

# The Timescale Project: Estimated Budget

Note: Project concept includes 27 columns. Column materials and electronics components estimated for 30 columns allowing for faulty parts and/or rebuilds.

Item	Cost Each	Units	Quantity	Total Cost	Notes
<b>Column Materials</b>					
<i>Concrete</i>					
Concrete volume per column: 2.5 ft <sup>3</sup> . One column = 47lb cement, 40lb sand, 2 ft <sup>3</sup> perlite, 8 oz plasticizer.					
Portland Cement (47 lb)	\$5.00	ea	30.	\$150.00	
Sand #90 screen size (40 lb)	\$6.00	ea	30.	\$180.00	
Perlite, 3.5 ft <sup>3</sup>	\$15.20	ea	18.	\$273.60	Lightweight aggregate
Super plasticizer (2.5 lb)	\$9.99	ea	4.	\$39.96	Increases flowability of concrete during pour
Concrete sealant	\$24.99	gal	3.	\$74.97	
Burlap, 2 yards per form	\$2.99	yd	20.	\$59.80	For proper concrete curing, wet burlap is applied for 7 days after formwork removal. Prevents cracking.
<i>Formwork</i>					
Ten sets of formwork, used for 3 separate pours (requires 7 days curing time in form) = 27 columns + 3 spares					
Plywood sheet, 3/8" thick, sanded	\$23.74	ea	10.	\$237.40	Smooth sanded side required for concrete casting.
2x2's, 10ft lengths	\$1.80	ea	40.	\$72.00	
Staples, 1/4" x 1-1/2", 5000 per box	\$19.98	pkg	1.	\$19.98	For constructing permanent portions of formwork
Double-headed nails, 450 per box	\$12.98	pkg	1.	\$12.98	For constructing removable portions of formwork
Wood filler/spackle	\$5.99	qt	1.	\$5.99	For smoothing interior of formwork after assembly
Polyurethane for coating formwork interior	\$29.97	gal	2.	\$59.94	Helps retain moisture, prevent warping of wood
Cardboard tubes, 4" x 72"	\$5.95	ea	30.	\$178.50	Creates central electrical wiring access channel, reduces column weight.
Bailing wire	\$3.99	roll	3.	\$11.97	
Form release agent	\$9.00	qt	6.	\$54.00	Retains moisture during curing, prevents cracking.
Rebar verticals, 5.5' x 3/8", 4 per column	\$0.38	ft	660.	\$250.80	Concrete reinforcement
Rebar laterals, 6" x 3/8", 4 sets of 4 per column	\$0.38	ft	240.	\$91.20	Concrete reinforcement
<i>Below Ground Anchoring Cleat</i>					
Rebar stakes, 2' x 1/2", 4 per column	\$0.41	ft	240.	\$98.40	
Bolts for attaching cleat to column	\$1.02	ea	120.	\$122.40	
Nuts for attaching cleat to column	\$0.18	ea	120.	\$21.60	
Sheet steel for cleat plate, 1/8" mild steel, 4'x8'	\$120.00	ea	1.	\$120.00	
Metal bar for legs (buried), 68" long, 2 per column, 1/8" mild steel, 1.5" width	\$11.71	20 ft bar	16.	\$187.36	Mild steel bar comes in minimum 20 ft lengths.
<i>Above Ground Column Finishing</i>					
Sheet steel for column ground plates, 1/8" mild steel,	\$120.00	ea	1.	\$120.00	
Sheet steel for display box top/bottom plates and column top caps, 12 gauge mild steel, 4'x8'	\$90.00	ea	3.	\$270.00	
Shear pins, 12 per column, 1"x1/4" mild steel rod = 27 ft	\$12.00	ea	2.	\$24.00	Mild steel rod comes in minimum 20 ft lengths.
3/32" Galvanized Steel Cable, 7x7	\$0.10	ft	900.	\$90.00	
Ferrules/Stops	\$0.16	ea	150.	\$24.00	
Griplocks	\$0.95	ea	120.	\$114.00	Removable cable anchor that maintains tension
Acrylite Plus sheet 1/4" thick for sculpture displays	\$11.95	sq ft	78.	\$932.10	Each column has four 8"x12" side panels = 72 sqft. Two extra sets in case of breakage/cutting errors.
Weld-on 3 Acrylic Chemical Cement	\$14.75	qt	1.	\$14.75	
Information Plaque, 1 per column, 1/8" thick clear acrylic, 6"x6"	\$4.00	sq ft	7.5	\$30.00	
Plaque backing, 1 per column, 1/8" thick white acrylic, 6"x6"	\$5.45	sq ft	7.5	\$40.88	
Plaque lighting LEDs, four per column	\$0.38	ea	120.	\$45.60	
Wooden letters for casting chapter names/dates in	\$0.45	ea	300.	\$135.00	Columns are cast 10 at a time, large letter set is required.
<b>Subtotal</b>				<b>\$4,163.18</b>	

## Column Electronics

18/2 wire	\$0.07	ft	1,100.	\$77.00 For 100 million year markers in gaps between generators
12/2 wire	\$0.22	ft	950.	\$209.00 Stepped-size power cable reduces cost
10/2 wire	\$0.30	ft	2,950.	\$885.00
8/2 wire	\$0.64	ft	1,500.	\$960.00
NEMA L5-30 plug	\$16.74	ea	2.	\$33.48 30A connector for larger generators
NEMA 5-15 plug	\$7.03	ea	1.	\$7.03 For small Honda generator
120 volt Halogen dichro bulbs, GU10, 35W	\$3.50	ea	86.	\$301.00 27 columns, 3 bulbs each, plus 5 spares
GU10 Sockets, ceramic	\$3.00	ea	86.	\$258.00
LED/strobe transformers	\$5.00	ea	28.	\$140.00 1 spare
Strobe trigger sync slave circuits	\$8.00	ea	28.	\$224.00 1 spare
Strobe trigger wire, 22ga	\$0.08	ft	5,500.	\$440.00
Floodlights, various wattages	\$3.50	ea	30.	\$105.00 3 spares
Edison sockets	\$2.00	ea	21.	\$42.00
Steel mesh for floodlight scrims	\$2.00	sq ft	10.	\$20.00 For more precisely varying brightness
LEDs for accent lighting, 10 per column	\$0.38	ea	300.	\$114.00
Strobes - disposable cameras, 4 per column	\$2.50	ea	120.	\$300.00
Wire nuts	\$6.99	box	5.	\$34.95
Strobe trigger driver circuit	\$45.00	ea	1.	\$45.00
Photocell switch	\$8.75	ea	22.	\$192.50 For turning off lighting in the daytime, extends generator runtime
14ga wire, 100' spool	\$11.50	spool	3.	\$34.50 Internal column wiring
2-pin moles plugs	\$1.49	ea	27.	\$40.23 Strobe sync connection
<b>Subtotal</b>				<b>\$4,462.69</b>

## 100-Million-Year Markers

45 markers, plus five spares

Polyester resin	\$57.25	gallon	4.	\$229.00
MEKP Catalyst, 10oz bottle	\$8.25	ea	1.	\$8.25
LEDs	\$0.54	ea	200.	\$108.00
LED blink sync slave circuits	\$8.00	ea	50.	\$400.00
Transformers	\$5.00	ea	50.	\$250.00
Ground stake, 12" x 3/8" rebar	\$1.00	ea	50.	\$50.00
Ground stake mounting hardware	\$2.00	ea	50.	\$100.00
2-pin molex plugs	\$1.49	ea	100.	\$149.00 1 plug for power, 1 for sync
<b>Subtotal</b>				<b>\$1,294.25</b>

## Tools & Equipment

Generators	\$275.00	wk	4.	\$1,100.00 United Rentals pricing for 3KVA generator rental. Two generators rented for 2 weeks each, plus a third borrowed (see "Additional Non-Grant Costs" below)
Gasoline for generators	\$2.50	gallon	154.	\$385.00 Fuel consumption per 24 hrs = 22 gallons combined. Rental generators 10 gallons/day, loaned Honda 2 gallons/day.
Motor oil for generators	\$5.00	qt	4.	\$20.00
55 gallon closed-head steel fuel drum, 2" bung	\$80.40	ea	3.	\$241.20 Fuel storage and transport
Fuel drum pump, 14oz/stroke	\$65.03	ea	1.	\$65.03
Gasoline hose	\$3.25	ft	10.	\$32.50 For refilling generators from fuel drum in truck
Plywood for generator sound baffle boxes, 4'x8' sheets	\$15.99	ea	6.	\$95.94 Three generators, three boxes, 2 sheets/box
Solar lights to mark generators	\$29.99	6-pack	1.	\$29.99
Trencher rental	\$125.00	day	2.	\$250.00 Due to considerable trenching requirements, we anticipate needing our own trencher so as to not tie up DPW's equipment.
Cement bucket mixer rental	\$40.00	day	4.	\$160.00 Rental rates from Home Depot. Three days of casting, one day of patching/repairs.
Mortar hoe	\$34.97	ea	1.	\$34.97

## Tools & Equipment - Continued

Concrete vibrator	\$49.97	ea	1.	\$49.97
Plastic tarp	\$21.69	ea	5.	\$108.45
Sandpaper	\$12.67	package	4.	\$50.68
Cable cutters	\$59.99	ea	1.	\$59.99
Cable crimper/swager	\$28.74	ea	1.	\$28.74
Welding gas	\$36.00	cylinder	2.	\$72.00 2 refills on C size C25 gas
Welding wire	\$27.99	10 lb	1.	\$27.99 .030 carbon steel welding wire
Subtotal				<b>\$2,812.45</b>

## Transportation

Semi trailer trucking of project materials to/from playa	-	--		\$1,800.00 Full 48 ft semi truck is \$2400 round trip (source: Jim Mitten) - assume we fill 3/4 of that and share the cost.
Support truck for small equipment, on-playa maintenance	\$21.99	day	18	\$395.82
Gasoline for support truck	\$2.50	gallon	10 mpg	\$187.50 750 miles round trip including on-playa driving during setup/teardown
Collision/damage waiver insurance on rental truck	\$19.99	day	18	\$359.82
Padding/moving supplies	-	--		\$200.00 Padding for all 30 columns as well as 30 sculptures.
Subtotal				<b>\$2,943.14</b>

## Tax and Freight

Sales tax on raw materials, rentals	8.75%	x \$15675.705		\$1,371.62
Estimated shipping charges: electronics, lightbulbs, specialty column hardware, cable rigging				\$450.00
Subtotal				<b>\$1,821.62</b>

## Total Requested Grant

**\$17,497.33**

## Additional Non-Grant Costs

Shop rental - NIMBY	\$300.00	month	6	\$1,800.00
Workshop dues - Noisebridge	\$100.00	month	3.	\$300.00
Techshop membership (laser engraving of plaques, CNC plasma cutter for metalwork)	\$200.00	month	2	\$400.00 One student (\$75) and one regular (\$125) membership per month
Column sculptures: artists' materials costs	\$100.00	column	27	\$2,700.00 Estimated average cost for column sculpture materials donated by respective artists. Each artist will be responsible for funding their own sculpture.
Column sculptures: costs associated with shipping acrylic boxes to/from artists outside of the Bay Area				\$400.00
Honda EU2000 generator	\$1,079.00	ea	1	\$1,079.00 Loaned by a friend, powers first 9 columns
Laser lighting effects for Holocene column (at trash fence)	\$2,000.00	ea	1	\$2,000.00 Laser effects/ consultation donated by friend Kevin Criqui
Labor				For professional services not provided by volunteers
Electrician for design/fabrication of mile-long electrical cable system	\$25	hour	40	\$1,000.00
CAD drafter for detailed engineering drawings	\$25	hour	30	\$750.00
Metal fabricator for precise fabrication of column brackets and concrete reinforcement	\$25	hour	40	\$1,000.00
Structural engineer for concrete mix design/specifications	\$25	hour	25	\$625.00
Subtotal				<b>\$12,054.00</b>

## Total Project Cost

**\$29,551.33**