADDITIONAL NEW SPACE	YEAR BUILT	FACILITY CONDITION INDEX	VFA REPLACEMENT VALUE	BUILDING OUTCOME	PROGRAM FTE 2022/23
SE01 Electrical Trades Centre	Classroom /Labs	7,213 m^2	0	1980	0.29	$28,984,867	Renovated	2,019

Attachment 2: Project Overview

5-Year Capital Plan (2024/25 – 2028/29)

Project Detail		
Institution	**Campus/City**	**Project Priority**
BCIT	Burnaby	6 of 7
Project Title		
Centre for Indigenous Learning, Ecological Restoration and Climate Adaptation (CILERCA)		
Project Category		**Program Type**
New Priority		Sciences & Technology

Project Budget ($ millions)		
Total Project Cost	**Provincial Funding**	**PSI / Donor Funding**
$98.0	$83.3	$14.7

- This new facility will provide modern facilities to support and expand existing education programs in Environmental Engineering Technology; Fish, Wildlife & Recreation; Forestry & Natural Areas Management; and Ecological Restoration, supported with Indigenous Learning Centre and opportunity for co-management of natural resources based on the First Nations culture and knowledge.
- The new facility would have an estimated operating cost of $660,000 per annum.

Strategic Alignment	
CleanBC Targets	**DRIPA Response**
This project directly contributes to the Climate and Preparedness and Adaptation Strategy, and CleanBC and supports four of its pathways to build resilience: <u>Pathway 1: Foundations for Our Success</u> • Enhancing partnerships with Indigenous peoples • Improving data collection and monitoring networks • Integrating climate adaptation into decision-making • Expanding climate education <u>Pathway 2: Safe & Healthy Communities</u> • Reducing risks from heatwaves, flooding, and wildfires • Expanding cultural and prescribed burning • Enhancing floodplain mapping and extreme heat preparedness • Building food security and ensuring our health system is resilient	Courses and spaces within the building will contribute to BCIT's response to DRIPA, and include: • Culturally appropriate Indigenous services and gathering space, and a Student Liaison Office to provide province-wide ecological restoration outreach training programs for First Nations. • Programs to directly support, train, and increase participation of Indigenous learners, and collaborative support for First Nations in Ecological Restoration initiatives. • Indigenous Liaison Office will serve to support students in their educational pursuits. Working with First Nations in-community to provide direction, training, and agency with respect to ecological restoration.

<u>Pathway 3: Resilient Species & Ecosystems</u> • Establishing an Ecosystem Forecast Centre • Protecting and maintaining healthy watersheds • Revitalizing wild salmon populations • Addressing threats posed by ocean acidification and sea level rise <u>Pathway 4: Climate-Ready Economy & Infrastructure</u> • Supporting key industries to prepare for a changing climate • Making our roads and highways resilient • Ensuring hospitals, schools and other buildings are climate ready	
Mass Timber Eligibility	**Community Benefits**
• Where permitted by building code, the building will utilize engineered wood and mass timber products, and serve as an important demonstration "living lab" opportunity for students and researchers, promoting sustainable building design.	• Provide educational opportunities for a range of industry partners in both current and anticipated restoration and adaptation technologies. • Located adjacent to the restored and daylighted Guichon Creek, highlighting the potential for daylighting creeks in urban areas as part of ecological restoration. • A community destination for Indigenous teaching initiatives and their integration with reconciliation processes. • Provide co-management opportunities for the natural resources management within BC based on integrated and collaborative approach with First Nations. • Impact of this building and education program has an opportunity to significantly shift systemic approach to natural resources management, and centres it within the First Nations principles and culture. This will accelerate decolonisation in BC.
• This project aligns with the Mass Timber, Clean BC, Gender and Social Inclusion components of the Environmental, Social and Governance Framework for Capital (ESGFC) • Demonstrating and embracing First Nations knowledge and experience in management of natural resources, and propelling opportunities for co-management and decolonization • Restoration of damaged environments is a significant activity around the world, and CILERCA will contribute toward recognition of BC as a leader in ensuring a clean and sustainable economy. • Unique spaces, courses, and programs will support reconciliation and provide education opportunities for Indigenous learners in areas such as ecological restoration, forest and watercourse environments and the bio economy. • This project also aligns with *Stronger BC*, and assists in the implementation of its economic plan, particularly with BCIT's training for the jobs of tomorrow.	

Project Schedule		
Target Bus. Plan Approval Date	**Target Construction Start Date**	**Target Occupancy Date**
March 2026	March 2028	January 2030

The overall project schedule assumes Ministry notional approval in March 2025, *Business Plan* submission in October 2025, and Ministry *Business Plan* approval in March 2026.

Project Scope & Objectives

Project Scope

- Construction of the new 4-storey learning and applied research facility situated on Canada Way, adjacent to the approved Trades & Technology Centre.
- Total estimated area = 6,655 m^2 (71,600 sf)
- The proposed facility will include a dedicated Indigenous Initiatives gathering space and learning centre, a 144-seat lecture theatre, several student collaboration meeting rooms, two computer labs, 8 classrooms, 5 wet research laboratories, graduate student and faculty workspace, and BCIT's Rivers Institute.
- This facility will accommodate 242 student FTE in the following programs: Environmental Engineering Technology (64 FTE); Fish, Wildlife & Recreation (64 FTE); Forestry & Natural Areas Management (64 FTE); and Ecological Restoration (50 FTE).
- This project will permit the eventual removal of Building SE04 that is has sub-standard educational spaces with an FCI = 0.29

Project Objectives

- The proposed new centre will provide a modern facility for key education and applied research programs related to Indigenous learning, ecological restoration, and climate change adaptation, based on a strong foundation of First Nations knowledge and practices in managing natural resources and land.
- With the planned daylighting of Guichon Creek, the building will serve as a living lab for sustainable design.
- This project is aligned with Provincial skilled labour economic recovery, Indigenous reconciliation, and sustainability objectives.
- The centre will allow for expansion of the Ecological Restoration department's MSc and BSc programs, and support associated programs, such as Fish, Wildlife and Recreation; and Forest & Natural Areas Management.
- As these programs are founded in First Nations learnings and practices of managing natural resources and land, this project also includes an Indigenous gathering and learning space to support learners attending programs by providing a prominent ground level space near the main entry of the building.
- The project will provide modern teaching and research spaces to replace BCIT's current scattered facilities. This building will solidify BCIT as a leader in ecological restoration and climate adaptation by integrating several complementary programs into a single centre.

Key Risks

- There will be an impact on recruitment of students, faculty, and staff and a loss of market share to other ecological restoration and climate adaptation research institutions;
- Loss of leadership role in training and research, and failure to capitalize on BCIT's existing experience in teaching ecological restoration, including integration of the work undertaken by the Rivers Institute;
- Loss of opportunity to contribute toward DRIPA commitments, and CleanBC Pathways, especially Bio-Forestry;

Options Considered

- Status Quo. This option does not address program expansion opportunities, or the consolidation of existing functionally inadequate facilities.
- Non-Capital Site Option. The off-site lease option is also deemed not viable. Students and faculty need to be in proximity to other classrooms and resources within the BCIT Campus.
- Renovation. BCIT has concluded it is impractical to renovate and enlarge the SE04 building, as this poor quality, single-storey building does not have sufficient site area to accommodate the CILERCA building programs
- **New Centre**. **Preferred**

Current Situation

- This facility will accommodate 242 student FTE in the following programs: Environmental Engineering Technology (64 FTE); Fish, Wildlife & Recreation (64 FTE); Forestry & Natural Areas Management (64 FTE); and Ecological Restoration (50 FTE).
- Ecological Restoration is a new and rapidly developing industry intimately integrated with climate change adaptation. BCIT is an educational pioneer in this field since establishing its first courses in 2009, and has become a leading educational institution in Canada for these programs, which are housed within the School of Construction & the Environment.
- BCIT offers students phased opportunities to incrementally obtain credentials from Diploma to Masters of Science degree. BCIT offers Canada's first professional graduate degree specializing in restoring degraded ecosystems; this is a joint program offered by BCIT and Simon Fraser University.
- Ecological Restoration is an emerging and growing scientific discipline because of the increasing need to restore damaged ecosystems. This combined with Indigenous Learning focus and opportunity for co-management and decolonisation makes this opportunity very unique.

Attachment 2: Project Overview

5-Year Capital Plan (2024/25 – 2028/29)

Project Detail		
Institution	**Campus/City**	**Project Priority**
BCIT	Burnaby	7 of 7
Project Title		
South Campus Infrastructure Project – Phase 3		
Project Category		**Program Type**
Linear Infrastructure		Other

Project Budget ($ millions)		
Total Project Cost	**Provincial Funding**	**PSI / Donor Funding**
$55.5	$50.0	$5.5

- The Ministry has reviewed the overall *Business Case* for the South Campus Infrastructure Project, and has funded the Phase 1 and Phase 2 scopes of work. Phase 1 valued at $14.6 million was completed Sept 2022. Phase 2 valued at $48 million will begin design in 2023, with planned completion Q4 2027.
- There is no increase to operational costs associated with this linear infrastructure renewal project.
- There would be a reduction in unplanned "emergency" repair work that currently occurs with end-of-life infrastructure, such as recent stormwater pipe sinkhole repairs. A recent Guichon culvert sink hole has resulted in a $1.5 million repair.

Strategic Alignment	
CleanBC Targets	**DRIPA Response**
• The third phase of this infrastructure project will continue to contribute to CleanBC and its road map, and is directly consistent with the first pathway. This project will contribute to a reliable, efficient, and resilient campus. • Daylighting and ecological restoration of Guichon Creek will contribute to naturalizing the campus and improve Guichon Creek water quality.	• BCIT's Indigenous Initiatives Office participates in the design process for all major capital projects. • This phase of linear infrastructure involves the replacement of aged stormwater culverts with a daylighted Guichon Creek stream channel that will include culturally important ecological restoration of the creek to promote salmonid species reproduction on the campus. • During the design phase, BCIT Indigenous Initiatives will focus on design issues, such as culturally appropriate exterior design, sustainability, and safe spaces for Indigenous students.

Mass Timber Eligibility	**Community Benefits**
• This project is not eligible for mass timber construction, but will provide modern services that support the educational build-out of the BCIT Burnaby Campus, which will utilize mass timber construction (where permitted).	• Contribute to a strong and resilient campus within the municipality of Burnaby by removing and replacing failing infrastructure. • This project includes major accessibility improvements that create fully accessible pedestrian walking routes. • The project involves replacement of existing stormwater culverts to daylight and ecologically restore a section of Guichon Creek.

- BC Hydro is transitioning electrical services in the Willingdon corridor to 25kV services (from the current 12.5kV). The planned changes add to the urgency for upgrading electrical distribution to match the system recently installed in the North Campus.
- This project aligns with Stronger BC, and assists in the implementation of its economic plan, particularly with BCIT's training for the jobs of tomorrow.
- This initiative underpins and supports BCIT's *Strategic Plan* for renewal and the creation of resiliency for its Burnaby Campus.

Project Schedule

Target Bus. Plan Approval Date	Target Construction Start Date	Target Occupancy Date
March 2027	July 2028	July 2031

- The Ministry has reviewed the overall *Business Case* for the South Campus Infrastructure Project, and has funded the Phase 1 and Phase 2 scopes of work. Phase 1 valued at $14.6 million was completed Sept 2022. Phase 2 will begin the design phase in 2023 with planned completion Q4 2027.
- The overall project schedule assumes Ministry notional approval in March 2026, *Business Plan* submission in October 2026, and Ministry *Business Plan* approval in March 2027.

Project Scope & Objectives

Project Scope

- The Phase 3 scope of work includes replacement of underground utilities along Roper Avenue and services to the following buildings: Renewable Resources (SE04), Business (SE06), Broadcast Centre (SE10), Computing & Academic Studies and Health Sciences (SE12), and Library (SE14).
- This phase also features the implementation of Guichon Creek channel daylighting and ecological restoration, as well enhancement of the pedestrian public realm on both sides of the daylighted stream channel. Phase 3 has a project value of $55.5 million.

Project Objectives

- Maintain business continuity for the entire South Campus.
- Upgrade critical deferred maintenance conditions related to electrical equipment reaching end of life.
- Provide a modern 25kV electrical distribution system, including distribution redundancy.
- Replacement of underground utilities – stormwater, sewer, gas, and water.
- Align future developments with the *Burnaby Campus Plan*, and above-ground master planning by providing a utility corridor for the South Campus.
- Significant improvement to pedestrian accessibility by removing existing barriers to mobility.

Key Risks

If the project does not proceed, the key risks are:

- BC Hydro 25kV conversion will make the current 12.5kV electrical distribution system obsolete.
- System failure and costs associated with unplanned disruptions to operations and continuity of education services; and
- Continued deterioration of the Guichon Creek culvert, including sinkhole collapse under existing buildings.
- A recent Guichon culvert sink hole adjacent to SE16 has resulted in a $1.5 million repair.

Options Considered

Given the risk electrical failure poses to the Institute's operations, immediate replacement of the electrical distribution system is required. Furthermore, based on recent culvert failures and sinkholes, the Guichon Creek culvert also requires renewal.

Current Situation

- A condition assessment shows the majority of electrical, water, gas, storm, and sewer services to the southern part of campus are past serviceable life, and pose a high risk of failure and to business continuity. This project is aligned with Provincial resilience and sustainability objectives.
- BC Hydro is transitioning electrical services in the Willingdon corridor to 25kV service (from the current 12.5kV). The planned service change adds to the urgency for upgrading electrical distribution infrastructure to match the system recently installed in the North Campus.
- This project will replace a section of the decaying Guichon Creek storm culvert with an ecologically restorative stream channel, as outlined in the *Campus Plan*. Modernization of this infrastructure also supports core educational building service reliability, and will provide modern infrastructure required for future development on campus.
- Project business case was submitted to the Ministry in July 2020. The Ministry provided capital grants for Phase 1 underground utility replacement on White Avenue and Fairy Street valued at $14.6 million completed in 2022. In addition, the Ministry recently approved $48 million funding for Phase 2 which is schedule for completion Q4 2027.