Project Overview

Purpose, Need, and Benefits

Repeatedly over the past four decades, the Ithaca community has debated how to address the risk of suicides from the bridges on East Hill. In May of 1977, a distraught father whose daughter had leaped to her death the prior year urged local leaders to install suicide prevention structures on those bridges. Later that year, metal rod barriers were added to the Fall Creek Suspension Bridge, but no changes were made to the other bridges. In the 12 months after this father’s request to prevent future prevent tragedies was largely rejected, six more lives ended with similar jumps. These individuals, ranging in age from 12 to 34, included both university students and community members.

Today our community again is faced with a decision regarding suicide “means restriction” on East Hill bridges. Means restriction is widely recognized in the public health field as a core element in a comprehensive approach to suicide prevention. According the U.S. Department of Health and Human Service’s National Strategy for Suicide Prevention: “A number of suicidal behaviors result from a combination of psychological pain or despair coupled with the availability of the means by which to inflict self-injury. If intervention is not possible when an individual is in a state of psychological pain, a self-destructive act may be prevented by limiting the individual’s access to the means or methods of self-harm.” Other applications of means restriction include locking up laboratory chemicals, packaging medications in smaller lots, and restricting access to firearms.

The purpose and benefits of long-term means restriction systems on bridges are to:

- Significantly reduce jumping suicides
- Reduce the total number of suicides among students and community members, in part by reducing the risk of imitative acts resulting from highly-visible jumping deaths
- Prevent the devastating pain of family and friends of victims that results from suicide
- Preserve the beauty and vistas of the gorges and their restorative effects on us
- Reverse the unfortunate reputation of Ithaca’s East Hill as a suicide icon
- Reduce the number of bystanders who experience emotional distress or trauma from witnessing suicides or body recoveries
- Reduce physical risks to emergency personnel involved in gorge rescues or body recoveries
- Resolve a recurring community debate
• Increase community awareness of the need for comprehensive suicide prevention that includes means restriction, education, and mental health services

The seven long-term means restriction projects assembled in this document were carefully designed to preserve the aesthetic value of the high gorge bridges and vistas and reduce the risk of a highly lethal and potentially contagious form of suicide.

The seven high gorge bridges are:

• Stewart Avenue over Fall Creek (City owned)
• Suspension Bridge over Fall Creek (Cornell owned)
• Thurston Avenue Bridge over Fall Creek (City owned)
• Beebe Dam Footbridge over Fall Creek (Cornell owned)
• Stewart Avenue Bridge over Cascadilla Creek (City owned)
• College Avenue/Stone Arch Bridge over Cascadilla Creek (Cornell owned)
• Trolley Footbridge over Cascadilla Creek (Cornell owned)

A joint City-Cornell committee on means restriction advised the design firm of NADAAA in exploring and developing design solutions for each bridge that would best meet the identified objectives. The design concepts for long term means restriction systems for each bridge also benefitted from the informal input of many interested, concerned individuals and groups in the greater Ithaca and Cornell communities during public forums and by website comment gathering. Six would use low-visibility mesh systems attached horizontally beneath the sides of bridges. Because of its structure, the seventh, the Suspension Bridge, would use the mesh system in a “sock” design around the center, and opening at the top at either end. The high dense railings would be removed in favor of simple handrails that would restore views east and west in the gorge.

The Common Council, in its resolution of August 4, 2010 declaring a continuing emergency and authorizing temporary fencing on the high gorge bridges, allowed Cornell until May 31, 2011 to propose long term means restriction systems for each bridge. The proposals were to take the form of site plan review applications together with the required environmental assessment forms for each bridge. Site plan review is an efficient way to begin considering a proposal for a physical alteration because it allows a design to undergo modification and refinement based on the environmental review and site plan approval criteria. With refinement of design detail, refined construction details and cost estimates can be developed. Cornell will then be formally asking the City's Board of Public Works and Common Council to install the means restriction systems on the three City bridges. In the case of the proposals for the four
Cornell-owned bridges, Cornell would be authorized to build after obtaining site plan approval from the Planning Board.

In the past two decades 23 people have ended their lives by jumping from bridges or abutments into Cascadilla or Fall Creek gorges. In addition, three other individuals attempted to kill themselves by jumping from these bridges, but survived the falls. Each is alive today. Roughly half of these total 26 jumps were by students enrolled at Cornell. The other half were not college students; one of them was a student at Ithaca High School. Included among the 23 deaths were three Cornell students who took their lives in early 2010 by jumping within a four-week period, the last two within a day of each other.

Experts who met with Cornell and City officials immediately after these three suicides told us that imitative suicides and impulsive suicides can be prevalent among young people, particularly where naturally spectacular, iconic, jumping sites are readily available. The number of bridges clustered in so small an area, daily crossed and re-crossed on foot, made East Hill unlike any other suicide icon the experts had ever seen. In short, the beautiful gorges so close at hand, the cultural legend of “gorging out” as a common practice, and the high-visibility of these tragedies (compounded by formal and social media attention) were a recipe for further tragedy.

In response, and thanks to the support and decisive action of the City’s Mayor, an emergency was declared and Cornell placed temporary 8-foot chain-link fencing inside the railings of the seven high bridges. That emergency was subsequently extended by the Common Council of the City of Ithaca, to allow Cornell time to design and propose long term means restriction measures. The seven means restriction proposals for the seven bridges assembled in this document are the result of the Common Council’s concern and its open-mindedness to see what solutions could be developed and discussed.

As noted above, the idea of using barriers or nets to deter people from taking their own lives by jumping in times of mental illness or extreme anguish is not new. It has been discussed in the Ithaca community and halls of City government periodically for many years, including 1994 when Ithaca Police Department Officer Dan Slattery called for the installation of net systems on East Hill bridges. Since then, several developments have occurred:

- The body of research about the effectiveness of means restriction (of various forms) in preventing suicides has increased significantly.
- The research (see “Efficacy Research” section) on the effectiveness of means restriction on bridges has similarly expanded, with the literature suggesting that when nets or barriers are installed on bridges:
  - Jumping deaths are significantly reduced or eliminated at those sites
Jumping from other locations tends not to increase, with the exception of one study demonstrating the such displacement can occur when there are “comparable bridges nearby”

- Leading suicide prevention authorities and organizations have identified means restriction on bridges as an important part of comprehensive approach to suicide prevention:
  - U.S. Department of Health and Human Services
  - American Foundation for Suicide Prevention
  - Harvard School of Public Health’s Means Matters Project

- The National Suicide Prevention Lifeline (with which our local CrisisLine is affiliated) formulated its position that barriers are the “most effective means of bridge suicide prevention,” with crisis phones being a “supplemental” measure.

- Advances in psychotherapy and pharmacology have provided greater insight into the basis of mental illness, the transient nature of suicidal crises, and the potential for effective treatment.

- There is better, and usually invisible, integration of individuals who use and benefit from treatment for mental illness into the mainstream of society. The presence of sometimes vulnerable individuals has made society more aware of the necessity of providing accommodations and protection to citizens with disabilities.

- Leaders of the following organizations in Ithaca have reached a consensus that means restriction on bridges is necessary:
  - Cayuga Medical Center
  - Tompkins County Mental Health Services Advisory Board
  - Suicide Prevention and Crisis Services
  - Family and Children’s Services
  - Ithaca College’s Counseling Center
  - Cornell’s Counseling and Psychological Services

These and other factors are promising and indicate that it may be possible to reduce the overall number of suicides locally through a comprehensive approach that includes means restriction on bridges. The experience of the U.S. Air Force in reducing suicides among service personnel with a multi-faceted strategy in the 1990’s points to the potential for saving lives. In 1999 government of Great Britain set a target to reduce the suicide rate by at least one-fifth.
The rate of suicide in Ithaca or among Cornell students is not higher than the state or national averages. Suicides at colleges are lower than among the same age group not attending college in part because of the supportive mental health network generally found on campuses. Cornell utilizes an integrated mental health strategy that reflects best practices in higher education and mental health field, and the broader Ithaca community and Tompkins County are served by an array of dedicated mental health agencies and service providers.

Over the last two decades, of all Cornell students who died by suicide, nearly half involved jumping into the gorges from bridges. The national average for suicides by jumping is just 2%. This much larger percentage of deaths by jumping is what makes the proposed long-term means restriction projects so significant and so promising, particularly for this substantial subpopulation within the Ithaca community. The high proportion of suicides by jumping among college students, who live and walk daily over our gorges, points to a very real possibility of reducing suicides overall in this group, and potentially among the broader community. Since the vast majority of individuals who attempt suicide survive (they do not subsequently kill themselves), removing access to a commonly used, easily accessible, highly lethal, and potentially contagious form of suicide increases the likelihood that suicidal individuals will be deterred from taking their lives.

**History of East Hill Bridge Safety Measures**

Various bridges have been rebuilt or modified over the years to include raising heights of railings for vehicular and pedestrian safety. Notable examples include the Suspension Bridge, whose present railing height of 5’ was installed in 1977, and the Thurston Avenue Bridge whose railings were installed in 2007 at a height of 4’8” with an inward curve at the top. The coping of the Stone Arch Bridge was raised and widened in 1987 to a height of 3’7” and a width of 2’4”. Reducing the ease with which the railings could be mounted for a suicide attempt was a factor in these decisions.

The community’s historical examination of means restriction for East Hill bridges is documented in two articles:

- In 1978, Suicide Prevention and Crisis Services (SPCS) of Tompkins County founder the Rev. Jack Lewis and then Executive Director Nina Miller wrote a guest editorial in the *Ithaca Journal*, “Moral Concern: Safe Bridges,” calling for means restriction on Ithaca’s bridges.
- In 1994, a *New York Times* article, “Another fatal plunge has Cornell asking whether its gorges inspire student suicides” included a reference to IPD Officer Dan Slattery’s proposal for nets in East Hill bridges.
Moral concern: Safe Bridges

By W. JACK LEWIS
Director, Cornell United Religious Work
and NINA MILLER
Director, Suicide Prevention and Crisis Service

On May 25, 1977, a distraught father appeared before the members of the Ithaca Board of Public Works to plead that they consider erecting suicide barriers on the city's several bridges. His interest in the bridges was tragically personal: His daughter had leaped to her death in March of 1978. Many years before, as an undergraduate at Cornell, this same man had shrugged when the annual toll of bridge victims was announced.

"Somebody ought to do something about those bridges," he had said to himself, then had gone on about his business.

And now the issue of preventing suicides from Ithaca's bridges is his business. Since his appearance before the Board of Public Works, six more lives have ended in leaps into the gorges. The six ranged in age from 12 to 34, and were both students and community residents.

But the Board of Public Works shrugged its shoulders, with a sympathetic statement to console the distraught father. So he appealed to the court, with the assistance of two community residents. Now the verdict is in: The city cannot be compelled by law to erect barriers on its bridges.

Even Cornell University has continued to shrug. Its students cross these bridges several times a day on the way to class and home; they joke — and sometimes don't joke — about "gorging out" when pressure accumulates.

Amid much ballyhoo and protest, barriers were erected on the suspension bridge last summer. The fact is that we know of several lives that been saved by the presence of these barriers. One student was pulled off the barrier by a passerby, and was taken for psychological counseling to help him through his period of distress. Other stories reach us, but the uncommitted suicide is more difficult to document than the completed one. The university is now dragging its feet on further barrier construction.

The great tragedy is that most of the deaths that have occurred could have been prevented. In a 15-year follow-up study conducted with people who have been prevented from jumping from the Golden Gate Bridge, the world's major suicide site, more than 90 percent of the study subjects are still alive or died of natural causes.

The study did not support the assumption — one heard all the time — that people prohibited from jumping would simply go elsewhere to commit suicide. Their suicidal behavior was crisis oriented: when they got help in coping with the crisis situation, the suicidal behavior subsided and often disappeared completely. Furthermore, of the 12 who jumped and miraculously survived, all are alive; none made further attempts to take their lives prematurely.

Where do we go from here? Where do those of us who feel that it is our responsibility as a community to prevent further deaths from our bridges, whether by suicide or accident, turn with our efforts?

If you are concerned, if you refuse to shrug and turn away, you can express your concern by writing to Citizens for Safe Bridges, Box 312, Ithaca. We will be happy to send information and articles which document the potential effectiveness of suicide barriers. We will also see that your expression of concern gets into the right hands.

Perhaps together we can make a difference.
Efficacy Research and Applicability to East Hill Bridges

The following section addresses some of the key questions that have arisen about the effectiveness of means restriction and its application to Ithaca’s setting in particular. References indicate links to the source material available through the web version of this document at www.meansrestrictionstudy.fs.cornell.edu.

A. Does means restriction on bridges reduce jumping deaths from those locations?

Yes. Several studies have demonstrated that means restriction on bridges significantly reduces or eliminates jumping suicides in those locations. This finding is quite consistent and not controversial.

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<th>SITE</th>
<th>INTERVENTION and OUTCOME</th>
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<tr>
<td>Ellington Street Bridge, Washington DC</td>
<td>Barriers reduced number of suicides from 25 in the previous 7 years to one in the 5 years after the installation of barriers.</td>
<td>O’Carroll and Silvermann, 1994</td>
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<tr>
<td>Clifton Suspension Bridge, Bristol, UK</td>
<td>Barriers halved the number of suicides from 8 to 4 per year.</td>
<td>Bennewith et al, 2007</td>
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<tr>
<td>Bern Muenster Terrace, Switzerland</td>
<td>Safety net reduced suicides from 2.5 per year to zero.</td>
<td>Reisch &amp; Michel, 2005</td>
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<td>Memorial Bridge, Augusta, Maine</td>
<td>Prior to installation of barriers, 14 suicides. After barriers in place, no suicides in 22 years.</td>
<td>Pelletier, 2007</td>
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<tr>
<td>Grafton Bridge, New Zealand</td>
<td>With barriers in place, 3 suicides in 4 years. After barriers were removed, 15 suicides in 4 years. Since reinstallation of the barriers, there have been no suicides.</td>
<td>Beautrais et al, 2009</td>
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<td>Bloor Street Viaduct, Toronto, Canada</td>
<td>The numbers of suicides were reduced from 9.3 per year in the 9 years pre-barrier to zero per year in the 4 years post-barrier.</td>
<td>Sinyor &amp; Levitt, 2010</td>
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B. Does means restriction on bridges lead suicidal individuals to jump elsewhere?

- Several studies have found that erecting a bridge barrier did not result in more jumps from nearby sites.

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<tr>
<td>Ellington Street Bridge, Washington DC</td>
<td>When barriers were deployed, suicides decreased at this location and did not increase at the nearby Taft Bridge.</td>
<td>O’Carroll and Silvermann, 1994</td>
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<tr>
<td>Clifton Suspension Bridge, Bristol, UK</td>
<td>No evidence was found of an increase in suicide by jumping from other sites in the Bristol area once barriers had been erected.</td>
<td>Bennewith et al, 2007</td>
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<tr>
<td>Bern Muenster Terrace, Switzerland</td>
<td>Compared with the pre-installation period, the number of people jumping from all high places in Bern was significantly lower, indicating that no immediate shift to other nearby jumping sites took place.</td>
<td>Reisch &amp; Michel, 2005</td>
</tr>
<tr>
<td>Memorial Bridge, Augusta, Maine</td>
<td>The number of suicides by jumping from other structures remained unchanged after installation of the fence.</td>
<td>Pelletier, 2007</td>
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- By contrast, a study of the Bloor Street Viaduct in Toronto found that while a barrier decreased suicides at that location, jumping deaths increased at other bridges and buildings. The authors concluded that the “Bloor Street Viaduct may not have been a uniquely attractive location for suicide and that barriers on bridges may not alter absolute rates of suicide by jumping when comparable bridges are nearby.”

- These findings reinforce the recommendations made by suicide researchers that it is important to employ means restriction on all East Hill bridges and adjacent gorge edges. Since no single bridge is uniquely attractive for suicide, it is important to treat these bridges collectively, as a single “iconic site” for suicide. The process by which a bridge or bridges attain an iconic status that attracts suicidal individuals is complex. The pattern of suicidal jumps over the past two decades suggests that the bridges and abutments are the locations that are uniquely attractive. All but one of the documented suicide jumps into East Hill gorges since 1990 have been from bridges or their abutments.
C. Does means restriction lead individuals to substitute other methods of suicide?

- It is always possible that someone deterred from one method of suicide will seek another. Suicide is often an ambivalent act, and considerable evidence shows that when access to a highly lethal means is restricted, suicidal individuals do not always attempt suicide using other means. For example, when access to carbon monoxide produced by burning charcoal (which accounted for a large percentage of suicides) was restricted in Hong Kong, the rate of suicide declined because individuals did not substitute other means (see article by Chung & Leung).

- Some individuals who are deterred from jumping will attempt suicide by using other methods. While some will die, others will survive because they use a less lethal method than jumping. When individuals overdose on medications, for example, there is an opportunity for intervention.

- Impulsive individuals who are deterred from suicide often do not substitute methods (see “Impulsivity and Crisis,” Harvard School of Public Health). By separating in time and space the intent to die and the access to highly lethal methods, means restriction can buy time for suicidal desires to pass and thus reduce the risk of death (see letter to the Cornell Alumni Magazine, January 2010.) Impulsivity is developmentally more common among late adolescents and young adults than in older individuals, and can be exacerbated by alcohol consumption which is high in this population as well.

- A 34-year study (range of follow-up: 4 to 34 years) examined what happened to people rescued from overt suicide attempts on the Golden Gate Bridge. It found that at least 90% had not subsequently died by suicide (see article by Seiden).

- It is possible that an individual who is deterred from jumping from an East Hill bridge would jump from a gorge wall, or another high point in the region. Individuals have periodically jumped to their deaths at other locations in the county, and it is likely that there will be such suicides in the future. Therefore, future suicides would not necessarily reflect a substitution of jumps from East Hill bridges, though the number of jumping suicides throughout the county should be monitored over time to assess any changes.

D. Does means restriction on bridges lower a region’s overall suicides rates?

- This question has been explored but not answered definitively in the research literature. Evaluations of the efficacy of means restriction on individual bridges are unlikely to identify changes in regional (e.g., county) rates because the number of suicides at bridges make up a relatively small percentage of all suicides in most communities.

- A recently published study by UC Santa Barbara researcher Garrett Glasgow found that regions in the U.S. with high bridges do not have elevated rates of suicide. Professor Glasgow interprets this finding to mean that there is no evidence that barriers would save lives. His conclusion is not that barriers are proven not to reduce regional suicide rates, only that there is no evidence that they do. He states that his methodology "may eventually allow researchers to determine if means restriction at suicide-jumping sites reduces total suicides."

- Means restriction in general results in a decline in suicides at the population level if the method that is restricted accounts for a significant percentage of overall suicides. For example, when the amount of carbon monoxide was reduced in cooking gas in the U.K.
and in Denmark, the rates of suicide dropped dramatically (see articles by Kreitman and Nordentoft, et al). Similarly, initiatives to change drug packaging and substitute less lethal pesticides have reduced the population-level rates of suicide (see articles by Hawton, et al and Gunnell, et al).

- Since jumping deaths account for half of Cornell student suicides over the past 20 years, means restriction on bridges holds the potential for lowering the overall rate of suicide in this sub-population. No studies have been conducted evaluating the impact of means restriction on bridges within a population that has such a high percentage of suicides resulting from jumps.

- In his article, Glasgow speculates that “There are reasons to doubt that means restriction will be an effective suicide prevention method at public suicide-jumping sites. Means restriction is most likely to be effective with household suicide methods that are quickly accessible, such as firearms, dangerous medications, and toxic substances. The additional effort and time required to travel to a jumping site in comparison to household suicide methods may indicate that suicides in these locations are less impulsive, and thus less likely to be prevented through means restriction.” This reasoning is not applicable to Ithaca’s unique setting, for two reasons. First, members of the Cornell community walk across these bridges on a daily basis, so getting to these bridges requires no additional time and effort. Also, young adult decision making is more likely to be characterized by impulsivity, which can be compounded by levels of alcohol use that are higher than in the general population. Intoxication can exacerbate suicidal thoughts and contribute to impulsive suicidal actions (see 2009 report from the CDC).