Cornell University Mental Health Framework

- Foster a healthy educational environment
- Promote life skills and resilience
- Increase help-seeking behavior
- Identify people in need of care
- Provide mental and medical health services
- Deliver coordinated crisis management
- Restrict access to means of suicide
- Safeguard students and staff
Bridge Means Restriction
Long Term Approach

Design and Review Process

- Site Analysis, Technical and Cornell Literature Review
- Cornell/City Review
- 3 Pre-Schematics per bridge
- Cornell/City Review & Selection of Schematics
- Schematic Design
- Cornell/City Review - Trustees Approval
- Design Development
- Construction Documents

August 24, 2010
Earliest Start Date based on CFPC approval to begin design

Today

May 31, 2011
Per Cornell/City MOU deadline to submit site plan review

Long-term Bridge Means Restriction Study
Materials

Bar System

Glass Wall

Tensile Steel Mesh
Stewart Avenue Bridge
at Cascadilla Creek Gorge

Span: 230 feet
Height Above Ground: 75 feet
Railing Height: 41"

High vehicular traffic
High pedestrian traffic
High visibility
Iconic campus bridge

Ownership: City of Ithaca

First built as a trolley bridge in 1888, it was rebuilt in the early 1900s as a combined road/trolley bridge.
Stewart Avenue Bridge
at Cascadilla Creek Gorge

Existing
Stewart Avenue Bridge
at Cascadilla Creek Gorge

Proposal A
Stewart Avenue Bridge
at Cascadilla Creek Gorge

Proposal A
Stewart Avenue Bridge
at Cascadilla Creek Gorge

Proposal A
Stewart Avenue Bridge
at Cascadilla Creek Gorge

Proposal A
Stewart Avenue Bridge
at Cascadilla Creek Gorge

Proposal B
Stewart Avenue Bridge
at Cascadilla Creek Gorge

Proposal B
Stewart Avenue Bridge
at Cascadilla Creek Gorge

Proposal C
Proposal C
Stewart Avenue Bridge
at Fall Creek Gorge

Span: 220 feet
Height Above Ground: 110 feet
Railing Height: 41”

High vehicular traffic
Low pedestrian traffic
Moderate visibility
Iconic campus bridge

Ownership: City of Ithaca

First built as a trolley bridge in 1899, it was rebuilt in the early 1900s as a trolley and vehicle bridge.
Stewart Avenue Bridge
at Fall Creek Gorge

Existing
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal A
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal A
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal A
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal A
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal B
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal B
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal B
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal B
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal C
Stewart Avenue Bridge
at Fall Creek Gorge

Proposal C
Thurston Avenue Bridge
at Fall Creek Gorge

Span: 235 feet
Height Above Ground: 12 feet
Railing Height: 56”

High vehicular traffic
High pedestrian traffic
High visibility
Iconic campus bridge

Ownership: City of Ithaca
First built as a trolley bridge in 1899, rebuilt in 1960 and widened again and rebuilt in 2005.
Thurston Avenue Bridge at Fall Creek Gorge

Existing
Thurston Avenue Bridge
at Fall Creek Gorge

Proposal A
Thurston Avenue Bridge
at Fall Creek Gorge

Proposal A
Thurston Avenue Bridge
at Fall Creek Gorge

Proposal B
Thurston Avenue Bridge
at Fall Creek Gorge

Proposal B
Thurston Avenue Bridge
at Fall Creek Gorge

Proposal B
Thurston Avenue Bridge
at Fall Creek Gorge

Proposal C

15'-2"
Thurston Avenue Bridge at Fall Creek Gorge

Proposal C
Thurston Avenue Bridge
at Fall Creek Gorge

Proposal C
Thurston Avenue Bridge
at Fall Creek Gorge

Proposal C
Stone Arch Bridge
at Cascadilla Creek Gorge

Span: 63 feet
Height Above Ground: 92 feet
Railing Height: 43”

High vehicular traffic
High pedestrian traffic
High visibility
Iconic campus bridge

Ownership: Cornell University
First built around 1869, replaced in 1897 by a stone bridge—last major repairs were made in 1987 and in 2001.
Stone Arch Bridge
at Cascadilla Creek Gorge

Existing
Stone Arch Bridge
at Cascadilla Creek Gorge

Proposal A
Proposal A

Stone Arch Bridge
at Cascadilla Creek Gorge
Stone Arch Bridge
at Cascadilla Creek Gorge

Proposal A
Stone Arch Bridge
at Cascadilla Creek Gorge

Proposal B
Stone Arch Bridge
at Cascadilla Creek Gorge

Proposal B
Trolley Bridge
at Cascadilla Creek Gorge

Span: 129 feet
Height Above Ground: 54 feet
Railing Height: 52”

High pedestrian-only traffic
Low visibility
Not an iconic campus bridge

Ownership: Cornell University
First built around 1900 to accommodate the trolley line, it was converted to a footbridge in the 1940s and totally reconstructed in 2006.
Trolley Bridge
at Cascadilla Creek Gorge

Proposal A
Trolley Bridge
at Cascadilla Creek Gorge

Proposal A
Trolley Bridge
at Cascadilla Creek Gorge

Proposal A
Trolley Bridge
at Cascadilla Creek Gorge

Proposal A
Beebe Dam Bridge at Fall Creek Gorge

Span: 118 feet
Height Above Ground: 57 feet
Railing Height: 56”

High pedestrian-only traffic
Moderate visibility
Not an iconic campus bridge

Ownership: Cornell University
First built around 1900 to accommodate the trolley line, it was converted to a footbridge in the 1940s and totally reconstructed in 2006.
Beebe Dam Bridge
at Fall Creek Gorge

Existing
Beebe Dam Bridge
at Fall Creek Gorge

Proposal A
Beebe Dam Bridge
at Fall Creek Gorge

Proposal A
Beebe Dam Bridge
at Fall Creek Gorge

Proposal A
Suspension Bridge
at Fall Creek Gorge

Span: 270 feet
Height Above Ground: 108 feet
Railing Height: 60”

Medium-Low pedestrian-only traffic
Moderate visibility
Iconic campus bridge

Ownership: Cornell University
Maps from early 1900s show a footbridge across the gorge in the area. The present bridge was constructed in 1960, with repairs in 1974, 1978, 1979, 1984, and 2003.
Suspension Bridge at Fall Creek Gorge

Existing
Suspension Bridge
at Fall Creek Gorge

Proposal A
Suspension Bridge
at Fall Creek Gorge

Proposal A
Suspension Bridge at Fall Creek Gorge

Proposal A
Suspension Bridge
at Fall Creek Gorge

Proposal A
Suspension Bridge at Fall Creek Gorge

Proposal B
Suspension Bridge
at Fall Creek Gorge

Proposal B
Suspension Bridge
at Fall Creek Gorge

Proposal B
Means Restriction
Materials & Methods
Conventional Systems
Leaning & Enclosed Fences
Conventional Systems
Fence Details (Vehicular Bridge)
NY State Department of Transportation

(4) Steel Rails + Fence
(2) Steel Rails + Fence
Concrete Barrier + Fence
Concrete Barrier + Brick Veneer + Fence
“Texas” Concrete Barrier + Fence
Material: Bar System
Material: Glass Wall
Rockefeller Center
Material: Horizontal Net Suspended Below
Golden Gate Means Restriction Project
Material: Tensile Steel Mesh
Stadion Center, Austria
Debris Removal
Debris Removal: Horizontal Net Sizing
Debris Removal: Horizontal Net Retraction
Debris Removal: Horizontal Net Retraction
Ergonomic Modeling: Analysis of Static Ergonomics Body to Object

AnyBody software computer ergonomic modeling
Ergonomic Modeling: Full-Scale Mock-Up
Ergonomic Modeling: Full-Scale Mock-Up
Ergonomic Modeling: Full-Scale Mock-Up
Bridge Maintenance: NY State DOT “Snooper” Truck
Bridge Maintenance: NY State DOT “Snooper” Truck
Bridge Maintenance: Scaffold Rigging
Bridge Maintenance: Snow Removal
\[ x = v_0 x t \]
\[ y = v_0 y t - \frac{1}{2} g t^2 \]

Using the quadratic formula to solve for \( t \) gives two values of time for a given value of \( y \).

\[ t = \frac{v_{0y}}{g} \pm \sqrt{\frac{v_{0y}^2}{g^2} - \frac{2y}{g}} \]

Substitution of the two time values gives the two values of \( x \) corresponding to a given height \( y \).