



To: Fred Nance
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From: Rick Seifritz

Date: July 23, 2008

Re: Impacts of Construction Spending for the Medical Mart Project

Please find below impact estimates from construction spending associated with the \$425 million investment. The investments are assumed to be in the Cleveland region for the proposed Medical Mart and adjoining convention center facility (the Project). Estimates for impacts resulting from the first year of operations were reported under separate cover dated July 20, 2008.

Impact values are reported for the City of Cleveland, Cuyahoga County as a whole (including Cleveland impacts) and finally for the state as a whole, including Cuyahoga County. The implication of this is that local and state tax revenues are not limited to those derived from the direct project area but are also from suppliers (indirect effects) and households (induced effects) providing goods and services as part of the supply chain, as well as from the labor market supplying workforce.

Table 1 contains the estimated spending totals for the Project as provided by Squire, Sanders, & Dempsey, LLC (SS&D). These data were used as inputs for an economic impact simulation reported here for SS&D and Team NEO's partners at the Greater Cleveland Partnership. The total values were divided equally to the nearest thousand and applied across a 3 year construction schedule as inputs to the model (in current dollars).

Table 1: Estimated Project Expenditures and Phasing as Inputs

Item	Project Estimate	2009	2010	2011
Real Estate (2008 \$)	\$20,000,000	\$6,666,660	\$6,666,660	\$6,666,660
Architectural / Engineering (2008 \$)	\$20,000,000	\$6,666,660	\$6,666,660	\$6,666,660
Construction (2008 \$)	\$385,000,000	\$128,333,205	\$128,333,205	\$128,333,205
Total Spending (2008 \$)	\$425,000,000	\$141,666,525	\$141,666,525	\$141,666,525

It should be noted that the Project estimates do not include additional potential soft costs. Should these additional costs apply, they would positively impact the results, particularly at the city and county levels of analysis. Also, in lieu of a more detailed construction budget, the total construction estimate of \$385 million was applied to the model as commercial and institutional construction spending. This process required to model to estimate the various construction spending categories, including labor and materials, to allow an accurate simulation. Consequently, the model projected average annual construction-related

employment at 830 jobs for each of the three years in the construction schedule assumed for this analysis. Impacts from more detailed construction budget data and any additional soft costs would require another simulation to provide data on the industrial sectors responsible for the majority of the impacts.

Tables 2, 3 and 4 contain the impact estimates for the Project's construction to the City of Cleveland, Cuyahoga County (in total), and the State of Ohio. These impacts are in 2007 dollars, the last year for which an annualized Consumer Price Index value is available.

Table 2: Estimated Construction Impacts to the City of Cleveland

CITY OF CLEVELAND				
Impact on:	Construction Impacts			
	2009	2010	2011	Totals:
Employment	1,316	1,257	1,201	
Gross Regional Product	\$88,005,114	\$85,079,236	\$82,237,642	\$255,321,992
Personal Income	\$81,227,000	\$82,600,000	\$83,309,000	\$247,136,000
Local Wage Tax (@2%)	\$1,624,540	\$1,652,000	\$1,666,180	\$4,942,720
State Income Tax (2.88% ATR)	\$2,339,338	\$2,378,880	\$2,399,299	\$7,117,517
CAT: Self Supply	\$150,613	\$150,178	\$149,606	\$450,398
CAT: Imports	\$42,598	\$41,693	\$40,830	\$125,120
Sales: B2B	\$5,138,513	\$4,947,148	\$4,760,811	\$14,846,472
Sales: Consumer	\$366,167	\$365,665	\$371,530	\$1,103,362
Total State Revenue Estimates	\$8,037,229	\$7,883,564	\$7,722,076	\$23,642,869
Total Public Revenue Estimates	\$9,661,769	\$9,535,564	\$9,388,256	\$28,585,589
Output	\$162,517,422	\$155,896,341	\$149,516,028	\$467,929,791

Table 3: Estimated Construction Impacts to Cuyahoga County (in total)

ALL OF CUYAHOGA COUNTY				
Impact on:	Construction Impacts			
	2009	2010	2011	Totals:
Employment	1,620	1,553	1,486	
Gross Regional Product	\$115,301,268	\$111,424,179	\$107,510,967	\$334,236,415
Personal Income	\$95,110,000	\$99,730,000	\$102,510,000	\$297,350,000
Local Wage Tax (@2%)	\$1,902,200	\$1,994,600	\$2,050,200	\$5,947,000
State Income Tax (2.88% ATR)	\$2,739,168	\$2,872,224	\$2,952,288	\$8,563,680
CAT: Self Supply	\$274,803	\$273,045	\$271,263	\$819,112
CAT: Imports	\$62,990	\$62,643	\$62,341	\$187,974
Sales: B2B	\$5,571,988	\$5,395,520	\$5,208,139	\$16,175,646
Sales: Consumer	\$1,057,398	\$1,052,543	\$1,063,753	\$3,173,695
Total State Revenue Estimates	\$9,706,347	\$9,655,975	\$9,557,784	\$28,920,107
Total Public Revenue Estimates	\$11,608,547	\$11,650,575	\$11,607,984	\$34,867,107
Output	\$204,892,334	\$195,863,589	\$187,075,610	\$587,831,533

Table 4: Estimated Construction Impacts to the State of Ohio

STATE OF OHIO				
	Construction Impacts			
	2009	2010	2011	Totals:
Employment	1,841	1,782	1,718	
Gross Regional Product	\$129,075,772	\$125,704,390	\$122,212,602	\$376,992,764
Personal Income	\$101,110,000	\$108,150,000	\$112,770,000	\$322,030,000
Local Wage Tax (@2%)	\$2,022,200	\$2,163,000	\$2,255,400	\$6,440,600
State Income Tax (2.88% ATR)	\$2,911,968	\$3,114,720	\$3,247,776	\$9,274,464
CAT: Self Supply	\$357,865	\$356,333	\$354,647	\$1,068,845
CAT: Imports	\$88,548	\$90,598	\$92,831	\$271,977
Sales: B2B	\$5,802,381	\$5,657,829	\$5,489,447	\$16,949,657
Sales: Consumer	\$1,473,238	\$1,474,891	\$1,501,589	\$4,449,718
Total State Revenue Estimates	\$10,633,999	\$10,694,371	\$10,686,291	\$32,014,661
Total Public Revenue Estimates	\$12,656,199	\$12,857,371	\$12,941,691	\$38,455,261
Output	\$228,367,073	\$219,217,944	\$210,309,582	\$657,894,599

A note of caution in interpreting employment results: In the model, the number of jobs to be created by the investments is estimated. It is important to note that these jobs are simply “jobs” as they are counted by the Bureau of Economic Analysis (BEA) and are not necessarily full- or part- time positions. These jobs are likely distributed across a number of industries and so, in any given industry, a “job” may represent a summation of positions across a number of industries in which each industry has less than one complete position. For this project, the impact study may report one “job,” but the spending patterns in the study may actually generate positions in three industries. However, each industry may require only one-third of a person. In this case, the three industries that employ one-third of a person each to meet demand would sum to one “job” in REMI.

Project Assumptions and Caveats

- Estimated Project expenditures have been modeled as inputs for the City of Cleveland, OH and reflect a generalized estimate for a proposed combined convention center and medical industry sales facility at any of several sites being considered within the City.
- The construction period for the Project, for the purposes of this analysis, was assumed to be 36 months, covering 2009 through 2011. A longer construction schedule (e.g., 48 months) would require allocation of the impacts reported here over the broader time period.
- All Impacts are reported in 2007 dollars.
- Total estimated construction-only expenditures of \$385 million (exclusive of real estate and professional fees), in lieu of detailed line-item budget estimates, were apportioned among relevant industries determined by the REMI model (see Methodology Note below). This “black box” estimate yields more generalized impacts.

- Total estimated construction-only expenditures of \$385 million (exclusive of real estate and professional fees) as input to the model yielded an annual three-year average for construction-related employment of 830 jobs.
- Additional “soft cost” expenditures may apply to the Project and would positively impact the results particularly at the local levels of analysis.
- Various tax revenue impacts are reported in this analysis (see Measuring Economic Impacts below). However, Team NEO determined that the impacts of other taxes, including electricity consumption, natural gas consumption, and alcohol sales, were negligible and therefore not reported.

Methodology Note

TeamNEO uses a model developed by Regional Economic Models, Inc. (REMI), *Policy Insight*, to estimate economic impacts. The NEO REMI model is custom designed and tailored to the region based on NEO specifications. The REMI model is the preeminent model of its type and is widely recognized to be at the forefront of modeling with clients not only in North America but also in the European Union.

REMI is a dynamic model that creates estimates using equations rather than a simple input/output (I/O) table. This allows sensitivity in the analysis for both timing and scale/scope issues that are not found in other models. The principal investigator for this study has more than 10 years of applied modeling experience with REMI (and other impact models). Features that are unique to REMI include:

- It is calibrated to local conditions using a relatively large amount of local data, which is likely to improve its performance, especially under conditions of structural economic change.
- It has an exceptionally strong theoretical foundation.
- It actually combines several different kinds of analytical tools (including economic-base, input-output, and econometric models), allowing it to take advantage of each specific method's strengths and compensate for its weaknesses.
- It allows users to manipulate an unusually large number of input variables and gives forecasts for an unusually large number of output variables.
- It allows the user to generate forecasts for any combination of future years, allowing the user special flexibility in analyzing the timing of economic impacts.
- It accounts for business cycles.
- It has been used by a large number of users under diverse conditions and has proven to perform acceptably.

Source: REMI.com

For additional information on REMI, please see their website at www.remi.com.

Measuring Economic Impacts

Most economic impact studies focus on three elements of impacts:

1. Job creation
2. Change in gross regional product (GRP)
3. Changes to income
4. Output
5. Tax Impacts

Employment is comprised of three elements (Please see the note following Table 4 regarding the concept of a “job”):

- Direct: the employment created by the actual investment, growth or change
- Indirect: employment created by the need of the new firm to purchase goods and services, essentially the local supply chain
- Induced: the household that supply good and services to the workers in the prior two categories. Examples of these include education, dry cleaners, accountants, gas stations, lawyers and grocers.

Gross Regional Product (GRP) is an economic measure of the value-add that labor contributes to the final product or service. *This measure is more useful in looking at events that change the economic curve of a region than total sales.* GRP does not include the value of “intermediate goods” or inputs for estimating the economic impact. As an example, if a \$25,000 auto is produced in a region, it may comprised of \$15,000 in parts (intermediate goods) and \$10,000 in labor to assemble the parts into a complete car, then the \$10,000 in GRP is what the region uses to measure its input into the vehicle. If output (or sales) were used, the same \$25,000 auto may only generate \$500 to the seller. In the former example the GRP for the region from making the auto would be \$10,000, while the GRP from selling the auto in the region would be only \$500. Clearly, the GRP from making the auto is greater, and is more likely to change the wealth curve of the region. If output is used, both would have the same value and appear (incorrectly) to have similar economic impacts.

We also measure the impact of the event on the regional pool of income. This can be measured as the impact to total income from both residents and commuters generated from the event. The income statistic is likely to be over-estimated as it includes wages by place of residence as well as by place of work. In Ohio, wages taxes may be collected by place of residence and place of work, although most communities offer a credit to residents for taxes paid at the municipal-based place of work. This study does not attempt to estimate or control for these credits, but merely combines total earnings for residents and commuters. For purposes in this study and ease of use, 2 percent is used as the rate for all local taxes. Across the state, the average wage rate is slightly below \$40,000, which creates an average tax rate (ATR) of about 2.88 percent. The average is used to create efficiencies in estimating potential state income tax impacts. It is acknowledged that some workers (such as those in the construction and professional services industries) will earn more than the average annual salary and so pay a higher ATR, while others impacted by the projects will earn less than the average salary (such as service workers) and so pay a lower ATR.

Using the REMI methodology from the Ohio Department of Development study, Team NEO used output (or sales) by industry, discounted it by the exempted amount of sales and then multiplied the residual by full CAT tax rate of .0026 effective as of 2010. The second application of the CAT tax is based on the imports of goods and services from the rest of the United States. These imports are also taxable under the CAT tax.

REMI, in their study, also offered a methodology to estimate sales taxes for both business to business (B2B) transactions and also from consumer transactions. For B2B transactions, REMI identified¹ sales-tax exempt buying and selling industries. These industries are excluded from total B2B output (sales), with the residual or taxable amount of output taxed at the current state sales tax rate of .055².

REMI also offers away to estimate consumption from consumers, and thus estimate sales tax from households. The REMI model estimates output impacts from 13 areas of consumption³. In their 2005 study, they identify the “percent taxable” (77) for each consumption category. To estimate taxable sales, taxable share by output is multiplied by consumption. Taxable sales are then multiplied by .055 to estimate state revenues from the personal consumption-based sales tax. Neither of the estimates to sales taxes includes any local rate for collections

Finally, output is estimated for the study region. This measure is essentially the same as sales in the study region and includes both the value of GRP and the value of intermediate goods—the goods or materials needed to make the product or service. It is useful as a measure of economic activity and some of the output is responsible for driving sales taxes at both the state and county level.

If you have any questions or I can provide clarifications, please do not hesitate to call me at 216-363-5433 (office) or 440-666-3859 (cell), or Jim Robey at 216-363-5420 (office) or 440-666-0641 (cell).

¹ REMI study, 2005, pp 75-76

² This was done using the national input-output table to estimate taxable share of industry output. The share of applicable industry output was multiplied by dollar output for those industries. A rate of 5.5 percent was then applied to share of output to estimate total B2B sales tax.

³ These include vehicles & parts, computers & furniture, other durables, food & beverages, clothing & shoes, gasoline and oil, fuel oil & coal, other non-durables, housing, household operation, transportation, medical care, and other services