WORKFORCE HOUSING:
THE KEY TO ONGOING REGIONAL PROSPERITY

A Study of Housing's Economic Impact on the Twin Cities

September 2001

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Dear Funders:

We are pleased to present our study of workforce housing in the Twin Cities.

The study considers the interdependence between housing that is affordable to the typical worker in the Twin Cities and the continued economic vitality of the region. Based on our research, we believe that there is a need to build 31,700 workforce housing units in the Twin Cities during the next five years, assuming that the local market supplies an additional 10,000 units on its own. Because of soaring development costs, the private market cannot afford to address all of the need, and subsidies will be required to meet this demand. Nonetheless, we found that the return on this investment would be substantial: The net economic benefit to the Twin Cities economy of constructing these needed units could be as much as $2.8 billion through 2005, and up to $12.2 billion over the next 15 years.

Delays in meeting this demand are detrimental to the economy. Without new workforce housing construction, household growth in the Twin Cities will be stalled to a great degree, and the economy will fail to capture revenues that would otherwise be spent by new households for housing, consumer goods and services, and local, consumer-based taxes. As well, local businesses, because of the lack of housing to accommodate new workers, will lose out on the opportunity to expand, capture greater revenues and pay business-related taxes. Taken together, these losses will total as much as $2.7 billion over the next five years, and up to $1.1 billion for each subsequent year that the need goes unsatisfied.

We hope that this study will contribute to subsequent discussions on the construction of new workforce housing in the Twin Cities. We are grateful to the Family Housing Fund and the other funders for providing the essential resources to conduct this work.

Sincerely,

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Introduction

Determining the economic impact of housing in any form is a difficult task. Housing affects, and is affected by, many other variables, most notably labor market and household characteristics, the transportation infrastructure and job densities and locations. Addressing housing's economic impact requires a researcher to make assumptions for a wide range of variables – housing obsolescence, housing vacancy, labor market conditions, production levels, and more – over different periods of time.

We chose to pursue this assignment – despite its difficulty – for a variety of reasons. First, as real estate researchers, we see the value of housing in virtually all of the studies that we complete. However, it is rare for us to be able to study in great detail housing's impact on the broader region. This task gave us a unique opportunity to gain firsthand experience into the broad-reaching importance of housing.

Second, we found very little research that estimates the economic return on housing investment. Such knowledge, we believe, would have strong and lasting value to the real estate community, the business community, developers, housing policy makers, neighborhood groups and government in general. Conducting research regarding housing's economic value establishes a starting point for further research and discussion, hopefully leading to effective solutions endorsed by all members of the community.

Finally, we completed this research because the time was right. So much of our world has changed recently and housing is one component that adds stability to our society. Housing affects everyone, regardless of income, occupation or lifestyle. Housing, therefore, should have a very high priority in the public policy arena. We hope that this study will allow us to contribute to the setting of priorities in our community.

Some points became clear to us in the process of doing this research: 1) there is strong unmet need for workforce housing in the Twin Cities, and the problem will only grow unless housing production increases significantly, 2) not addressing the need for workforce housing has significant, near-term consequences to the local economy, and 3) working to solve the workforce housing problem will stimulate significant economic benefits that far outweigh the costs, and last for decades.

We recognize that our research methods represent just one approach. However, we believe that the above conclusions would become clear to any researcher looking at this issue, using a logical, reasonable methodology.

Study Purpose

- This study examines the relationship between housing that is affordable to the typical worker in the Twin Cities (termed "workforce housing") and the ongoing vitality of the region. The lack of workforce housing has emerged as one of the most critical issues facing the Twin Cities.

- Those who hold workforce jobs represent the majority of all Twin Cities workers and are often the essential, frontline workers in the economy, holding such positions as light manufacturing

worker, police officer, teacher, bus driver, nurse, retail salesperson and restaurant server. Understanding the housing needs for this segment of workers is therefore critical to the ongoing prosperity of the region.

- For the purposes of this study, workforce households are those who earn between $15,000 and $50,000 gross income annually. Workforce housing is either a rental unit with monthly rent between $375 and $1,250 or an owned unit priced below $125,000.

Scope of Research

- This study measures demand for workforce housing in the seven-county Twin Cities metro area, currently and over the next five years. We calculate the cost to produce all needed units, including the amount of subsidy investment that we believe would entice private developers to create affordable housing within the current development context.

- This study also estimates the economic impact of workforce housing and calculates the return on investment to the entire region if the full community can engage the private sector to tackle the issue of workforce housing development.

Origins of the Workforce Housing Crisis

- Strong commercial growth during the 1990s created over 254,000 new jobs in the Twin Cities, most of which pay workforce-level wages. Unfortunately, production of workforce housing dropped significantly during the same period.

- Housing construction continues to be suppressed by systemic problems including high land and construction costs, local opposition to multifamily development and a lack of suitable land for development, zoned such that workforce housing in a variety of forms can be produced.

Indicators of the Need for Workforce Housing

- The Twin Cities has among the tightest housing markets in the nation. According to the 2000 census,[1] the seven metro counties fell into the top one percent among all U.S. counties for lowest vacancy rate; all had an overall vacancy rate of 3% or less.

- Roughly 9,900 units are currently needed across the Twin Cities just to bring the market to a healthy vacancy level, including 6,800 new rental units and 3,100 new owner units.

[1] *Vacancy signs are rare in the Twin Cities*, Demographics Daily, June 1, 2001 (http://bizjournals.bcentral.com/journals/demographics/doc/2001/06/01/1.html). This article based its findings on a review of 2000 U.S. Census housing occupancy figures for all counties in the country.

- There are about 10,000 housing units metro-wide that are vulnerable to demolition. In reality, many of these units are occupied with working households, further justifying the need for immediate housing construction.

- The Twin Cities metro area has over 64,000 unfilled jobs, 3.1 % unemployment, and the highest overall labor participation rate in the country. These facts suggest that virtually all Twin Cities residents who wish to work have jobs, and that employers with job openings will likely need to attract workers from outside of the metro area. This will require new housing.

- Housing production in the counties surrounding the Twin Cities will do little to help meet workforce housing needs in the metro area as these areas offer very little new rental housing at any price level, and new owner housing typically starts at prices above workforce affordability.

Estimates of Demand for Workforce Housing

- Currently, 88% of the unfilled jobs in the Twin Cities (roughly 57,000 jobs) pay $18.00 per hour ($37,000 per year) or less. We estimate that 5,000 new households would move to the Twin Cities to fill some of these jobs if new housing were available. We term this pent-up demand.

- Job growth will create the need for 26,800 new workforce units over the next five years, not including the 5,000 units mentioned above. After subtracting out expected construction of 10,000 units, we estimate that there will be a shortfall of 16,800 workforce housing units in the Twin Cities over the next five years. This number could change given the growing level of uncertainty in the economy. However, over the next five years, some level of new job creation is highly likely in the Twin Cities, leading to the need for more housing.

- In total, we believe that the full community needs to commit to the construction of 31,700 new workforce units in the region over the next five years, including 25,400 rental units and 6,300 owner units. This would satisfy pent-up demand, meet new housing demand over the next five years and create a healthy vacancy rate among new workforce units, which is crucial to allow households adequate housing choices from which to select.

Subsidy Required to Develop New Units

- The existing cost structure for housing makes the development of workforce housing financially unfeasible for the private sector. A private developer would likely lose about $31,000 per unit trying to develop average-size, new owner workforce units and about $43,000 per unit trying to develop typical workforce rental units.

- We estimate a need for about $1.5 billion in gap financing to develop the 31,700 workforce housing units that we believe are needed in the Twin Cities over the next five years. This translates to an average of $48,750 per rental unit and $41,500 per owner unit. We make no

assumptions about who provides the gap financing, however we believe that it will likely need to come from a variety of private and public sources.

- The $1.5 billion subsidy outlined above is based on the current context for development in the Twin Cities, in terms of development costs, typical development patterns, consumer expectations and existing housing and zoning regulations. Development-friendly changes in any of these variables, such as increased allowable densities or the market's acceptance of smaller units, could substantially reduce the needed subsidy.

Economic Impact of Workforce Housing

- The Twin Cities loses out on roughly $128 million in annual consumer spending because it does not provide workforce housing to meet pent-up demand. The lack of workforce housing also causes Twin Cities businesses to lose out on an estimated $137 million in income annually because prospective workers cannot find housing.

- In total, the Twin Cities forgoes an estimated $265 million in combined consumer spending and business income per year because there is a current shortfall of workforce housing.

- If the Twin Cities completed workforce housing construction equal to the need over the next five years, substantial economic benefits would accrue. The construction task alone adds an estimated $1.6 billion to the local economy, in the form of increased construction wages and development fees and assessments paid to local governments.

- Once the new workforce units that we believe are needed become occupied with new households, the Twin Cities can expect to capture $523 million in new, annual consumer spending and about $564 million in annual income gains to local businesses.

- The net benefit for producing all needed units would approach $3 billion during the five-year construction period. Roughly $1.1 billion in consumer spending and increased business income would recur on an annual basis in the Twin Cities economy, once new units become occupied.

Return on Investment

- Investment in just a portion of the capital required to produce the workforce units needed over the next five years would stimulate a substantial long-term economic gain for the Twin Cities. We estimate that $1.5 billion in subsidy for new workforce housing would generate a net gain of $12.2 billion to the regional economy over the next fifteen years, or about $385,000 per unit.

- Each dollar of subsidy investment would stimulate a net gain of $8.13 in economic benefit to the entire region over the next 15 years, an eight-fold return.

Conclusions

- Without substantial investment in workforce housing, the prosperity we have enjoyed as a region is in jeopardy.

- The current situation in the workforce housing market – the lowest vacancies in the country, low housing production levels and rapidly-rising housing costs – leaves the Twin Cities in a poor position to accommodate new economic growth, much of which will require housing construction to house workers moving here from outside of the region.

- Supplying an adequate amount of workforce housing is critical for the Twin Cities to compete with other metropolitan areas. Every positive move to resolve the shortage of workforce housing makes the Twin Cities region stronger in the competition to capture new economic growth. Conversely, poor responses to the problem weaken the region relative other metro areas, some of which are developing creative solutions to their workforce housing problems.[2]

- Given that 90% of current job openings and the majority of existing jobs pay workforce wages or below, the Twin Cities economy depends to great extent on workforce housing construction.

- The private market would have strong interest in addressing the workforce housing shortage if it were financially feasible. By investing enough to make the development task reasonably profitable, the providers of gap financing could stimulate a strong response from the private sector, leading to a tremendous gain for the regional economy.

- The $1.5 billion housing subsidy we identify is rather small compared to other state investments such as roads and highways. In 2001 alone, more than $522 million will be spent on road construction in the seven counties, much of which only targets deferred maintenance or regular maintenance, and not expansion of the system.[3] We see investment in housing as a wise use of funds targeted to strengthening the community.

- Leaders in the region should not wait until the full $1.5 billion in needed housing subsidy is assembled. Incremental steps to solving the workforce housing shortage will produce valuable, incremental benefits for the regional economy.

- Devoting money to housing is an investment that lasts for decades. Housing construction brings new households into a market, helps employers more easily attract workers and creates a larger base of consumers for retailers. Once the task of construction itself is done, these benefits last as long as the units are maintained and desirable to the market.

[2] For example, in Douglas County, Colorado (metro Denver) Intermountain Rural Electric Association provides up to $30,000 toward a home purchase by its employees (*Housing becomes a perk*, The Denver Business Journal, September 29, 2000, http://denver.bcentral.com/denver/stories/2000/10/02/story5.html).
[3] *2001 Twin Cities Metro Area Highway Construction Projects*, The Minnesota Department of Transportation (http://www.dot.state.mn.us/metro/construction/).

Purpose of Study

This study identifies and explores the relationship between the availability of housing for the workforce in the Twin Cities and the sustained, economic vitality of the region. The lack of workforce housing has emerged as one of the most critical issues facing the Twin Cities in years to come.

This study defines "workforce housing" as for-sale or rental housing that is affordable to workforce households, whose members collectively earn between $15,000 and $50,000 per year (between about $7.25 and $24.00 per hour). Those who hold workforce jobs are often the essential, frontline servers in the economy. They may be single persons with or without children, or married persons, one (or occasionally, both) with a workforce job. Examples of "workforce" jobs include light manufacturing worker, police officer, teacher, bus driver, nurse, retail salesperson and restaurant server.

The study defines a housing unit as "affordable" to the workforce if it consumes not more than 30 percent of the household's income (for rental) or falls within owner affordability standards common among lenders.[4] Consequently, an affordable workforce housing unit is either a rental unit with monthly rent between $375 and $1,250 per month or an owned single-family home, townhome or condominium priced below $125,000.

The importance of the workforce sector to the full economy cannot be overstated. Workers earning workforce wages fill the majority of jobs in nearly every sector of the economy, especially services, retail trade and manufacturing, the three largest industry sectors.

Scope of Research

The study first measures demand for workforce housing in the Twin Cities, both currently and over the next five years. This is presented in Chapter 2. Based on these figures, the study then calculates, in Chapter 3, the cost to produce all needed units, presenting why this development task is not economically feasible for the private market. This chapter also quantifies the amount of subsidy, or gap financing, that we believe would entice private developers to create affordable housing given the current development context.

In Chapter 4, the study estimates the economic impact of workforce housing in the Twin Cities from two perspectives: 1) the cost of not meeting current, pent-up demand and 2) the benefits of constructing units needed currently and over the next five years.

In Chapter 5, the study calculates the return on investment to the entire region if key community players and the private housing sector, working together, tackle the issue of workforce housing development. As this part of the study shows, the return on investment in workforce housing is substantial. In the last

[4] We used the following guidelines to determine mortgage capacity: 3% downpayment, interest rate at 7.75 percent, 30-year fixed term, 12 to 15 percent household debt. Monthly payment includes principal, interest, taxes and insurance.

chapter, we draw conclusions about the workforce housing need facing the Twin Cities and the reasons why the full community must act soon.

Origins of the Workforce Housing Crisis

Strong commercial growth occurred throughout the Twin Cities during the 1990s, most of it happening in the western portion of the metro area. This boom created 254,000 new jobs in the region, most of which offered workforce-level wages. This in turn, generated increased demand for workforce-affordable housing.

Unfortunately, construction of workforce housing, both rental and owned, dropped significantly during the same period. Instead of occupying new units that were suitable and affordable to them, workforce households turned to any unit available, squeezing out over 21,000 units from the Twin Cities vacancy pool during the decade, dropping the overall vacancy rate from 5.1% to 2.5%.

The lack of production of rental units in recent years, especially, has had a significant impact on the workforce sector, as most of these households can now only afford to rent. Initially, rental housing production declines were attributed to the 1986 federal tax law changes and the failure of the savings and loans; both drove away investors and investment funds. Also, a shift in focus away from low-income housing investment by the federal government negatively affected the supply of new affordable units beginning in the 1980s.

In the 1990s, production shortfalls have been further exacerbated by high property tax rates, escalating land, labor and construction costs and strong local opposition to workforce housing development. As well, restrictive zoning laws in many communities have severely constrained the number of parcels that can be developed with multifamily housing in general, and rental housing in particular. What little rental construction that has occurred in this past decade has been mainly targeted at the middle- and upper-income households, rather than at the moderate-income workforce.

Now, following 15 years of scant construction, the Twin Cities rental market has devolved into a situation of rapidly rising rents and the absolute lowest vacancy rates in the nation, both of which further compound the problem of insufficient workforce housing supply. Currently, the average market rent for an apartment in the Twin Cities is about $840 per month, which is workforce-affordable only at the higher end of the affordability scale.

The single-family market has been similarly deficient in providing affordable product to the workforce in recent years. During the 1990s, the average home sale price increased by nearly 60 percent to more than $170,000 (2001), a rate of increase far above average workforce wage increases. Price increases for new homes are mostly attributable to increases in development costs during this period, especially for land and construction. The widening gap between incomes and typical home prices has essentially eroded the base of owned units that are affordable to the workforce.

Research Methodology and Data Sources

Determining New Construction Needed to Create a Healthy Vacancy Base

To determine the current level of need for workforce units in the Twin Cities, we had to start with a thorough inventory of workforce housing units, both rented and owned. We accomplished this by retrieving property information records for roughly 800,000 owner and rental units from public and private databases. Knowing the current supply of workforce housing enabled us to determine the housing need due to insufficient vacancies, just one component driving the need for new construction.

We developed our workforce rental unit inventory by merging current inventories of apartments by price from GVA Marquette Advisors and Maxfield Research Inc. These surveys comprised roughly 120,000 units in the Twin Cities, or about 40 percent of the overall rental unit supply. We adjusted this inventory in light of: 1) rental unit counts from the 1990 Census, updated to reflect new unit construction that occurred between 1990 and 2000 as reported by the Metropolitan Council, and 2) increases in market rents during this period.

To determine the number of owner workforce housing units across the Twin Cities, we relied on Vista Information Services, which maintains a database of assessed property values for the entire region. On the advice of the Minnesota Department of Revenue, we adjusted individual property values upward by 10 percent to reflect a more realistic market value. The assessed market value of a home is often lower than its actual market value, since not all homes are subject to annual valuation adjustment by local assessors. This is particularly true in a market of rapidly escalating prices such as the Twin Cities.

Based upon this research, we derived an estimate of roughly 593,000 workforce housing units in the Twin Cities in 2000, including 271,000 rental units[5] and 322,000 owned units.

Determining New Construction Needed to Satisfy Pent-Up Demand

Another component of demand comes from households that, in theory, would move into the Twin Cities, but cannot due to a lack of suitable, affordable housing.[6] To consider this issue, we looked at estimates of unfilled jobs and average wages in the region as tallied by the Minnesota Department of Economic Security (MDES). Applying the typical number of workforce jobs per workforce household (1.32, the methodology for which is explained in Chapter 2), we calculated the number of households that unfilled jobs could support, and ultimately the number of households that would likely move here given new workforce housing. We compared this estimate to the amount of recent construction that should have been targeted to workforce housing in the Twin Cities in recent years but was not, deriving a conservative estimate of "pent-up" demand.

[5] This includes all subsidized units whose quoted rent would be affordable to workforce households.
[6] Chapter 2 explains the reasoning behind our belief that this is a substantial source of demand.

Determining Future Demand for Workforce Housing

The last component driving total demand for workforce housing is job growth. Since most of the jobs created in this economy pay workforce wages, most of the housing built should be priced to households earning workforce wages.

For this, we relied on employment projections for the Twin Cities region for 1996 to 2006, published by MDES[7]. These projections indicate that the region will add roughly 260,000 jobs in this ten-year period; we assumed job growth will be parceled out equally in each of the ten years, and that half the growth (130,000 jobs) would occur between 2001 and 2006. From this figure, we made estimates of the number of housing units that would likely be demanded due to new jobs, and the subset of new units that should be built for workforce households, based on an average of 1.32 jobs per household.

Recent national events have created uncertainty in the economy, but the impact of this uncertainty on job growth in the Twin Cities has yet to be determined. We believe that some level of new job creation in the Twin Cities is highly likely over the next five years and that the projections from MDES will still hold. Indeed, recent job growth estimates from MDES indicate that the region is well ahead of where it is expected to be at this point, based on the projections made in 1996.

Calculating the Cost to Develop Workforce Housing and the Corresponding Subsidy Investment

For this task, we relied on the opinion of for profit and non-profit housing developers. Representatives from local firms helped us define typical unit sizes for both new rental and owner units, as well as typical costs and revenues. Using this data, we developed pro-forma statements to determine the level of return on development, absent any subsidy investment.

We either completed interviews with representatives from the following development firms or reviewed housing cost data that they provided: Twin Cities Housing Development Corporation, Rottlund Homes, Gavzy Group, LLC and Hunt Gregory. We also reviewed development and operating cost estimates from the Minnesota Housing Finance Agency, the Institute of Real Estate Management (IREM) and a January 2001 report on affordable housing from the Minnesota Office of the Legislative Auditor.

After determining the amount of shortfall for both new rental and owner construction, we added in enough subsidy to provide a 10% return to the developer. Multiplying this by the number of units that we believe are needed yielded the total subsidy that we believe is required to spur the private market to develop workforce housing.

[7] *Employment Projections by Industry, Twin Cities Metro Area (7 Counties), 1996-2006*, Minnesota Department of Economic Security, (http://www.mnworkforcecenter.org/lmi/proj/tcind.htm).

Other Miscellaneous Data Sources

Throughout the report, and especially in the two chapters that examine the economic aspects of workforce housing development and its investment return to the economy (Chapters 4 and 5), we utilized several sources for individual statistics. The key sources include:

- *Annual Demographic Survey, A Joint Project Between the Bureau of Labor Statistics and the US Census*, Table HINC-01, Selected Characteristics of Households, by Total Money Income in 1999 (http://ferret.bls.census.gov/macro/032000/hhinc/new01_001.htm).[8]

- *2000 Profiles Of General Demographic Characteristics*, US Census Bureau, as presented on the Minnesota Planning Datanet webs site (http://front.mnplan.state.mn.us/datanetweb /sf1summaryprofiles.html). This source provided the owner and overall housing vacancy rates for the Twin Cities metro area.

- *Bulletin 2537, Geographic Profile of Employment and Unemployment, 1999*, Bureau of Labor Statistics (http://stats.bls.gov/opub/gp/pdf/gp99_24.pdf). This document provided labor force participation rates by gender for the top 50 MSAs and PMSAs in the country.

- *Regional Accounts Data, Gross State Product Data*, US Bureau of Economic Analysis, June 2001 (http://www.bea.doc.gov/bea/regional/gsp/). This source provided estimates of the amount of business income that each worker in Minnesota produced, on average in 1999 ($22,091), given average state employment of 2,551,947 in the same year (http://www.mnworkforcecenter.org/ lmi/es/ann-summ.htm). We assumed that the business income figure represents the amount that each workforce job contributes to local employers on average, and trended it up by 3.5% annually to derive the 2001 estimate ($23,700, rounded).

- *Housing's Direct Economic Impact*, National Association of Homebuilders (http://www.nahb. com/facts/economics/houdir.html). This source provided estimates of the economic impact of new housing construction (new jobs and average construction wages per unit).

- *Local Area Unemployment Statistics*, United State Department of Labor, Table 1. Civilian labor force and unemployment by state and metropolitan area (http://stats.bls.gov/news.release/metro. t01.htm. This web site provided the unemployment estimate for the Twin Cities as of July 2001 (3.1%).

- *Older Housing in the Twin Cities Metro Area: The Forgotten Issue*, North Metro Mayors' Association, November 1996. This source provided the best, recent estimate of housing that is vulnerable to demolition in the Twin Cities.

[8] This source presents detailed estimates of household income and other employment characteristics for the west north-central states in 1999, providing the basis from which we derived two pieces of information about workforce households in the Twin Cities: 1) estimates of the number of jobs per household (1.32), and 2) the average household income in 2001 ($37,100).

Introduction

In this section, we present our estimates of workforce housing demand in the Twin Cities. Quantifying demand enables us to subsequently estimate the costs of construction to meet demand, the subsidy required to spur such construction and the economic gains that could accrue to the Twin Cities by keeping pace with workforce housing need.

Our demand estimates are divided into two segments:

1. Current demand – need that currently exists as a result of an inadequate level of workforce housing construction over the past 15 years.

2. Projected demand – workforce housing need that will emerge over the next five years as a result of job growth in the Twin Cities.

Current demand is comprised of two elements: units that are needed to bring the market up to a healthy, reasonable level of vacancies and units needed to attract households that, given new housing, would consider moving into the Twin Cities to fill jobs that go unfilled due to lack of workers. This latter group represents "pent-up" demand for housing – demand that is currently not being satisfied.

Current Workforce Housing Demand (Table 1)

<u>New Units Needed to Create a Vacancy Base That Provides for Ongoing Consumer Choice</u>

Healthy housing markets need vacant units to provide an adequate selection for prospective tenants, whether they are "moving up" to more suitable housing or moving into a market area from outside of it. Housing economists cite a 5% vacancy base as optimal among rental markets and 1% to 2%[9] as optimal among owner markets.

Current estimates of vacancy in the Twin Cities[10] place the rental vacancy at about 2.5% and the owner vacancy rate at about .5%, both well below their respective optimal levels.

Part 1 of Table 1 presents the calculations to determine the number of units that need to be constructed to bring the Twin Cities to the optimal vacancy level for rental and owner housing. We start with estimates of the supply of workforce rental and owner units, then apply the ideal and actual vacancy levels. The difference between the ideal and actual vacancy levels reveals the level of shortfall (needed construction) that currently exists.

[9] Vacancy costs for owner units are usually absorbed by individual owners, rather than spread among many units, as with most rental vacancies. As well, owner housing is often a choice rather than a necessity for most households; many new homes are not built speculatively, but are constructed in "build to suit" fashion for one family. All of these factors lead housing economists to conclude that the optimal vacancy level among owner units is lower than that for rental units.

[10] Based on housing occupancy surveys done within the past year by the US Bureau of the Census (2000 Census), Maxfield Research Inc. and GVA Marquette Advisors.

TABLE 1
CURRENT DEMAND FOR WORKFORCE HOUSING
TWIN CITIES METRO AREA
2001
(all numbers rounded)

			Rental		Owner
Part 1: New Units to Create Vacancy Base That Provides for Ongoing Consumer Choice:					
A.	Estimated, Current Workforce Units [1]		271,000		323,000
	(times)				
B.	Ideal Vacancy Rate [2]	x	5.0%	x	1.5%
	(equals)				
C.	Ideal Number of Vacant Workforce Units	=	13,600	=	4,800
	(minus)				
D	Estimated, Current Vacant Workforce Units [3]	-	6,800	-	1,700
	(equals)				
E.	Shortfall of Vacant Units	=	6,800	=	3,100
F.	**Total: New Units Needed to Bring Market to Normal Vacancy Standards**				**9,900**
Part 2: New Units to Allow Workers to Move Into the TCs to Fill Vacant Jobs:					
G.	Estimated Unfilled Jobs That Could Support Workforce Households [4]				33,000
	(divided by)				
H.	Estimated Jobs Per Workforce Household [5]			/	1.32
	(equals)				
I.	Estimated Workforce Households That Could Be Supported by Unfilled Jobs			=	25,000
	(times)				
J.	Estimated % of Households That Would Reside in the TCs, Given New Housing [6]			x	20%
	(equals)				
K.	**Total: HHs That Would Move to Fill Jobs if Workforce Housing Were Available**			=	**5,000**
L.	**Total: Workforce Units Needed Immediately in the Market (F+K)**				**14,900**

Sources and Notes:

(1) Rental count methods and sources: 1990 Census housing counts by rental value, by city, adjusted for 2001 to reflect average price increases by city over the past 11 years (per surveys by Maxfield Research Inc. and GVA Marquette Advisors). We added to this count the number of building permits from 1990-2000 (per Met Council), making assumptions about how many new units were offered at workforce-affordable prices. Owner count methods and sources: We collected housing totals by assessed value, by city, as tallied by Vista Info Services from each metro county assessor's office in 2000. This tally represents a nearly 100% count of units. We increase assessed value per unit by 10% to reflect a more realistic market value.

(2) 5% vacancy among rental units is an industry standard; 1.5% for owner units is roughly the historical norm for the Twin Cities.

(3) 2.5% renter vacancy per survey by Maxfield Research Inc. and GVA Marquette Advisors; .5% owner vacancy per the 2000 Census, Profile of General Demographic Characteristics (http://front.mnplan.state.mn.us/datanetweb/sf1summaryprofiles.html).

(4) Minnesota Job Vacancy Survey, 2nd Quarter 2001, Minnesota Department of Economic Security, August 9, 2001 (http://www.mnworkforcecenter.org/lmi/vacancy2q/index.htm). According to this document, 64,331 jobs were unfilled in the Twin Cities as of the 2nd Quarter 2001, 88% of which paid less than $18 per hour (annual income of $37,400). For this table, we assumed that 60,000 jobs paying $50,000 or less are open. We multiplied this figure by 55%, which is the percentage of jobs under $50,000 that support workforce-wage households (the remainder support households earning above workforce wages). This yields an estimate of the number of open jobs that could support workforce-wage households (33,000).

(5) Table HINC-01, Characteristics of Households by Total Money Income in 1999, Annual Demographic Survey, A Joint Project Between the Bureau of Labor Statistics and the U.S. Census, (http://ferret.bls.census.gov/macro/032000/hhinc/new01_001.htm). We multiplied the figure of 1.22 average wage-earners per household for households between $15,000 and $50,000 in the west north-central states by the overall number of jobs per wage-earner in the Twin Cities at the time of the census (1.08; 1.739 million persons employed in 1.607 million jobs). This yielded the average number of jobs per household for workforce households (1.32). This compares to an overall average of 1.57 jobs per household for all Twin Cities households at the time of the 2000 Census (1.607 million filled jobs/1.021 million households).

(6) HUD supports the notion that building housing would allow workers to enter a market to fill jobs, especially given the current situation in the Twin Cities (a substantial number of full-time job openings above $12 per hour, low unemployment and low housing vacancy). We believe that 20% is a reasonable, conservative figure as it represents just under one year's estimated demand for workforce housing, based on actual construction in the Twin Cities over the past decade.

Line F on the table shows that ***9,900 units are currently needed across the Twin Cities just to bring the market to a healthy vacancy level***. This breaks down to 6,800 rental units and 3,100 owner units.

Building to create a 5% vacancy rate is essential to the Twin Cities economy because it provides for housing choice, without which, the region may have difficulty keeping or attract working households. In an unusually tight market such as the Twin Cities, a household facing a poor set of housing choices might be compelled to seek employment in a metropolitan market in another state that has a better (relative) set of housing options. An ample selection of housing, then, would help ensure that the Twin Cities metro area remains as competitive as possible with the rest of the country as it seeks new workers and tries to keep existing ones.

New Units Needed to Allow Workers to Move Into the Twin Cities to Fill Vacant Jobs

In the Twin Cities, there are an estimated 64,300 jobs that are open, 25,000 of which offer full-time work at between $12 and $18 per hour (roughly $25,000 to $37,000 per year).[11] In addition, the region has an overall unemployment rate of just 3.1%,[12] well below the 4.5% rate considered to be "full employment" by economists. Furthermore, the Twin Cities has the highest labor force participation rate among the nation's fifty largest metro areas, well ahead of all other areas.[13] Finally, the Twin Cities has perhaps the highest rate of multiple jobholders of any large metro area in the country.[14]

Together, these facts suggest that the Twin Cities economy is operating at peak capacity, that local employers are employing virtually all available workers, and that desirable full-time jobs remain unfilled.

Given that nearly all available workers are employed, local companies with current openings will likely need to seek workers from outside of the metro area. Certainly, some jobs will remain unfilled because they are undesirable to the market, regardless of the availability of housing. However, regarding those openings that are desirable to the workforce, potential workers who might consider moving here will have great difficulty finding suitable housing due to the lack of vacant units. Furthermore, prospective workers that might consider commuting from the counties surrounding the 7-county metro area will likely also

[11] *Minnesota Job Vacancy Survey, 2nd Quarter 2001*, Minnesota Department of Economic Security Research and Statistics Office, August 9, 2001 (http://www.mnworkforcecenter.org/lmi/vacancy2q/index.htm). Nearly all of the full-time jobs between $12 and $18 per hour offer health insurance, vacation and sick time and other benefits.
[12] *Unemployment Statistics, Minnesota MSAs*, Minnesota Department of Economic Security, August 2001 (http://www.mnworkforcecenter.org/lmi/laus/msa.htm).
[13] *Geographic Profile of Employment and Unemployment, 1999: Estimates for Metropolitan Areas, Bulletin 2537*, Bureau of Labor Statistics (http://stats.bls.gov/opub/gp/gpsec3.htm). According to this survey, the Twin Cities had a labor force participation rate of 78.3 in 1999, well above second-place Dallas (75.0). The Twin Cities held the top spot for both male (84.3) and female labor participation (72.5).
[14] *Workforce Shortage? A Fact Book of Labor Shortage Indicators*, Minnesota Department of Economic Security; this publication listed Minnesota third overall among states in multiple jobholders, behind only the highly-rural states of Montana and North Dakota.

encounter difficulty obtaining affordable housing, as these areas provide very little rental housing[15] and new owner units are rarely priced at levels affordable to workforce families.

All of the above points lead us to the conclusion that the lack of available workforce housing is preventing a certain number of workforce households from residing in the Twin Cities and contributing to the economy. The second part of Table 1 shows our calculations of the size of this group.

The table starts with the estimate of 33,000 currently unfilled jobs that we estimate would, on average, support workforce households in the Twin Cities. Based on 1.32 jobs per household, this translates to about 25,000 workforce households that could be supported by current, local job openings.

We estimate that ***5,000 workforce households would move to the Twin Cities if housing were currently available***; this represents about 20% of the workforce households that could be supported by unfilled jobs. This estimate is well below one-year's worth of demand for workforce housing, based on actual construction levels in the Twin Cities during the last decade.[16] This estimate could be quite conservative, as little new construction over the past few years has actually been affordable to the workforce, perhaps leaving the equivalent of several recent year's worth of workforce housing demand unsatisfied.

A Note on Construction Needed to Replace Obsolete Housing Units

According to a 1996 study of housing condition,[17] there are perhaps 10,000 units across the metro area that are vulnerable to demolition, divided about equally between owner and rental units.[18] Given that the vast majority of these units are located in the central cities and first-ring suburbs, we assume that most of them, had they been maintained properly, would have been part of today's workforce housing stock.

[15] The 9 Minnesota counties that surround the Twin Cities have roughly 27,000 rental units, fewer than Dakota County. In addition, these areas added just 2,500 renter households during the 1990s, suggesting a low volume of new rental construction. Furthermore, many rental units in these counties are located well beyond a reasonable commuting distance to the job centers of the Twin Cities. We did not have 2000 census information for the three Wisconsin counties that border the seven core counties of the Twin Cities.

[16] Between 1990 and 2000, the seven core counties of the Twin Cities added roughly 12,500 new housing units per year. Given that roughly 50% of households in the metro area fall into the workforce income range, half of this new annual construction, or about 6,250 units, should have been targeted to the workforce. In actuality, however, very little new construction in the 1990s turned out to be affordable to the workforce. Instead, new workforce households simply occupied any unit available, squeezing roughly 21,000 units out of the vacancy pool, dropping the overall vacancy rate from 5.1% to 2.5% during the decade (per the US Census).

[17] *Older Housing in the Twin Cities Metro Area: The Forgotten Issue*, 1996 North Metro Mayors' Association, November 1996. The published version of this report incorrectly sums the number of units recommended for demolition. The correct sum of rental and owned units needing demolition, based on the city-by-city tally, is 9,762, which we rounded to 10,000.

[18] 10,000 uninhabitable units (about 1% of the housing stock) for the 7-county metro area is not an unreasonable number. According to the 1990 Census, 14,600 units in the Twin Cities MSA had no phone (1.5% of the stock), 3,500 units lacked complete kitchen facilities (0.4%), and 3,700 units lacked complete plumbing (0.4%).

Ten-thousand units that have deteriorated to the point of becoming uninhabitable is a difficult fact to consider in a market that desperately needs new housing. Had these units been maintained, 67% of the current need for new workforce housing (the vacancy cushion plus pent-up demand) would be satisfied.

In reality, some of the units needing demolition in the Twin Cities are occupied, especially in today's unusually tight housing market. This only adds to the current need for new workforce housing construction, by an unknown amount. This further leads us to believe that the estimate of 5,000 new workforce units needed immediately to satisfy pent-up demand is conservative.

Projected Demand, 2001-2006 (Table 2)

Table 2 outlines our workforce housing demand calculations over the next five years, based on projected job growth in the Twin Cities according to the Minnesota Department of Economic Security (MDES).

Based on these projections, as well as wage surveys from MDES, the Twin Cities will add an estimated 61,000 workforce-wage jobs from 2001 to 2006. We estimate that about 33,600 of these jobs (55%) will actually support workforce households.[19] Given an average of 1.32 jobs per workforce household, this results in demand over the next five years for 25,500 workforce units due to expected job growth.

Adding 1,300 additional units to create the healthy 5% vacancy cushion[20] yields total demand for 26,800 units of workforce housing due to job growth in the Twin Cities over the next five years.

Some of this demand will likely be met in the private market through modest-priced, owner townhome and apartment development, and through rental development using Low Income Housing Tax Credits. Recent tallies by the Met Council[21] and the Minnesota Housing Finance Agency[22] indicate that the total amount of new workforce housing construction will not likely exceed about 2,000 units per year (owner plus renter). This translates to 10,000 new units constructed over the next five years, well short of the 26,800 units that will be demanded because of job growth.

The net result is ***a shortfall of 16,800 workforce housing units that will be demanded over the next five years, but not satisfied by the private market. This is the amount of projected housing need that requires subsidy financing assistance. Without it, the units will not likely be built.***

[19] The remaining 45% of workforce jobs support households with total earnings in excess of $50,000, above workforce wage standards. See footnote 2 from Table 2 for an explanation of the methodology.
[20] We use the optimal rental vacancy cushion (5%) because we expect that the bulk of new demand will be satisfied by rental construction, as new owner construction in the region will likely be at rates unaffordable to the workforce.
[21] According to the Met Council, the average value for the 11,970 owner units constructed in 2000 metro-wide was $167,900, well above workforce-affordable standards. As well, our research into owner housing in the Twin Cities indicates that very little new product is offered below our workforce price cutoff of $125,000. (See footnote 5 from Table 2.)
[22] The MHFA has helped fund an average of 375 new, affordable rental units annually in the Twin Cities over the past 14 years, a fairly small proportion of the multifamily total in a typical year. According to the MHFA, this number will rise by 200 units per year within 5 years as higher tax-credit funding levels are phased in, however it will still fall well short of satisfying workforce housing demand. (See footnote 6 from Table 2.)

TABLE 2
PROJECTED DEMAND FOR WORKFORCE HOUSING
TWIN CITIES METRO AREA
2001-2006 (5 years)
(all numbers rounded)

Part 1: New Units Needed to Support Projected Workforce-Wage Job Growth Over the Next 5 Years			
A.	Projected Increase in Workforce-Wage Jobs Over Next 5 Years [1]		61,000
	(times)		
B.	Percentage of Jobs That Support Workforce Households [2]	x	55%
	(equals)		
C.	Workforce Jobs for Workforce Households	=	33,600
	(divided by)		
D.	Average Number of Jobs per Workforce Household [3]	/	1.32
	(equals)		
E.	New Workforce Housing Units Needed to Support Projected Job Growth	=	25,500
	(plus)		
F.	New Units to Create 5% Vacancy Cushion [4]	+	1,300
	(equals)		
G.	**Total: New Workforce Units Needed to Support Job Growth and Create Vacancy Cushion**	=	**26,800**
Part 2: Expected New Workforce Housing Construction Over the Next 5 Years			
H.	New Owner Units @ 600 per year average [5]		3,000
	(plus)		
I	New Rental Units @ 1,400 per year average [6]	+	7,000
	(equals)		
J.	**Total: New Workforce Construction Expected Over the Next 5 Years**	=	**10,000**
K.	**Total: Unsatisfied Demand for Workforce Housing Over the Next 5 Years (G minus J)**		**16,800**

Sources and Notes:

(1) *Employment Projections by Occupation, Twin Cities Metro Area (7 Counties), 1996-2006* , Minnesota Department of Economic Security, (http://www.mnworkforcecenter.org/lmi/proj/tcocc.htm). These detailed projections indicate that the region will add roughly 260,000 jobs between 1996 and 2006. We assumed job growth will be parceled out equally in each of the ten years, and that half the growth (130,000 jobs) would occur between 2001 and 2006. We merged these projections with 1998 estimates of wages by occupation, also from the MDES. This yielded employment projections for 1996-2006 by wage, from which we tallied the subset of jobs paying workforce wages.

(2) We determined this percentage using detailed estimates of the number of wage-earners by household income for the west north-central states from Table HINC-01, *Selected Characteristics of Households, by Total Money Income in 1999 Annual Demographic Survey, A Joint Project Between the Bureau of Labor Statistics and the US Census* (http://ferret.bls.census.gov/macro/032000/hhinc/new01_001.htm). These estimates indicated the number of jobs supporting households at various incomes (see footnote 5, Table 1). Based on this distribution, we allocated jobs by wage for the Twin Cities (from MDES wage and occupation tallies) to one of three categories: 1) those that support households under $15,000, 2) those that support households earning between $15,000 and $50,000 (workforce households) and 3) those that support households earning above $50,000.

(3) See footnote 5 from Table 1.

(4) Cushion is set at 5% for all new units, even though normal cushion is lower among owned units.

(5) According to building permits tracked by the Met Council, 11,970 new single-family homes and townhomes were constructed in 2000 at an average value of $168,000. Based on our review of new product marketed in the Twin Cities in the past year, we estimate that 5% of this owner total (600 townhome-style units) was priced at $125,000 or less, the cutoff price for affordable housing in this study. We use this annual figure for all future years.

(6) According to the Minnesota Housing Finance Agency, an average of 375 affordable units have been constructed annually through the low-income tax credit program over the past 14 years. The MHFA expects that this number will rise by 200 units per year within five years, when the per-capita allocation increase to $1.75 is fully phased-in. We added 800 units to this annual total to account for new, affordable market-rate construction, which we estimate to represent 20% of all new multi-family construction (roughly 4,000 units in 2000, after subtracting out tax-credit units). We also adjusted the annual to account for a 15% production increase of market-rate multifamily units due to the lowering of rental property tax rates.

Total Obligation Over the Next Five Years: Current Plus Projected Demand (Table 3)

Table 3 sums together units that we believe are needed immediately (Table 1) and those that are needed over the next five years (Table 2). In total, we believe that ***the Twin Cities community needs to commit to the construction of 31,700 workforce units over the next five years to meet demand from all sources***. We divide this need into ***25,400 rental units*** (80% of new construction) and ***6,300 owner units*** (20% of new construction). The relatively high proportion devoted to the rental market recognizes the particular difficulty developing owner housing at prices affordable to workforce households.

If all of the needed units were constructed at a constant rate over the next five years, the Twin Cities would add 6,340 new workforce units per year; this is over and above the estimated 2,000 workforce units per year that we expect will be constructed in the private market, assuming little change to the current development environment. The 6,340 new units would represent expansion of the current workforce housing base (an estimated 593,000 units) by about 1.1% per year, not including units lost to demolition. This is arguably a very conservative rate of increase.

TABLE 3
ALLOCATION OF NEEDED WORKFORCE UNITS BY TENURE
TWIN CITIES METRO AREA
2001-2006 (5 years)
(all numbers rounded)

A.	Net New Units Needed Immediately (2001)		14,900 (1)
	(plus)		
B.	Net New Units Needed Over Next Five Years (2001-2006)	+	16,800 (2)
	(equals)		
C.	Total New Units Needed 2001-2006	=	31,700
D.	**Rental Units (80%)**		**25,400**
E.	**Owned Units (20%)**		**6,300**

Notes:
(1) Units needed to bring the market to a normal vacancy level (9,900 units) plus units needed to satisfy pent-up demand (5,000 units).
(2) Units needed to keep pace with expected job growth, net of expected new construction.

Introduction

In this section, we present our estimates of the amount of subsidy (or gap financing) that we believe is required to achieve the level of workforce housing construction that the Twin Cities needs over the next five years. We first show the financial infeasibility (the amount of loss) of constructing workforce housing in the private sector alone. Then, we calculate the amount of subsidy investment that is required to entice the private sector to complete the development task, assuming that the private market would be motivated by a 10% return. We make no assumptions about who provides the subsidy or how it ends up with the developer, we simply show an injection of enough funds to offset the negative return and generate a 10% profit.

This section bases development costs on the breakdown of demand by tenure from the previous section: 25,400 rental workforce units and 6,300 owner workforce units.

Developing Needed Owner Workforce Housing

We make the following assumptions regarding the development of owner workforce units:

- New units would have an average sale price of $125,000[23]
- New units would have 1,300 square feet on average
- Development cost would be $115 per square foot [24]
- The development cost includes land (25% of total), labor, materials, fees, and overhead
- Development costs and sales revenues are in 2001 dollars

Financial Feasibility Without Subsidy (Table 4-A)

Table 4-A presents the feasibility of developing 6,300 needed workforce owner units in the Twin Cities without any financial subsidy assistance. The table presents the costs of building all of units and the revenues received by selling them.

The table shows that the aggregate cost of development for the units is roughly $942 million, or $149,500 per unit. Comparatively, net development revenues, at $125,000 per unit, add up to just $748 million. This creates revenue shortfall of nearly $194 million, or about $30,750 per unit. This is the amount of loss that would absorbed, on average, by a private developer attempting to build modest-sized owner product at the top-end of workforce affordability. The revenue shortfall would likely be greater if a developer tried to serve households whose down payment and income could afford something less than

[23] This would be affordable to a household earning about $50,000 per year (gross).
[24] The report from the Minnesota Office of the Legislative Auditor outlines the following minimum development costs: between $105 and $125 per square foot for owner housing and between $70 and $110 per square foot for rental housing. We used $115 for owner unit cost, reflecting no profit to the developer, and $95 for rental unit cost, the latter on the advice of an official at the Minnesota Housing Finance Agency (and again reflecting no developer profit).

$125,000 in home value. The amount of loss at the $125,000 sales threshold is equivalent to a –20.6% rate of return for the private sector.

TABLE 4-A
DEVELOPMENT FEASIBILITY:
6,300 WORKFORCE OWNER UNITS
Average Sale Price = $125,000
Average Unit Size = 1,300 Square Feet

DEVELOPMENT REVENUES	
Gross Sales Revenues	$787,500,000
Less: Brokerage Fees [(1)]	($39,375,000)
Equals: Net Revenues	$748,125,000
DEVELOPMENT COSTS	
Estimated Per-Unit Development Cost [(2)]	($149,500)
Total Units	6,300
Estimated Total Development Cost	($941,850,000)
SCHEDULE OF RETURNS	
Development Profit	($193,725,000)
Development Profit (%)	-20.6%
Profit per Unit	($30,750)

Sources and Notes:

(1) Based on interviews with developers and real estate agents, between 5% and 6% is a typical range for sales commission. We used the lower of this range, given that larger, high-volume developers often pay lower sales fees to their own employees, and offer a sales commission split of less than 3% to the agent representing the buyer, if the buyer even has one.

(2) @ $115 per square foot, based on information from *Program Evaluation Report: Affordable Housing,* Office of the Legislative Auditor, January 2001. See footnote 23 in the body of the report.

Gap Financing Required to Produce a 10% Developer Return (Table 4-B)

Table 4-B takes the same schedule of returns as in Table 4-A, but adds in enough subsidy to generate a 10% profit for the private sector. As is shown in the "Development Costs" section of the table, the level of subsidy needed to make the development of 6,300 new owner units profitable to the private sector is $41,500 per unit. This amount reduces the aggregate development cost for all units by more than $261 million, enough to generate a $68 million profit. This equates to about $10,800 of profit per unit.

TABLE 4-B
DEVELOPMENT FEASIBILITY REVISED:
6,300 WORKFORCE OWNER UNITS
Average Sale Price = $125,000
Average Unit Size = 1,300 Square Feet

DEVELOPMENT REVENUES	
Gross Sales Revenues	$787,500,000
Less: Brokerage Fees [(1)]	($39,375,000)
Equals: Net Revenues	$748,125,000
DEVELOPMENT COSTS	
Estimated Per-Unit Development Cost [(2)]	($149,500)
Plus: Per Unit Subsidy	$41,500
Equals: Per Unit Cost to Developer after Subsidy	($108,000)
Total Units	6,300
Estimated Total Development Cost	($680,400,000)
SCHEDULE OF RETURNS	
Development Profit	$67,725,000
Development Profit (%)	10.0%
Profit per Unit	$10,750

Sources and Notes:

(1) Based on interviews with developers and real estate agents, between 5% and 6% is a typical range for sales commission. We used the lower of this range, given that larger, high-volume developers often pay lower sales fees to their own employees, and offer a sales commission split of less than 3% to the agent representing the buyer, if the buyer even has one.

(2) @ $115 per square foot, based on information from *Program Evaluation Report: Affordable Housing,* Office of the Legislative Auditor, January 2001. See footnote 23 in the body of the report.

Developing Needed Rental Workforce Housing

We make the following assumptions regarding the development of rental workforce units:

- New units would rent, on average, at $800 per month[25]
- New units would average 1,100 square feet in size
- The cost to develop each unit would be $95 per square foot[24]
- Units would produce additional income of $25 per month from late fees, laundry, garage stalls, and other miscellaneous sources
- 5% of all units would be vacant
- Operating expenses would equal $324 per unit, per month[26]
- The development cost includes land, labor, materials, fees and overhead
- Development costs and all income streams are in 2001 dollars

Financial Feasibility Without Subsidy (Table 5-A)

Table 5-A presents the feasibility of developing the 25,400 workforce rental units that we believe are needed in the Twin Cities over the next five years, without any financial subsidy assistance. The table shows annual cash flow after the units are completed and rented.

The table shows that the net, aggregate operating revenue for these units would be about $140 million, taking into account all cost and revenue streams. The current market value of units with this net revenue stream, using a 9% capitalization rate, would be about $1.56 billion. In other words, a private investor would not likely pay more than $1.56 billion for the 25,400 workforce rental units that we suggest be built. This equates to roughly $61,300 per unit in market value.

Comparatively, the cost to develop these units would be nearly $2.7 billion, or $104,500 per unit. Subtracting market value from development cost yields a development profit of -$1.1 billion, or over $43,000 in loss per unit. In percentage terms, this is a substantial negative return of –41.3%. Clearly, the private market will not even begin to address the workforce rental housing need at a negative level of return, let alone the substantial negative return that is documented here.

[25] This would be affordable to a household earning about $36,000 per year (gross), assuming that 30% of gross income is spent on housing and that $100 additional per month is needed for utilities and other housing-related costs.
[26] Operating expenses cover the following: marketing, administration, property maintenance, taxes and insurance, utilities, financials and all other typical expenses. The operating expense estimate considers the effect of lower rental property tax rates that were enacted during the past legislative session.

TABLE 5-A
DEVELOPMENT FEASIBILITY:
25,400 WORKFORCE RENTAL UNITS
Average Rent = $800/Month
Average Unit Size = 1,100 Square Feet

DEVELOPMENT REVENUES	
Potential Gross Rental Income	$243,840,000
Potential Gross Miscellaneous Income [1]	$7,620,000
Less: Allowance for 5% Vacancy	($12,573,000)
Equals: Effective Gross Income	$238,887,000
Less: Operating Expenses [1]	($98,755,200)
Equals: Net Operating Income	$140,131,800
Cap Rate	9.0%
Indicated Value	$1,557,020,000
DEVELOPMENT COSTS	
Estimated Per-Unit Development Cost [2]	($104,500)
Total Units	25,400
Estimated Total Development Cost	($2,654,300,000)
SCHEDULE OF RETURNS	
Development Profit	($1,097,280,000)
Development Profit (%)	-41.3%
Profit per Unit	($43,200)

Sources and Notes:

(1) Ancillary income of $25 per unit per month and operating expenses of $324 per year: *Income and Expense Analysis: Conventional Apartments* , Instititute of Real Estate Management, 2000. Operating expenses are trended up by 3% to 2001 and reflect the new, lower rental property tax rates, fully phased in.

(2) @ $95 per square foot, based on information from *Program Evaluation Report: Affordable Housing* , Office of the Legislative Auditor, January 2001. See footnote 23 in the body of the report.

Gap Financing Required to Produce a 10% Developer Return (Table 5-B)

Table 5-B takes the same schedule of returns as in Table 5-A, but adds in enough subsidy, $48,750 per unit, to generate a 10% return for the private sector. This subsidy amount reduces the aggregate development cost for all 25,400 rental units by about $1.24 billion, leaving a $141 million aggregate profit for the private sector. This equates to about $5,500 of profit per-unit.

TABLE 5-B
DEVELOPMENT FEASIBILITY REVISED:
25,400 WORKFORCE RENTAL UNITS
Average Rent = $800/Month
Average Unit Size = 1,100 Square Feet

DEVELOPMENT REVENUES	
Potential Gross Rental Income	$243,840,000
Potential Gross Miscellaneous Income [(1)]	$7,620,000
Less: Allowance for 5% Vacancy	($12,573,000)
Equals: Effective Gross Income	$238,887,000
Less: Operating Expenses [(1)]	($98,755,200)
Equals: Net Operating Income	$140,131,800
Cap Rate	9.0%
Indicated Value	$1,557,020,000
DEVELOPMENT COSTS	
Estimated Per-Unit Development Cost [(2)]	($104,500)
Plus: Per Unit Subsidy	$48,750
Equals: Per Unit Cost to Developer after Subsidy	($55,750)
Total Units	25,400
Estimated Total Development Cost	($1,416,050,000)
SCHEDULE OF RETURNS	
Development Profit	$140,970,000
Development Profit (%)	10.0%
Profit per Unit	$5,550

Sources and Notes:

(1) Ancillary income of $25 per unit per month and operating expenses of $324 per year: *Income and Expense Analysis: Conventional Apartments* , Instititute of Real Estate Management, 2000. Operating expenses are trended up by 3% to 2001 and reflect the new, lower rental property tax rates, fully phased in.

(2) @ $95 per square foot, based on information from *Program Evaluation Report: Affordable Housing* , Office of the Legislative Auditor, January 2001. See footnote 23 in the body of the report.

Total Subsidy Investment Required to Spur Production of Needed Units (Table 6)

As Table 6 shows, ***we estimate the need for about $1.5 billion in subsidy or gap financing to develop the 31,700 workforce housing units that we believe are needed in the Twin Cities over the next five years.*** This would provide the private market with a reasonable 10 percent profit, as well as help defray the costs of land, development fees paid to local government, materials and labor, most of which haven risen dramatically in recent years.

The subsidy outlined above translates to ***an average of just over $47,000 per unit***, spread out over both the rental and owner units combined. This subsidy level is based on the current context for development in the Twin Cities, in terms of development costs, typical development patterns, consumer expectations and existing housing and zoning regulations. Development-friendly changes in any of these variables, such as increased allowable densities or the market's acceptance of smaller units, could substantially reduce the needed subsidy.

TABLE 6
SUMMARY: FINANCING REQUIRED TO SPUR PRODUCTION OF NEEDED WORKFORCE UNITS
TWIN CITIES
2001-2006

Owner Units	
Amount Needed	6,300
Times: Subsidy per Unit	$41,500
Equals: Total Owner Unit Development Subsidy	**$261,450,000**
Rental Units	
Amount Needed	25,400
Times: Subsidy per Unit	$48,750
Equals: Total Rental Unit Development Subsidy	**$1,238,250,000**
All Units	
Total Subsidy Required	**$1,499,700,000**
Divided by: Total Units Needed	31,700
Equals: Average Subsidy per Unit	**$47,309**

Sources:
Maxfield Research Inc., GVA Marquette Advisors

Introduction

This part of the study looks at the economic impact of the current workforce housing shortage in the Twin Cities from two perspectives.

First, we consider the costs of not satisfying the current pent-up demand for workforce housing. Pent-up demand is represented by additional households that we believe would reside in the Twin Cities if new affordable housing were built. Second, we consider the benefits that would accrue to the metro area by satisfying this current need, as well as meeting the projected need for workforce housing due to job growth over the next five years.

The Economic Consequences of Not Meeting Pent-Up Demand for Workforce Housing

In the earlier section on demand, we identified 5,000 households that the Twin Cities could attract if new workforce housing were available immediately. These could be viewed as households who would like to reside here, but do not because of a lack of suitable housing.

The metro area pays a substantial cost by not providing housing for this group. Local employers with job openings lose out on the potential to fill openings, and thereby increase output and profitability. Retailers lose out on the chance to capture the goods and services dollars that members of these households would have spent locally. The full region incurs the costs of stunted growth and lost competitiveness, as some other metropolitan area perhaps gains these households, thereby becoming stronger relative to, and at the expense of, the Twin Cities.

Table 7 presents our calculations of these "lost opportunities." The table first summarizes the amount of consumer spending that the Twin Cities region could have gained from these households. The table then shows the amount of business income that local companies could have earned by employing the members of these households. All figures on the table represent one year's worth of cost, in 2001 dollars.

The table shows that 5,000 households would earn about $185 million collectively, based on about $37,100 household income per year. Estimating that 69% of income would be spent locally,[27] ***the Twin Cities loses out on roughly $128 million in annual consumer spending because it does not provide workforce housing to meet pent-up demand***.

These households would also fill roughly 6,600 jobs, each one contributing, on average, about $23,700 in business income. This sums to about $156 million in business income for local firms. After considering that some of the business income will come directly from spending by the new households (which has been already accounted for), ***Twin Cities businesses lose out on an estimated $137 million in income annually because prospective workers cannot find housing***.

In total, the Twin Cities forgoes an estimated $265 million in combined consumer spending and business income per year because there is a shortfall of workforce housing.

[27] See footnote 3 on Table 7 for an explanation on how we arrived at this percentage.

TABLE 7
THE COSTS OF NOT MEETING
CURRENT DEMAND FOR WORKFORCE HOUSING
TWIN CITIES METRO AREA
2001
(all numbers rounded)

Part 1: Consumer Spending Revenue Lost From the Local Economy:			
A.	Estimated HHs That Would Be Added if New Workforce Units Were Immediately Available [1]		5,000
	(times)		
B.	Average Gross Annual Household Income for Workforce Households [2]	x	$37,000
	(equals)		
C.	Total Income For All Workforce Households New to the Twin Cities	=	$185,000,000
	(times)		
D.	Percent of Household Income Spent in the Twin Cities [3]	x	69%
	(equals)		
E.	**Household Spending Lost to the Twin Cities Due to a Lack of Workforce Housing**	**=**	**$127,650,000**
Part 2: Business Income Lost From the Local Economy:			
F.	Jobs That Would Have Been Filled by Workforce HHs in New Workforce Housing Units [4]		6,600
	(times)		
G.	Estimated Business Income per Worker [5]	x	$23,700
	(equals)		
H.	Total Business Income Lost to the TCs Economy That Would Have Been Generated Through Jobs Held by Workforce Households	=	$156,420,000
	(minus)		
I.	Business Income Attributable to Spending by the New Households [6]	-	$19,147,500
	(equals)		
J.	**Net Business Income Lost to the TC Economy Due to Lack of Workforce Housing**	**=**	**$137,272,500**
K.	**Total: Cost of Not Meeting Current Demand for Workforce Housing (E+J)**		**$264,922,500**

Sources and Notes:

(1) From line K of Table 1 (Current Demand for Workforce Housing).

(2) *Annual Demographic Survey, A Joint Project Between the Bureau of Labor Statistics and the US Census* , Table HINC-01, Selected Characteristics of Households, by Total Money Income in 1999 (http://ferret.bls.census.gov/macro/032000/hhinc new01_001.htm). This source presents detailed estimates of household income by specific income category for the west north-central states in 1999. We trended the income figures up by 3.5% per year to reflect inflation, and by a further 10% to reflect higher workforce incomes in the Twin Cities metro area relative to the rest of the west north-central region.

(3) *Consumer Expenditure Survey* , Bureau of Labor Statistics, Table 7050, Income before taxes: Average annual expenditures and characteristics, 1998-1999 (ftp://ftp.bls.gov/pub/special.requests/ce/highincome/y9899/hincome.txt). This source presents detailed estimates of spending by specific household income range for roughly 95 purchase categories. We make the following assumptions about the percentage of spending by workforce households that leaves the Twin Cities economy: food away from home and alcoholic beverages (25%), mortgage interest and charges (50%), rent payments (25%), non-home lodging (75%), telephone services (75%), vehicle finance charges (75%), vehicle rental (75%), entertainment (20%), personal insurance and pensions (90%), federal, state and local taxes (75%), gifts (20%) and spending in all other categories (10%). This yields an estimated 31% of workforce household income that is not spent locally.

(4) At 1.32 jobs per household for 5,000 households.

(5) *Regional Accounts Data, Gross State Product Data* , US Bureau of Economic Analysis, June 2001 (http://www.bea.doc.gov/bea regional/gsp/). This source provided estimates of the amount of business income that each worker in Minnesota produced, on average in 1999 ($22,091), given average state employment of 2,551,947 in the same year (http://www.mnworkforcecenter.org/lmi/es/ann-summ.htm). We assumed that the business income figure represents the amount that each workforce job contributes to local businesses and trended it up by 3.5% annually to derive the 2001 estimate ($23,700, rounded).

(6) Assumes that 15% of local spending by new households (Line E) will go directly to business income of the companies that employ the members of the new households.

The Potential Economic Benefits of Constructing Needed Units Over the Next Five Years

If the Twin Cities experiences an increase in workforce housing construction equal to the need over the next five years, substantial economic benefits will accrue. These include the one-time boost to the local construction industry during the construction period, and ongoing, annual gains produced by new household spending and increased business income. Table 8 outlines our estimate of these benefits.

Part 1 of Table 8 shows the benefits to the local construction industry by building all 31,700 workforce units that we believe are needed, including those to meet pent-up demand, those to meet demand from projected job growth and those to create a healthy vacancy cushion. ***The construction task alone adds more than $1.6 billion to the local economy***, broken out into $1.35 billion in new local construction wages[28] and about $252 million in new development fees and assessments paid to local governments.[29]

Part 2 of the table shows the increase in household spending in the Twin Cities (in 2001 dollars), once the new workforce units are occupied.[30] This increased level of spending would recur in subsequent years. Using the same assumptions as stated earlier,[31] ***the Twin Cities would capture $523 million in annual consumer spending related to the new workforce units***. This amount, at least, would be produced annually, in subsequent years.

Part 3 shows the estimated gain to the local business community as a result of employing new workers, housed in new workforce units. Given 27,100 new jobs filled, at $23,700 business income per worker,[32] local businesses would garner more than $642 million additional income, once the new workforce units become occupied. After subtracting business income that was already accounted for through consumer spending, ***the total gain to local businesses as a result of new workforce housing hits roughly $564 million annually***.

The full result of building and filling the new workforce units with households totals just under $2.7 billion. Roughly $1.1 billion of this amount, the consumer spending and business income gains, would recur on an annual basis in the Twin Cities economy. We discuss these longer-term economic gains in the next section.

[28] The National Association of Homebuilders estimates that 2.45 new jobs (totaling $79,400 in wages) are created during the construction of every new single-family home, and about 1 new job (totaling $33,500 in wages) is created during the construction of each new multi-family unit.
[29] See footnote 3 on Table 8 for an explanation on fees and assessments.
[30] 20,500 new households: 5,000 households representing pent-up demand plus 15,500 households added due to job growth over the next five years (net of expected new construction for 10,000 households and 1,300 units for vacancy cushion).
[31] $37,000 gross household income and 69% of household income spent locally.
[32] See footnote 5 from Table 7.

TABLE 8
THE BENEFITS OF CONSTRUCTING NEEDED WORKFORCE UNITS IN THE TWIN CITIES
2001 to 2006
(all numbers rounded)

Part 1. One-Time Gains Related to Construction of Needed Units: [1]			
A.	Projected Increase in Local Construction Wages [2]		$1,351,120,000
	(plus)		
B.	Projected Increase in Government Fees and Assessments [3]	+	$251,730,500
	(equals)		
C.	**Positive Impact Due to New Construction**	**=**	**$1,602,850,500**
Part 2. Annual Gains From New Consumer Spending (Once Housing is Occupied):			
D.	New Households Added to the Twin Cities With New Workforce Housing [4]		20,500
	(times)		
E.	Average Gross Household Income for Workforce Households [5]	x	$37,000
	(equals)		
F.	Total Income For Households Occupying New Workforce Units	=	$758,500,000
	(times)		
G.	Percent of Household Income Spent in the Twin Cities [6]	x	69%
	(equals)		
H.	**Annual Increase in Consumer Expenditures [7]**	**=**	**$523,365,000**
Part 3. Annual Gains From Increased Worker Production:			
I	Jobs Filled by Residents of New Workforce Housing Units [8]		27,100
	(times)		
J.	Estimated Business Income per Worker [9]	x	$23,700
	(equals)		
K.	Total Business Income Generated Through Jobs Held by Workforce Households	=	$642,270,000
	(minus)		
L.	Business Income Attributable to Spending by the New Households [10]	-	$78,504,750
	(equals)		
M.	**Annual Gain in Business Income [7]**	**=**	**$563,765,250**
N.	**Total Benefit (2001 dollars): One-Time Construction Gain + Annual Gains From Consumer Spending and Worker Productivity (C+H+M)**		**$2,689,980,750**
O.	**Ongoing, Annual Gain (2001 dollars) to the Twin Cities Due to Consumer Spending and Worker Productivity (H+M)**		**$1,087,130,250**

Sources and Notes:

(1) Includes all estimated 31,700 units needed, including those to create a healthy vacancy base.

(2) *Housing's Direct Economic Impact* , National Association of Homebuilders (http://www.nahb.com/facts/economics/houdir.html). Wage estimates cited in this publication: $79,400 increase in wages per new single-family unit (2.45 new jobs) and $33,500 increase in wages per new multifamily unit (1.03 new jobs).

(3) Several sources indicate that government fees and assessments range between roughly 4% and 10% of development cost, including the Legislative Auditor's report on Affordable Housing (pages 39 and 40), Rottlund Homes (7.8% of development cost for the Rottlund Villa entry-level townhome, priced at $120,000) and a multi-city study completed by Maxfield Research in July 2001 (*Fees, Infrastructure Costs and Density*). Since fees and assessments vary considerably depending on housing value and city, we used a figure of 7% of development cost for all units.

(4) Includes 5,000 households who would move here immediately with new housing, plus 15,500 new households added due to job growth over the next five years (net of expected new construction for 10,000 households and 1,300-unit vacancy cushion).

(5) See footnote 2 from Table 7.

(6) See footnote 3 from Table 7.

(7) 2001 dollars; the annual amount would increase with inflation in subsequent years.

(8) At 1.32 jobs per household for the 20,500 households shown in Line D.

(9) See footnote 5 from Table 7.

(10) See footnote 6 from Table 7.

Introduction

Devoting money to housing is an investment that lasts for decades. Housing construction yields a net gain from most perspectives, as it brings new households into a market, helps employers more easily attract workers and creates a larger base of consumers for retailers. Once the task of construction itself is done, these benefits last as long as the units are maintained and desirable to the market.

This section of the report considers the long-term benefits to the economy – the return on investment (ROI) – through the construction of all 31,700 units that we believe are needed currently, and over the next five years. We use a conservative, 15-year investment return horizon, recognizing that the actual benefit period will likely be much longer.

We consider the ROI from two perspectives:

1. The return on the total investment required to produce new workforce housing.

2. The return on just the subsidy portion of the investment that we believe would motivate the private market to produce all of the needed units.

We believe that the private market would gladly construct new workforce units if it were financially feasible. We also believe that the investment of subsidy dollars to defray rising development costs and to provide a reasonable profit could stimulate a much larger infusion of private capital.

All estimates of return on investment in this section are based on three appendix tables that outline: 1) the schedule of construction and occupancy of units (Table A), 2) the schedule of returns on total development cost (Table B), and 3) the schedule of returns on subsidy investment (Table C). These tables show construction activity and initial unit occupancy in the first five to six years, along with economic returns over 15 years.

Return on Investment for the Full Development Cost

Table 9 summarizes the return on the total cost for developing new workforce housing in the Twin Cities. The table shows that developing all needed units would cost roughly $3.6 billion in 2001 dollars, or about $113,400 per unit on average. This represents the cost of development, regardless of subsidy investment.

The table also shows that pursuing this development would provide a tremendous positive economic impact to the local economy, roughly $11.6 billion over the next 15 years. As is detailed in Appendix Table B, this comes in the form of construction industry wage gains, increased development fees and assessments, higher consumer spending and increased business income due to the efforts of new workers.

Subtracting the investment needed to produce the housing from the economic gain resulting from its production yields ***a net positive economic impact of roughly $8.0 billion to the Twin Cities over the next 15 years***. This represents a net return of about $252,400 per unit over the time period, or more than a 2.2 fold return on the initial (full) development cost of $113,400 per unit.

TABLE 9
RETURN ON INVESTMENT: TOTAL DEVELOPMENT COST
15-YEAR RETURN SCHEDULE
NEEDED WORKFORCE HOUSING UNITS IN THE TWIN CITIES
2001-2015
(in 2001 Dollars)

	Total	Per Unit
Estimated Cost to Develop 25,400 Workforce Rental Units	$2,654,300,000	$104,500
Estimated Cost to Develop 6,300 Workforce Owner Units	$941,850,000	$149,500
Total Estimated Workforce Housing Development Cost	$3,596,150,000	$113,443
Projected Economic Impact Over 15 Years (Appendix Table A)	$11,595,828,625	$365,799
15-Year Return on Investment (ROI)	**$7,999,678,625**	**$252,356**

Sources: Maxfield Research Inc., GVA Marquette Advisors

Return on the Subsidy Portion of New Housing Investment

Table 10 shows that investment of just a portion of the capital required to produce the workforce units needed over the next five years could stimulate a substantial economic gain for the Twin Cities. We estimate that $1.5 billion in subsidy for new workforce housing, about $47,000 per unit average, would generate roughly $13.7 billion in economic gain to the Twin Cities over the next 15 years. Subtracting out the initial subsidy yields ***a net gain of $12.2 billion to the region through subsidy investment in needed workforce housing***. This return is higher than that for the total development cost (Table 9) because the community invests only a portion of the development cost, but gains all of the returns related to new housing construction, including those spurred by the infusion of private funds. This equates to nearly $385,000 net economic gain per unit.

Again, we make no assumptions about who provides the gap financing to achieve the desired level of workforce development, but we assume that it will likely need to come from a variety of private and public sources.

What this table essentially shows is that for every $1 invested in workforce housing subsidy, about $1.40 would be invested by the private sector. Furthermore, each dollar of subsidy investment in workforce housing would stimulate a gain of $8.13 dollars in economic benefit (net of subsidy investment) to the entire region over the next 15 years. We see this as a wise use of community funds targeted at strengthening the community.

We believe that the private market would have great interest in addressing the workforce housing shortage if it were financially feasible. By investing just enough to make the development task reasonably profitable, the providers of gap financing could stimulate a positive response from the private sector, leading to a tremendous gain for the regional economy.

TABLE 10
RETURN ON INVESTMENT: SUBSIDY
15-YEAR RETURN SCHEDULE
NEEDED WORKFORCE HOUSING UNITS IN THE TWIN CITIES
2001-2015
(in 2001 Dollars)

	Total	Per Unit
Estimated Subsidy Needed to Develop 25,400 Workforce Rental Units	$1,238,250,000	$48,750
Estimated Subsidy Needed to Develop 6,300 Workforce Owner Units	$261,450,000	$41,500
Total Estimated Subsidy Needed to Develop All Workforce Units	$1,499,700,000	$47,309
Projected Economic Impact Over 15 Years (Appendix Table B)	$13,692,278,625	$431,933
15-Year Return on Subsidy Investment (ROI)	**$12,192,578,625**	**$384,624**

Sources: Maxfield Research Inc., GVA Marquette Advisors

Conclusions

This study considered the need for new housing to meet the demand of typical, working households in the Twin Cities. We concluded that there is substantial housing need for this group, enough to house about 5,000 families currently, and need for nearly 17,000 units to keep pace with housing demand due to job growth in the next five years. This latter figure assumes that workforce housing construction will proceed at higher levels than what is being achieving currently, but will still only satisfy some of the future need.

The current need for housing has its roots in several issues, the high cost of land, scant available land for development, restrictive zoning and excessive government fees among them. These and many more factors have produced a dearth of construction over the past decade, the consequences of which have caught up to us. We conclude that the current situation in the workforce housing market – the lowest vacancies in the country, relatively little new construction and rapidly-rising housing costs – leaves the Twin Cities in a poor position to accommodate new economic growth, much of which will require housing construction to house workers moving here from outside of the region.

It is clear to us, that, without substantial investment in workforce housing, the prosperity we have enjoyed as a region is in jeopardy.

We estimate that subsidy investment to alleviate the current and near-term problem would be substantial over the next five years, roughly $1.5 billion. However, the return on this investment far outweighs the up-front costs. We estimate that, over the next 15 years, the economic benefits of investing in workforce housing would total a net gain of $12.2 billion to the economy, an eight-fold return. About 21% of this return, or $2.8 billion, comes within the first five years. This occurs largely because the subsidy investment would leverage nearly $2.1 billion in private funds, stimulating strong gains in the construction industry, and generating substantial development fees to government. Other gains over time come as the result of new households added to the region, creating a stronger labor pool for employers and a larger consumer base for retailers.

We realize that coming up with $1.5 billion as a region is an enormous task. Furthermore, we propose no specific recommendations regarding how it could be done, nor do we outline who should be involved in the raising of funds. It is obvious that the public and private sectors will need to work very closely, pursuing new approaches together that neither could accomplish alone.

Leaders in the region should not wait, however, until all needed funds are assembled. Incremental steps to solving the workforce housing shortage will produce valuable, incremental benefits for the regional economy.

If leaders in the region can summon the courage to solve the workforce housing crisis, the Twin Cities will again step ahead of virtually all other metropolitan areas in the country. This would continue the great local tradition of using public and private funds to create a uniquely high quality of life, something that most citizens of the region have learned to take for granted.

APPENDIX TABLE A
CONSTRUCTION AND OCCUPANCY SCHEDULE
NEEDED WORKFORCE HOUSING UNITS IN THE TWIN CITIES

Period	**1**	**2**	**3**	**4**	**5**	**6**	**Years 7-14**	**15**
Calendar Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007-2014**	**2015**
Part 1: Construction Schedule [1]:								
Owner Units Built	1,260	1,260	1,260	1,260	1,260	0	*same figures*	0
Rental Units Built	5,080	5,080	5,080	5,080	5,080	0	→	0
Total Units Built	**6,340**	**6,340**	**6,340**	**6,340**	**6,340**	**0**		**0**
	31,700 Units Built Within 1st Five Years (need + vacancy cushion)							
Part 2: Occupancy Schedule [2]:								
Cumulative Owner Units Occupied	410	1,230	2,050	2,870	3,690	4,100		4,100
Cumulative Renter Units Occupied	1,640	4,920	8,200	11,480	14,760	16,400	*same figures*	16,400
Cumulative Total Units Occupied [3]	**2,050**	**6,150**	**10,250**	**14,350**	**18,450**	**20,500**	→	**20,500**
						Units Fully Occupied by the End of Year 6		

Notes:

(1) The schedule shows the construction of all 31,700 workforce units needed, including those to create a healthy vacancy cushion.

(2) Assumes that only half of the potential new households in the first year actually move in, reflecting time needed to build units; this lag continues into year six, when all new households become settled in new units.

(3) Total new households: 20,500 (5,000 pent-up demand plus 15,500 due to job growth, net of expected new construction of 10,000 units and 1,300 unit vacancy cushion.)

Sources: Maxfield Research Inc., GVA Marquette Advisors

APPENDIX TABLE B
SCHEDULE OF RETURNS ON TOTAL DEVELOPMENT COST
NEEDED WORKFORCE HOUSING UNITS IN THE TWIN CITIES
5-YEAR DEVELOPMENT SCHEDULE AND 15 YEARS OF ECONOMIC RETURNS
(2001 Dollars)

Period	**1**	**2**	**3**	**4**	**5**	**6**	**Years 7-14**	**15**
Calendar Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007-2014**	**2015**
Part 1: Total Development Cost [(1)]:								
Owner Units (@ $149,500/Unit)	($188,370,000)	($188,370,000)	($188,370,000)	($188,370,000)	($188,370,000)	$0		$0
Rental Units (@ $104,500/Unit)	($530,860,000)	($530,860,000)	($530,860,000)	($530,860,000)	($530,860,000)	$0	*same figures* →	$0
Total Development Cost	**($719,230,000)**	**($719,230,000)**	**($719,230,000)**	**($719,230,000)**	**($719,230,000)**	**$0**		**$0**
				Total Development Cost:	***($3,596,150,000)***			
Part 2: Return to Full Economy:								
Construction Wages-Owner Units	$100,044,000	$100,044,000	$100,044,000	$100,044,000	$100,044,000	$0		$0
Construction Wages-Rental Units	$170,180,000	$170,180,000	$170,180,000	$170,180,000	$170,180,000	$0		$0
Fees/Assessments-Owner Units	$13,185,900	$13,185,900	$13,185,900	$13,185,900	$13,185,900	$0	*same figures*	$0
Fees/Assessments-Rental Units	$37,160,200	$37,160,200	$37,160,200	$37,160,200	$37,160,200	$0	→	$0
Subtotal Construction Impact	***$320,570,100***	***$320,570,100***	***$320,570,100***	***$320,570,100***	***$320,570,100***	***$0***		***$0***
				Full Construction Impact:	***$1,602,850,500***			
Consumer Spending	$52,336,500	$157,009,500	$261,682,500	$366,355,500	$471,028,500	$523,365,000		$523,365,000
Net Business Income	$56,376,525	$169,129,575	$281,882,625	$394,635,675	$507,388,725	$563,765,250	*same figures*	$563,765,250
Subtotal Household Impact	***$108,713,025***	***$326,139,075***	***$543,565,125***	***$760,991,175***	***$978,417,225***	***$1,087,130,250***	→	***$1,087,130,250***
				Full Consumer Spending and Business Impact Starting in Year 6				
Total Annual Return	**$429,283,125**	**$646,709,175**	**$864,135,225**	**$1,081,561,275**	**$1,298,987,325**	**$1,087,130,250**	→	**$1,087,130,250**
Part 3: Net Returns								
Returns Minus Development Cost	**($289,946,875)**	**($72,520,825)**	**$144,905,225**	**$362,331,275**	**$579,757,325**	**$1,087,130,250**	→	**$1,087,130,250**
Total Return Over 15 Years	**$11,595,828,625**							

Notes: (1) 31,700 workforce units constructed in years 1-5 (2001-2005): 25,400 rental units and 6,300 owner units.
Sources: Maxfield Research Inc., GVA Marquette Advisors

APPENDIX TABLE C
SCHEDULE OF RETURNS ON SUBSIDY INVESTMENT
NEEDED WORKFORCE HOUSING UNITS IN THE TWIN CITIES
5-YEAR DEVELOPMENT SCHEDULE AND 15 YEARS OF ECONOMIC RETURNS
(2001 Dollars)

Period	**1**	**2**	**3**	**4**	**5**	**6**	**Years 7-14**	**15**
Calendar Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007-2014**	**2015**
Part 1: Subsidy Investment [(1)]:								
Owner-Unit Subsidy ($41,500/unit)	($52,290,000)	($52,290,000)	($52,290,000)	($52,290,000)	($52,290,000)	$0		$0
Rental-Unit Subsidy ($48,750/unit)	($247,650,000)	($247,650,000)	($247,650,000)	($247,650,000)	($247,650,000)	$0	*same figures* →	$0
Total Subsidy Investment	**($299,940,000)**	**($299,940,000)**	**($299,940,000)**	**($299,940,000)**	**($299,940,000)**	**$0**		**$0**
				Total Public Investment:	***($1,499,700,000)***			
Part 2: Return to Full Economy:								
Construction Wages-Owner Units	$100,044,000	$100,044,000	$100,044,000	$100,044,000	$100,044,000	$0		$0
Construction Wages-Rental Units	$170,180,000	$170,180,000	$170,180,000	$170,180,000	$170,180,000	$0		$0
Fees/Assessments-Owner Units	$13,185,900	$13,185,900	$13,185,900	$13,185,900	$13,185,900	$0	*same figures*	$0
Fees/Assessments-Rental Units	$37,160,200	$37,160,200	$37,160,200	$37,160,200	$37,160,200	$0	→	$0
Subtotal Construction Impact	***$320,570,100***	***$320,570,100***	***$320,570,100***	***$320,570,100***	***$320,570,100***	***$0***		***$0***
				Full Construction Impact:	***$1,602,850,500***			
Consumer Spending	$52,336,500	$157,009,500	$261,682,500	$366,355,500	$471,028,500	$523,365,000		$523,365,000
Net Business Income	$56,376,525	$169,129,575	$281,882,625	$394,635,675	$507,388,725	$563,765,250	*same figures*	$563,765,250
Subtotal Household Impact	***$108,713,025***	***$326,139,075***	***$543,565,125***	***$760,991,175***	***$978,417,225***	***$1,087,130,250***	→	***$1,087,130,250***
				Full Consumer Spending and Business Impact Starting in Year 6				
Total Annual Return	**$429,283,125**	**$646,709,175**	**$864,135,225**	**$1,081,561,275**	**$1,298,987,325**	**$1,087,130,250**	→	**$1,087,130,250**
Part 3: Net Returns								
Returns Less Subsidy Investment	**$129,343,125**	**$346,769,175**	**$564,195,225**	**$781,621,275**	**$999,047,325**	**$1,087,130,250**	→	**$1,087,130,250**
Total Return Over 15 Years	**$13,692,278,625**							

Notes: (1) 31,700 workforce units constructed in years 1-5 (2001-2005): 25,400 rental units and 6,300 owner units.
Sources: Maxfield Research Inc., GVA Marquette Advisors