MEMORANDUM

To: Yael Gichon, City of Boulder Community Planning and Sustainability

From: Dan Guimond and Chris Leutzinger, Economic & Planning Systems

Subject: SmartRegs Economic Analysis

Date: April 13, 2010

The City of Boulder recently adopted a Climate Action Plan (CAP) to reduce greenhouse gas (GHG) emission by 23 percent by 2012. As part of achieving the objectives of the plan, the City is currently undergoing an update to its Housing and Rental License Code, referred to as SmartRegs. Economic & Planning Systems (EPS) has been engaged by the City to evaluate the specific economic impact of SmartRegs on residential rental property in the City. This memo summarizes EPS's initial analysis and findings.

Project Background

The implementation of the City of Boulder's Climate Action Plan (CAP) involves activities across several city departments, including the City's Building Department. In order to meet the goals of the CAP, the City is recommending an update to Boulder's Housing Code and Rental License Code to incorporate energy efficiency requirements, known as SmartRegs. These updates include adopting the International Property Maintenance Code (IPMC), as well as requiring property owners of existing residential rental buildings to meet specific energy-related guidelines as part of the Rental License Renewal process.

Specifically, residential rental property will either need to achieve a performance score of 120 on the RESNET Home Energy Rating System (HERS), or 100 points on the City's identified list of prescriptive energy efficiency measures. While some properties may already meet these measures, those properties that are considered out of compliance will be required to pay for the necessary energy efficiency improvements "out of pocket." This could have a potential impact on the value of residential property, as well as place financial burden on the property owners.

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EPS has been engaged by the City to analyze the initial economic impacts regarding the proposed SmartRegs and associated property owner investment, with primary emphasis on the impact on cash flow and value. In order to evaluate this impact, EPS utilized a hypothetical 50-unit apartment building in the City of Boulder, comparing annual cash flows with and without the new building code regulations, or No SmartRegs versus SmartRegs. The SmartRegs analysis is performed using the staff recommended prescriptive Option 2B, under which 50 total points must be reached in the first license renewal cycle (4 years) and 100 total points must be reached in the second license renewal cycle (Years 4-8). While some assumptions in this analysis are based on local inputs, the majority of assumptions are made for comparison purposes only and not intended to represent an actual building in the City.

SmartRegs Capital Expenditures

While some existing residential rental properties in the City likely already meets the proposed energy efficiency standards, the majority of residential rental property owners will be required to make certain investments in their rental properties as a result of the proposed SmartRegs. The magnitude of these investments will depend on the property's size, age, and existing condition. However, to measure the impacts on annual cash flow and associated value, it is important to understand the nature of the investments. Similar to replacing a roof or appliances, investments made to meet the new energy efficiency standards are not annual operating expenses, but rather capital expenditures that occur one-time or in several "lumps." Thus, while the full cost of these expenditures may occur in one-year, it cannot be incorporated as an annual operating expense in a typical operating income statement for a residential property because it does not occur annually. The solution is to smooth the lumps by prorating them on an annual basis over the estimated holding period of the property, or typical length of time expected to own the property. The prorated expenditure can be included in annual operating expense as a "replacement reserve."

In the case of the hypothetical 50-unit apartment building tested below, EPS assumes that capital expenditures of $400 per unit will be required in the first four-year rental cycle and $800 per unit will be required in the second four-year rental cycle. This results in a total estimated capital expenditure of $60,000, as shown in **Table 1**. The full $60,000 cannot be included as an annual operating expense, because it does not occur annually, but rather in two lumps over the course of the holding period, assumed to be 10 years in this example. Thus, the annual impact of this investment is $60,000 divided by 10 years, or $6,000 as shown in **Table 1**.

Table 1
SmartRegs Capital Expenditures
SmartRegs Economic Analysis

Capital Expenditure	Factor Per Unit	No SmartRegs 50 units	SmartRegs 50 units	Difference
Cost to attain first 50 pts.	$400	$0	($20,000)	($20,000)
Cost to attain second 50pts.	$800	$0	($40,000)	($40,000)
Cost to attain 100 pts.	**$1,200**	**$0**	**($60,000)**	**($60,000)**
Hold Period (Years)		**10**	**10**	**10**
Annual Replacement Reserve		**$0**	**($6,000)**	**($6,000)**

Source: Economic & Planning Systems

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Static Value Analysis (Direct Capitalization)

Because residential rental property is income-producing, the value of the property is contingent on the income it produces. As a result, increasing expenses, while keeping income flat, will result in lower net income to the property owner, and thus, lower resulting market value. One of the most common methods of valuing rental property is the direct capitalization method. This method of valuation estimates the typical annual operating income of the property, or static income, and divides it by a capitalization rate. The capitalization rate, or "cap rate", represents the value investors place on annual income and is often extracted from the local market. The capitalization rate is an inverse ratio. Thus, the higher the rate the lower the resulting value, while the lower the rate, the higher the resulting value.

In the 50-unit apartment example, EPS utilized a number of assumptions to estimate the annual Net Operating Income (NOI) of the property, or Gross Potential Income less Vacancies and Operating Expenses, for both the No SmartRegs and SmartRegs scenarios, as shown in **Table 2**. Under the No SmartRegs example, NOI is estimated at almost $251,000 annually. Using a capitalization rate of 8.0 percent (assumed for comparison purposes only), the market value of the property without SmartRegs, is estimated at approximately $3.14 million. Under the SmartRegs example, all operating expenses remain the same, but an additional $6,000 annually is included for Replacement Reserves to account for the investment required to meet the proposed SmartRegs, decreasing operating income by 1.3 percent. The resulting annual NOI is estimated at approximately $245,000. Applying the same capitalization rate of 8.0 percent to the annual NOI, results in an estimated market value of $3.06 million, or approximately 2.4 percent less than under the No SmartRegs example. This translates to a total value difference of -$75,000, or -$1,500 per unit.

Table 2
Static Value Analysis
SmartRegs Economic Analysis

Description	Factor	No SmartRegs		SmartRegs		Difference	
		Total	% of GPI	Total	% of GPI	Total	% of GPI
Units		**50**		**50**		**50**	
	Per Unit						
Rental Rate (Monthly)	$750	$750		$750		$0	
Gross Potential Income (GPI)		**$450,000**	**100.0%**	**$450,000**	**100.0%**	**$0**	**0.0%**
<LESS>Vacancy	5.0%	($22,500)	5.0%	($22,500)	5.0%	$0	0.0%
<LESS>Credit Loss	2.0%	($9,000)	2.0%	($9,000)	2.0%	$0	0.0%
Effective Gross Income (EGI)		**$418,500**	**93.0%**	**$418,500**	**93.0%**	**$0**	**0.0%**
<LESS>Operating Expenses	Per Unit						
Taxes	$500	($25,000)	5.6%	($25,000)	5.6%	$0	0.0%
Insurance	$150	($7,500)	1.7%	($7,500)	1.7%	$0	0.0%
Management Fee (% of EGI)	6.0%	($25,110)	5.6%	($25,110)	5.6%	$0	0.0%
Utilties	$600	($30,000)	6.7%	($30,000)	6.7%	$0	0.0%
Administration	$300	($15,000)	3.3%	($15,000)	3.3%	$0	0.0%
Marketing/Leasing	$300	($15,000)	3.3%	($15,000)	3.3%	$0	0.0%
Maintenance and Repair	$1,000	($50,000)	11.1%	($50,000)	11.1%	$0	0.0%
Subtotal		**($167,610)**	**37.2%**	**($167,610)**	**37.2%**	**$0**	**0.0%**
<LESS>Replacement Reserve		$0	0.0%	($6,000)	1.3%	($6,000)	1.3%
Net Operating Income (NOI)		**$250,890**	**55.8%**	**$244,890**	**54.4%**	**($6,000)**	**1.3%**
Direct Capitalization Rate		8.0%		8.0%			
Value		**$3,136,000**		**$3,061,000**		**($75,000)**	
Per Unit		**$62,720**		**$61,220**		**($1,500)**	

Source: Economic & Planning Systems

Note: All assumptions are provided for example only

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It is important to note that when using this static valuation method, the impact on value (-$75,000) is actually slightly higher than the actual required capital expenditures of $60,000. This is the result of using a direct capitalization method. The annual replacement reserve cost of $6,000 is not only subtracted from annual revenue, but it is also divided by the cap rate, slightly magnifying its impact on value.

Present Value Analysis (Discounted Cash Flow Analysis)

A second method of valuing income-producing property is the discounted cash flow analysis. This methodology estimates the value a property today (present value) by projecting future annual revenue over the estimated holding period of the property, or 10 years in this case. The important difference in this type of analysis is that it incorporates the change in annual cash flows over time. Thus, certain expenses and/or revenues can actually be incorporated when they are expected to occur. As a result, lumpy expenses are not a problem because they can be included in the year they are expected occur, eliminating the need for a Replacement Reserve.

Also critical in this analysis is the concept of the "Time Value of Money." The Time Value of Money is the idea that a dollar received today is worth more than a dollar received in the future, because this dollar could be invested in a variety of investments, earning an annual return. Thus, the value of estimated future dollars needs to be "discounted" to its equivalent present value. Real estate investors have specific annual returns they require, contingent on the property type and local market. These returns can range greatly, but for the purposes of this

analysis a required return of 10.0 percent was utilized. Thus, because an investor could receive an annual return of 10.0 percent investing in other real estate, projected future revenues must be discounted at this rate. The last important assumption in this type of analysis is estimating the value of the property when it is anticipated to sell, or at the end of the 10 years. This estimate is performed the same manner as the direct capitalization rate method, or by estimating the income expected at the end of 10 years and dividing by an estimated capitalization rate.

Tables 3 and **4**, on the following pages, demonstrate the resulting present value analysis both with and without the proposed SmartRegs. The same revenue and expense assumptions in the previous analysis are used; however revenues and expenses are forecasted over 10 years. Annual revenues and expenses are escalated at 2.5 percent annually. Under the No SmartRegs example, no capital expenditures are expected to occur over the 10 year holding period. Under the SmartRegs example, capital expenditures related to the first rental cycle of $400 per unit, or $20,000 total (inflated), are estimated to occur in Year 4. Capital Expenditures related to the second rental cycle of $800 per unit, or $40,000 total (inflated), are estimated to occur in Year 8. The sale of the property in both examples is estimated to occur in Year 10.

Table 3
No SmartRegs Present Value Analysis
SmartRegs Economic Analysis

Description	Factor	Ann. Esc.	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Units	50		**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**
	Per Unit													
Monthly Rental Rate	$750	2.5%		$750	$769	$788	$808	$828	$849	$870	$892	$914	$937	$960
Gross Potential Income (GPI)				**$450,000**	**$461,250**	**$472,781**	**$484,601**	**$496,716**	**$509,134**	**$521,862**	**$534,909**	**$548,281**	**$561,988**	**$576,038**
<LESS>Vacancy	5.0%			($22,500)	($23,063)	($23,639)	($24,230)	($24,836)	($25,457)	($26,093)	($26,745)	($27,414)	($28,099)	($28,802)
<LESS>Credit Loss	2.0%			($9,000)	($9,225)	($9,456)	($9,692)	($9,934)	($10,183)	($10,437)	($10,698)	($10,966)	($11,240)	($11,521)
Effective Gross Income (EGI)				**$418,500**	**$428,963**	**$439,687**	**$450,679**	**$461,946**	**$473,494**	**$485,332**	**$497,465**	**$509,902**	**$522,649**	**$535,715**
<LESS>Operating Expenses	Per Unit													
Taxes	$500	2.5%		($25,000)	($25,625)	($26,266)	($26,922)	($27,595)	($28,285)	($28,992)	($29,717)	($30,460)	($31,222)	($32,002)
Insurance	$150	2.5%		($7,500)	($7,688)	($7,880)	($8,077)	($8,279)	($8,486)	($8,698)	($8,915)	($9,138)	($9,366)	($9,601)
Management Fee (% of EGI)	6.0%	---		($25,110)	($25,738)	($26,381)	($27,041)	($27,717)	($28,410)	($29,120)	($29,848)	($30,594)	($31,359)	($32,143)
Utilties	$600	2.5%		($30,000)	($30,750)	($31,519)	($32,307)	($33,114)	($33,942)	($34,791)	($35,661)	($36,552)	($37,466)	($38,403)
Administration	$300	2.5%		($15,000)	($15,375)	($15,759)	($16,153)	($16,557)	($16,971)	($17,395)	($17,830)	($18,276)	($18,733)	($19,201)
Marketing and Leasing	$300	2.5%		($15,000)	($15,375)	($15,759)	($16,153)	($16,557)	($16,971)	($17,395)	($17,830)	($18,276)	($18,733)	($19,201)
Maintenance and Repair	$1,000	2.5%		($50,000)	($51,250)	($52,531)	($53,845)	($55,191)	($56,570)	($57,985)	($59,434)	($60,920)	($62,443)	($64,004)
Subtotal				**($167,610)**	**($171,800)**	**($176,095)**	**($180,498)**	**($185,010)**	**($189,635)**	**($194,376)**	**($199,236)**	**($204,217)**	**($209,322)**	**($214,555)**
Operating Expense Ratio (OER)				**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**
Net Operating Income (NOI)				**$250,890**	**$257,162**	**$263,591**	**$270,181**	**$276,936**	**$283,859**	**$290,955**	**$298,229**	**$305,685**	**$313,327**	**$321,160**
Terminal Capitalization Rate[1]	8.5%													8.5%
Total Sales Proceeds													**$3,778,358**	
<LESS>Transaction Costs	5.0%												($188,918)	
Net Sales Proceeds													**$3,589,440**	
Cash Flow Before Debt Service			**$0**	**$250,890**	**$257,162**	**$263,591**	**$270,181**	**$276,936**	**$283,859**	**$290,955**	**$298,229**	**$305,685**	**$3,902,767**	
Present Value Discounted @	10.0%		**$3,080,000**											
Per Unit			**$61,600**											

[1]Holding all things constant, Terminal Cap Rates are typically higher than Direct Cap Rates due to economic and physcial depreciation. Terminal Cap Rates are applied to the year following disposition because this is the income stream the buyer will incur.

Source: Economic & Planning Systems

Note: All assumptions are provided for example only

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Table 4
SmartRegs Present Value Analysis
SmartRegs Economic Analysis

Description	Factor	Ann. Esc.	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Units	50		**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**
	Per Unit													
Monthly Rental Rate	$750	2.5%		$750	$769	$788	$808	$828	$849	$870	$892	$914	$937	$960
Gross Potential Income (GPI)				**$450,000**	**$461,250**	**$472,781**	**$484,601**	**$496,716**	**$509,134**	**$521,862**	**$534,909**	**$548,281**	**$561,988**	**$576,038**
<LESS>Vacancy	5.0%			($22,500)	($23,063)	($23,639)	($24,230)	($24,836)	($25,457)	($26,093)	($26,745)	($27,414)	($28,099)	($28,802)
<LESS>Credit Loss	2.0%			($9,000)	($9,225)	($9,456)	($9,692)	($9,934)	($10,183)	($10,437)	($10,698)	($10,966)	($11,240)	($11,521)
Effective Gross Income (EGI)				**$418,500**	**$428,963**	**$439,687**	**$450,679**	**$461,946**	**$473,494**	**$485,332**	**$497,465**	**$509,902**	**$522,649**	**$535,715**
<LESS>Operating Expenses	Per Unit													
Taxes	$500	2.5%		($25,000)	($25,625)	($26,266)	($26,922)	($27,595)	($28,285)	($28,992)	($29,717)	($30,460)	($31,222)	($32,002)
Insurance	$150	2.5%		($7,500)	($7,688)	($7,880)	($8,077)	($8,279)	($8,486)	($8,698)	($8,915)	($9,138)	($9,366)	($9,601)
Management Fee (% of EGI)	6.0%	---		($25,110)	($25,738)	($26,381)	($27,041)	($27,717)	($28,410)	($29,120)	($29,848)	($30,594)	($31,359)	($32,143)
Utilties	$600	2.5%		($30,000)	($30,750)	($31,519)	($32,307)	($33,114)	($33,942)	($34,791)	($35,661)	($36,552)	($37,466)	($38,403)
Administration	$300	2.5%		($15,000)	($15,375)	($15,759)	($16,153)	($16,557)	($16,971)	($17,395)	($17,830)	($18,276)	($18,733)	($19,201)
Markeing/Leasing	$300	2.5%		($15,000)	($15,375)	($15,759)	($16,153)	($16,557)	($16,971)	($17,395)	($17,830)	($18,276)	($18,733)	($19,201)
Maintenance and Repair	$1,000	2.5%		($50,000)	($51,250)	($52,531)	($53,845)	($55,191)	($56,570)	($57,985)	($59,434)	($60,920)	($62,443)	($64,004)
Subtotal				**($167,610)**	**($171,800)**	**($176,095)**	**($180,498)**	**($185,010)**	**($189,635)**	**($194,376)**	**($199,236)**	**($204,217)**	**($209,322)**	**($214,555)**
Operating Expense Ratio (OER)				**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**
Net Operating Income (NOI)	Per Unit			**$250,890**	**$257,162**	**$263,591**	**$270,181**	**$276,936**	**$283,859**	**$290,955**	**$298,229**	**$305,685**	**$313,327**	**$321,160**
<LESS> First Cycle	$400	2.5%					($21,538)							
<LESS> Second Cycle	$800	2.5%									($47,547)			
Net Annual Income				**$250,890**	**$257,162**	**$263,591**	**$248,643**	**$276,936**	**$283,859**	**$290,955**	**$250,682**	**$305,685**	**$313,327**	**$321,160**
Terminal Cap Rate[1]	8.5%													8.5%
Total Sales Proceeds													**$3,778,358**	
<LESS>Transaction Costs	5.0%												($188,918)	
Net Sales Proceeds													**$3,589,440**	
Cash Flow Before Debt Service				**$250,890**	**$257,162**	**$263,591**	**$248,643**	**$276,936**	**$283,859**	**$290,955**	**$250,682**	**$305,685**	**$3,902,767**	
Present Value Discounted @	10.0%		**$3,040,000**											
Per Unit			**$60,800**											

[1]Holding all things constant, Terminal Cap Rates are typically higher than Direct Cap Rates due to economic and physcial depreciation. Terminal Cap Rates are applied to the year following disposition because this is the income stream the buyer will incur.

Source: Economic & Planning Systems

Note: All assumptions are provided for example only

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The resulting present value under the No SmartRegs example (**Table 3**) is $3.08 million, or $61,600 per unit. The resulting present value under the SmartRegs example (**Table 4**) is $3.04 million, or $60,800 per unit. This translates to a total value difference of -$40,000. It should be noted that when using the discounted cash flow analysis, the value impact (-$40,000) is actually less than the expected capital expenditures of $60,000. This is the result of the ability to delay the capital expenditures to future points in time (Years 4 and 8) rather than incurring them upfront. As a result of delaying this expense, capital expenditures are discounted at 10 percent annually to their equivalent present value.

Summary of Results

Depending on the valuation method applied, the impact on value ranges. Under the static value analysis, the impact on value resulting from the $60,000 of required capital expenditures is -$75,000, or -2.4 percent. Under the present value analysis, the impact on value is estimated at -$40,000, or -1.3 percent. **Table 5** summarizes the results of the analysis.

Table 5
Results Summary
SmartRegs Economic Analysis

Total	**No SmartRegs** Total	**SmartRegs** Total	**Investment/Value Impact** Total	%
First Cycle	$0	($20,000)	($20,000)	
Second Cycle	$0	($40,000)	($40,000)	
Total	**$0**	**($60,000)**	**($60,000)**	
Static Value	**$3,136,000**	**$3,061,000**	**($75,000)**	**-2.4%**
Present Value	**$3,080,000**	**$3,040,000**	**($40,000)**	**-1.3%**

Per Unit	**No SmartRegs** Per Unit	**SmartRegs** Per Unit	**Investment/Value Impact** Per Unit	%
First Cycle	$0	($400)	($400)	
Second Cycle	$0	($800)	($800)	
Total	**$0**	**($1,200)**	**($1,200)**	
Static Value	**$62,720**	**$61,220**	**($1,500)**	**-2.4%**
Present Value	**$61,600**	**$60,800**	**($800)**	**-1.3%**

Source: Economic & Planning Systems

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Other Impact Considerations

The above analysis only considers the impact on cash flow and value resulting from additional required capital expenditures, holding all other items constant. The required energy efficiency investments may positively impact rental residential properties in other ways that may translate to higher revenues, and in turn, higher property values.

Rent and Expense Impacts

While the research on the rental premium for energy efficient apartments is thin, there is potential that residential rental revenue may benefit in the form of increased rents or decreased vacancies. In theory, if a rental tenant realizes increased disposable income through lower utility bills, this income could translate to increased rent. This is particularly true if average utility savings are published in the lease or provided in other forms of legal documentation. In addition, if the property owner makes investments above those required by the SmartRegs or those made by competing properties, this may place the property at a competitive advantage to others in the City, potentially increasing occupancy.

For illustration purposes, EPS estimated the effect of decreased tenant operating expenses on rental revenue in the form of a rental premium. In order to achieve a rental premium over a 10-year holding period, the property owner would need to incur the associated capital expenditures sooner than modeled in the previous analysis. Therefore, EPS assumed that these investments will be incurred at the front of the two rental renewal cycles, or in Years 1 and 5. The rental premium will likely lag from the year capital expenditures are incurred in order to establish a year of utility savings. Based on the analysis provided in the ***City of Boulder SmartRegs Case Study Final Report***, dated March 26, 2010, a multifamily unit has the potential to save up to $18 per month in utility costs. (It should be noted that the average utility savings for multifamily units citywide are unknown at this time and could be higher or lower than this figure.) This $18 in monthly savings is only achieved after the full capital investments are made. Thus, in this analysis a conservative rental premium of $6.00 per month (inflated) is assumed to take place beginning in Year 3, as shown in **Table 6**. A rental premium of the full $18.00 per month (inflated) is assumed to take place beginning in Year 7. All other assumptions are held constant from the previous analysis.

Table 6
SmartRegs with Rental Premium Present Value Analysis
SmartRegs Economic Analysis

Description	Factor	Ann. Esc.	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Units	50		**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**
	Per Unit													
Monthly Rental Rate	$750	2.5%		$750	$769	$788	$808	$828	$849	$870	$892	$914	$937	$960
Rental Premium from First Cycle	$6.00	2.5%		$0	$0	$6	$6	$7	$7	$0	$0	$0	$0	$0
Rental Premium from Second Cycle	$18.00	2.5%		$0	$0	$0	$0	$0	$0	$21	$21	$22	$22	$23
Total Monthly Rental Rate				$750	$769	$794	$814	$834	$855	$891	$913	$936	$959	$983
Gross Potential Income (GPI)				**$450,000**	**$461,250**	**$476,564**	**$488,478**	**$500,690**	**$513,207**	**$534,387**	**$547,746**	**$561,440**	**$575,476**	**$589,863**
<LESS>Vacancy	5.0%			($22,500)	($23,063)	($23,828)	($24,424)	($25,034)	($25,660)	($26,719)	($27,387)	($28,072)	($28,774)	($29,493)
<LESS>Credit Loss	2.0%			($9,000)	($9,225)	($9,531)	($9,770)	($10,014)	($10,264)	($10,688)	($10,955)	($11,229)	($11,510)	($11,797)
Effective Gross Income (EGI)				**$418,500**	**$428,963**	**$443,204**	**$454,284**	**$465,641**	**$477,282**	**$496,980**	**$509,404**	**$522,139**	**$535,193**	**$548,573**
<LESS>Operating Expenses	Per Unit													
Taxes	$500	2.5%		($25,000)	($25,625)	($26,266)	($26,922)	($27,595)	($28,285)	($28,992)	($29,717)	($30,460)	($31,222)	($32,002)
Insurance	$150	2.5%		($7,500)	($7,688)	($7,880)	($8,077)	($8,279)	($8,486)	($8,698)	($8,915)	($9,138)	($9,366)	($9,601)
Management Fee (% of EGI)	6.0%	---		($25,110)	($25,738)	($26,592)	($27,257)	($27,938)	($28,637)	($29,819)	($30,564)	($31,328)	($32,112)	($32,914)
Utilties	$600	2.5%		($30,000)	($30,750)	($31,519)	($32,307)	($33,114)	($33,942)	($34,791)	($35,661)	($36,552)	($37,466)	($38,403)
Administration	$300	2.5%		($15,000)	($15,375)	($15,759)	($16,153)	($16,557)	($16,971)	($17,395)	($17,830)	($18,276)	($18,733)	($19,201)
Markeing/Leasing	$300	2.5%		($15,000)	($15,375)	($15,759)	($16,153)	($16,557)	($16,971)	($17,395)	($17,830)	($18,276)	($18,733)	($19,201)
Maintenance and Repair	$1,000	2.5%		($50,000)	($51,250)	($52,531)	($53,845)	($55,191)	($56,570)	($57,985)	($59,434)	($60,920)	($62,443)	($64,004)
Subtotal				**($167,610)**	**($171,800)**	**($176,306)**	**($180,714)**	**($185,232)**	**($189,863)**	**($195,075)**	**($199,952)**	**($204,951)**	**($210,075)**	**($215,326)**
Operating Expense Ratio (OER)				**40%**	**40%**	**40%**	**40%**	**40%**	**40%**	**39%**	**39%**	**39%**	**39%**	**39%**
Net Operating Income (NOI)	Per Unit			**$250,890**	**$257,162**	**$266,898**	**$273,570**	**$280,409**	**$287,420**	**$301,905**	**$309,452**	**$317,188**	**$325,118**	**$333,246**
<LESS> First Cycle	$400	2.5%		($20,000)										
<LESS> Second Cycle	$800	2.5%						($44,153)						
Net Annual Income				**$230,890**	**$257,162**	**$266,898**	**$273,570**	**$236,257**	**$287,420**	**$301,905**	**$309,452**	**$317,188**	**$325,118**	**$333,246**
Terminal Cap Rate[1]	8.5%													8.5%
Total Sales Proceeds													**$3,920,543**	
<LESS>Transaction Costs	5.0%												($196,027)	
Net Sales Proceeds													**$3,724,516**	
Cash Flow Before Debt Service				**$230,890**	**$257,162**	**$266,898**	**$273,570**	**$236,257**	**$287,420**	**$301,905**	**$309,452**	**$317,188**	**$4,049,634**	
Present Value Discounted @	10.0%		**$3,110,000**											
Per Unit			**$62,200**											

[1]Holding all things constant, Terminal Cap Rates are typically higher than Direct Cap Rates due to economic and physcial depreciation. Terminal Cap Rates are applied to the year following disposition because this is the income stream the buyer will incur.

Source: Economic & Planning Systems

Note: All assumptions are provided for example only

H:\20831-Boulder Rental Housing Climate Actionp Plan Cost Impacts\Model\[Boulder SmarRegs Economic Analysis.xls]SmartReg DCF Prem.

Based on this analysis, the present value with the proposed SmartRegs and associated potential rental premium translates to a positive value impact of $30,000, or $600 per unit, as shown in **Table 7**. This represents a 1.0 percent increase in present value over a 10-year ownership period.

Table 7
SmartRegs with Rental Premium Summary Results
SmartRegs Economic Analysis

Total	**No SmartRegs**	**SmartRegs**	**Investment/Value Impact**		**SmartRegsW/Prem.**	**Investment/Value Impact**	
	Total	Total	Total	%	Total	Total	%
First Cycle	$0	($20,000)	($20,000)		($20,000)	($20,000)	
Second Cycle	$0	($40,000)	($40,000)		($40,000)	($40,000)	
Total	**$0**	**($60,000)**	**($60,000)**		**($60,000)**	**($60,000)**	
Present Value	**$3,080,000**	**$3,040,000**	**($40,000)**	**-1.3%**	**$3,110,000**	**$30,000**	**1.0%**
Per Unit	**No SmartRegs**	**SmartRegs**	**Investment/Value Impact**		**SmartRegsW/Prem.**	**Investment/Value Impact**	
	Per Unit	Per Unit	Per Unit	%	Per Unit	Per Unit	%
First Cycle	$0	($400)	($400)		($400)	($400)	
Second Cycle	$0	($800)	($800)		($800)	($800)	
Total	**$0**	**($1,200)**	**($1,200)**		**($1,200)**	**($1,200)**	
Present Value	**$61,600**	**$60,800**	**($800)**	**-1.3%**	**$62,200**	**$600**	**1.0%**

Source: Economic & Planning Systems

H:\20831-Boulder Rental Housing Climate Actionp Plan Cost Impacts\Model\[Boulder SmarRegs Economic Analysis.xls]Summary (2)

Whether or not the market will react to the reduction in out of pocket utility expenses through increased rental rates is unknown. Despite lower utility costs, potential tenants may continue to make leasing decisions without energy efficiency in mind, minimizing the impact on rental income.

In addition to increased rental revenue, there is potential that the utility expenses for common areas incurred by the property owner may be reduced, increasing net income. After discussions with the City, however, the analysis of energy savings associated with SmartRegs are generally specific to the interior of units, rather than common area, minimizing the potential for decreased property owner utility costs.

Other Considerations

This analysis does not consider the financial capacity of residential rental property owners. Despite the ability to spread costs out over time for valuation purposes, the cost of capital expenditures will likely occur in lumps and the property owners' ability to meet these significant investments is unknown. A potential solution could exist in the range of grant, rebate, or financing programs offered by the city, other agencies, and/or utility companies.