The Economy of North Adams and the Mohawk Theater Project: Establishing an Economic Baseline

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Table of Contents

1. Introduction to the NEA Our Town Initiative ................................................................. 3
2. The Mohawk Theater Project .......................................................................................... 4
3. Comparison of New England Theater Projects ................................................................ 5
4. Economic Impact of the Mohawk Theater Project ............................................................ 8
   a. Construction Phase
   b. Annual Expenditures
5. Land Use in North Adams ................................................................................................ 16
   a. Residential
   b. Charitable
   c. Commercial and Industrial
   d. Municipal, Commonwealth, and US government
6. Building Use on Main Street ............................................................................................. 20
7. Measuring Street Vitality and its Impacts ......................................................................... 23
9. Conclusion .......................................................................................................................... 41
10. Appendix A ....................................................................................................................... 42
1 Introduction to the NEA Our Town Initiative

In July 2011 the National Endowment for the Arts (NEA) announced 51 communities to receive Our Town grants in the first round of funding for this new initiative. The grants were to support public/private partnerships created to support the arts while shaping their communities in ways consistent with existing identity and sense of place. Massachusetts Museum of Contemporary Art (MASS MoCA) and the City of North Adams, Massachusetts were among these first recipients.¹

The goal of the Our Town initiative is to support projects “that contribute toward the livability of communities and help transform them into lively, beautiful, and sustainable places with the arts at their core.”² The NEA provides suggestions of what might count as improved livability:

- the quality of life is improved;
- creative activity is encouraged;
- there is a community identity and sense of place; and
- the local economy is revitalized.

At the end of the grant, the expectation is that communities will report the activities in which they engaged during the grant period, as well as provide empirical measurements of the ways in which community livability has improved. It will not be difficult for a community to identify their actions during the grant period. Actions may include community meetings held, laws and regulations changed, and arts events sponsored.

Empirically documenting community change is extremely difficult, however, without appropriate baseline data about the state of the community at the start of the grant period. It is difficult to demonstrate progress toward a goal if the start line was not identified. The purpose of this report is to provide relevant baseline data for the City of North Adams as of the summer of 2012. This baseline will allow North Adams to document in the future both the activities in which they engaged and the state of the community at different points. The baseline data will continue to provide a useful comparison over time.

In the next section we will describe briefly the Mohawk Theater project, which the city of North Adams hopes will contribute not only to the economy of Main Street, but also rebuild community identity and sense of place. Following that is a section that puts the Mohawk Theater project in context with other theater projects in New England. This is a resource that can be used to evaluate the assumptions about the project – assumptions about size, cost, and sustainability.

In the remaining sections we discuss empirical measures of the current state of North Adams:
- the economic impact of the Mohawk Theater project, during both the construction and operation phases;
- current land use patterns in North Adams;
- building use on Main Street;
- measuring vitality on Main Street;
- measuring the regional and national visibility of North Adams; and
- the current socio-economic state of North Adams.

² http://www.arts.gov/grants/apply/OurTown/index.html
2 The Mohawk Theater Project

The renovation of the Mohawk Theater is one part of the larger plan for North Adams. The Mohawk Theater was designed as a single-screen 1,200 seat movie theater. Its central location on Main Street and the fact that it showed first-run movies from 1938 to the mid-1980s explains its iconic importance to many residents as an indication of the state of the city. The theater closed in 1991 and fell into a state of disrepair. Since 1992 the city of North Adams has supported repairs of the building along with acquiring ownership of adjacent building parcels over which the Mohawk Theater was spread.3

Current plans for the Mohawk Theater project include possible private/public partnerships to renovate and develop the Mohawk and the adjacent Dowlin Building. The Mohawk would be developed as a small performing arts and education center. The Dowlin Building would be developed as residential and retail space concurrent with the theater. The primary scenario at this time estimates renovation costs of the two buildings at $21 million. Finished square footage of the two buildings is planned at 56,653 square feet. The theater would seat about 1,000 people.4 The Dowlin Building would house 60 college students in studio apartments. The ground floor of the Dowlin Building would provide retail space. There would also be space dedicated to set design for performances at the Mohawk Theater.

The project is currently in the planning and feasibility stage. Any plan to use the Mohawk Theater must address the question of sustainability. Priorities in envisioning the project seem to include the following:

- use of the Mohawk Theater that is in keeping with its history and identity as a theater;
- use of the theater that will increase Main Street vitality by attracting both residents and visitors to MASS MoCA more frequently to the downtown area;
- a plan that involves requires the collaboration of the city, private developers, and local cultural and educational organizations to articulate a shared vision of Main Street and the future of North Adams;
- a plan that has acknowledges that at this point in time no single one of those partners can complete the project in a successful, sustainable way without the collaboration of the others.

In the next section we present other New England theater projects as comparison points for the Mohawk Theater project. The purpose is to make the reader aware of these projects, so that further information could be pursued in several directions: cost of renovation; size of theater; number of performances annually; and/or annual budget.

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3 Source: [http://www.mohawktheater.com/userPage_3_History.htm](http://www.mohawktheater.com/userPage_3_History.htm). The entrance, lobby and marque are in one building that fronts Main Street, while the main part of the theater with seating is located in the rear parcel. Over time the ownership of these two parcels had become separated. Purchasing these different parts and pieces became a project in its own right for the City of North Adams.

4 A secondary scenario has the theater renovated with 450 seats.
3 Comparison of New England Theater Projects

This section discusses briefly ten historic New England theaters that are of interest for the Mohawk Theater Project either for their cost or scale of renovations, or for their current use. Central to these theaters is the relationship between the theaters and their communities. These relationships are often expressed through educational programs. Given the uncertainty at the moment of the final seating capacity of the Mohawk, three of the theaters discussed have a capacity between 300 and 700 – the remainder between 900 and 1,500. The theaters discussed below, with the exception of Rutland’s Paramount Theatre, were found through the League of Historic American Theaters online site. Rutland’s Paramount Theatre is not a member of LHAT but was brought to our attention as a good comparison project.

Smaller Projects: 300-700 Seats

Little Theatre of Manchester at Cheney Hall. The Little Theatre was built in 1866. Since its $2.6 million renovation in 1991 it has a seating capacity of 335. Cheney Hall is a relevant case study for the Mohawk project due to the scale and cost of its renovation. The theater appears to prioritize involving a large part of its community and has over its 20 years of operation brought in 700 volunteers and 1,000 non-professional workers. The theater is operated as a 501(c)(3) nonprofit organization. Apart from its four main stage annual productions that involve a minimum of 39 performances, it also produces a 5-week “Rascal Rep Summer” repertory program for young people. The theater is used by other local performance arts groups as well.

Casino Theatre. The 300 seat Casino Theater in Newport, RI, provides an example of how two organizations can share the use of the same venue. The Salve Regina University Theatre Students regularly put on shows as part of their academic requirements. The theater itself focuses more on film and cinema than on performance arts but the SRU students provide performance arts. The 2009, $4.5 million renovation project seems more in keeping with the Mohawk project than the Paramount Center in Boston, discussed below, which is sometimes mentioned as a possible comparison case.

Mahaiwe Performing Arts Center. The 675 seat Mahaiwe offers a local case study due to its location in Great Barrington. Built in 1904, the theater was entered on the list of the National Register of Historic Places after its 2002-2005, $9 million renovation by architect Hugh Hardy. The Mahaiwe was a recipient of support from Save America’s Treasures, and the restoration was certified by the Massachusetts Historical Commission and the National Park Service.

Larger Projects: 850-1500 Seats

Emerson College's Paramount Center. The Paramount showcases a successful combination of “hands on” educational program with world class performance arts and entertainment as well as a residence hall. While the restoration budget was high at $92 million, it must be kept in mind that the Paramount’s 590 seat main theater is only one among many performance spaces. There is also a 150 seat black box theater and a 170 seat screening room. The Paramount should be looked at for the purpose of learning how education and professional performance arts can be successfully

5 http://www.lhat.org/
6 http://www.cheneyhall.org/
7 http://casinotheatre.salvereginablogs.com/
8 http://www.mahaiwe.org/
9 http://www.h3hc.com/
10 https://artsemerson.org/Online/default.asp
combined to the benefit of the community.\textsuperscript{11} There are limits, however, as to how many useful conclusions can be drawn from the Paramount for adaptation to the Mohawk project, largely due to its central location in a large metropolitan area and the high cost of the renovation.

\textit{The Garde Arts Center}:\textsuperscript{12} The Garde Arts Center was established as a 501(c)(3) in 1985 as a step towards saving the Garde theater. The theater was built in 1914 in New London, CT, with a seating capacity of 1,488. The theater was reopened after a $15.75 million, two year renovation project, completed in 1998. Like other relatively large theater operations, the Garde places emphasis on programs that extend beyond its main stage productions. The Garde Institute of Creativity, for example, offers both after-school and summertime arts classes across a variety of arts disciplines. Over time, the Garde has grown into what it refers to as an “arts block.” In this block of historic buildings, the Garde houses centers for the arts, education, commerce, and community events.

\textit{Zeiterion}.\textsuperscript{13} The Zeiterion Performing Arts Center, located in New Bedford, MA, was built in 1922 and currently seats 1,226 people. While final cost of restoration is not available, the Zeiterion is of interest for the Mohawk project because of its diversity of programming. At its core lies the main stage series that offers between 35 and 40 performances each year across genres. The remaining programs are of significant importance in terms of establishing a strong and healthy relationship between the theater and surrounding communities. The Zeiterion provides 5,000 tickets annually to low income families as a part of their “Arts Access” program that also works with the juvenile court system, Third Eye, Brick by Brick, United Front Homes, and the New Bedford school system. Furthermore, the Zeiterion is an active participant in the downtown revitalization efforts in New Bedford, and has developed marketing partnerships with other arts organizations to market both the Zeiterion and the city regionally. Lastly, the Zeiterion offers curriculum based, subsidized performances to 25,000 regional school children in grades pre-K-12 annually.

\textit{Music Hall}.\textsuperscript{14} The original Music Hall in Portsmouth, NH, was built in 1878 and has a seating capacity of 900. After being threatened by demolition in the 1980s, the community helped save the historic theater in 1987. The Music Hall has won awards for its restoration and renovations, but we have no cost estimate for the restoration. The Music Hall estimates a total of 100,000 visitors annually, of which 20,000 are school children. According to the theater, it has an estimated economic impact on the regional economy of $5.6 million annually. Apart from its main stage performance series, the Music Hall offers regular matinee performances aimed at school children, and has strong partnerships with a large set of local and regional organizations, festivals, museums, and others.

\textit{Capitol Center for the Arts}.\textsuperscript{15} The 1,304 seat CCA, located in Concord, NH, originally opened in 1927, but was forced out of business in 1989. In 1995, however, the theater reopened as a 501(c)(3) after raising $4.2 million and attracting 250 volunteers. The CCA places emphasis on its educational division that attracts over 25,000 school children annually. Apart from performance arts-related topics, its educational programs also focus on issues of importance to the community, such as racism and intolerance. Furthermore, the CCA donates $10,000 in tickets to organizations serving disadvantaged families.

\textsuperscript{11} One person living across the street from the Paramount informed one of the authors that following the restoration of the paramount, the theatre district gained “new life” and is evolving into an attractive area of the city to live in (Soderstrom, July 2012).
\textsuperscript{12} http://www.gardearts.org/
\textsuperscript{13} http://www.zeiterion.org/
\textsuperscript{14} http://www.themusichall.org/
\textsuperscript{15} http://www.ccanh.com/
The Flynn Center of Performing Arts.\textsuperscript{16} The Flynn theater in Burlington, VT, was built in 1930 and currently has a seating capacity of 1,453. The Flynn has undergone a series of transformations over the years that ultimately led to the 1982-84 renovations funded by the community. Currently, an estimate of the total cost of renovations is not available to us. However, a series of restoration projects of varying scale in 1999-2000 is estimated to have cost $8 million. The 501(c)(3) non-profit estimates a total of 200,000 visitors annually to its two performance venues, one of which is a smaller performance space that was built to expand its programming options. It is estimated that 45,000 students and young people attend the Flynn Student Matinee Series each year. The Flynn engages heavily in community development and educational programs. It is a strategic partner in the Integrated Arts Academy at the Burlington Wheeler School in addition to offering classes and summer camps through its Flynn Arts program.

Rutland’s Paramount Theatre.\textsuperscript{17} The Paramount Theatre in Rutland, VT provides a good comparison with the proposed Mohawk Theater project because it involved not only a theater renovation but also the purchase of the building next door for expansion. The Paramount opened in 1914 with seating in the orchestra, balcony, and six boxes for 1,000 individuals. During the 1930s the Paramount transformed from a playhouse to a venue alternating between live performances and film and finally to a movie theater. The theater closed in 1975 and sat empty for a decade before a group was formed in 1985 to purchase the theater and renovate into a performing arts venue. In 1995 the adjacent Richardson Building was purchased to incorporate larger public space, restrooms, and office space into the project.\textsuperscript{18} An architectural firm and construction manager were hired to develop the two buildings under a single plan. Funding for the renovation came from the sources shown in Table 1:\textsuperscript{19}

\begin{table}[h]
\centering
\begin{tabular}{|l|c|}
\hline
Source of Funding & Amount \\
\hline
Federal Grant & $1,350,000 \\
State Funds & $200,000 \\
Damian Zamias & $70,000 \\
Federal Community Development Block Grant & $325,000 \\
Anonymous Donors & $100,000 \\
Sale of 650 Seat Plaques & $162,500 \\
Lyman Orton & Vermont Country Store & $100,000 \\
Housing and Conservation Board & $71,500 \\
Rutland City & $70,000 \\
Preservation Trust of Vermont & $50,000 \\
Central Vermont Public Service Corp & $50,000 \\
\hline
Total & $2,549,000 \\
\hline
\end{tabular}
\caption{Sources of Funding for Paramount Theatre}
\end{table}

The result is an 850 seat fully restored historic theater with modern amenities that opened in 2000. The theater enjoys the support of 135 volunteers, 25 of whom work on any given show.\textsuperscript{20}

\textsuperscript{16} \url{http://www.flynncenter.org/}
\textsuperscript{17} \url{http://www.paramountvt.org/}
\textsuperscript{19} Op cit., p10.
\textsuperscript{20} Ibid.
4 Economic Impact of the Mohawk Theater Project

Construction Phase

The Mohawk Theater project includes two buildings, the Dowlin Building and the Mohawk Theater. Table 2 presents estimates for the construction phase as provided in the project consultant’s report. The category ‘all other costs’ includes construction contingency, soft costs, equipment and furnishings, development fee, and miscellaneous.

Table 2: Construction Costs

<table>
<thead>
<tr>
<th></th>
<th>Dowlin Bldg</th>
<th>Mohawk Theater</th>
<th>Total Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Costs</td>
<td>$6,049,240</td>
<td>$6,972,670</td>
<td>$13,021,910</td>
</tr>
<tr>
<td>All Other Costs</td>
<td>$4,075,606</td>
<td>$3,939,965</td>
<td>$8,015,571</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$10,124,846</strong></td>
<td><strong>$10,912,635</strong></td>
<td><strong>$21,037,481</strong></td>
</tr>
</tbody>
</table>

We take the timeframe for the construction phase to be 2 years, which seems a reasonable estimate after examining other theater projects in New England. We assume a two year construction phase, dividing construction costs in half and assigning one half to each of the two years.

\[
\frac{21,037,481 \text{ total cost}}{2 \text{ years}} = 10,518,740 \text{ expenditures per year}
\]

Additionally, we must estimate the percent of total space in the two buildings that will be dedicated to residential structures and the percent nonresidential in order to assign construction costs to the proper industrial sectors when calculating impact. Table 3 presents the gross square footage of the two project buildings, as outlined in the project consultant’s report, differentiating residential and nonresidential space.

Table 3: Gross Square Footage of Project

<table>
<thead>
<tr>
<th></th>
<th>Dowlin Bldg</th>
<th>Mohawk Theater</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>40,000 sq ft</td>
<td>0 sq ft</td>
<td>40,000 sq ft</td>
<td>38%</td>
</tr>
<tr>
<td>Performing Arts</td>
<td>27,439 sq ft</td>
<td>30,500 sq ft</td>
<td>57,939 sq ft</td>
<td>55%</td>
</tr>
<tr>
<td>Commercial</td>
<td>5,561 sq ft</td>
<td>1,500 sq ft</td>
<td>7,061 sq ft</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>73,000 sq ft</strong></td>
<td><strong>32,000 sq ft</strong></td>
<td><strong>105,000 sq ft</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

We now have the information we need to estimate the economic impact of the construction phase of the Mohawk theater project. Table 4 presents the allocation of total estimated construction costs between two years of construction and between residential and non-residential space.

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21 Summary, p1. We take figures in the consultant’s report as 2013 dollars. All impact estimates in our report are presented in 2013 dollars.

22 The report additionally lists purchase prices of $825,000 for the Dowlin Building and $330,000 for the Mohawk Theater. We do not include these figures in the impact of the construction phase because the costs of purchase are included in annual expenditures in the form of principal and interest payments.

23 Since we provide impacts per million dollars spent in Appendix A, it is possible to make other assumptions about the length of the project and still estimate impact. Simply divide the total cost in Table 2 by the number of years and use that number with the information in Appendix A.

24 Summary, p3.
Table 4: Allocation of Project Costs

<table>
<thead>
<tr>
<th></th>
<th>Maintenance/Construction of Residential Structures</th>
<th>Maintenance/Construction of Non-Residential Structures</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>$3,997,121</td>
<td>$6,521,619</td>
<td>$10,518,740</td>
</tr>
<tr>
<td>Year 2</td>
<td>$3,997,121</td>
<td>$6,521,619</td>
<td>$10,518,740</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$7,994,242</strong></td>
<td><strong>$13,043,238</strong></td>
<td><strong>$21,037,480</strong></td>
</tr>
</tbody>
</table>

Economic impact consists of three distinct pieces – direct effects that increase economic activity as a result of construction spending; indirect effects that increase economic activity as businesses trade among themselves as part of fulfilling the demands of the construction project; and induced effects that increase economic activity as employees spend increased household income that results from the construction project. The economic impact of the construction phase of the Mohawk Theatre project is presented in Table 5.

Table 5: Economic Impact of the Construction Phase

<table>
<thead>
<tr>
<th></th>
<th>Direct Impact</th>
<th>Indirect Impact</th>
<th>Induced Impact</th>
<th>Total Impact</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>$10,518,740</td>
<td>$1,797,382</td>
<td>$2,985,387</td>
<td>$15,301,509</td>
<td>111.6</td>
</tr>
<tr>
<td>Year 2</td>
<td>$10,518,740</td>
<td>$1,797,382</td>
<td>$2,985,387</td>
<td>$15,301,509</td>
<td>111.6</td>
</tr>
<tr>
<td><strong>Total Project</strong></td>
<td><strong>$21,037,480</strong></td>
<td><strong>$3,594,764</strong></td>
<td><strong>$5,970,774</strong></td>
<td><strong>$30,603,018</strong></td>
<td><strong>111.6</strong></td>
</tr>
</tbody>
</table>

We see in Table 5 that economic activity in North Adams is predicted to increase $15.3 million during each of the two years of construction of the Mohawk Theater project. Of that increase in economic activity, $10.5 million is direct impact or expansion due to monies spent in the residential and non-residential construction sectors. There will be a $1.8 million indirect impact, or increase in economic activity as industries sell additional goods and services to each other as a result of the expansion in the construction sectors. In addition, there will be a $3.0 million induced impact that represents increased economic activity in North Adams resulting from households having more income to spend. Finally, the construction phase will support 111.6 jobs during each of the two years.

It is possible to examine the economic impact of the construction phase in finer detail. In this case, economic impact is spread over 159 sectors of the local economy. The impact in 27 of these sectors is less than $500, but the impact in other sectors is significant. Table 6 presents the impact of the construction phase in the 13 most impacted sectors. We see that the greatest impact occurs in the two sectors where the project monies are actually spent – nonresidential maintenance and construction (Mohawk Theater) and residential maintenance and construction (the Dowlin Building). We see that other sectors with major impacts are real estate, healthcare, food and drink, banks, motor vehicles and wholesale trade.

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25 We sum the economic impact of Years 1 and 2 of the construction phase because each year does indeed increase economic activity by $15 million each year. The 111.6 jobs in Year 2 are the same jobs created in Year 1, so we do not sum the jobs figure.
Table 6: Industrial Sectors Most Impacted by the Construction Phase  
(Each year of a two year project)

<table>
<thead>
<tr>
<th>Industrial Sector</th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonresidential construction</td>
<td>$6,521,619</td>
<td>$20,874</td>
<td>$17,428</td>
<td>$6,559,921</td>
</tr>
<tr>
<td>Residential construction</td>
<td>$3,997,121</td>
<td>$148</td>
<td>$9,433</td>
<td>$4,006,703</td>
</tr>
<tr>
<td>Imputed rental value</td>
<td>0</td>
<td>420,945</td>
<td>7,908</td>
<td>428,854</td>
</tr>
<tr>
<td>Architectural services</td>
<td>0</td>
<td>0</td>
<td>245,458</td>
<td>245,458</td>
</tr>
<tr>
<td>Health practitioners</td>
<td>0</td>
<td>0</td>
<td>237,373</td>
<td>237,373</td>
</tr>
<tr>
<td>Hospitals</td>
<td>0</td>
<td>61,555</td>
<td>166,030</td>
<td>227,585</td>
</tr>
<tr>
<td>Retail - motor vehicles and parts</td>
<td>0</td>
<td>72,161</td>
<td>60,908</td>
<td>133,069</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>0</td>
<td>67,146</td>
<td>60,011</td>
<td>127,157</td>
</tr>
<tr>
<td>Retail - food and beverages</td>
<td>0</td>
<td>47,538</td>
<td>67,398</td>
<td>114,936</td>
</tr>
</tbody>
</table>

Both the timeframe for the Mohawk Theater project and the expenditures required to complete it are open-ended; therefore we provide Table A1 of economic impacts *per million dollars expenditure* in Appendix A. We see from the first line in Table A1 (the 'Total' line) that every $1 million spent during the construction phase results in $1 million direct impact, $170,874 indirect impact due to inter-industry purchases of goods and services, and $283,816 induced impact resulting from households spending their increased income. The total economic impact per $1 million of construction phase spending is $1.45 million. Table A1 allows for the calculation of economic impact in each sector of the North Adams economy that experiences any impact.

Table 7: State and Local Tax Consequences of Construction Phase  
(Each year of two year project)

<table>
<thead>
<tr>
<th>Tax</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Dividends</td>
<td>$1,010</td>
</tr>
<tr>
<td>Social Insurance Tax</td>
<td>$9,442</td>
</tr>
<tr>
<td>Indirect Business Tax: Sales Tax</td>
<td>$91,357</td>
</tr>
<tr>
<td>Indirect Business Tax: Property Tax</td>
<td>$177,990</td>
</tr>
<tr>
<td>Indirect Business Tax: Motor Vehicle Licenses</td>
<td>$2,180</td>
</tr>
<tr>
<td>Indirect Business Tax: Other Tax</td>
<td>$12,550</td>
</tr>
<tr>
<td>Indirect Business Tax: State/Local Non-taxes</td>
<td>$14,789</td>
</tr>
<tr>
<td>Corporate Profits Tax</td>
<td>$33,602</td>
</tr>
<tr>
<td>HH Personal Income Tax</td>
<td>$163,997</td>
</tr>
<tr>
<td>HH Personal Tax: Non-taxes (fines/fees)</td>
<td>$17,864</td>
</tr>
<tr>
<td>HH Personal Tax Motor Vehicle License</td>
<td>$3,808</td>
</tr>
<tr>
<td>HH Personal Tax: Property Taxes</td>
<td>$3,471</td>
</tr>
<tr>
<td>HH Personal Tax: Other Tax (Fishing/Hunting)</td>
<td>$385</td>
</tr>
<tr>
<td><strong>Total State &amp; Local Tax</strong></td>
<td><strong>$532,445</strong></td>
</tr>
</tbody>
</table>
In addition to the increase in economic activity that will result from the construction project, there are also tax benefits during this period. Table 7 above provides figures for various taxes paid at the state and local level during each year of the construction phase.

The two largest sources of state and local taxes during construction are $177,990 in business property tax and $163,997 in personal income tax. For each of the two years of construction, additional state and local taxes are estimated at $532,445.

Table 8 presents similar data on federal taxes paid as a result of the construction phase. Federal taxes are estimated to be $93,787 during each year of the two year Mohawk Theater project. The largest categories are corporate profits tax ($33,171) and personal income tax ($22,188).

<table>
<thead>
<tr>
<th>Tax</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Insurance Tax</td>
<td>$22,697</td>
</tr>
<tr>
<td>Indirect Business Tax: Excise Taxes</td>
<td>$7,635</td>
</tr>
<tr>
<td>Indirect Business Tax: Custom Duty</td>
<td>$2,995</td>
</tr>
<tr>
<td>Indirect Business Tax: Federal Non-taxes</td>
<td>$5,101</td>
</tr>
<tr>
<td>Corporate Profits Tax</td>
<td>$33,171</td>
</tr>
<tr>
<td>Personal Income Tax</td>
<td>$22,188</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$93,787</strong></td>
</tr>
</tbody>
</table>

In summary, the construction phase of the Mohawk Theater project will have an economic impact of $15,301,509 each year of construction and support 111.6 jobs. It will generate $532,445 in additional state and local taxes and $93,787 in additional federal taxes.

**Annual Expenditures**

While the construction phase of the Mohawk Theater project involves millions of dollars, it is a short-term injection of money into the local economy. The city of North Adams hopes, however, that the outcome of the project is a community theater complex that will impact the North Adams positively for years to come. One aspect of that impact is the economic impact that results from annual expenditures of the Mohawk Theater complex, including the Dowlin Building.

In calculating the economic impact of the Mohawk Theater project we work with data in the project consultant’s report on the expected annual costs of operating the Mohawk Theater/Dowlin Building complex, not including the costs of mounting specific shows. We break the costs down to those of the project developers and those of the organization running the performing arts space. Of course, we cannot simply assign the costs of the Dowlin Building to the developers and the costs of the performing arts space to the performing arts organization. The developers have annual expenditures related to the upkeep of spaces of both buildings, as shown in Table 9. It is estimated that the developers of the project will have annual expenditures of $786,055. These expenditures consist of costs related to the maintenance and operation of commercial space; set building space; residential space; performing arts space; interest and principal; and taxes.
Table 9: Developers’ Annual Expenditures

<table>
<thead>
<tr>
<th>Source of Expense</th>
<th>Type of Expense</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dowlin Building</td>
<td>Commercial space</td>
<td>$ 16,683</td>
</tr>
<tr>
<td>Dowlin Building</td>
<td>Set building space</td>
<td>$ 57,276</td>
</tr>
<tr>
<td>Dowlin Building</td>
<td>Residential space</td>
<td>$243,200</td>
</tr>
<tr>
<td>Mohawk Theater</td>
<td>Performing Arts space</td>
<td>$ 37,500</td>
</tr>
<tr>
<td>Project</td>
<td>Interest and principal</td>
<td>$200,271</td>
</tr>
<tr>
<td>Project</td>
<td>Interest and principal</td>
<td>$ 96,575</td>
</tr>
<tr>
<td>Project</td>
<td>Taxes</td>
<td>$134,550</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$786,055</strong></td>
</tr>
</tbody>
</table>

Similarly the performing arts organization has expenses related to both spaces – expenses such as rent, utilities, staffing, and marketing costs. These annual expenses are shown in Table 10. It is estimated that the performing arts center will have annual expenditures of $580,986. These expenses include rent for the theater; rent for the set building space; utilities and janitorial for the two spaces; staffing and marketing. The estimate does not include costs specific to the production of performances. Those costs will vary greatly depending on the types of performances, the number of performances, and whether performances are put on by the performing arts center or by outside groups.

Table 10: Performing Arts Center Annual Operating Expenditures

<table>
<thead>
<tr>
<th>Source of Expense</th>
<th>Type of Expense</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohawk Theater</td>
<td>Rent</td>
<td>$ 76,250</td>
</tr>
<tr>
<td>Dowlin Building</td>
<td>rent for set building space</td>
<td>$139,736</td>
</tr>
<tr>
<td>Mohawk Theater</td>
<td>utilities and janitorial</td>
<td>$121,000</td>
</tr>
<tr>
<td>Dowlin Building</td>
<td>utilities and janitorial</td>
<td>$ 39,000</td>
</tr>
<tr>
<td>Project</td>
<td>Staffing</td>
<td>$155,000</td>
</tr>
<tr>
<td>Project</td>
<td>Marketing</td>
<td>$ 50,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$580,986</strong></td>
</tr>
</tbody>
</table>

To summarize, annual expenditures of the Mohawk Theater complex -- not including the cost of mounting the shows themselves – are estimated to be $786,055 related to developers’ annual costs of the project and $580,986 related to the performing arts aspect of the project for a total of $1,367,041 annually. Table 11 presents the economic impact of the annual expenditures of the Mohawk Theater complex.

Table 11: Economic Impact of Annual Operating Expenditures

<table>
<thead>
<tr>
<th>Direct Impact</th>
<th>Indirect Impact</th>
<th>Induced Impact</th>
<th>Total Impact</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,367,041</td>
<td>$277,641</td>
<td>$206,078</td>
<td>$1,850,760</td>
<td>21.1</td>
</tr>
</tbody>
</table>

The economic impact of the Mohawk Theater complex is estimated to be $1.85 million annually. Of that, $1.37 million is the direct impact of its annual budget, which increases economic activity in the real estate and performing arts sectors; $278 thousand is the increase in economic activity as firms buy goods and services from each other to meet the increased demands of the enlarged real estate and performing arts sectors; and $206 thousand is the result of households spending increased

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26 These figures are from the consultant’s report, pp. 5, 11.
27 These figures are from the consultant’s report, pp. 12-13.
household income. The annual expenditures of the Mohawk Theater complex will result in 21 new jobs in North Adams.

Table 12 lists the top fourteen sectors of the local economy that would be most impacted by the annual expenditures of the Mohawk Theater Complex. After real estate and performing arts, sectors most impacted independent artists, food and drink establishments, health, and transit sectors.

### Table 12: Sectors Most Impacted by the Annual Operating Expenditures of the Mohawk Theater Complex

<table>
<thead>
<tr>
<th>Industrial Sector</th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real estate</td>
<td>$786,055</td>
<td>$32,086</td>
<td>$11,703</td>
<td>$829,844</td>
</tr>
<tr>
<td>Promoters of performing arts</td>
<td>$580,986</td>
<td>$3,867</td>
<td>$49</td>
<td>$584,902</td>
</tr>
<tr>
<td>Imputed rental value</td>
<td>0</td>
<td>0</td>
<td>$33,590</td>
<td>$33,590</td>
</tr>
<tr>
<td>Independent artists</td>
<td>0</td>
<td>$28,199</td>
<td>$149</td>
<td>$28,342</td>
</tr>
<tr>
<td>Insurance brokers</td>
<td>0</td>
<td>$23,534</td>
<td>$573</td>
<td>$24,107</td>
</tr>
<tr>
<td>Food &amp; drinking places</td>
<td>0</td>
<td>$6166</td>
<td>$13,299</td>
<td>$19,465</td>
</tr>
<tr>
<td>Nondepository credit</td>
<td>0</td>
<td>$12,849</td>
<td>$6,423</td>
<td>$19,272</td>
</tr>
<tr>
<td>Monetary authorities</td>
<td>0</td>
<td>$10,441</td>
<td>$7,251</td>
<td>$17,692</td>
</tr>
<tr>
<td>Health practitioners</td>
<td>0</td>
<td>$24</td>
<td>$17,052</td>
<td>$17,076</td>
</tr>
<tr>
<td>Hospitals</td>
<td>0</td>
<td>$28</td>
<td>$16,525</td>
<td>$16,553</td>
</tr>
<tr>
<td>Transit transportation</td>
<td>0</td>
<td>$14,893</td>
<td>$594</td>
<td>$15,487</td>
</tr>
<tr>
<td>Nonfinancial intangible lessors</td>
<td>0</td>
<td>$13,161</td>
<td>$520</td>
<td>$13,681</td>
</tr>
<tr>
<td>Power generation</td>
<td>0</td>
<td>$8,983</td>
<td>$4,089</td>
<td>$13,072</td>
</tr>
<tr>
<td>Securities &amp; investments</td>
<td>0</td>
<td>$6,079</td>
<td>$4,037</td>
<td>$10,116</td>
</tr>
</tbody>
</table>

The impacts provided in Tables 11 and 12 are based on the estimate that the Mohawk Theater project will have annual expenditures of approximately $1,367,041. Actual expenditures, of course, are not yet known. It is possible to use Table A2 in Appendix A to calculate economic impact for any scenario. Table A2 presents the economic impact per $1 million expenditure. Referring to Table A2 we see that each $1 million in operating expenses increases local economic by $1.35 million. In addition to the $1 million direct impact, there is indirect impact of $203 thousand as firms purchase additional goods and services from other firms, and induced impact of $151 thousand as households spend their increased income.

In addition to increasing economic activity in North Adams the operation of the Mohawk Theater project will increase tax revenues. Table 13 provides the annual state and local tax consequences of the project.
Table 13: State and Local Tax Consequences of Annual Operating Expenditures

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividends paid by Corporations</td>
<td>$343</td>
</tr>
<tr>
<td>Social Insurance Tax</td>
<td>$759</td>
</tr>
<tr>
<td>Indirect Business Tax: Sales Tax</td>
<td>$30,082</td>
</tr>
<tr>
<td>Indirect Business Tax: Property Tax</td>
<td>$58,610</td>
</tr>
<tr>
<td>Indirect Business Tax: Motor Vehicle Licensing</td>
<td>$718</td>
</tr>
<tr>
<td>Indirect Business Tax: Other Taxes</td>
<td>$4,133</td>
</tr>
<tr>
<td>Indirect Business Tax: State/Local Non-taxes</td>
<td>$4,870</td>
</tr>
<tr>
<td>(licenses, fines)</td>
<td></td>
</tr>
<tr>
<td>Corporate Profits Tax</td>
<td>$11,394</td>
</tr>
<tr>
<td>Personal Tax: Income Tax</td>
<td>$11,280</td>
</tr>
<tr>
<td>Personal Tax: Non Taxes (fees and fines)</td>
<td>$1,229</td>
</tr>
<tr>
<td>Personal Tax: Motor Vehicle Licensing</td>
<td>$262</td>
</tr>
<tr>
<td>Personal Tax: Property Taxes</td>
<td>$239</td>
</tr>
<tr>
<td>Personal Tax: Other Tax (Fishing/Hunting)</td>
<td>$26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$123,945</strong></td>
</tr>
</tbody>
</table>

State and local tax intake will increase by approximate $124,000 annually as a result of the operations of the Mohawk Theater. The greatest increase will come from increased business property tax ($58,610) and increased sales tax ($30,082). Federal tax receipts will also increase as a result of the operations of the Mohawk Theater. Table 14 presents those figures.

Table 14: Federal Consequences of Annual Operating Expenditures

<table>
<thead>
<tr>
<th>Tax</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Insurance Tax</td>
<td>$31,026</td>
</tr>
<tr>
<td>Indirect Business Tax: Excise Taxes</td>
<td>$10,438</td>
</tr>
<tr>
<td>Indirect Business Tax: Custom Duty</td>
<td>$4,095</td>
</tr>
<tr>
<td>Indirect Business Tax: Federal Non-taxes</td>
<td>$6,973</td>
</tr>
<tr>
<td>Corporate Profits Tax</td>
<td>$45,347</td>
</tr>
<tr>
<td>Personal Income Tax</td>
<td>$30,332</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$128,211</strong></td>
</tr>
</tbody>
</table>

Federal tax receipts will increase by approximately $128,000 per year as a result of the operations of the Mohawk Theater. The greatest increase will come from corporate profits tax ($45,347), social insurance tax ($31,026) and personal income tax ($30,332).

Beyond the impacts on local income generation and tax revenues, there are likely to be other impacts on North Adams that are related to visitors who come to the city to attend performing arts events held at the Mohawk. This does not include student productions or attendance by persons who reside in the area. These impacts are already accounted for in the analysis presented in the tables above. These impacts would also not include attendance by persons from outside the community at events that would have been held on the main MCLA campus but are moved to the Mohawk because it provides a more appropriate venue for the event. Such displacement of events does not provide a net increase in local economic activity, although attendance could have an impact on street vitality (separately estimated and analyzed below in section 7).

Depending on the final configuration and programming budget for the Mohawk, however, it is possible that the additional performing arts programming that is provided at the theater will result in a net increase in visitors from outside of northern Berkshire county who come to North Adams.
and patronize local restaurants, hotels and retail establishments. Because the ideal way to measure the impacts of these visitors will depend on the level and content of programming as well as the locations from which the visitors come, it is premature to provide an analysis of these impacts in this baseline report.

A rough idea of the magnitude of potential visitor impacts can be obtained using online web-applications that have been developed by C3D that are available at the following web site: http://web.williams.edu/Economics/ArtsEcon/econpages/Colonial/Perfarts/econPerfarts.htm. The model presented is based on the structure of regional economy during the period 2006-2010 and uses the average behavior and source communities of visitors to Berkshire county cultural destinations during this period. The analysis presented in the model suggests that events that could draw 10,000 visitors to the community (all coming from outside of northern Berkshire county) would provide an addition to local income generation in excess of $600,000 per year, and support creation of 8 jobs in different sectors of the economy (primarily hotels, restaurants, and retail).
5 Land Use in North Adams

We created a baseline of land-use patterns in the city of North Adams based on current 2012 tax assessor’s data. We used data provided to us digitally by the city of North Adams. In the following discussion we examine properties in North Adams divided into categories based on Massachusetts Land Use Codes. First we will examine all property in North Adams. Then we will break the property down by land use class into residential; charitable; commercial; industrial; Municipal government; Massachusetts government; and US Government.

According to 2012 tax assessor’s data, there are 5,380 parcels of property in the city of North Adams. Of these, we were able to identify and locate 5,374 properties. Using state land use codes we identified each property as residential; charitable; commercial; industrial; owned by municipal government; owned by Massachusetts government; and owned by US government. Figure 1 maps the properties in North Adams by property type.

Figure 1: North Adams Properties, 2012

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29 The North Adams Comprehensive Plan, dated 03/21/2012, presents “land use by development footprint as interpreted by the state using aerial photography”. North Adams Comprehensive Plan at http://northadams-ma.gov/UserFiles/Image/NACP_Existing_Conditions_03212012.pdf. Another method is to use tax assessor data to examine land use by parcel. That is the approach used in this report.
Figure 1 shows the general distribution of land parcels in North Adams. We will look more closely at some of the categories of land use below, but for now we can see the many residential properties (marked in red) and their distribution in the city. Table 15 provides data on the different types of properties in North Adams, by land use. Overall, there are 12,581 acres of land made up of 5,374 properties. Total assessed value of the properties is $865.5 million. Median number of acres per property is 0.24 and median assessed value is $114,800.

Table 15: North Adams Properties by Land Use Code

<table>
<thead>
<tr>
<th>Type of Property</th>
<th>Number of Properties</th>
<th>#Acres</th>
<th>Median #Acres</th>
<th>Assessed Value</th>
<th>Median Assessed Value</th>
<th>Mean Assessed Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential with residence</td>
<td>3,821</td>
<td>2,593</td>
<td>0.23</td>
<td>$535,705,510</td>
<td>$124,100</td>
<td>$118,955</td>
</tr>
<tr>
<td>Residential w/o residence</td>
<td>850</td>
<td>3,588</td>
<td>0.24</td>
<td>$14,964,900</td>
<td>$5,150</td>
<td>$19,560</td>
</tr>
<tr>
<td>Charitable</td>
<td>33</td>
<td>262</td>
<td>1.21</td>
<td>$14,379,200</td>
<td>$81,600</td>
<td>$435,733</td>
</tr>
<tr>
<td>Commercial</td>
<td>289</td>
<td>706</td>
<td>5.61</td>
<td>$98,274,016</td>
<td>$144,400</td>
<td>$340,048</td>
</tr>
<tr>
<td>Industrial</td>
<td>77</td>
<td>259</td>
<td>0.75</td>
<td>$24,706,552</td>
<td>$57,800</td>
<td>$320,864</td>
</tr>
<tr>
<td>City Government</td>
<td>179</td>
<td>2,168</td>
<td>0.34</td>
<td>$92,289,400</td>
<td>$13,400</td>
<td>$515,583</td>
</tr>
<tr>
<td>MA Government</td>
<td>30</td>
<td>1,769</td>
<td>4.60</td>
<td>$34,760,200</td>
<td>$218,150</td>
<td>$1,158,673</td>
</tr>
<tr>
<td>US Government</td>
<td>95</td>
<td>1,235</td>
<td>0.72</td>
<td>$50,407,800</td>
<td>$95,100</td>
<td>$530,608</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,374</strong></td>
<td><strong>12,581</strong></td>
<td>0.24</td>
<td><strong>$865,487,578</strong></td>
<td><strong>$114,800</strong></td>
<td><strong>$161,051</strong></td>
</tr>
</tbody>
</table>

Table 15 is informative in its breakdown of land use in North Adams. Let us start by examining residential property, which is so visible in Figure 1. We see that there are 3,821 properties coded as residential and having a residence on them. The median size residential property is 0.23 acres and the median assessed value of these residences is $124,100.

Of the 850 properties on the assessor’s roles as residential but not having a residential structure, 58 have an ‘improvement’ on them such as a garage; 306 are listed as developable land; 5 as potentially developable land; 480 as undevelopable land; and 1 as residential with no further information. The median size of residential properties without residences is 0.24 acres, but if we are interested in the potential of future residential development in North Adams it is worth noting that of the 306 parcels of land identified as developable, 96 are 1 acre or larger in size.

Turning our attention to properties coded as being for charitable purposes we see that there are only 33 such properties in North Adams. These properties are larger than residential properties, with a median size of 1.21 acres but they have a lower median assessed value, $81,600. Figure 2 maps the location of the charitable properties.
The locations of the properties identified as for charitable purpose are more geographically dispersed than we might have expected. It was perhaps more surprising how few parcels are charitable.\(^{30}\)

Turning our attention to commercial and industrial properties, we see in Table 15 that there are 289 commercial properties and 77 industrial properties in North Adams. It is interesting to note that commercial properties have a higher median number of acres (5.61 vs. 0.75) and a higher median assessed value ($144,400 vs. $57,800) than industrial properties. The mean assessed value of commercial properties is much closer to that of industrial properties ($340,048 vs. $320,864), although it is still higher. Figure 3 maps the geographic location of the commercial and industrial properties in North Adams.

\(^{30}\) Of course, there are more than 33 nonprofit organizations in North Adams. These data are property-based; many nonprofit organizations rent the space in which they are located.
Finally, we examine government owned properties – those owned by the City of North Adams, the Commonwealth of Massachusetts, and the United States government. We reproduce the relevant rows of Table 15 in Table 16 below.

**Table 16: Government Owned Properties in North Adams, 2012**

<table>
<thead>
<tr>
<th>Type of Property</th>
<th>Number of Properties</th>
<th>#Acres</th>
<th>Median #Acres</th>
<th>Assessed Value</th>
<th>Median Assessed Value</th>
<th>Mean Assessed Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Government</td>
<td>179</td>
<td>2,168</td>
<td>0.34</td>
<td>$92,289,400</td>
<td>$13,400</td>
<td>$515,583</td>
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<tr>
<td>MA Government</td>
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<td>1,769</td>
<td>4.60</td>
<td>$34,760,200</td>
<td>$218,150</td>
<td>$1,158,673</td>
</tr>
<tr>
<td>US Government</td>
<td>95</td>
<td>1,235</td>
<td>0.72</td>
<td>$50,407,800</td>
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</tr>
<tr>
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<td><strong>5,374</strong></td>
<td><strong>12,581</strong></td>
<td><strong>0.24</strong></td>
<td><strong>$865,487,578</strong></td>
<td><strong>$114,800</strong></td>
<td><strong>$161,051</strong></td>
</tr>
</tbody>
</table>

We see in Table 16 that the City of North Adams owns more parcels of land than the other government entities; that it owns more acres; and that the total assessed value of its land is greater than the Massachusetts or US government. While the City of North Adams has more properties, the median size and assessed value of these properties is smaller than properties owned by the Massachusetts or US government. **Figure 4** maps the location of government owned properties.

**Figure 4: Combined Properties Owned by Governmental Entities**

We see in Figure 4 the relatively wide dispersal of city owned properties, especially as compared with state owned properties.
6 Building Use on Main Street

The Mohawk Theater complex, once completed, will increase the visibility of Main Street in North Adams as a destination for food, shops, and the performing arts. In the future it will be useful to compare the businesses on Main Street with a baseline of businesses. Tables 17 and 18 list current Main Street businesses as of July 2012, as determined by building directories, external signage and input from those familiar with the local market. This list can provide a possible baseline for comparison with future occupants after completion of the Mohawk project.

The list may fail to include some recent occupants who had not yet been listed in building directories, and may include some occupants who had been present but vacated the space but were not removed from building directories nor were known to our contacts. Three occupants are listed who are paying below market rents and should be regarded as temporary tenants. These are marked with an asterisk and their row in the table is shaded.

We have separated the list into north side of Main Street and south side of Main Street because there is a difference in building size, particularly number of stories, between the two sides. The north side consists of older, taller buildings of an historic nature while the south side consists predominantly of single story buildings from the 1960s.

Table 17: Main Street Businesses, July 2012, North Side

<table>
<thead>
<tr>
<th>Address</th>
<th>Business</th>
<th>Side of Main Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Subway</td>
<td>North</td>
</tr>
<tr>
<td>33</td>
<td>Registry of Motor Vehicles (RMV)</td>
<td>North</td>
</tr>
<tr>
<td>33</td>
<td>North Adams Artists’ Coop Gallery</td>
<td>North</td>
</tr>
<tr>
<td>33</td>
<td>Everyday Health</td>
<td>North</td>
</tr>
<tr>
<td>37</td>
<td>Berkshire Bank</td>
<td>North</td>
</tr>
<tr>
<td>37</td>
<td>Dept of Transitional Assistance (DTA)</td>
<td>North</td>
</tr>
<tr>
<td>37</td>
<td>Scarafoni Associates, Real Estate Management</td>
<td>North</td>
</tr>
<tr>
<td>41</td>
<td>China Buffet</td>
<td>North</td>
</tr>
<tr>
<td>43</td>
<td>Verizon</td>
<td>North</td>
</tr>
<tr>
<td>45</td>
<td>Sushi House</td>
<td>North</td>
</tr>
<tr>
<td>49</td>
<td>Jarvis Rockwell Gallery*</td>
<td>North</td>
</tr>
<tr>
<td>51</td>
<td>Gallery 51 (MCLA Gallery)</td>
<td>North</td>
</tr>
<tr>
<td>53</td>
<td>Vacant</td>
<td>North</td>
</tr>
<tr>
<td>55</td>
<td>The Hub</td>
<td>North</td>
</tr>
<tr>
<td>57</td>
<td>Luma’s Muffins and Mug</td>
<td>North</td>
</tr>
<tr>
<td>59</td>
<td>Berkshire Emporium and Antiques</td>
<td>North</td>
</tr>
<tr>
<td>61</td>
<td>Northern Berkshire Pregnancy Support</td>
<td>North</td>
</tr>
<tr>
<td>61</td>
<td>Northern Berkshire Community Coalition</td>
<td>North</td>
</tr>
<tr>
<td>61</td>
<td>Snips Salon</td>
<td>North</td>
</tr>
<tr>
<td>61</td>
<td>Kushi &amp; Myer</td>
<td>North</td>
</tr>
<tr>
<td>61</td>
<td>Habitat for Humanity</td>
<td>North</td>
</tr>
<tr>
<td>65</td>
<td>Shima</td>
<td>North</td>
</tr>
<tr>
<td>67</td>
<td>The Local</td>
<td>North</td>
</tr>
<tr>
<td>69</td>
<td>Apartments (13)</td>
<td>North</td>
</tr>
<tr>
<td>71</td>
<td>Edward Jones Investments</td>
<td>North</td>
</tr>
<tr>
<td>73</td>
<td>I Got Goodies</td>
<td>North</td>
</tr>
<tr>
<td>73</td>
<td>Wall of Sound</td>
<td>North</td>
</tr>
<tr>
<td>Address</td>
<td>Business</td>
<td>Side of Main Street</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>75</td>
<td>Condominium</td>
<td>North</td>
</tr>
<tr>
<td>75</td>
<td>Condominium</td>
<td>North</td>
</tr>
<tr>
<td>77</td>
<td>Shear Madness Salon</td>
<td>North</td>
</tr>
<tr>
<td>81</td>
<td>Eagle Street Music on Main</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Charles Phykit Insurance Agency</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>North Adams Transcript</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>The Advocate</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Ad Lib North</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Elder Services of Berkshire County</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Elizabeth Freeman Center Kids Place</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Sarah Morse-Field, Attorney</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Dr John Howland</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>MS Resource of the Tri State Area</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Integrative Medicine</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>MA Rehabilitation Commission</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Mary Ann’s Looking Glass Beauty Salon</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Met Life Financial Services</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>North Adams Retirement Board</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Northeast Center for Youth and Family</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Pedercini’s Beauty Salon</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Pellegrini Seeley Ryan &amp; Blakesley, Attorneys</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Richard Lionel, Attorney</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Thomas Rumbolt, Attorney</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Richard Taskin, Attorney</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Berkshire North WIC</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Western MA Legal Services</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>True North Financial</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Smith, Watson &amp; Company</td>
<td>North</td>
</tr>
<tr>
<td>85</td>
<td>Steepleview Realty</td>
<td>North</td>
</tr>
<tr>
<td>91</td>
<td>Computer Bug</td>
<td>North</td>
</tr>
<tr>
<td>93</td>
<td>Hoosac Bank</td>
<td>North</td>
</tr>
<tr>
<td>101</td>
<td>Atef Fine Jeweler</td>
<td>North</td>
</tr>
<tr>
<td>103</td>
<td>Vacant (for Sale)</td>
<td>North</td>
</tr>
<tr>
<td>105</td>
<td>Press*</td>
<td>North</td>
</tr>
<tr>
<td>107</td>
<td>Gallery 107*</td>
<td>North</td>
</tr>
<tr>
<td>109</td>
<td>Vacant (owned by City of North Adams)</td>
<td>North</td>
</tr>
<tr>
<td>111</td>
<td>Mohawk Theater</td>
<td>North</td>
</tr>
<tr>
<td>115</td>
<td>Moulton’s Spectacle Shoppe</td>
<td>North</td>
</tr>
<tr>
<td>117</td>
<td>Supreme Pizza &amp; Wings</td>
<td>North</td>
</tr>
<tr>
<td>131</td>
<td>First Baptist Church</td>
<td>North</td>
</tr>
</tbody>
</table>

* - occupants are temporary, paying below market rate for space.
Table 18: Main Street Businesses, July 2012, South Side

<table>
<thead>
<tr>
<th>Address</th>
<th>Business</th>
<th>Side of Main Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>North Adams City Hall</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Holiday Inn</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Richmond Grille</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Century 21 Hearthstone Realtors</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Farrington Contracting</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Berkshire Menus .com</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>James Sisto, Attorney</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Dr John Moresi, DDS</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Longview Associates</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Berkshire School of Tae Kwon Do</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Church of Jesus Christ of Latter Day Saints</td>
<td>South</td>
</tr>
<tr>
<td>40</td>
<td>Victoria R Cavalli, MD</td>
<td>South</td>
</tr>
<tr>
<td>62</td>
<td>Nail Design</td>
<td>South</td>
</tr>
<tr>
<td>66</td>
<td>Greylock Federal Credit Union</td>
<td>South</td>
</tr>
<tr>
<td>66</td>
<td>Sleepy’s</td>
<td>South</td>
</tr>
<tr>
<td>70</td>
<td>Radio Shack</td>
<td>South</td>
</tr>
<tr>
<td>74</td>
<td>H&amp;R Block</td>
<td>South</td>
</tr>
<tr>
<td>90</td>
<td>TD Bank</td>
<td>South</td>
</tr>
<tr>
<td>106</td>
<td>Boxcar Media</td>
<td>South</td>
</tr>
<tr>
<td>106</td>
<td>Agency BCM</td>
<td>South</td>
</tr>
<tr>
<td>106</td>
<td>iBerkshires.com</td>
<td>South</td>
</tr>
<tr>
<td>134</td>
<td>First Congregational Church</td>
<td>South</td>
</tr>
</tbody>
</table>

The list of businesses and organizations in Tables 17 and 18 will be useful in the future for tracing turnover on Main Street, both of the number of businesses/organizations and of the type.
7 Measuring Street Vitality and its Impacts

A central goal of the Mohawk Theater project and broader Main Street corridor revitalization efforts is to increase the “vitality” of Main Street in North Adams. The goal is to make the center of North Adams an exciting place to visit, to increase the business and prosperity of enterprises located in North Adams and thereby provide income and employment opportunities for the citizens of the community.

In order to assess the impacts of these revitalization efforts, C3D has developed an approach for monitoring and measuring the vitality of Main Street by measuring the flow of persons with “smartphones” (phones running the Android, iPhone IOS, Blackberry or Windows Phone operating system) on Main Street in North Adams. In this section we describe the initial data collection efforts, and present some statistical tests that validate the approach as a method for measuring the vitality of the area.

According to the Pew Internet & American Life Project, 46% of American adults own a smartphone of some kind as of March 1st, 2012. That number is an 11% increase from 2011 and as of 2012, more people own Smartphones than other, simpler mobile phones.31 C3D identified a Smartphone-monitoring device made by Navizon, Inc, a firm which specializes in provision of GPS and location-based services and analysis. Special arrangements were made with Navizon to provide a monitoring device and data accumulation service that could be accessed online. The data on the large share of Americans who make use of smartphones and the correspondence between the data reported below make us confident that this provides a useful methodology for measuring and monitoring the level of street vitality.

For future use, however, it is worth noting that the pattern of increasing usage of smartphones means that measurements taken using the same methodology applied in future years will have to adjust for this trend to avoid attributing the increase in smartphone usage with an increase in street vitality. Making such adjustments is relatively straightforward in statistical analysis.

Data
The data used in this analysis were collected by the Navizon smartphone monitor and then transmitted online to Navizon servers. The monitor has been placed in the ground floor of retail store at the corner of Main and Holden Streets. No personal or phone number data are captured or stored. Data such as those provided in Figure 5 can then be viewed online or downloaded using Navizon’s online application Navizon Analytics, found at http://analytics.navizon.com. These

data provide counts for the number of unique Smartphones within an estimated 200 yard radius of the Navizon device’s location. The counts vary depending on the interval selected on Navizon Analytics, since the interval chosen is the determining factor that decides on the definition of “unique”. For example, if a daily count is collected, a single Smartphone that enters and exits the monitored area several times during the course of a day will only be counted once. However, if the interval is set to be counted on an hourly basis, a single phone will be counted as many times as the number of hours it is detected in the monitored area. Due to the nature of the data collected from the galleries participating in the Down Street Art project in North Adams, the present analysis focuses on Navizon’s daily counts. Figure 5 shows the distribution of daily total and daily maximum hourly Navizon counts, over a period of 34 days.

The ease and consistency of data collection constitutes a key strength of Navizon’s monitoring system. Barring electrical failures, the system operates 24 hours a day, 7 days a week. All that is needed to obtain the data is to log on to the company’s analytics website, chose a range of dates for which data are desired, and determine at which interval the data is to be counted. The data can then be viewed online and downloaded into a spreadsheet.

Of course, ease and consistency would be of little value if the data measured were not related to the concept of “vitality” that is of central interest for Main Street redevelopment. Does an increase in the number of persons detected by the Navizon monitor translate into increased persons entering into establishments on Main Street? This must be studied and verified to validate our approach to monitoring Main Street vitality.

We received data from Gallery 51 on Main Street, North Adams that provide a headcount of the number of individuals visiting the galleries Gallery 51, Press, The Artery, Gallery 107, Marshall Street Gallery, and the Jarvis Rockwell gallery in North Adams. Additionally, information is provided on whether a sale was made in any given gallery and the date of the transaction.

In order to measure the effect of the series of public events that take place on or near Main Street, North Adams, we created an indicator variable that was given a value of 0 if no event took place on that day, or a 1 if there was an event listed on the calendar of the City of North Adams official website.32

Lastly, we collected data from the National Climactic Data Center33 to get information on the daily maximum temperature reached, as well as the number of millimeters of precipitation in North Adams, MA. We combine these data with the Navizon count data to test the ability of the Navizon counts to predict the number of persons entering one of the Galleries.

**Model**

To test the validity of our approach, we use regression analysis to estimate the relationship between Navizon’s daily counts and the number of people visiting North Adams galleries. We estimate a linear model of the form:

\[
\text{Persons} = \beta_0 + \beta_1 \cdot \text{NavizonCount} + \beta_2 \cdot \text{Rain} + \beta_3 \cdot ^\circ\text{F} + \beta_4 \cdot \text{EventIndicator}
\]

The approach could be regarded as valid if the estimated parameter $\beta_1$ is positive and statistically significant. In this model the parameter $\beta_1$ indicates the ratio of persons passing within range of the Navizon monitor with Smartphones relative to the number actually entering the galleries. In addition we estimate a “log-linear” model that expresses the natural logarithm of all gallery counts combined as a function of the natural logarithms of daily Navizon counts, precipitation, and temperature, represented in the following equation:

$$\ln(\text{Persons}) = \beta_0 + \beta_1 \cdot \ln(\text{Navizon Count}) + \beta_2 \cdot \ln(\text{Rain}) + \beta_3 \cdot \ln(\text{°F}) + \beta_4 \cdot \text{Event Indicator}$$

In this model a positive sign and statistical significance of the parameter $\beta_1$ again implies validity for our monitoring approach. The interpretation of $\beta_1$ is slightly different in this model, however. The parameter $\beta_1$ indicates the percentage change in persons entering the galleries associated with a 1 percent increase in the daily Navizon count.

In addition to the variables for Navizon count, rainfall and temperature, all of our models make some use of the event indicator variables described above. Originally, each event was given its own dummy variable, but due to the frequency that the events in question occur and the limited amount of data collected so far, we sometimes combine them into one variable that takes the value 1 if an event of some sort took place on that day, and 0 otherwise.

In an attempt to only capture the number of Smartphones in the area during the hours that the galleries are open on a regular basis, we collected data from Navizon on an hourly basis over the period 6/16/12 to 7/29/12. The data were then reorganized and combined to produce a daily “9 am to 5 pm” count. However, due to the nature of Navizon’s definition of “unique,” we saw that the “9 to 5” count inflated the number of Smartphones observed relative to the Navizon counts that were collected on a daily basis.

Lastly, we collected the maximum counts reached within an hour during each day throughout the time period of for which data were available (6/16/12 – 7/19/12). We assigned this count to an explanatory variable that was used both in a separate regression and was included in the main model that estimates the relationship between the number of daily gallery visits to all galleries and the natural logarithm of the variables listed above. It was expected that the second of these two models would see a high level of collinearity between the daily counts and the maximum count reached within an hour between 9am and 5pm during that day. The results of this attempt to compare the behavior of the daily counts relative to hourly maximum counts can be seen below.

**Results**

The estimates for the linear model are presented in Table 19 below. This regression separates the indicator variables for events into four separate variables, one for each event that took place during the time period considered. The $R^2$ shows that 99.0% of the variation in the sample can be explained by the model, whereas the adjusted $R^2$ shows that 98.8% of the variation in the sample can be explained by the model.

The model estimate for $\beta_1$ shows that for every 100 persons with Smartphones detected by the Navizon monitors, the number of gallery visitors increases by just over 23 persons. This increase is statistically significant at the 95% confidence level.
Table 19

<table>
<thead>
<tr>
<th>Galleries</th>
<th>Coefficient</th>
<th>Std. Err.</th>
<th>t</th>
<th>P&gt;t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navizon Count</td>
<td>0.231</td>
<td>0.069</td>
<td><strong>3.370</strong></td>
<td><strong>0.002</strong></td>
</tr>
<tr>
<td>Rainfall</td>
<td>-0.967</td>
<td>0.455</td>
<td><strong>-2.130</strong></td>
<td><strong>0.043</strong></td>
</tr>
<tr>
<td>Temperature</td>
<td>-1.092</td>
<td>2.789</td>
<td>-0.390</td>
<td>0.699</td>
</tr>
<tr>
<td>Fourth of July</td>
<td>92.258</td>
<td>53.915</td>
<td>1.710</td>
<td>0.099</td>
</tr>
<tr>
<td>Food Festival</td>
<td>124.294</td>
<td>43.283</td>
<td><strong>2.870</strong></td>
<td><strong>0.008</strong></td>
</tr>
<tr>
<td>Beach Party</td>
<td>-2.483</td>
<td>43.869</td>
<td>-0.060</td>
<td>0.955</td>
</tr>
<tr>
<td>Downstreet</td>
<td>2190.178</td>
<td>43.748</td>
<td><strong>50.060</strong></td>
<td><strong>0.000</strong></td>
</tr>
<tr>
<td>Constant</td>
<td>-53.423</td>
<td>72.690</td>
<td>-0.730</td>
<td>0.469</td>
</tr>
</tbody>
</table>

Observations: 34
R²: 0.990
Adj. R²: 0.988

Table 20 presents estimates of the log-linear model.

Table 20

<table>
<thead>
<tr>
<th>Galleries</th>
<th>Coefficient</th>
<th>Std. Err.</th>
<th>t</th>
<th>P&gt;t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navizon Count</td>
<td>2.426</td>
<td>0.930</td>
<td><strong>2.610</strong></td>
<td><strong>0.015</strong></td>
</tr>
<tr>
<td>Rainfall</td>
<td>-0.228</td>
<td>0.130</td>
<td>-1.750</td>
<td>0.093</td>
</tr>
<tr>
<td>Temperature</td>
<td>-2.108</td>
<td>1.941</td>
<td>-1.090</td>
<td>0.287</td>
</tr>
<tr>
<td>Event</td>
<td>1.606</td>
<td>0.704</td>
<td><strong>2.280</strong></td>
<td><strong>0.031</strong></td>
</tr>
<tr>
<td>Constant</td>
<td>-4.591</td>
<td>4.933</td>
<td>-0.930</td>
<td>0.361</td>
</tr>
</tbody>
</table>

Observations: 31
R²: 0.471
Adj. R²: 0.389

This regression (Table 20) shows that a 1% increase in the number of daily Navizon counts increases the number of gallery visitors by 2.42% and this impact is again statistically significant at the 95% confidence level. Both precipitation and temperature have a negative impact on the number of gallery visitors, but neither is statistically significant at the 95% confidence level. One possible reason why these two variables are not statistically significant is the lack of variation in the weather reported over the time period for which the model was run. It is likely that both maximum daily temperature and precipitation become statistically significant as the data set grows over time with changes in seasons.

The dummy variable covering events in downtown North Adams is statistically significant at the 95% confidence level and shows that on days when an event takes place, the number of gallery visitors increases by 160% on average. The R² indicates that 47.1% of the variation in the sample can be explained by the model. Due to the outliers found in the dataset, in particular the number of
gallery visitors on 6/28/12 when the DownStreet Art kick-off took place, a robust regression was run.

**Maximum Hourly Counts**

Table 21 shows the results from an analysis that uses maximum hourly counts during each day of the time period of concern. Similar to the other Navizon measures used, the maximum hourly counts are statistically significant at the 95% confidence level, but the variable has a coefficient with a lower magnitude. Another difference seen in this regression is the noticeable drop in $R^2$, which may be explained by the relatively small variation in the maximum hourly counts.

<table>
<thead>
<tr>
<th>Galleries</th>
<th>Coefficient</th>
<th>Std. Err.</th>
<th>t</th>
<th>P&gt;t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hourly Max Count</td>
<td>1.879</td>
<td>0.839</td>
<td>2.240</td>
<td>0.034</td>
</tr>
<tr>
<td>Temperature</td>
<td>0.247</td>
<td>2.166</td>
<td>0.110</td>
<td>0.910</td>
</tr>
<tr>
<td>Rainfall</td>
<td>-0.037</td>
<td>0.154</td>
<td>-0.240</td>
<td>0.811</td>
</tr>
<tr>
<td>Constant</td>
<td>-5.605</td>
<td>8.012</td>
<td>-0.700</td>
<td>0.490</td>
</tr>
</tbody>
</table>

Table 22 displays the analysis that combined the daily Navizon counts with the maximum hourly counts and the remainder of the present model. The results indicate that when combined with the daily Navizon count, the maximum hourly count within that day is no longer statistically significant at the 95% confidence level.

<table>
<thead>
<tr>
<th>Galleries</th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>t</th>
<th>P&gt;t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navizon Count</td>
<td>2.454</td>
<td>1.035</td>
<td>2.370</td>
<td>0.025</td>
</tr>
<tr>
<td>Hourly Max Count</td>
<td>1.361</td>
<td>0.805</td>
<td>1.690</td>
<td>0.103</td>
</tr>
<tr>
<td>Rainfall</td>
<td>-0.083</td>
<td>0.144</td>
<td>-0.580</td>
<td>0.569</td>
</tr>
<tr>
<td>Temperature</td>
<td>-2.509</td>
<td>2.315</td>
<td>-1.080</td>
<td>0.288</td>
</tr>
<tr>
<td>Constant</td>
<td>-9.761</td>
<td>7.608</td>
<td>-1.280</td>
<td>0.211</td>
</tr>
</tbody>
</table>

Furthermore, the inclusion of the “event” variable in the “maximum hourly counts” model (Table 23) not only decreases the statistical significance of the maximum hourly count variable, but also changes the impact that the hourly variable has, ceteris paribus, on the number of daily gallery visitors from positive to negative.
When compared to the log-linear model presented in Table 20, the inclusion of the maximum hourly count decreases both the unadjusted and adjusted $R^2$.

**Individual Gallery Results**

Next we ran six separate analyses, one for each gallery for which we had visitor data. The galleries include: Gallery 107; PRESS; The Artery; the Jarvis Rockwell Gallery; the Marshall Street Gallery; and Gallery 51.

### Table 24

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gallery 107</th>
<th>PRESS</th>
<th>Artery</th>
<th>Jarvis Rockwell</th>
<th>Marshall Street</th>
<th>Gallery 51</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navizon Count</td>
<td>3.558</td>
<td>1.160</td>
<td>1.116</td>
<td>3.446**</td>
<td>3.850**</td>
<td>0.770</td>
</tr>
<tr>
<td>Rainfall</td>
<td>-0.243</td>
<td>-0.180</td>
<td>-0.114</td>
<td>-0.100</td>
<td>-0.098</td>
<td>-0.089</td>
</tr>
<tr>
<td>Constant</td>
<td>9.344</td>
<td>8.436</td>
<td>3.661</td>
<td>22.418</td>
<td>6.061</td>
<td>8.185</td>
</tr>
<tr>
<td>Observations</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>30</td>
</tr>
<tr>
<td>$R^2$:</td>
<td>0.394</td>
<td>0.117</td>
<td>0.061</td>
<td>0.514</td>
<td>0.367</td>
<td>0.083</td>
</tr>
<tr>
<td>Adj. $R^2$:</td>
<td>0.243</td>
<td>-0.123</td>
<td>-0.195</td>
<td>0.393</td>
<td>0.209</td>
<td>-0.023</td>
</tr>
</tbody>
</table>

The series of estimates presented in Table 24 show the number of gallery visitors in each gallery as a function of the same variables used in the aggregated model, excluding the indicator variable that captures public events. The tables above show that the daily Navizon counts are only statistically significant at the 95% confidence level for the Jarvis Rockwell and Marshall Street galleries. Due to the small number of data points available for each individual gallery, however, sustainable conclusions cannot be drawn from these regressions.

Out of the total of 34 data points, most galleries except for Gallery 51 were closed between 18 and 19 days during the time period considered. While Gallery 51 was open throughout the time period.
considered in the model, the daily Navizon counts were not statistically significant at the 95% confidence level. This may be explained by the nature of the gallery's relatively steady stream of visitors. In other words, the variance in the sample of daily visitors to Gallery 51 is relatively small.

Similar to the scenario above in the aggregated model, neither maximum temperature nor precipitation was statistically significant at the 95% confidence level in the regressions for the individual galleries. It is expected that the magnitude of the weather related coefficients will change over time with the change of seasons.

Impact of Street Vitality

The analysis presented above is interesting and provides a demonstration that our measure of street vitality is related to the number of persons recorded as entering one of several North Adams galleries. A more central question, however, is whether increasing the vitality of Main Street has a positive economic effect. Does it increase the sales of Main Street merchants? Will increasing the vitality of Main Street increase the economic success of North Adams?

To test this question, we enlisted the cooperation of the owner of a small business located at the heart of North Adams, who provided us with data on the daily dollar sales volume from their store for each day from June 2012 through January 2013. These data were matched with counts from the Navizon monitoring device and other data to model the impact of changes in street vitality on the actual level of sales. In this way we can actually estimate the impact on sales of a change in street vitality.

These data also allow us to undertake further analysis to test the causal relationship between street vitality and store sales. Finally, the data permit us to demonstrate a methodology of testing for a causal relationship that runs from sales at the store to street vitality. For small merchants, we would generally expect that there would not be a causal relationship between sales activity at the store and the level of street vitality. For larger stores, however, there may be. For the Mohawk Theater itself, this will be a central question that could be evaluated using the methods we present here.

Figure 6 shows the ebb and flow of street vitality over the period during which data were collected, from mid June 2012 until late January, 2013. Days with particularly high or low measured levels of vitality are clearly visible, and the most extreme values are flagged with explanatory notes in the figure. This level of street vitality provides a useful part of the baseline that is the central purpose of this report, and against which comparisons can be made after the Mohawk Theater project is complete.
If we examine the graph showing dollar sales and street vitality together, the day-to-day volatility in the data makes it difficult to tell whether or not there is a relationship. The data are shown in Figure 7 below, and it seems clear that we will need to undertake a more detailed econometric analysis of the relationship to determine the nature and strength of the linkage between street vitality and the economic success of Main Street businesses. For example, at the time of the Downtown celebration in August, there is only a modest spike in sales. By contrast, there is a significant spike in sales in early July that seems unrelated to any clear spike in street vitality.

We begin our analysis of the data by estimating the linear relationship between the logarithm of sales and the logarithm of street vitality. We also include variables to capture effects related to the day of the week (compared to Sunday) or the month (compared to January and February).

We have estimated two linear models using two measures of street vitality. The first uses vitality measured by the number of unique persons recorded on the street during the same day, matching that measure of street vitality to the dollar-value of sales during that same day. The second matches the dollar value of sales during a day to the sum of total persons counted on the street during the week prior to the day on which the sales occurred. In either event we estimate a model of the form:

\[ \ln(\text{Dollar Sales}) = \beta_0 + \beta_1 \cdot \ln(\text{Street Vitality}) + \beta_i \cdot \text{Month Indicator} + \beta_k \cdot \text{Day Indicator} \]

For the months, we exclude January and February so that the estimated coefficients represent the increase in the stated month relative to January and February. For the days of the week we exclude Sunday, so the estimated coefficients represent the increase in sales relative to Sunday. The results are presented below in Table 25. As noted above, by estimating a model using the logarithm of dollar sales and street vitality the estimated coefficients provide information about the percentage impact on sales from a one percent increase in street vitality.

The estimates show that increasing the level of street vitality results in a statistically significant increase in merchant sales. The coefficient using “same day” vitality model indicates that a 1% increase in street vitality is associated with an increase in same day dollar sales by approximately 0.74%. Alternatively, doubling the level of street vitality, as routinely happens during festivals and major events, increases merchant sales by about 74%. While this estimate is statistically significant,
it is "significant at the 90% level" which means that we can 90% confident that the true impact is not zero.

Using the “prior week” measure of vitality shows an even stronger result. A 1% increase in the total vitality during the prior week is associated with a 2.24% increase in merchant sales. This result is statistically significant at the 95% level. Achieving a sustained increase in street vitality for a one week time period is more difficult than a one day burst, so this larger impact is not completely surprising. It also, however, suggests that there may be interesting dynamic relations that exist between street vitality and merchant sales.

**Table 25**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day vitality</td>
<td>0.7426 *</td>
<td>0.455</td>
</tr>
<tr>
<td>Week vitality</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.2382 **</td>
<td>1.029</td>
</tr>
<tr>
<td>June</td>
<td>0.7378 **</td>
<td>1.1095 **</td>
</tr>
<tr>
<td>July</td>
<td>0.6454 **</td>
<td>0.8379 **</td>
</tr>
<tr>
<td>Aug</td>
<td>0.7049 **</td>
<td>0.8291 ***</td>
</tr>
<tr>
<td>Sept</td>
<td>0.5544 *</td>
<td>0.7730 **</td>
</tr>
<tr>
<td>Oct</td>
<td>0.2130</td>
<td>0.1705</td>
</tr>
<tr>
<td>Nov</td>
<td>0.5236 *</td>
<td>0.6062 **</td>
</tr>
<tr>
<td>Dec</td>
<td>0.5738 **</td>
<td>0.5678 **</td>
</tr>
<tr>
<td>Mon</td>
<td>0.5815 **</td>
<td>0.7746 ***</td>
</tr>
<tr>
<td>Tue</td>
<td>0.7003 ***</td>
<td>0.8921 ***</td>
</tr>
<tr>
<td>Wed</td>
<td>0.7137 ***</td>
<td>0.9759 ***</td>
</tr>
<tr>
<td>Thu</td>
<td>0.9012 ***</td>
<td>1.2270 ***</td>
</tr>
<tr>
<td>Fri</td>
<td>0.9153 ***</td>
<td>1.2291 ***</td>
</tr>
<tr>
<td>Sat</td>
<td>1.2012 ***</td>
<td>1.4656 ***</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.0145</td>
<td>-15.6106 *</td>
</tr>
</tbody>
</table>

Note that the estimates for the month and day effects show important variation across the seasons and across the week. Saturday sales are 120% to 140% greater than Sunday sales. Sales in the summer months are estimated to be between 65% and 111% greater than sales in January and February. These impacts are as we might expect.

We turn next to statistical analysis designed to reveal and test these dynamic relations. This type of analysis can be used over time to test the impact of the Mohawk Theater project relative to the baseline.

A widely-used technique used for such analysis is called Vector Auto-Regression. This technique reveals information about the relationship that holds between two or more variables by estimating
the impact that holds between the variable of interest (dollar sales at the merchant) and lagged values of that variable, along with current and lagged values of the other variables.

This technique is ideal for helping us to understand the dynamic structure of these relationships. For example, it seems plausible given the estimates presented above that the level of street vitality today affects the level of merchant sales today. The level of street vitality today might also plausibly affect merchant sales for several days. People are drawn to the street and then reminded of the existence of merchants, or they observe attractive window displays and resolve to return later to do some shopping. This effect might persist for several days.

A more nuanced impact might involve feedback between the merchant sales and street vitality, which feeds back into more merchant sales in the near future. One major merchant on the street might serve to attract customers and thereby raise street vitality, which then feeds back and provides greater merchant sales in the future. In some sense this is just a description of a vital urban center. It is also a primary goal of the Mohawk Theater project.

To explore these ideas, we estimate a vector auto-regression (VAR) using the logarithm of daily merchant sales from a North Adams merchant, the logarithm of daily street vitality, and the logarithm of the recorded dew point temperature, providing a measure of outdoor comfort that was found to fit the data better than rainfall or temperature data used in the previous models, presumably due to the greater variation in temperature and precipitation when our data span several seasons.

The results from the VAR estimates for the logarithm of merchant sales are presented in Table 26.

<table>
<thead>
<tr>
<th>Time</th>
<th>Dewpoint</th>
<th>Street Vitality</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>t - 1</td>
<td>0.437</td>
<td>0.938 *</td>
<td>-0.100</td>
</tr>
<tr>
<td>t - 2</td>
<td>-0.674</td>
<td>0.087</td>
<td>0.048</td>
</tr>
<tr>
<td>t - 3</td>
<td>1.230 ***</td>
<td>-0.596</td>
<td>0.114</td>
</tr>
<tr>
<td>t - 4</td>
<td>-0.602</td>
<td>-0.106</td>
<td>0.128 *</td>
</tr>
<tr>
<td>t - 5</td>
<td>0.727</td>
<td>0.456</td>
<td>0.101</td>
</tr>
<tr>
<td>t - 6</td>
<td>-0.548</td>
<td>0.147</td>
<td>0.210 ***</td>
</tr>
<tr>
<td>t - 7</td>
<td>0.972 **</td>
<td>0.892</td>
<td>0.341 ***</td>
</tr>
<tr>
<td>t - 8</td>
<td>-0.673</td>
<td>0.093 **</td>
<td>0.090</td>
</tr>
<tr>
<td>t - 9</td>
<td>-1.057 ***</td>
<td>-0.767</td>
<td>0.147 *</td>
</tr>
</tbody>
</table>

*** - significant at 99%, ** - significant at 95%, * - significant at 90%

Table 26 presents only part of the VAR estimates, showing the relationship between current period merchant sales and the lagged values of dewpoint, street vitality, and merchant sales. The table presents asterisks next to each coefficient estimate to indicate a level of statistical significance.

The dewpoint numbers indicate that outdoor comfort is important for daily sales. For example a 1% increase in dewpoint is associated with a 1.23% increase in sales 3 days later. While the weather matters, it averages out to a very modest effect over the 10 day time period. The sum of dewpoint coefficients is a very modest -0.187.
The street vitality impact is larger in aggregate. The main positive impacts of increasing street vitality are felt in sales the next day (where a 1% increase in street vitality is associated with a .94% increase in merchant sales), and then an echo effect about a week later, where a 1% increase in street vitality generates, 8 days later, a .093% increase in merchant sales. The sum of coefficients over the 10 day period is 1.145, suggesting that doubling street vitality will raise merchant sales by nearly 115%, spread out over a 10 day period. This is consistent with the estimates obtained and presented in Table 25, but here we learn more about the dynamic structure of the impact.

Finally, in looking at the impact of sales on future sales, we see a strong weekly structure, with significant impacts of an increase in sales on sales 6 and 7 days later. This is expected in most commercial retail sectors.

A visual summary of the VAR estimates is presented in Figure 7. Here we see the dynamic impact of each variable on sales indicated by the blue line, surrounded by a grey band that indicates the 95% confidence interval. When the grey band is entirely on one side or the other of the horizontal line indicating the value zero, then the impact for that time lag is statistically significant. The functions that are presented are called impulse-response functions because they show the response of sales (on the vertical axis) to a unit impulse of each variable over time.

Finally, these VAR estimates permit us to evaluate in a limited way the causal relationships that hold between the variables. If a shock or change in street vitality reliably affects some future values of merchant sales, then in a sense we can say that street vitality “causes” merchant sales to change. Of course, causality can go both ways as suggested in the discussion above. Street vitality can cause merchant sales to change and merchant sales can cause street vitality to change. The tests to evaluate these impacts, and this specific interpretation of causality, are called Granger Causality after the economist who developed the techniques.

Table 27 below presents four tests of Granger Causality relationships. The first tests whether changes in street vitality cause changes in merchant sales. The value of the test statistic indicates
that we can easily reject the null hypothesis that there is no such relationship. As expected: increasing street vitality will increase merchant sales.

The second test indicates that we can also easily reject the null hypothesis that there is no causal relationship between outdoor comfort levels and merchant sales. We can also reject (although with somewhat less confidence) the null that outdoor comfort levels have no impact on street vitality.

The final test is interesting. The value of the test statistic indicates that we cannot reject the null hypothesis that the sales of the merchant whose data we have access to have no causal impact on the level of street vitality. As important and centrally located our collaborating merchant is, it does not appear to have a causal impact on the vitality of North Adams Main Street.

Table 27

<table>
<thead>
<tr>
<th>Causal Relation</th>
<th>$\chi^2$ Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Vitality $\rightarrow$ Merchant Sales</td>
<td>27.372 ***</td>
</tr>
<tr>
<td>Dewpoint $\rightarrow$ Merchant Sales</td>
<td>35.015 ***</td>
</tr>
<tr>
<td>Dewpoint $\rightarrow$ Street Vitality</td>
<td>16.533 *</td>
</tr>
<tr>
<td>Merchant Sales $\rightarrow$ Street Vitality</td>
<td>13.125</td>
</tr>
</tbody>
</table>

These results suggest a possible test for evaluation of the impact of the Mohawk Theater project once it has been completed. A VAR could be estimated for the relationship between Mohawk event sales or other measure of Mohawk Theater activity and the level of street vitality measured using the Navizon device we have described in this study. Direct statistical tests are available that can evaluate the extent to which the Theater can impact the vitality of Main Street. If merchants can be persuaded to share their sales data, the impact on economic activity can be directly estimated. If not, it can be indirectly estimated using the analysis presented in this section of the baseline report.

Summary

This analysis has investigated whether the Navizon monitoring technology provides a valid approach for measuring the physical, street-level activity on Main Street, North Adams. After having run multiple evaluations, we are confident in the approach. The results indicate that the Navizon counts are statistically significant at the 95% confidence level across all models except for the rejected “9am to 5pm” count, and the maximum hourly count during a day when combined with the present model. We also conclude that among the public events included in the model, the ones that were geographically closer to the Navizon device indicated a larger explanatory impact on the number of daily gallery visitors.

Due to the small amount of data available from North Adams galleries, we are not able to draw sustainable conclusions from the evaluations that related individual galleries’ visitor data against the remaining variables. As more data are made available, however, such conclusions may be possible. The relatively uniform weather pattern during the summer time period considered constitutes an obstacle to accurately estimating the impact of weather related conditions on the number of gallery visitors. However, as time passes and the seasons change, we expect the weather related variables to become statistically significant.

These expectations were confirmed and extended in our analysis of the impacts of street vitality on merchant sales. The analysis indicates that doubling the level of street vitality that we have developed for this study is associated with an increase in merchant sales of approximately 115%,
spread over a 10 day period. In a non-dynamic context, we estimated that doubling the level of street vitality would increase contemporaneous merchant sales by about 74%, and a sustained doubling of street vitality is associated with a 224% increase in merchant sales. These values are consistent with each other and very plausible, given the feedback effects that are apparent in the dynamic behavior estimated with the VAR. An increase in the vitality of North Adams Main Street would have a significant positive impact on the economy of merchants doing business there.
8 Measuring Visibility: Google Insights

In 2006, Google launched an extension of their online and publicly available keyword toolkit named Google Insights for Search\(^{34}\) (GIS). Similar to Google Trends\(^{35}\) yet much more user friendly, Insights for Search (also sometimes called I4S) allows a user to monitor the relative popularity of any given search term over time, as well as within and across geographical regions. It is estimated that as of June 2012, Google holds 84 percent of the global search engine market. Additionally, 78.8% of the population in the United States uses the Internet on a regular basis.\(^{36}\) These two statistics alone offer a sound motivation as to why enterprises, both public and private, should consider monitoring trends in online search queries. This brief paper discusses the main features of GIS, its strengths and weaknesses, suggest practical applications, and attempts to clarify a few common misunderstandings of GIS. A brief instruction guide at the end outlines an example using GIS based on the city of North Adams, MA.

Google’s Insights for Search provides the means necessary to analyze traffic patterns as well as to compare the relative popularity of multiple keywords. Combined with Google’s service “Adwords,”\(^{37}\) which gives both global and local monthly averages of the number of searches for specific keywords over the past twelve months, a user can form a rough understanding of the general level of activity for certain keywords. Should a user be interested in attempting to gather absolute data from GIS, s/he needs a known reference point from which reverse engineering can be made to estimate the data for the unknown query. Unfortunately, this process is labor intensive and impossible to complete unless a reliable reference point can be found.

Functions
This section offers a brief description of Google Insights for Search’s available functions that can be used in a vast number of combinations to produce query results according to the user’s desired scenario.

1. GIS allows the user to simultaneously search for a series of search terms. This feature can be used to improve the relevance as well as reliability of the returned results. The simple example of adding the two-letter state code can dramatically improve the results.

2. All searches in GIS can be subjected to a series of geographical specifications as desired. In the United States, data can be retrieved nationally, on an individual state level, and on a metropolitan level. Furthermore, if sufficient data exists, GIS returns a map that displays ‘density’ of searches over the geographical region specified.

3. Google provides a tool with which the user can easily determine specific time intervals that the search should limit itself to. Apart from a set of readymade intervals such as “past 7 days,” the tool can also be easily customized according to the needs and desires of the query in question.

4. GIS also enables users to limit the reach of the query by including the filter option to search for results from the web, images, news, or products.

\(^{34}\) [http://www.google.com/insights/search/](http://www.google.com/insights/search/)


\(^{37}\) [https://adwords.google.com](https://adwords.google.com)
Ultimately, all features above can easily be combined with a few clicks into one single search. For example, suppose a user is interested in the Google search traffic patterns for the summer of 2010 for the term “North Adams,” and that the user is only interested in data from a selection of New England metropolitan areas. To accomplish this, the user simply types in the search term, sets the time frame, and includes the appropriate geographical region. The results are then displayed on a graph.

**Results**

The results are scaled from 0 to 100, where every query will return at least one point that has been given a score of 100 that represents the highest traffic point for that time period. The remaining data points are then divided by that maximum point and given an appropriate position on the scale. A popular misconception is that GIS gives a likelihood of a given keyword being searched for. This, however, is not the case since every point on the graph relates to a high point that is unknown. Hence, GIS should be thought of as a simple, powerful, and user friendly tool that facilitates overview and understanding of the patterns in Google’s search engine.

Google will display a score of zero when insufficient data is available, but it is important to note that a score of 0 does not necessarily imply that no searches were made for the search term in the given timeframe and geographical area. For example, it may be the case that only a small group of individuals search for a given term on a regular basis. In order to avoid inflation in the index, these individuals are only counted once within a set time range. Alternatively, it may be the case that Google simply rounds off its data to the point where a score of zero is given to a point that in reality is a non-zero decimal score.

It is not required to use the category filter in any of the searches in GIS, but due to Google’s automatic categorization, the categories associated with the search term will be shown. Next to the list of categories, a percentage range in parentheses is shown. The range gives the percentage range for search volume in the given category that the search term occupies. The provision of these categories is very helpful in providing context for the query. Any search that has sufficient data will return a distribution of categories and the percentage ranges associated with them and the search term.

**Using Google Insights for Search**

The most convenient aspect of GIS is its ease of use – the entire process from search to results is quick and intuitive. Below follows a few quick instructions on how to navigate to GIS, to enter queries and to download results onto an MS Excel sheet.

2. In the appropriate fields, choose keyword(s) and parameter(s).
3. Click “Search.”
Figure 8 shows an example of a Google Insights search. Figure 8 also provides the resulting graph associated with a search for the string “North Adams” for 2011 without any specifications on category, but geographically limited to the United States. Accordingly, GIS returns all categories associated with searches in Google’s search engine for the string “North Adams,” e.g. “Jobs & Education (0-10%).” This indicates that the searches for “North Adams” related to jobs and/or education fall in the 0-10% range by query volume for all queries in the “Jobs & Education” category. The analog applies to the remaining categories associated with the search as well. The graph shows a highest point (given a score of 100) for the time period August 28th – September 3rd.

To download the results:
1. Log in to the site using Gmail account information, or create an @gmail.com account in order to download.
2. Click “Download as .CSV.”
3. Choose “Save” or “Open” according to your preferences. The data shown on the website can now easily be read in an Excel sheet.

Part of the results of a Google Insights for Search query is a map that displays the geographical distribution for the query. Figure 9 presents the map for the query made in Figure 8 above. Similar to the results displayed in Figure 8, the map shows the region from which the most queries originated and is hence given a score of 100. The remaining states are given scores according to the same normalization and scale procedure as explained in previously. Figure 9 shows a concentration of queries in New England, particularly Vermont and Massachusetts.
As a comparison, Figure 10 shows the graph associated with the same search as used in Figure 8 with the exception that the filter is set exclusively for the "Arts & Entertainment" category.
Comparing Figure 10 with Figure 8, we notice not only a different time period for the highest score, but also a different geographical distribution of query origins. For the “Arts & Entertainment” category, the highest point occurred during July 17th-23rd. The fact that the unrestricted search in Figure 8 showed a peak during the period August 28 to September 3 while the search in Figure 10, which was restricted to Arts and Entertainment searches, peaked during July 17 to 23 may be explained by the 10th anniversary of the “Bang on a Can” festival at MASS MoCA, which took place between July 13 and July 30 of 2011.

**Summary**

We explored whether Google Insights for Search could be a useful tool for measuring the visibility of North Adams over time. We conclude that it can provide useful information in evaluating change, although it is not as useful as we hoped. Every query produces output standardized with ‘100’ being the maximum point. Thus a comparison of 2012 searches with 2015 searches would not allow us to speak in terms of ‘twice as many’ or going from dozens of searches to hundreds of searches. It would be possible, however, in 2015 to do a query of the period 2012 to 2015 and see where the peak was and what the relative distribution of searches over this period was.
This baseline economic report has evaluated many aspects of North Adams Main Street and the proposed Mohawk Theater project. We describe the basic outlines of the proposal, the costs involved and the likely uses for the project and economic activity that would be directly brought to North Adams as a result.

The project is not without precedent. The baseline report identified ten historic theater projects in the region that provide a reasonable set of cases with which the Mohawk Theater project might be compared. This provides an alternative type of baseline for future evaluation of project success.

The baseline report then presents a comprehensive economic evaluation of the potential impact of the project, using currently estimated construction costs and uses. This analysis indicates that the construction phase of the project can be expected to generate a local economic impact in excess of $30 million over the two year construction period, providing nearly 112 jobs during this period. During the two years of the construction phase more than $1.2 million in state, local and federal taxes would be generated by this increase in economic activity.

Once construction is complete, ongoing operations at the Mohawk project can be expected to generate nearly $1.9 million per year in total economic activity, adding more than 21 permanent jobs to the city. Annual federal, state and local tax collections would rise by more than $250 thousand. The baseline report presents a complete breakdown of the impacts by economic sector, along with tables that permit re-evaluation of the economic impacts if estimated construction costs change or if plans for operating budgets after construction are altered.

The baseline report provides a survey of current land use in North Adams, including the number, value, and locations of different types of properties. For businesses and building occupants on Main Street, who are most likely to be directly affected by the project, the report provides a complete listing for the summer of 2012.

Finally, the baseline report presents two approaches to evaluating the impact of the project on street vitality and on community visibility. For street vitality, the report presents a new approach to measuring street vitality based on counts of the number of unique smart phones that are detected on Main Street. The report presents baseline data for this measure, and demonstrates the relationship between the measure and visitors to North Adams galleries and sales at a North Adams merchant. This analysis shows the impact on merchant sales of increasing street vitality to be significant. Measuring community visibility to outside visitors or investors can be measured with some success using online search counts and measurements available from Google, the online search and media company. Baseline values for this measure of visibility are presented and techniques outlined for routine collection of these data to detect changes as the Mohawk Theater project proceeds to completion and operation.
## Appendix A

### Table A1: Economic Impact per $1 million spent during Construction Phase

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>1000000</td>
<td>170874</td>
<td>283816</td>
<td>1454690</td>
</tr>
<tr>
<td>Nonres maintenance</td>
<td>620000</td>
<td>1984</td>
<td>1657</td>
<td>623641</td>
</tr>
<tr>
<td>Residential maintenance</td>
<td>380000</td>
<td>14</td>
<td>897</td>
<td>380911</td>
</tr>
<tr>
<td>Imputed rental value</td>
<td>0</td>
<td>0</td>
<td>46814</td>
<td>46814</td>
</tr>
<tr>
<td>Architectural svcs</td>
<td>0</td>
<td>40019</td>
<td>752</td>
<td>40770</td>
</tr>
<tr>
<td>Health practitioners</td>
<td>0</td>
<td>0</td>
<td>23335</td>
<td>23335</td>
</tr>
<tr>
<td>Hospitals</td>
<td>0</td>
<td>0</td>
<td>22567</td>
<td>22567</td>
</tr>
<tr>
<td>Real estate</td>
<td>0</td>
<td>5852</td>
<td>15784</td>
<td>21636</td>
</tr>
<tr>
<td>Food/drinking places</td>
<td>0</td>
<td>2720</td>
<td>18294</td>
<td>21013</td>
</tr>
<tr>
<td>Nondepository credit</td>
<td>0</td>
<td>9319</td>
<td>8841</td>
<td>18160</td>
</tr>
<tr>
<td>Monetary authorities</td>
<td>0</td>
<td>7191</td>
<td>9895</td>
<td>17087</td>
</tr>
<tr>
<td>Retail-motor veh, parts</td>
<td>0</td>
<td>6860</td>
<td>5790</td>
<td>12651</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>0</td>
<td>6383</td>
<td>5705</td>
<td>12089</td>
</tr>
<tr>
<td>Retail - food and bev</td>
<td>0</td>
<td>4519</td>
<td>6407</td>
<td>10927</td>
</tr>
<tr>
<td>Legal services</td>
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## Table A1: Economic Impact per $1 million spent during Construction Phase

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Table A1: Economic Impact per $1 million spent during Construction Phase

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Table A1: Economic Impact per $1 million spent during Construction Phase

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<td>14</td>
<td>3</td>
<td>16</td>
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<tr>
<td>Sanitary paper mfg</td>
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Table A1: Economic Impact per $1 million spent during Construction Phase

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<th>Sector</th>
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<th>Induced</th>
<th>Total</th>
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<tr>
<td>Purchased alum mfg</td>
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<td>10</td>
<td>0</td>
<td>10</td>
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<tr>
<td>Dairy Production</td>
<td>0</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Crown mfg, metal stamp</td>
<td>0</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Lighting fixture mfg</td>
<td>0</td>
<td>8</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Broadwoven fabr mills</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>8</td>
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<tr>
<td>Plastics/rubber mach mfg</td>
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<td>4</td>
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<td>Computer systems design</td>
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<td>Wineries</td>
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<td>2</td>
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<td>Motorcycle, bicycle mfg</td>
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Table A2: Economic Impact per $1 Million Annual Expenditure

<table>
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<th>Induced</th>
<th>Total</th>
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<td>Total</td>
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<td>150,748.3</td>
<td>1,353,846.1</td>
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<td>24,571.0</td>
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<tr>
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Table A2: Economic Impact per $1 Million Annual Expenditure

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<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>Total</th>
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<td>Support for businesses</td>
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<td>Individual, family svcs</td>
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Table A2: Economic Impact per $1 Million Annual Expenditure

<table>
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<tr>
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<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>Total</th>
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Table A2: Economic Impact per $1 Million Annual Expenditure

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<th>Direct</th>
<th>Indirect</th>
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<th>Total</th>
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