Teton County & Town of Jackson

Employee Generation by Land Use Study

Prepared for Teton County Housing Authority

PUBLIC REVIEW DRAFT

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TABLE OF CONTENTS

I. OVERVIEW AND EXECUTIVE SUMMARY

A. INTRODUCTION

1. Employee Generation by Land Use Study Background

There is a housing affordability problem in Teton County and the Town of Jackson (hereinafter "Teton County"). The reason, at the most basic level, is that there have been only modest increases in residents' wages and income, while housing prices have risen dramatically. The *Jackson/Teton County Comprehensive Plan*, adopted in 2012, recognizes this problem and establishes the planning principle (i.e., goal) of ensuring housing is available to 65 percent of the local workforce.

> ***Principle 5.1—Maintain a diverse population by providing workforce housing.***
>
> ***"We will ensure that at least 65% of the local workforce lives locally to maintain a diverse local population, an important aspect of our community character. Providing quality housing opportunities for the local workforce sustains the socioeconomic diversity and generational continuity that preserve our heritage and sense of community."***

The plan proposes the community achieve Principle 5.1 in several ways: regular monitoring of workers commuting from neighboring communities to track implementation of the principles, focusing housing subsidies on full-time, year-round workers, and prioritizing workforce housing for critical service providers.

The Plan also includes a principle (i.e., goal) for providing local housing that is *affordable* to the workforce.

> ***Principle 5.3—Reduce the shortage of housing that is affordable to the workforce***
>
> ***"A shortage of housing that is affordable to the workforce is a result of many factors. In order to meet our primary housing goal, the community will regularly monitor the affordability and occupancy of our housing stock to understand and adapt to the forces contributing to such shortages. We will mitigate impacts from new development, preserve existing workforce housing, and create new restricted housing opportunities to avoid and reduce shortages of housing opportunities that are affordable to the local workforce."***

One of the key policies under this principle is continuing and updating the Town and County's current mandatory mitigation requirements on new development to ensure the need it creates for affordable workforce housing is mitigated. The Residential Affordable Housing Standards, and the Employee Housing Standards of the Town and County's Land Development Regulations set out specific requirements for affordable workforce housing as part of new developments.

While distinct in purpose, Principles 5.1 and 5.3 are very much related. Principal 5.1 focuses on housing 65% of the local workforce and does not directly address the cost of housing for the 65%, but there is obviously a need to address the lack of affordable housing to meet that goal. While some members of the local workforce can afford some market rate housing in Teton County, a significant number of worker households cannot, as this study illustrates. To be able to achieve the 65% goal, it is necessary to find ways to provide housing options in Teton County that are more affordable to local worker households.

2. Purpose of Employee Generation by Land Use Study

In an effort to implement Principal 5.3, the comprehensive plan establishes the necessary technical support for an update to the current mandatory affordable residential and employee housing standards . The Teton County Housing Authority (TCHA) has retained Clarion Associates, in association with RRC Associates and Dr. James C. Nicholas, to prepare this Employee Generation by Land Use Study (hereinafter "Study") to comply with this plan policy.

Initially, the "Study" identifies the workforce housing problem in Teton County. It then provides the technical documentation and analysis needed to establish whether and the extent to which new development (both residential and non-residential) creates a need for affordable workforce housing. This is done by evaluating the linkage between (1) employment generated by the construction and maintenance/operations (post-construction) of new residential units, (2) the employment generated by the construction and then employment that occurs at non-residential development after the construction is completed (post-construction activities), and (3) critical service providers that provide public safety and law enforcement services to both residential and non-residential developments. Because the analysis demonstrates there is a need created by both residential and non-residential development for affordable workforce housing, the Study identifies the need both in affordable workforce housing units (or a fraction thereof) and housing assistance (a subsidy) that could address the need for workforce housing.

This study is built on the assumption that an affordable home for households in the local workforce is defined as costing no more than 30% of annual household income, regardless of whether a home is rented or owner-occupied. This study focuses on the costs to develop and purchase an owner-occupied house; however, the 30% household income affordability threshold is applicable to rental properties as well.

The Study includes three parts:

1. This **Section 1: Overview and Executive Summary,** provides a summary of the Study. It also includes a summary of past workforce housing plans and policies adopted by Teton County and the Town of Jackson, describes the policy direction in the Jackson/Teton County Comprehensive Plan to address the problem, and explains how this Study provides the technical support to implement Policy 5.3.a of the Comprehensive Plan.
2. **Section 2: Problem Description** outlines the current housing affordability problem in Teton County. It shows that while employment in the County has grown over the past two decades, wages have risen only modestly while housing prices have risen

exponentially, to the point housing is no longer affordable to the workforce in the County and Town.

3. **Section 3: Need for Affordable Workforce Housing Created by Development,** discusses the relationship between residential and nonresidential development and the need this new development creates for affordable workforce housing. It outlines the methodology and calculations that determine the need created for affordable workforce housing by new development (both residential and nonresidential). This section quantifies the need both in terms of affordable workforce housing units (or a fraction thereof) that could be built to address the need, and funding shortages (housing assistance) that could be provided to address the need.

B. POLICY GUIDANCE

1. Past Workforce Housing Efforts

The 1994 Teton County Comprehensive Plan established a formal housing program that used regulations, incentives, and funding to create additional affordable workforce housing opportunities. It set two goals for affordable workforce housing development:

- To provide quality affordable workforce housing for a diverse population, and
- To establish a balanced program of incentives and requirements to provide affordable workforce housing through public and private markets.

In 2007 development of affordable and workforce housing in the community was exceeding target goals set out by the 1994 plan. However, even with these actions, the housing affordability problem had worsened -- to the point that almost all new workforce members were priced out of the local housing market. There was a general consensus in the community that the goals and provisions of the plan needed to be updated to reflect changing conditions.

In 2007, a Housing Needs Assessment was completed that more specifically outlined the extent of affordable and workforce housing need in the county. The Assessment found the amount of the local workforce residing in Teton County was decreasing by 3% every year. In part to address this circumstance it recommended that at least 40% of new residential development built needed to be affordable for the workforce in the community, and that efforts should focus on for-sale housing for households at or below 120 percent of median income. Some of the recommendations of the Housing Needs Assessment are reflected in the 2012 Comprehensive Plan update.

2. 2012 COMPREHENSIVE PLAN

Quality of Life is one of three “common values” identified in the Jackson/Teton County Comprehensive Plan, which was adopted in April 2012. It recognizes that maintaining a local workforce supports quality of life by reducing commute times and building stability and community in Teton County. The plan calls for a commitment to local workforce housing, with the planning principle (i.e., goal) that at least 65% of those employed locally, live locally. It defines workforce housing as private market and deed-restricted housing occupied by persons working locally who would otherwise commute from outside the community. The plan acknowledges the success of the housing program in the 1994 comprehensive plan, but

emphasizes the need for expanded efforts to provide affordable workforce housing, both through the private market and deed-restricted housing.

The 2012 Comprehensive Plan proposes to meet this goal through four principles:

1. Plan Principle 5.1: Maintain a diverse population by providing workforce housing so that at least 65% of the local workforce lives locally.
2. Plan Principle 5.2: Strategically locate a variety of housing types.
3. Plan Principle 5.3: Reduce the shortage of housing that is affordable to the workforce.
4. Plan Principle 5.4: Use a balanced set of tools to meet our housing goal.

C. POPULATION GROWTH AND MARKET TRENDS IN TETON COUNTY

Just as important as current housing policies in Teton County are the recent trends and market conditions that impact the local housing market. This section provides a current summary of population growth, and housing market trends that affect demand and supply for workforce housing.

1. Population Growth

Teton County and the Town of Jackson have experienced significant population growth in recent decades. From 1990 to 2010, the population of Teton County nearly doubled, from 11,172 to 21,294. During this same period, the population of Jackson grew 114% from 4,472 to 9,577.

2. Market Conditions

The economy has been in recovery since 2010, and, the market for real estate in the Jackson Hole area is beginning to regain the momentum it had in the early 2000s. According to the Hole Report, a data-driven analysis of the local real estate market, by the end of 2012, the Jackson Hole residential market was regaining equilibrium with supply and demand. In early 2013, some segments of the local housing market experienced an undersupply, particularly the more affordable properties. Demand for housing comes from the local workforce, baby boomers looking for a retirement home, investors looking for income producing properties, and second homeowners. The first quarter 2013 demand for single-family homes priced under $750,000 and condominiums and townhouses priced under $400,000 is not being met, and homes within these price points are expected to appreciate in value due to the lack of inventory in these two segments.

Compared to 2012, sales in Q1 2013 were up 40%, with a 36% increase in the volume of money in real estate transactions. On the flip side, the average and median sale prices were down 3% and 13%, respectively. The drop in the median sales price, down 13% to $620,000, reflects the price points of the current market. However, the overall level of available inventory is at a five year low and prices are expected to appreciate as a result.

D. PROBLEM DESCRIPTION

1. HOUSING SALES PRICES AND HOUSING AFFORDABILITY

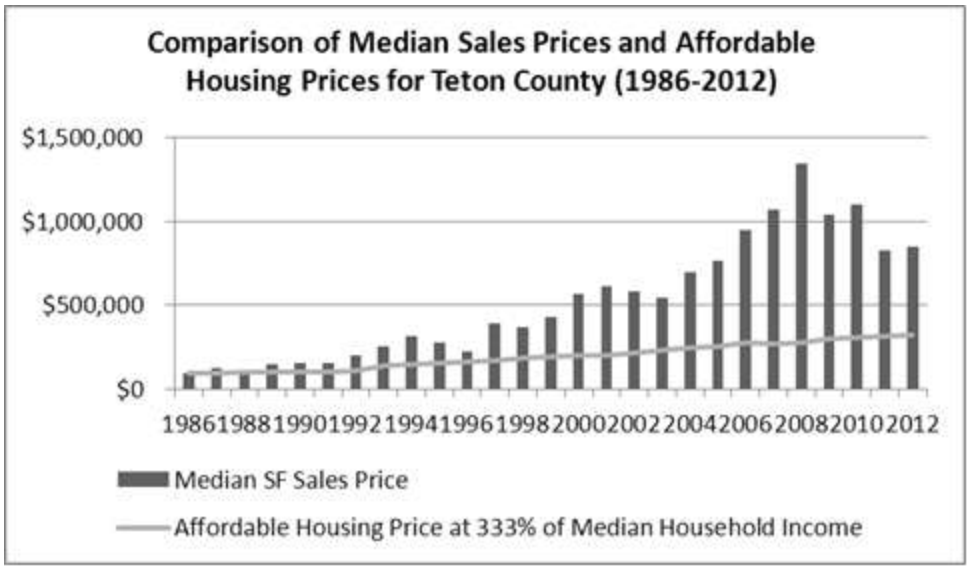
a. Comparison of Median Single Family Sales Prices and Household Income

Like many resort communities, the price of housing in Teton County over the past 20 years has increased while incomes and wages remained relatively static. This has led to a housing affordability problem in the community. Typically, housing affordability is evaluated by comparing the price of housing for a local real estate market to prevailing wage and salary incomes. A national benchmark for evaluating affordability is whether median household incomes are at the level where the household could afford a median priced home. Typically, housing affordability of owner-occupied housing is defined as the owner spending no more than 30 percent of annual household income on annual housing costs. The maximum price of an affordable unit under this definition is calculated as 3.33 times (333%) the annual median household income. (See Appendix A: Calculating the Affordability Threshold for a detailed explanation of this calculation.)

As Table 5: Comparison of Median Household Incomes, Median Single-Family Sales Prices, and Housing Affordability, Teton County, 1986-2012 (p. 13), demonstrates, the gap between median household incomes and median housing costs in the county increased to the point that over the past 27 years median priced housing is no longer affordable to households earning the area median income. In 1986, median sales prices of homes ($90,000) were on target with the affordable housing price for a median household income ($90,667). From that point in time forward, the price points have increased so that they no longer align with what is affordable to median household incomes. By 2000, the median sales price ($565,000) was nearly three times the price affordable to a median household income ($196,333). In 2007, the median sales price ($1,075,000) was approximately four times the price affordable to a median household income ($270,000). The recession has had an impact on housing prices.

Even so, the median sales price of housing in 2012 ($853,150) is more than 2.6 times the price that is reasonably affordable to a family with a median household income ($320,667), illustrating there is a serious housing affordability problem in Teton County. Figure 1: Comparison of Median Sales Prices and Affordable Housing Prices for Teton County, (1986-2012), illustrates the relationship between median sales prices of single family homes in Teton County, and the price of a home that is reasonably affordable to a family with a median household income (333% of median household income).

Figure 1



Source: Teton County single family sales prices are from three different sources: (1) 1986 to 2000 are from the March 2002 Teton County, Wyoming Affordable Housing Support Study, p.3; (2) 2000-2002 are from the Wyoming Housing Database Partnership, August 28, 2008, and are adjusted to median from averages, and (3) 2003-2011 are from data provided by the Teton County Assessor. Income data was collected from: http://www.huduser.org/portal/datasets/il/il13/index.html

2. SUPPLY OF AFFORDABLE HOUSING

Separating out the number of housing sales annually that are affordable to the median household income further supports the notion there is a lack of workforce housing in Teton County. Table 1: Annual Sales of Houses Affordable to the Medium Income Household (2003-2012), shows that between 2003 and 2012, few sales were affordable to a family with a median household income – 8.4% of sales for the time period. While there has been an increase in recent years of units sold within the affordable price range, the number of units is not close to the community's workforce housing goals. In 2012, 62 sales were in the affordable price range for median household incomes in Teton County -- 18% of total sales for the year. While the Teton County Assessor's Sales Data does not include the sales of "restricted" housing units – units that are not sold for fair market value, but instead are sold to restrict the pricing of housing, these statistics still represent a significant shortage of housing available to the community's workforce.

Table 1: Annual Sales of Homes Affordable to the Median Household Income (2003-2012)

Year	Median HH Income	Affordable Price at 333% of Income	Sales at or Below Affordable Price*			Total Units Sold Annually	Affordable Price Units as % of Total Annual Sales
			SFD	SFA	Condo		
2003	$69,900	$233,000	3	0	62	555	12%
2004	$73,500	$245,000	1	0	100	542	19%
2005	$76,700	$255,667	1	0	27	698	4%
2006	$81,800	$272,667	0	0	23	677	3%
2007	$81,000	$270,000	0	0	3	497	1%
2008	$83,300	$277,667	0	0	0	272	0%
2009	$89,500	$298,333	0	0	7	162	4%
2010	$92,500	$308,333	0	0	19	187	10%
2011	$94,900	$316,333	4	0	40	248	18%
2012	$96,200	$320,667	7	0	55	354	18%
Totals			**16**	**0**	**336**	**352**	
All Sales			**2,272**	**61**	**1,857**	**4,190**	
% at or under Affordabilty Threshold			**0.7%**	**0.0%**	**18.1%**	**8.40%**	

SOURCE: Teton County Assessor, 2013.

The data is clear there is a housing affordability problem in Teton County and the Town of Jackson, to the point that few members of the workforce can reasonably afford market-priced housing.

E. NEED FOR WORKFORCE HOUSING CREATED BY DEVELOPMENT

The need to provide affordable housing for the workforce is created by new development that demands labor (employees). Because both new residential and new non-residential development create demand for labor (employees), both are evaluated in this Study to determine the affordable workforce housing need created by each type of development.

1. Residential Development

Residential development generates three types of labor needs: (1) the construction of the residence, (2) the operation and maintenance of the residence, post-construction, and (3) employment of critical service providers that provide public services to these residences (in this instance fire and rescue personnel and law enforcement personnel). Construction employees construct the homes. Operation and maintenance employees assist in the ongoing upkeep, operation and maintenance of the buildings. Critical service providers provide safety services to the homes. This study outlines the number of new employees that provide these services to new residential development, the need this creates for affordable workforce housing, and if this housing is not built along with the new residential

development, the housing assistance (subsidy) that would need to be provided so that the employees that provide these services could reasonably afford housing in the community.

The results of this analysis demonstrate the wages and salaries earned by a significant portion of Teton County's workforce that provides services to residential development (construction, operation and maintenance, and critical service providers) are insufficient to allow these employees to obtain market housing. Tables 2 and 3 identify the workforce housing need created when different sized residential units are developed, both in terms of actual affordable workforce housing units needed (or a fraction thereof), and housing assistance (subsidy). Because the analysis revealed operations and maintenance employment of residential units differs depending on tenancy (whether the unit is owned by a local or non-local) and the type of unit (single-family detached versus all other residential units), two tables are provided to show these distinctions. Table 2: Need for Workforce Housing Created by Non-Local Residential Development, summarizes need (units and housing assistance) for non-local units and Table 3: Need for Workforce Housing Created by Local Residential Development, for locally-owned units.

As an example, the analysis demonstrates that a 10 unit townhome complex of 2,000 square foot units that will be owned and occupied by non-locals creates a need for 1.15 workforce housing units, or housing assistance (subsidy) of $ 165,170. On the other hand, a 10-lot subdivision of single-family homes that are 3,000 square feet and owned and occupied by local residents create a need for approximately 0.90 of a workforce housing unit, or housing need (subsidy) of $108,070.

Because affordable workforce housing need is based on several factors, a formula will need to be applied to each residential unit, individually, based on its size (square footage), the tenancy of the unit (local or non-local owner), and the type of unit (single-family detached or other type of unit) to determine the workforce housing need created by the individual residential development. The formula is set out on p. 44-45.

Table 2: Need for Workforce Housing Created by Non-Local Residential Development

Unit Size (FT2)	Non-Local Tenancy Single-Family Detached							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed
500	0.012	$ 1,256	0.002	$ 339	0.000	$ 37	0.014	$ 1,632
1,000	0.023	$ 2,512	0.006	$ 1,016	0.001	$ 74	0.030	$ 3,602
2,000	0.046	$ 5,025	0.018	$ 3,048	0.002	$ 148	0.066	$ 8,220
3,000	0.070	$ 7,537	0.034	$ 5,757	0.002	$ 222	0.106	$ 13,516
4,000	0.093	$ 10,050	0.054	$ 9,144	0.003	$ 295	0.150	$ 19,489
5,000	0.116	$ 12,562	0.076	$ 12,869	0.004	$ 369	0.196	$ 25,800
6,000	0.139	$ 15,074	0.076	$ 12,869	0.005	$ 443	0.220	$ 28,386
7,000	0.162	$ 17,587	0.076	$ 12,869	0.005	$ 517	0.244	$ 30,973

Unit Size (FT2)	Non-Local Tenancy All Other Units							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed
500	0.012	$ 1,256	0.007	$ 1,185	0.000	$ 37	0.019	$ 2,478
1,000	0.023	$ 2,512	0.022	$ 3,725	0.001	$ 74	0.046	$ 6,311
2,000	0.046	$ 5,025	0.067	$ 11,345	0.002	$ 148	0.115	$ 16,517
3,000	0.070	$ 7,537	0.067	$ 11,345	0.002	$ 222	0.139	$ 19,104
4,000	0.093	$ 10,050	0.067	$ 11,345	0.003	$ 295	0.163	$ 21,690
5,000	0.116	$ 12,562	0.067	$ 11,345	0.004	$ 369	0.187	$ 24,276
6,000	0.139	$ 15,074	0.067	$ 11,345	0.005	$ 443	0.211	$ 26,863
7,000	0.162	$ 17,587	0.067	$ 11,345	0.005	$ 517	0.235	$ 29,449

Table 3: Need for Workforce Housing Created by Local Residential Development

Unit Size (FT2)	Local Tenancy Single-Family Detached							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed
500	0.012	$ 1,256	0.001	$ 169	0.000	$ 37	0.013	$ 1,462
1,000	0.023	$ 2,512	0.003	$ 508	0.001	$ 74	0.027	$ 3,094
2,000	0.046	$ 5,025	0.009	$ 1,524	0.002	$ 148	0.057	$ 6,696
3,000	0.070	$ 7,537	0.018	$ 3,048	0.002	$ 222	0.090	$ 10,807
4,000	0.093	$ 10,050	0.028	$ 4,741	0.003	$ 295	0.124	$ 15,086
5,000	0.116	$ 12,562	0.040	$ 6,773	0.004	$ 369	0.160	$ 19,704
6,000	0.139	$ 15,074	0.040	$ 6,773	0.005	$ 443	0.184	$ 22,291
7,000	0.162	$ 17,587	0.040	$ 6,773	0.005	$ 517	0.208	$ 24,877

Unit Size (FT2)	Local Tenancy All Other Units							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed
500	0.012	$ 1,256	0.004	$ 677	0.000	$ 37	0.016	$ 1,970
1,000	0.023	$ 2,512	0.012	$ 2,032	0.001	$ 74	0.036	$ 4,618
2,000	0.046	$ 5,025	0.035	$ 5,926	0.002	$ 148	0.083	$ 11,099
3,000	0.070	$ 7,537	0.067	$ 11,345	0.002	$ 222	0.139	$ 19,104
4,000	0.093	$ 10,050	0.105	$ 17,779	0.003	$ 295	0.201	$ 28,124
5,000	0.116	$ 12,562	0.105	$ 17,779	0.004	$ 369	0.225	$ 30,711
6,000	0.139	$ 15,074	0.105	$ 17,779	0.005	$ 443	0.249	$ 33,297
7,000	0.162	$ 17,587	0.105	$ 17,779	0.005	$ 517	0.273	$ 35,883

2. Non-Residential Development

The other basic sector that creates a need for affordable workforce housing is nonresidential development. Nonresidential development includes retail, eating and drinking, industrial, institutional, office, and lodging/hotel development. Non-residential development creates a need for labor (the workforce) in three ways: (1) employees who construct the building(s), (2) employees who work at the building (post construction employees), and (3) critical service providers (fire and rescue personnel and law enforcement personnel). Construction employees construct the nonresidential buildings. All different types of employees work at the buildings after they are complete, depending on the type of business. These businesses also require critical service providers (fire and rescue personnel and law enforcement personnel).

The results of this analysis demonstrate that because of the wage levels of these employees and existing housing prices in Teton County, new non-residential development creates a need for affordable workforce housing. Table 4: Summary of Workforce Housing and Assistance Need for Non-Residential Development, identifies examples of the workforce housing need created by non-residential development, both in terms of actual affordable workforce housing units (or a fraction thereof), and housing assistance (subsidy). Because the workforce housing need for non-residential development is based on the size and type of the non-residential development, a formula for the appropriate land use will need to be applied to each type of non-residential development, individually, based on its size (square footage). The formula is outlined on pages 65-66.

Table 4: Summary of Workforce Housing and Assistance Need for Non-Residential Development[1]

Land Use	Construction		Post-Construction		Critical Service Providers		Totals		Totals	
	Workforce Housing Units	Housing Assistance Needed	Workforce Housing Units	Housing Assistance Needed	Workforce Housing Units	Housing Assistance Needed	Workforce Housing Units per 1,000 FT^2/Room	Housing Assistance Needed per 1,000 FT^2/Room	Workforce Housing Units per 1 FT^2	Housing Assistance Needed per 1 FT^2
Per 1,000 Square Feet										
Retail	0.023	$ 2,511.79	0.705	$127,958	0.002	$ 212.46	0.730	$ 130,682.25	0.00073	$ 130.68
Eating & Drinking	0.023	$ 2,511.79	1.956	$286,160	0.002	$ 212.46	1.981	$ 288,884.25	0.00198	$ 288.88
Office	0.023	$ 2,511.79	0.952	$102,783	0.002	$ 212.46	0.977	$ 105,507.25	0.00098	$ 105.51
Industrial	0.010	$ 1,045.84	0.430	$125,983	0.002	$ 212.46	0.442	$ 127,241.30	0.00044	$ 127.24
Institutional	0.017	$ 1,887.36	0.952	$ 125,983.00	0.002	$ 212.46	0.971	$ 128,082.82	0.00097	$ 128.08
Other										
Per Room										
Hotel/Lodging (by room)	0.021	$ 2,253.53	0.244	$35,696	0.002	$ 190.61	0.267	$ 38,140.14		

The analysis to determine the need created for affordable workforce housing by new residential and non-residential development is outlined in detail in the next section.

[1] As explained later in the report, the Other land use category is included here to reiterate that there may be land uses that do not fit within the defined categories. Options for determining mitigation amounts for the "Other" category are explained later in the report.

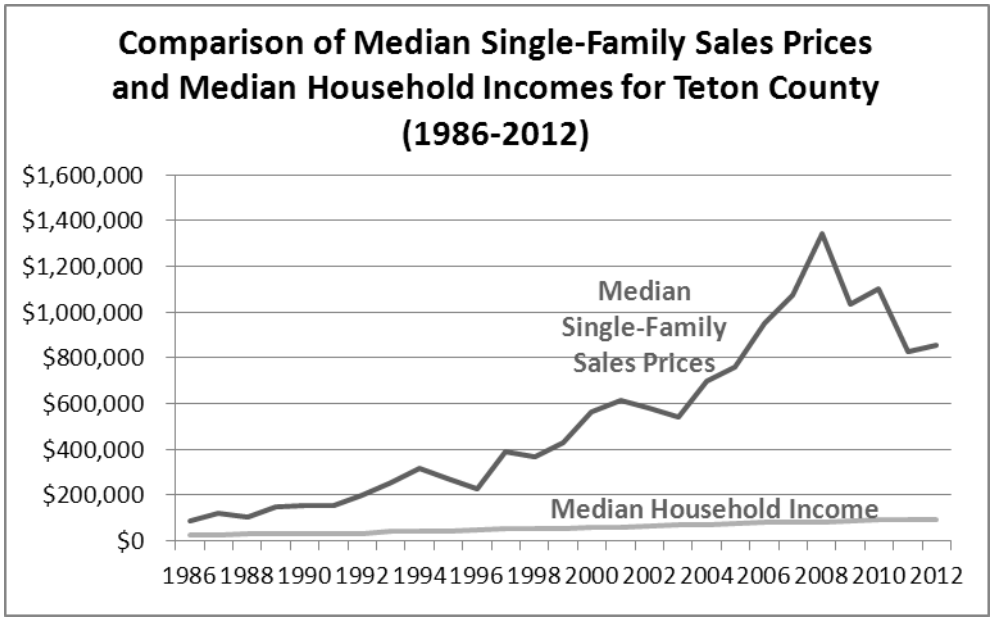
II. PROBLEM DESCRIPTION

A. HOUSING SALES PRICES AND HOUSING AFFORDABILITY

1. Comparison of Median Single Family Sales Prices and Household Income

Like many resort communities, the price of housing in Teton County over the past 27 years has increased while incomes and wages remained relatively static. Figure 2: Comparison of Median Single-Family Sales Prices of Homes and Median Household Incomes for Teton County (1986-2012), illustrates the trend of median housing sales prices and median family income between 1986 and 2012.

Figure 2



Source: Teton County single family sales prices are from three different sources: (1) 1986 to 2000 are from the March 2002 Teton County, Wyoming Affordable Housing Support Study, p.3; (2) 2000-2002 are from the Wyoming Housing Database Partnership, August 28, 2008, and are adjusted to median from averages, and (3) 2003-2012 are from data provided by the Teton County Assessor. Income data was collected from: http://www.huduser.org/portal/datasets/il/il13/index.html

In 1995, the median sales price of a single family home in the county was $272,500. Five years later in 2000, the median sales price of a single family home in the county had risen 107% to $565,000. The increase in median sales prices peaked in 2008 at $1,345,906 at the start of the recession and declined to $853,150 in 2012. During this same period median household income rose modestly. In 1995 median household income was $45,200; in 2005 it was $75,700, and in 2012 it was $96,200.

2. Assessing Housing Affordability

Typically, housing affordability is evaluated by comparing the price of housing for a local real estate market to prevailing wage and salary incomes. A national benchmark for evaluating affordability is whether median household incomes in a community are at the level where the household could afford a median priced home. Typically, housing affordability of owner-

occupied housing is defined as the owner spending no more than 30 percent of annual household income on annual housing costs. The maximum price of an affordable unit under this definition is calculated as 3.33 times (333%) the annual median household income. For an explanation of how the Affordability Threshold Price (333%) is calculated, see Appendix A.

As Table 5: Comparison of Median Household Incomes, Median Single-Family Sales Prices, and Housing Affordability, Teton County, 1986-2012, demonstrates, the gap between median household incomes and median housing costs increased to the point that over the past 27 years median priced housing is no longer affordable to households earning the area median income.

In 1986, median sales price of homes ($90,000) were on target with the affordable housing price for a median household income ($90,667). From that point in time forward, the price points have increased so that they no longer align with what is affordable to median household incomes. By 2000, the median sales price ($565,000) was nearly three times the price affordable to a median household income ($196,333). In 2007, the median sales price ($1,075,000) was approximately four times the price affordable to a median household income ($270,000).

The recession has had an impact on housing prices. Table 5 illustrates a decline in median sales prices starting in 2009. Even so, the median sales price of housing in 2012 ($853,150) is more than 2.6 times the price that is reasonably affordable to a family with a median household income ($320,667), illustrating there is a serious housing affordability problem in Teton County.

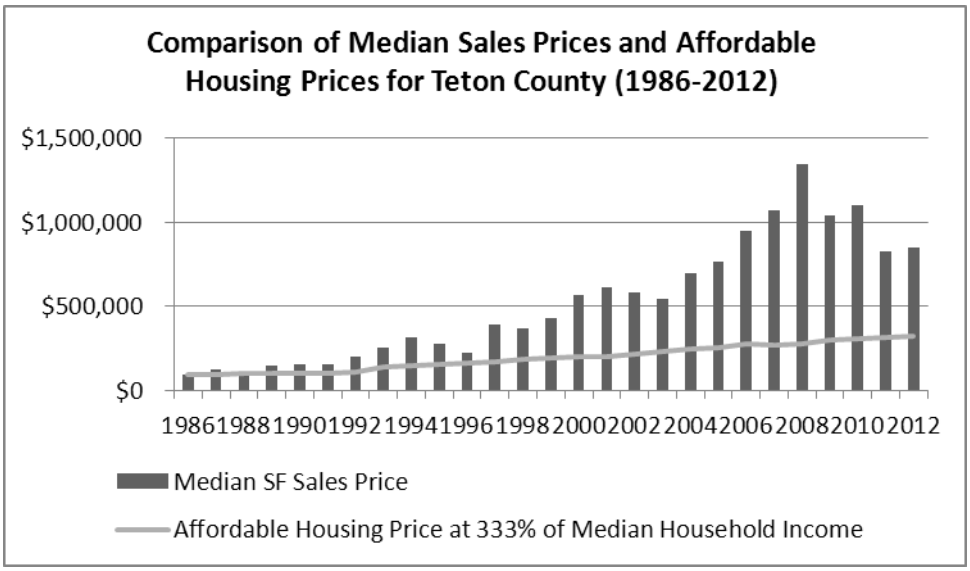
Table 5: Comparison of Median Household Incomes, Median SF Sales Prices, and Housing Affordability (Teton County, 1986-2012)

Source: Teton County single family sales prices are from three different sources: (1) 1986 to 2000 are from the March 2002 Teton County, Wyoming Affordable Housing Support Study, p.3; (2) 2000-2002 are from the Wyoming Housing Database Partnership, August 28, 2008, and are adjusted to median from averages, and (3) 2003-2012 are from data provided by the Teton County Assessor. Income data was collected from: http://www.huduser.org/portal/datasets/il/il13/index.html

Year	Median Household Income	Median SF Sales Price	Affordable Housing Price at 333% of Median Household Income	Ratio of Median SF Sales Price and AH Price at 333% of Median Household Income	Median Income as % of Median SF Sales Price
1986	$27,200	$90,000	$90,667	0.99	331%
1987	$28,200	$120,000	$94,000	1.28	426%
1988	$31,000	$106,000	$103,333	1.03	342%
1989	$31,000	$150,000	$103,333	1.45	484%
1990	$31,000	$157,500	$103,333	1.52	508%
1991	$31,200	$155,000	$104,000	1.49	497%
1992	$32,800	$200,000	$109,333	1.83	610%
1993	$41,300	$256,000	$137,667	1.86	620%
1994	$44,000	$315,000	$146,667	2.15	716%
1995	$45,200	$272,500	$150,667	1.81	603%
1996	$49,400	$225,625	$164,667	1.37	457%
1997	$51,800	$390,000	$172,667	2.26	753%
1998	$56,000	$370,000	$186,667	1.98	661%
1999	$56,500	$430,000	$188,333	2.28	761%
2000	$58,900	$565,000	$196,333	2.88	959%
2001	$59,500	$614,891	$198,333	3.10	1033%
2002	$65,400	$579,981	$218,000	2.66	887%
2003	$69,900	$540,000	$233,000	2.32	773%
2004	$73,500	$700,000	$245,000	2.86	952%
2005	$76,700	$763,000	$255,667	2.98	995%
2006	$81,800	$950,000	$272,667	3.48	1161%
2007	$81,000	$1,075,000	$270,000	3.98	1327%
2008	$83,300	$1,345,906	$277,667	4.85	1616%
2009	$89,500	$1,037,500	$298,333	3.48	1159%
2010	$92,500	$1,100,000	$308,333	3.57	1189%
2011	$94,900	$825,000	$316,333	2.61	869%
2012	$96,200	$853,150	$320,667	2.66	887%

Figure 3: Comparison of Median Sales Prices and Affordable Housing Prices for Teton County, (1986-2012), illustrates the relationship between median sales prices of single family homes in Teton County, and the price of a home that is reasonably affordable to a family with a median household income (333% of median household income).

Figure 3



Source: Teton County single family sales prices are from three different sources: (1) 1986 to 2000 are from the March 2002 Teton County, Wyoming Affordable Housing Support Study, p.3; (2) 2000-2002 are from the Wyoming Housing Database Partnership, August 28, 2008, and are adjusted to median from averages, and (3) 2003-2012 are from data provided by the Teton County Assessor. Income data was collected from: http://www.huduser.org/portal/datasets/il/il13/index.html

Contrasting income and housing price data assumes that only those residents of Teton County are bidding for housing. When those that do not reside in Teton County are willing to bid higher, the market responds to these bids, resulting in what appears to be a market inconsistency. It is likely that many non-residents bid for and purchase Teton housing, and that they are willing to pay higher prices than residents can afford.

B. GROWTH IN WAGES

As is outlined in the previous section, wages for the Teton County workforce have risen modestly over the last 20 years relative to housing costs, which have grown substantially. The data show that even with some employment and wage growth, the Teton County workforce is finding it increasingly difficult to find housing in the market place they can reasonably afford. The data also indicate that a significant portion of the employment growth is occurring in sectors of the economy that increase the housing affordability problem because of the low wages earned by the new employees.

1. Employment by Industry

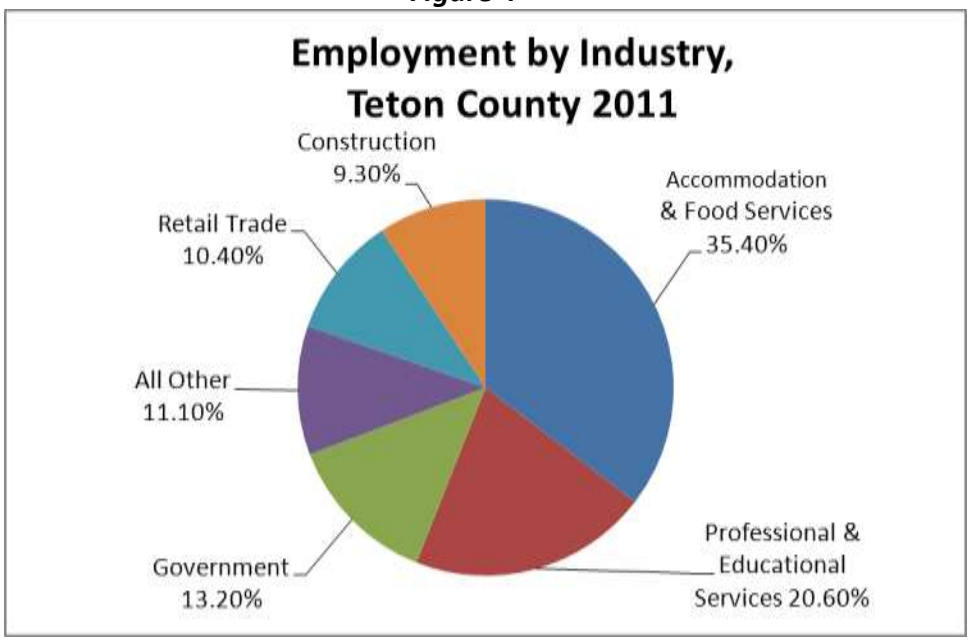
Teton County's local economy can be organized into six general sectors outlined in Table 6: Employment by Industry, Teton County, 2011. The largest sector is accommodation and food services, making up 35.4% of the local economy, followed by professional and educational services (20.6%), government (13.2%), all other industries (11.1.%), retail trade (10.4%), and construction (9.3%). Table 6: Employment by Industry, Teton County, 2011, and Figure 4: Employment by Industry, Teton County 2011, illustrates these trends.

Table 6: Employment by Industry Teton County, 2011

Industry	Employees	%
Accommodation & Food Services	5,997	35.40%
Professional & Educational Services	3,484	20.60%
Government	2,241	13.20%
All Other	1,886	11.10%
Retail Trade	1,764	10.40%
Construction	1,574	9.30%
TOTAL	16,946	100.00%

Source: Wyoming Dept. of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm
For more information on the aggregation of industries, see the North American Standard Industrial Classification Manual http://www.census.gov/eos/www/naics/ . For the full definitions of each industry in the NASIC, see the Census NASIC industry classifications at http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012 .

Figure 4



Source: Wyoming Dept. of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm

2. Economic Growth in Teton County

During the period 2003-2012, economic growth in the county fluctuated significantly due to the heightened economic boom of the 2000s and the national recession that followed. Correspondingly, the difference between 2003 and 2012 employment and wage statistics shows a decrease during the nine year period in employment due to the recession, while growth occurred during the early and mid-2000s. To better assess the local economy without basing conclusions solely on the impact of the recent recession, growth in employment and wages is

defined here as the peak for employment growth and wages during this period subtracted from the employment and wages in 2003 (i.e., the base year of the period). For example, Accommodation and Food Services had the most new employees at peak, meaning that the number of employees during its peak year of employment growth subtracted from the number of new employees in 2003 resulted in the highest number of new employees of all industries. Note that peak growth years during the period may vary by industry. Table 7: Comparison of Peak Economic Growth Industry Leaders (Employers, Employment, Earnings) for Teton County 2003-2012, compares all industry sectors for Teton County to identify the highest ranking industries for peak employer growth, peak employee growth, and peak wage (2011 annual earnings) growth.[2]

Table 7: Comparison of Peak Economic Growth Industry Leaders (Employers, Employment, Earnings) for Teton County 2003-2012

Industry	New Employers at Peak	New Employer Growth Rank at Peak	New Employees at Peak	New Employees Growth Rank at Peak	Added Earnings at Peak	Increased Wage at Peak	Annual Earnings (2011)	Annual Earnings (2011) Rank
Accommodation & Food Services	11	12	1,830	1	$82,459,608	$8,426	$24,615	20
Local Government	1	19	338	2	$40,123,949	$18,824	$47,812	10
Admin., Support & Waste Serv	53	5	253	3	$16,835,259	$14,747	$37,098	13
Health Care & Social Assistance	42	7	218	4	$19,812,993	$19,980	$52,442	8
Finance & Insurance	61	3	181	5	$28,484,348	$32,760	$85,666	2
Prof, Scientific & Tech. Services	95	1	153	6	$33,412,939	$28,738	$70,715	4
Educational Services	11	11	147	7	$7,046,206	$15,250	$33,934	15
Real Estate & Rental & Leasing	63	2	137	8	$15,366,822	$29,911	$58,759	5
Management	24	8	100	9	$25,951,347	$352,207	$352,207	1
Other Services	52	6	92	10	$7,900,163	$11,474	$34,069	14
Construction	60	4	83	11	$29,551,261	$12,375	$44,340	11
Wholesale Trade	14	10	75	12	$11,282,219	$53,344	$81,742	3
Transportation & Warehousing	19	9	63	13	$2,395,488	$4,472	$41,864	12
Ag., Forestry, Fishing, & Hunting	10	13	32	14	$1,300,652	$11,177	$33,477	16
State Government	8	14	23	15	$2,617,121	$16,793	$51,343	9
Federal Government	1	18	18	16	$5,478,880	$13,951	$53,471	7
Retail Trade	8	15	-12	17	$8,667,146	$6,816	$29,580	17
Information	4	17	-17	18	$2,868,282	$25,830	$55,586	6
Manufacturing	-7	20	-39	19	$31,382	$4,372	$28,445	18
Arts, Entertainment, & Recreation	6	16	-83	20	($221,046)	$10,189	$27,553	19
Total, All Industries	**368**		**2,459**		**$297,565,762**	**$12,478**	**$39,007**	
Private Sector	**367**		**2,281**		**$259,853,185**	**$11,976**	**$37,479**	

Source: US Bureau of Labor Statistics (http://data.bls.gov/cgi-bin/dsrv) and the Wyoming Department of Workforce Studies (http://doe.state.wy.us/lmi/toc_202.htm)

[2] The data in Table 7 identifies that one local government entity was added between 2003 and 2012 in Teton County. The name of this new local government entity cannot be identified because the Bureau of Labor Statistics does not release data on individual industry leaders. However, it is likely that this new local government entity represents the establishment of a special district entity.

What Table 7 shows is that the three industries that generated the most growth in employment (New Employees Growth Rank at Peak) had some of the lowest annual earnings. The industry that added the most employees was Accommodation and Food Services, adding 1,830 employees at the peak of the period. This industry is also the lowest ranking industry in terms of annual earnings from 2011 – ranking 20th with 2011 annual earnings of $24,615. Local Government ranked second in terms of employee growth at peak, and tenth for 2011 annual earnings ($47,812). Administrative Support and Waste Services ranked third for adding new employees at peak, and 13th for 2011 annual earnings ($37,098).

When comparing the peak number of jobs added by the Accommodation and Food Services industry (1,830) to the overall total of peak jobs added during the period (2,459) reveals that this industry alone is responsible for adding approximately 74% of new jobs. The fact that the majority of jobs added to the local economy over the last nine years was in a sector that provides the lowest wages does not improve, but increases the affordable workforce housing gap.

C. SUPPLY OF AFFORDABLE HOUSING

Separating out the number of housing sales annually that are affordable to the median household income further supports the notion there is a lack of workforce housing in Teton County. Table 8: Annual Sales of Houses Affordable to the Medium Income Household (2003-2012), shows that between 2003 and 2012, few sales were affordable to a family with a median household income – 8.4% of sales for the time period. While there has been an increase in recent years of units sold within the affordable price range, the number of units is not close to the community's workforce housing goals. In 2012, 62 sales were in the affordable price range for median household incomes in Teton County – 18% of total sales for the year.

The Teton County Assessor's sales data does not include "restricted" housing unit sales. These are homes that are not sold at fair market value, but instead, pricing is restricted to make the units more affordable to the local workforce. As of October, 2012, there were 1,262 restricted housing units in Teton County, with another 494 in some phase of planning / development. While the inventory of restricted units is significant, the Teton County Housing Authority asserts that waiting lists for restricted homes are evidence that this inventory is not meeting current demand for affordable housing.

Table 8: Annual Sales of Homes Affordable to the Median Household Income (2003-2012)

Year	Median HH Income	Affordable Price at 333% of Income	Sales at or Below Affordable Price*			Total Units Sold Annually	Affordable Price Units as % of Total Annual Sales
			SFD	SFA	Condo		
2003	$69,900	$233,000	3	0	62	555	12%
2004	$73,500	$245,000	1	0	100	542	19%
2005	$76,700	$255,667	1	0	27	698	4%
2006	$81,800	$272,667	0	0	23	677	3%
2007	$81,000	$270,000	0	0	3	497	1%
2008	$83,300	$277,667	0	0	0	272	0%
2009	$89,500	$298,333	0	0	7	162	4%
2010	$92,500	$308,333	0	0	19	187	10%
2011	$94,900	$316,333	4	0	40	248	18%
2012	$96,200	$320,667	7	0	55	354	18%
Totals			**16**	**0**	**336**	**352**	
All Sales			**2,272**	**61**	**1,857**	**4,190**	
% at or under Affordabilty Threshold			**0.7%**	**0.0%**	**18.1%**	**8.40%**	

SOURCE: Teton County Assessor, 2013.

Source: Teton County Assessor, 2013

* The affordability limit defined at 30% of household income, results in the Affordability Threshold Price equal to 333% of median household income.

III. NEED FOR WORKFORCE HOUSING CREATED BY DEVELOPMENT

A. BACKGROUND

As employment increases in a community, the demand for local housing also increases. Because some of the employers in Teton County, such as construction, retail service, and resort and hospitality businesses, typically hire more lower wage employees than other industries, a significant percentage of new employees in Teton County earn modest wages and cannot afford most of the houses for sale in the local real estate market.

For the purposes of evaluating where affordable workforce housing demands originate, it is tempting to think that a community may be divided neatly into an economic sector and a residential sector. The economic sector provides the employment and incomes for the residents and the residential sector provides for the needs of the local employees and their families. In a place like Teton County, however, this distinction between an economic sector and residential sector is misleading. Instead, it is more useful to think of the Teton County economy as divided into two general sectors: the basic sector and the local sector.

The basic sector is that part of the economy that brings income into the county and distributes that income as wages and salaries within the region. The local sector is that part of the economy that produces goods and services for sale to residents of the region. The basic sector is active while the local sector is reactive. The essential reason for using this model is that the economic health of the region is dependent upon the economic success of the basic sector.

Both residential and non-residential development in Teton County are a part of the basic sector because of the size of the tourist/second home component of Teton County's economy, which helps fuel the construction, retail services, and accommodation and food services businesses. The incomes earned from this demand leads to spending in the local sector. As such, residential and non-residential development shares many of the characteristics of other and more typical components of the economic base, including its demand for labor.

Residential and non-residential development in Teton County places a demand on labor (the workforce) in four ways:

- The first is the construction of the building (i.e., construction employees for both residential and non-residential development);
- The second is the operation and maintenance of the residential building (i.e., employees for residential development);
- The third is the use of the structure as designed by the builders (i.e., employees for non-residential development); and
- The fourth is the critical service providers (fire and rescue personnel and law enforcement personnel) that support the development (both residential and non-residential, to varying degrees).

All four activities generate employment in Teton County, and because of the wage levels and existing housing prices, these activities consequently result in a need for affordable workforce housing. The demand for labor (employees) that both residential and non-residential development creates and the demand these employees place on the need for affordable workforce housing is outlined below

B. RESIDENTIAL

1. Background

In determining the need created for affordable workforce housing by new residential development, one must start by identifying the employees that construct and serve the residential development. As noted above, residential development in Teton County demands employment in three ways:

- The construction of the residence (construction employees);
- The operation and maintenance of the residence, post-construction (operation and maintenance employees); and
- The critical service providers that provide critical public services to the unit (fire and rescue personnel and law enforcement personnel).

Most of these workers typically earn wages and salaries that put them in a position of economic stress in terms of their ability to purchase or rent housing. Consequently, they create a need for workforce housing. The need created by residential development for each type of employee and the employees that cumulatively build and serve residential development is outlined in the following sections.

2. Demand for Workforce Housing Units

a. Construction Employees

The construction, expansion, or renovation of buildings requires the employment of contractors and construction workers to do the work. The method used to assess the need for affordable workforce housing created by construction of residential units involves the following. First, the amount of construction authorized and built in Teton County from 2002-2011 (measured in square feet) was determined from annual Teton County and Town of Jackson Building Departments records. This included both finished and unfinished construction space. Unfinished construction is defined as having only the general structural elements of a building and no final finishes. Many industrial and institutional facilities are developed in this manner allowing future tenants to determine the layout of offices and the finishing treatments to spaces. The number of construction employees needed to develop finished and unfinished space is different based on the different level of work necessary to complete the two types of spaces.

To more accurately assess the number of employees needed to develop different types of buildings, construction employees were broken down into finished and unfinished construction employees, for both residential and non-residential development. See Appendix C for more detail on the calculation of construction employment by construction type.

The number of construction workers involved in the construction of buildings is determined using ES-202 data[3] on local construction workers. The construction industry has two broad sectors: construction of buildings and all other types of construction activities. These other types of construction activities include maintenance work, construction of roads and other "horizontal improvements," building remodeling, and demolition. Teton County construction employees are divided between the construction of buildings and all other types of construction activities. Persons involved in all other type of construction are not included in these counts.

Next, and based upon this data, it is estimated that it takes 1.234 employees to construct 1,000 square feet of floor area, or 0.001234 employees to construct one square foot of residential development.[4] (See Appendix C for more detail on calculating the employees to construct residential floor area.)

Table 9: Construction Employee per Unit by Size of Unit, Teton County, sets out the number of employees needed to construct different size residential units based on the fact that it takes 0.001234 employee years to construct one square foot of residential development. Multiplying the floor area of a residential unit by the number of employees needed to build one square foot of residential development in a year (0.001234) results in the employees to construct units. For example, building a 500 square foot unit times 0.001234 results in the need for 0.617 construction employees working over a year.

The table also provides several more estimates. One is the number of employee years it takes to construct a residential unit of different sizes. It is recognized that construction employees require housing only during the period of actual construction of the home (even though they live in the community over their career). This is accounted for in the analysis by assuming an average construction worker career is 30 years. To account for this circumstance, the calculation of construction employee years to construct the unit is divided by 30 to convert to the needed housing over the work career of the employee.

Finally, to determine the number of residential units needed to house construction employees, the employees needed column is divided by the average number of employees per household for households that have construction employees in Teton County (1.774) to estimate the fraction of a dwelling unit needed to house the employees engaged in the residential construction of homes (See column labeled "Housing Units Needed for Employees"). As shown in the previous table, this calculation results in a little over 0.023 of a dwelling unit needed for construction employees for every 1,000 square feet of residential construction. See Table 9: Construction Employee Per Unit, by Size of Unit.

[3] ES-202 data (also known as the "Quarterly Census of Employment and Wages") is available through the U.S. Bureau of Labor Statistics. ES-202 data provides covered (i.e., insured) employment and wage data, by industry, at the national, state, and county levels.

[4] Remodeling and demolition projects are not included in the total of building floor area constructed in Teton County and the Town of Jackson because they do not result in new building floor area.

Table 9: Construction Employee per Unit by Size of Unit

Floor Area	Employee Years to Construct One Foot of Construction	Employee Years to Construct Units	Estimated Length in Years of Construction Employee Career	Employees Needed (over career of employee - est. 30 years)	Construction Employees per Household	Housing Units Needed for Employees
500	0.00123	0.617	30	0.021	1.774	0.012
1000	0.00123	1.234	30	0.041	1.774	0.023
2000	0.00123	2.468	30	0.082	1.774	0.046
3000	0.00123	3.702	30	0.123	1.774	0.070
4000	0.00123	4.936	30	0.165	1.774	0.093
5000	0.00123	6.170	30	0.206	1.774	0.116
6000	0.00123	7.404	30	0.247	1.774	0.139
7000	0.00123	8.638	30	0.288	1.774	0.162

Source: Wyoming Dept. of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm, Town of Jackson and Teton County Building Departments, American Community Survey (2011)

b. Operations and Maintenance Employees

In the fall of 2012, RRC Associates, Inc., conducted a survey of homeowners in Teton County. The results of the survey are summarized in *Teton County Homeowner Survey Summary of Results, November 2012* (hereinafter referred to as "Homeowner Survey"). One of the primary objectives of the Homeowner Survey was to acquire data on the employment associated with the operations and maintenance of residential units in Teton County. The Homeowner Survey asked homeowners questions about the use, both directly and indirectly, of five primary categories of employees that are hired to assist in the operation and maintenance of residential units. They include:

- Direct hires by homeowners;
- Hires by property management firms retained by home owners to operate and maintain residential properties;
- Hires by homeowners associations responsible for operating and maintaining residential properties;
- On-sight caretakers; and
- Other local service firms.

The operations and maintenance services probed included maintenance and upkeep (i.e., building maintenance, snow removal, trash removal, lawn/landscape maintenance, and other maintenance), rental management, housekeeping/cleaning, insurance agencies, kitchen help, child care/nannies, caretakers, butlers, administrative assistants for the residential unit, and various other services. The survey also gathered extensive data about selected occupancy characteristics of residential homes, as well as the use patterns and demographics of homeowners, which is useful for other policy, planning, and research purposes.

The survey was mailed to a sample of 3,000 homeowners in Teton County, including single-family homes, townhomes, condominiums, and other ownership units. The

survey mailing list was deliberately weighted to oversample owners of large units (units over 5,000 square feet in size), in an effort to ensure that usable results would be available for units of all sizes (including very large units, which are comparatively few in number). Table 10: Homeowner Survey Mailing List and Unduplicated Teton County Homeowners, 2012, identifies the number and percent of surveys sent to households of various sizes, the existing and unduplicated homeowners[5] in Teton County from the Teton County Assessor records, and the percent of unduplicated homeowners contacted by size of unit.

Table 10: Homeowner Survey Mailing List and Unduplicated Teton County Homeowners, 2012

	Survey Mailing List		Unduplicated Homeowners		% of Unduplicated
Home Size	#	%	#	%	Owners Contacted
Under 1,000 sqft	313	10.4%	902	12.8%	35%
1,000 - 1,999 sqft	1,030	34.3%	2,826	40.1%	36%
2,000 - 2,999 sqft	537	17.9%	1,524	21.6%	35%
3,000 - 3,999 sqft	303	10.1%	839	11.9%	36%
4,000 - 4,999 sqft	312	10.4%	445	6.3%	70%
5,000+ sqft	505	16.8%	505	7.2%	100%
Total	3,000	100.0%	7,041	100.0%	43%

Source: Teton County Assessor database (July 2012); RRC Associates.

Of the 3,000 surveys mailed, 44 were returned as undeliverable, for a net of 2,956 surveys presumed delivered. A total of 978 surveys were returned, for a 33.1 percent response rate. See Table 11: Percent of Survey Responses, by House Size. Of these 978 surveys, some lacked responses to specific survey questions. In conducting analysis on the survey responses, only those surveys that have a response to the related questions in the hypothesis were tested. Special attention was paid to the fact that the percentage of surveys received for larger units (5,000 square feet and higher) was a smaller percentage of the distribution when compared to other size units. Specifically, the percentage of surveys for units greater than 7,000 square feet was so small that it was not deemed statistically significant. Accordingly, the employment and household need generation rates shown later in this section were not calculated for units greater than 7,000 square feet.

[5] The list of homeowners in Teton County was filtered such that property owners that owned more than one property were only sent one survey to be completed for one property. This is referred to as "unduplicated homeowners." The purpose of filtering out property owners of multiple homes is to facilitate a wider sampling of homeowners and reduce the chance of the same property owner responding twice. If a property owner owned multiple properties with titles held under different businesses, it is possible that they received more than one survey.

Table 11: Percent of Survey Responses, by House Size

Home Size (floor area)	% of Survey Cases Responding
1-999	10.06%
1,000-1,999	27.30%
2,000-2,999	21.41%
3,000-3,999	12.96%
4,000-4,999	11.35%
5,000+	16.92%
Total	100.00%

Source: Teton County Homeowner Survey Summary of Results, November 2012

The Homeowner Survey collected data on five different types of home operations expenditures. These expenditures include:

- Homeowner association dues / assessments
- Property management company services
- On-site caretakers
- Contractors / employees hired by the household
- An array of other services obtained in the home (e.g. kitchen help/catering, childcare / nanny, etc.)

Of the 900 responses, 648 surveys responded to the survey questions about whether or not they employed operation and maintenance employees. A total of 87 full-time equivalent (FTE) persons were reported as being employed at the 648 Teton County residences. See Table 12: Responses to Household Employment Question and Summary of Employment Responses in Full-Time Equivalent Employee Units by Employment Type. The FTE divided by the number of respondents (households) answering the question results in 0.134 full-time equivalents per year, per residence, or 279 employee-hours per year.

Table 12: Responses to Household Employment Question and Summary of Employment Responses in Full-Time Equivalent Employee Units by Employment Type

Respondents Answering Employment Question	648
Full-Time Equivalent Employees Employed by Respondents	
HOA Employees	10
Property Management Employee	9
On-Site Caretakers	13
Contract Employee	26
Other	29
Total	**87**
Full-Time Equivalent Conversions per Year	
Full-time equivalent employees per year	0.134
Employee hours per year	279

Source: Teton County Homeowner Survey Summary of Results, November 2012

Generally, the extent of operation and maintenance services provided to residences are a function of several factors: unit size, type of dwelling unit structure, tenancy, the age of the occupant, the income of the occupant, the amount of time a person occupies the unit, and the owner's interest in personally providing operation and maintenance services.

After an evaluation of the data and some initial analysis, a hypothesis was tested using regression analysis to evaluate whether there is a relationship between house size, ownership by local resident or non-resident, and the number of operations and maintenance employees that serve residential units.[6] This equation is as follows:

$$Employment = EXP\{A_1 + (b_1 \times Local) + (b_2 \times Type) + [b_3 \times Ln(FT^2)]\}$$

[6] Local residents are defined as those residents that identified the Teton County residence as the primary residence of the homeowner and had the residence listed as their primary mailing address. Non-local residents are residents that identified some other tenancy option listed for the home, such as vacation home, vacation rental, rented long-term to local resident, business/corporate use, other use, or vacant.

The resulting regression equation[7] is:

$$Employment = EXP\left\{\begin{matrix}(17.7)\\-14.17\end{matrix} + \left(\begin{matrix}(4.8)\\-0.65\end{matrix} \times Local\right) + \left(\begin{matrix}(8.0)\\-1.32\end{matrix} \times Type\right) + \left[\begin{matrix}(14.6)\\1.59\end{matrix} \times Ln(FT^2)\right]\right\}$$

In this equation Local and Type are "dummy" variables. Local equal to one indicates that the residence is occupied by a full-time resident of Teton County and Type equal to one indicates that the residence is a single family detached unit. If the values are equal to zero, then the opposite is true. This means that Local equal to zero is a non-local resident and Type equal to zero is some type of housing unit that is not single-family detached (e.g., townhouse, duplex, condominium, etc.) The test statistics for this regression equation are shown in Table 13: Regression Analysis Results for Relationship Between Operation and maintenance Employees, Size of Residential Unit, and Occupancy.

Table 13: Regression Analysis Results for Relationship Between Operations and Maintenance Employees, Size of Residential Unit, and Occupancy

Regression Statistics					
Multiple R					0.5667
R Square					0.3212
Adjusted R Square					0.3174
Standard Error					1.2995
Observations					549
Analysis of Variance					
	df	SS	MS	F	Significance F
Regression	3	435.4	145.13	85.95	0
Residual	545	920.29	1.69		
Total	548	1,355.69			
			Coefficients	Standard Error	t-Ratio
Intercept			-14.17	0.8	-17.71
Local Resident			-0.65	0.13	-4.8
Single Family			-1.32	0.16	-8
Ln(FT2)			1.59	0.11	14.59

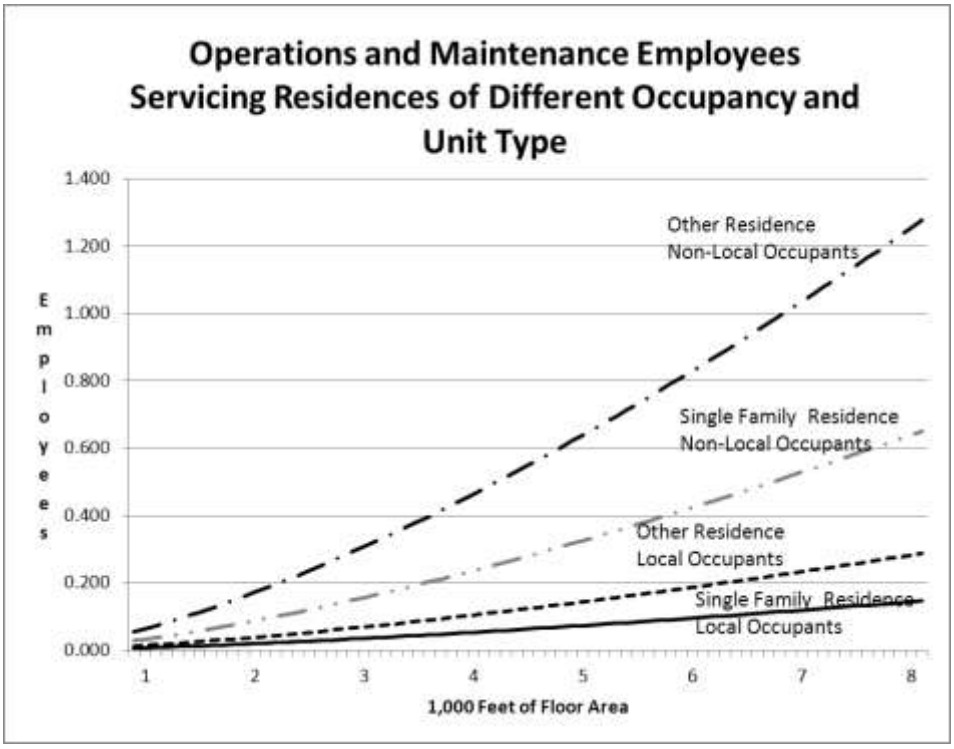
Source: Dr. James C. Nicholas

[7] The numbers in brackets above the coefficients are the t-Ratios. T-Ratios are statistical measures that assess the extent to which the value of the coefficient can be accepted as being different from zero. A Rule of Thumb is that a t-Ratio of greater than 2 is an indication that the coefficient has statistical significance.

The significant t-Ratios and the F-Statistic[8] indicate there is significance to the equation and the individual variables within the equation. However, the relatively low value of the R^2 indicates that there are factors influencing the number of employees at a residence that are not within the equation.[9] Such explanatory factors could be the age of the occupants and their wealth. As both of these factors are outside of the realm of land use regulation, they are not included in the analysis and the hypothesis tested.

The results of applying this equation are shown in Figure 5: Operation and Maintenance Employees Serving Residences of Different Occupancy (Locals versus Nonlocals), and Unit Type (Single-Family versus Other), and Size. Residences used by non-locals employ more operations and maintenance employees than residences occupied by locals. Also, single family residences tend to employ fewer persons than other types of residences, most commonly the condominium. By far the most important variable in determining the number of persons employed is the size of the residence.

Figure 5



Source: Dr. James C. Nicholas

[8] The F- Statistic is an assessment of the extent to which the dependent variable, employment, varies with the independent variables, domicile of owner, type of residence, and floor area of the residence. An F Significance approaching zero indicates that there is statistically significant covariance between the dependent variable and the independent variables.

[9] R^2 is the percentage (without moving the decimal) of variation in the dependent variable (employment) that is explained by the independent variables (Local, Type, and floor area).

The general results of this analysis are that there are different employment ratios (i.e., number of full-time equivalent employees serving a household in an operation or maintenance capacity) depending on occupancy (whether they are occupied by a local resident or non-local resident), the type of housing unit (single family versus other type of residence), and the size of the residence. Part of this explanation may be that local homeowners do more operations and maintenance work on their residence than non-locals who must hire employees to maintain properties.

This exponential relationship describes operations and maintenance employment at a residential unit as a function of unit type, occupancy, and home size for units of 7,000 square feet and under.[10] To determine the need for post operation and maintenance workforce housing created by new residential development, the number of operation and maintenance employees needed to serve different types of residential development based on type (single-family versus other), occupancy (local versus non-local) and size is determined, based on the results of the regression analysis outlined above. Once this employee need is determined, the number (or fraction) of a workforce housing unit needed for the employees is calculated based on the average number of employees per dwelling unit for operations and maintenance employee households that exist today in Teton County (1.713[11]). See Table 14: Operations and Maintenance Employment and Employee Housing Units Needed for Non-Local Units by Home Size and Size of Units, for the employee generation and workforce housing unit need created by new residential development for non-locals, and Table 15: Operations and Maintenance Employment and Employee Housing Units Needed for Local Units by Home Size and Size of Units, for the employee generation and workforce housing unit need created by new residential development owned by locals.

[10] Due to the fact that so few surveys were completed for units greater than 7,000 square feet, the statistical significance of the relationship between the number of employees serving the unit, the tenancy of the unit, the type of unit, and the square footage of the unit declines at 7,000 square feet . Accordingly, the calculations for workforce housing demand and associated workforce housing subsidies are cut off at a 7,000 square foot unit.

[11] U.S. Census Bureau's 2011 American Community Survey Public Use Microdata Sample (PUMS) provides estimates of employee workers per household for different types of employee households. Operations and maintenance households were determined to best fit into the category "other services, except public administration." This category is estimated to have an average of 1.713 employees per household. See Appendix D: Employees per Household, Teton County for more information.

Table 14: Operations and Maintenance Employment and Employee Housing Units Needed for Non-Local Units by Home Size and Type of Unit

FT²	Non-Local					
	Other Unit			SFD Unit		
	Employees per Unit	Employees per Household	Housing Units Needed for Employees	Employees per Unit	Employees per Household	Housing Units Needed for Employees
500	0.013	1.713	0.007	0.004	1.713	0.002
1,000	0.040	1.713	0.022	0.011	1.713	0.006
2,000	0.120	1.713	0.067	0.032	1.713	0.018
3,000	0.228	1.713	0.067	0.061	1.713	0.034
4,000	0.228	1.713	0.067	0.096	1.713	0.054
5,000	0.228	1.713	0.067	0.137	1.713	0.076
6,000	0.228	1.713	0.067	0.137	1.713	0.076
7,000	0.228	1.713	0.067	0.137	1.713	0.076

Source: Dr. James C. Nicholas

Table 15: Operations and Maintenance Employment and Employee Housing Units Needed for Local Units by Home Size and Type of Unit

FT²	Local					
	Other Unit			SFD Unit		
	Employees per Unit	Employees per Household	Housing Units Needed for Employees	Employees per Unit	Employees per Household	Housing Units Needed for Employees
500	0.007	1.713	0.004	0.002	1.713	0.001
1,000	0.021	1.713	0.012	0.006	1.713	0.003
2,000	0.063	1.713	0.035	0.017	1.713	0.009
3,000	0.120	1.713	0.067	0.032	1.713	0.018
4,000	0.189	1.713	0.105	0.051	1.713	0.028
5,000	0.189	1.713	0.105	0.072	1.713	0.040
6,000	0.189	1.713	0.105	0.072	1.713	0.040
7,000	0.189	1.713	0.105	0.072	1.713	0.040

Source: Dr. James C. Nicholas

c. Critical Service Providers

The final group of employees that serve residential development, post construction, are critical service providers. The Teton County Board of County Commissioners and the Jackson Town Council have adopted policies giving preference through the TCHA's Program Home lottery to critical service providers within Teton County. The 2012 Comprehensive Plan reaffirms these policies and sets out a policy to prioritize housing for critical service providers.[12] Several of these critical service providers provide critical services to residential and non-residential developments and are included in this analysis. They are:

- Fire and rescue personnel (Fire and EMS/paramedics), and
- Law enforcement personnel (Sheriff and Police Department personnel)

They are included because they are important to the overall safety and well-being of the community. In allocating the workforce housing need residential development creates for fire and rescue personnel and law enforcement personnel the following analysis was conducted.

Initially, the current number of critical service providers that serve both residential and non-residential development in the county was determined (this includes both uniform personnel and those who support or supervise uniform personnel). Next the total residential and nonresidential development (by square feet) in the county was determined from development records provided by the Town of Jackson and Teton County Building Departments. Next, emergency call responses made by fire and rescue personnel and law enforcement personnel to residential versus nonresidential development was estimated by Teton County public safety officials, and then the critical service providers were allocated to residential and nonresidential development based on the proportion of estimated responses made to each different type of development.

Finally, and once this was done, the total number of personnel serving residential development was compared to the total square feet of residential development, to derive an employee per square foot service estimate. It is assumed this service level will be carried forward into the future for new residential development. Table 16: Residential Critical Service Providers-Fire and Rescue, shows the results of this analysis for fire and rescue personnel. It demonstrates that 1,000 square feet of residential development is served by 0.00033 fire and rescue personnel

Table 16: Residential Critical Service Providers – Fire and Rescue

Fire/Rescue Personnel Attributable to Residential Development	9
Total Residential Floor Area (estimated for 2012)	27,201,802
Fire/Rescue Personnel per 1,000 FT^2	0.00033
Workforce Housing Units Needed per 1,000 FT^2	0.00018

Source: Jackson Hole Fire/EMS, 2013, Teton County and Jackson Building Departments, James C. Nicholas

[12] Policy 5.1.c of the Teton County/Jackson Comprehensive Plan sets out a policy that gives critical services providers the priority for subsidized housing.

To determine the need residential development creates for workforce housing for fire and rescue personnel that serve residential development, the fire and rescue personnel that serve residential development is divided by the number of employees that are, on average in a fire and rescue household (1.797).[13] This analysis shows 1,000 square feet of residential development creates a need for 0.00018 of a workforce housing unit for fire and rescue personnel.

As outlined earlier, a similar analysis was conducted to determine the need new residential development creates for workforce housing for law enforcement personnel. The results of this analysis is that 1,000 square feet of new residential development creates a need for 0.00059 of a workforce housing unit for law enforcement personnel. See Table 17: Residential Critical Service Providers-Law Enforcement Personnel, and Appendix E for more detail on this calculation.

Table 17: Residential Critical Service Providers – Law Enforcement Personnel

Law Enforcement Personnel Attributable to Residential Development	29
Total Residential Floor Area (estimated for 2012)	27,201,802
Law Enforcement Personnel per 1,000 FT^2	0.00107
Workforce Housing Units Needed per 1,000 FT^2	0.00059

Source: Jackson Hole Fire/EMS, 2013, Teton County and Jackson Building Departments, James C. Nicholas

A summary of the workforce housing need created by new residential development for both fire and rescue personnel and law enforcement personnel is in outlined in Table 18: Need for Critical Service Providers Workforce Housing Created by Residential Development. It shows that 1,000 square feet of new residential development creates a need for 0.00077 of a workforce housing unit for critical service providers.

Table 18: Need for Critical Service Providers Workforce Housing Created by Residential Development

Per 1,000 Square Feet of Residential Development	Employees	Workforce Units
Fire/Rescue Personnel	0.00033086	0.00018
Public Safety Personnel	0.00107	0.00059
Total Critical Employee Personnel	0.00140086	0.00077

Source: James C. Nicholas

[13] To calculate the number of fire/rescue personnel per 1,000 square feet of development, the total residential floor area is divided by the fire/rescue personnel attributable to residential development. The workforce housing unit needed per 1,000 square feet of development is determined by dividing the number of fire/rescue personnel per 1,000 square feet of development by the average number of employees per household for a fire/rescue household (1.797). See Appendix D: Employees per Household and Appendix E: Critical Service Providers Workforce Housing Need Calculation for more information on these calculations.

d. Summary of Need for Workforce Housing Created by Residential Development

Tables 19-20 summarize the total workforce housing unit need created by new residential development. It includes and aggregates the need from:

- Constructions employees
- Operation and maintenance employees, and
- Critical service providers (fire and ems personnel and law enforcement personnel)

Because the need for affordable workforce housing for operations and maintenance employees differs based on tenancy (local or non-local) and unit type (single-family detached and all other residential units), the tables are organized based on whether they are owned by local or non-local, and whether the unit is a single-family unit or some other types of residential unit.

Table 19: Need for Workforce Housing Created by Non-Local Residential Development, provides a summary of the need for employee workforce housing created by new non-local residential development. Table 20: Need for Workforce Housing Created by Local Residential Development, similar information for locally-owned residential development.

Table 19: Need for Workforce Housing Created by Non-Local Residential Development

Unit Size (FT^2)	Non-Local Tenancy Single-Family Detached Housing							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed
500	0.021	0.012	0.004	0.002	0.001	0.000	0.025	0.014
1,000	0.041	0.023	0.011	0.006	0.001	0.001	0.054	0.030
2,000	0.082	0.046	0.032	0.018	0.003	0.002	0.117	0.066
3,000	0.123	0.070	0.061	0.034	0.004	0.002	0.189	0.106
4,000	0.165	0.093	0.096	0.054	0.006	0.003	0.266	0.150
5,000	0.206	0.116	0.137	0.076	0.007	0.004	0.350	0.196
6,000	0.247	0.139	0.137	0.076	0.008	0.005	0.392	0.220
7,000	0.288	0.162	0.137	0.076	0.010	0.005	0.435	0.244

Unit Size (FT^2)	Non-Local Tenancy All Other Housing Units							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed
500	0.021	0.012	0.013	0.007	0.001	0.000	0.034	0.019
1,000	0.041	0.023	0.040	0.022	0.001	0.001	0.083	0.046
2,000	0.082	0.046	0.120	0.067	0.003	0.002	0.205	0.115
3,000	0.123	0.070	0.228	0.067	0.004	0.002	0.356	0.139
4,000	0.165	0.093	0.228	0.067	0.006	0.003	0.398	0.163
5,000	0.206	0.116	0.228	0.067	0.007	0.004	0.441	0.187
6,000	0.247	0.139	0.228	0.067	0.008	0.005	0.483	0.211
7,000	0.288	0.162	0.228	0.067	0.010	0.005	0.526	0.235

Source: James C. Nicholas, Clarion Associates

Table 20: Need for Workforce Housing Created by Local Residential Development

Unit Size (FT^2)	Local Tenancy Single-Family Detached Housing							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed
500	0.021	0.012	0.002	0.001	0.001	0.000	0.023	0.013
1,000	0.041	0.023	0.006	0.003	0.001	0.001	0.049	0.027
2,000	0.082	0.046	0.017	0.009	0.003	0.002	0.102	0.057
3,000	0.123	0.070	0.032	0.018	0.004	0.002	0.160	0.090
4,000	0.165	0.093	0.051	0.028	0.006	0.003	0.221	0.124
5,000	0.206	0.116	0.072	0.040	0.007	0.004	0.285	0.160
6,000	0.247	0.139	0.072	0.040	0.008	0.005	0.327	0.184
7,000	0.288	0.162	0.072	0.040	0.010	0.005	0.370	0.208

Unit Size (FT^2)	Local Tenancy All Other Housing Units							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed	Employees	Affordable Housing Units Needed
500	0.021	0.012	0.007	0.004	0.001	0.000	0.028	0.016
1,000	0.041	0.023	0.021	0.012	0.001	0.001	0.064	0.036
2,000	0.082	0.046	0.063	0.035	0.003	0.002	0.148	0.083
3,000	0.123	0.070	0.120	0.067	0.004	0.002	0.248	0.139
4,000	0.165	0.093	0.189	0.105	0.006	0.003	0.359	0.201
5,000	0.206	0.116	0.189	0.105	0.007	0.004	0.402	0.225
6,000	0.247	0.139	0.189	0.105	0.008	0.005	0.444	0.249
7,000	0.288	0.162	0.189	0.105	0.010	0.005	0.487	0.273

Source: James C. Nicholas, Clarion Associates

3. Assistance to Address Workforce Housing Need

The last step in evaluating the need for workforce housing created by residential development is to determine the amount of assistance (housing subsidy) needed to ensure workforce housing needs created by residential development is affordable for the employees that construct and serve the residential development (the construction, operations/maintenance, and critical service providers). In determining the housing assistance (subsidy) needed, it is first necessary to determine the cost of the prototypical housing unit that would reasonably be expected to serve workforce housing needs.

a. Cost of Prototypical Workforce Housing Unit

The cost of the prototypical housing unit is based on the average costs of two different types of prototypical units. One is a 1200 square foot,[14] two bedroom single-family unit; the other is a 1,000 square foot[15] two bedroom multi-family unit. These two

[14] The area of the home that is heated.
[15] The area of the home that is heated.

prototypical units represent the general square footage and number of bedrooms found in single-family and multi-family workforce housing units existing in Teton County today. It is assumed these units would, on average, house a family of three persons.

Based on cost information obtained through the TCHA for the purchase of land and for the construction of units (site preparation, construction, and professional fees) in the county for projects similar to the two prototypical units, the costs to build the prototypical two bedroom,1200 square foot, single-family attached unit (land and construction costs) is $392,735 or $327 per square foot. The cost to construct the 1,000 square foot multi-family unit is $351,440 or $351 per square foot. The construction cost for the 1,200 square foot single-family unit is $247,770; the construction cost for the 1,000 square foot multifamily unit is $206,475. Land costs are estimated to be $144,965 per unit. The construction costs are based on recent estimates for the construction of units in four Teton County workforce housing projects. The land costs are based on the average costs to purchase land for three recent affordable housing projects. Table 21: Costs to Construct Prototypical Workforce Housing Units, outlines these estimates. Appendix F provides a detailed description of the construction and land costs estimates used for the prototypical units.

Table 21: Costs to Construct Prototypical Workforce Housing Units

	FT^2	Construction	Land	Total	Cost / FT^2
Single-family attached	1,200	$ 247,770	$ 144,965	$392,735	$ 327
Multi-family	1,000	$ 206,475	$ 144,965	$351,440	$ 351
Average Cost	**1,100**	**$**		**372,088**	**$ 339**

Source: Teton County Housing Authority, Teton County Assessor, 2013, James C. Nicholas

Averaging the costs to construct the 1,200 square foot single-family attached and 1,000 square foot multi-family housing unit results in an average cost for the prototypical unit of $372,088, or $339 per square foot.

b. Workforce Housing Assistance for Construction Employee Households

Once the costs for a prototypical workforce housing unit is determined, the next step is to identify the amount of assistance (subsidy) an employee household requires to reasonably afford a prototypical housing unit (given their income). With respect to new residential units, this requires evaluating the subsidy needed for construction employees, operations and maintenance employees, and critical service providers.

According to the data for construction industry employees in Teton County, individual annual construction employee earned income is $47,867. Adding average second income employment earnings and earnings from others in the construction employee household, the annual household earnings for the construction employee household is $79,120. See Appendix B: Calculating Second Job Earnings and Other Household Income for an explanation of how second earnings and earnings from others in the household are calculated.

Based on these earnings, a construction employee household can reasonably afford to spend $263,733 for housing (i.e., 333% of the household income $79,120). Given the construction employee household income ($79,120) and the maximum housing cost that a construction employee household could afford ($263,733), a construction

employee household needs assistance (a subsidy) of $108,355 to afford the prototypical workforce housing unit. (The difference between the cost of the prototypical workforce housing unit ($372,088) and the housing cost that a construction employee household can reasonably afford ($263,733)). See Table 22: Workforce Housing Assistance (Subsidy) for Construction Employee Households.

Table 22: Workforce Housing Assistance (Subsidy) for Construction Employee Households

Construction Worker Earned Income	$	47,867
Income from Others in Household	$	30,188
Average Seasonal Income	$	1,065
Total Household Income	$	79,120
Affordability Threshold (333% of Household Income)	**$**	**263,733**
Average Cost for Prototypical Workforce Housing Unit	$	372,088
Affordability Threshold for Construction Employee Household	$	263,733
Workforce Housing Gap / Subsidy Required to Afford Unit	**$**	**108,355**

Source: Wyoming Department of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm, James C. Nicholas

Table 23: Workforce Housing Assistance (Subsidy) Needed for Construction Employees, by Size of Residential Unit, provides some examples of the subsidy needed for workforce housing for construction employees for different sizes of new residential units. For example, a 1,000 square foot residential development creates the need for a subsidy of $2,512.39 for the construction employee, while a 3,000 square foot unit creates the need for a $7,537.18 subsidy. The housing assistance needed per unit for construction employees results in $2.51 per square foot of residential floor area.

Table 23: Workforce Housing Assistance (Subsidy) Needed for Construction Employees, by Size of Residential Unit

Floor Area	Employee Years to Construct Units	Employees Needed (over career of employee)	Housing Units Needed for Employees	Housing Assistance Needed per Unit
500	0.617	0.021	0.012	$ 1,256.20
1000	1.234	0.041	0.023	$ 2,512.39
2000	2.468	0.082	0.046	$ 5,024.79
3000	3.702	0.123	0.070	$ 7,537.18
4000	4.936	0.165	0.093	$ 10,049.58
5000	6.170	0.206	0.116	$ 12,561.97
6000	7.404	0.247	0.139	$ 15,074.37
7000	8.638	0.288	0.162	$ 17,586.76
8000	9.872	0.329	0.185	$ 20,099.16
9000	11.106	0.370	0.209	$ 22,611.55
10,000	12.340	0.411	0.232	$ 25,123.95
11,000	13.574	0.452	0.255	$ 27,636.34
12,000	14.808	0.494	0.278	$ 30,148.74

Source: James C. Nicholas and Clarion Associates

c. Workforce Housing Assistance for Operations and Maintenance Employee Households

To determine the workforce housing assistance needed for operations and maintenance employees, it is necessary to first establish the average annual earnings of these employees and the total household income for operations and maintenance employee households. Because there are a variety of occupations included in the operation and maintenance employee category, data was retrieved from the Bureau of Labor Statistics surveys of earnings by operation and maintenance employee occupation. These data provide wages and earnings for the different type of operation and maintenance employees that provide services to residential developments in the county.[16] Weightings for each occupation are assigned based on the percent of each type of operations and maintenance employees that serve residential units in the 2012 Homeowner Survey. The earnings for individual operations and maintenance employees and the weighted averages of employees by occupation, are then used to calculate the "weighted average" wages for operations and maintenance employees. See Table 24: Earnings for Operation and Maintenance Employees.[17] The weighted average of annual earnings for operations and maintenance employees is $25,668.

[16] The Teton County Homeowner Survey establishes the number of different types of operation and maintenance employees that serve residential households.

[17] The listing of operations and maintenance occupations set out in Table 24, includes occupations that typically can be categorized as operations and maintenance occupations for residential properties. Note

Table 24: Earnings for Operation and Maintenance Employees

Occupation	Weight	Annual Earnings
All Occupations		$32,800
Property, Real Estate, and Community Assn. Mgers	2.00%	$29,650
Home Health Aides	2.00%	$24,070
Protective Service Occupations	2.50%	$37,340
Protective Service Workers, All Other *	5.00%	$31,330
Food Preparation and Serving Related Occupations	5.00%	$18,770
Building, Grounds Cleaning & Maintenance Occupations	20.00%	$22,180
First-Line Supervisors of Housekeeping and Janitorial Workers	2.00%	$31,400
Supervisors of Landscaping, Lawn Service, & Groundskeeping	2.50%	$38,670
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	10.00%	$23,950
Maids and Housekeeping Cleaners	10.00%	$18,460
Landscaping and Groundskeeping Workers	20.00%	$22,440
Grounds Maintenance Workers, All Other	10.00%	$36,040
Personal Care and Service Occupations	2.00%	$21,480
Personal Care Aides	2.00%	$21,970
Fitness Trainers and Aerobics Instructors		$23,470
Recreation Workers		$29,710
Farmworkers, Farm, Ranch, and Aquacultural Animals		$36,170
Construction and Extraction Occupations	5.00%	$38,440
Annual Weighted Average Earnings for Operations/Maintenance Employees		**$25,668**

Source: http://www.bls.gov/oes/current/oes_5600001.htm, Teton County Homeowner Survey (2012) by RRC Associates

It is expected that these employees would be engaged in second jobs, adding an additional $4,075 to their annual income (a total annual income of $29,743). When the incomes of other members of the household are added, annual household income for operational and maintenance employees amounts to $60,828. See Appendix B: Calculating Second Job Earnings and Other Household Income for an explanation of how second earnings and earnings from others in the household were calculated.

Based on these earnings, an operation and maintenance employee household can reasonably afford to spend $202,760 for housing (333% of the household income of $60,828). Given the operation and maintenance employee household income ($60,828) and the maximum housing cost that the employee household can reasonably afford ($202,760), an operation and maintenance employee household needs assistance (a subsidy) of $169,328 to afford the prototypical workforce housing unit. (The difference between the cost of the prototypical workforce housing unit ($372,088) and the housing cost that a construction employee household can reasonably afford ($202,760)). See Table 25: Workforce Housing Assistance (Subsidy) for Operation and Maintenance Employee Households.

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that there are occupations that are not assigned weights and therefore not included in the annual weighted average earnings calculation. This is because these occupations were not identified by 2012 Teton County Homeowner Survey respondents as a type of employee that provided operations and maintenance services to homeowners in Teton County.

Table 25: Workforce Housing Assistance (Subsidy) for Operations and Maintenance Employee Households

Operations and Maintenance Annual Weighted Average Employee Income		$25,668
Income from Other Workers in Household		$31,085
Average Seasonal Income		$4,075
Total Operations and Maintenance Employee Household Income		$60,828
Affordability Threshold (333% of household income)		**$202,760**
Average Cost for Prototypical Workforce Housing Unit	$	372,088
Affordability Threshold for Operations & Maintenance Employee Household	$	202,760
Workforce Housing Gap / Subsidy Required to Afford Unit	**$**	**169,328**

Source: http://www.bls.gov/oes/current/oes_5600001.htm, Teton County Homeowner Survey (2012) by RRC Associates, James C. Nicholas, Clarion Associates

Table 26: Workforce Housing Assistance (Subsidy) Needed for Operation and Maintenance Employees, by Size of Non-Local Residential Unit, and Table 27: Workforce Housing Assistance (Subsidy) Needed for Operation and Maintenance Employees, by Size of Local Residential Unit, provides some examples of the subsidy needed for workforce housing for operation and maintenance employees for different sizes of new residential units. It shows that a 1,000 square foot townhouse unit that is occupied by a non-local creates the need for a subsidy of $3,725 for operation and maintenance employees, and that a 3,000 square foot single-family detached unit that serves a non-local creates a need for a $5,757 subsidy for operation and maintenance employees.

Table 26: Workforce Housing Assistance Needed for Operations and Maintenance Employees of Non-Local Owner-Occupied Units

FT²	Non-Local					
	Other Unit			SFD Unit		
	Employees per Unit	Housing Units Needed for Employees	Housing Assistance Needed per Unit	Employees per Unit	Housing Units Needed for Employees	Housing Assistance Needed per Unit
500	0.013	0.007	$ 1,185	0.004	0.002	$ 339
1,000	0.040	0.022	$ 3,725	0.011	0.006	$ 1,016
2,000	0.120	0.067	$ 11,345	0.032	0.018	$ 3,048
3,000	0.228	0.067	$ 11,345	0.061	0.034	$ 5,757
4,000	0.228	0.067	$ 11,345	0.096	0.054	$ 9,144
5,000	0.228	0.067	$ 11,345	0.137	0.076	$ 12,869
6,000	0.228	0.067	$ 11,345	0.137	0.076	$ 12,869
7,000	0.228	0.067	$ 11,345	0.137	0.076	$ 12,869

Source: http://www.bls.gov/oes/current/oes_5600001.htm, Teton County Homeowner Survey (2012) by RRC Associates, James C. Nicholas, Clarion Associates

Table 27: Workforce Housing Assistance Needed for Operations and Maintenance Employee of Local Owner-Occupied Units

FT²	Local					
	Other Unit			SFD Unit		
	Employees per Unit	Housing Units Needed for Employees	Housing Assistance Needed per Unit	Employees per Unit	Housing Units Needed for Employees	Housing Assistance Needed per Unit
500	0.007	0.004	$ 677	0.002	0.001	$ 169
1,000	0.021	0.012	$ 2,032	0.006	0.003	$ 508
2,000	0.063	0.035	$ 5,926	0.017	0.009	$ 1,524
3,000	0.120	0.067	$ 11,345	0.032	0.018	$ 3,048
4,000	0.189	0.105	$ 17,779	0.051	0.028	$ 4,741
5,000	0.189	0.105	$ 17,779	0.072	0.040	$ 6,773
6,000	0.189	0.105	$ 17,779	0.072	0.040	$ 6,773
7,000	0.189	0.105	$ 17,779	0.072	0.040	$ 6,773

Source: http://www.bls.gov/oes/current/oes_5600001.htm, Teton County Homeowner Survey (2012) by RRC Associates, James C. Nicholas, Clarion Associates

d. Workforce Housing Assistance Needed for Critical Service Providers

Wage data for Teton County critical service providers is used to determine the average wages for entry wage level and average wage level fire and rescue and law enforcement personnel. For the two wage levels, the income of the primary employee was determined and incomes for other household employees and second income was added to determine the total household income for the critical service provider. (See Appendix B: Calculating Second Job Earnings and Other Household Income for an explanation of how second earnings and earnings from others in the household was calculated.) Based on household income for the critical service provider (fire and rescue and law enforcement), estimates were made about what the critical service provider household could reasonably afford for housing. This was subtracted from the average cost to construct the prototypical workforce housing unit in Teton County to determine the subsidy needed.

Tables 28: Workforce Housing and Housing Assistance Needed for Fire and Rescue Critical Service Providers, and 29: Workforce Housing and Housing Assistance Needed for Law Enforcement Critical Service Providers, show the results of these calculations for fire and rescue and law enforcement critical employees, respectively.

Table 28: Workforce Housing and Housing Assistance Needed for Fire and Rescue Critical Service Providers

Entry Level Fire/EMS Personnel	
Income of Primary Critical Worker	$34,000
Income of Others	$31,085
Second Income	$2,035
Total Household Income	$67,120
Affordability Threshold	$223,733
Cost to Develop a Workforce Housing Unit	$372,088
Affordable Housing Gap	$148,355
Average Level Fire/EMS Personnel	
Income of Primary Critical Worker	$54,368
Income of Others	$31,085
Second Income	$2,035
Total Household Income	$87,488
Affordability Threshold	$291,625
Cost to Develop a Workforce Housing Unit	$372,088
Affordable Housing Gap	$80,463
Fire/EMS Personnel Weighted Average Personnel Incomes/Affordability Threshold	
Entry Level Housing Gap	$148,355
Weight	25%
Average Level Housing Gap	$80,463
Weight	75.00%
Fire/EMS Personnel Housing Gap	$97,436
Fire/EMS Personnel Households per 1,000 sf of Residential Development	0.00018
Housing Assistance Needed per 1,000 sf of Residential Development	$17.94

Source: Jackson Hole Fire/EMS, James C. Nicholas, Clarion Associates

Table 29: Workforce Housing and Housing Assistance Needed for Law Enforcement Critical Service Providers

Entry Level Law Enforcement Personnel	
Income of Primary Critical Worker	$40,000
Income of Others	$31,085
Second Income	$2,035
Total Household Income	$73,120
Affordability Threshold	$243,733
Cost to Develop a Workforce Housing Unit	$372,088
Affordable Housing Gap	$128,355
Average Level Law Enforcement Personnel	
Income of Primary Critical Worker	$53,640
Income of Others	$31,085
Second Income	$2,035
Total Household Income	$86,760
Affordability Threshold	$289,200
Cost to Develop a Workforce Housing Unit	$372,088
Affordable Housing Gap	$82,888
Police Officer / Sheriff Weighted Average Personnel Incomes/Affordability Threshold	
Entry Level Housing Gap	$128,355
Weight	25%
Average Level Housing Gap	$82,888
Weight	75.00%
Police Officer Housing Gap	$94,255
Public Safety Personnel Households per 1,000 sf of Residential Development	0.00059
Housing Assistance Needed per 1,000 sf of Residential Development	$55.92

Source: Teton County Sheriff Department, Town of Jackson Police Department, James C. Nicholas, Clarion Associates

e. Total Residential Development Workforce Housing Assistance Needed

The wages and salaries earned by a significant portion of Teton County's workforce that provides services to residential development (construction, operation and maintenance, and critical service providers) are insufficient to allow these employees to obtain market housing. After determining the number and type of employees that provide service to a unit of residential development, and how many of these employees cannot reasonably afford housing in Teton County, the final step is to identify the degree of affordable housing assistance (subsidy) needed.

The following tables identify the workforce housing need for different sized residential units, both in terms of actual affordable workforce housing units (or a fraction thereof), and housing assistance (subsidy). Because the operations and maintenance employment of the residential unit differs depending on tenancy (whether the unit is owned by a local or non-local) and the type of unit (single-family detached versus all

other residential units), two tables are provided to show these distinctions. Table 30 summarizes need (units and housing assistance) for non-local units and Table 31 for locally-owned units.

As an example, the analysis demonstrates that a 10 unit townhome complex of 2,000 square foot units that will be owned and occupied by non-locals create a need for 1.15 workforce housing units, or a subsidy of $165,175. On the other hand, a 10-lot subdivision of single-family homes that are 3,000 square feet and intended to be owned and occupied by local residents create a need for approximately 0.900 of a workforce housing unit, or a subsidy of $108,070.

Because affordable housing need is based on several factors, a formula will need to be applied to each residential unit, individually, based on its size (square footage), the tenancy of the unit (local or non-local owner), and the type of unit (single-family detached or other type of unit).

Table 30: Total Workforce Housing Unit or Housing Assistance Need Created by Non-Local Residential Development (Single-Family Detached versus All Other Units)

Unit Size (FT2)	Non-Local Tenancy Single-Family Detached							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed
500	0.012	$ 1,256	0.002	$ 339	0.000	$ 37	0.014	$ 1,632
1,000	0.023	$ 2,512	0.006	$ 1,016	0.001	$ 74	0.030	$ 3,602
2,000	0.046	$ 5,025	0.018	$ 3,048	0.002	$ 148	0.066	$ 8,220
3,000	0.070	$ 7,537	0.034	$ 5,757	0.002	$ 222	0.106	$ 13,516
4,000	0.093	$ 10,050	0.054	$ 9,144	0.003	$ 295	0.150	$ 19,489
5,000	0.116	$ 12,562	0.076	$ 12,869	0.004	$ 369	0.196	$ 25,800
6,000	0.139	$ 15,074	0.076	$ 12,869	0.005	$ 443	0.220	$ 28,386
7,000	0.162	$ 17,587	0.076	$ 12,869	0.005	$ 517	0.244	$ 30,973

Unit Size (FT2)	Non-Local Tenancy All Other Units							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed
500	0.012	$ 1,256	0.007	$ 1,185	0.000	$ 37	0.019	$ 2,478
1,000	0.023	$ 2,512	0.022	$ 3,725	0.001	$ 74	0.046	$ 6,311
2,000	0.046	$ 5,025	0.067	$ 11,345	0.002	$ 148	0.115	$ 16,517
3,000	0.070	$ 7,537	0.067	$ 11,345	0.002	$ 222	0.139	$ 19,104
4,000	0.093	$ 10,050	0.067	$ 11,345	0.003	$ 295	0.163	$ 21,690
5,000	0.116	$ 12,562	0.067	$ 11,345	0.004	$ 369	0.187	$ 24,276
6,000	0.139	$ 15,074	0.067	$ 11,345	0.005	$ 443	0.211	$ 26,863
7,000	0.162	$ 17,587	0.067	$ 11,345	0.005	$ 517	0.235	$ 29,449

Source: James C. Nicholas, Clarion Associates

Table 31: Total Workforce Housing Unit or Housing Assistance Need Created by Local Residential Development (Single-Family Detached versus All Other Units)

Unit Size (FT2)	Local Tenancy Single-Family Detached							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed
500	0.012	$ 1,256	0.001	$ 169	0.000	$ 37	0.013	$ 1,462
1,000	0.023	$ 2,512	0.003	$ 508	0.001	$ 74	0.027	$ 3,094
2,000	0.046	$ 5,025	0.009	$ 1,524	0.002	$ 148	0.057	$ 6,696
3,000	0.070	$ 7,537	0.018	$ 3,048	0.002	$ 222	0.090	$ 10,807
4,000	0.093	$ 10,050	0.028	$ 4,741	0.003	$ 295	0.124	$ 15,086
5,000	0.116	$ 12,562	0.040	$ 6,773	0.004	$ 369	0.160	$ 19,704
6,000	0.139	$ 15,074	0.040	$ 6,773	0.005	$ 443	0.184	$ 22,291
7,000	0.162	$ 17,587	0.040	$ 6,773	0.005	$ 517	0.208	$ 24,877

Unit Size (FT2)	Local Tenancy All Other Units							
	Construction		Operations and Maintenance		Critical Service Providers		Total	
	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed	Affordable Housing Units Needed	Housing Assistance Needed
500	0.012	$ 1,256	0.004	$ 677	0.000	$ 37	0.016	$ 1,970
1,000	0.023	$ 2,512	0.012	$ 2,032	0.001	$ 74	0.036	$ 4,618
2,000	0.046	$ 5,025	0.035	$ 5,926	0.002	$ 148	0.083	$ 11,099
3,000	0.070	$ 7,537	0.067	$ 11,345	0.002	$ 222	0.139	$ 19,104
4,000	0.093	$ 10,050	0.105	$ 17,779	0.003	$ 295	0.201	$ 28,124
5,000	0.116	$ 12,562	0.105	$ 17,779	0.004	$ 369	0.225	$ 30,711
6,000	0.139	$ 15,074	0.105	$ 17,779	0.005	$ 443	0.249	$ 33,297
7,000	0.162	$ 17,587	0.105	$ 17,779	0.005	$ 517	0.273	$ 35,883

Source: James C. Nicholas, Clarion Associates

f. Measuring Need

Based on the previous analysis outlined in this section, the degree of workforce housing need for residential development in Teton County and the Town of Jackson is determined using the following formula.

Residential Construction Employees

Construction Employees = 0.041* Square Feet of Residential Unit ÷ 1,000

Needed Units for Construction Employee Households = Construction Employees ÷ 1.774

Construction Assistance Needed = Needed Units for Construction Employee Households * $2,512

Residential Operations and Maintenance (O&M) Employees

Ln(O&M Employees) = -3.6468 + (0.000309 * Unit Size)

O&M Employees = EXP[Ln(O&M Employees)]

Units Needed for O&M Employee Households = O&M Employees ÷ 1.339

O&M Assistance Needed = Units Needed for O&M Employee Households * $24,687

Residential Critical Service Providers

Needed Units for Critical Service Provider Households = Square Feet of Residential Unit * [insert fire and police below]

Fire 0.00018 per 1,000

Police 0.00059 per 1,000

Critical Service Provider Assistance Needed = Square Feet of Residential Unit * $[insert fire and police below]

Fire $17.94 per 1,000

Police $55.92 per 1,000

TOTAL UNITS NEEDED = Units Needed for Construction Employee Household + Units Needed for O&M Employee Households + Needed Units for Critical Service Provider Households

TOTAL ASSISTANCE NEEDED = Construction Assistance Needed + Operations and Maintenance Assistance Needed + Critical Service Provider Assistance Needed

C. NON-RESIDENTIAL DEVELOPMENT

1. Background

The other basic sector in Teton County that employs workers is nonresidential development. This includes offices, retail establishments, eating and drinking establishments, industrial businesses, tourist/recreational services, and other uses. Non-residential development has a need for labor and consequently creates a demand for workforce housing in three ways:

- The first is the construction of the building (i.e., construction employees who build the non-residential development).
- The second is the employees who work at the building (i.e., employees of the non-residential activity in the building).
- The third is the critical service providers (fire and rescue/ems personnel and law enforcement personnel) that provide services to the non-residential development.

Construction employees construct the non-residential buildings. All different types of employees work at the buildings after they are completed. Fire and rescue/ems personnel and police officers provide critical public services to the buildings and its employees. All three activities generate employment, and because of their wage levels and existing housing prices, the expansion or development of nonresidential development creates a need for affordable workforce housing. The analysis that demonstrates this need is outlined below.

2. Demand for Workforce Housing Units

a. Need for Affordable Workforce Housing Construction Employees

The construction, expansion, or renovation of buildings requires the employment of contractors and construction workers to do the work. The method used to assess the need for affordable workforce housing created by the construction of non-residential development involves the following. First, the amount of construction authorized and built in Teton County from 2002-2011 (measured in square feet) was determined from annual Teton County and Town of Jackson Building Departments records. This includes both finished and unfinished construction space. Unfinished construction is defined as having only the general structural elements of a building and no final finishes. Many industrial and some institutional facilities are developed in this manner allowing future tenants to determine the layout of offices and the finishing treatments for spaces. Finished space is space that is completely built out. The number of construction employees needed to develop finished and unfinished spaces is different because of the different level of work necessary to complete finished versus unfinished space. To more accurately assess the number of employees needed to develop different types of buildings, the number of construction employees that were required to build different types of non-residential development in the county (based upon whether the building built is finished or unfinished) was estimated based on construction employment data between 2002 and 2012. See Appendix C: Construction Employment by Type of Construction and Land Use for a detailed explanation. Table 32: Construction Employees Required to Build 1,000 Square Feet of Non-Residential Development, 2002-2012,

identifies the number of employees it takes to build 1,000 square feet of different types of non-residential development.

Table 32: Construction Employees Required to Build 1,000 Square Feet of Non-Residential Development 2002-2011

Land Use Type	Construction Type	Employees per 1,000 sf Construction
Lodging	Finished	1.234
Office	Finished	1.234
Retail	Finished	1.234
Industrial	Unfinished	0.514
Institutional	Average (Finished and Unfinished)	0.927
Food & Drinking Places	Finished	1.234

Source: Town of Jackson and Teton County Building Departments and James C. Nicholas

Next, to determine the number of residential units needed to house these construction employees in Teton County, the number of employees needed to construct a unit divided by the average number of employees per household for households that include construction employees in Teton County (1.774)[18] was determined to estimate the fraction of a dwelling unit needed to house the employees engaged in the construction of non-residential buildings.

Based on the number of employees in the average construction employee household in the county, Table 33: Need for Construction Employee Workforce Housing Created by Non-Residential Development (per 1,000 Square Feet), sets out the need for construction employee workforce housing, for the different types of non-residential land uses. Specifically, Table 33 shows, for example, that it takes 1.234 construction employee worker years to build 1,000 square feet of office and retail development; and that when factoring in the 30 year career of the employee 0.0041 of an employee year is required.[19] Given there is on average 1.774 employees that live in a construction worker household, the construction of 1,000 square feet of office or retail space creates a need for 0.023 of a workforce housing unit.

[18] U.S. Census Bureau's 2011 American Community Survey Public Use Microdata Sample (PUMS) provides estimates of employee workers per household for different types of employee households. Construction employee households were determined to best fit into the category "construction." This category is estimated to have an average of 1.774 employees per household. See Appendix D: Employees per Household, Teton County for more information.

[19] Construction employment is measured in employee years (employee years to construct units). Housing has no such time dimension. Employees will have a definable career and dwellings an expected life. In estimating the demand construction employees place on a residential unit, it is recognized that construction employees require housing only during the period of actual construction of the home (even though they live in the community over their career). This is accounted for in the analysis. The average construction worker career is assumed to be 30 years. To account for this circumstance, the calculation of construction employee years to construct the unit is therefore divided by 30 to convert to the needed housing over the work career of the employee.

Table 33: Need for Construction Employee Workforce Housing Created by Non-Residential Development (Per 1,000 Square Feet)

Type of Development	Employees per 1,000 sf Construction	Employee Years' (Considering 30 Year Employee Career)	Employees per Household	Housing Units Needed for Employees
Lodging	1.234	0.041	1.774	0.023
Office	1.234	0.041	1.774	0.023
Retail	1.234	0.041	1.774	0.023
Industrial	0.514	0.017	1.774	0.01
Institutional	0.927	0.031	1.774	0.017
Food & Drinking Places	1.234	0.041	1.774	0.023

Source: Town of Jackson and Teton County Building Departments, James C. Nicholas

b. Post-Construction Employees

The employment impacts and need for workforce housing on non-residential development once the building is constructed comes from the employees that work at the businesses/land uses that use the buildings. In determining the need for workforce housing created by nonresidential development, post-construction, the following analysis was conducted:

1. First, the employment and average household earnings for the employees in the different industries in the county was determined.
2. Second, the non-residential industries were organized into different non-residential land uses.
3. Third, the amount of building space (in square feet) for each land use was compared to the employment for the land use to determine the number of employees that work at the different businesses in the different non-residential land use categories.
4. Finally, the need for workforce housing created by a specific amount of development in each land use category was determined.

Each of these steps is detailed below.

First, the employment and average household earnings for the employees that work in the different industries in the county was identified using the ES-202 wage and employment data from the Wyoming Department of Workforce Services. Average wages were estimated for all industries with employers in Teton County. See Table 34: Employers, Employees, Total Wages, and Average Wages for Teton County, 2011 Industries.

Table 34: Employers, Employees, Total Wages, and Average Wages for Teton County 2011 Industries

Industry	Units / Employers	Employment	Total Wage & Salary	Average Wage & Salary
Total, All Industries	2,136	16,946	$660,999,203	$39,007
Private Sector	2,089	14,705	$551,112,529	$37,479
Agriculture, Forestry, Fishing, & Hunting	18	61	$2,050,468	$33,477
Mining				
Utilities				
Construction	359	1574	$69,768,273	$44,340
Construction of Buildings	156	665	$32,583,149	$49,011
Manufacturing	32	157	$4,463,427	$28,445
Wholesale Trade	58	159	$13,003,810	$81,742
Retail Trade	214	1764	$52,186,237	$29,580
Transportation & Warehousing	50	299	$12,506,846	$41,864
Information	38	229	$12,752,330	$55,586
Finance & Insurance	124	413	$35,358,540	$85,666
Real Estate & Rental & Leasing	119	350	$20,536,178	$58,759
Professional, Scientific & Technical Services	305	783	$55,399,257	$70,715
Management of Companies & Enterprises	17	44	$15,585,154	$352,207
Administrative & Support & Waste Services	150	698	$25,903,756	$37,098
Educational Services	25	282	$9,577,991	$33,934
Health Care & Social Assistance	114	685	$35,896,471	$52,442
Arts, Entertainment, & Recreation	103	636	$17,528,536	$27,553
Accommodation & Food Services	183	5997	$147,606,283	$24,615
Accommodation	92	4244	$112,186,252	$26,431
Food services & drinking places	91	1752	$35,420,031	$20,216
Other Services (except Public Admin.)	177	538	$18,343,113	$34,069
Total Government	48	2241	$109,886,674	$49,036
Federal Government	18	418	$22,337,511	$53,471
State Government	16	108	$5,527,953	$51,343
Local Government	14	1716	$82,021,210	$47,812

Source: Wyoming Dept. of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm

The total wages of households by employer industry were then estimated by adding the estimated annual average income of the industry employee to estimates of other household incomes and income for second jobs. The number of "other employees" in the household was calculated by taking the average number of employees per household, by industry, minus one (i.e., the "one" represents the person employed in

the primary industry). (Appendix D identifies the number of employees per household, by industry.[20])

The results of this analysis are included in the "Number of Other Employees" column in Table 35: Estimates of Individual and Household Incomes by Industry, Teton County 2011. The average wages for others in the household are estimated by multiplying the number of other employees in the household by the average employee wage of all industries. The results of this calculation are included in the "Other Members' Income" column in Table 35. (See Appendix B for a description of the method used for calculating income from second jobs.) Second job income is based on the difference between peak and average second job employment over a period of years. (See Appendix B.) The average total household income by industry is then calculated as the sum of the primary employee income, the other members' income, and the adjustment for income from second jobs. This is identified in the "Household" column in Table 35.

[20] U.S. Census Bureau's 2011 American Community Survey Public Use Microdata Sample (PUMS) provides estimates of employee workers per household for different types of employee households. See Appendix D: Employees per Household, Teton County for more information.

Table 35: Estimates of Individual and Household Income by Industry, Teton County 2011

Industry	Annual Household Wage & Salary Income				
	Primary Employee	Number of Other Employees	Other Members' Income	Adjustment for Second Jobs	Household
All Industries	$39,002	0.797	$31,085	$2,035	$72,124
Private Sector	$37,953	0.797	$31,085	$2,229	$71,269
Ag., Forestry, Fishing, & Hunting	$34,785	0.82	$31,975	$2,029	$68,791
Mining	$37,953	0.797	$31,085	$0	$69,040
Utilities	$37,953	0.797	$31,085	$0	$69,040
Construction	$40,371	0.774	$30,192	$963	$71,528
-Construction of Buildings	$47,867	0.774	$30,192	$1,065	$79,126
Manufacturing	$27,463	0.549	$21,396	$668	$49,528
Wholesale Trade	$87,512	0.681	$26,571	$0	$114,084
Retail Trade	$28,236	0.706	$27,537	$1,383	$57,158
Transportation & Warehousing	$34,460	0.69	$26,908	$1,561	$62,932
Information	$53,033	0.883	$34,439	$0	$87,474
Finance & Insurance	$91,910	0.649	$25,319	$0	$117,231
Real Estate & Rental & Leasing	$42,968	0.649	$25,319	$0	$68,289
Prof, Scientific & Tech. Services	$74,055	0.959	$37,414	$0	$111,470
Management	$883,311	0.649	$25,319	$0	$908,632
Admin., Support & Waste Serv	$35,136	0.649	$25,319	$0	$60,456
Educational Services	$31,060	0.789	$30,775	$3,804	$65,641
Health Care & Social Assistance	$46,396	0.789	$30,775	$715	$77,887
Arts, Entertainment, & Recreation	$26,360	1	$38,984	$4,693	$70,038
Accommodation & Food Services	$24,213	1	$38,984	$4,539	$67,737
-Accommodation	$24,213	1	$38,984	$4,539	$67,737
-Food Service & Drinking Places	$24,213	1	$38,984	$4,539	$67,737
Other Services	$32,613	0.713	$27,821	$1,961	$62,396
Federal Government	$51,237	0.533	$20,770	$0	$72,009
State Government	$50,457	0.533	$20,770	$0	$71,228
Local Government	$44,046	0.533	$20,770	$0	$64,817

Source: Wyoming Dept. of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm,U.S. Census Bureau, 2011 American Community Survey Public Use Microdata Sample (PUMS), ES-202 January 2000-December 2011

The second part of the analysis involved categorizing all nonresidential development (from the various industries in the economic data) into seven non-residential land use categories. Each of the seven land use categories, and the general uses included in the definition of each category are set out below.

1. **Retail** includes stores, department stores, supermarkets, shopping centers, financial institutions, repair service shops, service stations, auto sales and repair, parking lots, and wholesale outlets.
2. **Eating and Drinking** includes restaurants, nightclubs, bars, and other eating and drinking establishments.
3. **Office** includes professional and non-professional office uses, such as finance and insurance offices, real estate offices, professional and scientific technical services, and information services.
4. **Industrial** includes manufacturing, wholesale trade, and transportation industry facilities.
5. **Institutional** includes educational services, government, and health care and social assistance land use types.
6. **Hotel/Lodging** includes hotels, motels, and other related lodging uses.
7. **Uses Not Identified** includes all other land uses not included in the previous land use types. Uses might include RV parks, cemeteries, mausoleums, truck stops, dude ranches, campgrounds, as well as other uses that are not included in the previous six categories.

The third step in the analysis involved determining the average household income for employees in each of the seven land use categories. Table 36: Employee Income by Land Use Category, identifies the aggregation of industries into the seven land use categories, the average household earnings for each industry, the weight of each individual industry,[21] and the calculated household weighted average earnings by land use category. The weighted average household earnings by land use is the product of household earnings for the individual industries comprising the land use times the weight of that industry.

[21] The weighting of each individual industry is used to determine the average wage of the land use category relative to the total number of jobs within each individual industry. For example, when rounding up, 26 percent of the total employment for the industrial land use category consists of manufacturing jobs, 26 percent are jobs in wholesale trade, and 49 percent are in transportation and warehousing**.** These percentages are applied to the earnings for each industry and summed to determine the total household earnings by land use.

Table 36: Income by Land Use Category

Land Use/Industry	Household Earnings	Weight	Household Earnings by Land Use
All	$72,124	1	$72,124
1. Retail	$57,158	1	$57,158
2. Eating & Drinking	$67,737	1	$67,737
3. Office			
Information	$87,474	0.06	
Finance & Insurance*	$117,231	0.05	
Real Estate & Rentals & Leasing	$68,289	0.09	
Prof, Scientific & Tech. Services*	$111,470	0.1	
Educational Services	$65,641	0.07	
Government	$71,228	0.44	
Health Care & Social Assistance	$77,887	0.18	
Office Weighted Average		1	$79,245
4. Industrial			
Manufacturing	$49,528	0.26	
Wholesale Trade	$114,084	0.26	
Transportation & Warehousing	$62,932	0.49	
Industrial Weighted Average		1	$72,747
5. Institutional**			
Educational Services	$65,641	0.31	
Government	$71,228	0.33	
Health Care & Social Assistance	$77,887	0.36	
Institutional Weighted Average		1	$71,935
6. Hotel/Lodging	$67,737	1	$67,737
7. Uses Not Identified	$72,124	1	$72,124

* Because of the much higher than average income, the weight for these two industries have been reduced by one-half.

** Institutional is a land use that does not have an industrial equivalent. Common institutional occupants are schools, hospitals, and governmental buildings. The earnings for these industries are used to estimate the earnings of employees at institutional land uses.

Source: Wyoming Dept. of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm,U.S. Census Bureau, 2011 American Community Survey Public Use Microdata Sample (PUMS), ES-202 January 2000-December 2011, James C. Nicholas

Fourth, the amount of building space (in square feet) provided, on average, per employee, was determined for each land use category. The 2012 Teton County Employer Survey conducted by RRC, Associates, Inc. gathered data on floor areas of buildings and number of employees working full-time year round, full-time during the summer months, and full-time during the winter months at employment sites.[22] The summary results of this survey with respect to employment at each land use by the size of the building is contained in Table 37: Employees by Land Use Category.

[22] A total of 186 local businesses responded to the question asking for the amount of non-residential square footage at the business. A total of 193 employers responded to the question asking for the number of full-time year round, full-time summer seasonal, and full-time winter seasonal employees working at the business.

Table 37: Full-Time Employees Per Square Foot, by Land Use Category[23]

Land Use	Floor Area	Full-Time Employees			Full-Time Employees per 1,000 FT^2			Sum of Full-Time Year Round and Full-Time Summer Season Employees per 1,000 FT2
		Year Round (work 12 months a year at job)	Summer Season (Work June - September at job)	Winter Season (Work November-April at job)	Year Round (work 12 months a year at job)	Summer Season (Work June - September at job)	Winter Season (Work November-April at job)	
Retail	505,677	608	1,333	969	1.202	2.636	1.916	3.838
Eating/Drinking Places	45,000	176	109	17	3.911	2.422	0.378	6.333
Office	957,065	1,529	218	98	1.598	0.228	0.102	1.826
Industrial	111,342	79	22	3	0.71	0.198	0.027	0.908
Uses Not Identified	96,399	111	97	9	1.151	1.006	0.093	2.157
		Full-Time Employees			Full-Time Employees per Room			Sum of Full-Time Year Round and Full-Time Summer Season Employees per Room
Hotel/Lodging					Year Round (work 12 months a year at job)	Summer Season (Work June - September at job)	Winter Season (Work November-April at job)	
Hotel/Lodging Employees per Room*					0.487	0.471	0.329	0.958

SOURCE: RRC, Associates, Inc., Teton County Employment Survey, 2012.

* These data are from the 2012 Teton County Employer Survey conducted by RRC Associates.

[23] Table 37: Full-Time Employees per Square Foot by Land Use Category, sets out the following: (1) the total floor area for five land use categories, (2) the number of full-time year round employees (employees that work in the county 12 months a year), (3) full-time summer season employees (employees that work in the county from June-September), and (4) full-time winter season employees (employees that work in the county from November – April). From this data, the number of full-time year round, full-time summer season, and full-time winter season employees per 1,000 square feet was calculated. Additionally, similar information is outlined for hotel/lodging room employment. Finally, the total of full-time year round and full-time summer season employees per 1,000 square feet is determined.

There are several important things to recognize about this data. While some seasonal employees may work in Teton County year round, they do not show up in the data as full-time year round employees. Instead, they work as full-time seasonal employees, holding different jobs in the summer, winter, and off-season periods. Survey data is not available to separate these employees out from those that are considered "migratory" summer season or winter season employees and who work in Teton County only during a peak season. However, based on U.S. Bureau of Labor Statistic's ES-202 data, it seems that the percent of seasonal employees that work year round in Teton County is modest.

Second, the last column in the table, which includes the total full-time year round and summer season employees is provided because the summer season has a higher "peak employment" than the winter season for all of these land uses. It is important to recognize this because the variation between the number of full-time summer season and full-time winter season employees is fairly large, especially for Retail and Eating and Drinking land uses, meaning that there are far fewer employees in the winter season.

Finally, and for the purposes of this analysis and the determination of the workforce housing need, only the full-time year-round employees per square foot or hotel/lodging room are used. This is because the study is assessing the housing needs of full-time employees that work in the county year-round (not seasonal, migratory employees).

Finally, and based on the previous analyses, the need for workforce housing created by the different types of non-residential development was determined, by land use category, for all land uses except hotel/lodging. This is calculated by first determining the number of year round full-time employees per 1,000 square feet of the different nonresidential land uses, and then dividing that figure by the total number of employees in the household, on average. (See Appendix D for a summary of employees per household by land use category.) The need created by hotel/lodging rooms are estimated in a similar way. (First determining the number of year-round full-time employees per lodging/hotel room, and then dividing that figure by the total number of employees in the household). This analysis is shown in Table 38: Need for Workforce Housing Created by Non-Residential Development, by Land Use Category.

Table 38: Need for Workforce Housing Created by Non-Residential Development, By Land Use Category

Land Use	Year Round Full-Time Employees per 1,000 Square Feet	Employees per Household	Housing Units Needed per 1,000 Square Feet
Retail	1.202	1.706	0.705
Bar/Restaurant	3.911	2	1.956
Office	1.598	1.678	0.952
Industrial	0.71	1.652	0.43
Institutional	1.598	1.678	0.952
Other			
Hotel/Lodging	**Year Round Full-Time Employees per Room**	**Employees per Household**	**Housing Units Needed per Room**
Hotel/Lodging per Room	0.487	2	0.244

Source: RRC Associates, Incorporated, Teton County Employer Survey, 2012, 2011 American Community Survey Public Use Microdata Sample (PUMS), James C. Nicholas

c. Critical Service Providers

The final group of workforce members for which new non-residential development creates the need for affordable workforce housing units are critical service providers. The Teton County Board of County Commissioners and the Jackson Town Council have adopted policies giving preference through the TCHA's Program Home lottery to critical service providers within Teton County. As discussed earlier, several of these critical service providers provide critical services to residential and non-residential developments and are included in this analysis. They are:

- Fire and rescue personnel (Fire and rescue (ems/paramedics)), and
- Law enforcement personnel (Sheriff and Police Department personnel)

They are included because they are important to the overall safety and well-being of the community. In allocating the workforce housing needs non-residential development creates for fire and rescue personnel and law enforcement personnel, the following analysis was conducted. Initially, the current number of critical service providers that serve both residential and non-residential developments in the county was determined

(this includes both uniform personnel and those who support or supervise uniform personnel). Next the total residential and nonresidential development (by square feet, in 2012) in the county was determined from the county and town planning departments, respectively. Next, the actual responses made by fire and rescue personnel and law enforcement personnel to residential versus nonresidential developments was determined, from estimates received from the fire and rescue and law enforcement departments, respectively, and then the critical service providers were allocated, based on these estimates, to residential and nonresidential developments, based on the proportion of responses made to each different type of development. Finally, and once this was done, the total number of personnel serving non-residential developments was compared to the total square feet of non-residential developments, to derive an employee per square foot service estimate. It is assumed this service level will be carried forward into the future for new non-residential developments. Table 39: Non-Residential Critical Service Providers-Fire and Rescue, shows the results of this analysis for fire and rescue personnel is that 1,000 square feet of non-residential development is served by 0.001 fire and rescue personnel.

To determine the need for affordable workforce housing for fire and ems/rescue personnel created by 1,000 square feet of non-residential development, the number of fire and rescue personnel that serve 1,000 square feet of non-residential development is divided by the average number of employees in a fire and rescue household (1.797). This results in the need for 0.00056 of a workforce housing unit per 1,000 square feet of nonresidential development. See Appendix E for more detail on this calculation.

Table 39: Non-Residential Critical Service Providers – Fire and Rescue

Fire/Rescue Personnel Attributable to Non-Residential Development	12
Total Non-Residential Floor Area (estimated for 2012)	11,950,412
Fire/Rescue Personnel per 1,000 FT^2	0.00100
Workforce Housing Units Needed per 1,000 FT^2	0.00056

Source: Jackson Hole Fire/EMS, 2013, Teton County and Jackson Building Departments, James C. Nicholas

A similar analysis was conducted to determine the need non-residential development creates for workforce housing for law enforcement personnel. The results show that 1,000 square feet of non-residential development is served by 0.00301 law enforcement personnel. Based on the number of employees, on average, that live in a law enforcement employee household (1.797), 1,000 square feet of non-residential development creates a need for 0.000168 of a workforce housing unit. See Table 40: Non- Residential Critical Service Providers-Law Enforcement Personnel (and Appendix E for more detail on the calculations).

Table 40: Non-Residential Critical Service Providers – Law Enforcement

Law Enforcement Personnel Attributable to Non-Residential Developm	36
Total Residential Floor Area (estimated for 2012)	11,950,412
Law Enforcement Personnel per 1,000 FT^2	0.00301
Workforce Housing Units Needed per 1,000 FT^2	0.00168

Source: Jackson Hole Fire/EMS, 2013, Teton County and Jackson Building Departments, James C. Nicholas

A summary of the need for workforce housing for critical service providers (fire and rescue personnel and law enforcement personnel) created by 1,000 square feet of non-residential development is outlined in Table 41: Total Need for Critical Service Providers Workforce Housing Units Created by Non-Residential Development (Per 1,000 Square Feet).

Table 41: Total Need for Critical Service Providers Workforce Housing Units Created by Non-Residential Development (Per 1,000 Square Feet)

Per 1,000 Square Feet of Non-Residential Development	Employees	Workforce Units
Fire/Rescue Personnel	0.00100	0.00056
Public Safety Personnel	0.00301	0.00168
Total Critical Employee Personnel	0.00402	0.00224

Source: James C. Nicholas

d. Summary of Needs for Workforce Housing Units Generated by Non-Residential Development

Based on the analysis conducted in this section, Table 42: Total Needs for Workforce Housing Created by Non-Residential Development, summarizes the total need for workforce housing units created by non-residential development, for construction, post-construction, and critical service providers.

As noted earlier in this section, some land uses may not precisely fit into the six specific land use categories included in this analysis. The tables in the remainder of this section include an “Other” category to reflect the potential for this occurrence.

For “other” category land uses, there are a few options for determining the mitigation amount: (1) the Planning Director could use professional discretion to determine if the use was similar enough to be placed into one of the other use categories, and/ or (2) the property owner could choose to use an independent calculation to more accurately assess the mitigation amount for the specific land use. These options can be explored in the policy options memorandum that follows this analysis.

Table 42: Total Needs for Workforce Housing Created by Non-Residential Development (Per 1,000 Square Feet or Room)

Land Use	Construction		Post-Construction		Critical Service Providers		Totals	
	Employees	Workforce Housing Units Needed	Employees	Workforce Housing Units Needed	Employees	Workforce Housing Units	Employees	Workforce Housing Units Needed
Per 1,000 Square Feet								
Retail	0.041	0.023	1.202	0.705	0.004	0.002	1.247	0.730
Eating & Drinking	0.041	0.023	3.911	1.956	0.004	0.002	3.956	1.981
Office	0.041	0.023	1.598	0.952	0.004	0.002	1.643	0.977
Industrial	0.041	0.023	0.710	0.430	0.004	0.002	0.755	0.455
Institutional	0.041	0.023	1.598	0.952	0.004	0.002	1.643	0.977
Other								
Hotel/Lodging (by room)	0.037	0.021	0.487	0.244	0.004	0.002	0.528	0.267

Source: James C. Nicholas, Clarion Associates

3. Assistance to Address Workforce Housing Need

The last step in evaluating the need for workforce housing created by non-residential development, is to determine the amount of housing assistance (subsidy) needed to make the workforce housing needs created by non-residential development affordable for the employees that construct and serve non-residential development.[24] As is discussed in Section B, in determining the housing subsidy needed it is first necessary to determine the cost of the prototypical housing unit that could reasonably be expected to serve workforce housing needs.

a. Prototypical Workforce Housing Unit

The method and basis for determining the types and size(s) of the prototypical housing unit is explained in Section B.3.a: Costs of Prototypical Workforce Housing Unit. Appendix F: Workforce Housing Prototype Cost Estimates, explains how the costs for construction and land were calculated to arrive at the average cost for the prototypical unit -- $372,088, or $339 per square foot.

Once the cost for a prototypical workforce housing unit is determined, the next step is to identify the amount of assistance that an employee household requires to be able to reasonably afford a prototypical unit based on their household income. This requires estimating the housing assistance (subsidy) needed for construction employees, post construction employees, and critical service providers.

b. Workforce Housing Assistance for Construction Employee Households

Based on average wage data provided by the Wyoming Department of Workforce Services, Table 43: Household Income for Non-Residential Construction Employees, sets

[24] The construction employees, the post-construction employees (that work at the businesses), and the critical employees.

out the average individual income, second job income, income from other household workers, and total household income for non-residential construction employee households. Appendix B: Calculating Second Job Earnings and Other Household Income, provides a description of the methodology for calculating second income wages and the income of other workers in the household for construction employee households.

Table 43: Household Income for Non-Residential Construction Employees

Land Use Type	Construction Type	Employees per 1,000FT^2	Income per 1,000 FT^2			
			Individual	Second Job Income	Income from Other Household Worker	Total Household
Individual and Household Earnings			$47,867	$1,065	$30,188	$79,120

Source: Wyoming Dept. of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm, James C. Nicholas

Based on these earnings, the average household income for construction employees that construct non-residential buildings is $79,120. This means, on average, a non-residential construction employee household could reasonably afford to spend $263,733 for housing (333% of the household income of $79,120). Given the construction employee household income ($79,120) and the maximum housing cost that a construction employee household could reasonably afford ($263,733), a construction employee household needs $108,355 in workforce housing assistance (subsidy) to reasonably afford the prototypical workforce housing unit. In other words, the difference between the cost of the prototypical workforce housing unit ($372,088) and the maximum housing cost that a construction employee household can reasonably afford ($263,733) is the workforce housing assistance needed for a construction employee household to afford a unit ($108,355). See Table 44: Housing Assistance (Subsidy) Needed for Construction Employee Households.

Table 44: Housing Assistance (Subsidy) Needed for Construction Employee Households

Construction Worker Earned Income	$ 47,867
Income from Others in Household	$ 30,188
Average Second Income	$ 1,065
Total Household Income	$ 79,120
Affordability Threshold (333% of Household Income)	**$263,733**
Average Cost for Prototypical Workforce Housing Unit	$372,088
Affordability Threshold for Construction Employee Household	$263,733
Workforce Housing Gap / Subsidy Required to Afford Unit	**$108,355**

Source: Wyoming Department of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm, James C. Nicholas

Table 45: Workforce Housing Assistance (Subsidy) Needed for Construction Employees, for 1,000 Square Feet of Non-Residential Development, shows the assistance (subsidy) needed for workforce housing for construction employees based on 1,000 square feet of the different types of non-residential development built. For each non-residential land use, this is calculated by multiplying the workforce housing assistance needed times the housing units needed for the employees. For example, the housing assistance needed for new lodging is calculated by multiplying the housing assistance needed for the prototypical unit ($108,355) times the portion of a housing unit needed for the employees that builds the 1,000 square foot of lodging (0.023). The result is there is a need for $2,511.79 of housing assistance for 1,000 square feet of lodging built. Housing assistance needed per square foot is then calculated by dividing the housing assistance needed by 1,000. See Table 45 for these calculations.

Table 45: Workforce Housing Assistance (Subsidy) Needed for Construction Employees for 1,000 Square Feet of Non-Residential Development

Type of Development	Employees per 1,000 Square Feet	Employee Years' (Considering 30 Year Employee Career)	Housing Units Needed for Employees	Housing Assistance Needed	Housing Assistance Needed per Square Foot
Retail	1.234	0.041	0.023	$ 2,511.79	$ 2.51
Food & Drinking Places	1.234	0.041	0.023	$ 2,511.79	$ 2.51
Lodging per room	1.234	0.041	0.023	$ 2,253.53	$ 2.25
Office	1.234	0.041	0.023	$ 2,511.79	$ 2.51
Industrial	0.514	0.017	0.01	$ 1,045.84	$ 1.05
Institutional	0.927	0.031	0.017	$ 1,887.36	$ 1.89
Lodging per room	1.234	0.041	0.023	$ 2,253.53	$ 2.25

Source: James C. Nicholas and Clarion Associates

c. Workforce Housing Assistance for Post-Construction Employee Households

To determine the workforce housing assistance (subsidy) needed for post-construction employee households (the employees that work at the non-residential development), it is necessary to determine what an employee household working at the different types of land uses can reasonably afford (based on 333% of the household income) compared to the costs of the prototypical workforce housing unit ($372,088). Table 46: Housing Assistance (Subsidy) Needed for Post Construction Employees, by Land Use, sets out this analysis.

For each non-residential land use, the assistance needed (subsidy) per 1,000 square feet of development is calculated by multiplying the workforce housing assistance need[25] times the housing units needed. Housing assistance per square feet is then calculated by dividing the housing assistance needed by 1,000 square feet. See Table 46.

Table 46: Housing Assistance (Subsidy) Needed for Post-Construction Employees, by Land Use

Land Use	Year Round Employees per 1,000 FT²	Households per 1,000 FT²	Annual Earnings of Houeshold	Affordability Threshold	Cost of Prototypical Workforce Housing Unit	Housing Assistance Needed per Household	Housing Assistance Needed per 1,000 FT² of Non-Residential Development	Housing Assistance Needed per FT² of Non-Residential Development
Retail	1.202	0.705	$ 57,158	$ 190,525	$ 372,088	$ 181,563	$127,958	$127.96
Eating & Drinking	3.911	1.956	$ 67,737	$ 225,791	$ 372,088	$ 146,297	$286,160	$286.16
Office	1.598	0.952	$ 79,245	$ 264,149	$ 372,088	$ 107,939	$102,783	$102.78
Industrial	0.71	0.430	$ 72,747	$ 242,491	$ 372,088	$ 129,597	$55,674	$55.67
Institutional	1.598	0.952	$ 71,935	$ 239,785	$ 372,088	$ 132,303	$125,983	$125.98
Other								
	Year Round Employees per Room	Households per Room	Annual Earnings of Houeshold	Affordability Threshold	Cost of Prototypical Workforce Housing Unit	Housing Assistance Needed per Household	Housing Assistance Needed per Room	
Hotel/Lodging per Room	0.487	0.244	$ 67,737	$ 225,791	$ 372,088	$ 146,297	$35,696	

Source: James C. Nicholas and Clarion Associates

d. Workforce Housing Assistance for Critical Service Providers

Wage data for Teton County critical service providers is used to determine the average wages for entry wage level and average wage level critical service providers (fire and rescue and law enforcement personnel) for the purpose of generating a weighted average income for critical service providers that better expresses the household incomes of critical service provider households. For the two wage levels, the income of the primary employee was determined, and incomes for other household employees and income from a second job was added to determine the total household income for the critical service provider household. (See Appendix B: Calculating Second Job Earnings and Other Household Income for an explanation of how second earnings and earnings from others in the household were calculated.)

Estimates were then calculated to determine what a critical service provider household could reasonably afford for housing. This was subtracted from the average cost to construct the prototypical workforce housing unit in Teton County ($372,088) to determine the assistance needed (subsidy) for critical service provider households.

[25] For example, the housing assistance (subsidy) needed for employees that work at a retail development is calculated by subtracting the housing price that a retail employee household could reasonably afford ($190,525) from the cost to develop a prototypical workforce housing unit ($372,088), resulting in the housing assistance needed (subsidy) of $181,563.

Tables 47: Workforce Housing and Housing Assistance Needed for Fire and Rescue Critical Service Providers, and 48: Workforce Housing and Housing Assistance Needed for Law Enforcement Critical Service Providers, show the results of these calculations for fire and rescue and law enforcement critical service providers, respectively.

Table 47: Workforce Housing and Housing Assistance Needed for Fire and Rescue Employees

Entry Level Fire/EMS Personnel	
Income of Primary Individual	$34,000
Other of Others	$31,085
Second Income	$2,035
Household Income	$67,120
Affordability Threshold	$223,733
Housing Cost	$372,088
Deficit per Household	$148,355
Average Level Fire/EMS Personnel	
Income of Primary Individual	$54,368
Other of Others	$31,085
Second Income	$2,035
Household Income	$87,488
Affordability Threshold	$291,625
Housing Cost	$372,088
Deficit per Household	$80,463
Fire/EMS Personnel Weighted Average Personnel Incomes/Affordability Threshold	
Entry Level Housing Deficit	$148,355
Weight	25%
Average Level Housing Deficit	$80,463
Weight	75.00%
Fire/EMS Personnel Housing Deficit	$97,436
Fire/EMS Personnel Households per 1,000 sf of Non-Residential Development	0.00056
Housing Assistance Needed per 1,000 sf of Non-Residential Development	$54.45

Source: Jackson Hole Fire/EMS, James C. Nicholas, Clarion Associates

Table 48: Workforce Housing and Housing Assistance Needed for Law Enforcement Employees

Entry Level Law Enforcement Personnel	
Income of Primary Individual	$40,000
Other of Others	$31,085
Second Income	$2,035
Household Income	$73,120
Affordability Threshold	$243,733
Housing Cost	$372,088
Deficit per Household	$128,355
Average Level Law Enforcement Personnel	
Income of Primary Individual	$53,640
Other of Others	$31,085
Second Income	$2,035
Household Income	$86,760
Affordability Threshold	$289,200
Housing Cost	$372,088
Deficit per Household	$82,888
Police Officer / Sheriff Weighted Average Personnel Incomes/Affordability Threshold	
Entry Level Housing Deficit	$128,355
Weight	25%
Average Level Housing Deficit	$82,888
Weight	75.00%
Police Officer Housing Deficit	$94,255
Public Safety Personnel Households per 1,000 sf of Non-Residential Development	0.00168
Housing Assistance Needed per 1,000 sf of non-Residential Development	$158.01

Source: Jackson Hole Fire/EMS, James C. Nicholas, Clarion Associates

e. Total Non-Residential Development Workforce Housing Assistance Needed

The wages and salaries earned by a significant portion of Teton County's workforce that works in the businesses and related entities that make up non-residential development are insufficient to allow these employees to obtain market housing at a price they can reasonably afford. After determining the number and type of employees that serve non-residential development (construction, post-construction, and critical service providers), and how many of these employees cannot reasonably afford housing in Teton County, the next step is to identify the degree of workforce housing need created by non-residential development, and then outline mitigation options.

Based on the previous analysis, Table 49: Summary of Workforce Housing and Assistance Need for Non-Residential Development, provides examples of workforce housing need for varying sized non-residential buildings, both in terms of the need for workforce housing units (or a fraction thereof), and workforce housing assistance

(subsidy). Because the workforce housing need for non-residential development is based on the size and type of the non-residential development, a formula for the appropriate land use will need to be applied to each non-residential development, individually, based on its size (square footage). The formula is outlined in the next subsection.

Table 49: Summary of Workforce Housing and Assistance Need for Non-Residential Development

Land Use	Construction		Post-Construction		Critical Service Providers		Totals		Totals	
	Workforce Housing Units per 1,000 FT^2 or Room	Housing Assistance Needed per 1,000 FT^2 or Room	Workforce Housing Units per 1,000 FT^2 or Room	Housing Assistance Needed per 1,000 FT^2 or Room	Workforce Housing Units per 1,000 FT^2 or Room	Housing Assistance Needed per 1,000 FT^2 or Room	Workforce Housing Units per 1,000 FT^2 or Room	Housing Assistance Needed per 1,000 FT^2 or Room	Workforce Housing Units per 1 FT^2	Housing Assistance Needed per 1 FT^2
Per 1,000 Square Feet										
Retail	0.023	$ 2,511.79	0.705	$127,958	0.002	$ 212.46	0.730	$ 130,682.25	0.00073	$ 130.68
Eating & Drinking	0.023	$ 2,511.79	1.956	$286,160	0.002	$ 212.46	1.981	$ 288,884.25	0.00198	$ 288.88
Office	0.023	$ 2,511.79	0.952	$102,783	0.002	$ 212.46	0.977	$ 105,507.25	0.00098	$ 105.51
Industrial	0.010	$ 1,045.84	0.430	$125,983	0.002	$ 212.46	0.442	$ 127,241.30	0.00044	$ 127.24
Institutional	0.017	$ 1,887.36	0.952	$ 125,983.00	0.002	$ 212.46	0.971	$ 128,082.82	0.00097	$ 128.08
Other										
Per Room										
Hotel/Lodging (by room)	0.021	$ 2,253.53	0.244	$35,696	0.002	$ 190.61	0.267	$ 38,140.14		

Source: James C. Nicholas, Clarion Associates

f. Measuring Need

Based on the previous analysis outlined in this section, the degree of workforce housing need for non-residential development in Teton County and the Town of Jackson is determined using the following formula.

Construction Employees' Workforce Housing Need

Workforce Housing Units Needed for Construction Employees = ([Enter number below identified for each land use] * Square Feet of Development) ÷ 1,000

- Office 0.023
- Retail 0.023
- Industrial 0.010
- Institutional 0.017
- Eating & drinking places 0.023

or

Workforce Housing Units Needed for Construction Employees for Hotel/Lodging = ([0.23] * Number of Rooms

- Lodging 0.023 per room

Assistance Needed = Square Feet of Development * [Enter land use below]

- Office $2,512 per 1,000 FT^2
- Retail $2,512 per 1,000 FT^2
- Industrial $1,046 per 1,000 FT^2
- Institutional $1,887 per 1,000 FT^2
- Food & drinking places $2,512 per 1,000 FT^2

or

Assistance Needed for Hotel/Lodging = Number of Rooms * [$2,253.53]

Post Construction Employees' Workforce Housing Need

Retail Employees' Workforce Housing Need:
Workforce Housing Units Needed for Retail Employees = (0.743 * Square Feet of Development) ÷ 1,000
Assistance Needed = Square Feet of Development * $132,997

Eating and Drinking Employees' Workforce Housing Need
Workforce Housing Units Needed for eating and Drinking Employees = (1.003* Square Feet of Development) ÷ 1,000
Assistance Needed = Square Feet of Development * $145,804

Office Employees' Workforce Housing Need
Workforce Housing Units Needed for Office Employees = (0.549* Square Feet of Development) ÷ 1,000
Assistance Needed = Square Feet of Development * $59,258

Industrial Land Use Employees' Workforce Housing Need
Workforce Housing Units Needed for Industrial Employees = (1.002* Square Feet of Development) ÷ 1,000
Assistance Needed = Square Feet of Development * $129,521

Institutional Employees' Workforce Housing Need
Workforce Housing Units Needed for Institutional Employees = (0.543* Square Feet of Development) ÷ 1,000
Assistance Needed = Square Feet of Development * $71,395

Hotel/Lodging Employees' Workforce Housing Need
Workforce Housing Units Needed for Hotel/Lodging Employees = (0.244* Number of Rooms)
Assistance Needed = Number of Rooms * $35,696

Critical Service Providers' Workforce Housing Need

Workforce Housing Units Needed for Critical Service Providers' = [0.002] * Square Feet of Development) ÷ 1,000

Assistance Needed = Square Feet of Development * $212.46

Or

Workforce Housing Units Needed for Critical Service Providers' for Hotel/Lodging = [0.002] * Number of Rooms

Assistance Needed = Number of Rooms * $190.61

TOTAL UNITS NEEDED = Units Needed for Construction Employee Households (by Appropriate Land Use Category) + Units Needed for Post Construction Employees (by Appropriate Land Use Category) + Units Needed for Critical Service Provider Households

TOTAL ASSISTANCE NEEDED = Assistance Needed for Construction Employee Units (by Appropriate Land Use Category) + Assistance Needed for Post Construction Employee Units (by Appropriate Land Use Category) + Units Need for Critical Service Provider Households

APPENDIX A: CALCULATING THE AFFORDABILITY THRESHOLD

The Affordability Limit, defined as annual household costs that are not more than 30% of annual household income, results in the Affordability Threshold Price (price of a home that is affordable given a household's income) equal to 333% of household income.

The mathematical equations that arrive at this result are as follows:

Affordability Threshold Price = Household Income / 30%
Affordability Threshold Price = Household Income / 0.30
Affordability Threshold Price = Household Income * (1/0.30)

And (1/.30) = 3.33

Then Affordability Threshold Price = Household Income * 3.33
Or Affordability Threshold Price = Household Income * 333%

APPENDIX B: CALCULATING SECOND JOB EARNINGS AND OTHER HOUSEHOLD INCOME

A. EARNED HOUSEHOLD INCOME IN TETON COUNTY

Earned income for households in Teton County comes from three sources:

1. Wages and salary of the primary employee
2. Wages and salary of other employed workers living in the household, and
3. Wages and salary earned from second jobs held by household workers.

Calculating earned household income for employee households is necessary to estimate the total amount of income, on average, that these households have to purchase a housing unit. Table 31 in the main report and Table B-1 identify the estimates of each of these sources of earned income for Teton County employees in 2011.

Table B-1: Estimates of Individual and Household Income by Industry, Teton County 2011

Industry	Annual Household Wage & Salary Income				
	Primary Employee	Number of Other Employees	Other Members' Income	Adjustment for Second Jobs	Household
All Industries	$39,002	0.797	$31,085	$2,035	$72,124
Private Sector	$37,953	0.797	$31,085	$2,229	$71,269
Ag., Forestry, Fishing, & Hunting	$34,785	0.82	$31,975	$2,029	$68,791
Mining	$37,953	0.797	$31,085	$0	$69,040
Utilities	$37,953	0.797	$31,085	$0	$69,040
Construction	$40,371	0.774	$30,192	$963	$71,528
-Construction of Buildings	$47,867	0.774	$30,192	$1,065	$79,126
Manufacturing	$27,463	0.549	$21,396	$668	$49,528
Wholesale Trade	$87,512	0.681	$26,571	$0	$114,084
Retail Trade	$28,236	0.706	$27,537	$1,383	$57,158
Transportation & Warehousing	$34,460	0.69	$26,908	$1,561	$62,932
Information	$53,033	0.883	$34,439	$0	$87,474
Finance & Insurance	$91,910	0.649	$25,319	$0	$117,231
Real Estate & Rental & Leasing	$42,968	0.649	$25,319	$0	$68,289
Prof, Scientific & Tech. Services	$74,055	0.959	$37,414	$0	$111,470
Management	$883,311	0.649	$25,319	$0	$908,632
Admin., Support & Waste Serv	$35,136	0.649	$25,319	$0	$60,456
Educational Services	$31,060	0.789	$30,775	$3,804	$65,641
Health Care & Social Assistance	$46,396	0.789	$30,775	$715	$77,887
Arts, Entertainment, & Recreation	$26,360	1	$38,984	$4,693	$70,038
Accommodation & Food Services	$24,213	1	$38,984	$4,539	$67,737
-Accommodation	$24,213	1	$38,984	$4,539	$67,737
-Food Service & Drinking Places	$24,213	1	$38,984	$4,539	$67,737
Other Services	$32,613	0.713	$27,821	$1,961	$62,396
Federal Government	$51,237	0.533	$20,770	$0	$72,009
State Government	$50,457	0.533	$20,770	$0	$71,228
Local Government	$44,046	0.533	$20,770	$0	$64,817

Source: Wyoming Dept. of Workforce Services, http://doe.state.wy.us/lmi/toc_202.htm,U.S. Census Bureau, 2011 American Community Survey Public Use Microdata Sample (PUMS), ES-202 January 2000-December 2011

1. Calculating Wages and Income for Primary Employees

The wages and salaries of employees working to construct or serve residential development (i.e., construction, operations and maintenance, and critical service providers) and non-residential development (construction, post-construction, and critical service providers) are identified using the Wyoming Department of Workforce Housing Studies[26] as set out in Table B-

[26] http://doe.state.wy.us/lmi/toc_202.htm

1: Estimates of Individual and Household Income by Industry, Teton County 2011. The primary employee annual wages are used to determine the income for the "primary" employee (i.e., the worker in the household that constructs or serves new residential or non-residential development). For example, a construction employee that builds residential or non-residential development earned on average $47,867 in 2011. See Table B-1.

2. Calculating Wages and Income from Other Household Workers

To determine the wages of other employed workers in a household, it is first necessary to determine the number of other employed workers, on average, that exist in the primary worker household. Appendix D: Employees per Household identifies U.S. Census Bureau estimates of average workers per household by type of primary employee household.

In Table B-1, the number of other employees is calculated as the average number of employees per household (identified in Appendix D) minus one (the primary employee) to determine the number of other employees. For example, a building construction employee household has on average 1.774 employees per household. Subtracting one from 1.774 results in 0.774 other employees per household on average in 2011.

Next, the wages of these other household workers are estimated. Because there is no good way to know what the type of employment is for the other workers in the household, their wages are estimated using the average wages of all industries ($39,002). For example, the income from other household workers in a construction employee household is calculated by multiplying the average wages for all industries ($39,002) times the number of other employees in the construction employee household (0.774) resulting in $31,085.

3. Calculating Wages and Income from Second Jobs

Many workers in Teton County earn wages by working at second jobs. The jobs are often taken by individuals as second and perhaps part-time seasonal jobs. There is no direct data source on how many individuals hold second jobs; however, there is good data regarding seasonal employment patterns that can help to estimate the incomes generated from second jobs.

Employment data over a period of time can be assessed to see increases and decreases in employment, showing trends for seasonal employment in Teton County. To estimate the amount of seasonal employment by industry in Teton County, monthly employment by industry for Teton County was compiled from ES-202 data[27] for January 2000 through December 2011. To smooth out any unique events that may have occurred in a given year, employment was totaled for each month over the 11 year period. This was also done for total employment for each industry. Dividing the amount of total monthly employment for each industry during the 11 year period by the total of employment of the same industry for the entire year (January – December) for the 11 year period results in a percentage of total employment for each month during the 11 year period. For example, construction employment totals for January during the 11 year period were 22,615, and were 291,056 for the entire year. Therefore, January constituted 7.77% of annual construction employment over the 11 year period. The results are

[27] ES-202 data (also known as the "Quarterly Census of Employment and Wages") is available through the U.S. Bureau of Labor Statistics. ES-202 data provides covered (i.e., insured) employment and wage data, by industry, at the national, state, and county levels.

shown in the following table with the percentage for annual employment occurring in each month, by industry for the 11 year period.

TableB-1: Seasonal Employment by Month (January 2000- December 2011) for Teton County

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total, All Industries	8.27%	8.26%	8.21%	7.06%	7.70%	9.39%	9.86%	9.76%	8.99%	7.82%	6.95%	7.74%
Private Sector	8.17%	8.15%	8.09%	7.01%	7.63%	9.47%	10.08%	9.99%	9.06%	7.79%	6.85%	7.71%
Ag., Forestry, Fishing, & Hunting	7.62%	7.68%	7.69%	7.23%	7.71%	9.64%	10.19%	10.07%	9.12%	7.96%	7.15%	7.94%
Construction	7.77%	7.66%	7.71%	7.65%	8.41%	8.93%	9.02%	8.95%	8.77%	8.77%	8.43%	7.94%
Manufacturing	7.63%	7.60%	7.78%	7.62%	8.11%	8.80%	8.89%	8.97%	8.92%	8.70%	8.53%	8.47%
Wholesale Trade	8.66%	8.53%	8.59%	8.11%	7.98%	8.51%	8.58%	8.43%	8.36%	8.20%	7.98%	8.08%
Retail Trade	8.27%	8.06%	8.03%	7.22%	7.89%	9.19%	9.70%	9.67%	8.87%	7.77%	7.41%	7.89%
Transportation & Warehousing	8.77%	8.85%	8.63%	7.01%	7.22%	8.90%	9.55%	9.56%	8.71%	7.56%	7.07%	8.17%
Information	8.80%	8.82%	8.84%	8.05%	8.17%	8.48%	8.43%	8.40%	8.18%	7.94%	7.87%	8.02%
Finance & Insurance	8.68%	8.68%	8.71%	8.07%	8.14%	8.24%	8.27%	8.30%	8.16%	8.19%	8.25%	8.33%
Real Estate & Rental & Leasing	8.16%	8.15%	8.12%	7.52%	7.84%	8.83%	9.15%	9.37%	8.93%	8.31%	7.75%	7.89%
Prof, Scientific & Tech. Services	8.45%	8.44%	8.54%	7.93%	8.04%	8.58%	8.74%	8.75%	8.32%	8.09%	7.96%	8.17%
Management	8.07%	8.01%	8.04%	7.59%	7.91%	8.63%	8.77%	8.85%	8.62%	8.62%	8.30%	8.60%
Admin., Support & Waste Services	6.89%	6.83%	6.66%	7.23%	8.94%	10.03%	10.19%	10.19%	9.47%	8.94%	7.74%	6.90%
Educational Services	7.70%	7.96%	7.62%	6.23%	7.13%	9.02%	11.76%	12.38%	8.68%	7.54%	6.73%	7.24%
Health Care & Social Assistance	8.68%	8.74%	8.85%	7.92%	8.05%	8.29%	8.30%	8.35%	8.18%	8.20%	8.13%	8.31%
Arts, Entertainment, & Recreation	8.29%	8.27%	8.12%	5.43%	6.17%	10.25%	12.08%	12.16%	9.95%	6.89%	4.98%	7.41%
Accommodation & Food Services	8.27%	8.30%	8.17%	6.28%	7.06%	10.27%	11.26%	11.00%	9.54%	7.15%	5.35%	7.34%
Other Services	8.24%	8.28%	8.20%	7.16%	7.40%	9.45%	10.06%	9.92%	9.02%	7.68%	6.81%	7.79%
Federal Government	7.15%	7.16%	7.35%	6.79%	8.39%	10.27%	10.55%	10.14%	9.80%	7.95%	7.04%	7.41%
State Government	8.22%	8.23%	8.27%	7.53%	7.95%	8.89%	9.18%	8.93%	8.80%	8.19%	7.85%	7.96%
Local Government	9.11%	9.20%	9.26%	7.97%	8.24%	8.47%	7.45%	7.34%	8.01%	8.22%	8.31%	8.43%

Source: ES-202 January 2000-December 2011

The amount of seasonal employment expressed as a percentage of total employment is calculated by subtracting the lowest monthly employment percentage from the highest monthly employment percentage. For example, using construction employment:

- The highest monthly percentage is 9.02 percent for August
- The lowest monthly percentage is 7.65 percent for April
- The difference between the 9.02 percent and the 7.65 percent is 1.36 percent, which is the seasonal employment.

Seasonal employment earnings are then calculated for each industry by summing the primary and other individual income times the seasonality factor. Using construction as an example:

- The primary worker earns $47,867.
- The other employed individuals each earn $39,002, and given 1.774 employees in a construction household (0.774 additional employees), the earnings of the additional employee would be 0.774 times $39,002 -- $30,188.
- Total construction household income for a construction employee household is $78,055.

- The $78,005 total household income is then multiplied by the 1.36 percent seasonal employment factor to estimate second income of $1,065 for a construction worker's household.

When summed, the grand total of estimated household income for a construction employee household is:

Primary worker income	$47,867
+ Other household worker income	$30,188
+ Second job income	$1,065
Total household earned income	$79,120

APPENDIX C: CONSTRUCTION EMPLOYMENT BY TYPE OF CONSTRUCTION AND LAND USE

Table C-1: Construction Employment per 1,000 sf of Floor Area (Teton County, 2002-2011)

	Floor Area Constructed			Building Construction Employment	Employees per 1,000 Square Feet
	Finished	Unfinished	Total		
2002	916,734	192,724	1,109,458	887	0.8
2003	970,862	61,421	1,032,283	815	0.79
2004	1,065,834	27,197	1,093,031	870	0.796
2005	1,120,005	41,906	1,161,911	930	0.8
2006	1,085,413	46,107	1,131,520	946	0.836
2007	1,155,687	66,624	1,222,311	942	0.77
2008	763,550	75,511	839,061	814	0.971
2009	480,853	8,618	489,471	632	1.291
2010	316,680	0	316,680	665	2.099
2011	378,517	13,095	391,612	646	1.649
10 Year	**8,254,135**	**533,203**	**8,787,338**	**8,146**	**0.927**

NOTE: Remodeling and Demolitions are excluded here because they are not considered to be building construction.

Source: Town of Jackson and Teton County Building Departments, 2012

In order to determine the number of construction employees that are required to build both residential and non-residential development, the following analysis was conducted. First the amount of finished and unfinished space (both residential and non-residential) built in the county between 2002 and 2011 was identified from the Town of Jackson and Teton County Building Departments, by year. (See Table C-1 "Floor Area Constructed" column). Next the total number of construction employees employed in each year to build both the finished and unfinished space was identified from the Wyoming Department of Workforce Services (Table C-1, "Building Construction Employment" column). Based on the total amount of space built (both finished and unfinished) and construction employees that built the space, the number of employees it takes to develop this amount of construction was then determined (i.e., 8,146 / 8,787,338 = 0.000927). This was then converted to the number of employees it took to build 1,000 square feet of space (Table C-1, "Employees per 1,000 Feet" column). The 10 year average is 0.927 employees per 1,000 square feet.

Because it takes a fewer number of employees to build unfinished versus finished space, the next step in the analysis involved the allocation of construction employees to non-residential land uses based on the variation in costs (and employment) to build finished versus unfinished space. The non-residential land uses identified for this study include:

- Lodging
- Office
- Retail
- Industrial
- Institutional
- Food and Drinking Places

Specifically, this step is done by determining the differences between the average costs to construct finished versus unfinished space from 2012 data from the *Engineering News Record*, relative to the average costs to construct all constructed space (both finished and unfinished). This analysis showed that finished space, on average, costs 133.1% of the average costs of constructing both finished and unfinished space, while unfinished spaces costs 55.4% of that average.

Based on these proportions, the amount of employees it took to build a square foot (and 1,000 square feet) of finished and unfinished space was determined, based on applying these same percentages to the number of employees it took to build a square foot (and 1,000 square feet) of finished and unfinished square feet in the county over the past decade. See Table C-2.

Table C-2: Construction Employee Years to Build 1,000sf in a Year, Broken Down by Finished and Unfinished Construction

Employees Needed to Build 1,000sf in One Year (Finished and Unfinished)	Factor Applied for Finished Square Footage	Construction Employee Years to Build Finished Square Footage	Factor Applied for Unfinished Square Footage	Construction Employee Years to Build Unfinished Square Footage
0.927	133.10%	1.234	55.40%	0.514

The final step in the analysis involved determining the percent of finished versus unfinished space that is built for each land use. Engineering News Record's Square Foot Costbooks were used to distinguish construction cost by type of non-residential space. The buildings constructed were grouped into that with finished space and those with rough or unfinished space. The mean costs by type of space were calculated and the differences between means were used to differentiate between the cost and amount of labor time between finished and unfinished space. The results are shown in Table C-3: Employee Years to Construct Non-Residential Land Uses by Construction Type.

Table C-3: Employee Years to Construct Non-Residential Land Uses by Construction Type (Finished, Unfinished, or Average (both finished and unfinished)

Land Use Type	Construction Type	Worker Years
Lodging	Finished	1.234
Office	Finished	1.234
Retail	Finished	1.234
Industrial	Unfinished	0.514
Institutional	Average (Finished and Unfinished)	0.927
Food & Drinking Places	Finished	1.234

APPENDIX D: EMPLOYEES PER HOUSEHOLD

Employees per household data are used throughout the study to estimate the number of employees living in a household of a certain occupation type. The following table summarizes the employees per household estimates. These estimates are derived from the U.S. Census Bureau's 2011 American Community Survey Public Use Microdata Sample (PUMS).

Table D-1: Employees per Household (Teton County,2011)

Industry	Employees per Household
All Industries	1.797
Agriculture, forestry, fishing and hunting, and mining	1.82
Construction	1.774
Manufacturing	1.549
Wholesale trade	1.681
Retail trade	1.706
Transportation and warehousing, and utilities	1.69
Information	1.883
Finance and insurance, and real estate and rental and l	1.649
Professional, scientific, management, admin. and waste	1.959
Educational services, and health care and social assist	1.789
Arts, entertainment, recreation, and accommodation an	2
Other services, except public administration	1.713
Public administration	1.533

Source: U.S. Census Bureau's 2011 American Community Survey Public Use Microdata Sample (PUMS).

APPENDIX E: CRITICAL SERVICE PROVIDERS WORKFORCE HOUSING NEED CALCULATIONS

As outlined in previous sections, the demand for workforce housing is created by employees that construct, serve, or work at new residential and non-residential development. This includes critical service providers that provide fire and rescue and law enforcement services to the residents of Teton County and the Town of Jackson.

This appendix provides an explanation for the calculations used to define the workforce housing need generated by new residential and non-residential development to house critical service providers.

1. Fire/Rescue Calculations

A total of 119 paid and volunteer personnel provide fire and rescue protection to Teton County and the Town of Jackson; 21 are paid and 98 are volunteer personnel working for Jackson Hole Fire/EMS. These personnel counts include fire chiefs, emergency medical technicians (EMTs), and fire fighters. For the purposes of this study, only paid personnel are included in the analysis to determine workforce housing need for fire and rescue employees. These fire and rescue personnel provide service to both residential and non-residential developments in the county. This includes 27,201,802 square feet of residential development and 11,950,412 square feet of non-residential development. The table below shows the breakdown of this development.

Table E-1: Development Served by Fire/Rescue Personnel

Floor Area (FT^2)	Countywide
Residential	
Detached Single Family	22,029,441
Attached Single Family	2,639,970
Apartment	1,257,868
Guesthouse/Caretaker	736,363
Mobile Home	538,160
Residential Subtotal	27,201,802
Nonresidential	
Restaurant/Bar	408,470
Lodging	5,270,931
Office	1,267,425
Retail	1,581,450
Industrial	1,417,546
Institutional	2,004,590
Nonresidential Subtotal	11,950,412

Source: Teton County Planning Department, 2012

Jackson Hole Fire/EMS respond to calls located at residential, non-residential, and "all other" development. The most common "all other" development are calls to provide fire and rescue service on streets and roads. This study is concerned with the generation of workforce housing need created by new development, and therefore, calls to streets, roads, and other locations are not included in this analysis.

The table below outlines the number of calls estimated by Jackson Hole Fire/EMS as received and responded to by public safety services in Jackson Hole/Teton County to the three land uses, the percent of calls assigned to land uses, and the total equivalent paid fire and rescue personnel based on the call assignments. The calls assigned are the result of dividing the calls attributable to a land use divided by the sum of residential and non-residential calls (the calls being assessed for the purposes of this study.) For example, 20% of calls are to residential development. Dividing the 20 percent by 45 percent (total number of residential and non-residential calls) results in 44 percent -- the percent of calls assigned to residential development. The equivalent paid personnel is a result of applying the calls assigned percent to the total number of paid personnel. For residential development this is equal to 44 percent times 21 paid employees equaling 9 equivalent paid fire and rescue personnel.

Table E-2: Allocation of Fire/EMS Calls and Equivalent Personnel

Demand on:	Calls Attributable to Land Uses	Calls Assigned to Land Uses for Nexus Study	Equivalent Paid Fire/EMS Personnel
Residential Area	20%	44%	9
Non-Residential Area	25%	56%	12
Other Areas	55%	0%	0

Source: Jackson Hole Fire/EMS, 2013, James C. Nicholas

Next, the number of employees per 1,000 square feet of residential and non-residential development is calculated. This is done by dividing fire and rescue personnel responding to residential development by the total residential floor area served. Then, the number of households per 1,000 square feet of residential and non-residential development is calculated as the product of the individuals per 1,000 square feet of residential or non-residential development times the average number of employees per household (1.797). (See Appendix D: Employees per Household).

Table E-3: Need for Critical Service Providers and Workforce Housing Units Generated by Land Use

Residential	
Floor Area Served (FT^2)	27,201,802
Fire/ems Personnel	9
Individuals per 1,000 FT^2	0.00033
Employees per household	1.797
Households per 1,000 FT^2	0.00018
Non-Residential	
Floor Area Served (FT^2)	11,950,412
Fire/ems Personnel	12
Individuals per 1,000 FT^2	0.001
Employees per household	1.797
Households per 1,000 FT^2	0.00056

Source: Jackson Hole Fire/EMS, James C. Nicholas

2. Law Enforcement Calculations

A total of 65 Town police and Sheriff personnel provide law enforcement services to Teton County and the Town of Jackson; 25 for the Jackson Police Department and 40 for the Teton County Sheriff's office. These personnel counts include uniform patrol officers, school resource officers, detectives, administrators for Jackson Police Department. Personnel working for the Teton County Sheriff's office include uniform patrol, detention officers, detectives, court security officers, and training officers. These law enforcement personnel provide service to both residential and non-residential developments in the county. This includes 27,201,802 square feet of residential development and 11,950,412 square feet of non-residential development – the same amount of development that is served by fire and rescue services. The table below shows the breakdown of this development.

Table E-4: Development Served by Law Enforcement Personnel

Floor Area (FT²)	Countywide
Residential	
Detached Single Family	22,029,441
Attached Single Family	2,639,970
Apartment	1,257,868
Guesthouse/Caretaker	736,363
Mobile Home	538,160
Residential Subtotal	27,201,802
Nonresidential	
Restaurant/Bar	408,470
Lodging	5,270,931
Office	1,267,425
Retail	1,581,450
Industrial	1,417,546
Institutional	2,004,590
Nonresidential Subtotal	11,950,412

Source: Teton County Planning Department, 2012

Police and Sheriff departments' respond to calls located at residential, non-residential, and "all other" areas. The most common "all other" areas are calls to provide law enforcement service on streets and roads. This study is concerned with the generation of workforce housing need demanded by new development, and therefore, calls to streets, roads, and other locations are not included in this analysis.

The table below outlines the number of total number of estimated calls received and responded to by public safety services in Jackson Hole/Teton County attributable to the three land uses, the percent of calls assigned to land uses, and the total equivalent paid law enforcement personnel based on the call assignments. The calls assigned for the study are the result of dividing the calls attributable to a land use divided by the sum of residential and non-residential calls (the calls being assessed for the purposes of this study.) For example, 20 percent of calls are to residential development. Dividing the 20 percent by 45 percent (total number of residential and non-residential calls) results in 44 percent -- the percent of calls assigned to residential development. The equivalent paid personnel is a result of applying the percent of calls assigned to the total number of paid personnel. For residential this is equal to 44 percent times 65 paid employees equals 29 equivalent police and Sheriff personnel.

Table E-5: Allocation of Law Enforcement Calls and Equivalent Personnel

Demand on:	Calls Attributable to Land Uses	Calls Assigned to Land Uses for Nexus Study	Equivalent Paid Police/Sheriff Personnel
Residential Area	20%	44%	29
Non-Residential Area	25%	56%	36
Other Areas	55%	0%	0

Source: Teton County Sheriff and Jackson Police Departments, 2013, James C. Nicholas

Next, the number of employees per 1,000 square feet of residential and non-residential development is calculated. This is calculated as the number of equivalent paid law enforcement personnel divided by the total floor area served (residential or non-residential). Then, number of households per 1,000 square feet of residential and non-residential development is calculated as the product of the individuals per 1,000 square feet of residential or non-residential development times the average number of employees per household (1.797). (See Appendix D: Employees per Household).

Table E-6: Need for Critical Service Providers and Workforce Housing Units Generated by Land Use

Residential	
Floor Area Served (FT^2)	27,201,802
Law Enforcement Personnel	29
Individuals per 1,000 FT^2	0.00107
Employees per household	1.797
Households per 1,000 FT^2	0.00059
Non-Residential	
Floor Area Served (FT^2)	11,950,412
Law Enforcement Personnel	36
Individuals per 1,000 FT^2	0.00301
Employees per household	1.797
Households per 1,000 FT^2	0.00168

Source: Teton County Sheriff and Jackson Police Departments, James C. Nicholas

APPENDIX F: WORKFORCE HOUSING PROTOTYPE COST ESTIMATES

To estimate the cost to develop a prototypical workforce housing unit in Teton County, the cost of several existing workforce housing developments in the county were assessed. Some of these projects were developed by the Teton County Housing Authority and some by private non-profit developers who requested that their names and project names be kept anonymous.

Costs evaluated were broken down into:

- **Site Costs:** Any costs associated with readying the site for development.
- **Soft Costs:** Includes builder's risk, construction management and engineering fees, landscaping and the owner representative.
- **Construction Costs:** Includes all construction related costs and architectural costs.
- **Land Costs:** The cost to purchase the land for development.

The estimated average sum for site, soft, and construction costs is $206.48 per square foot, as shown below.

Table F-1: Estimated Average of Site, Soft, and Construction Costs for Workforce Housing Projects in Teton County, 2012

	Site + Soft (per sf)	Construction Costs (per sf)	Total Less Land (per sf)
Project A	$52.00	$176.00	$228.00
Project B	$28.00	$175.00	$203.00
Project C	$45.41	$134.47	$179.88
Project D	$40.64	$174.38	$215.02
Average	**$41.51**	**$164.96**	**$206.48**

Source: Teton County Housing Authority, 2012

The estimated cost of land per unit of development is shown in Table F-2. Three workforce housing projects with entitlements for development were used to determine the average cost of land per housing unit, $144,965.

Table F-2: Estimated Average of Site, Soft, and Construction Costs for Workforce Housing Projects in Teton County, 2012

Project	Price	Acres	Price per Acre	Allowable Units	Cost per Unit
5-2-5 Hall	$1,423,649	0.8	$1,779,561	12	$118,637
Daisy Bush	$1,800,000	0.71	$2,535,211	8	$225,000
The Grove	$6,187,500	3.9	$1,586,538	69	$89,674
Totals	$9,411,149	5.41	$1,739,584	89	$89,674
	$1,739,584				$144,965
*These parcels require legislative action to become developable.					

Source: Teton County Housing Authority, 2012