

bae urban economics

## Phase II: Assured Housing Nexus Fee Analysis for the City of Moab and Grand County, Utah

May 2018



# bae urban economics

May 25, 2018

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Dear Mr. Levine:

We are pleased to submit this Moab Area Assured Housing Feasibility Analysis Phase II Nexus Study. We enjoyed completing this work, and it has been a pleasure working with you. I look forward to the joint City/County meeting on June 19<sup>th</sup> and recapping the Phase I work and presenting the results of this Phase II work. In the meantime, please let me know if you have any questions on the attached.

Sincerely,



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Managing Principal



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## EXECUTIVE SUMMARY

This report represents the second phase of the Moab Area Assured Housing Feasibility Analysis. The Phase I Study included the following:

- Description of general demographic and economic conditions
- Review of residential and commercial real estate market conditions
- Assessment of workforce housing needs
- Analysis of financial feasibility of applying affordable housing impact fees to various commercial and residential real estate products under varying market conditions
- Estimate of revenue potentially generated by an assured housing fee

Building on the Phase I analysis, this phase of the study examines in more detail the level of development “in-lieu” fees in support of affordable housing in Moab and Grand County that would be financially feasible and justifiable as being linked to, or having a nexus with, the impacts of a particular type of development. The maximum justifiable fees are based on the nexus analysis conducted as part of this Phase II Study, and represent the maximum fee based on the demand for additional affordable housing driven by new commercial and residential development. However, as indicated in the analysis here and in Phase I, applying a fee to some commercial and residential development might result in projects which would no longer generate high enough returns to be financially feasible, and for projects where a fee might be feasible, it is possible that the maximum feasible fee would be lower than the maximum justifiable fee as determined by the nexus analysis.

The Phase I analysis indicated that in-lieu fees for affordable housing were financially feasible for condominiums under a strong market scenario, and for townhomes and single-family homes under both moderate and strong market scenarios. Fees were also considered for hotels, retail, and office, with fees determined to be financially feasible for hotels only.

Using the same benchmarks for developer return, this Phase II analysis calculates a maximum financially feasible fee for each of the six land uses and scenarios where a fee was deemed feasible. This Phase II report also includes a nexus analysis, to assess the maximum justifiable fee based on the impacts for each of the scenarios for which a fee was financially feasible. Finally, the maximum financially feasible fee is compared with the maximum justifiable fee per the nexus analysis, since the lower of the two fees represents the upper limit of what can be reasonably charged, representing a fee level that is both within the range justified by the nexus findings and also not so high as to render projects financially infeasible.

### **Impact Fee Analysis**

A comparison of the maximum justifiable fee per the nexus analysis to the maximum financially feasible fees for the two hotel scenarios shows that the maximum fee justifiable via the nexus analysis is considerably lower than the maximum financially feasible fee for either

market scenario. This is an indicator that a fee in the range of the maximum justifiable fee could be considered for implementation by the City and County.

**Table ES-1: Summary of Commercial Impact Fee Analysis**

	Fee per Square Foot	
	Hotel Moderate	Hotel Strong
Maximum Financially Feasible Fee	\$30.86	\$54.14
Maximum Justifiable Fee	\$15.57	\$15.57

Source: BAE, 2018.

A comparison of the maximum justifiable fee per the nexus analysis to the maximum financially feasible fees for the various residential scenarios shows that the nexus fee is higher than the financially feasible fee for any of the market scenarios, especially for the single-family homes. As a result, if the City and the County choose to implement a residential in-lieu fee, the level of appropriate fees might be constrained by market conditions. When this is the case, the revenue generated by a fee that is set at a level that is less than the justifiable amount means that the funds collected would need to be leveraged with other sources of subsidy to achieve the necessary level of housing mitigation.

**Table ES-2: Summary of Residential Impact Fee Analysis**

	Fee per Square Foot				
	Condominium Strong	Townhome Moderate	Townhome Strong	Single-Family Moderate	Single-Family Strong
Maximum Financially Feasible Fee	\$5.18	\$4.64	\$8.77	\$1.13	\$1.62
Maximum Justifiable Fee	\$10.19	\$7.58	\$9.29	\$7.43	\$5.31

Source: BAE, 2018.

### Potential In-Lieu Fee Generation

For projects where a linkage fee was feasible, the maximum potentially feasible fee levels were applied to historic building permit data to estimate revenue that could potentially be generated from an in-lieu fee program. To partially take into account the variation in feasibility due to fluctuations in economic conditions over time, the assumed fees were rounded down to the nearest dollar, and were based on the moderate market scenario, with the exception of condominiums, where the fee for the strong market was used since a fee was deemed not feasible under the moderate market scenario.

This assumed fee structure could generate an estimated average annual revenue of approximately \$1.3 million if applied in both the City of Moab and Grand County, assuming the same rate of development as between 2010 and 2017.<sup>1</sup> The City could be expected to generate substantially more revenue from hotel development than from residential development, while slightly more than half of Grand County's revenue would come from residential projects. The City's annual projected share is slightly less than \$800,000, and the County's share is estimated at about \$523,000. These average annual revenue estimates may under- or overstate actual revenue in any given year, depending on the overall economic cycle.

**Table ES-3: Annual Estimated Fee Revenue Based on Historic Permit Activity**

	<u>Proposed Fee</u>	<u>City of Moab</u>	<u>Grand County</u>	<u>Est. Annual Revenue</u>
<b><u>Residential Projects</u></b>				
Single-Family Detached	\$ 1.00	\$ 31,898	\$ 44,796	76,694
Townhomes / SFR Nightly Rentals	\$ 4.00	\$ 64,763	\$ 82,891	147,653
Condominiums	\$ 5.00	\$ 5,159	\$ 150,105	155,264
Apartments	\$ -	\$ -	\$ -	\$ -
<b>Annual Revenue, Residential Projects (a)</b>		<b>\$ 101,819</b>	<b>\$ 277,791</b>	<b>\$ 379,611</b>
<b><u>Commercial Projects</u></b>				
Retail	\$ -	\$ -	\$ -	\$ -
Office (b)	\$ -	\$ -	\$ -	\$ -
Hotel	\$ 15.00	\$ 694,714	\$ 245,010	\$ 939,724
<b>Annual Revenue, Commercial Projects (a)</b>		<b>\$ 694,714</b>	<b>\$ 245,010</b>	<b>\$ 939,724</b>
<b>Annual Revenue by Place</b>		<b>\$ 796,533</b>	<b>\$ 522,801</b>	<b>\$ 1,319,334</b>

Notes:

(a) The annual revenue is based the average annual square feet permitted between 2010 and 2017 in the City of Moab and Grand County. Revenue will vary year to year based on actual development activity.

(b) The building permit data did not contain square footage data for newly constructed office projects. Each office project was estimated at 8,000 square feet based on the recently built office buildings profiled in the Phase I study.

Sources: City of Moab, 2017; Grand County, 2017; BAE, 2018.

## Considerations for Implementation

### Market Conditions

Changes in the economy, locally or nationally, could impact both the financial feasibility and the justifiable nexus fees for the different development types. Changes in economic conditions that could influence feasibility of different fee levels would include interest rates for

<sup>1</sup> These calculations assume that all assured housing obligations are met by payment of fees, rather than construction of inclusionary housing units.

development and for mortgages, changes in rents, home sale prices, land costs, operating expenses, acceptable rates of return for developers, and other factors.

### ***Fees per Unit versus Fees per Square Foot***

When inclusionary requirements or in-lieu fees are fixed on a “per unit” basis, rather than varying by the size of the market rate units, this creates an incentive for builders to maximize the size of their market rate units, so that they can spread the cost of compliance over a greater quantity of saleable square footage, making market rate housing units less attainable to middle-income households. This report recommends tying the fee to square feet instead of per unit.

### ***Phase-In of Requirements***

When first adopting a policy like this, some jurisdictions set a future date for its implementation, and define how to treat current “pipeline” projects that would have been started without knowledge of this fee. A phase-in allows developers to adjust their bidding for development sites with the knowledge of how the applicable requirements affect the residual land value that they can afford to pay for a site and achieve financial feasibility. For these reasons, one possibility is to consider a phase-in schedule for initial implementation. In the case of Moab, we understand that discussion of possible assured housing requirements has occurred at least over the last two years, in which case a phase-in may not be necessary.

### ***Policy Flexibility***

During economic downturns, some jurisdictions have either created special deferral programs or lowered fees across the board. Some places have built-in mechanisms that require the fees or inclusionary policy to be re-analyzed at defined time intervals or when there are substantial changes in economic indicators such as interest rates or development costs. These approaches demonstrate that the requirements can be customized to adapt to changes in economic conditions. Because there are many constantly changing variables that influence affordable housing needs, costs of providing affordable housing units, and feasibility for market rate development, best practices dictate that analysis underpinning affordable housing requirements should be updated on a periodic basis, to determine if changes to policy or program parameters are appropriate.

Another important component of policy flexibility is to offer builders a range of options to comply with assured housing requirements. Every development project has a unique set of financial circumstances, and while a given project may not be able to afford to pay adopted in-lieu fees, there may be other options that would be feasible, such as providing on-site affordable units, dedicating land that could be utilized by others to construct affordable housing, or potentially complying with a reduced affordable housing requirement if a reduction could be justified, based on a finding of reduced affordable housing need or a lack of financial feasibility to meet the full requirements. An important caveat is to avoid making any of the options inherently more economically attractive than others, to avoid encouraging builders to



all select the same compliance option. For example, when in-lieu fees are set at levels that are substantially below the actual cost to subsidize affordable housing units, developers will rarely build affordable units onsite. As previously noted, when this is the case, perhaps due to market-based limitations on in-lieu fees, the City and County might have to leverage other sources of financing to support affordable housing.

Finally, the program should acknowledge that there may be unforeseen circumstances that could prevent a unique project from being able to feasibly comply with standard program requirements. In such cases, the program should provide for a process to modify the requirements to enable compliance.

## **Summary**

The analysis here and in the Phase I report of this Assured Housing Feasibility Study indicates that although charging an affordable housing nexus fee increases the cost to build, the fee can be set at a reasonable level for some land uses by estimating a maximum financially feasible fee as well as a maximum justifiable fee, and ensuring that the fee is does not exceed the lower of these two thresholds. In establishing a policy for such a fee, the City and County could build in some flexibility by monitoring market conditions on an ongoing basis and providing for updates to the fee calculations if conditions change significantly. Assuming current development trends continue, a nexus fee could bring in over \$1 million annually to assist in the production of affordable housing units.

## INTRODUCTION

This report represents the second phase of the Moab Area Assured Housing Feasibility Analysis. The Phase I Study included the following:

- Description of general demographic and economic conditions
- Review of residential and commercial real estate market conditions
- Assessment of workforce housing needs
- Analysis of financial feasibility of applying affordable housing impact fees to various commercial and residential real estate products under varying market conditions
- Estimate of revenue potentially generated by an assured housing fee

Building off the Phase I analysis, this phase of the study examines in more detail the level of development “in-lieu” fees in support of affordable housing in Moab and Grand County that would be financially feasible and justifiable as being linked to, or having a nexus with, the impacts of a particular type of development. The maximum justifiable fees are based on the nexus analysis below, and thus represent the maximum fee based on the demand for additional affordable housing driven by new commercial and residential development. However, as indicated in the analysis here and in Phase I, applying a fee to some commercial and residential development might result in projects which would no longer generate high enough returns to be financially feasible, and for projects where a fee might be feasible, it is possible the maximum financially feasible fee would be lower than the maximum justifiable fee as determined by the nexus analysis.

These are referred to as “in-lieu” fees because they are meant to compensate for, or substitute for, construction of below market rate housing units that builders/developers otherwise would have been required to construct as part of their projects, to comply with assured housing policies.

The Phase I study explored in detail the financial feasibility of fees for different types of development to determine whether a fee would lower developer financial returns below certain benchmark levels. BAE ran a sensitivity analysis under moderate and strong market scenarios for each development type, allowing the City and County to understand how feasibility may change when market conditions fluctuate. For the moderate market, data for land, construction costs, rents, and sales prices were taken from 2014, which represented a mid-point in the recovery after the recession. Inputs for the strong market were taken from 2017.

The residential uses evaluated included apartments, condominiums, townhomes, and single-family homes. The analysis indicated that in-lieu fees for affordable housing were financially feasible for condominiums under the strong market scenario, and for townhomes and single-family homes under both the moderate and strong market scenarios. Fees were also

considered for hotels, retail, and office, with fees determined to be financially feasible for hotels only.

Using the same benchmarks for developer return, this Phase II analysis calculates a maximum financially feasible fee for each of the six land uses and scenarios where a fee was deemed feasible. This Phase II report also includes a nexus analysis, to assess the maximum justifiable fee based on the impacts for each of the scenarios for which a fee was financially feasible. Finally, the maximum financially feasible fee is compared with the maximum justifiable fee per the nexus analysis, since the lower of the two fees represents the upper limit of what can be reasonably charged, representing a fee level that is both within the range justified by the nexus findings and also not so high as to render projects financially infeasible.

Finally, this Phase II study discusses considerations for implementation, building on the same discussion presented in the Phase I study.

## COMMERCIAL LINKAGE FEE ANALYSIS

This report chapter focuses on the potential jobs-housing linkage fees that could be considered for non-residential development that the Phase I analysis deemed capable of supporting some level of assured housing requirements; specifically, hotel uses.

### **Overview of Methodology**

The commercial fee analysis conducted for this report is based on the premise that new commercial land uses generate new employment for workers that will increase demand for local housing, and have a range of household incomes that influences their ability to pay for housing. Due to higher housing costs in Moab and Grand County, new workers with extremely low, very low, low, or moderate household incomes will be unable to afford most market-rate housing without incurring excessive cost burdens. This situation – the increment of growth in new worker households facing the lack of affordable housing options - is considered the impact of new commercial development. The commercial fee would mitigate these impacts by generating revenue to support the construction of housing affordable to the new lower-income worker households. The analysis completed as part of Phase I indicates that fees would not be feasible for retail or office development, so this Phase II analysis focuses on hotels, where pro forma analysis indicated that some level of a fee was financially feasible.

This section provides an overview of the steps taken to determine the maximum justifiable hotel fee, based on the relationship (“nexus”) between new hotel space and the number of households of workers supported by that new development that would face affordable housing challenges.

### **Step 1: Define Land Uses**

The Phase I Analysis assessed the financial feasibility of linkage fees for three commercial land use categories: office, retail, and hotels. Feasibility was tested for both moderate and strong market scenarios as defined above in the Introduction.

### **Step 2: Test Financial Feasibility of Linkage Fee for Defined Land Uses**

This step was completed in Phase I; commercial linkage fees were found to be feasible only for hotels under either the moderate or strong market scenario. However, the maximum fee that would still allow a project to meet the financial feasibility criteria regarding return on cost and yield on cost for the two hotel scenarios was not calculated. The table below shows the maximum feasible fee given those benchmarks.

**Table 1: Summary of Proforma Analysis for Commercial Land Uses**

	Office		Retail		Hotel	
	Moderate	Strong	Moderate	Strong	Moderate	Strong
<b>Assumptions for Baseline (a)</b>						
Location, Zoning	City of Moab, C-3		City of Moab, C-3		City of Moab, C-3	
Prototypical Building Size	10,000	10,000	10,000	10,000	60,000	60,000
Site Size (sf)	15,500	15,500	20,500	20,500	48,000	48,000
Total Number of Stories (Bldg)	2	2	1	1	3	3
Parking Type	Surface	Surface	Surface	Surface	Surface	Surface
FAR	0.65	0.65	0.49	0.49	1.25	1.25
Total Dev Cost/SF (inc. land)	\$ 213	\$ 253	\$ 233	\$ 286	\$ 246	\$ 263
Rent (psf or per hotel REVPAR)	\$ 18.00	\$ 24.00	\$ 24.00	\$ 30.00	\$ 105.00	\$ 122.50
<b>Return On Cost - Baseline</b>	-8.4%	12.0%	11.7%	24.0%	39.9%	63.4%
<b>Yield on Cost - Baseline</b>	5.5%	6.2%	6.7%	6.8%	9.1%	9.8%
<b>Baseline Feasible? (b)</b>	No	No	No	No	Yes	Yes
<b>New Fee/Sq. Ft. (a)</b>	\$ -	\$ -	\$ -	\$ -	\$ 30.86	\$ 54.14
New Fee for Prototype Project					\$ 1,851,856	\$ 3,248,415
<b>Return On Cost with Fees</b>					23.5%	34.1%
<b>Yield on Cost with Fees</b>					8.0%	8.0%
<b>Feasible with Fee? (b)</b>					Yes	Yes
<i>New Commercial Fee, as % of Total Dev Costs</i>					11.1%	16.9%

Notes:

a) See Phase I Report Appendix for detailed assumptions and proformas for each land use type.

b) Financial feasibility evaluated on 2 metrics:

ROC = 15.0%

YOC: Retail: Office: Hotel:  
7.0% 7.0% 8.0%

Source: BAE, 2018.

### Step 3: Determine Employment Density

For the purposes of the following analysis leading to the maximum fee calculations, a hotel totaling 60,000 square feet is assumed, matching the prototypical size used in the Phase I analysis.

Hotel employment density can vary widely, depending on the type of hotel and the services offered. As noted in Phase I, the lodging market in Moab has trended toward a higher proportion of midscale and upscale hotels, which typically offer a higher level of amenities and thus require higher staffing levels. The market analysis focused on the midscale to upper midscale hotel inventory, and the assumed prototype reflects revenues associated with this type of hotel; the nexus analysis thus assumes an employment density associated with these classes of hotels. BAE reviewed several studies to estimate average hotel employment density, which is usually presented as employees per room; most recently, BAE completed a study in Napa County, California, which has an economy with a strong tourism basis like Moab, and used employment density factors by hotel type as provided to BAE by Cushman &

Wakefield.<sup>2</sup> Assuming the prototype hotel would be a full-service hotel and using the median density for the range provided, the following table shows the calculations of employment density for the Moab prototype based on those factors. While various studies show a wide variation in the assumed employment density, the estimate here of 1,425 square feet per employee is in the general middle range of other sources.

**Table 2: Employment Density Estimate**

<u>Hotel Type</u>	<u>Workers per Room</u>			<u>Prototype Number of Rooms</u>	<u>Estimated Number of Workers</u>	<u>Hotel Sq. Ft.</u>	<u>Sq. Ft. per Worker</u>
	<u>Low</u>	<u>High</u>	<u>Avg.</u>				
B&Bs/Small Inns	0.20	0.50	0.35				
Limited/Select Service	0.23	0.30	0.27				
Full Service	0.30	0.75	0.53	80	42	60,000	1,425
Luxury Hotels & Resorts	0.50	1.00	0.75				

Note:  
Square feet per employee rounded to the nearest 25 square feet.

Sources: Cushman & Wakefield, 2018; BAE, 2018.

#### **Step 4: Estimate Worker Households by Income Level**

Many households in Moab and Grand County include more than one worker, so this study groups the employees generated by the prototype hotel into households, to estimate the total number of worker households generated.

Economists sometimes estimate household income for workers by simply multiplying worker earnings by industry by the average number of workers per worker household. This methodology relies on the unsatisfactory assumption that on average workers make the same amount of money as other workers in their household. Given the diversity of household composition, this assumption is not appropriate. For example, a household may have a teacher and a doctor, with significantly different individual earnings.

To address this issue, this analysis makes use of a detailed and rich data set published by the U.S. Census known as the Public Use Microdata Sample (PUMS). Derived from a five percent sample of all households per the American Community Survey, and available for certain defined areas of 100,000 or more of population (known as “PUMAs” or Public Use Microdata Areas), this data source allows one to cross-tabulate variables such as industry of employment

<sup>2</sup> Cushman & Wakefield provided the data directly to BAE. The figures provided are based on Cushman & Wakefield’s specialized practice area analyzing the lodging market nationwide. Furthermore, applying their density estimate to the prototype hotel considered here resulted in an assumption of 1,425 square feet per employee based on converting the median of their assumed range of employees per room (0.3 to 0.75) for a full service hotel to square feet per employee. This number is generally consistent with sources BAE has used for other reports. In other employment density studies we have reviewed, the numbers range from 800 square feet per employee up to around 1,700 square feet per employee and from 0.3 workers per room to 1.2 workers per room.

and household income. The analysis here uses the most recent available data, from the 2012 through 2016 five-year period. Since Grand County does not meet the 100,000 minimum population threshold required for a PUMA, it is grouped with several other nearby Utah counties to create a PUMA. The counties included are Carbon, Daggett, Duchesne, Emery, Grand, San Juan, Uintah, and Wasatch. By relying on data from this grouping of counties, it is assumed that employment and household patterns in Grand County are similar to those in the group of counties as a whole.

The hotel land use is tied to one particular industry, the hotel industry, which is classified under the North American Industry Classification System (NAICS) as sector 721, Accommodation, which is part of the larger Accommodation and Food Services sector (NAICS 72). In 2016, there were a total of 1,718 private sector jobs in NAICS 72 in Grand County, as discussed the Phase I report, of which 768 were in Accommodation.

BAE queried the PUMS data set for this PUMA to identify the number of hotel worker households by HUD income category, using average household size for each income category to construct a distribution of households by income category. Table 3 below presents the distribution of households by HUD income level for the hotel industry for the PUMA, as applied to the 60,000 square-foot hotel prototype in Grand County. As shown below, there are an estimated approximately 24.4 worker households for the prototype hotel size of 60,000 square feet. The estimated number of extremely low-, very low-, low-, and moderate-income worker households for a prototype 60,000 square foot hotel is 12.8 households.

**Table 3: New Hotel Worker Households by HUD Income Category**

NAICS Code	Industry	Total Jobs (b)	Estimated Jobs by Percent of AMI (a)				
			Extremely Low	Very Low	Low	Moderate	Above Moderate
<b>Private Sector</b>							
721	Hotel/Motel	42.00	1.33	2.25	8.40	7.30	22.72
	<b>Total Jobs</b>	<b>42.00</b>	<b>1.33</b>	<b>2.25</b>	<b>8.40</b>	<b>7.30</b>	<b>22.72</b>
	Workers per Households	1.72	1.22	1.43	1.44	1.69	1.95
	<b>Number of Households (c)</b>	<b>24.42</b>	<b>1.09</b>	<b>1.57</b>	<b>5.82</b>	<b>4.32</b>	<b>11.63</b>

Notes:

(a) Based on 2016 HUD Income Limits. Percent distribution shown in Table 10 below.

(b) Job estimates are the output of the IMPLAN model, and shows employment generated by new workers in a 60,000-square foot prototype hotel. Columns to right may not sum to Total Jobs due to independent rounding.

(c) Average number of workers per worker household calculated based on American Community Survey PUMS Analysis, 2012-2016.

Sources: American Community Survey, 2012-2016, including the Public User Microdata Sample; HUD; IMPLAN; BAE, 2018.

## **Step 5: Calculate Financing Gap per Affordable Unit**

The cost to house a lower-income household is the difference between the cost to develop an affordable unit and the amount of the permanent loan that the developer can borrow to finance the unit. Using data on recent housing developments gathered in Phase I, this analysis determines the average cost to build an apartment rental unit in the City. The supportable permanent loan amounts (by AMI income band) as identified in Step 4 are deducted from the average per-unit development cost to determine the financing gap for units serving households at each income level up to 120 percent of AMI.

The next step in the nexus analysis is to calculate the cost to house the extremely low-, very low-, low-, and moderate-income households calculated in the previous step by determining the per unit “financing gap” that housing developers encounter when securing a permanent loan for their projects. In other words, the cost to house a lower-income household is the difference between the cost to develop the unit and the amount of the permanent loan that the developer can borrow to finance the unit. The nexus analysis here derives cost and market rent information from the pro-forma analysis completed in Phase I for apartments under the moderate market scenario, as the lower rents and costs provide a more conservative estimate of impacts.

Affordable housing developers secure a permanent loan based on their net operating income (NOI) per unit. NOI is equal to rental income less operating expenses and vacancy. Households can afford monthly rents ranging from \$418 for extremely low-income households to \$1,737 for moderate-income households (see Table 4). These rents are based on household income limits for three-person households in two-bedroom units and assuming households can affordably spend 30 percent of their income on rent and utilities.

BAE used conventional financing assumptions to determine the supportable loan amount per unit for each income level. Standard deductions are taken for operating expenses and vacancies to determine NOI. As shown in Table 5, the supportable loan amount ranges from \$0 per unit for extremely low-income units (i.e., operating expenses exceed NOI, leaving no NOI to support debt payments) to \$167,924 for units serving moderate-income households.



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**Table 4: Affordability of Market-Rate Rental Housing in Moab**

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<b>3 Person Household (2 Bedrooms)</b>	
Average Market-Rate Rent (a)	\$1,350
Utility Costs (b)	\$93
<b>Maximum Affordable Monthly Rent</b>	
<b>Extremely Low Income (up to 30% AMI)</b>	
Household Income (c)	\$20,420
Max. Affordable Monthly Rent (d)	\$418
Amount Above (Below) Market Rate Rent	(\$933)
<b>Very Low Income (31-50% AMI)</b>	
Household Income (c)	\$30,500
Max. Affordable Monthly Rent (d)	\$669.50
Amount Above (Below) Market Rate Rent	(\$681)
<b>Low Income (51-80% AMI)</b>	
Household Income (c)	\$48,750
Max. Affordable Monthly Rent (d)	\$1,125.75
Amount Above (Below) Market Rate Rent	(\$224)
<b>Moderate Income (81-120% AMI)</b>	
Household Income (c)	\$73,200
Max. Affordable Monthly Rent (d)	\$1,737
Amount Above (Below) Market Rate Rent	\$387

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**Notes:**

- (a) From Phase I analysis.
- (b) Based on the Southeastern Utah Housing Authority utility allowance schedule for gas heating, cooking, and water heating and electricity for general lighting and air conditioning. Analysis assumes water, sewer, and trash collection are included in the monthly rent.
- (c) 2017 household income limits published by HUD for Grand County.
- (d) Assumes 30 percent of income spent on rent and utilities.

Sources: HUD; Southeastern Utah Housing Authority; BAE, 2018.

The financing gap per affordable unit is equal to the total development cost less the supportable loan amount per unit. Based on the supportable loan amount as calculated above, the financing gap per affordable unit ranges from \$172,000 for extremely low-income units to only \$4,076 for moderate-income units (also shown in Table 5).<sup>3</sup>

It should be noted that no other affordable housing subsidy was assumed in this analysis, because this calculation is intended to show the actual impact of the new employment-generating commercial land uses; it is not necessarily the way funds generated by a commercial fee would be spent on new affordable housing. Instead, in many affordable housing projects, multiple funding sources would be utilized in combination, enabling limited public resources from federal, state, and local sources to be combined most effectively. For some affordable housing projects serving low income households, non-cash subsidies such as Low Income Housing Tax Credits (LIHTCs) would also be used.

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<sup>3</sup> These gap estimates are conservative in that they are based on the upper income limit of each income range.

**Table 5: Financing Gap Analysis**

	Income Group			
	Extremely Low	Very Low	Low	Moderate
Household Income Limit (a)	\$20,420	\$30,500	\$48,750	\$73,200
Maximum Affordable Monthly Rent per Unit (b)	\$418	\$670	\$1,126	\$1,737
Monthly Operating Expenses (c)	\$458	\$458	\$458	\$458
Vacancy (d)	5%	5%	5%	5%
Net Operating Income per Unit (e)	-\$62	\$178	\$611	\$1,192
Operating Subsidy from Other Sources (f)	\$62	\$0	\$0	\$0
Monthly Supportable Debt Service per Unit (g)	\$0	\$142	\$489	\$953
Loan Amount (h)	\$0	\$25,036	\$86,107	\$167,924
<b>Financing Gap per Affordable Unit (i)</b>	<b>\$172,000</b>	<b>\$146,964</b>	<b>\$85,893</b>	<b>\$4,076</b>

**Assumptions**

Total Affordable Unit Development Costs (j)	\$172,000
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## Financing Terms

Debt Coverage Ratio	1.25
Interest Rate	5.50%
Term of Loan (years)	30

## Notes:

- (a) Based on a 3-person household, HUD, 2017.
- (b) 30% of income to rent and utilities.
- (c) Based on proforma analysis from Phase I.
- (d) Standard required assumption for financing applications.
- (e) Affordable Monthly Rent less Operating Expenses & Vacancy.
- (f) Operating subsidy is necessary for units with negative NOI.
- (g) Net Operating Income plus Operating Subsidy, divided by Debt Coverage Ratio.
- (h) Based on financing terms assumptions.
- (i) Total Development Costs less Loan Amount.
- (j) Based on proforma analysis from Phase I.

Sources: HUD, 2017; Southeastern Utah Housing Authority; BAE, 2018.

**Step 6: Calculate the Maximum Justifiable Fee per the Nexus Analysis**

The final step in calculating the maximum justifiable impact fee is to apply the financing gap per affordable unit for each income level (from Step 5) to the total housing need by income level (from Step 4) for the hotel land use. This is expressed as the “maximum justifiable fee” because it is directly derived from the nexus analysis described above (i.e., new commercial development generating new jobs combined into new worker households distributed by income band, and the cost to provide new affordable rental housing units to these same households). This fee is estimated at \$15.57 per square foot, as shown in Table 6.

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**Table 6: Maximum Justifiable Hotel Impact Fee**

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<b>Affordable Housing Need per Prototype</b>	<b>Hotel</b>
Extremely Low Income (up to 30% AMI)	1.09
Very Low Income (31-50% AMI)	1.57
Low Income (51-80% AMI)	5.82
Moderate Income (81-120% AMI)	<u>4.32</u>
Total Affordable Housing Need	12.79
<b>Financing Gap (a)</b>	
Extremely Low Income Units	\$186,632
Very Low Income Units	\$230,316
Low Income Units	\$499,490
Moderate Income Units	<u>\$17,616</u>
<b>Total Financing Gap</b>	<b>\$934,054</b>
<b>Maximum Impact Fee per Sq. Ft.</b>	<b>\$15.57</b>
<b>Assumptions</b>	
Building Size	60,000
Financing Gap	
Extremely Low Income Units	\$172,000
Very Low Income Units	\$146,964
Low Income Units	\$85,893
Moderate Income Units	\$4,076

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Note:

(a) The financing gap is calculated by multiplying the number of worker households at each income level by the financing gap per unit at each affordability level.

Source: BAE, 2018.

## Step 7: Comparison of Nexus and Financially Feasible Fees

A comparison of the maximum justifiable fee per the nexus analysis to the maximum financially feasible fees for the two hotel scenarios shows that the maximum fee justifiable via the nexus analysis is considerably lower than the maximum financially feasible fee for either market scenario. This is an indicator that a fee in the range of the maximum justifiable fee could be considered for implementation by the City and County.

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**Table 7: Summary of Commercial Impact Fee Analysis**

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	<b>Fee per Square Foot</b>	
	<b>Hotel Moderate</b>	<b>Hotel Strong</b>
Maximum Financially Feasible Fee	\$30.86	\$54.14
Maximum Justifiable Fee	\$15.57	\$15.57

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Source: BAE, 2018, based on sources as described in previous tables.

## RESIDENTIAL LINKAGE FEE ANALYSIS

This section of report calculates the maximum potential affordable housing linkage or “in-lieu” fee for residential developments. Analysis included in this section can also be used to identify the maximum justifiable inclusionary or “assured housing” set-aside that could justifiably be required of new residential developments instead of paying an in-lieu fee.

### Overview of Methodology

This section provides an overview of the steps used to determine the maximum fee for market-rate residential units. Each step is discussed in more detail in the following sections. The maximum residential fee calculation is based on the premise that new households in Moab and Grand County will spend at least some of their disposable income locally, thereby supporting employment for new workers, a portion of which will be in need of affordable housing. The intent of the market-rate residential fee is to generate revenue that will support the construction of affordable housing for these new lower-income worker households.

While these housing unit types have the potential to be used for short-term rentals by visitors or as second homes where permitted by zoning, this nexus analysis is based on modelling these housing units assuming occupancy by full-time residents, since the actual uses for these hypothetical units are unknown.

### Step 1: Define Housing Types and Identify Housing Prices and Development Costs

The Phase I study identified four residential land uses to determine the maximum legal fee for each residential product type. The residential product types analyzed were rental apartments, condominiums, townhomes, and single-family detached houses. This analysis included determining market rate rentals and sale prices as well as development costs for these residential development types.

### Step 2: Test Financial Feasibility of Linkage Fee for Defined Land Uses

Using the information on rents, prices, and development costs developed in Phase I, residential linkage fees were found to be financially feasible for condominiums, townhomes, and single-family detached houses. For condominiums, fees were only feasible under strong market conditions, while they were feasible for townhomes and single-family detached houses under both moderate and strong market conditions. However, the maximum fee that would still allow a project to meet the financial feasibility criteria regarding return on cost and yield on cost was not calculated for land use types where a fee was feasible. The following table below shows the maximum feasible fee given those benchmarks.

**Table 8: Summary of Proforma Analysis for Residential Land Uses**

	Condominiums Overnight Rentals		Townhomes Overnight Rentals		Single-Family Detached	
	Moderate	Strong	Moderate	Strong	Moderate	Strong
<b>Assumptions for Baseline</b>						
Location, Zoning	Grand County, HC		Grand County, HC		Grand County, RR	
Site Size (sf)	43,560	43,560	240,000	240,000	43,560	43,560
Total Number of Units	25	25	48	48	1	1
Average Unit Size	1,350	1,350	1,650	1,650	2,250	3,000
Number of Residential Floors	3	3	2	2	1	1
FAR	0.9	0.9	0.3	0.3	0.1	0.1
Parking Type						
Land Costs per Acre	\$ 82,500	\$ 119,790	\$ 82,764	\$ 130,680	\$ 80,000	\$ 120,000
Total Dev Cost/Unit (inc. land)	\$ 231,757	\$ 253,308	\$ 253,129	\$ 311,202	\$ 388,761	\$ 690,780
Total Dev Cost/SF (inc. land)	\$ 149	\$ 163	\$ 153	\$ 189	\$ 173	\$ 230
Sale Price/Sq. Ft.	\$ 185	\$ 245	\$ 200	\$ 250	\$ 200	\$ 267
Sale Price or Rent Per Unit	\$ 249,750	\$ 330,750	\$ 330,000	\$ 412,500	\$ 450,000	\$ 800,000
<b>Return On Cost - Baseline</b>	2.4%	24.0%	23.9%	25.9%	15.8%	15.8%
<b>Yield on Cost - Baseline</b>	NA	NA	NA	NA	NA	NA
<b>Baseline Feasible? (a)</b>	No	Yes	Yes	Yes	Yes	Yes
<b>New Fee/Sq. Ft. (a)</b>	\$ -	\$ 5.18	\$ 4.64	\$ 8.77	\$ 1.13	\$ 1.62
<b>New Fee per Unit</b>	\$ -	\$ 6,996	\$ 7,654	\$ 14,474	\$ 2,541	\$ 4,853
<b>Return On Cost with Fees</b>		20.0%	20.0%	20.0%	15.0%	15.0%
<b>Yield on Cost with Fees</b>		N/A	N/A	N/A	N/A	N/A
<b>Feasible with Fee? (a)</b>		Yes	Yes	Yes	Yes	Yes
<i>New Res Fee, as % of Total Dev Costs</i>		3.1%	2.9%	4.4%	0.7%	0.7%

Notes:

Apartments were shown not to support a fee in the Phase I study and are not shown here.

a) Feasibility is measured as follows:

Project must achieve at least:	20.0%	Return on Cost for Condominiums and Townhomes
	15.0%	Return on Cost for Apartments and Single-Family Homes

Source: BAE, 2018.

### Step 3: Estimate the Incomes of Households in New Market Rate Housing

Based on the sale prices identified in Step 2, this report estimated the household incomes of occupants in new residential units in Moab where a linkage fee was financially feasible. Using the threshold of 30 percent of income to housing costs, the table shows the annual household income levels required to support a mortgage for each of the projects where a linkage fee is feasible. As shown, the annual incomes range from approximately \$100,000 for condominiums under the strong market scenario and townhomes under the moderate market scenario upwards to more than \$240,000 for a single-family home in the strong market scenario.

**Table 9: Income Requirements for Housing Prototypes**

<b>Housing Profile</b>	<b>Annual House-Hold Income</b>
Condo-Strong	\$99,957
Townhouse: Moderate	\$99,730
Townhouse: Strong	\$124,663
Single-Family: Moderate	\$135,996
Single-Family: Strong	\$241,771

	<b>Amount Avail. for Housing (a)</b>	<b>Principal &amp; Interest</b>	<b>Property Insurance</b>	<b>Property Taxes</b>	<b>Mortgage Insurance</b>	<b>Total Monthly Payment</b>	<b>Down-Payment</b>	<b>Affordable Home Price</b>
Condo-Strong	\$2,499	\$1,570	\$94	\$303	\$532	\$2,499	\$11,576	<b>\$330,750</b>
Townhouse: Moderate	\$2,493	\$1,567	\$93	\$303	\$531	\$2,493	\$11,550	<b>\$330,000</b>
Townhouse: Strong	\$3,117	\$1,958	\$117	\$378	\$663	\$3,117	\$14,438	<b>\$412,500</b>
Single-Family: Moderate	\$3,400	\$2,136	\$127	\$413	\$724	\$3,400	\$15,750	<b>\$450,000</b>
Single-Family: Strong	\$6,044	\$3,798	\$226	\$733	\$1,287	\$6,044	\$28,000	<b>\$800,000</b>

**Ownership Cost Assumptions (b)**

% of Income for Housing Costs	30% of gross annual income
Down payment	3.50% of home value
Annual interest rate	4.25% fixed
Loan term	30 years
Upfront mortgage insurance	0.00% of home value
Annual mortgage insurance	2.00% of mortgage
Annual property tax rate	1.10% of home value
Annual hazard insurance	0.34% of home value

**Notes:**

- (a) Represents 30 percent of monthly household income.
- (b) Based on a low down payment conventional loan.

Sources: Grand County, 2017; Insurance.com, 2017; Bankrate.com, 2017; BAE, 2018.

## Step 4: Analyze Projected Spending Patterns for Households in New Market-Rate Units

New households boost spending within an economy. As these new households spend money on retail goods, food, and health, personal, professional, and educational services, they support job growth in these and other sectors.

To estimate the effect of new household spending on employment generation, this Phase II nexus study uses IMPLAN (“Impact analysis for Planning”), a widely-accepted and utilized software model. At the heart of the model is an input-output dollar flow table. For a specified region, the input-output table accounts for all dollar flows between different sectors of the economy. Using this information, IMPLAN models the way income injected into one sector is spent and re-spent in other sectors of the economy, generating waves of economic activity, or so-called “economic multiplier” effects. Appendix A contains a more detailed overview of IMPLAN.

The IMPLAN model is also able to estimate the number of *direct*, *indirect*, and *induced* jobs generated by a given economic “event.” Once the economic events have been entered into the model, IMPLAN reports the following types of impacts:

- **Direct Impacts.** Direct impacts refer to the set of producer or consumer expenditures applied to the predictive model for impact analysis. It is the amount of spending available to flow through the local economy. IMPLAN then displays how the local economy will then respond to these initial changes. The direct impacts may equal the amount of spending input into the model, depending on a variety of factors.
- **Indirect Impacts.** The indirect impacts refer to the impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to income and taxes. For capital projects this would include payments for construction inputs such as wood, steel, office supplies, and any other non-labor payments that a construction firm would purchase in the building process. Since IMPLAN is only used for the housing analysis for this report to assess the impacts of new resident household expenditures, there are no indirect impacts to assess as there are no industry expenditures as inputs to the model.
- **Induced Impacts.** The induced impacts refer to an economy’s response to an initial change (direct impact) that occurs through re-spending of income according to household spending patterns. When households earn income, they spend part of that income on goods and services, such as food and healthcare. IMPLAN models households’ disposable income spending patterns and distributes them through the local economy.

For the purpose of this analysis, the economic “event” is the household spending by occupants of new residential units in Grand County. By IMPLAN definition these expenditures are *direct* impacts, and the resulting spending generates *induced* impacts. For instance, the household expenditures generate jobs for cashiers and baggers at grocery stores patronized by the new households. The process initiated by household expenditures continues as these workers and the businesses they work for spend money in subsequent transactions, supporting employment at places other than the initial point of sale, such as wholesalers supplying retail stores, or truck drivers delivering goods to those stores. In turn, these businesses and workers spend money to generate additional activity in the local economy of Moab and Grand County. These are all part of the *induced* impacts linked to the household expenditures.

Table 9 above shows the income levels typically required to support the purchase of each of the housing prototypes under consideration. After adjustment for FICA taxes, IMPLAN uses these income levels to estimate expenditures within income categories encompassing each of the income levels. Since the income of an individual household does not generate enough expenditures to be recognized by the regional IMPLAN model, the total income analyzed is as

assumed for 1,000 households at that level; IMPLAN scales the expenditures in a linear manner. The results are then ultimately divided by 1,000 to show the estimated impact of a single household.

### **Step 5: Estimate New Worker Households by Household Income**

The analysis uses a data set published by the U.S. Census (the Public Use Microdata Sample or PUMS) to estimate the household income distribution among the worker households derived from Step 4.

Worker households<sup>4</sup> often have more than one employed person. As discussed previously in the non-residential nexus analysis section, this analysis makes use of a detailed and rich data set published by the U.S. Census known as the Public Use Microdata Sample (PUMS) from the 2012 to 2016 period for Carbon, Daggett, Duchesne, Emery, Grand, San Juan, Uintah, and Wasatch Counties to estimate household income distributions for worker households by major industry group. The results are shown in Table 10. The income limits used were from 2016, in order to match the source data.

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<sup>4</sup> A worker household is defined as a household with one or more employed persons. They may be wage and salary workers, or self-employed/sole proprietors.



**Table 10: Income Level by Industry, Working Persons by 2016 Household Income Limits**

FOR HOUSING ANALYSIS		Estimated Household Income as a Percent of AMI					Total
NAICS Code	Industry	Extremely			Above		
		Low	Very Low	Low	Moderate	Moderate	
<b>Private Sector</b>							
11, 21	Agriculture & Natural Resources	3.7%	1.6%	6.9%	16.6%	71.1%	100.0%
23	Construction	6.0%	4.9%	20.9%	27.1%	41.1%	100.0%
31-33	Manufacturing	5.1%	5.0%	8.2%	22.1%	59.6%	100.0%
42	Wholesale Trade	8.5%	2.0%	9.9%	16.8%	62.8%	100.0%
44-45	Retail Trade	8.0%	4.8%	15.7%	23.9%	47.6%	100.0%
48-49, 22	Transportation, Warehousing, & Utilities	1.5%	1.1%	12.7%	22.9%	61.8%	100.0%
51	Information	6.0%	12.1%	8.9%	19.4%	53.6%	100.0%
52-53	Finance, Insurance, & Real Estate	5.9%	3.8%	12.7%	26.2%	51.3%	100.0%
54-55	Professional, Scientific, & Technical Services, & Mgmt of Companies	7.4%	1.6%	9.7%	21.5%	59.9%	100.0%
56	Admin, Support, & Waste Mgmt Svcs	21.4%	0.7%	18.5%	26.2%	33.2%	100.0%
61	Educational Services	1.6%	6.2%	17.4%	24.2%	50.6%	100.0%
62	Health Care & Social Assistance	2.3%	4.4%	13.6%	24.6%	55.0%	100.0%
71-72	Leisure & Hospitality	7.6%	11.1%	15.6%	18.9%	46.8%	100.0%
81	Other Services Except Public Admin	4.5%	5.9%	25.0%	23.5%	41.1%	100.0%
<b>All Government Employment</b>		3.0%	2.7%	11.9%	22.3%	60.1%	100.0%

FOR HOTEL ANALYSIS		Estimated Household Income as a Percent of AMI (a)					Total
NAICS Code	Land Use	Extremely			Above		
		Low	Very Low	Low	Moderate	Moderate	
<b>Private Sector Only</b>							
721	Hotel/Motel	3.2%	5.3%	20.0%	17.4%	54.1%	100.0%

Notes:  
Based on a cross tabulation of Public Use Microdata Samples (PUMS) from the 2012-2016 American Community Survey. These incomes were compared to household income limits published by HUD to determine the percentage of households falling into each income category. The analysis controlled for household size, to address the varying HUD income limits for each household size.

Sources: Census, American Community Survey Public-Use Microdata Sample (PUMS) 2012-2016; HUD; BAE, 2018.

Housing need is based on the number of households rather than the number of jobs. As such, jobs are translated into households by dividing the number of jobs by the average number of workers per worker household for each income category. Applying this factor to the IMPLAN output for each housing type, the following table summarizes estimate jobs supported per 100 units of housing. Detail on the calculations can be found in Appendix B.

As shown in the next table (Table 11), the total number of Grand County worker households supported by a 100-unit development ranges from 30 to 40 households; the affordable housing need,<sup>5</sup> based on households earning up to and including moderate incomes, ranges from 17 to 23 units per 100 new housing units.

<sup>5</sup> The affordable housing need is based on the number of rental housing units demanded by worker households estimated to have a gap between the cost to build and the financing supported by rents.

**Table 11: Summary of Worker Households Supported by New Market-Rate Units**

Housing Type	Based on 100 Units		Worker Households by Percent of AMI (a)				
	Total Households	Total Affordable Housing Need	Extremely	Very			Above
			Low	Low	Low	Moderate	Moderate
Condominium - Strong Market	33.2	18.9	2.9	2.2	6.1	7.7	14.3
Townhome - Moderate Market	30.2	17.2	2.6	2.0	5.6	7.0	13.0
Townhome - Strong Market	37.0	21.0	3.2	2.5	6.8	8.5	15.9
Single Family Detached - Moderate Market	40.3	22.9	3.5	2.7	7.4	9.3	17.4
Single Family Detached - Strong Market	38.5	21.9	3.3	2.6	7.1	8.9	16.6

**Notes:**

Estimates based on 100 units of housing for each type. See Appendix B for detail on calculations.

(a) Based on 2016 HUD Income Limits.

Sources: American Community Survey, 2012-2016, including the Public User Microdata Sample; HUD; IMPLAN; BAE, 2018.

In addition to providing information necessary to calculate affordable housing in-lieu fees, the figures shown in Table 11 provide data that quantify the nexus between new market rate housing units and potential assured housing policies that would require new market rate housing developments to incorporate housing units to meet demand for affordable housing that is generated by the new market rate units. For example, the nexus analysis indicates that for every 100 new condominiums (strong market) there would be a need for 18.9 additional affordable housing units, including 2.9 extremely low-income housing units, 2.2 very low-income housing units, 6.1 low-income housing units, and 7.7 moderate-income units.

**Step 6: Calculate Financing Gap per Affordable Unit**

This step determines the per unit “financing gap” that housing developers encounter when securing a permanent loan for their projects. This step has been completed as Step 5 in the commercial fee analysis and is described in the preceding chapter of this report.

To summarize, the financing gap per affordable unit ranges from \$172,000 for extremely low-income units to only \$4,076 for moderate-income units. For convenient reference purposes, the table showing these calculations is repeated here as Table 12.

**Table 12: Financing Gap Analysis**

	Income Group			
	Extremely Low	Very Low	Low	Moderate
Household Income Limit (a)	\$20,420	\$30,500	\$48,750	\$73,200
Maximum Affordable Monthly Rent per Unit (b)	\$418	\$670	\$1,126	\$1,737
Monthly Operating Expenses (c)	\$458	\$458	\$458	\$458
Vacancy (d)	5%	5%	5%	5%
Net Operating Income per Unit (e)	-\$62	\$178	\$611	\$1,192
Operating Subsidy from Other Sources (f)	\$62	\$0	\$0	\$0
Monthly Supportable Debt Service per Unit (g)	\$0	\$142	\$489	\$953
Loan Amount (h)	\$0	\$25,036	\$86,107	\$167,924
<b>Financing Gap per Affordable Unit (i)</b>	<b>\$172,000</b>	<b>\$146,964</b>	<b>\$85,893</b>	<b>\$4,076</b>
<b>Assumptions</b>				
Total Affordable Unit Development Costs (j)	\$172,000			
Financing Terms				
Debt Coverage Ratio	1.25			
Interest Rate	5.50%			
Term of Loan (years)	30			

**Notes:**

- (a) Based on a 3-person household, HUD, 2017.
- (b) 30% of income to rent and utilities.
- (c) Based on proforma analysis from Phase I.
- (d) Standard required assumption for financing applications.
- (e) Affordable Monthly Rent less Operating Expenses & Vacancy.
- (f) Operating subsidy is necessary for units with negative NOI.
- (g) Net Operating Income plus Operating Subsidy, divided by Debt Coverage Ratio.
- (h) Based on financing terms assumptions.
- (i) Total Development Costs less Loan Amount.
- (j) Based on proforma analysis from Phase I.

Sources: HUD, 2017; Southeastern Utah Housing Authority; BAE, 2018.

**Step 7: Calculate the Maximum Justifiable Fee per the Nexus Analysis**

The final step in calculating the impact fee is to apply the financing gap per unit for each income level (from Step 6) to the total housing need by income level from new market-rate units (from Step 5).

The results of the calculations are shown in Table 13. Per this nexus analysis, the maximum justifiable fees range from \$5.31 per square foot for single-family detached homes in a strong market scenario to \$10.19 per square foot for condominiums in a strong market scenario.

**Table 13: Maximum Justifiable Fee per Residential Unit**

<b>Worker Households by Income Level</b>	<b>Condominium Strong</b>	<b>Townhome Moderate</b>	<b>Townhome Strong</b>	<b>Single-Family Moderate</b>	<b>Single-Family Strong</b>
Extremely Low Income (up to 30% AMI)	2.9	2.6	3.2	3.5	3.3
Very Low Income (31-50% AMI)	2.2	2.0	2.5	2.7	2.6
Low Income (51-80% AMI)	6.1	5.6	6.8	7.4	7.1
Moderate Income (81-120% AMI)	<u>7.7</u>	<u>7.0</u>	<u>8.5</u>	<u>9.3</u>	<u>8.9</u>
<b>Subtotal - Affordable Housing Need (Units)</b>	<b>18.9</b>	<b>17.2</b>	<b>21.0</b>	<b>22.9</b>	<b>21.9</b>
Above Moderate Income (over 120% AMI)	<u>14.3</u>	<u>13.0</u>	<u>15.9</u>	<u>17.4</u>	<u>16.6</u>
<b>Total Housing Need</b>	<b>33.2</b>	<b>30.2</b>	<b>37.0</b>	<b>40.3</b>	<b>38.5</b>
<b>Financing Gap (a)</b>					
Extremely Low Income Units	\$492,760	\$448,054	\$545,290	\$594,862	\$569,233
Very Low Income Units	\$327,280	\$297,587	\$366,587	\$399,913	\$377,941
Low Income Units	\$524,732	\$477,125	\$586,455	\$639,770	\$610,361
Moderate Income Units	<u>\$31,269</u>	<u>\$28,432</u>	<u>\$34,765</u>	<u>\$37,925</u>	<u>\$36,250</u>
<b>Total Financing Gap per 100 Units</b>	<b>\$1,376,040</b>	<b>\$1,251,199</b>	<b>\$1,533,097</b>	<b>\$1,672,469</b>	<b>\$1,593,785</b>
<b>Maximum Impact Fee per Unit</b>	<b>\$13,760</b>	<b>\$12,512</b>	<b>\$15,331</b>	<b>\$16,725</b>	<b>\$15,938</b>
<b>Unit Size (b)</b>	1,350	1,650	1,650	2,250	3,000
<b>Maximum Impact Fee per Square Foot</b>	<b>\$10.19</b>	<b>\$7.58</b>	<b>\$9.29</b>	<b>\$7.43</b>	<b>\$5.31</b>

Notes:

(a) The financing gap is calculated by multiplying the number of employee households at each income level by the financing gap per unit (from Step 7) at each affordability level.

(b) Per the Phase I analysis, based on an assumed average unit size of 1,000 sq. ft.

Source: BAE, 2018.

## Step 8: Comparison of Nexus and Financially Feasible Fees

A comparison of the maximum justifiable fee per the nexus analysis to the maximum financially feasible fees for the various residential scenarios shows that the nexus fee is higher than the financially feasible fee for any of the market scenarios, especially for the single-family homes. As a result, if the City and the County choose to implement a residential in-lieu fee, the level of appropriate fees might be constrained by market conditions as indicated by the maximum financially justifiable fee levels shown in Table 14.

**Table 14: Summary of Residential Impact Fee Analysis**

	<b>Fee per Square Foot</b>				
	<b>Condominium Strong</b>	<b>Townhome Moderate</b>	<b>Townhome Strong</b>	<b>Single-Family Moderate</b>	<b>Single-Family Strong</b>
Maximum Financially Feasible Fee	\$5.18	\$4.64	\$8.77	\$1.13	\$1.62
Maximum Justifiable Fee	\$10.19	\$7.58	\$9.29	\$7.43	\$5.31

Source: BAE, 2018, based on sources as described in previous tables.

## CONSIDERATIONS FOR IMPLEMENTATION

Following is a more detailed discussion of some key factors to take into account in implementation of affordable housing impact fees for Moab and Grand County, including issues discussed previously in Phase I.

### **Maximum Justifiable Fees vs. Maximum Financially Feasible Fees**

As noted in the Introduction, the maximum justifiable fees have been derived from the nexus analysis, and thus represent the maximum fee based on the demand for additional affordable housing driven by new commercial and residential development. However, as indicated in the analysis here and in Phase I, applying a fee to some commercial and residential development might result in projects which would no longer generate high enough returns to be financially feasible, and for projects where a fee might be feasible, the maximum feasible fee might be lower than the maximum justifiable fee as determined by the nexus analysis.

As shown in the analysis, for residential uses, the maximum financially feasible fees were lower than the maximum justifiable fees from the nexus analysis, indicating that the City and County should consider setting fees at or below the maximum financially feasible fees. This is unlike the hotel/commercial fees, where the maximum financially feasible fees are higher than the maximum justifiable fees.

It should be noted that when setting the in-lieu fee at a level that is less than the maximum justifiable fee, the funds collected would be lower than necessary to subsidize the needed amount of affordable housing, meaning that the fee proceeds would need to be leveraged with other sources of subsidy to produce the desired level of affordable units.

### **Market Conditions**

Changes in the economy, locally or nationally, could impact both the financial feasibility and the justifiable nexus fees for the different development types. The analysis here presents two scenarios, categorized as moderate market conditions and strong market conditions. Changes in economic conditions that could influence feasibility of different fee levels would include interest rates for development and for mortgages, changes in rents, home sale prices, land costs, operating expenses, acceptable rates of return for developers, and other factors.

While these factors are interdependent, the following illustrative example shows a simple sensitivity analysis for a change in just the interest rate for a developer loan for affordable rental housing. The financing gap analysis above shows the per unit subsidy required to support a loan at a 5.5 percent interest rate based on rents affordable to extremely low- to moderate-income households, with a per unit financing gap ranging from \$4,076 for moderate income units to \$172,000 for extremely low-income units. A one percent increase in interest

rates to 6.5 percent leads to a higher financing gap, as shown below in Table 15, to \$21,153 for moderate income units to \$172,000 for extremely low income units.<sup>6</sup> The higher interest rate leads to an increase of approximately 14 percent in the maximum justifiable nexus fees, since the cost of providing affordable units has increased (see Table 16 below).<sup>7</sup>

**Table 15: Financing Gap Analysis – Comparative Interest Rates**

	Income Group			
	Extremely Low	Very Low	Low	Moderate
Household Income Limit (a)	\$20,420	\$30,500	\$48,750	\$73,200
Maximum Affordable Monthly Rent per Unit (b)	\$418	\$670	\$1,126	\$1,737
Monthly Operating Expenses (c)	\$458	\$458	\$458	\$458
Vacancy (d)	5%	5%	5%	5%
Net Operating Income per Unit (e)	-\$62	\$178	\$611	\$1,192
Operating Subsidy from Other Sources (f)	\$62	\$0	\$0	\$0
Monthly Supportable Debt Service per Unit (g)	\$0	\$142	\$489	\$953
Loan Amount (h)	\$0	\$22,490	\$77,350	\$150,847
<b>Financing Gap per Affordable Unit @ 6.5% Interest Rate (i)</b>	<b>\$172,000</b>	<b>\$149,510</b>	<b>\$94,650</b>	<b>\$21,153</b>
<b>Financing Gap per Affordable Unit @ 5.5% Interest Rate (i)</b>	<b>\$172,000</b>	<b>\$146,964</b>	<b>\$85,893</b>	<b>\$4,076</b>
<b>Assumptions</b>				
Total Affordable Unit Development Costs (j)	\$172,000			
Financing Terms				
Debt Coverage Ratio	1.25			
Interest Rate	6.50%			
Term of Loan (years)	30			

Notes:

- (a) Based on a 3-person household, HUD, 2017.
- (b) 30% of income to rent and utilities.
- (c) Based on proforma analysis from Phase I.
- (d) Standard required assumption for financing applications.
- (e) Affordable Monthly Rent less Operating Expenses & Vacancy.
- (f) Operating subsidy is necessary for units with negative NOI.
- (g) Net Operating Income plus Operating Subsidy, divided by Debt Coverage Ratio.
- (h) Based on financing terms assumptions.
- (i) Total Development Costs less Loan Amount.
- (j) Based on proforma analysis from Phase I.

Sources: HUD, 2017; Southeastern Utah Housing Authority; BAE, 2018.

In fact, the Phase I analysis presented two scenarios, for a moderate market based on conditions in 2014 and a strong market scenario based on 2017 conditions. Generally, the

<sup>6</sup> The financing gap for the extremely low income units is the same as the subsidy required in both cases is the entire cost of building the unit.

<sup>7</sup> The hypothetical interest rate change here does not change the maximum financially feasible fee. In real world conditions, interest costs for market rate development might also rise, but for the sake of simplicity that possibility is not considered in this hypothetical scenario.

moderate market scenarios present a lower fee. To be more conservative, the City and County could choose the fee levels associated with the moderate market scenario, making it less likely that the fee structure would need to be adjusted as often to account for changing market conditions. However, when economic conditions reflect the strong market scenario, those conditions result in higher per unit costs and make it more expensive for the City and County to use in-lieu fees to subsidize an affordable development. As discussed in further detail below, it is recommended that the technical analysis underpinning assured housing policies and establishment of jobs-housing linkage fees and affordable housing in-lieu fees be updated on a periodic basis, to account for changing conditions.

**Table 16: Impact Fee Analysis – Comparative Interest Rates**

	Fee per Square Foot	
	Hotel Moderate	Hotel Strong
Maximum Financially Feasible Fee	\$30.86	\$54.14
Maximum Justifiable Fee @ 5.5% Interest	\$15.57	\$15.57
Maximum Justifiable Fee @ 6.5% Interest	\$17.71	\$17.71

	Fee per Square Foot				
	Condominium Strong	Townhome Moderate	Townhome Strong	Single-Family Moderate	Single-Family Strong
Maximum Financially Feasible Fee	\$5.18	\$4.64	\$8.77	\$1.13	\$1.62
Maximum Justifiable Fee @ 5.5% Interest	\$10.19	\$7.58	\$9.29	\$7.43	\$5.31
Maximum Justifiable Fee @ 6.5% Interest	\$11.60	\$8.63	\$10.58	\$8.46	\$6.05

Source: BAE, 2018, based on sources as described in previous tables.

## Phase-In of Requirements

As discussed in the Phase I study, when adopting a fee or inclusionary policy, some communities do so with a phase-in schedule. For instance, when first adopting a policy like this, some jurisdictions set a future date for its implementation, and define how to treat current “pipeline” projects that would have been started without knowledge of this fee. A phase-in allows developers to adjust their bidding for development sites with the knowledge of how the applicable requirements affect the residual land value that they can afford to pay for a site and achieve financial feasibility. In the case of Moab, we understand that there have been

public discussions about establishing assured housing requirements for the last couple of years, in which case a phase-in feature may not be as important.

### **Fees per Unit versus Fees per Square Foot**

When inclusionary requirements or in-lieu fees are fixed on a “per unit” basis, rather than varying by the size of the market rate units, this creates an incentive for builders to maximize the size of their market rate units, so that they can spread the cost of compliance over a greater quantity of saleable square footage, making market rate housing units less attainable to middle-income households. This report recommends tying the fee to square feet instead of units.

### **Policy Flexibility**

During economic downturns, some jurisdictions have either created special deferral programs or lowered fees across the board. Some places have built-in mechanisms that require the fees or inclusionary policy to be re-analyzed at defined time intervals or when there are substantial changes in economic indicators such as interest rates or development costs. These approaches demonstrate that the requirements can be customized to adapt to changes in economic conditions. Because there are many constantly changing variables that influence affordable housing needs, costs of providing affordable housing units, and feasibility for market rate development, best practices dictate that analysis underpinning affordable housing requirements should be updated on a periodic basis, to determine if changes to policy or program parameters are appropriate.

Another important component of policy flexibility is to offer builders a range of options to comply with assured housing requirements. Every development project has a unique set of financial circumstances, and while a given project may not be able to afford to pay adopted in-lieu fees, there may be other options that would be feasible, such as providing on-site affordable units, dedicating land that could be utilized by others to construct affordable housing, or potentially complying with a reduced affordable housing requirement if a reduction could be justified, based on a finding of reduced affordable housing need or a lack of financial feasibility to meet the full requirements. An important caveat is to avoid making any of the options inherently more economically attractive than others, to avoid encouraging builders to all select the same compliance option. For example, when in-lieu fees are set at levels that are substantially below the actual cost to subsidize affordable housing units, developers will rarely build affordable units onsite. To achieve better economic parity between payment of in-lieu fees and production of below market rate units onsite, if an in-lieu fee is set at less than the full rate justifiable by the nexus analysis, then the City and County should also consider reducing the assured housing inclusionary percentages commensurately. As previously noted, when requirements are set below the maximum justifiable levels identified in the nexus analysis, the City and County might have to leverage other sources of financing to support development of affordable housing in quantities sufficient to mitigate the impacts.



Finally, the feasibility analysis and the nexus analysis conducted for prototype development projects in this study cannot

## Revenue Estimate

For projects where a linkage fee was feasible, the maximum potentially feasible fee levels were applied to historic building permit data to estimate revenue that could potentially be generated from an in-lieu fee program. To partially take into account the variation in feasibility due to fluctuations in economic conditions over time, the assumed fees were rounded down to the nearest dollar, and were based on the moderate market scenario, with the exception of condominiums, where the fee for the strong market was used since a fee was deemed not feasible under the moderate market scenario.

This assumed fee structure could generate an estimated average annual revenue of approximately \$1.3 million if applied in both the City of Moab and Grand County, assuming the same rate of development as between 2010 and 2017.<sup>8</sup> The City could be expected to generate substantially more revenue from hotel development than from residential development, while slightly more than half of Grand County’s revenue would come from residential projects. The City’s annual projected share is slightly less than \$800,000, and the County’s share is estimated at about \$523,000. These average annual revenue estimates may under- or overstate actual revenue in any given year, depending on the overall economic cycle.

**Table 17: Annual Estimated Fee Revenue Based on Historic Permit Activity**

	<u>Proposed Fee</u>	<u>City of Moab</u>	<u>Grand County</u>	<u>Est. Annual Revenue</u>
<b><u>Residential Projects</u></b>				
Single-Family Detached	\$ 1.00	\$ 31,898	\$ 44,796	76,694
Townhomes / SFR Nightly Rentals	\$ 4.00	\$ 64,763	\$ 82,891	147,653
Condominiums	\$ 5.00	\$ 5,159	\$ 150,105	155,264
Apartments	\$ -	\$ -	\$ -	\$ -
<b>Annual Revenue, Residential Projects (a)</b>		<b>\$ 101,819</b>	<b>\$ 277,791</b>	<b>\$ 379,611</b>
<b><u>Commercial Projects</u></b>				
Retail	\$ -	\$ -	\$ -	\$ -
Office (b)	\$ -	\$ -	\$ -	\$ -
Hotel	\$ 15.00	\$ 694,714	\$ 245,010	\$ 939,724
<b>Annual Revenue, Commercial Projects (a)</b>		<b>\$ 694,714</b>	<b>\$ 245,010</b>	<b>\$ 939,724</b>
<b>Annual Revenue by Place</b>		<b>\$ 796,533</b>	<b>\$ 522,801</b>	<b>\$ 1,319,334</b>

Notes:

(a) The annual revenue is based the average annual square feet permitted between 2010 and 2017 in the City of Moab and Grand County. Revenue will vary year to year based on actual development activity.

<sup>8</sup> These calculations assume that all assured housing obligations are met by payment of fees, rather than construction of inclusionary housing units.

(b) The building permit data did not contain square footage data for newly constructed office projects. Each office project was estimated at 8,000 square feet based on the recently built office buildings profiled in the Phase I study.

Sources: City of Moab, 2017; Grand County, 2017; BAE, 2018.

## **Summary**

The analysis here and in the Phase I study of this Assured Housing Study indicates that although charging an affordable housing nexus fee increases the cost to build, the fee can be set at a reasonable level for some land uses by estimating a maximum financially feasible fee as well as a maximum justifiable fee, and ensuring that the fee is below the lower of these two thresholds. In establishing a policy for such a fee, the City and County could build in some flexibility by considering a gradual phase-in, and monitoring market conditions on an ongoing basis. Assuming current development trends continue, a nexus fee could bring in over \$1 million annually to assist in the production of affordable housing units.

## APPENDICES

### Appendix A: Overview of IMPLAN

This appendix provides additional clarification of the workings of the IMPLAN input-output model. It provides a step-by-step account of how IMPLAN estimates economic impacts using new residential development as an illustrative example. Definitions of key *italicized* terms are provided in footnotes for the benefit of the reader. This section begins with an overview of the data that IMPLAN uses internally, and moves forward through the process of how the model estimates the impacts of new commercial and housing projects.

#### ***What is IMPLAN?***

IMPLAN is an input-output model that estimates the total economic implications of new economic activity within a specified geography. The model uses national industry data and county-level economic data to generate a series of multipliers, which in turn estimate the total economic implications of economic activity.

At the heart of the model is a national input-output dollar flow table called the Social Accounting Matrix (SAM). Unlike other static input-output models, which just measure the purchasing relationships between industry and household sectors, SAM also measures the economic relationships between government, industry, and household sectors, allowing IMPLAN to model transfer payments such as unemployment insurance. Thus, for the specified region, the input-output table accounts for all the dollar flows between the different sectors within the economy.

***National Industry Data.*** The model uses national production functions for 536 sectors to determine how an industry spends its operating receipts to produce its commodities. The model also uses a national matrix to determine the *byproducts*<sup>9</sup> that each industry generates. To analyze the impacts of household spending, the model treats households as an “industry” to determining their expenditure patterns. IMPLAN couples the national production functions with a variety of county-level economic data to determine the impacts for our example.

***County-Level Economic Data.*** In order to estimate the county-level impacts, IMPLAN combines national industry production functions with county-level economic data. IMPLAN collects data from a variety of economic data sources to generate average output, employment, and productivity for each of the industries in a given county. It also collects data on average prices for all of the goods sold in the local economy. In this analysis, IMPLAN uses economic data for Grand County. IMPLAN gathers data on the types and amount of output that each industry generates within the region. In addition, the IMPLAN model uses county-level data on the prices of goods and household expenditures to determine the consumption functions of

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<sup>9</sup> The byproducts refer to any secondary commodities that the industry creates.

regional households and local government, taking into account the availability of each commodity within the specified geography.

**Multipliers.** IMPLAN combines this data to generate a series of SAM-type multipliers for the local economy. The multiplier measures the amount of total economic activity that results from an industry (or household) spending an additional dollar in the local economy. Based on these multipliers, IMPLAN generates a series of tables to show the economic event's *direct*, *indirect*, and *induced* impacts to gross receipts, or output, within each of the model's 536 sectors. These outputs are described below:

- **Direct Impacts.** Direct impacts refer to the dollar value of economic activity available to circulate through the economy. In the case of new residential development, the direct impacts are equal to the new households' discretionary spending. The direct impacts do not include household savings and payments to federal, state, and local taxes, as these payments do not circulate through the economy.

It should be noted that impacts from retail expenditures differ significantly between the total economic value of retail and the amount available to circulate through the local economy. The nature of retail expenditures accounts for this difference. The model assumes that only the retail markup impacts the local economy, particularly for industries heavily populated with national firms such as gas stations and grocery stores. Since local stores buy goods from wholesalers and manufacturers outside of the area, and corporate profits also leave the local economy, only the retail markup will be available for distribution within the local economy. To the extent that retailers' headquarters are located within the county or region, the model allocates their portions of the impacts to the local economy.

- **Indirect Impacts.** The indirect impacts refer to the inter-industry impacts of the input-output analysis. Since IMPLAN is only used for the housing analysis for this report to assess the impacts of new resident household expenditures, there are no indirect impacts to assess as there are no industry expenditures as inputs to the model.
- **Induced Impacts.** The induced impacts refer to the impacts of household spending by the employees generated by the direct and indirect impacts. In other words, induced impacts result from the household spending of employees of business establishments that the new households patronize (direct) and their suppliers (indirect). The model accounts for local commute patterns in the geography. For example, if 20 percent of construction workers who work in the region live outside of the region, the model will allocate 80 percent of labor's disposable income into the model to generate induced impacts. The model excludes payments to federal and state taxes and savings based on the geography's average local tax and savings rates. Thus, only the disposable incomes from local workers are included in the model.

### ***Specifying the “Event” and Running the Model***

Once the model is built for the specified geographies, it is time to specify the “event” that the model will analyze and run the model.

***Specifying the “Event.”*** The “event” refers to the total economic value of industry output that we are interested in analyzing. In the case of the ongoing economic impacts of a new residential development, the “event” would be the total household incomes of the households that buy or rent the homes.

***Running the Model.*** Once the event is specified, IMPLAN runs the event through the model to generate the results. IMPLAN applies the local data on average output per worker and compensation per worker to determine the direct impacts. It then applies the value of the event to the national production functions and runs a number of iterations of this value through the production functions for the local economy to determine the indirect and induced impacts. For each iteration, the model removes expenditures to government, savings, and for goods bought outside of the local economy so that the results only include those dollars that impact the local economy.

### ***Summarizing the Impacts***

Once the model is run, IMPLAN generates a series of output tables to show the direct, indirect, and induced impacts within each of the model’s 536 sectors. IMPLAN generates these tables for three types of impacts: output, employment, and value added. This nexus study is concerned with the employment impacts.

- *Output* refers to the total economic value of the project in the local economy.
- *Employment* shows the number of employees needed to support the economic activity in the local economy. It should be noted that for annual impacts of ongoing operations, the employment figure shown represents the amount of employment needed to support that activity for a year. Furthermore, IMPLAN reports the number of jobs based on average output per employee for a given industry within the geography. This is not the same as the number of full-time positions.
- *Value Added* shows the total income that the event generates in the local economy. This income includes:
  - *Employee Compensation* – total payroll costs, including benefits
  - *Proprietary Income* – payments received by self-employed individuals as income
  - *Other Property Type Income* – payments for rents, royalties, and dividends
  - *Indirect Business Taxes* – excise taxes, property taxes, fees, and sales taxes paid by businesses. These taxes occur during the normal operation of businesses, but do not include taxes on profits or income.

## Appendix B: Detailed Calculation of Employment Supported by New Market-Rate Housing

### Appendix B - 1: Induced Employment Generation from Household Expenditures

NAICS Code	Industry	Number of Jobs per 100 Housing Units (a)				
		Condominium Strong	Townhome Moderate	Townhome Strong	Single-Family Moderate	Single-Family Strong
11, 21	Natural Resources	0.07	0.06	0.08	0.09	0.08
23	Construction	0.74	0.68	0.85	0.92	0.87
31-33	Manufacturing	0.04	0.03	0.04	0.04	0.04
42	Wholesale Trade	1.00	0.91	1.11	1.21	1.11
44-45	Retail Trade	9.46	8.60	10.42	11.37	11.02
48-49, 22	Transportation, Warehousing, & Utilities	1.39	1.27	1.60	1.75	1.86
51	Information	0.64	0.58	0.68	0.74	0.63
52	Finance & Insurance	1.54	1.40	1.63	1.77	1.22
53	Real Estate & Rental & Leasing	4.93	4.49	4.71	5.14	4.75
54-55	Professional & Technical Services; Management of Companies & Enterprises	3.17	2.88	3.57	3.89	3.95
56	Administrative & Waste Services	2.05	1.87	2.29	2.50	2.74
61	Educational Services	1.19	1.08	1.63	1.78	3.21
62	Health Care & Social Assistance	10.87	9.89	12.37	13.50	12.33
71-72	Arts, Entertainment & Recreation; Accommodation & Food Services	11.67	10.61	13.22	14.42	13.33
81	Other Services, except Public Administration	6.98	6.35	7.87	8.59	7.54
0	Government	0.65	0.59	0.78	0.85	0.78
	<b>Total Jobs</b>	<b>56.42</b>	<b>51.30</b>	<b>62.85</b>	<b>68.56</b>	<b>65.45</b>

Note:

(a) Job generation is output of the IMPLAN model, and shows induced employment generated by household spending per 100 new housing units.

Sources: IMPLAN; BAE, 2018.

## Appendix B - 2: Employment Generation by Income Level from New Condominium Housing by Income Level, per 100 Units (Strong Market)

NAICS Code	Industry	Total Jobs (b)	Estimated Jobs by Percent of AMI (a)				
			Extremely Low	Very Low	Low	Moderate	Above Moderate
<b>Private Sector</b>							
11, 21	Agriculture & Natural Resources	0.07	0.00	0.00	0.00	0.01	0.05
23	Construction	0.74	0.04	0.04	0.16	0.20	0.31
31-33	Manufacturing	0.04	0.00	0.00	0.00	0.01	0.02
42	Wholesale Trade	1.00	0.09	0.02	0.10	0.17	0.63
44-45	Retail Trade	9.46	0.76	0.45	1.49	2.26	4.50
	Transportation, Warehousing, & Utilities	1.39	0.02	0.02	0.18	0.32	0.86
48-49, 22	Utilities						
51	Information	0.64	0.04	0.08	0.06	0.12	0.34
52-53	Finance, Insurance, & Real Estate	6.47	0.38	0.24	0.82	1.70	3.32
54-55	Professional, Scientific, & Technical Services, & Mgmt of Companies	3.17	0.23	0.05	0.31	0.68	1.90
	Admin, Support, & Waste Mgmt Srvcs	2.05	0.44	0.01	0.38	0.54	0.68
56	Srvcs						
61	Educational Services	1.19	0.02	0.07	0.21	0.29	0.60
62	Health Care & Social Assistance	10.87	0.25	0.48	1.48	2.68	5.99
71-72	Leisure & Hospitality	11.67	0.89	1.29	1.82	2.20	5.47
81	Other Services Except Public Admin	6.98	0.32	0.41	1.75	1.64	2.87
<b>All Government Employment</b>		0.65	0.02	0.02	0.08	0.15	0.39
<b>Total Jobs</b>		<b>56.42</b>	<b>3.51</b>	<b>3.19</b>	<b>8.82</b>	<b>12.96</b>	<b>27.93</b>
Workers per Households (c)		1.70	1.22	1.43	1.44	1.69	1.95
<b>Number of Households</b>		<b>33.17</b>	<b>2.86</b>	<b>2.23</b>	<b>6.11</b>	<b>7.67</b>	<b>14.30</b>

Notes:

(a) Based on 2016 HUD Income Limits.

(b) Job estimates are the output of the IMPLAN model, and shows employment generated by household spending.

Columns to right may not sum to Total Jobs due to independent rounding.

(c) Average number of workers per worker household calculated based on American Community Survey PUMS Analysis, 2012-2016.

Sources: American Community Survey, 2012-2016, including the Public User Microdata Sample; HUD; IMPLAN; BAE, 2018.

**Appendix B - 3: Employment Generation by Income Level from New Townhome Housing by Income Level, per 100 Units (Moderate Market)**

NAICS Code	Industry	Total Jobs (b)	Estimated Jobs by Percent of AMI (a)				
			Extremely Low	Very Low	Low	Moderate	Above Moderate
<b>Private Sector</b>							
11, 21	Agriculture & Natural Resources	0.06	0.00	0.00	0.00	0.01	0.05
23	Construction	0.68	0.04	0.03	0.14	0.18	0.28
31-33	Manufacturing	0.03	0.00	0.00	0.00	0.01	0.02
42	Wholesale Trade	0.91	0.08	0.02	0.09	0.15	0.57
44-45	Retail Trade	8.60	0.69	0.41	1.35	2.05	4.09
	Transportation, Warehousing, & Utilities	1.27	0.02	0.01	0.16	0.29	0.78
48-49, 22	Information	0.58	0.03	0.07	0.05	0.11	0.31
51	Finance, Insurance, & Real Estate	5.89	0.35	0.22	0.75	1.54	3.02
52-53	Professional, Scientific, & Technical Services, & Mgmt of Companies	2.88	0.21	0.05	0.28	0.62	1.72
54-55	Admin, Support, & Waste Mgmt Srvcs	1.87	0.40	0.01	0.34	0.49	0.62
56	Educational Services	1.08	0.02	0.07	0.19	0.26	0.55
61	Health Care & Social Assistance	9.89	0.23	0.44	1.34	2.44	5.44
62	Leisure & Hospitality	10.61	0.81	1.17	1.66	2.00	4.97
71-72	Other Services Except Public Admin	6.35	0.29	0.38	1.59	1.49	2.61
81							
<b>All Government Employment</b>		0.59	0.02	0.02	0.07	0.13	0.36
<b>Total Jobs</b>		<b>51.30</b>	<b>3.19</b>	<b>2.90</b>	<b>8.02</b>	<b>11.79</b>	<b>25.40</b>
Workers per Households (c)		1.70	1.22	1.43	1.44	1.69	1.95
<b>Number of Households</b>		<b>30.16</b>	<b>2.60</b>	<b>2.02</b>	<b>5.55</b>	<b>6.98</b>	<b>13.00</b>

Notes:

(a) Based on 2016 HUD Income Limits.

(b) Job estimates are the output of the IMPLAN model, and shows employment generated by household spending. Columns to right may not sum to Total Jobs due to independent rounding.

(c) Average number of workers per worker household calculated based on American Community Survey PUMS Analysis, 2012-2016.

Sources: American Community Survey, 2012-2016, including the Public User Microdata Sample; HUD; IMPLAN; BAE, 2018.



## Appendix B - 4: Employment Generation by Income Level from New Townhome Housing by Income Level, per 100 Units (Strong Market)

NAICS Code	Industry	Total Jobs (b)	Estimated Jobs by Percent of AMI (a)				
			Extremely Low	Very Low	Low	Moderate	Above Moderate
<b>Private Sector</b>							
11, 21	Agriculture & Natural Resources	0.08	0.00	0.00	0.01	0.01	0.06
23	Construction	0.85	0.05	0.04	0.18	0.23	0.35
31-33	Manufacturing	0.04	0.00	0.00	0.00	0.01	0.02
42	Wholesale Trade	1.11	0.09	0.02	0.11	0.19	0.70
44-45	Retail Trade	10.42	0.84	0.50	1.64	2.49	4.96
	Transportation, Warehousing, & Utilities	1.60	0.02	0.02	0.20	0.37	0.99
48-49, 22	Utilities						
51	Information	0.68	0.04	0.08	0.06	0.13	0.36
52-53	Finance, Insurance, & Real Estate	6.33	0.38	0.24	0.80	1.66	3.25
54-55	Professional, Scientific, & Technical Services, & Mgmt of Companies	3.57	0.26	0.06	0.34	0.77	2.14
	Admin, Support, & Waste Mgmt Srvcs	2.29	0.49	0.02	0.42	0.60	0.76
56	Srvcs						
61	Educational Services	1.63	0.03	0.10	0.28	0.39	0.83
62	Health Care & Social Assistance	12.37	0.28	0.55	1.68	3.05	6.81
71-72	Leisure & Hospitality	13.22	1.01	1.46	2.06	2.49	6.19
81	Other Services Except Public Admin	7.87	0.36	0.47	1.97	1.85	3.23
<b>All Government Employment</b>		0.78	0.02	0.02	0.09	0.17	0.47
<b>Total Jobs</b>		<b>62.85</b>	<b>3.88</b>	<b>3.58</b>	<b>9.86</b>	<b>14.41</b>	<b>31.12</b>
Workers per Households (c)		1.70	1.22	1.43	1.44	1.69	1.95
<b>Number of Households</b>		<b>36.96</b>	<b>3.17</b>	<b>2.49</b>	<b>6.83</b>	<b>8.53</b>	<b>15.93</b>

**Notes:**

(a) Based on 2016 HUD Income Limits.

(b) Job estimates are the output of the IMPLAN model, and shows employment generated by household spending.

Columns to right may not sum to Total Jobs due to independent rounding.

(c) Average number of workers per worker household calculated based on American Community Survey PUMS Analysis, 2012-2016.

Sources: American Community Survey, 2012-2016, including the Public User Microdata Sample; HUD; IMPLAN; BAE, 2018.

## Appendix B - 5: Employment Generation by Income Level from New Single Family Detached Housing by Income Level, per 100 Units (Moderate Market)

NAICS Code	Industry	Total Jobs (b)	Estimated Jobs by Percent of AMI (a)				
			Extremely Low	Very Low	Low	Moderate	Above Moderate
<b>Private Sector</b>							
11, 21	Agriculture & Natural Resources	0.09	0.00	0.00	0.01	0.01	0.06
23	Construction	0.92	0.06	0.05	0.19	0.25	0.38
31-33	Manufacturing	0.04	0.00	0.00	0.00	0.01	0.03
42	Wholesale Trade	1.21	0.10	0.02	0.12	0.20	0.76
44-45	Retail Trade	11.37	0.91	0.54	1.79	2.71	5.41
	Transportation, Warehousing, & Utilities	1.75	0.03	0.02	0.22	0.40	1.08
48-49, 22	Utilities						
51	Information	0.74	0.04	0.09	0.07	0.14	0.39
52-53	Finance, Insurance, & Real Estate	6.91	0.41	0.26	0.88	1.81	3.55
54-55	Professional, Scientific, & Technical Services, & Mgmt of Companies	3.89	0.29	0.06	0.38	0.84	2.33
	Admin, Support, & Waste Mgmt Srvcs	2.50	0.53	0.02	0.46	0.66	0.83
56	Srvcs						
61	Educational Services	1.78	0.03	0.11	0.31	0.43	0.90
62	Health Care & Social Assistance	13.50	0.31	0.60	1.83	3.33	7.43
71-72	Leisure & Hospitality	14.42	1.10	1.60	2.25	2.72	6.75
81	Other Services Except Public Admin	8.59	0.39	0.51	2.15	2.01	3.53
<b>All Government Employment</b>		0.85	0.03	0.02	0.10	0.19	0.51
<b>Total Jobs</b>		<b>68.56</b>	<b>4.23</b>	<b>3.90</b>	<b>10.76</b>	<b>15.72</b>	<b>33.95</b>
Workers per Households (c)		1.70	1.22	1.43	1.44	1.69	1.95
<b>Number of Households</b>		<b>40.32</b>	<b>3.46</b>	<b>2.72</b>	<b>7.45</b>	<b>9.30</b>	<b>17.38</b>

**Notes:**

(a) Based on 2016 HUD Income Limits.

(b) Job estimates are the output of the IMPLAN model, and shows employment generated by household spending. Columns to right may not sum to Total Jobs due to independent rounding.

(c) Average number of workers per worker household calculated based on American Community Survey PUMS Analysis, 2012-2016.

Sources: American Community Survey, 2012-2016, including the Public User Microdata Sample; HUD; IMPLAN; BAE, 2018.

## Appendix B - 6: Employment Generation by Income Level from New Single Family Detached Housing by Income Level, per 100 Units (Strong Market)

NAICS Code	Industry	Total Jobs (b)	Estimated Jobs by Percent of AMI (a)				
			Extremely Low	Very Low	Low	Moderate	Above Moderate
<b>Private Sector</b>							
11, 21	Agriculture & Natural Resources	0.08	0.00	0.00	0.01	0.01	0.06
23	Construction	0.87	0.05	0.04	0.18	0.24	0.36
31-33	Manufacturing	0.04	0.00	0.00	0.00	0.01	0.02
42	Wholesale Trade	1.11	0.09	0.02	0.11	0.19	0.70
44-45	Retail Trade	11.02	0.88	0.53	1.73	2.63	5.24
	Transportation, Warehousing, & Utilities	1.86	0.03	0.02	0.24	0.43	1.15
48-49, 22	Utilities						
51	Information	0.63	0.04	0.08	0.06	0.12	0.34
52-53	Finance, Insurance, & Real Estate	5.97	0.35	0.23	0.76	1.57	3.07
54-55	Professional, Scientific, & Technical Services, & Mgmt of Companies	3.95	0.29	0.06	0.38	0.85	2.37
	Admin, Support, & Waste Mgmt Srvcs	2.74	0.58	0.02	0.50	0.72	0.91
56	Srvcs						
61	Educational Services	3.21	0.05	0.20	0.56	0.78	1.62
62	Health Care & Social Assistance	12.33	0.28	0.55	1.67	3.04	6.79
71-72	Leisure & Hospitality	13.33	1.02	1.48	2.08	2.51	6.24
81	Other Services Except Public Admin	7.54	0.34	0.45	1.89	1.77	3.10
<b>All Government Employment</b>		0.78	0.02	0.02	0.09	0.17	0.47
<b>Total Jobs</b>		<b>65.45</b>	<b>4.05</b>	<b>3.69</b>	<b>10.26</b>	<b>15.03</b>	<b>32.43</b>
Workers per Households (c)		1.70	1.22	1.43	1.44	1.69	1.95
<b>Number of Households</b>		<b>38.48</b>	<b>3.31</b>	<b>2.57</b>	<b>7.11</b>	<b>8.89</b>	<b>16.60</b>

**Notes:**

(a) Based on 2016 HUD Income Limits.

(b) Job estimates are the output of the IMPLAN model, and shows employment generated by household spending.

Columns to right may not sum to Total Jobs due to independent rounding.

(c) Average number of workers per worker household calculated based on American Community Survey PUMS Analysis, 2012-2016.

Sources: American Community Survey, 2012-2016, including the Public User Microdata Sample; HUD; IMPLAN; BAE, 2018.