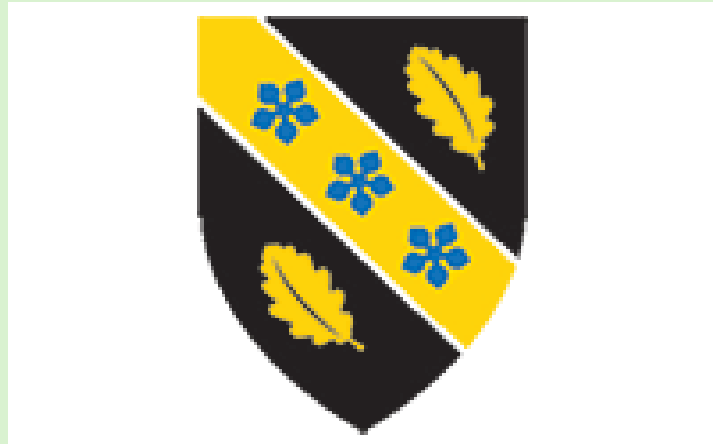


A Project portfolio



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Programme: BA (Hons) Leadership and Management skills for the Workplace

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Lecture: Raxon Nting

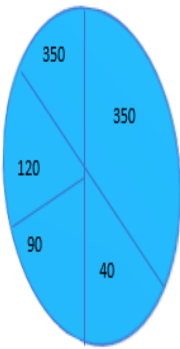
Table of Contents

Presentation	2
Project Overview	3
Reflections from the feedback received from tutor and peers	4
Introduction.....	5
Project description.....	6
Scope	7
Work breakdown structure	8
Quad chart.....	10
Gantt chart (High-Level Schedule Description)	11
Stakeholders' involvement.....	12
Allocation of resources	13
Risk Analysis	14
Conclusion	15
References	16

Presentation

Reconstruction of Local Infrastructures Damaged by 2022 BC Flooding

In November 2022, an atmospheric river caused catastrophic flooding across British Columbia. This led to bridge collapses, damaged roads, and destruction of schools, hospitals, and farms. This project focuses on rebuilding critical local infrastructure to restore connectivity and resilience.



Estimated Cost Breakdown (in Million CAD):

- Road and Bridge Reconstruction – 350
- Public Buildings – 120
- Utilities – 90
- Agriculture & Environment – 40
- Contingency (10%) – 60

TOTAL: 660 Million CAD

Gantt Chart (Timeline):

• Phase 1	Damage Assessment: Jan–Feb 2023
• Phase 2	Design & Permitting: Mar–May 2023
• Phase 3	Reconstruction: Jun 2023–Mar 2024
• Phase 4	Reconstruction: Jun 2023–Mar 2024
Total Duration: 17 months	

Expected Outcomes:

- Restored connectivity between regions
- Improved infrastructure resilience
- Economic and agricultural recovery
- Sustainable redevelopment
- Rebuild essential infrastructure
- Restore public services and utilities
- Improve resilience to future extreme weather events

Stakeholders:

- Government of British Columbia, Infrastructure Canada, Transport Canada
- Municipal governments, First Nations communities
- Engineering firms, contractors, suppliers
- Residents, farmers, and business owners

References:

1. Government of British Columbia (2022). Flood Recovery and Rebuilding Plan 2022–2024.
2. Infrastructure Canada (2023). Investing in Disaster-Resilient Infrastructure.
3. CBC News (2022). B.C. Floods: Infrastructure Damage and Recovery Efforts.

Project Overview

Emergency Reconstruction of a Flood-Resilient Transportation Corridor and Bridge in the Fraser Valley, British Columbia

Project Rationale

Following the catastrophic atmospheric river event that struck British Columbia in 2021–2022, major transportation corridors connecting the Lower Mainland to the rest of Canada were severed due to flooding, landslides, and bridge collapses. This disruption significantly impacted the movement of essential goods (food, fuel, medical supplies), emergency services, and economic activity, particularly affecting farms, public institutions, and private businesses.

As a qualified project manager, the project selected aims to **reconstruct a critical bridge and associated road infrastructure** using climate-resilient design standards. This project directly addresses transportation disruption, economic losses, and future disaster preparedness.

Reflections from the feedback received from tutor and peers

Feedback received from the tutor and peers was both constructive and valuable in refining my approach to the project management plan. One of the key strengths highlighted was my clear identification of a real-world problem and the selection of a project that directly responds to stakeholder needs. The feedback acknowledged that the project context was well explained, particularly in linking the flooding event to economic, social, and logistical impacts. This demonstrated a good understanding of situational analysis and problem definition, which is essential in effective project initiation.

Another positive aspect noted was my structured approach to project planning. Peers appreciated the logical flow of sections and the use of recognized project management tools such as the Work Breakdown Structure (WBS), Gantt chart, and risk analysis. The tutor also noted that the scope definition was clear and realistic, avoiding scope creep while still addressing critical reconstruction needs. This indicated that I applied project management principles discussed in the module effectively, particularly in scope and time management.

However, several areas for improvement were identified. One recurring point of feedback was the need for deeper stakeholder analysis. While stakeholders were identified, I was advised to further elaborate on their levels of influence, interest, and engagement strategies. In response, I plan to strengthen the stakeholder involvement section by incorporating a stakeholder power–interest matrix and more detailed communication strategies tailored to each group.

Another area highlighted for improvement was risk analysis. Although risks were identified, the tutor suggested expanding on mitigation and contingency measures, especially those related to climate change, supply chain disruptions, and regulatory approvals. In the final project plan, I will enhance the risk register by clearly linking each major risk to preventive and corrective actions, as well as assigning ownership.

Additionally, feedback suggested that the allocation of resources section could benefit from clearer justification of cost, labour, and equipment estimates. To address this, I will improve transparency by aligning resources more explicitly

with WBS elements and explaining assumptions used in budgeting and scheduling.

Overall, the feedback reinforced what I did well—problem definition, structure, and application of tools—while also guiding me on how to improve depth, justification, and integration across sections. These improvements will result in a more professional, comprehensive, and stakeholder-focused final project management plan.

Introduction

The unprecedented atmospheric river event that impacted British Columbia in late 2021 and continued effects into 2022 caused widespread flooding, landslides, and infrastructure collapse across the province. One of the most critical consequences was the failure of major transportation corridors linking the Lower Mainland to the rest of Canada. These corridors are essential for the movement of food, fuel, medical supplies, agricultural products, and emergency services. Their disruption exposed significant vulnerabilities in existing infrastructure and highlighted the urgent need for climate-resilient reconstruction.

This Project Management Plan (PMP) has been developed to guide the delivery of the **Fraser Valley Flood-Resilient Bridge and Transportation Corridor Reconstruction Project**. The plan applies established project management principles, tools, and techniques in line with PMBOK® guidance and academic best practice. It is intended for use by government sponsors, regulatory authorities, contractors, and affected community stakeholders to ensure the project is delivered safely, on time, within budget, and to an acceptable quality standard.

Project description

The project focuses on the reconstruction of a collapsed bridge and approximately five kilometres of severely damaged roadway located within the Fraser Valley, a critical logistics and commuter corridor in British Columbia. The original infrastructure was not designed to withstand the scale of flooding and landslide activity caused by recent extreme weather events. As a result, the project will not only restore connectivity but also enhance long-term resilience.

The reconstructed bridge will be elevated above historical flood levels and supported by reinforced foundations designed to resist scour and slope instability. Associated roadworks will include improved drainage systems, reinforced embankments, and slope stabilisation measures. Environmental protection measures will be implemented throughout the project lifecycle to minimise ecological impacts and comply with regulatory requirements.

The project is classified as a **public infrastructure emergency recovery project**, sponsored by the Provincial Government of British Columbia and delivered in collaboration with the Ministry of Transportation and Infrastructure.

Scope

Effective scope management is critical to ensure that the project meets its objectives while avoiding scope creep. The scope has been defined based on stakeholder requirements, funding constraints, and regulatory obligations.

In-Scope Activities:

- Project initiation and governance setup
- Detailed engineering and structural design
- Environmental, hydrological, and geotechnical assessments
- Demolition and removal of damaged bridge and roadway sections
- Reconstruction of a flood-resilient bridge structure
- Rehabilitation of approximately 5 km of roadway
- Installation of enhanced drainage and flood mitigation systems
- Slope stabilisation and landslide protection works
- Safety audits, testing, and commissioning
- Final handover and project close-out documentation

Out-of-Scope Activities:

- Reconstruction of private properties and farms
- Compensation or insurance claims for losses
- Long-term regional transportation planning beyond the corridor
- Operation and maintenance beyond the defect's liability period

Work breakdown structure

The Work Breakdown Structure decomposes the project into manageable components to support planning, scheduling, costing, and control.

Level 1: Fraser Valley Corridor Reconstruction Project

1. Project Initiation and Governance
 - Project charter approval
 - Stakeholder identification
 - Funding confirmation
2. Planning and Design
 - Engineering design development
 - Environmental impact assessment
 - Regulatory approvals and permits
3. Procurement Management
 - Contractor prequalification
 - Tendering and contract award
 - Material procurement
4. Construction Phase
 - Site preparation and access works
 - Bridge foundation and substructure construction
 - Superstructure erection
 - Roadway rehabilitation and paving
 - Drainage and slope stabilisation
5. Testing and Commissioning
 - Structural inspections
 - Load testing

- Safety certification

6. Project Closure

- Final documentation
- Stakeholder acceptance
- Lessons learned

Quad chart

Objective / Problem

Scope / Deliverables

Restore transportation connectivity after flood damage Ensure uninterrupted movement of essential goods Improve climate resilience of infrastructure	Reconstruction of one flood-resilient bridge Rehabilitation of 5 km of roadway Drainage and slope stabilisation works
Project duration: 18 months Design & approvals: Months 1–3 Construction: Months 7–15 Commissioning: Months 16–18	Estimated budget: CAD 150 million Key risks: extreme weather, approval delays, cost escalation

Schedule

Cost / Risks

Gantt chart (High-Level Schedule Description)

Gantt Chart – Project Schedule (Months 1–18)

Task / Month	1	2	3	4	5	6	7	8	9	10	11	12	13
Project Initiation	+												
Engineering Design	+	+	+										
Environmental & Regulatory Approvals		+	+	+									
Procurement & Mobilisation				+	+	+							
Site Preparation						+	+						
Bridge Construction							+	+	+	+	+	+	+
Road Rehabilitation								+	+	+	+	+	+
Drainage & Slope Stabilisation									+	+	+	+	+
Testing & Commissioning													
Project Closure & Handover													

Legend: + = Active period

This schedule reflects logical dependencies, with design and approvals preceding procurement and construction, while road rehabilitation and drainage work overlap with bridge construction to optimise time efficiency.

Stakeholders' involvement

Stakeholder engagement is essential due to the project's public visibility and socio-economic impact.

Key Stakeholders:

- Provincial Government (Project Sponsor)
- Ministry of Transportation and Infrastructure
- Local Municipal Governments
- Indigenous Communities
- Environmental Regulatory Agencies
- Contractors and Suppliers
- Residents and Businesses

Engagement strategies include formal consultation with Indigenous groups, public information sessions, progress reporting, and issue escalation mechanisms.

Allocation of resources

Human Resources:

- Project Manager
- Civil and Structural Engineers
- Environmental Specialists
- Construction Supervisors and Workforce

Financial Resources:

- Government capital funding
- Contingency reserve (10%)

Physical Resources:

- Heavy construction equipment
- Surveying and monitoring systems

Resources are allocated in alignment with the WBS to ensure efficiency and accountability.

Risk Analysis

Risk management is conducted throughout the project lifecycle.

Risk	Likelihood	Impact	Mitigation Strategy
Extreme weather events	High	High	Climate-resilient design, schedule buffers
Approval delays	Medium	High	Early regulator engagement
Supply chain disruption	Medium	Medium	Multiple suppliers
Cost escalation	Medium	High	Cost control and contingency
Safety incidents	Low	High	Strict H&S management

Conclusion

The Fraser Valley Flood-Resilient Bridge and Transportation Corridor Reconstruction Project address a critical infrastructure failure with significant national implications. This Project Management Plan demonstrates the structured application of project management methodologies to deliver a complex public infrastructure project in a high-risk environment. Through effective scope control, stakeholder engagement, risk management, and resource allocation, the project will restore connectivity, enhance resilience, and support long-term economic recovery.

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- Turner, J.R. (2014) *The Handbook of Project-Based Management*. 4th edn. New York: McGraw-Hill Education.
- World Bank (2019) *Lifelines: The Resilient Infrastructure Opportunity*. Washington, DC: World Bank Group.
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