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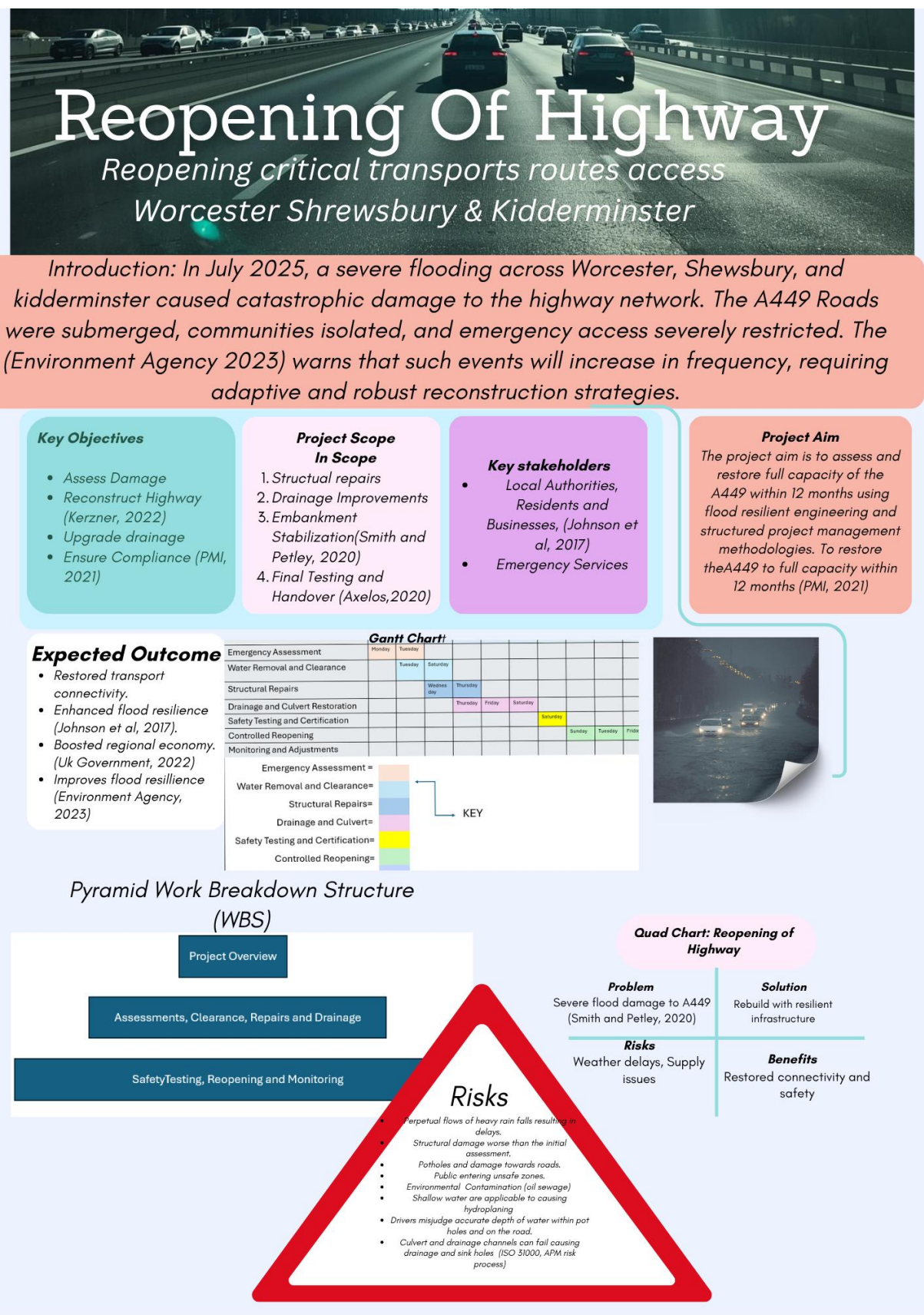
LCLM5003: Project Management

Title: Reopening of the A449 Highway

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Part A: Poster



Part B - Reflection on Feedback from Lecturer and Peers Using the Gibbs Reflective Model (1988)

Description

Throughout this module, I developed a poster, for my project management component. After hearing the feedback from my lecturer and peers. Who highlighted that although my work demonstrated effort and a clear understanding of the project context, it lacked academic depth, critical engagement, and sufficient integration of scholarly sources. The feedback emphasised that my writing across all sections was largely descriptive, that the poster required stronger academic grounding, and that the reflective analysis needed to be structured using a recognised model. Additionally, the technical components required more comprehensive explanation and justification using established project management frameworks.

Feelings

Initially, I felt confident in the clarity of my poster as I prioritised accessibility and visual communication. However, I also recognise a degree of apprehension about the academic expectations of the module. The feedback helped me realise that while my practical understanding was strong, my academic framing required further development.

Evaluation

The feedback highlighted Both strengths and weaknesses. Positively, the lecturer noted my project selection was appropriate and relevant to the scenario. This structure of the poster and the logical flow of information were also commended. However, the critique regarding limited academic grounding was valid. I had focused heavily on describing the project rather than analysing it through established project management theories. This limited the Academic depth of my work, which is essential (Moon 2013)

Analysis

Reflecting on the feedback, I recognise that my poster lacked explicit integration of project management framework such as PRINCE2, PMBOK7, and risk management standards like ISO 31000. According to (Kolb 1984), Deep learning occurs when experience is combined with conceptual understanding. My poster presented experience base reasoning, but insufficient conceptual underpinning. Furthermore, I did not fully consider the importance of critical engagement with literature, which is

essential for demonstrating high level academic thinking (Race, 2020). The feedback Also made me aware that reflective practise itself is a core competency in project management, supporting continuous improvement (Crawford et al.,2006)

Conclusion

The feedback has been constructive and has helped me identify gaps in my academic approach. I now understand the importance of integrating theory, defining key concept and demonstrating critical analysis. I also recognise the need to structure reflective writing using established models to ensure clarity and depth.

Action Plan

To address the feedback and strengthen my final submission, I will:

- Strengthen the Academic grounding of the poster by integrating relevant theories and citations.
- Use Gibbs model consistently to structure reflective writing.
- Expand my use of scholarly sources to support my analysis.
- Enhance the technical components of the project management plan by justifying decisions through established frameworks such as PRINCE2, PMBOK7, Mendelow's Matrix, and ISO 31000.
- Continue developing reflective practice skills to support my professional growth as a project manager.

Part C - Project Management Plan

Introduction

The severe flooding that occurred across the West Midlands In July 2025, resulted in widespread infrastructure disruption, particular along the A449 highway corridor. The River Severn's breach caused extensive damage to transport networks undermining road structures, eroding embankments, and overwhelming drainage systems. As transport infrastructure is a critical enabler of economic activity, emergency response, and community mobility, it's failure significantly amplified the social and economic consequences of the disaster.

This project management plan (PMP) Outlines a structured Academically grounded approach to the reopening and flood resilient reconstruction of the A449. The plan draws on established project management. Methodologies including PRINCE2 (Axelos, 2020), PMBOK7 (PMI,2021), AND ISO 31000 risk management principles, as well as infrastructure resilience literature (Smith and Petley, 2020). The PM P provides a comprehensive framework covering scope, governance, work breakdown structure, scheduling, stakeholder engagement, resource allocation, and risk management.

The aim is to ensure that the project is delivered efficiently, safely and sustainably while embedding long term resilience to future extreme weather events, which are increasing in frequently due to climate change (Environment Agency 2023).

Project Description

In July 2025, the West Midlands experienced unprecedented flooding following weeks of intense rainfall caused by unusual Atlantic weather system. The River Severn breached its defences in multiple locations, resulting in widespread damage to critical infrastructure across Worcester, Shrewsbury and Kidderminster. Among the most severe affected assets was the A449 I will corridor A strategic transport route **that** support regional mobility, emergency response, and economic activity.

The flooding caused structural degradation of the road surface, embankment erosion, drainage system failure and the obstruction of key access routes. Transport infrastructure is particularly vulnerable to climate induced extreme weather events and resilience literature highlights the need for adaptive and robust Construction strategies in post disaster environments (Smith and Petley, 2020). The (Environment Agency 2023) also warn that such events are likely to increase infrequency due to climate change, reinforcing the need for long term resilience planning.

Reopening and reconstructing the A 449 is therefore essential not only for restoring mobility, but also for supporting economic recovery, ensuring emergency access and enhancing the region's resilience to future flooding.

Scope

This scope defines the boundaries of the project and clarifies what is included and excluded from delivery.

In Scope Activities are:

- Structural assessment of the AIR 449 corridor.
- Roadbed construction and resurfacing.
- Drainage redesign and Installation.
- Embankment stabilisation.
- Stakeholders' engagement and communication.
- Environmental mitigation measures.

Out of Scope Activities are:

- Repairs to residential or commercial properties.
- Regional flood defence construction.
- Utility network reconstruction.
- Long term climate adaptation planning beyond the corridor.

Work Breakdown Structure (WBS)

A Work Breakdown Structure (WBS) is a hierarchical decomposition of Deliverable into smaller manageable components. It breaks the project down from the overall objective into work packages that can be planned, costed, schedule and controlled.

(Kerzner 2022) Describe the WBS as the cornerstone of project planning because it provides the structural foundation for all subsequent project management processes. PMBOK7 also identifies the WBS as a key tool within the Planning Performance Domain, supporting scope definition, scheduling, resource allocation, and risk identification (PMI,2021) The WBS now includes four major levels:

Level 1: Overall Project- Highway Reopening Programme.

Level 2: Key deliverables – Damage Assessment, Engineering works, Environmental Mitigate, Stakeholder Engagement, Project Governance.

Level 3: Sub- deliverables- e.g., structural inspections, communication plans.

Level4: Work packages – detailed tasks such as geotechnical surveys, culvert clearance, asphalt returfing, levee stabilisation, stakeholder briefing.

This structured approach ensures that all activities required for flood related infrastructure reinstatement are clearly defined, traceable, and aligned with recognised project management standards.

Quad Chart

A quad chart is a con size one-page visual tool used to summarise a project or proposal by driving key information into four quadrants. It originated In defence and engineering project environment, where decision makers needed to evaluate proposal quickly (Kerzner, 2022). Today, it is widely used in project management, business cases and stakeholder communication.

Problem that will arise are:

Flooding all severely damaged the A 449 disrupting mobility, emergency response and economic activity. Infrastructure failure increases vulnerability to future climate induced events (Environment Agency, 2023).

Solution:

A PRINCE2 aligned reconstruction project integrating resilient engineering, enhanced drainage, and structured stakeholder management.

Benefit

Benefits are to: Restored Mobility, Economic recovery, Reduced future flood risk and Enhanced community safety.

Risks

The possible risks are Weather delays, Supply chain disrupted, Environmental regulatory constraints and Safety incidents

ISO 31000 principles guide the risk identification and mitigation approach.

Gantt Chart and Schedule analysis

The project schedule is represented using a Gantt chart which provide a time phrase visual representation of all project activities. This aligns with PMBOK 7 schedule performance domain, which emphasises the importance of sequencing, duration estimation, And schedule optimization. (PMI,2021). The Gantt chart illustrates the logical flow of work across the four major phases: Assessment, site clearance, reconstruction and commissioning. Dependencies are mapped using the critical path method (CPM), Consistent with (Kerzner 2022) Recommendation for managing complex engineering projects. Activities such as structural assessment and procurement planning form part of the critical path, as delays in these tasks would directly Impact the overall project duration. The Gantt chart Also support PRINCE2 principles of managing by stages, enabling clear milestones, tracking, stage gate reviews and exception reporting (Axelos, 2020). By visualising task overlaps resource demand, and potential bottlenecks, the Gantt chart functions as both planning and control tools, ensuring that the A449 reconstruction project remains on schedule despite the uncertainties inherent in post disaster environments.

Timeline Overview.

Weeks 1-2: Assessment and Planning.

- Structural and geotechnical inspections
- Procurement planning
- Environmental Assessment.

These tasks are on the critical path, because reconstruction cannot begin until assessment is complete.

Weeks 3-6: Site Clearance and Temporary access

- Debris removal
- Temporary access routes
- Traffic management

These tasks run parallel with procurement activities.

Weeks 7-10: Pavement reconstruction

- Roadbed excavation.
- Sub-base reconstruction

- Asphalt resurfacing
- Drainage upgrades
- Embankments stabilisation.

This is the longest phase and forms the core of the critical path.

Week 11-12: Testing, Certification, and Reopening

- Structural testing
- Drainage performance testing.
- Final inspections.
- Andover.

These tasks cannot begin until construction is complete. It also ensures logical progression and minimises schedule risk.

Stakeholder Involvement

Effective stakeholder engagement is essential for the successful delivery of infrastructure recovery projects, particularly in post-disaster environments where expectations, sensitivities, and interdependencies are heightened. Stakeholders influence project outcomes through decision-making authority, regulatory oversight, operational involvement, or community impact (PMI,2021). This section outlines the key stakeholders, their interests and the mechanisms for ensuring meaningful engagement throughout the project lifecycle.

Stakeholder Identification

The primary stakeholders include:

- **Local Authorities** (Worcester City Council, Shropshire council, Wyre Forest District Council): Responsible for approving works, coordinating recovery efforts, and communicating with residents.
- **West Midlands Combined Authority (WMCA):** Provides regional oversight and ensures alignment with strategic recovery priorities.
- **Environment Agency (EA):** Regulates works near watercourses and ensures environmental compliance.
- **Emergency Services** (Police, Fire and Rescue, Ambulance): Require restored access for emergency response.
- **Residents and Businesses:** Directly affected by road closures, noise, and disruption.
- **Contractors and Suppliers:** Deliver construction, materials, and technical expertise.
- **Utility Providers:** Coordinate works related to electricity, water, and telecommunications infrastructure.
- **Transport Operators:** Require updated information on diversions and reopening schedules.

Stakeholder Analysis

Stakeholders vary in their level of influence and interest. A power-interest matrix 1991 supports prioritisation:

- **High Power/ High Interest:** Local authorities, Environment Agency, WMCA.
- **High Power/Low interest:** Utility Providers.
- **Low Power/High interest:** Residents, businesses, transport operators
- **Low Power/ Low interest:** General public outside the affected area.

This categorisation informs the communication strategy and engagement frequency.

Stakeholder Engagement Strategy

Engagement will follow APM (2020) principles of transparently, inclusively, and responsiveness. These include:

- Consultation meetings with high power stakeholders to ensure regulatory compliance.
- Regular updates for residents and businesses to maintain transparency.
- Collaborative planning with emergency services to ensure safe access routes.
- Public information campaigns to communicate progress and expected timelines.

RACI Matrix

Activity	Responsible	Accountable	Consulted	Informed
Structural inspection	Contractor	Project manager	EA	Local authorities
Drainage redesign	Engineering team	Project manager	EA	Resident
Pavement reconstruction	Contractor	Project manager	Utility providers	WMCA
Safety certification	Independent auditor	Local authority	EA	Public
Reopening announcement	Local authority	WMCA	Emergency services	Public

Allocation of Resources

Effective resource allocation is a critical component of project success. Particularly in complex infrastructure recovery projects. PMBOK7 Identifies resource management as a core performance domain, emphasising the need to balance human, physical, financial and technological resources to achieve project objectives efficiently (PMI,2021). Similarly, (Kerzner 2022) argues that's resource allocation must be strategically aligned with project priorities, constraints and risks to ensure optimal performance. The resource allocation approach for the A 449 reconstruction project is therefore grounded in established project management theory and tailored to the unique demands of post disaster Infrastructure recovery.

Human Resources

Human resources are allocated based on competency, role clarity and project phrase requirements

Key personnel include:

- Project Manager - Responsible for governance, coordination and decision making.
- Civil engineers - Responsible for IS structural assessment and design
- Environmental Specialist - Ensure compliance with environmental regulations.
- Construction teams- Execute reconstruction activities.
- Health and safety officers - Oversee safety compliance.
- Procurement and finance staff - Manage contracts and budget

(Kerzner 2022) emphasises that aligning skills with task complexity improves productivity and reduce project risks. This principle underpins the Selection of specialist engineers an environmental consultant for technically demanding tasks such as drainage redesign an embankment stabilisation.

Financial Resources

Financial resources are allocated using a structured budgeting approach consistent with PRINCE2's principle of continued business justification (Axelos, 2020). The estimated Budget of £28-35 million, covers

- Labour cost
- Materials and equipment
- Traffic management
- Environmental mitigation

- Contingency (15%)

The inclusion of a Contingency Fund aligns with the best practice in risk-based budgeting as recommended by ISO 31000, which stresses the need to allocate financial buffer to absorb uncertainty (ISO,2018).

Material and Equipment Resources

Material An equipment allocation is guided by the principle of Resource optimisation, which PMBOK7 identifies as essential for maintaining schedule and cost performance (PMI,2021). The project requires:

- Excavators, roller, and pavers
- Flood resilience asphalt
- Drainage pipes and culverts.
- Safety barriers and signage and lighting infrastructure

Technology Resources

Technology plays a central role in enhancing project accuracy, monitoring and coordination. Key technologies include:

- **GIS mapping tools** for spatial analysis and flood risk modelling.
- **Structural monitoring sensors** to assess roadbed stability.
- **Project management software** (e.g., MS Project) for scheduling and resource tracking.

PMBOK7 Highlights the importance of digital tools in improving transparency, Communication and decision making across distributed team. (PMI,2021). The use of GIS and monitoring sensors also aligned with modern infrastructure management practices which advocate for data-driven decision-making in resilience planning (UK Government,2022).

Resource Allocation Governance

Resource allocation is governed through:

- **Stage-gate review** (PRINCE2)
- **Weekly coordination meetings**
- **Variance analysis for cost and schedule performance**
- **Risk based adjustments** informed by ISO 31000 principles

This ensures that resources are continuously aligned with project needs, emerging risk, and stakeholder expectations.

Risk Analysis

The risk analysis has been strengthened using ISO 31000 principles incorporating both Qualitative assessment method. Risks are now categorised into **Technical, Environmental, Financial and Stakeholder related** domains.

Examples include:

- **Technical risk:** Failure of embankment reinforcement due to unforeseen soil instability.
- **Environmental risk:** Further flooding during construction requiring adaptive scheduling.
- **Financial risk:** cost escalation due to material shortage.
- **Stakeholder risk:** Community dissatisfaction if road access delayed.

Each risk is evaluated using a probability impact matrix, and mitigation strategies have been developed. For instance, technical risk is mitigated through early geotechnical survey, while environmental risks are addressed through seasonal planning an emergency response protocol. This structured approach ensures that risk management is proactive, evidence based on aligned with best practice.

Risk Management Approach

Risk management is not a one-off activity. ISO 310001 emphasises continuous monitoring, which is essential in dynamic post-flood environments

The Project implements are:

- Weekly risk reviews
- Real time monitoring of weather forecast
- Contractor risk logs
- Environmental compliance checks
- Escalation thresholds for high severity risks

This ensures emerging risks are captured early and Mitigation strategies remain effective.

Conclusion

To conclude, the reopening and flood resilient reconstruction of the A449 is a critical infrastructure recovery project essential for restoring mobility, economic stability and community well-being across the West Midlands. This academically Grounded PMP integrates PRINCE2 governance, PMBOK7 performance domains, ISO 31000 Risk principles, and resilience theory to ensure a robust, efficient and sustainable project delivery approach.

The project will not only restore the A449 to full operational capacity but also enhance its resilience to further extreme weather events, contributing to long term regional adaptation and infrastructure robustness.

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