

Thesis Project Portfolio

Río K'ellu Mayu Pedestrian Footbridge  
(Technical Report)

The Fight for Walkability in Richmond, Virginia  
(STS Research Paper)

An Undergraduate Thesis Portfolio  
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Bachelor of Science in Civil Engineering

by

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## Preface

How can walking trips be promoted in communities?

How can the design of a pedestrian bridge in rural Bolivia be optimized for usefulness, reliability, and cost? Río K'ellu Mayu is impassable 150 days of the year, and a bridge over it would directly benefit 190 individuals and indirectly benefit another 220, connecting residents to schools and medical facilities. Design and preconstruction work was completed for a suspended pedestrian footbridge across Río K'ellu Mayu in the Pocona municipality of rural Bolivia. Suspended bridges include cables anchored into the ground and overtop a masonry abutment on both sides, and the deck is hung from the sagging cables. Structural analysis of masonry abutments, steel cables, anchors, and soil as well as a geometric layout given site conditions were all complete for a suspended footbridge across the Río K'ellu Mayu.

In and near Richmond, Virginia, advocacies, public agencies, universities, and local businesses collaborate to promote walkability and bikeability. Public agencies enlist advocacies in official projects. Other advocacies engage in collective action, for example by taking over streets on bikes. Universities programs promote biking among students. Local businesses provide supplies, services, and space for people who travel on foot, on bikes and other micromobility, and on transit. Together they work towards a more walkable and bikeable Richmond.