

Extreme Model Railroad and Contemporary Architecture Museum: *preliminary evaluation of economic impact*

This report provides an initial examination of the economic impact that would be generated by the proposed museum to be located on the grounds of the Western Gateway Heritage State Park located in North Adams, Massachusetts. The proposed museum has received considerable press attention and attracted the interest of two former Massachusetts governors and local political, cultural and business leaders.

The museum is one part of a larger set of proposals that feature additional museums, performing arts spaces, and commercial development within the city. Here we focus exclusively on the museum and its impacts, making use of preliminary estimates of construction, exhibit installation, and operating costs. These preliminary estimates can help to inform discussion about the museum, its impacts, and potential funding sources.

The project evaluated here would provide a museum housing and presenting an O-scale model railroad using equipment and scenery of extremely fine detail. The assembled scenes and transport network will be one of the largest such installations in the world. It will occupy approximately 31,000 square feet (2,880 square meters) of space and offer visitors a variety of “imagineering-like” experiences featuring direct viewing of model countryside, communities and urban environments representing a variety of time periods and viewed from a variety of perspectives. In addition to direct viewing, visitors will have extensive opportunities to view and in some cases control different portions of the model communities and transportation networks from computer and video control panels on the premises. Other displays will feature the history of rail and related transportation including the important role played by local and regional engineering projects.

With secure funding, the project could pursue an aggressive timeline. This would involve a two year construction and installation period followed by commencement of operations.

Construction would involve extensive renovation of 11,240 square feet (1044 m²) plus construction of a new space comprising 19,325 square feet (1796 m²). Projected costs for this construction are \$8,527,4881 over 2 years whose economic impact we evaluate as an increase in activity of the non-residential construction sector of \$4,263,745 per annum for two years.

Table 1 below presents the estimated annual impacts resulting from the construction and renovation alone. In this table (and in several others below) we present local employment impacts (number of new jobs in the region), additions to total labor income paid to workers in

1 This figure seems ample for planning purposes. For example see commercial construction cost estimator available at <http://www.buildingjournal.com/construction-estimating.html>

the region, changes in the economic value added in the region and increases in the total value of goods and services produced in the region. For each of these variables, we present the “direct effect” which measures the change in these variables as a result of the increased economic activity directly related to the project (increased activity in the construction sector, in the case of Table 1).

This is followed by the “indirect effect” that measures the additional increase to the local economy that results from increased local purchases made by firms and producers that produce the direct impact (for example, increased activity at local lumber yards because contractors involved in the construction purchase lumber from local suppliers).

These increases in local economic activity have the effect of increasing local incomes for residents, and these residents spend some of this additional income on local purchases in hundreds of sectors ranging from health care and housing to local entertainment and education. Combining these additional expenses generates an “induced effect” that is presented in the tables.

Finally, all three effects are added together to present the total effect on the local economy. Beyond the accounting of these combined effects, we break out the impacts on local, state and federal tax revenues that would be expected to increase as the local economy increases. These have already been accounted for in the total effects listed in the first four lines of the table, but are broken out separately to facilitate consideration of the public finance implications of the project.

Table 1: Annual impacts of museum construction

	Employment	Labor income	Value added	Local output
Direct Effect	31	1,577,853	1,422,633	4,263,745
Indirect Effect	8	439,656	692,071	1,153,380
Induced Effect	10	416,893	795,531	1,217,652
Total Effect	49	2,434,403	2,910,235	6,634,776
State and local taxes				190,949
Federal taxes				436,421
Total tax revenue				627,370

In addition to the economic impacts of the building renovation and construction, even larger impacts are expected to be associated with the work of assembling and installing the exhibition. This work requires skilled work similar to that employed in constructing museum exhibitions. Installation of the model display in this space would also take approximately 2 years and entail a cost estimated at \$7,247,171 or \$3,623,586 per year. We evaluate the economic impact of this as an increase in economic output of the museum and parks sector of \$3,623,586 per annum. The annual impacts are presented below in Table 2.

Table 2: Annual impacts of exhibit installation

	Employment	Labor income	Value added	Local output
Direct Effect	26	1,127,386	2,237,296	3,623,586
Indirect Effect	7	233,977	647,114	989,429
Induced Effect	7	278,880	532,820	815,312
Total Effect	39	1,640,242	3,417,229	5,428,327
State and local taxes				188,823
Federal taxes				408,289
Total tax revenue				597,112

For purposes of this preliminary analysis we assume that the installation proceeds contemporaneously with the construction by employing off-site and near-site assembly, assembly in existing space that is not completely remodeled, and transfer to and final assembly in newly remodeled and constructed space taking place prior to final certification for public use and occupancy. In the event that this is not fully realized, the total economic impact of the installation and construction phase would be expected to be similar in total value to the figures presented below, but at a somewhat lower annual rate spread over a slightly longer time period.

Assuming contemporaneous building construction and exhibit construction and installation, we can sum the impacts of these two processes together to obtain an estimate of the total annual impact generated by the project during this initial two year period. These impacts are presented in Table 3.

Table 3: Combined annual impacts during first two years

	Employment	Labor income	Value added	Local output
Direct Effect	57	2,705,239	3,659,928	7,887,331
Indirect Effect	15	673,633	1,339,185	2,142,809
Induced Effect	16	695,773	1,328,351	2,032,964
Total Effect	88	4,074,645	6,327,464	12,063,103
State and local taxes				379,772
Federal taxes				844,710
Total tax revenue				1,224,482

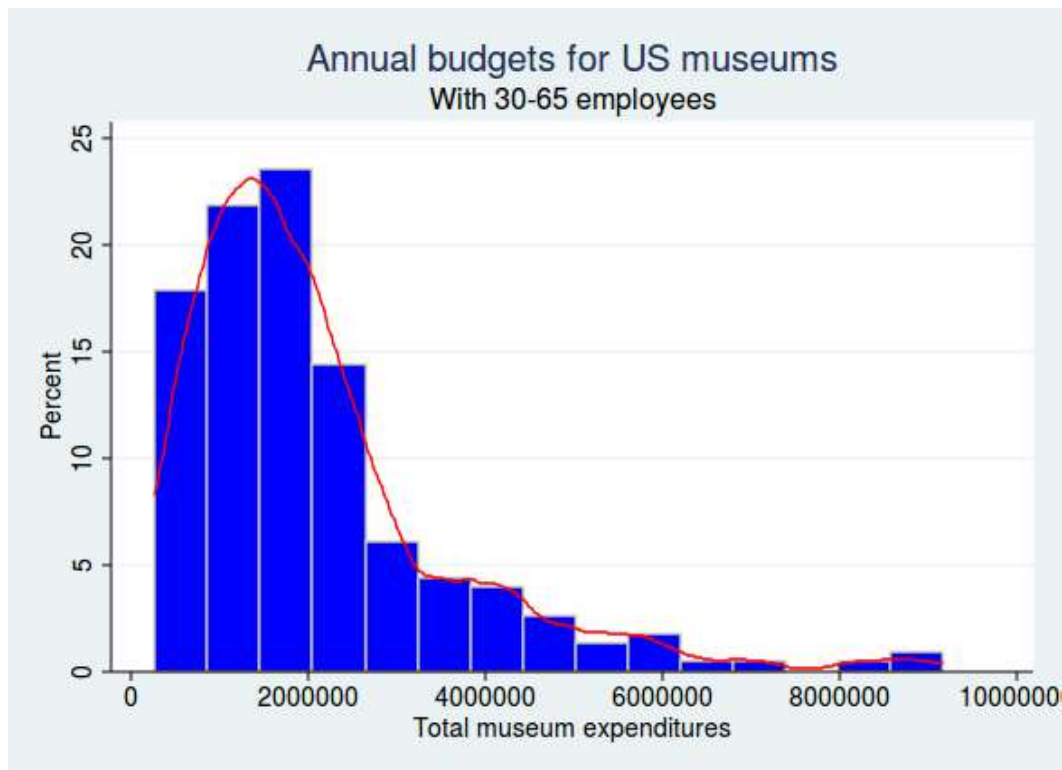
As indicated in the table, the first two years of the project would bring important economic benefits to the region, generating 88 full time jobs, increasing local economic output by more than \$12 million, and generating \$1.2 million in added tax revenues in each of these years.

Following completion of the construction and installation, the museum will be open to the public. Staffing and operating expenses are projected to cost approximately \$2,500,00 per year. In addition to rent, utilities, repairs and upgrades this budget provides for 37.25 full time staff and 20 interns employed each year. We evaluate the economic impact of this phase of the project as an increase of this amount per annum in the museum and parks sector of the local economy, but adjust the predicted employment impacts to match the direct employment levels provided for in the budget. These operations would provide an ongoing stimulus to the local economy whose value would be expected to rise over time at approximately the rate of

inflation.

This estimate of annual operating costs is more economical than often observed for a museum with the level of staffing and visitors expected for the museum. The economic model we use for Berkshire County suggests that a museum with proposed staffing levels of 40-60 full time employees and paid interns would be associated with annual operating budgets of more than \$5 million. It should be noted, however, that the proposed museum is different from other operating museums of this scale in the region. Existing museums must budget for ongoing installation expenses as they make changes in the objects displayed several times per year. The \$7.25 million budget for installation expenses provides a “front loading” of these costs and makes annual operating costs more efficient.

Comparison with the group of all museums operating in the US with staffing levels between 30 and 65 provides a further point of reference. The figure below shows the distribution of operating expenditures for such museums, taken from the annual form 990 data available from the National Center for Charitable Statistics core files for public charities.



The distribution indicates that an annual operating budget of \$2.5 million is actually larger than the median budget for museums with these staffing levels, and well within the range of observed museum operations. Adding this annual budget to the local museum sector and evaluating using our model of the Berkshire economy produces estimated impacts of the museum operations presented in Table 4.

Table 4: Annual impacts of museum operations

	Employment	Labor income	Value added	Local output
Direct Effect	27	769,872	1,527,810	2,474,484
Indirect Effect	5	159,779	441,903	675,664
Induced Effect	5	190,442	363,853	556,762
Total Effect	37	1,120,093	2,333,567	3,706,910
State and local taxes				128,943
Federal taxes				278,814
Total tax revenue				407,757

The largest source of expected local economic impact is associated with visitors to the museum. The region is already functioning as an important tourist destination, with MASS MoCA attracting about 150,000 visitors per year to North Adams, and approximately six miles from the proposed museum site The Clark Art Institute, Williamstown Theatre Festival and other events are bringing about 250,000 visitors per year. In Lenox and Stockbridge, about 27 miles south of the proposed site, the Tanglewood music center, Norman Rockwell Museum, Shakespeare and Company, The Mount and Berkshire Theater Festival bring about 585,000 visitors per year to the area.

For these major cultural destinations about 85% of the visitors are from outside of Berkshire County. Assuming that each visit to one of these sites, by a person not usually resident in the county, generates one visitor-day to the region gives (along with other destinations in the county) a total number of visitors per annum that is roughly consistent with estimates from the Berkshire Visitors Bureau obtained from a combination of ticket sales and lodging occupancy.

Each visitor-day generates local expenditures on lodging, meals, gasoline or local transportation and local retail. Based on earlier surveys of visitors to Tanglewood, with survey structure similar to surveys undertaken by Americans for the Arts of visitors to museums and other cultural attractions, we estimate that each visitor day would generate about \$72 in local spending(all calculations are done in 2015 dollars), divided between different sectors as indicated in the table below.

Table 5: daily expenditures per visitor

<u>Sector</u>	<u>Daily expenses</u>
Restaurants and bars	23.17
Hotels and lodging	37.86
Retail gas stations	4.29
Retail general	6.50
Child care	0.18
Total	72.00

For a contemporary family consisting of two adults and one child this provides a daily budget of \$216, excluding admission charges to the museum (which support museum operating expenses and are separately accounted for). We consider three possible scenarios for visitor impacts. The baseline level involves the museum attracting 150,000 visitors per year, 127,500

of whom are from outside Berkshire County and therefore generating visitor-day expenditures summarized in the table. The local economic impact of this “baseline” level of museum attendance is presented in Table 6.

Table 6: annual impact of 150,000 visitors per year

	Employment	Labor income	Value added	Local output
Direct Effect	89	2,463,439	4,790,960	8,092,449
Indirect Effect	13	539,389	1,037,064	1,774,751
Induced Effect	15	616,029	1,176,820	1,800,802
Total Effect	116	3,618,856	7,004,843	11,668,002
State and local taxes				1,182,155
Federal taxes				912,099
Total tax revenue				2,094,254

Combining the annual impacts of museum operations with the annual impacts of the baseline level of annual visitors provides a baseline estimate of the annual local economic impact of the museum after the initial two year period of construction and installation. These impacts are summarized in Table 7.

Table 7: combined annual impact of operations and 150,000 visitors

	Employment	Labor income	Value added	Local output
Direct Effect	116	3,233,311	6,318,770	10,566,933
Indirect Effect	17	699,168	1,478,967	2,450,415
Induced Effect	19	806,471	1,540,673	2,357,564
Total Effect	153	4,738,949	9,338,410	15,374,912
State and local taxes				1,311,098
Federal taxes				1,190,913
Total tax revenue				2,502,011

These results are striking, and indicate that the museum project could have very noticeable economic benefits for the community, and could help to solidify and extend the economic foundation of North Adams and Berkshire County more generally as an important cultural destination for visitors from the major urban areas located within an afternoon or morning’s drive from the region.

The public finance impacts are also considerable. For example, the increase in state and local tax revenues might seem modest when compared to the increase in local labor income or output, but compounded at 5% the additional \$1.3 million is equivalent to a payment today of more than \$26 million. Put another way, if a 5% rate of return on investment is considered adequate for the public sector, the added state and local tax revenues alone would justify an investment of \$26 million in the project, and this does not begin to consider the full economic and social benefits associated with the proposal.

A second, more optimistic scenario anticipates the museum drawing 250,000 visitors per year generating 212,500 visitor days. With ticket prices generating average revenue per visitor of \$10 this level of patronage would generate sufficient revenues to cover projected operating costs and therefore require no outside fund raising or endowment. The combined impacts of

this level of visitors and associated tourism, along with the museum operations, are summarized in Table 8.

Table 8: combined annual impact of operations and 250,000 visitors

	Employment	Labor income	Value added	Local output
Direct Effect	176	4,875,603	9,512,743	15,961,900
Indirect Effect	26	1,058,760	2,170,343	3,633,582
Induced Effect	29	1,217,157	2,325,220	3,558,099
Total Effect	230	7,151,520	14,008,305	23,153,580
State and local taxes				2,099,201
Federal taxes				1,798,980
Total tax revenue				3,898,180

Finally, we consider a relatively optimistic scenario of 350,000 visitors per year, generating 297,500 visitor days. This level of patronage would not only generate expected ticket revenues sufficient to cover operating costs, it would generate local economic benefits on the order of \$32 million per year, providing direct and indirect support for over 350 jobs in the area. While this is certainly the most optimistic scenario evaluated it is not outside the realm of possibility given levels of visitors attracted to other venues in the county or the number of visitors attracted to other museums of this sort around the world. The combined impacts of museum operations and this higher level of annual visitors are summarized in Table 9.

Table 9: combined annual impact of operations and 350,000 visitors

	Employment	Labor income	Value added	Local output
Direct Effect	235	6,517,895	12,706,716	21,356,866
Indirect Effect	34	1,418,353	2,861,719	4,816,750
Induced Effect	39	1,627,843	3,109,766	4,758,633
Total Effect	308	9,564,091	18,678,201	30,932,248
State and local taxes				2,887,304
Federal taxes				2,407,046
Total tax revenue				5,294,349

Conclusion

The analysis presented above, making use of our model of the Berkshire County economy, indicates that the proposed Extreme Model Railroad and Contemporary Architecture museum would generate significant economic benefits for the region. During the first two years when the project is under construction, we estimate an impact of 88 additional full time jobs and more than \$12 million increased economic output for the region.

Once construction is complete and the museum is operating, local economic impacts would increase significantly. With a baseline level of patronage similar to that achieved by smaller and less ambitious museums of this type, we estimate annual impacts of more than 150 full time jobs and an increase in local economic output exceeding \$15.3 million per annum. Even at this baseline level of patronage, the increase in state and local tax revenues would appear to be sufficient to justify an investment larger than the total construction and installation costs

of the project.

Under more optimistic, but potentially achievable, levels of patronage the museum would generate more than sufficient revenues to cover operating costs, and correspondingly greater local economic benefits. These scenarios suggest the potential of the project to increase local employment by more than 300 full time jobs, and to increase local economic output by nearly \$31 million dollars per annum.

These estimates have been obtained using a detailed economic model using conservative assumptions about the levels of local spending by visitors. Potential benefits would be even greater if we were to include the potential of the museum to extend the number of days spent by local visitors to other attractions in the area, or if we were to include value of the social, educational and other more difficult-to-measure (but still very real) benefits to local residents beyond the increased employment and incomes associated with the proposal.