Often, an organisation will have separate initiatives in sustainability, security and protection. Each separated from the operations of the organisation. The problem is that all too often, when there is no integration and inadequate coordination, any one of these initiatives can substantially impede the effectiveness of the others. More importantly, a lack of integration reduces the overall effectiveness of the operation and impedes its recovery when catastrophe strikes. This is where the Resilience Plan and the Security Integration Scheme come in. Where the Infrastructure Resilience Planning course looked at defining the requirement and crafting a plan for developing resilient infrastructure, the Infrastructure Protection Course looks at the practical implementation of the Resilience Plan and the associated Security Integration Scheme. We will explore the various survey and integration tools, using a first principles approach. Each student will have the opportunity to practice these new skills on real issues for real clients in real time.

Course Designation: **APS1025H Infrastructure Protection**, starting Saturday, 17 Jan 15. The course will be full days, from 09:00 to 17:00 with 30mins for lunch. A foundation course of the CRCI; http://www.crci.utoronto.ca/education/academic/infrastructure-courses

Calendar:

17 Jan 15

Course introductions and administration

101 'Infrastructure Resilience Plan' Review of the Infrastructure Resilience Planning process with emphasis on the Resilience Plan and the Infrastructure Resilience sections, how they are used and what information needs to be extracted from the All-Hazards analysis, Calculation Plan and Causal Chain analysis.

102 'Poliorcetics' Using the history of fortifications engineering as the vehicle, extracting the core protection and resilience principles with examples to illustrate how they have been correctly and incorrectly applied. The Roman, Italian, French and British fortifications periods are covered to capture supplementary concepts such as terrain intelligence, surveillance planning, intelligence planning and security integration.

103 'Principles and Rules of Thumb' The core principles are brought up-to-date using examples from the last 40 years of resilience and protective works to illustrate their modern application. This is supplemented with some rules of thumb to be applied at the outline planning stage.

104 'Environmental Context' A broad ranging discussion about the environmental context and specifically how what is built both influences and is influenced by the operating context and environment, from the use and determination of infrastructure, the perception of value and purpose and how this can be managed. The physical environment is focused upon with an emphasis on how each aspect affects the design of fixed infrastructure, the selection of security equipment and the development of procedures and

surveillance traces.
106 'Security Integration' The concepts of security systems integration are explored in detail, particularly how to deconflict structural, equipment and human issues. The development of a protection philosophy is explored in some detail and this model is used to coordinate the component security systems.

24 Jan 15

107 'Site Survey' A detailed exploration of how to conduct a protection site survey using the concepts, principles and integration models taught previously. The field survey is then introduced and project requirements explained in detail.
109-111 'Security Measures' The full spectrum of security measures are introduced and the key aspects of their integration requirements specifically discussed. This does not include a detailed explanation of how to design each measure, but rather how each measure can contribute to the whole without adversely affecting other systems or the operation. This is relevant for the field survey.
Site Survey and Project The field survey will be conducted at an operational infrastructure hub in the City of Toronto. Firstly the site will be introduced to the students and the project requirements reiterated, then the whole class will conduct a walk-through-talk-through of an enclosure of the site and one aspect of the site security to provide a working model for the project conduct. The class will break into syndicates and conduct their protection surveys and develop security integration plans. This will require supplementary visits back to the site at different periods of the day and night, which the students can do in their own time by syndicate in order to observe how the operation and so security requirements change with time of day, weather and season.

31 Jan 15

Group presentations of Project concept solutions Each syndicate will present their security integration concept, comprising of situational overview, summary of requirement and protection philosophy for their assigned section of the operation and/or site. Presentations are in open forum and the operations and security managers from the site are expected to join the evaluation panel, and experts from the intelligence and security communities have been invited also. The quality of plan will be graded by the panel using the course marking scheme.
Security measures and surveillance integration – class discussion Using the field survey as a vehicle, the surveillance plan will be discussed in detail and referenced back to the operating environment assessment.
112 'Emergency Management' The pillars and practice of emergency management are discussed and how these requirements should be incorporated into the resilience plan and deconflicted with the operation.

7 Feb 15

Group submissions of ORSM and presentations Each syndicate will submit its ORSM for the field survey and present on their assigned security component integration concept, to include one surveillance, one fixed infrastructure and one human/procedural system.
Course review.
Exam.

Outcome. At the end of this intensive course, students will be able to use a Resilience Plan to inform design brief development, plan a surveillance trace to the operating environment, define the infrastructure protection-systems operational requirements and plan and specify a security integration plan.

The Infrastructure Protection Course is assessed:

The project is in three parts, each representing 20% of the total course marks. This is a practical survey and research project that requires a first principles approach and critical assessment of the available information.

1. [Protection] Integration Concept. If incomplete, half points will be given for a clear explanation of how each of the missing factors will be answered. To be conducted in groups of between 3 and 4. Solutions to be presented in open forum and marks awarded for quality of briefing.

2. Operational Requirement of Security Measures. The object of this project is to demonstrate that you can plan the infrastructure protection as part of a resilient operation. The circumstances are simplified and hypothetical, though the site and physical criteria are actual. To be conducted in the same groups as for Part 1. Solutions will be briefed in open forum and marks awarded for quality of briefing.

3. **Operational Requirement of Security Measures**. Delivery of completed ORSM Level 1 and 2 for the site surveyed. To be submitted prior to the open forum presentation of the same.

A two-hour written examination comprising 3 essays selected from 10 possible titles. The final exam represents 40% of the total course marks.

Each of the project parts and the final exam will be marked out of a possible 100 marks. The marks for each will be weighted according to the overall percentage of the course marks represented by that work and the whole aggregated for the final course mark / grade. Throughout, credit will be given for demonstrating a clear understanding of the concepts, principles and application over specific processes or formulae.

You are strongly advised to go through all the pre-reading material. Most of it can be read on-line, which you should do. Familiarise yourselves with the organisation / agency websites, especially the two highlighted PSC websites, as these will prove useful when you need to research. Familiarise yourselves with the poliorcetics (specifically Chapter 4 of Lepage) and the physical security references. Read Chapters 2-4 of Flynn prior to the course, as well as the Robinson paper. The textbook explaining resilience planning, 'Operational Survival: Putting Resilience at the core of Infrastructure Planning', is available from the UofT Bookstore (all proceeds of which go to a veterans' widows and orphans scholarships charity).

Address course questions to me at alec.hay@utoronto.ca