Lester Pearson
United World College
of the Pacific

RaceRocks.com Phase I
Project Definition Statement

Final

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Revision Notice

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1 Background

Race Rocks is an ecological reserve and a Pilot Marine Protected Area. Pearson College has taken on this pilot project and is working with interested parties to protect and preserve the unique bio-diversity of Race Rocks while providing opportunities for education and research.

The challenge facing the college is to minimize the effect of visits to this environmentally sensitive area, while still allowing the public to benefit from information about the rich marine life in the area. The solution proposed is to develop a technological link which will provide a rich flow of information from the site. To do this will require:

- initiating a 24-hour live interactive web-site connection from the Race Rocks Marine Protected Area;
- relaying high quality broadcast information to Canadians that showcases the unique marine environment;
- developing a compelling web site for use in Canadian schools;
- creating instructional strategies to educate users about marine environment, environmental issues, historical and First Nations use of the Area; and
- establishing an electronic data bank of marine life and environmental conditions to facilitate scientific research.

To achieve these goals requires:

- installing video cameras and various sensors at the site;
- establishing a communications link from the site to Pearson College of sufficient bandwidth to carry the required information;
- installing a processor capable of the first stage of data compression at the site, to meet potential bandwidth limitations of the communications link;
- installing additional processing and Web-serving capabilities at the College or a third-party site; and
- developing a database capable of cataloguing, storing, and retrieving the required information.

This work is being supported by a grant from the Millennium Partnership Fund of the Federal Government of Canada. Pearson College, in partnership with Telus, LGS Group Inc., and potentially other parties who are contributing money, materials, and labour, is actively working towards these goals.

2 Project Overview

2.1 Purpose

The purpose of the Race Rocks project as a whole is to define, structure, develop, install, test, and manage an installation which will meet the vision of providing an ongoing flow of information from the Race Rocks Marine Protected Area to the public via the Internet.

The purpose of Phase I of the project is:

1. To define, structure, develop, install, and test:
   - the communications link;
   - a maximum of two on-site video cameras;
   - processing facilities adequate for the needs of those two cameras; and
   - a Web-site capable of disseminating the gathered information.
2. To ensure the ability to perform a live Webcast of the inaugural ceremonies for the MPA on March 10, 2000.
3. To propose a plan for subsequent phases of the project, including operational requirements.

2.2 Approach

The major Phase I tasks, and their dependencies, are:

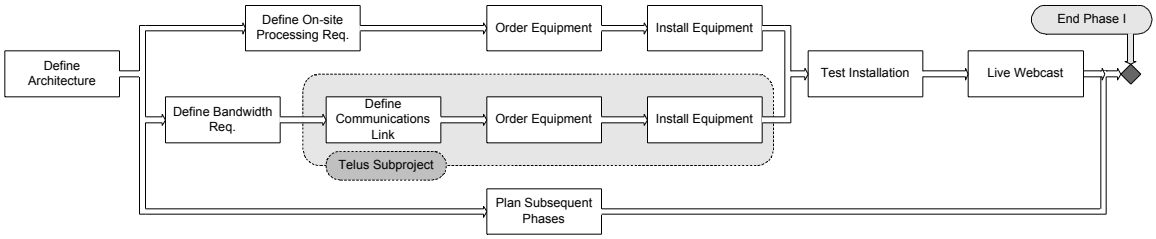

Figure 1 − Phase I Tasks and Dependencies

A proposed architecture will be defined by LGS and the bandwidth requirements defined by the architecture discussed with Telus. Telus will then take on the communications equipment subproject, while LGS continues with the software and processing hardware tasks external to the communications link. Concurrently, LGS, Pearson College, and other parties as required, will be involved in planning subsequent phases.

3 Project Objectives

The objectives of the Race Rocks Website Project Phase I are to:

1. Define the requirements for an installation that will provide:
   - a communications link of adequate bandwidth to accommodate the envisioned final installation of seven video cameras, a number of sensors, a duplex voice channel, and a control channel for processors on the site;
   - the video cameras, sensors, processors, power supply, and UPS on the site; and
   - the additional processors and Web server(s) off-site.
2. Plan, install and test by March 10, 2000:
   - the communications link;
   - two video cameras, sufficient processing power for the installed cameras to do a live Webcast, power supply, and UPS on-site; and
   - sufficient off-site installation to provide the live Webcast and ongoing Web broadcast from the on-site cameras.
3. Define the objectives and plan for subsequent phases.

4 Project Scope

The scope of Phase I of the project includes[1]:

- installation of the full communications link;
- installation of two video cameras;
- installation of sufficient processing power on-site to meet the goals of Phase I only;
- installation of sufficient power supply elements and UPS to meet the goals of Phase I only;
- installation of sufficient off-site components to meet the goals of Phase I only;
- support for the March 10th Webcast; and
- planning for subsequent phases.

Specifically not in scope are:

- installation of any additional video cameras;
- installation of any sensors other than two cameras;
- installation of ultimately required on-site processing power;
- installation of ultimately required off-site processing power;
- ongoing support for the Website; and
- enhancements to video imaging (e.g., 360° imaging)

[1] Where the scope is limited to the installation of components to meet Phase I goals only, it may be decided that it is more cost-effective to install components which also meet the needs of subsequent phases; this is not a requirement, however.

5 Project Approach

5.1 Project Initiation

5.1.1 Kick-off Meeting

Objectives:

- to introduce Project Team members;
- to ensure a common understanding of goals, scope, and process;
- to define roles and responsibilities;
- to ascertain that any required facilities will be available when required;
- to ensure a common understanding of the Project Management methodology which will be used; and
- to present and ensure agreement on the project schedule.

5.1.2 Technical Meetings

Objectives:

- to ensure that participants understand relevant business requirements;
- to ensure that participants understand technical requirements; and
- to ensure a common understanding of delivery methodology and requirements.

5.1.3 Project Definition Statement

Objective: to produce a project statement document.

5.2 Create Infrastructure

5.2.1 Analyze Requirements

Objectives:

- to specify the business and technical requirements;
- to specify the physical infrastructure required to support the requirements;
- to specify the software required to support the requirements; and
- to specify maintenance and support requirements

5.2.2 Install Infrastructure

Objectives:

- Race Rocks site:
  - install protected system area;
  - install software to processors;
  - install necessary processor(s);
  - install video cameras;
  - install necessary power and data cabling;
  - install necessary antenna; and
  - install power supply enhancements, if any, including UPS.
- Pearson College (or alternate) site:
  - install software to processors;
  - install necessary processor(s);
  - install any necessary additional power and data cabling;
  - install any necessary additional data links; and
  - enhance Web connection as required.

5.2.3 System Test

Objectives:

- test complete system for Webcast;
- test complete system for ongoing Web service;
- corrections as required.

5.3 Web Page Modifications

5.3.1 Analyze Web Page Requirements

Objective: define the business requirements for the web page;

5.3.2 Design Web Page

Objectives:

- define the technical architecture for the web page;
- specify the hardware and software required; and
- produce the creative design for the web page.

5.3.3 Build Web Page

Objective: create the web site.

5.3.4 Test Web Page Live

Objective: ensure the web page meets business requirements.

5.4 Live Web Broadcast

Objectives:

- broadcast the opening ceremonies for the Race Rocks MPA; and
- provide proof-of-concept for future broadcasts.

5.5 Phase II Plan

Objectives:

- define the requirements for subsequent phases;
- produce a proposal for activities required; and
- analyse timeline and effort required.

6 Project Communications

6.1 Project Definition Statement

The Project Statement ensures that all stakeholders in the project have a common understanding of, and agree with:

- the scope of the project,
- the context within which the project is being undertaken;
- the roles and responsibilities of project participants;
- how the success of the project will be demonstrated; and
- how risks will be managed.

The Project Statement captures the mutual understanding of the objectives, scope, and methodology of the project. It is used as a reference document by all stakeholders. For example, by project managers and steering committee members during discussions on change and issue management; by new team members as part of project orientation; and, by all team members to ensure continued focus on the goals of the project.

6.2 Project Plan

The Project Plan is a roadmap of how we intend to reach the project's goals, and – as with any roadmap – is intended to show any straying from that course. The plan shows:

- the tasks required and their dependencies (the Work Breakdown Structure);
- the start and end time for each task;
- the effort required for each task; and
- the resources allocated to each task.

The plan will be kept as a Microsoft Project 98 document.

Note that the project plan is a living document, and will change as new information is obtained during the course of the project. Maintenance of the plan ensures that any slippage in milestone dates will be noted as soon as possible, and that the effects of any changes of scope are easily understood.

6.3 Team Meetings/Status Meetings

Owing to the flexible project structure, team and status meetings will normally be combined. Formal status reports will be generated at one-month intervals and distributed to major participants.

6.4 Web Site

The Race Rocks web site (racerocks.com) will be a primary communication tool for the project. The PDS, various reports, and other relevant material will be posted to the site.

7 Project Team

7.1 Organisation Chart

The Race Rocks project is dependent on contributions of time, energy, and equipment from the participants. Like all such projects, the "reporting" relationships are neither exclusive nor fixed. Therefore, the organisation chart is intended to summarize normal communication paths which, if followed, will ensure good internal and external communications. It is not intended to imply a reporting hierarchy.

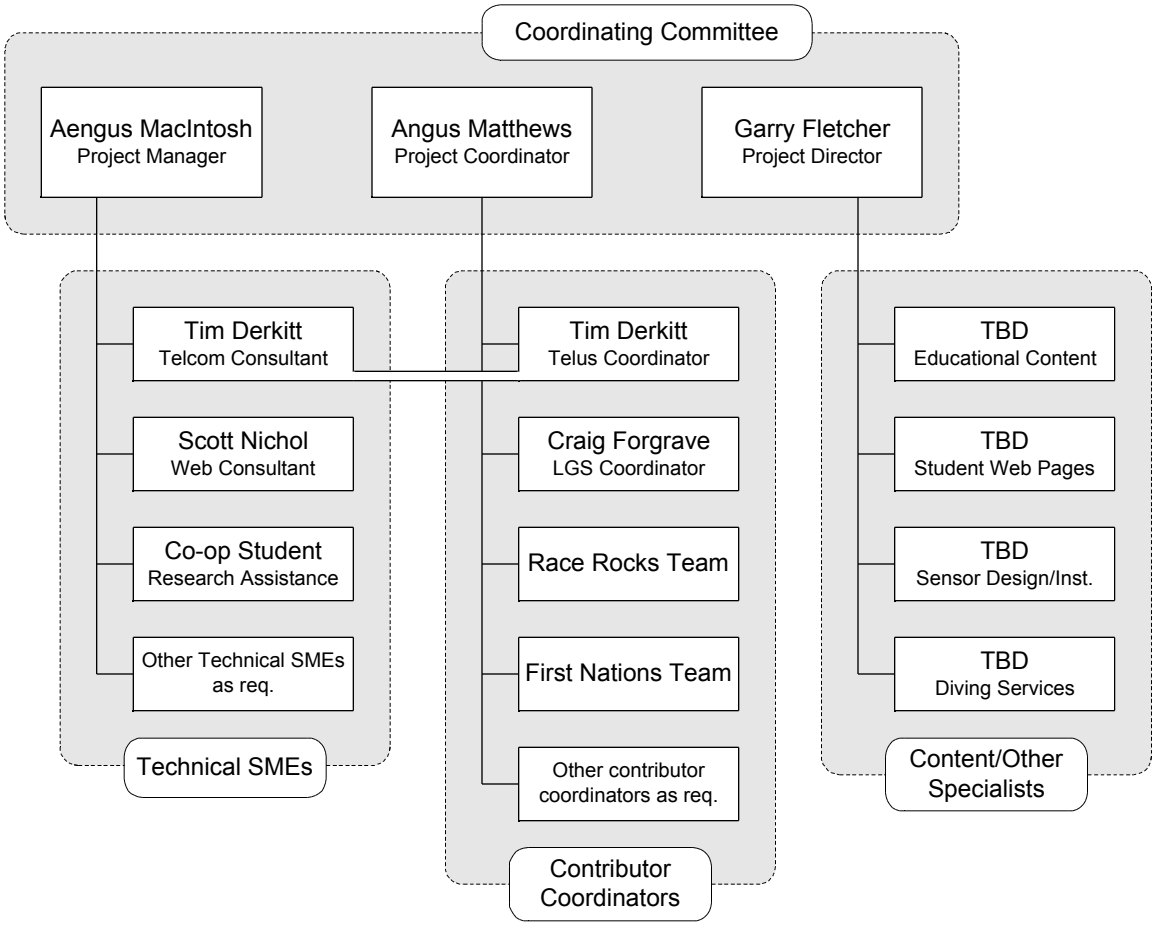

Figure 2 − Project Organisation Structure

7.2 Roles and Responsibilities

Coordinating Committee		
Project Coordinator	Angus Matthews	Coordinate resourcing (people and materials); coordinate RR guardians responsibilities. Recommend installation enhancements final decision on resourcing issues; coordinate with external agencies; final approval on project decisions. Coordinate site installations.
Project Director	Garry Fletcher	Manage site environmental issues; evaluate all Race Rocks site installations from environmental impact perspective -- Co-ordinate student -consultant web responsibilities ; Coordinate curriculum design- with first nations, and students.. Coordinate and ratify sponsor page development Liase with scientific community (IOS, PBS, U Vic, and others) for planning and installation of scientific sensors.
Project Manager	Aengus MacIntosh	Act as project manager to main project; oversee subprojects to ensure critical milestones are being met; act as technical coordinator; recommendations on project decisions; manage overall deliverables.
Technical Subject Matter Experts (SMEs)		
Telcom Consultant	Tim Derkitt	Act as lead architect for communications link; lead comlink team; manage Telus deliverables.
Web Consultant	Scott Nichol	Act as lead architect for imaging requirements; clarify requirements for image management; lead web design team; manage LGS Web deliverables
Video Consultant	TBD	Act as lead architect for video requirements; clarify requirements for video technology; lead video-cam design team; manage video deliverables.
Contributor Coordinators		
Telus Coordinator	Tim Derkitt	For their respective companies: act as communications single-point-of-contact; muster resources, know resource availability; negotiate between companies and project management.
LGS Coordinator	Craig Forgrave	
Partner contact and coordination: - Vancouver Aquarium - RBC Museum - Phil Nuyten	Angus Matthews	Liase with collaborators; confirm contributions; arrange for input to the project; contact with First Nations; accounting for all financial inputs to the project

8 Deliverables and Milestones

8.1 Deliverables

Project Initiation Deliverables

- a Project Statement identifying:
  - project scope and objectives;
  - assumptions, constraints, and risks;
  - roles and responsibilities;
  - deliverables;
  - approach;
  - project control mechanisms;
  - approval processes; and
- a detailed project plan identifying tasks, resource allocation, and delivery schedule.

Physical Infrastructure Deliverables

- TCP/IP communications link;
- On-site and Pearson College routers;
- On-site processor(s);
- Site power supply including cabling;
- Two on-site camera installations including cabling; and
- Pearson College processor(s).

Web Page Modification Deliverables

- Requirements document for web page;
- Technical architecture description;
- Hardware specifications;
- Software specifications;
- Overall web page design;
- Web site built to design; and
- Tested web site ready for delivery.

Live Web Broadcast Deliverables

- Successful live broadcast.

Phase II Plan Deliverables

- Phase II Plan.

Project Management Deliverables

- Monthly Status Report; and
- Issue, Request for Decision, and Change Requests, as appropriate.

8.2 Milestones

Figure 3 shows major project milestones and anticipated dates.

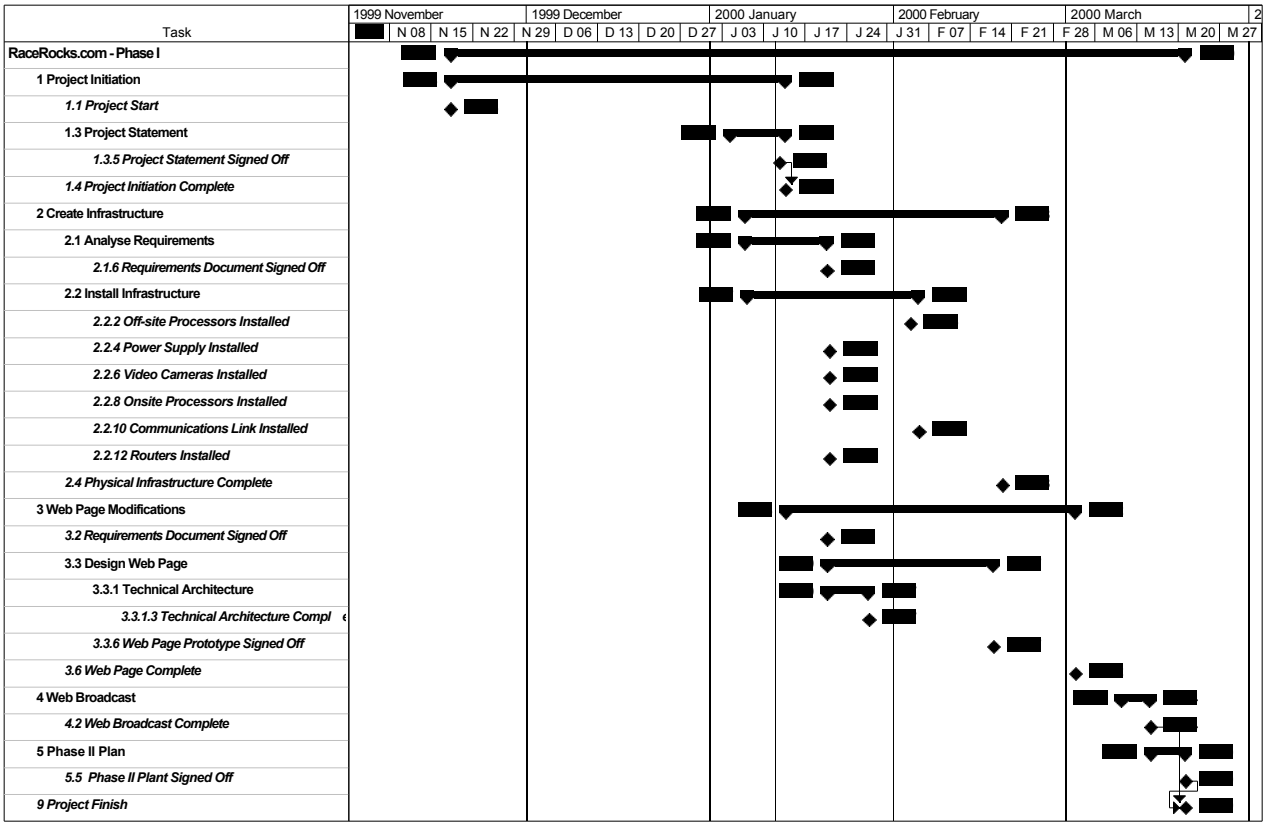

Figure 3 − Project Milestones

9 Project Schedule

Figure 3 shows the high-level project plan. A detailed project plan is in *Appendix A – Project Plan*.

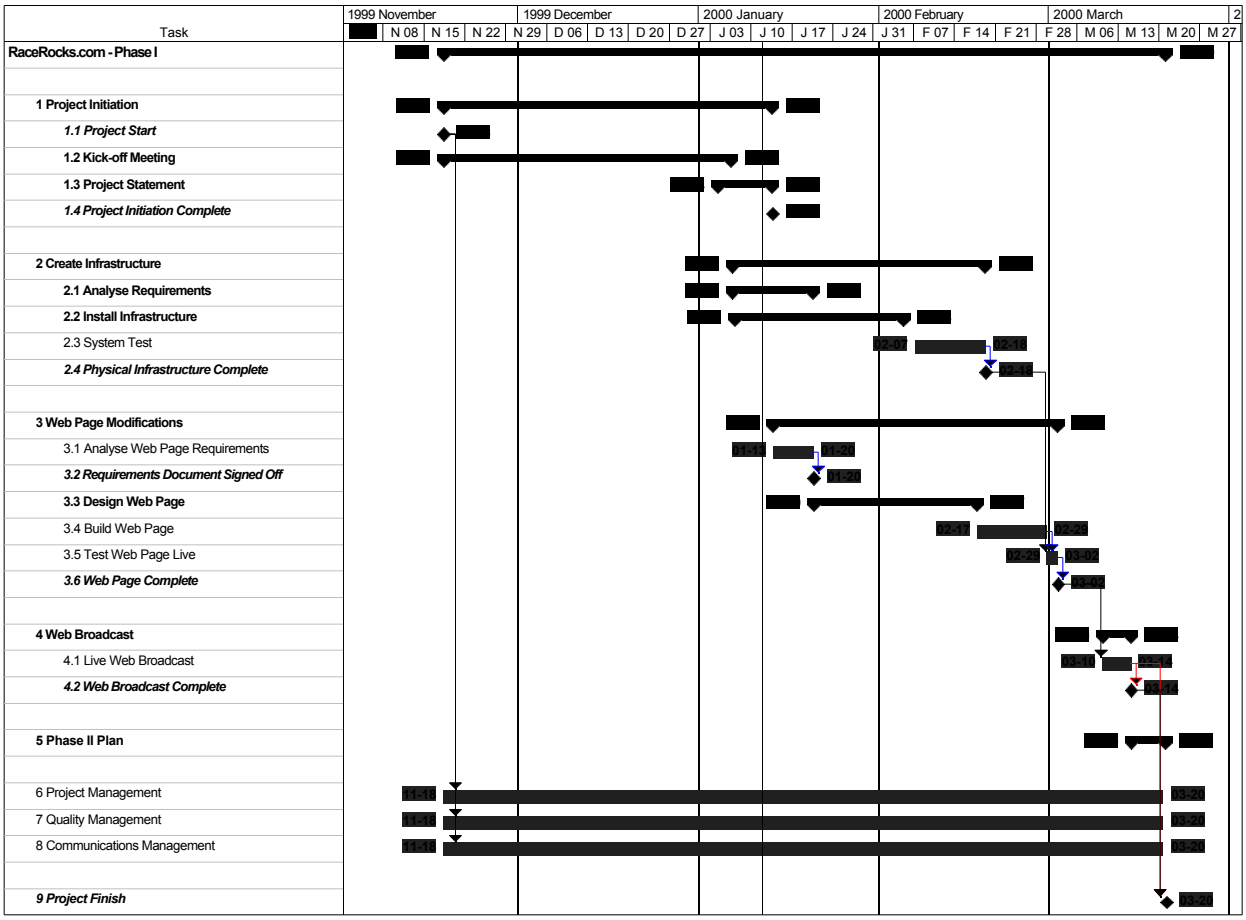

Figure 4 − High-level Project Plan

10 Critical Success Factors

1. March 10th Webcast succeeds.
2. Stable, ongoing supply of images from two cameras to Web.
3. Stable Website.
4. Clear plan for subsequent phases.
5. All contributors satisfied with process.
6. All contributors satisfied with mechanism(s) for crediting contributions.

11 Risks, Assumptions, and Constraints

11.1 Risks

11.1.1 Assessment

These risk factors apply to the project:

- the budget is limited and requires that both material and labour be obtained in part through volunteer donations;
- there is a fixed deadline for the live webcast on March 10th, 2000;
- the scope for the ultimate installation is large, and there may be some pressure to expand the scope of this phase;
- there are multiple participating organisations, none of which is formally recognised as prime in the project; and
- the volunteer labour cannot be expected to make the project their highest priority.

11.1.2 Analysis

Budget

- **Impact** – MEDIUM. There is a high degree of support for the project from the volunteer organisations and it is anticipated that the required material will likely be available. This remains to be confirmed, however.
- **Seriousness** – HIGH. If the necessary cost-free support is not forthcoming, the project will fail.
- **Urgency** – MEDIUM. The questions of availability of materials and resources need to be resolved by mid-January.
- **Growth** – STATIC. The risk will be resolved when the availability questions are answered.
- **Triggers** – Commitments to supply and install required components must be made by 15 January.

Fixed Deadline

- **Impact** – HIGH. Although the website can continue without the fixed-date webcast, the opportunity cost is great..
- **Seriousness** – MEDIUM. The balance of the project can continue without the webcast.
- **Urgency** – MEDIUM. The resolution will grow from the development of the project plan and resolution of the budget issues.
- **Growth** – INCREASING. The risk will continue to grow until resolved, since the deadline draws continually closer..

- **Triggers** – Once an accurate project plan is arrived at (projected for January 15th at the latest), the possibility of having to abort the webcast will be known.

Scope

- **Impact** – MEDIUM. Scope creep can have a significant effect on the project deadlines..
- **Seriousness** – LOW. The project should be able to deliver, and participants are aware of the danger..
- **Urgency** – LOW. This is an ongoing risk which will be managed via normal change control procedures.
- **Growth** – STATIC. The only concern will be if the project is meeting or ahead of schedule, when the temptation to include additional goals will be greatest..
- **Triggers** – Change Requests.

Multiple Organisations

- **Impact** – HIGH. Loss of project organisation or commitment can effectively stop the project.
- **Seriousness** – HIGH. The project may fail if one or more sub-projects fails.
- **Urgency** – MEDIUM. This risk must be managed actively, and early milestones set for sub-projects as they evolve.
- **Growth** – STATIC. Should become diminishing as sub-projects deliver.
- **Triggers** – Delays in sub-project milestones.

Volunteer Labour

- **Impact** – HIGH. Loss of effort can seriously affect the project timeline.
- **Seriousness** – MEDIUM. Workarounds should exist for most situations, but will require active management.
- **Urgency** – MEDIUM. This will require constant vigilance from the kickoff.
- **Growth** – STATIC. The project dependency on volunteer labour will remain relatively constant.
- **Triggers** – Delivery failures by volunteers; volunteer statements that commitments will not be met.

11.1.3 Risk Management Planning

11.1.4 Risk Monitoring

Risk triggers will become apparent as part of the normal project management process, with the possible exception of volunteer labour failures. The latter should be monitored by Angus Matthews in his role as Project Coordinator.

No formal written risk management plan will be created at this time. The project coordinating committee is aware of the issues and will be reviewing the risks in each area on a regular basis.

11.2 Assumptions and Constraints

It is assumed that:

- the budget will be adequately supplemented by donations where necessary software and hardware cannot be provided within the budget constraints;
- Telus will be able to provide a communications infrastructure in adequate time for the March 10th broadcast;
- LGS will be able to provide their scheduled Web design components in adequate time for the March 10th broadcast;
- Pearson College will be able to implement the remaining infrastructure components in adequate time for the March 10th broadcast; and
- agreement will be reached with donors as to appropriate publicity arrangements on the web site.

12 Issues

As of January 10th:

- There is no definition of the architecture, particularly as it relates to web video. This problem must be solved by January 14th in order to ensure meeting the live broadcast deadline.
- Telus is uncertain whether the communications infrastructure deadline can be met. This must be resolved, either by Telus stating that deadlines can be met, or by finding an alternate solution, by January 14th.

13 Project Management Methodology

LGS has a well-developed project management methodology, covering project planning, project control, project reporting, quality management, and risk management. This methodology will be used to manage the overall project, and will be available on a consultation basis to sub-projects as required. A further description of the methodology is given in *Appendix B*.

14 Signoff

The undersigned agree that they have read the project charter document and to the best of their knowledge the document meets the criteria for acceptance.

_____ Date:_____

Angus Matthews
Project Coordinator

_____ Date:_____

Garry Fletcher
Project Director

_____ Date:_____

Aengus MacIntosh
Project Manager

15 Appendices

A. Project Plan

(Separate PDF Document)

B. LGS Project Management Methodology

(Separate PDF Document)