Additional Projects to Accompany *Technically Write!* 6th Edition
Chapter 7: Technical Proposals

Project A7.1 Proposal for Measuring Light Intensity

You are an engineering technologist in the Department of Highways of your province, and your department supervisor is Mel Timlick. One of your responsibilities is to investigate motorists' complaints about highway conditions. Over the past two years you have received several emails and letters complaining about inadequate lighting at highway intersections. At the same time you also have been receiving brochures from manufacturers describing their new highway lighting products (mostly reflectors and incandescent and sodium lamps).

On a number of occasions you and Mel have discussed carrying out a lighting study, but have never had sufficient funds to assign to it (the urgent need for highway repairs has always taken precedence).

But now you have an idea. You are an amateur photographer, and last July 1 when you were photographing the Canada Day fireworks display at a local park it occurred to you that you could use a camera to test illumination levels at highway intersections. (One of the factors inhibiting the Department of Highways from carrying out lighting surveys previously has been the high cost of purchasing a digital light meter with an attached printer. It is a problem because it would have only limited use and no manufacturers lease them.) Your plan is this:

- You will use inexpensive black and white high speed 35 mm film (ASA 400 to 1000).
- You will borrow a 35 mm single lens reflex (SLR) camera from the public relations section of the Department of Tourism.
- You will construct a large (about 2.0 x 1.5 metre) board with a black and white pattern painted on it, and set it up vertically on a rotating base in each intersection you test. Then you will photograph is from different directions and at distances of 5, 15, 20 and 50 metres.
- You will have a second board with different coloured pattern or stripes painted on it, to see how the colours show up under varying lighting conditions.

You considered the validity of using a digital camera to take the photographs, but felt that you would have much greater control of exposure length and aperture with an SLR camera.

You also recognize there are additional factors you will have to consider:

1. The number of traffic intersections that need to be tested. (The majority of complaints concern about 43 traffic interchanges.)
2. The quantity of new products to be tested (reflectors and lamps). You estimate that nine manufacturers have new products worth evaluating.
3. The need for quality control in both film procurement and processing. All film should come from a single manufacturer and be bought from a single source at the same time so they are part of the same production batch. Similarly, all exposed film should be processed and printed at a single location at the same time (i.e. using the same chemicals at the same temperature).

4. The need for similar ambient light conditions at each location (e.g. the same time of night; the absence or presence of a moon in roughly the same phase; the consistent absence or presence of cloud cover; and the absence of traffic and attendant headlights).
5. The need to establish a standard "shooting method." That is, by experimenting beforehand, to predetermine an optimum lens aperture setting and exposure time, such as f.16 at 1/125 second.
6. The amount of film (number of exposures) you would need at each location. Probably, two 36-exposure films would suffice.
7. The need to conduct a "trial run" at two locations, one well lit and one poorly lit, to ensure you are getting definable images at both ends of the range. Doing this will help iron out bugs before you start the tests.

What will the cost be? You consider six aspects: labour; travel; new product acquisition and installation; designing and painting patterns on the display boards; purchasing film; and processing and printing the film.

Travel costs (which include mileage, accommodation for one night, and meals) you work out at an average of $285 per location for the 22 more distant locations, and nothing for the closer locations. You also obtain a quotation from Multi-Media Consultants at 2020 Whyte Avenue to make the display boards for $670. You expect product manufacturers to supply and install samples of their lights and signs free of charge. Film costs you still have to determine, by phoning local film-processing houses. Fern Kosteniuk, head of the Department of Tourism, agrees to lend your department an SLR camera and tripod for two months.

You phone around and establish that the best price for a Vancourt model 2120A digital light meter with integrated printer, which is the standard in the light measurement industry, will be $7295, plus tax.

Now write your proposal to Mel Timlick. Remember that before he can approve your idea, he must first get approval from the Executive Director of the Department of Highways (who probably also will want to see your proposal).

Project A7.2 Take a Computer With You

You are an engineering technologist employed by H L Winman Associates of Calgary, Alberta, and you work in the Special Projects Department under the direction of Andy Rittman. You are one of five technologists who have just started on the installation, testing, and modification of the microprocessor-controlled WestWin Environment Management System (WEMS) at selected sites across Canada, a project that will take nearly three years to complete. The five technologists operate out of H L Winman and Associates' branch offices:

Name	*Area Responsible For*	*Branch Location*
Quentin Dabrinski	Maritimes	Fredericton NB
Margaret Carriere	Quebec	Quebec City QB
Caroline Witton	Ontario	Peterborough ON
Neil Freeman	Prairies	Edmonton AB
David Cheng Ng	BC, Yukon, NWT	Vancouver BC

(Insert your name and location, in place of the listed person for your area)

The project includes some design work, detailed documentation of the work you do, preparation of maintenance and operating procedures for on-site staff, and writing of comprehensive reports. The reports will be distributed to the companies where the WEMS are installed, to your own management, and to the technologists at the other sites, to keep everyone abreast of what is being done in the field. Consequently, each of you will do a lot of writing.

You want to suggest to Andy Rittman that the five technologists involved in the WEMS program should each have a portable computer, to use when they write their reports, procedures, and instructions. You research portable computers and identify several that would meet your needs. Then you telephone Andy, tell him what you have in mind, and ask for his approval to go ahead with the study.

"I like your idea," he says, "and I'm authorizing you to take the time to investigate the computers that are available and then write me a proposal I can take to the management committee when I ask for their approval to spend the funds." He recommends that in your proposal you

- establish why portable computers will be useful for people working on the WEMS project,
- identify what the portable computers must be able to do (i.e. establish specifications), and
- evaluate a range of computers and, within that range, demonstrate which computer most nearly fits the company's and the project's requirements.

Andy also suggests several additional factors you need to keep in mind:

- Although you will be addressing your proposal to Andy, remember that the *real* readers (the decision makers) will be the company's executive committee.
- Because not all members of the executive committee will be familiar with the WEMS project, include information about it and what it involves. Particularly stress that it requires a lot of writing on each area technologist's part and that, today, much of the day-to-day writing is done by email.

- Describe the types of writing the technologists do: procedures, instruction manuals, reports, installation specifications, and directions for the contractors to follow. Include any other writing you think will lend weight to your proposal.
- Describe the ease with which reports will be sent electronically to head office.
- Demonstrate that the portable computers will be used for follow-on projects; that they won't sit idle at the end of the WEMS project.
- Make a list of the factors you need to consider when evaluating the computers.
- Ideally, make a comparison chart, to show conveniently the key points about each computer. But don't depend on the chart: also interpret it.

Now write your proposal.

Note: You will need to obtain data and specifications on three or four different portable computers from local suppliers. Because technology is changing so fast, it is impracticable for us to include specifications with the instructions for this assignment.