

## MiniBooNE 25 Meter Absorber Lowering Options

1. Use existing hardware and lower with mobile crane

## Pros:

- Quick
- Minimal shock loading on suspect chains
- Not working in close proximity to loaded suspect chain

## Cons:

- Cost
- Scheduling
- Possible damage to crane and spreader bar if failure occurs

2. Weld on new center lug and lower with mobile crane

## Pros:

- Quick - after welding of new lugs
- Rated lifting hardware used

## Cons:

- Cost
- Scheduling
- Welding of lug requires access to center region and special work platform.
- Working in close proximity to loaded suspect chain
- Concrete module not addressed – Anchors drilled into block?

3. Use existing hardware and lower with hydraulic cylinders

## Pros:

- Less costly than mobile crane
- Can be scheduled anytime
- Not working in close proximity to loaded suspect chain
- Can be used for lifting/lowering of modules in future without crane
- Lifting cylinders on hand

## Cons:

- Time to lower could take many days
- Numerous loading cycles to suspect chains
- Design and fabrication of hardware

4. Use existing hardware and lower with two air driven hoists

## Pros:

- Less costly than mobile crane
- Can be scheduled anytime
- Not working in close proximity to loaded suspect chain
- Can be used for lifting/lowering of modules in future without crane

## Cons:

- Hoists are large and will require substantial setup
- Availability