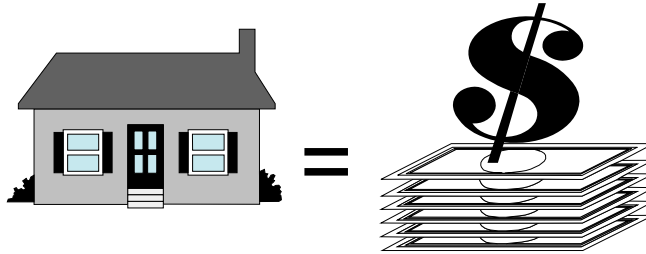




NAHB

The Economic Impact of Home Building in Wisconsin

Income, Jobs, and Taxes Generated



Prepared by the Housing Policy Department

December 2009

National Association of Home Builders
1201 15th Street, NW
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202-266-8398

Executive Summary

Home building generates substantial local economic activity, including new income and jobs for residents, and additional revenue for local governments. The National Association of Home Builders has developed a model to estimate the economic benefits. The model captures the effect of the construction activity itself, the ripple impact that occurs when income earned from construction activity is spent and recycles in the local economy, and the ongoing impact that results from new homes becoming occupied by residents who pay taxes and buy locally produced goods and services. In order to fully appreciate the positive impact residential construction has on a community, it's important to include the ripple effects and the ongoing benefits. Since the NAHB model was initially developed in 1996, it has been successfully applied to construction in over 500 projects, local jurisdictions, metropolitan areas, non-metropolitan counties, and states across the country.

The report presents estimates of the impacts of building 1,000 single family homes, representative of the homes built in the state of Wisconsin (see map below) in 2008.



The NAHB model produces impacts on income and employment in 16 industries as well as for those employed by the state government and local governments in the state. The model also provides detailed information about taxes and other types of government revenue. The key results are summarized below. Additional details are contained in subsequent sections.



The estimated one-year metro area impacts of building 1,000 single family homes in Wisconsin include

- \$180.7 million in income for Wisconsin residents,
- \$29.8 million in taxes for the state and local governments in the state, and
- 3,255 jobs in Wisconsin.

These are **local impacts**, representing income and jobs for residents of Wisconsin, and taxes (and other sources of revenue, including permit fees) for all local jurisdictions within the state area. They are also **one-year impacts** that include both the direct and indirect impact of the construction activity itself, and the impact of local residents who earn money from the construction activity spending part of it within the state.



The additional, annually recurring impacts of building 1,000 single family homes in Wisconsin include

- \$34.1 million in income for Wisconsin residents,
- \$12.4 million in taxes for the state and local governments in the state, and
- 690 jobs in Wisconsin.

These are **ongoing, annual local impacts** that result from the new homes being occupied, and the occupants paying taxes and otherwise participating in Wisconsin's economy year after year. In order to fully understand the impact residential construction has on a state, it's important to consider the ongoing benefits as well as the one-time effects.



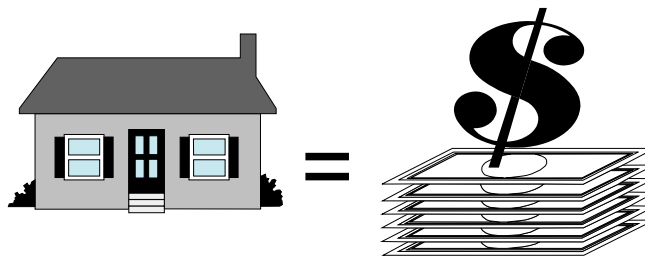
The single family impacts were calculated assuming that new single family homes built in Wisconsin in 2008 had an average price of \$250,184; were built on a lot for which the average value of the raw land was \$18,468; required the builder and developer to pay an average of \$5,124 in impact, permit, and other fees to local governments; and incurred an average property tax of \$4,524 per year. This information was obtained from the State of Wisconsin Legislative Fiscal Bureau, the U.S. Census Bureau, the Wisconsin Builders Association, and a number of local Home Builder Associations across the State of Wisconsin.



NAHB

The Economic Impact of Home Building in Wisconsin

**Income, Jobs, and Taxes
generated**



**Detailed tables on
Income, Jobs, and
Taxes**

Impact of Building 1,000 Single Family Homes in Wisconsin

Summary

Total One-Year Impact: Sum of Phase I and Phase II:

Total Income in Wisconsin	Business Owners' Income	Wages and Salaries	State and Local Taxes ¹	Jobs Supported in Wisconsin
\$180,658,000	\$52,577,000	\$128,081,000	\$29,810,000	3,255

Phase I: Direct and Indirect Impact of Construction Activity:

Total Income in Wisconsin	Business Owners' Income	Wages and Salaries	State and Local Taxes ¹	Jobs Supported in Wisconsin
\$117,024,000	\$32,769,000	\$84,254,000	\$15,154,000	2,043

Phase II: Induced (Ripple) Effect of Spending the Income and Taxes from Phase I:

Total Income in Wisconsin	Business Owners' Income	Local Wages and Salaries	State and Local Taxes ¹	Jobs Supported in Wisconsin
\$63,634,000	\$19,808,000	\$43,827,000	\$14,656,000	1,213

Phase III: Ongoing, Annual Effect that Occurs When New Homes are Occupied:

Total Income in Wisconsin	Business Owners' Income	Wages and Salaries	State and Local Taxes ¹	Jobs Supported in Wisconsin
\$34,144,000	\$9,227,000	\$24,918,000	\$12,392,000	690

¹ The term state and local taxes is used as a shorthand for local government revenue from all sources: taxes, fees, fines, revenue from government-owned enterprises, etc...

**Impact of Building 1,000 single family Homes in Wisconsin
Phase I --Direct and Indirect Impact of Construction Activity**

A. Wisconsin Income and Jobs by Industry

Industry	Total Income in Wisconsin	Business Owners' Income	Wages and Salaries	Wages & Salaries per Full-time Job	Number of Jobs Supported
Construction	\$80,414,000	\$20,739,000	\$59,675,000	\$42,000	1,412
Manufacturing	\$12,000	\$1,000	\$11,000	\$44,000	0
Transportation	\$193,000	\$26,000	\$167,000	\$35,000	5
Communications	\$1,202,000	\$367,000	\$835,000	\$64,000	13
Utilities	\$355,000	\$138,000	\$217,000	\$72,000	3
Wholesale and Retail Trade	\$11,794,000	\$2,159,000	\$9,634,000	\$31,000	308
Finance and Insurance	\$2,585,000	\$211,000	\$2,375,000	\$71,000	33
Real Estate	\$5,152,000	\$4,535,000	\$617,000	\$44,000	14
Personal & Repair Services	\$819,000	\$309,000	\$510,000	\$28,000	18
Services to Dwellings / Buildings	\$468,000	\$93,000	\$375,000	\$28,000	13
Business & Professional Services	\$11,300,000	\$3,369,000	\$7,931,000	\$49,000	160
Eating and Drinking Places	\$388,000	\$52,000	\$336,000	\$17,000	19
Automobile Repair & Service	\$388,000	\$120,000	\$267,000	\$28,000	9
Entertainment Services	\$67,000	\$14,000	\$53,000	\$39,000	1
Health, Educ. & Social Services	\$15,000	\$4,000	\$11,000	\$33,000	0
State and Local Government	\$122,000	\$0	\$122,000	\$46,000	3
Other	\$1,750,000	\$632,000	\$1,118,000	\$38,000	29
Total	\$117,024,000	\$32,769,000	\$84,254,000	\$41,000	2,043

Note: Business & professional services include architectural and engineering services. The "other" category consists mostly of landscaping services, and the production of greenhouse and nursery products.

B. State and Local Government General Revenue by Type

TAXES:		USER FEES & CHARGES:	
Business Property Taxes	\$554,000	Residential Permit / Impact Fees	\$5,124,000
Residential Property Taxes	\$0	Utilities & Other Govt. Enterprises	\$848,000
General Sales Taxes	\$869,000	Hospital Charges	\$539,000
Specific Excise Taxes	\$306,000	Transportation Charges	\$105,000
Income Taxes	\$3,640,000	Education Charges	\$1,171,000
License Taxes	\$289,000	Other Fees and Charges	\$1,612,000
Other Taxes	\$96,000	TOTAL FEES & CHARGES	\$9,400,000
	\$5,754,000		\$15,154,000

TOTAL TAXES		TOTAL GENERAL REVENUE	
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Impact of Building 1,000 single family Homes in Wisconsin
Phase II--Induced Effect of Spending Income and Tax Revenue from Phase I
A. Wisconsin Income and Jobs by Industry

Industry	Total Income in Wisconsin	Business Owners' Income	Wages and Salaries	Wages & Salaries per Full-time Job	Number of Jobs Supported
Construction	\$2,774,000	\$1,066,000	\$1,707,000	\$42,000	40
Manufacturing	\$12,000	\$1,000	\$11,000	\$44,000	0
Transportation	\$242,000	\$34,000	\$209,000	\$31,000	7
Communications	\$3,613,000	\$1,226,000	\$2,387,000	\$63,000	38
Utilities	\$1,776,000	\$700,000	\$1,076,000	\$72,000	15
Wholesale and Retail Trade	\$9,926,000	\$1,867,000	\$8,058,000	\$28,000	290
Finance and Insurance	\$2,496,000	\$228,000	\$2,269,000	\$64,000	36
Real Estate	\$10,415,000	\$9,169,000	\$1,247,000	\$44,000	28
Personal & Repair Services	\$2,178,000	\$994,000	\$1,184,000	\$28,000	42
Services to Dwellings / Buildings	\$513,000	\$102,000	\$411,000	\$28,000	14
Business & Professional Services	\$6,322,000	\$1,843,000	\$4,479,000	\$45,000	100
Eating and Drinking Places	\$2,910,000	\$391,000	\$2,518,000	\$17,000	146
Automobile Repair & Service	\$1,425,000	\$434,000	\$991,000	\$28,000	35
Entertainment Services	\$684,000	\$188,000	\$496,000	\$32,000	16
Health, Educ. & Social Services	\$7,934,000	\$1,001,000	\$6,934,000	\$42,000	166
State and Local Government	\$8,839,000	\$0	\$8,839,000	\$43,000	206
Other	\$1,575,000	\$564,000	\$1,011,000	\$30,000	34
Total	\$63,634,000	\$19,808,000	\$43,827,000	\$36,000	1,213

Note: Business & professional services include architectural and engineering services. The "other" category consists mostly of landscaping services, and the production of greenhouse and nursery products.

B. State and Local Government General Revenue by Type

TAXES:		USER FEES & CHARGES:	
Business Property Taxes	\$2,388,000	Residential Permit / Impact Fees	\$0
Residential Property Taxes	\$0	Utilities & Other Govt. Enterprises	\$1,963,000
General Sales Taxes	\$2,893,000	Hospital Charges	\$976,000
Specific Excise Taxes	\$1,319,000	Transportation Charges	\$57,000
Income Taxes	\$2,267,000	Education Charges	\$637,000
License Taxes	\$433,000	Other Fees and Charges	\$1,532,000
Other Taxes	\$192,000	TOTAL FEES & CHARGES	\$5,165,000

TOTAL TAXES	\$9,492,000	TOTAL GENERAL REVENUE	\$14,656,000
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**Impact of Building 1,000 single family Homes in Wisconsin
Phase III--Ongoing. Annual Effect That Occurs Because Units Are Occupied**

A. Wisconsin Income and Jobs by Industry

Industry	Total Income in Wisconsin	Business Owners' Income	Wages and Salaries	Wages & Salaries per Full-time Job	Number of Jobs Supported
Construction	\$1,682,000	\$639,000	\$1,043,000	\$42,000	25
Manufacturing	\$7,000	\$1,000	\$7,000	\$44,000	0
Transportation	\$111,000	\$15,000	\$96,000	\$33,000	3
Communications	\$1,934,000	\$651,000	\$1,283,000	\$63,000	20
Utilities	\$1,073,000	\$422,000	\$651,000	\$72,000	9
Wholesale and Retail Trade	\$5,627,000	\$1,058,000	\$4,568,000	\$28,000	164
Finance and Insurance	\$1,792,000	\$164,000	\$1,628,000	\$63,000	26
Real Estate	\$3,502,000	\$3,083,000	\$419,000	\$44,000	9
Personal & Repair Services	\$996,000	\$454,000	\$543,000	\$28,000	19
Services to Dwellings / Buildings	\$306,000	\$61,000	\$245,000	\$28,000	9
Business & Professional Services	\$3,556,000	\$1,042,000	\$2,514,000	\$45,000	56
Eating and Drinking Places	\$1,658,000	\$223,000	\$1,435,000	\$17,000	83
Automobile Repair & Service	\$775,000	\$236,000	\$539,000	\$28,000	19
Entertainment Services	\$481,000	\$132,000	\$349,000	\$30,000	12
Health, Educ. & Social Services	\$4,068,000	\$529,000	\$3,539,000	\$41,000	86
State and Local Government	\$5,229,000	\$0	\$5,229,000	\$43,000	122
Other	\$1,347,000	\$517,000	\$830,000	\$30,000	28
Total	\$34,144,000	\$9,227,000	\$24,918,000	\$36,000	690

Note: Business & professional services include architectural and engineering services. The "other" category consists mostly of landscaping services, and the production of greenhouse and nursery products.

B. State and Local Government General Revenue by Type

TAXES:		USER FEES & CHARGES:	
Business Property Taxes	\$1,238,000	Residential Permit / Impact Fees	\$0
Residential Property Taxes	\$4,190,000	Utilities & Other Govt. Enterprises	\$1,204,000
General Sales Taxes	\$1,500,000	Hospital Charges	\$857,000
Specific Excise Taxes	\$684,000	Transportation Charges	\$31,000
Income Taxes	\$1,210,000	Education Charges	\$342,000
License Taxes	\$227,000	Other Fees and Charges	\$808,000
	\$100,000		\$3,242,000

Other Taxes		TOTAL FEES & CHARGES	
TOTAL TAXES	\$9,150,000	TOTAL GENERAL REVENUE	\$12,392,000



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**The Economic Impact of Home
Building
in Wisconsin**

**Comparing Costs
to Revenue for
STATE & local Governments**

Prepared by the Housing Policy Department

December 2009

National Association of Home Builders
1201 15th Street, NW
Washington, DC 20005
202-266-8398

Introduction

Home building generates economic impacts in the state where it takes place, including income and jobs for residents of the state, and revenue for the state government and local governments within the state. It also typically imposes costs on state and local governments—such as the costs of providing primary and secondary education, police and fire protection, and water and sewer service. Not only do these services require annual expenditures for items such as teacher salaries, they typically also require capital investment in buildings, other structures, and equipment that state and local governments within the state own and maintain.

This report presents estimates of the statewide economic impacts of home building in Wisconsin. The report presents estimates of the impacts of building 1,000 single family homes, representative of the homes built in Wisconsin (Figure 1) in 2008.

Figure 1



Costs Compared to Revenue:

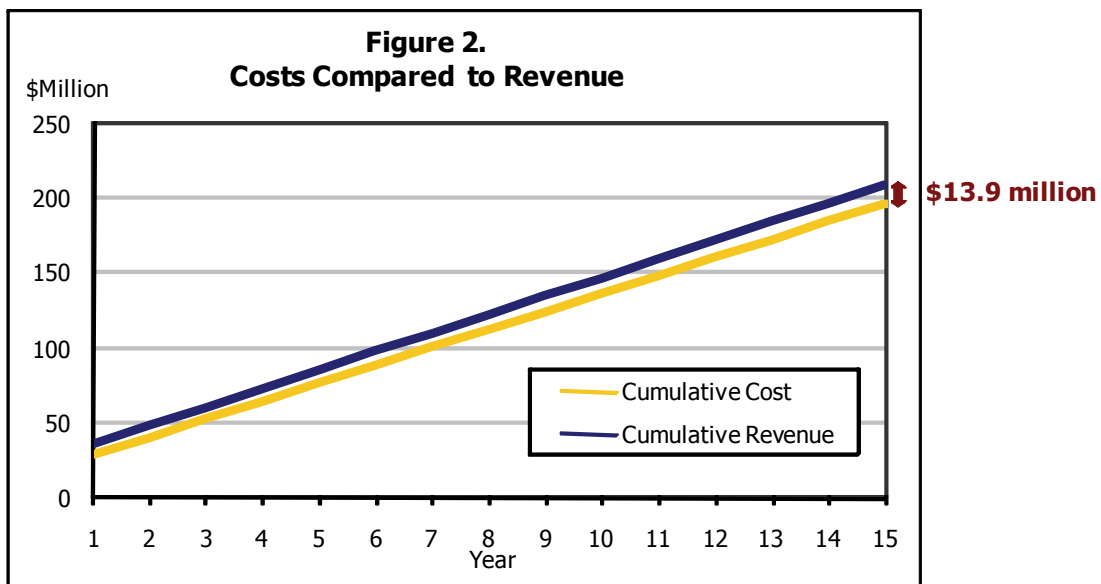
This section summarizes the results. The relevant assumptions about the homes built in Wisconsin in 2008 (including their average price, property tax payments, and construction-related fees incurred) are contained in the NAHB report, *The Economic Impact of Home Building in Wisconsin: Income, Jobs and Taxes Generated*.

- ◆ In the first year, the 1,000 single family homes built in Wisconsin result in an estimated
 - ☉ **\$36.0 million** in tax and other revenue for the state government as well as local governments in the state,¹
 - ☉ **\$6.0 million** in current expenditures by the state and local governments to provide public services to the net new households at current levels, and
 - ☉ **\$21.6 million** in capital investment for new structures and equipment undertaken by the state and local governments

The analysis assumes that local governments finance the capital investment by borrowing at the current municipal bond rate of 4.40 percent.²

- ◆ In a typical year after the first, the single family homes result in
 - ☉ **\$12.4 million** in tax and other revenue for state and local governments, and
 - ☉ **\$11.9 million** in state and local government expenditures to continue providing services at current levels

- ◆ The difference between government revenue and current expenditures is defined as an “operating surplus.” In this case, the first-year operating surplus is large enough to pay off all debt incurred by investing in structures and equipment at the start of the first year by the end of the first year. After that, future operating surpluses will be available to finance other projects or reduce taxes. After 15 years, the homes will generate a cumulative **\$209.5 million in revenue** compared to **\$195.6 million in costs**, including annual current expenses, capital investment, and interest on debt (Figure 2).



¹ This assumes that homes are occupied at a constant rate during the year, so that the year captures one-half of the ongoing, annual revenue generated as the result of increased property taxes and the new residents participating in the local economy.

² The analysis assumes that there is currently no excess capacity, that local governments invest in capital before the homes are built, and that no fees or other revenue generated by construction activity are available to finance the investment, so that all capital investment at the beginning of the first year is financed by debt. This is a conservative assumption that results in an upper bound estimate on the costs incurred by local governments. For information about the particular interest rate on municipal bonds used, see page 2 of the technical appendix.

Method Used to Estimate Costs

The method for estimating local government revenue generated by home building is explained in the NAHB documents, *The Economic Impact of Home Building in Wisconsin: Income, Jobs and Taxes Generated* and *NAHB’s Local Impact of Home Building Model: Technical Documentation*. This section describes how costs are estimated.

The general approach is to assume that the state and local jurisdictions within the state supply residents of new homes with the same services that they currently provide, on average, to occupants of existing structures. The amount that any jurisdiction spends is available from the Census of Governments, where all units of government in the U.S. report line item expenses, revenues, and intergovernmental transfers once every five years to the Governments Division of the U.S. Census Bureau. Census of Governments accounts can be aggregated for the Wisconsin state government and every local government in Wisconsin and then used to produce total annual expenses per housing unit.

Not surprisingly, cost per housing unit varies substantially across the major service categories. Education accounts for the largest share of annual expenses, followed at a distance by health services, police protection, and miscellaneous general government functions (Table 1):

Table 1.
Total Annual State and Local Government Expenses
Per Single Family Housing Unit
(in 2008 Dollars)

Education	\$7,381
Police Protection	\$721
Fire Protection	\$268
Corrections	\$619
Streets and Highways	\$187
Water Supply	\$151
Sewerage	\$163
Health Services	\$1,139
Recreation and Culture	\$318
Other General Government	\$715
Electric Utilities	\$194
Public Transit	\$61
Total	\$11,918

In deriving the above estimates, water supply and sewerage expenses are allocated based on gallons of water consumed per day by single family and multifamily households. Streets and highway expenses are allocated based on average number of vehicle trips generated on weekdays. Education is allocated based on average number of children age 5 through 18. The

other government services listed in Table 1 are assumed to be proportional to population, so costs associated with those services are allocated based on household size.³

There are several factors present in most parts of the country that tend to reduce education expenses per housing unit. The first is the average number of school-aged children present in the units. According to the American Housing Survey, there is, on average, only a little over one school-aged child for every two households in the U.S. The number is about 0.6 per household for single family and under 0.4 per household for multifamily. So education costs per housing unit are lower than costs per pupil, simply because there is less than one pupil per household.

Beyond that, a share of households typically send their children to private schools. According to the National Center for Education Statistics (NCES), the share is 12.6 percent of all school-aged children nationally. As public monies are very rarely used to pay for private instruction, this tends to further reduce K-12 public school expenses, although the extent to which that occurs varies from place to place. Moreover, according to the NCES another 1.7 percent of students nationwide, ages 5 to 17, with a grade equivalent of kindergarten through grade 12, are homeschooled, which further acts to reduce the cost of public education.

In addition to current expenses, providing services to residents requires that local governments make capital expenditures for items such as schools and other buildings, equipment, roads, and other structures.

Estimating capital costs is in general a more difficult and complicated problem than estimating current expenses. The approach used here is to estimate a conventional economic model, where costs are expressed as a function of labor and capital, with state level data. (Information about state and local government capital in each state can be estimated through a procedure that has been established over several decades in the technical literature on public finance; see the technical appendix for details.) The results are then applied to a local area, where information is available for every variable except capital. The local capital stock then emerges as a residual in the calculation. Consistent with the approach used to estimate current expenses, the amount of capital in each category is expressed as the amount necessary to accommodate an average housing unit (Table 2).

³ Information about vehicle trips comes from *Trip Generation*, published by the Institute of Transportation Engineers. Information about water consumption comes from *Analysis of Summer Peak Water Demands*, a study undertaken by the City of Westminster, Colorado Department of Water Resources and Aquacraft, Inc. Water Engineering and Management. Information about household size and number of children comes from the American Housing Survey, conducted by the U.S. Census Bureau for the Department of Housing and Urban Development.

Table 2.
State and Local Government Capital
Per Single Family Housing Unit
(in 2008 Dollars)

Schools	\$6,293
Hospitals	\$800
Other Buildings	\$1,848
Highways and streets	\$4,583
Conservation & development	\$137
Sewer systems	\$2,024
Water supply	\$3,343
Other structures	\$2,428
Equipment	\$192
Total	\$21,648

To implement these numbers, several conservative assumptions are made to avoid understating the costs. In contrast to the way current expenses were handled, Federal intergovernmental transfers are not taken into account here—it is assumed that state and local governments undertake all capital investment without any help from the Federal Government. The exception is highways and streets, for which the amount of current expenditures per dollar of capital is typically quite low. It is further assumed that none of this demand for capital can be met through current excess capacity. Instead, state and local governments invest in new structures and equipment at the start of the first year, before any homes are built. To the extent that this is not true—that, for instance, some revenue from impact or other fees is available to fund part of the capital expenditures—interest costs would be somewhat lower than reported here.

To compare the streams of costs and revenues over time, the analysis assumes that half of the current expenses and half of the ongoing, annual revenues are realized in the first year. This would be the case if construction and occupancy took place at an even rate throughout the year. Revenues in the first year also include all of the one-time construction impacts such as impact and permit fees.

The difference between revenues and current expenses in a given year is an operating surplus. At the start of the first year, capital investment is financed through debt by borrowing at the current municipal bond interest rate,⁴ and the interest accrues throughout the year. Each year after that, the operating surplus is used first to pay the interest on the debt, if any exists, then to pay off the debt at the end of the year. The results for the 1,000 new single family homes built in Wisconsin in 2008 are shown in Table 3.

⁴The interest rate on municipal bonds is the monthly Bond Buyer 20-year General Obligation Municipal Bond Index available on the Federal Reserve Board's Web site:
http://www.federalreserve.gov/releases/h15/data/Monthly/H15_SL_Y20.txt.

Table 3. Results for 1,000 Single Family Homes

Year	Current Expenses	Revenue	Operating Surplus	Capital Investment Start of Year	Debt Outstanding End of Year	Interest on the Debt	Revenue Net of Costs and Interest
1	5,958,500	36,006,437	30,047,937	21,648,000	0	952,692	7,447,245
2	11,917,000	12,392,122	475,122	0	0	0	475,122
3	11,917,000	12,392,122	475,122	0	0	0	475,122
4	11,917,000	12,392,122	475,122	0	0	0	475,122
5	11,917,000	12,392,122	475,122	0	0	0	475,122
6	11,917,000	12,392,122	475,122	0	0	0	475,122
7	11,917,000	12,392,122	475,122	0	0	0	475,122
8	11,917,000	12,392,122	475,122	0	0	0	475,122
9	11,917,000	12,392,122	475,122	0	0	0	475,122
10	11,917,000	12,392,122	475,122	0	0	0	475,122
11	11,917,000	12,392,122	475,122	192,000	0	0	283,122
12	11,917,000	12,392,122	475,122	0	0	0	475,122
13	11,917,000	12,392,122	475,122	0	0	0	475,122
14	11,917,000	12,392,122	475,122	0	0	0	475,122
15	11,917,000	12,392,122	475,122	0	0	0	475,122

The difference between revenues (the third column) and all costs, including interest on the debt, is shown in the last column. Revenue net of costs and interest is positive every year, beginning with the first.

In fact, revenue net of costs and interest is sufficient to pay off all debt by the end of year one. After that, revenue net of costs generated by the 1,000 single family homes is roughly \$475,000 per year.

Net revenue is lower than \$475,000 in year 11, due to a cost increase that occurs because capital equipment purchased at the start of the first year becomes fully depreciated and needs to be replaced at that time. All other capital investment consists of structures of various types, and these tend to have considerably longer service lives.