Bennington Battle Monument

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AGENCY OF COMMERCE & COMMUNITY DEVELOPMENT

Bennington Battle Monument

Second Tallest Unreinforced Masonry Building in United States

1876: A second Bennington Battle Monument Association was incorporated by the Vermont Legislature and \$15,000 was appropriated for the project. The country's centennial provided additional stimulus to move the effort forward.

1878: Fundraising for monument project began.

1881: Congress passed bill, sponsored by Vermont Senator Justin S. Morrill, to appropriate matching funds for the erection of the Bennington Battle Monument.

1885: The Bennington Historical Society approved J. Phillip Rinn's design for the monument.

1887: Construction on the Bennington Battle Monument began in June; the cornerstone was dedicated on August 16, the 110th anniversary of the battle.

1889: The 306-foot structure was completed, and the capstone was set, although work on the interior continued.

1891: On August 19, the Monument was dedicated and opened to the public as part of celebrations marking the centennial of Vermont's statehood.



J. Phillip Rinn design for Bennington Battle Monument

2024 Visitation: 39,931 Revenue: \$276,211





















Bennington Battle Monument Observation Deck and Ground Level February 2024



Bennington Battle Monument

STEP One: what is happening2022-2024 Study and Planning Efforts

STEP TWO: how to solve

▶ 3 years Dry Out Monument &

Prepare Infrastructure and Schematic Design

STEP THREE+: fix the issues

Multi-year restoration and repair

ANNUAL STEP: ensuring the monument can open Safety & hazardous maintenance monitoring

Study and Planning Efforts

2022-2023 Study and Planning Efforts: Architectural & Engineering Survey (year-long) Research & Documentation Field Inspections 3-D laser scan (inside/outside) Baseline Documentation – high resolution working drawings Installation of Monitoring equipment (moisture/cracking) High-Ropes Access/Visual Field Inspection with Instrumentation Discussion of Interim Procedures for Elevator Elevator - analysis w/ proposed scope for ongoing elevator maintenance and service until restoration complete

2023-2024 Study and Planning Efforts Amendments: Masonry Conservation Study Hygrothermal Review and Geotechnical Investigation Mechanical and Structural Engineering Water Infiltration Testing Preservation Analysis and Masonry Testing Schematics and Costs Lightening Protection Petrography Testing Elevator Improvements Phase 1 & 2 - Total Study Efforts Amendments: Phase 1 & 2 - Total Study Efforts Amendments: Phase 1 & 2 - Total Study Efforts Amendments: Masonry Conservation Study Phase 1 & 2 - Total Study Efforts Amendments: Masonry Conservation Study Phase 1 & 2 - Total Study Efforts Amendments: Phase 1 & 2 - Total Study Efforts Amendments Phase 1 & 2 - Total Study Efforts Amendments

Phase 1 & 2 - Total Study Effort to date: \$988,868



J. Phillip Rinn's Interior Plan for Bennington Battle Monument

Block	Condition	um of Amoun	Block Count	m of Severit
ArchMetal_Connection	Fastener failed	1	1	0
ArchMetal_Note	Misc photo	0	1	0
ArchMetal_SoilStain	Guano	3.096	1	0
ArchMetal_Unsecured	Loose	1.694	2	0
Glass_Crack	Cracked pane	1.062	3	5.8
Stone_Crack	Repair failed	4821.984	295	98.5
	Repair removed	2.72	4	2
	Repair sound	8.181	5	0
	Single unit	111.131	63	41.75
	System joints	4.717	1	1
	System units	54.196	10	2
	system units and joint	1698.861	154	23.5
Stone_Embedment	Copper Embedment	0	5	0
	Ferrous Embedment	0	4	0
	Other Embedment	0	18	0
Stone_Joints	Mortar Caulked	12	1	0
	Mortar Failed	1303.651	46	750
	Mortar Missing	417.62	201	129
	Mortar Removed	25.919	24	0
	Sealant Failed	67.968	11	50
Stone_Note	Misc photo	0	62	0
	Photo-general	0	40	0
Stone_Repair	Dutchman Failed	18	1	0
	Patch Failed	3116	26	0
	Patch Removed	214	6	0
	Patch Sound	1363	6	0
Stone_SoilStain	Atmospheric	8.575	1	0
	Biological	120.974	5	0
	Bituminous	11.884	1	0
	Efflorescence	22.603	10	0
	Guano	17.929	2	0
	Leached Salts	169.851	10	0
Stone_Spall	Bonded	0	4	38
	Incipient	0	3	18
	Missing	0	15	249
	Removed	0	12	129
Stone_SurfLoss	Exfoliated	4.757	4	6
	Exfoliation	14.87	3	3
	Friable	1.898	1	2
Test_Location	Borescope	0	3	0
	Sampl	0	1	0
	Sample	0	2	0
Totals:		13620.141	1068	1548.55













Current Recommendations for Moving Forward:

PHASE 1A

Dry out the Monument

1. Design and erect a 100% water-tight Monument Enclosure System

2. Geotechnical Engineering, Site Preparation Design & Site Improvements

3. Preparation of Monument Enclosure Bidding Documents & Procurement Steps 1-3 = \$500,000

4. Erection of the Monument Enclosure

Step 4 =\$5.0M to \$10M

PHASE 1B

Infrastructure & Schematic Design

- Mechanical & Electrical Engineering Improvements Design & Installation + Drying Period
- 2. Architectural (Design & Preservation) & Structural Engineering Schematic Design
- 3. Exterior Preservation Mock-ups for Restoration Scope of Work & Cost Estimate =\$2.0M to 2.24M



Credit: Jim Bowen, 2024

Annual Maintenance for Opening

Delay of full restoration project requires annual public safety measures including removal of loose exterior materials and hazards via industrial rope access, customized elevator service, monitoring of stairs, elevator, fire safety, and structural cracking acceleration.

Safety Measures taken to date:

\$80,000

- Install temporary perimeter Fencing (purchased)
- Install temporary covered walkway from perimeter fence to Monument entrance (rental)

Annual Hazard Maintenance of Monument

- Industrial Ropes Inspection and Material Removals \$75,000
- Fencing & Protected Walkway Inspection
- Monitoring

\$ 1,500 \$25,000 set-up (\$12,000/yr)

Annual Costs for Special Conditions

 Elevator Maintenance – specialty scope developed to be proactive with Elevator maintenance until full restoration of building envelope

> \$7,000 TOTAL PER FY \$158,500