

The Zeta Group

CritiCalc[®]

CritiCalc[®]¹ is a software application that is used to identify which infrastructure is critical and to what degree of criticality. In addition it can assess the strength of the links between and among interdependent infrastructures as well as identify co-located infrastructures. When **CritiCalc[®]** is linked to a GIS mapping program the identified critical infrastructure [CI] can be viewed superimposed on existing street, topographical or other types of maps to provide decision makers with a quick and consolidated view of how the critical infrastructure within a specified area interrelates with other key features or developing threats.

WHAT IS CRITIC[®]?

CritiCalc[®] allows users to systematically:

- Catalogue infrastructure of interest
- Identify which infrastructure is critical
- Categorize infrastructure by degree of criticality
- Assign CI to specified sectors, sub-sectors and types
- Assess interdependencies between and among CI
- Identify co-located CI
- Know who owns the infrastructure and how to contact the person responsible
- Manipulate and view CI on GIS maps
- View, add and change images of identified CI
- Generate custom reports on CI and its attributes



WHY WAS CRITIC[®] DEVELOPED?

CritiCalc[®] was developed to aid primarily public sector users in:

- Identifying which infrastructure in their jurisdiction is the most critical
- Assessing the strengths of CI interdependencies
- Understanding the inter-relationships among CI

¹ CritiCalc[®] is a registered trademark of The Zeta Group Inc.

- Allocating limited resources to the assurance and protection of critical services

HOW DOES CRITICAlC® WORK?

CritiCalc® first filters which critical infrastructure from that which is not critical. Then, through the systematic application of basic but well defined concepts it categorizes critical infrastructure into **one** of **5** categories of criticality – **A, B, C, D** or **E**.

CritiCalc® is easy to learn and intuitive to use. A user can quickly identify and categorize an infrastructure by responding to simple questions and making choices from drop down menus.

CritiCalc® users can:

- Set up and sort by various characteristics of CI
 - government designated sectors & sub-sectors
 - descriptive type and nature of operations
 - address and mapping coordinates, e.g., UTM
 - geographical parameters such as co-location
 - inter-dependencies
- Identify, assess and categorize CI
 - applying filtering criteria
 - identifying co-located clusters of CI
 - assessing the strengths of links between dependent pairs
 - applying other categorization criteria
- Generate reports
 - using templates of customized reports that are sorted by a variety of fields
- Link to images and pictures of CI
 - simple linkages to digital pictures in various formats [* .jpg, *.bmp, etc.]
- Generate and link with maps
 - links with mapping programs or imports mapped CI locations in one or more layers

| Cluster identification name | Cluster members | Category |
|-----------------------------|--|------------|
| EMS Cluster | Peel Regional Ambulance Services - HQ | Category A |
| The Clarkson Cluster | Looksville Radio Communications Tower | Category A |
| The Trillium Cluster | Peel Regional Ambulance Services - Warehouse | Category C |
| Cluster 44 | Peel Regional Ambulance Services | Category C |
| The Glenway | 11 Division | Category E |

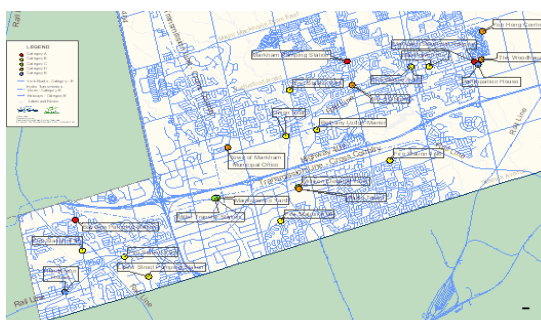
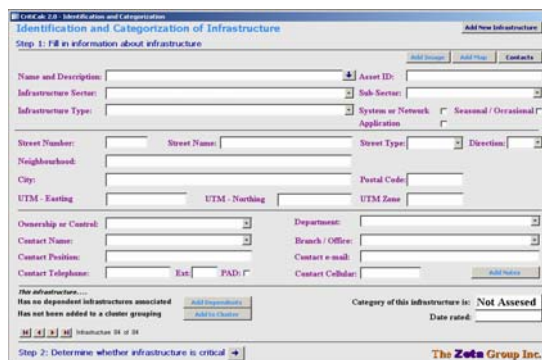
| Name | Category | Name | Category | Weight |
|---|--------------|--|------------|--------|
| 11 Division | Not Assessed | Burnhamthorpe Library | Category C | Low |
| 12 Division | Category E | Peel Regional Ambulance Services - HQ | Category A | High |
| Ben Hill Sewage Pumping Station | Category D | Peel Regional Ambulance Services - Warehouse | Category C | Low |
| Bethanias Landfill Sewage Pumping Station | Not Critical | Peel Regional Ambulance Services 2 | Category A | Medium |
| Bethanias Leachate Treatment Plant | Not Critical | Peel Regional Ambulance Services 3 | Category A | Medium |
| Burnhamthorpe Community Centre | Category C | | | |
| Burnhamthorpe Library | Category C | | | |
| CHS Service Office | Not Critical | | | |
| Civic Centre | Category C | | | |
| Clarkson Community Centre | Category D | | | |
| Clarkson Radio Communications Tower | Category A | | | |
| Clarkson Sewage Pumping Station | Category D | | | |
| Clarkson Sewage Treatment Plant | Category D | | | |
| Clarkson Works Yard | Category D | | | |
| Cooksville Radio Communications Tower | Category A | | | |
| Crest Valley Hospital | Category A | | | |
| Dean Radio Communications Tower | Category A | | | |

Number of Dependent CI: 5

Dependency weighting guide:
 Nil - Failure causes negligible impact on dependent.
 Low - Failure causes degraded performance of dependent but dependent can function without activating contingency plan.
 Medium - Failure causes dependent to activate its contingency plan to avoid failure.
 High - Failure causes dependent to fail unavoidably.

CRITCALC[®] - CHARACTERISTICS AND CRITERIA

- Captures and utilizes user's expert knowledge of infrastructure in jurisdiction to quickly identify and categorize CI and their linkages
- Categorization criteria taking into account extent and speed of impacts on health and/or safety, size of population affected, ease of bypassing, economic impact of failure, interdependencies, etc.
- Allows for the identification of networks, systems, or applications, as well as seasonal, periodical or occasional use critical assets.
- Requires minimum instruction for users to quickly identify and categorize CI
- Security can be addressed – access of completed database must be sorted out before work commences



WHY USE CRITCALC[®]

- Easy to categorize critical infrastructure according to degree of criticality
- Easy to sort and manipulate data in database to produce various reports
- Easy to link to GIS maps
- Easy to prioritize protection, mitigation and other actions using CI information
- Easy access to upgrades, technical support and other services

TERMINOLOGY USED IN CRITCALC[®]

INFRASTRUCTURE – is the physical foundation of a society, community or enterprise. Infrastructure comprises assets, installations or systems used to provide goods or services. It may function more or less independently or be interconnected or interdependent with other infrastructure.

CRITICAL INFRASTRUCTURE – is that infrastructure which, if disrupted, degraded, or destroyed would have a significant impact on life, health, safety, security, social or economic well-being of citizens or the effective functioning of government.

[References – national government definitions, classifications and national and international standards]

CRITICAlC[®] - SAMPLE REPORT – CI SORTED BY CATEGORY

| CritiCalc 2.0 | | | |
|-----------------------|---------------------------------|--|--------------------------|
| <i>CI by Category</i> | | | |
| Category | Type | Description | Sector |
| Category A | Communications System | Mississauga Central Ambulance Communication Centre | Public Safety & Security |
| Category A | Communications Tower | Clarkson Radio Communications Tower | Public Safety & Security |
| Category A | Communications Tower | Cooksville Radio Communications Tower | Public Safety & Security |
| Category A | Communications Tower | Dixie Radio Communications Tower | Public Safety & Security |
| Category A | Communications Tower | Erin Mills Radio Communications Tower | Public Safety & Security |
| Category A | Communications Tower | Streetsville Radio Communications Tower | Public Safety & Security |
| Category A | Emergency Medical Services | Peel Regional Ambulance Services - HQ | Public Safety & Security |
| Category A | Emergency Medical Services | Peel Regional Ambulance Services 2 | Public Safety & Security |
| Category A | Emergency Medical Services | Peel Regional Ambulance Services 3 | Public Safety & Security |
| Category A | ER - Emergency Medical Services | Peel Regional Ambulance Services 1 | Emergency services |
| Category A | ER - Fire Services | Fire Station 101 | Public Safety & Security |
| Category A | Hospital | Credit Valley Hospital | Public Safety & Security |
| Category A | Hospital | Trillium Health Centre - Mississauga Site | Public Safety & Security |
| Category A | Police Services | Police - Various Departments | Public Safety & Security |
| Category A | Water -Treatment Plant | Lakeview Water Treatment Plant | Food & Water |
| Category A | Water -Treatment Plant | Lorne Park Water Treatment Plant | Food & Water |
| Category B | Call Centre | Transhelp | Public Safety & Security |
| Category B | Fire Station | Fire Station 105 | Public Safety & Security |
| Category B | Fire Station | Fire Station 109 | Public Safety & Security |
| Category B | Fire Station | Fire Station 112 | Public Safety & Security |
| Category B | Fire Station | Fire Station 117 | Public Safety & Security |
| Category B | Fire Station | Fire Station 118 | Public Safety & Security |

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