SUSTAINABLE STUDY FOR AFFORDABLE SENIOR HOUSING

Golda Meir House Expansion

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SES 5370: Environment, Economics, and Enterprise

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1. Project Overview

1.1 Introduction

As the population ages, American pension real estate industry will have great market prospects. Pension real estate targets elderly, focusing on universal architectural design and community establishment. Rather than simply providing them accessible and affordable housings, pension real estate also proffers supporting facilities and services, including housekeeping, catering, entertainment, leisure, social contact, rehabilitation, healthcare, and other one-stop services. Under this context, there is still an income gap in mixed-income older people; a sustainable model, both financial and environmental, that fits the middle - and low-income elderly groups should be developed.

2Life Communities, formerly Jewish Community Housing for the Elderly, is a well-established nonprofit provider of senior supportive housing in the Greater Boston area. Since its founding in 1965, 2Life has developed seven distinct properties and nearly 1,300 units, all of which 2Life owns, manages and provides services to: Ulin House, Leventhal House, Kurlat House, and Weinberg House make up 2Life's complex in Brighton which directly abuts the J.J. Carroll Apartments.



2Life Development Inc., the development arm of 2Life Communities, has been awarded the development rights to a 16,900 square-foot parcel owned by the City of Newton adjacent to Golda Meir House, which will enable them to expand the existing Golda Meir House community. Golda Meir House currently has 199 apartments and a beautiful new "Village Center" with common spaces such as a dining room, lounge, computer center, store, salon, and fitness center, all renovated in 2017-2018 as part of a complete modernization of the property. The expansion proposed to include approximately 68 affordable senior housing residential units, space for a new Program for All-Inclusive Care for the Elderly (PACE) clinic, and other commercial/retail use, as well as new parking spaces, and publicly-accessible open space along Washington St. The extension will be linked to "Village Center", which offers numerous programs and services to residents. The new residents will benefit from the Village Center, which not only combats isolation for 2 Life residents, but also open to the public to take part in programming.

1.2 Design Principles

The proposed project will add approximately 68 apartments to 2Life Communities' Golda Meir House through two additions. The 68 new apartments will be added in two additions that connect to the existing building on every floor. The project will also enhance outdoor spaces and utilize the water tower parcel to expand parking. The upper addition will create a new fully accessible entrance from the upper parking lot, and the reconfigured parking lot will expand parking by approximately 29 new spaces.

The project will provide apartments affordable to seniors at a range of incomes as well as to 9 chronically homeless individuals with disabilities. Of the 68 proposed units, approximately 60 will be income-restricted, with the majority set aside for low- and extremely low-income seniors.



The proposed design physically integrates the new additions with the existing building in order to incorporate new residents into this vibrant senior community and incorporate the building's management into a highly efficient operation. By joining 2Life's Golda existing community, new residents will benefit from a wealth of programs, services and support otherwise unavailable in a standalone affordable housing building.

In addition, 2Life will be collaborating with an area college on a graduate student "musician-in-residence" program. One of the apartments will house a graduate student from the New England Conservatory (NEC) who would commit to performances and engagement with our residents. The ground floor of Lower Addition will also feature approximately 11,000 sf for a PACE center, an innovative healthcare model for seniors that will be accessible to eligible 2Life residents and area seniors. In the event that the PACE Center does not move forward, the building would include community-oriented retail and/or program space in a smaller footprint of space.





1.3 Investment Budget

1.3.1 Annual Operational Investment funding sources and uses

The sources of funds are from different public institutions, private sponsors, and limited partners.2 Life Community is conducting a multi-year public engagement process and as a result of these efforts has become well-known amongst community based organizations, government entities, elected officials, neighbors, and others who could refer potential applicants to the Golda Meir House Expansion. Some of these organizations and entities include the Newton Housing Authority, UCHAN, Engine 6, Livable Newton, Metrowest CD, Newton at Home, Newton Council on Aging, the Newton Senior Center, and Myrtle Baptist Church. JCHE has a close relationship with Springwell, Inc., the Aging Services Access Point for Newton, because Springwell already operates in our Coleman House and Golda Meir House properties.



In order to make a break-even point, we assume the budget equals the sum of annual operating income and total annual funding. The annual debt service is \$480,940 with a mortgage insurance premium adjusted according to remaining balance per year. The existing investment plan is shown below. The first year operating income after debt service is \$61,161, which should be all distributed for priority payments including asset investor management fee, partnership management fee and deferred development fee. So the cash flow after priority payments is \$ 0 per year.

Debt Service					
Net Operating Income	551,709				
Debt Service	(480,904)				
Mortgage Insurance Premium	(9,644)				
Cash Flow after Debt Service	61,161				

(Annual debt service)

Year	0	1	2	3	4	5
	2021	2022	2023	2024	2025	2026
Cash Flow after Debt Service		38,210	43 <mark>,1</mark> 36	47,986	52,756	57,437
Cash Flow Priority Payments:						
investor Asset Mgmt Fee		(5,000)	(5,150)	(5,305)	(5,464)	(5,628)
Partnership Mgmt Fee		(5,000)	(5,150)	(5,305)	(5,464)	(5,628)
Deferred Development Fee		(28,210)	(32,836)	(37,377)	(41,829)	(46,182)
Cash Flow to General Partner		0	0	0	0	0
Cash Flow to Limited Partner		0	0	0	0	0
Total Priority Payments		(38,210)	(43,136)	(47,986)	(52,756)	(57,437)
Cash Flow after Priority Payments		0	0	0	0	0

(Net cash flow distribution excerpted from 20 years analysis)

1.3.2 Hard Costs and Soft Cost budgets

The hard costs and soft costs budget depend on the fundings amount. In this case, we estimate the total budget for both hard costs and soft costs is \$32,314,845.

SOURCES			
Newton CPA Funds		\$	3,250,000
Permanent Loan		\$	7,770,000
FederalTax Credit Equity		\$1	0,298,970
State Tax Credit Equity	3	S	3,999,600
Utility Rebates			\$74,800
DHCD Sub Debt		S	3,750,000
Philanthropy		S	2,546,475
Deferred Developer Fee			\$625,000
Total Sources	:	\$3:	2,314,845
First Mortgage		\$1	1,520,000
USES	Total	Total	
Acquisition	1	00	1
Hard Costs			
Cost of Construction	\$23,205,8	97	\$341,263
Contingency	\$1,160,2	\$1,160,295	
Subtotal Hard Costs	\$24,366,1	\$358,326	
Soft Costs		-	
Water Tower Decommissioning	\$500,0	00	\$7,353
Architect & Engineering	\$1,392,354		\$20,476
Survey and Permits	\$455,3	41	\$6,696
Clerk of the Works	\$100,0	00	\$1,471
Environmental Engineer	\$75,0	00	\$1,103
Energy/Green Reporting	\$75,0	00	\$1,103
Bond Premium	\$185,6	47	\$2,730
Legal	\$200,0	00	\$2,941

Total Uses	\$32,314,844	\$475,218
Subtotal rees/Reserves	\$5,050,155	244,945
Subtetal Fees /Peesmas	\$3056,133	\$11,86
Operating Reserves	\$1,250,000	\$18,382
Developer Overhead	\$1,250,000	\$18,382
Davalanar Quarhaad	¢1.2E0.000	¢10.000
Subtotal Soft Costs	\$4,892,419	\$71,947
Soft Cost Contingency	\$232,972	\$3,426
DHCD Compliance Fee	\$22,500	\$331
DHCD Processing Fee	\$60,000	\$882
Perm Loan Application Fee	\$23,310	\$343
Pre-Dev Loan Interest/Fees	\$21,250	\$313
Utility Fees	\$150,000	\$2,206
FF&E	\$20,000	\$294
Relocation	\$60,000	\$882
Other Financing Fees	\$5,000	\$74
MIP	\$19,425	\$286
Perm Loan Fees	\$155,400	\$2,285
Construction Loan Fees	\$113,750	\$1,673
Inspecting Engineer	\$50,000	\$735
Construction Loan Interest	\$700,000	\$10,294
Appraisal	\$25,000	\$368
Insurance (Construction)	\$55,470	\$816
Real Estate Taxes	\$90,000	\$1,324
Marketing & Rent-Up	\$25,000	\$368
Accounting/Cost Cert	\$40,000	\$588
Title/Recording	\$40,000	\$588

1.3.3 Existing Income Analysis

The proposed development will be affordable with multiple tiers of affordability serving extremely low-income and low to moderate-income seniors and chronically homeless individuals broken down as follows:

Affordability Ranges	Number of Units
Up to 30% AMI	8 (Section 8 PBV)
Up to 50% AMI	22 (MRVP)
Up to 60% AMI	20
60% to 100% AMI	10
Graduate Student apartments	2
Below Market, Unrestricted Units	6
Live-In Site Rep Unit	1
Total	69

Through the income analysis spreadsheet below, we could see that the residential revenue subtotal is \$1,181,652. Consistent with our experience at other JCHE sites, the low-income assisted residents are expected to have an average annual income of approximately \$11,997, and residents in tax credit units are expected to have an average annual income of approximately \$30,000.

RESIDENTIAL INCOME						
Unit Size	Target Population	Net SF	# of Units	Contract Rent	Annual rent per unit	Gross Rent
1 Bedroom (644SF)						
	≤30% AMI (Sec 8 Units)		7	\$1,563	\$18,756	\$131,292
	≤50% AMI (MRVP Units)		20	\$1,214	\$14,568	\$291,360
	≤60% AMI (LIHTC)		18	\$1,153	\$13,836	\$249,048
	< 100% AMI		8	\$1,800	\$21,600	\$172,800
	No Income Restriction(Market-rate)		4	\$2,500	\$30,000	\$120,000
Subtotal 1 Bedroom Units			57		-	\$964,500
2 Bedroom (850SF)						
	≤30% AMI (Sec 8 Units)		1	\$1,914	\$22,968	\$22,968
	≤50% AMI (MRVP Units)		2	\$1,457	\$17,484	\$34,968
	≤60% AMI (LIHTC)		2	\$1,384	\$16,608	\$33,216
	NEC Units		1	\$800	\$9,600	\$9,600
	< 100% AMI		2	\$2,100	\$25,200	\$50,400
	Resident Manager Unit		1	\$0	\$0	
	No Income Restriction(Market-rate)		2	\$2,750	\$33,000	\$66,000
Subtotal 2 Bedroom Units			11			\$217,152
	7	Total Units	68			\$1,181,652
Summary:	Subtotal Net Rentable SF	46,058				
Operating Income						
≤30% AMI (Sec 8 Units)						\$154,260
≤50% AMI (MRVP Units)						\$326,328
≤60% AMI (LIHTC)						\$282,264
NEC Units						\$9,600
No Income Restriction(Market	t-rate)					\$409,200
Residential Revenue Subtotal						\$1,181,652

1.3.4 Operations and Maintenance Budget

Similar to hard costs and soft costs, the annual operation and maintenance budgets depend on annual operation fundings amounts. In order to operate this project at break-even, we assume the operation and maintenance expense per year equals the sum of annual operating income and total annual funding, which is \$1,160,122.

Summary Annual Operations & Maintenance Budget(cannot use CPA funds)						
Sources of Funds						
Residential Income	\$1, <mark>181,</mark> 652					
Other Rental Income(laundry,Mass.Rental Voucher Program						
Services)	\$39,528					
Vacancy	(\$61,058)					
Total Annual Funding	\$528,759					
Uses of Funds						
Management Fee	\$59,083					
Administration	\$114,000					
Maintenance	\$123,800					
Residential Services	\$50,000					
Security	\$10,000					
Utilities	\$145,000					
Reserves	\$24,480					
Taxed, insurance	\$105,000					
Debt Service	(\$480,904)					
Mortgage Insurance Premium	(\$9,644)					
Required Debt Service Coverage Ratio(1.10)	\$38,211					
Total Annual Cost	\$1,160,122					
Sale Cap Rate based on actual NOI achieved during year prior to sale	5.00%					
Cost associated with sale (as a percent of gross sale value)	2.00%					

Operating Expenses					
Management Fee	\$59,083				
Administration	20				
Payroll, Administrative	\$60,000				
Payroll Taxes & Benefits, Admin.	\$18,000				
Legal	\$2,000				
Audit	\$9,000				
Marketing	\$10,000				
Telephone	\$3,600				
Office Supplies	\$4,400				
DHCH Monitoring Fee	\$2,000				
Other	\$5,000				
Admin Subtotal	\$114,000				
Operations					
Pavroll, Maintenance	\$50,000				
Payroll Taxes & Benefits, Admin	\$15,000				
Janitorial Materials	\$4,700				
Landscaping	\$5,000				
Decorating (inter. only)	\$5,600				
Repairs (inter. & ext.)	\$10,000				
Elevator Maintenance	\$7,000				
Trash Removal	\$7,500				
Snow Removal	\$6,000				
Extermination	\$1,500				
Other: Fire Supp, HVAC	\$11,500				
Operations Subtotal	\$123,800				

Landscaping	\$5,000
Decorating (inter. only)	\$5,600
Repairs (inter. & ext.)	\$10,000
Elevator Maintenance	\$7,000
Trash Removal	\$7,500
Snow Removal	\$6,000
Extermination	\$1,500
Other: Fire Supp, HVAC	\$11,500
Operations Subtotal	\$123,800
Resident Services	\$50,000
Security	\$10,000
And the second field	
Utilities	
Electricity	\$50,000
Cooling	\$25,000
Heat and Hot Water	\$25,000
Water and Sewer	\$45,000
Utility Subtotal	\$145,000
Replacement Reserve	\$24,480
Real Estate Taxes	\$75,000
Insurance	\$30,000
Taxes, Insurance Subtotal	\$105,000
Total Operating Expenses	\$631,363

1.4 Baseline

1.4.1 Sustainability Baseline

The sustainability of Golda Meir House Expansion will be designed to Enterprise Green Communities standards and build upon the experience of JCHE which is an emerging sustainability leader in the senior housing industry. Efficient appliances and fixtures will be selected to match those in the recently renovated apartments, and sustainability will be a key factor in all decisions related to building systems and materials. In addition, the site is transit-accessible with the Woodland MBTA stop on the Green Line less than a five minute walk away.And at the property scale, JCHE has a long-standing policy of paying all utilities for our tenants so that they never have to make a choice between paying for utilities and buying food or necessary prescriptions.

Based on the property annual report, the current annual energy use(Source EUI) of Golda Meir House is 165 kBtu/sqft and the expectation of energy consumption for the expansion part is 103 kBtu/sqft which is 37 percent less than the baseline. When comparing this building with other similar properties through DOE Building Performance Database and EnergyStar Target, the score of the current building is only in the median level, so the original energy-saving measures still have a lot of room for improvement.

Energy Consumption					Be	nchmarking							
Annual Evergy Use(Source	ce EUI)		Kbtu/sqft				5				70.75		
Baseline(2016)	12		165	kBu/saft	(Bu/sqft Conversion (btu to law)					76,750			
Expected			103 kBu/sqft Conve			nversion Kbi	tu to kvvn				0.2		
Energy Saving	6		Saving Conversion Kbtu to therm				62 kBu/sqft Electricity cost: \$/kW/b				0.01055		
Saving Percentage				27 5 9%	Electricity cost: \$/kWh				0.23				
Saving Fercentage				51.50%	nai	tural gas cos	st: \$/therm					1.62	
DOE Building Performance Databa Setting: Apartment Unit&Mixed Use; MA Apartments+Mix Use Median 25th percentile 75th percentile	se Results Massachusetts; Ye	ear Built: 1980–;	Floor Area: 50000sf-; Source EUI((kBtu/sf)) 125 89 200	Database:20 Site Elect(kBtu	<u>u/sf) 9</u> 30 21 45	Site fuel(kBtu/sf) 27 20 37	Site Elect(kBtu) 2302500 1611750 3453750	Site Fuel(kBtu) 2072250 1535000 2839750	Site Elect(kWh) 674862.8 472403.9 1012294	Site Fuel(ther m) 21862.2 16194.3 29959.4	Site Elect \$155,218.43 \$108,652.90 \$232,827.65	Site fuel \$35,416.82 \$26,234.69 \$48,534.17	
EnergyStar Taeget Finder Results	Site EUI(kBtu/sf)	% ELectricity	% Natural Gas	Site Elect(kBtu	u/sf) S	Site fuel(kBtu/sf)	Site Elect(kBtu)	Site Fuel(kBtu)	Site Elect(kWh)	Site Fuel(ther m)	Site Elect	Site fuel	
EnergyStar Score 50	67.6	48.30%	51.70%	32	2.65	34.95	2505948.9	2682351.1	734493.6	28298.8	\$168,933.53	\$45,844.06	
EnergyStar Score 75	55.7	48.30%	51.70%	26	5.90	28.80	2064812.925	2210162.075	605196.7	23317.2	\$139,195.23	\$37,773.88	
EnergyStar Score 85	50.1	48.30%	51.70%	24	1.20	25.90	1857219.525	1987955.475	544351	20972.9	\$125,200.74	\$33,976.15	
EnergyStar Score 95	42	48.30%	51.70%	20	J.29	21.71	1556950.5	1666549.5	456342.2	1/582.1	\$104,958.70	\$28,483.00	

1.4.2 Break-even Baseline

Based on the budget spreadsheet, the unleveraged IRR for existing plan is -3.7%. With the utility rebates, Newton CPA Funds and Federal and State Tax Credit Equity, the other sources of operation funds could cover the gap.

So our baseline is to keep the break-even point, and keep the unleveraged IRR around 0%.

Year	Growth Rate	0	1	2	3	15	16	17	18	19	20 (sale)
		2021	2022	2023	2024	2036	2037	2038	2039	2040	2041
TOTAL CONSTRUCTION BUDGET		(32,314,844)									
Net Operational Income			553,238	558,825	564,359	624,200	628,398	632,431	636,289	639,961	0
Replacement Reserves	3%		(24,480)	(25,214)	(25,971)	(37,028)	(38,139)	(39,283)	(40,462)	(41,676)	0
Cash Flow after RR			528,758	533,611	538,388	587,172	590,259	593,148	595,828	598,285	0
Debt Cash Flow											
First Mostage D81			(480.004)	(490.004)	(490.004)	(490.004)	(490.004)	(490.004)	(490.004)	(490.004)	0
Mostage interest Premium			(400,904)	(460,904)	(400,904)	(460,904)	(400,904)	(400,904)	(460,904)	(400,904)	0
Mongage interest Premium			(9,044)	(9,571)	(9,490)	(8,021)	(0,540)	(0,475)	(0,402)	(0,529)	0.00
DOCK			1.10	1.11	1.12	1.10	1.10	1.10	1.10	1.10	0.00
Cash Flow after Debt Service			38,210	43,136	47,986	97,647	100,807	103,769	106,522	109,052	0
Cash Flow Priority Payments:											
investor Asset Mgmt Fee	3%		(5.000)	(5.150)	(5.305)	(7.563)	(7,790)	(8.024)	(8.264)	(8.512)	0
Partnership Mgmt Fee	3%		(5,000)	(5.150)	(5,305)	(7,563)	(7,790)	(8.024)	(8,264)	(8,512)	0
Deferred Development Fee			(28,210)	(32,836)	(37,377)	(82,521)	(85,227)	(87,722)	(89,993)	(92.028)	0
Cash Flow to General Partner			0	0	0	0	0	0	0	0	0
Cash Flow to Limited Partner			0	0	0	0	0	0	0	0	0
Total Priority Payments			(38,210)	(43,136)	(47,986)	(97,647)	(100,807)	(103,769)	(106,522)	(109,052)	0
Cash Flow after Priority Payments			0	0	0	0	0	0	0	0	0
Adjustments to Derive Cash											
Contributed/Distributed at Purchases and Sale:											
Subtract Initial Grossed Up initial											
investment		(32,314,844)									
Add Back initial Debt taken		11,520,000									
Total Net Cash Flow		(20,794,844)									10,160,411
Total owner Cash in and Cash Out											
at Purchase and Sale		(20,794,844)									10,160,411
Total investor											
Contributions/Distributions taken in											
between			0	0	0	0	0	0	0	0	
Total Owner Cash Flow		(20,794,844)	0	0	0	0	0	0	0	0	10,160,411
Total Cash Flow and Timing for IRR											
Calculation		(20,794,844)	0	0	0	0	0	0	0	10,160,411	
IRR	-3,70%		Multiple on Investment		0						

(Excerpts of DCF Analysis, appendix A)

2.Sustainable Strategy

2.1 Objective

2Life is a leader in sustainable design with a commitment to exemplifying best practices in green building design focusing on system efficiency, occupant comfort, indoor air quality, and resilient design. While these elements are important for all, it is important to recognize that thermal comfort, healthy building materials, and emergency backup systems can be especially impactful for older adults.

In the Golda Meir House, the green building and sustainable strategies from the following programs were studied and selectly applied:

- LEED Homes Midrise rating system
- ENERGY STAR Certification
- Passive House Certification
- Rooftop Solar PV
- Solar thermal domestic hot water heating
- Zero emissions strategies

2.2 Site Improvement

- Landscape
 - Integrate the landscape plans with the stormwater management plan to provide drainage, maximize stormwater absorption, and direct water to plantings to reduce the need for irrigation.
 - minimizing turf due to intensive irrigation and mowing requirements
- Irrgitaiton
 - Install timer/controller that activates the valves for each watering zone at the best time of day to minimize evaporative losses while maintaining healthy plants and obeying local regulations and water-use guidance.
 - Install soil moisture sensor controller per vegetation zone (based on irrigation demand) or rain delay controller.



2.3 Passive Solar Heating and Cooling



- Glazing and shading:
 - Provide windows that are ENERGY STAR Certified, and are appropriate to the climate zones outlined by ENERGY STAR.
 - For south-facing windows, 50% of windows needs to be shaded by June 21

- During the cooling season, block direct heat gain from the sun shining through glass on the east and especially west sides of the facility.
- Passive cooling strategies
 - Plant deciduous shade trees at the south façades.
 - Maximize cross ventilation by installing operable windows at the leeward and windward sides of the building.
 - Install light-colored roofing or coat existing roofs with light-colored elastomeric coatings.

2.4 Water

- Water-conserving fixtures
- Efficient Plumbing Layout and Design
 - To minimize water loss from delivering hot water, the hot water delivery system shall store no more than 0.5 gallons of water in any piping/manifold between the fixture and the water heating source or recirculation line.
 - Demand-initiated recirculation systems
 - Well insulated hot water pipes: ½ or ¾ inch pipe sleeves made with polyethylene or neoprene foam
- Surface Stormwater Management
 - Use rainwater-harvesting systems to reduce precipitation runoff volumes and rates.



- Non-Potable Water Reuse
 - treated greywater
 - water from a municipal recycled water system specifically treated for non-potable uses
 - air-conditioning condensate
 - blowdown water from boilers and cooling towers

2.5 Lighting

- Natural Light
 - Maximize daylighting
 - Increase openings in underlit open areas
- LED lightings

- Use T-8 (or even T-5) fixtures, ENERGY STAR certified LEDs, and other energy-efficient lighting systems that improve light quality and reduce heat gain
- Install LED exit signs
- Lighting Control
 - Dimmable lighting fixtures in well-lit areas
 - Install occupancy sensors to automatically turn off lights when no one is present and back on when people return
 - Programmable lighting control in common areas, clinic, lounges, storage rooms, back-of-house spaces, laundry rooms, and other low-traffic areas

2.6 Heating, Ventilating, and Air Conditioning (HVACs)

- Make-up air conditioners with ERVS
 - Installing air conditioners with energy recovery ventilators (ERVs) prevent outside air from rushing in when doors are opened



- Programable thermostats
 - Programmable thermostats with control valves on the baseboards in each unit, allowing tenants to control temperature within the parameters of the EMS and preventing them from opening windows when units are being heated
- Sizing of Heating and Cooling Equipment
 - sizing to the sensible load

2.7 Power

- Roof solar PV
 - Installing rooftop solar photovoltaic (PV) to offset the overall site energy usage
- Provide smart power strip for residents to purchase at a discount rate

• Plug electronics into a "smart" power strip that let you designate which electronics should always be on, and which ones do not need power when they're not in use. The area around each outlet is often color-coded to help users configure the strip for maximum power savings.





3. Energy Model

3.1 Baseline Analysis

We use designbuilder as the tool to build the energy model and verify the energy-saving effectiveness of selected sustainable strategies. With the default setting, double pane glass windows, 20 percent window to wall ratio, 2-pipe fan coil system of HVAC, LED lighting and get the baseline data which is 161.45 kBtu/ft2 Source EUI for the upper addition and 168.92 kBtu/ft2 Source EUI for the lower addition.



3.2 Triple Pane Glass

7780748.37

Net Source Energy

When changing double pane glass to triple pane glass, the heating energy usage in winter drops a lot and saves the total annual energy use by 3%. The energy-saving effects are more obvious in the lower addition building.

161.45 Net Source Energy

2779659.94

168.92





Site and Source Energy

	Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]
Total Site Energy	2749622.24	57.06
Net Site Energy	2749622.24	57.06
Total Source Energy	7546119.46	156.58
Net Source Energy	7546 <mark>1</mark> 19.46	156.58

Site and Source Energy

	Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]
Total Site Energy	944516.57	57.40
Net Site Energy	944516.57	57.40
Total Source Energy	2646611.14	160.83
Net Source Energy	2646611.14	160.83

3.3 Occupancy Sensors

Occupancy Sensors help to decrease the lighting energy usage, but only saves the total annual energy use by 0.9%.





Site and Source Energy

Sito	and	Sourco	Enorm
Sile	allu	Source	chergy

	Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]		Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]
Total Site Energy	2719654.81	56.43	Total Site Energy	937609.91	56.98
Net Site Energy	2719654.81	56.43	Net Site Energy	937609.91	56.98
Total Source Energy	7477875.23	155.17	Total Source Energy	2628165.68	159.71
Net Source Energy	7477875.23	155.17	Net Source Energy	2628165.68	159.71

3.4 HVAC

When updating the 2-pipe fan coil system of HVAC to 4-pipe system, the cooling energy usage in summer drops dramatically and saves the total annual energy use by 6.1%. But the heating energy usage in winter increases a bit.



Site and Source Energy			Site and Source Energy			
	Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]		Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]	
Total Site Energy	2265180.42	47.00	Total Site Energy	793114.02	50.06	
Net Site Energy	2265180.42	47.00	Net Site Energy	793114.02	50.06	
Total Source Energy	7010843.08	145.48	Total Source Energy	2391813.19	150.97	
Net Source Energy	7010843.08	145.48	Net Source Energy	2391813.19	150.97	

3.5 Wall Insulation

By increasing the insulation thickness of the wall to meet the U-value requirement of 0.20 W/m2K, the total annual energy use decreases by 1%, the reduction mainly occurs in the heating energy use in winter.





Site and Source Energy

	Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]
Total Site Energy	2233553.43	46.52
Net Site Energy	2233553.43	46.52
Total Source Energy	6893099.47	143.57
Net Source Energy	6893099.47	143.57

Site	and	Source	Energy

u/ft2]		Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]
46.52	Total Site Energy	799423.16	48.58
46.52	Net Site Energy	799423.16	48.58
143.57	Total Source Energy	2485729.28	151.06
143.57	Net Source Energy	2485729.28	151.06

3.6 Roof PV

Using half of the roof area with Solar PV, the net source energy decreases by 8%. The lower addition has higher energy output efficiency with more than 1000 Btu/ft2 energy output in the summer.





Site and Source Energy

Site and Source Energy

	Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]
Total Site Energy	2233553.43	46.52
Net Site Energy	2052355.88	42.75
Total Source Energy	6893099.47	143.57
Net Source Energy	6319246.83	131.62

	Total Energy [kBtu]	Energy Per Total Building Area [kBtu/ft2]
Total Site Energy	792994.16	50.05
Net Site Energy	649856.74	41.02
Total Source Energy	2392132.77	150.99
Net Source Energy	1938816.56	122.37

3.7 Summary

Sustainable Strategies		Ç	uantity	Energy saving	
1.Passive Solar Heating/Cooling	Triple Pane	5508 SQFT	10 Per SQFT	3.0%	
2.Lighting	Occupancy sensors	68 Units	550 Per UNIT	0.9%	
3.HVAC	IEEC-2000	44358 SQFT	6 Per SQFT	6.1%	
	Low-flow devices	68 Units	300 Per UNIT		
4. Water	Grey Water System	68 Units	3750 Per UNIT	4.0%	
	Rainwater Harvesting System	2 Units	15000 Per UNIT		
5.Envelope	Wall Insulation	27500 SQFT	1 Per SQFT	1.0%	
6.Passive Solar Heating/Cooling	PV Roof	5070 SQFT	85 Per SQFT	8.0%	

4. Economic Analysis

Generally, the return on investment in the real estate market has fallen to 8-14 percent especially in pension real estate sector, and affordable project always keeps the IRR as 0%, so we think the unleveraged IRR in existing plan is reasonable, which is -3.7%, but the negative part would be compensated by utility rebates and Federal and State Tax Credit Equity.

Our exit plan is clear, in the twentieth year of holding the property, we plan to sell it and a government-led senior housing institution may be our potential buyer to use the property for social welfare. Or alternatively, the 2 life community could still be the asset manager and acquire the property by themselves under the new guidance of the Governor's Council on Aging in Massachusetts.

4.1 Development Budget

All the budgets are the same as the existing proposal. We estimate the total budget for both hard costs and soft costs is \$32,314,845, and the operation and maintenance expense per year equals the sum of annual operating income and total annual funding, which is \$1,160,122.

4.2 Units Rents

In order to build an affordable but mixed- income community, the proposed project will add approximately 68 apartments to 2Life Communities' Golda Meir House through two additions. The project will provide apartments affordable to seniors at a range of incomes as well as to 9 chronically homeless individuals with disabilities. Of the 68 proposed units, approximately 60 will be income-restricted, with the majority set aside for low- and extremely low-income seniors.

UNIT COMPOSITION List number of units in each category.								
UNIT TYPE ≤ 30% ≤ 50% ≤ 60% <100%						TOTAL		
1 BR	7	20	18	8	4	57		
2 BR	1	2	2	2	4**	11		

**Includes 1 resident manager unit with no rent, and 1 unit with reduced rent set-aside for NEC graduate students. Rents for all other units with no income restriction are proposed to be below a true "market rate."

The Golda Meir House Expansion will have 59 one-bedroom apartments and 10 two-bedroom apartments. Four apartments will be fully accessible per the standards of the Massachusetts Architectural Access Board. The other 65 apartments will have a variety of universal design features, including easy handicapped adaptability, to help make aging in community an easy option for as long as possible.

4.2.1 Existing Income Analysis

The existing proposal gets revenue on residential unit rent with no commercial space.

RESIDENTIAL INCOME						
Unit Size	Target Population	Net SF	# of Units	Contrac Rent	t Utility Allowance	Gross Rent
1 Bedroom (644SF)						
	≤30% AMI (Sec 8 Units)		7	\$1,563		\$131,292
	≤50% AMI (MRVP Units)		20	\$1,214		\$291,360
	≤60% AMI (LIHTC)		18	\$1,153		\$249,048
	< 100% AMI		8	\$1,800		\$172,800
	No Income Restriction(Market-rate)		4	\$2,500		\$120,000
Subtotal 1 Bedroom Units			57			\$964,500
2 Bedroom (850SF)						
	≤30% AMI (Sec 8 Units)		1	\$1,914		\$22,968
	≤50% AMI (MRVP Units)		2	\$1,457		\$34,968
	≤60% AMI (LIHTC)		2	\$1,384		\$33,216
-	NEC Units		1	\$800		\$9,600
	< 100% AMI		2	\$2,100	-	\$50,400
	Resident Manager Unit		1	\$0		
	No Income Restriction(Market-rate)		2	\$2,750		\$66,000
Subtotal 2 Bedroom Units			11			\$217,152
		Total Units	68			\$1,181,652
Summary:	Subtotal Net Rentable SF	46,058				
Operating Income						
≤30% AMI (Sec 8 Units)						\$154,260
≤50% AMI (MRVP Units)						\$326,328
S60% AMI (LIHTC)						\$282,264
NEC Units	h mate)					\$9,600
Residential Revenue Subtetal	-rate)					\$409,200
						\$1,101,032
CASH FLOW income						
Gross Residential Income				1	,181,652	
Gross Commercial Incom	e				2	
Other Income(parking, la	undry, MRVP Services)				39,528	
Vacancy						
Residential Vacancy (Sec	tion 8)			3%	(7,713)	
Residential Vacancy (MR)	/D)			3%	(16 316)	
Residential Vacancy (LIHR	C-60%Units)			3%	(14,113)	
Residential Vacancy (NEC	Units)			5%	(480)	
Residential Vacancy (Mod	derate Market Rate)			5%	(20,460)	
Commercial Vacancy			1	LO%	-	
Other vacancy					(1,976)	
Total vacancy					(61,058)	
Effective Gross Income				1	160 122	
(Operating Expenses Op	Ex spreadsheat)				(631 262)	
Coperating Expenses - Op	LA Spiedusileetj				(031,503)	
Net Operating Income					528,759	Day Usit
Capitalized Value			5.0	00% 10	575 180	155 517
cupitulized value			5.0	10/0 10	,515,100	100,011

4.2.2 Adjusted with Sustainable Strategies Income Analysis

For our new proposal, we want to reduce 2 units and add 1,710 SQ FT for a small retail and grocery, which brings \$25,500 more annual income.

RESIDENTIAL INCOME						
Unit Size	Target Population	Net SF	# of Units	Contract Rent	Utility Allowance	Gross Rent
1 Bedroom (644SF)					-	
	≤30% AMI (Sec 8 Units)		7	\$1,563		\$131,292
	≤50% AMI (MRVP Units)		20	\$1,214		\$291,360
	≤60% AMI (LIHTC)		18	\$1,153		\$249,048
	< 100% AMI		8	\$1,800		\$172,800
	No Income Restriction(Market-rate)		4	\$2,500		\$120,000
Subtotal 1 Bedroom Units (850SF)			57			\$964,500
2 Bedroom						
	≤30% AMI (Sec 8 Units)		1	\$1,914		\$22,968
	≤50% AMI (MRVP Units)		2	\$1,457		\$34,968
	≤60% AMI (LIHTC)		2	\$1,384		\$33,216
	NEC Units		0	\$800		\$0
	< 100% AMI		2	\$2,100		\$50,400
	Resident Manager Unit		0	\$9,600		
	No Income Restriction(Market-rate)		2	\$2,750		\$66,000
Subtotal 2 Bedroom Units			9			\$207,552
		Total Units	66			\$1,172,052
Summary:	Subtotal Net Rentable SF	44,358				
Operating Income						
≤30% AMI (Sec 8 Units)						\$154,260
≤50% AMI (MRVP Units)						\$326,328
≤60% AMI (LIHTC)						\$282,264
NEC Units						\$9,600
No Income Restriction(Market-rate)						\$409,200
Residential Revenue Subtotal						\$1,181,652
COMMERCIAL INCOME						
Unit			Net	SF R	ent/SF	Annual

Unit		Net SF	Rent/SF (NNN)	Annual Income
Commercial 1		1,700	\$ 15.00	25,500
Commercial 2			\$ 9.00	0
Commercial 3		-	\$ 9.00	0
	Total Commercial SF	1,700	\$ 11.00	25,500

CASH FLOW income			
Gross Residential Income		1, <mark>181,</mark> 652	
Gross Commercial Income		25,500	
Other Income(parking, laundry, MRVP Services)		39,528	
Vacancy			
Residential Vacancy (Section 8)	3%	(7,713)	
Residential Vacancy (MRVP)	3%	(16,316)	
Residential Vacancy (LIHRC-60%Units)	3%	(14,113)	
Residential Vacancy (NEC Units)	5%	(480)	
Residential Vacancy (Moderate Market Rate)	5%	(20,460)	
Commercial Vacancy	10%	(2,550)	
Other vacancy		(1,976)	
Total vacancy		(63,608)	
Effective Gross Income		1,183,072	
(Operating Expenses - Op Ex spreadsheet)		(631,363)	
Net Operating Income		551,709	
			Per Unit
Capitalized Value	5.00%	11,034,180	167,185

4.3 DCF Analysis

This project is non-profit, so our goal is not to make profit but to break even.

Year	Growth Rate	0	1	2	3	15	16	17	18	19	20 (sale)
Sustainable Strategy cost		(832,828)									
Other Fees/Reserves		(3,056,133)									
TOTAL CONSTRUCTION BUDGET		(33,147,672)									
(Total Operating Expenses)			(587,317)	(604,346)	(621,873)	(876,960)	(902,489)	(928,769)	(955,821)	(983,668)	0
per apartment	67 Units		(8,766)	(9,020)	(9,282)	(13,089)	(13,470)	(13,862)	(14,266)	(14,682)	0
Percentage Change				2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	
Net Operational Income			598,304	604,988	611,647	687,442	693,201	698,835	704,335	709,691	0
											0
Replacement Reserves	3%		(24,480)	(25,214)	(25,971)	(37,028)	(38,139)	(39,283)	(40,462)	(41,676)	0
											0
Cash Flow after RR			573,824	579,774	585,676	650,414	655,062	659,552	663,874	668,015	0
Dept Cash Flow			(400.004)	(400.004)	(400.004)	(400.004)	(400.004)	(400.004)	(400.004)	(400.004)	
First Mortgage P&I			(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	0
Mortgage intsurance Premium			(9,644)	(9,571)	(9,498)	(8,621)	(8,548)	(8,475)	(8,402)	(8,329)	0
DSCR			1.10	1.11	1.12	1.18	1.18	1.18	1.18	1.18	0
Cash Flow after Debt Service			83,276	89,299	95,274	160,889	165,610	170,173	174,568	178,782	0
Cash Flow Priority Payments:											
investor Asset Mgmt Fee	3%		(5,000)	(5,150)	(5,305)	(7,563)	(7,790)	(8,024)	(8,264)	(8,512)	
Partnership Mgmt Fee	3%		(5,000)	(5,150)	(5,305)	(7,563)	(7,790)	(8,024)	(8,264)	(8,512)	0
Deferred Development Fee			(28,210)	(32,836)	(37,377)	(82,521)	(85,227)	(87,722)	(89,993)	(92,028)	0
Cash Flow to General Partner			0	0	0	0	0	0	0	0	0
Cash Flow to Limited Partner			0	0	0	0	0	0	0	0	0
Total Priority Payments			45,066	46,163	47,288	63,242	64,803	66,404	68,046	69,730	0
Cash Flow after Priority Payments			128,343	135,462	142,562	224,131	230,413	236,577	242,613	248,513	0
Adjustments to Derive Cash											
Contributed/Distributed at Purchases											
and Sale:											
Add Back cash still in Property that owner											
Distributes out			0	128.343	135,462	217,740	224,131	230,413	236.577	242.613	248.513
Add Back all other net Working Capital Still in											
Property(Receivable+inventory-all pay)											0
Total Net Cash Flow		(21.627.672)									11,775,633
		(///									
Total owner Cash in and Cash Out at Purchase											
and Sale		(21.627.672)									11.775.633
Total investor Contributions/Distributions taken											
in between			0	128,343	135,462	217,740	224,131	230,413	236,577	242,613	
Total Owner Cash Flow		(21,627,672)	0	128,343	135,462	217,740	224,131	230,413	236,577	242,613	11,775,633
							,				
Total Cash Flow and Timing for IRR Calculation		(21,627,672)	0	128,343	135,462	217,740	224,131	230,413	236,577	12,018,247	
IRR	-2.02%		Multiple on Inv	estment	0.70						

According to the DCF analysis, the unleveraged IRR is -2.0%, which is basically the same as the original proposal and our baseline.

4.4 Breakeven Strategy

4.4.1 Additive Initial Investment caused by sustainable Strategies

For sustainable strategy, we first listed 7 strategies and calculated the initial investment, energy saving effect.

Sustainable Strategies		×	Quantity	Initial investment	Energy saving	Original Utility Fee	Utility Fee Saving
	Triple Pane Glass	5508 SQFT	10 Per SQFT	\$55,080			
1.Passive Solar Heating/Cooling	South Facing Exterior Shading	680 SQFT	400 Per Ft	\$264,000	3.0%	\$60,900	\$1,837
2.Lighting	Occupancy sensors	68 Units	550 Per UNIT	\$37,400	0.9%	\$17,400	\$157
3. Passive Solar Heating/Cooling	PV Roof	5070 SQFT	85 Per SQFT	\$430,950	8.0%	\$145,000	\$11,600
4.HVAC	IEEC-2000	44358 SQFT	6 Per SQFT	\$266,148	6.1%	\$60,900	\$3,722
	Low-flow devices	68 Units	300 Per UNIT	\$20,400			
E Water	Grey Water System	68 Units	3750 Per UNIT	\$255,000	4.0%	644.050	¢1 709
J. Water	Rainwater Harvesting System	2 Units	15000 Per UNIT	\$30,000	4.0%	\$44,930	\$1,790
6.Envelope	Wall Insulation	27500 SQFT	1 Per SQFT	\$30,250	1.0%	\$60,900	\$609
7.Passive Solar Heating/Cooling	Triple Pane Glass	5508 SQFT	10 Per SQFT	\$55,080	3.0%	\$60,900	\$1,837

After 15 year DCF analysis, we summarize the results as below:

Because this project is a non-profit one and also a long-term rental apartment, we've relaxed the payback period a bit, and we think it's reasonable to invest in strategies with less than 50 years payback period.

Sustair	nable Strategies	IRR=	payback period=
1 Dessive Solar Heating/Cooling	Triple Pane Glass	10 469/	142.00
1.Passive solar Heating/Cooling	South Facing Exterior Shading	-19.40%	142.00
2.Lighting	Occupancy sensors	-21.57%	194.85
3.Passive Solar Heating/Cooling	PV Roof	-7.23%	30.98
4.HVAC	IEEC-2000	-12.90%	58.91
	Low-flow devices		
5. Water	Grey Water System	-4.47%	23.56
	Rainwater Harvesting System		
6.Envelope	Wall Insulation	-9.85%	41.16
7.Passive Solar Heating/Cooling	Triple Pane Glass	-5.15%	25.15

As a conclusion, we would invest in passive solar heating/cooling with PV roof, HVAC ICCE-2000, water system, wall insulation and triple pane glass. And the investment will reduce 13% of utility expense per year, which is shown in Appendix B.

4.4.2 Village Center Financial Influence

Our budget assumes that we will temporarily relocate the residents from the five units to be reconfigured and moved them back to the reconfigured apartments. The relocation budget also assumes that we will permanently relocate the residents of the four existing units that will be lost to other similar units in Golda Meir House prior to the start of construction.

Besides, we add more commercial space to provide the community one more retail and grocery and get income to offset our investment on sustainable equipment.

5. Social Benefits

5.1 Public Open Spaces



Approximately 11,500 sf of open space on the existing water tower will be added to the project site. Like other 2Life properties' outdoor spaces, the new open space will be available to the broader Newton community. The open space will include outdoor amenities such as an intergenerational play area, outdoor fitness equipment, and passive shaded areas for rest and relaxation.

5.2 Ground-floor Village Center Space

The extension is well-connected to the VIIIage Center located in the ground floor of the existing Golda Meir House. The ViIIage Center includes a multipurpose room, a lounge, an exercise room, and a salon. The public spaces will also open up during certain hours for the broader community to take part in many activities in the building such as lecture series, concerts, and fitness programs in wishing to promote intergenerational activity.



5.3 Access to Innovative Healthcare

The proposed Project includes approximately 3,266 sf for a clinic partnering with Programs of All-Inclusive Care for the Elderly (PACE). Medical experts will visit weekly to provide a comprehensive health and wellness program that helps frail seniors meet their health care needs in the community instead of going to a nursing home. It will be particularly beneficial for extremely low-income older adults who are both Medicare and Medicaid eligible.



5.4 Supportive Programs



The building accommodates the needs of the diverse residents as they age. A service team will provide continually evolving services not only for the essential support for disable residents but also offers a wide variety of wellbeing and social programs, which will including:

- Active Maintenance:
 - Vents clearance: Make sure that areas in front of vents are clear of furniture and paper. As much as 25 percent more energy is required to distribute air when vents are blocked.
 - Clean refrigerator: for existing refrigerators, clean refrigerator coils twice a year and replace door gaskets if a dollar bill easily slips out when closed between the door's seals.
- Cooking class: incorporating cooking classes is an excellent way to incentivize residents to eat healthy and prepare meals with fresh foods. The cooking class will Include ingredients from the community garden
- Resident Manual: provide a guide for elderly residents that explains the intent, benefits, use, and maintenance of their home's green features and practices. The Resident Manual will encourage green and healthy activities. Those topics shall include, but are not limited to:
 - a routine maintenance plan, outlining responsibilities of residents and maintenance staff with contact information for residents to use for maintenance issues

- HVAC operation
- o location of electrical, mechanical, gas, and water turn offs
- recycling and waste management
- energy and water consumption information
- integrated pest management protocols
- interior Active Design features
- community garden and other fresh food resources

5.5 Job Creation

The construction of the project is expected to generate and foster over 100 direct and indirect jobs. Besides the indirect jobs created from the construction. Permanent jobs will include new positions such as in resident services & maintenance and new clinic employees. In addition, 2Life anticipates annual local vendor contracts for landscaping, HVACs systems, and weekend farmers' markets in new public open space.

5.6 Transit-Oriented Development

The site is located near MBTA Green Line Woodland Station, which provides easy access between the site and downtown Boston, Harvard Square and Massachusetts General Hospital. The proposed Social Sustainable Amenity Package will include van services for shopping and cultural amenities each week, helping many residents remain independent without owning a car. The project also proposes relocating and upgrading the existing MBTA bus shelter on Washington St along with a new Bluebikes station.



6.Conclusion

Based on the analysis above, the affordable senior housing project is reliable for sustainable strategy investment. Firstly, the developing need for senior housings in Boston and the preferential policy of the government guarantee the potential market size. It is reasonable to believe that the demand will keep growing among low and middle-income elder people. Secondly, the unleveraged IRR is -2%, which not only keeps breaking even but actually we get higher returns compared with the original plan. Above all, the project is worth being developed because it can not only benefit the old people but only provide the neighborhood with much more social benefits.

(1) Financial aspect:

This project is very special as a non-profit one. Our budget is limited but we still could get a high level of sustainability and become required in the U.S. building code. With this level of sustainability, the building still operates at break even. Since we have other fundings and rebates, the developer could even make a profit.

The other strategy to operate at break-even is to add some commercial space for rental income in a community from other residents as we mentioned in the center village chapter.

(2) Sustainable aspect:

This project investigates sustainability from several aspects, such as passive solar heating and cooling, site improvements, lighting, and power, from construction to operation. The proposed Golda Meir additions will include a number of sustainable design features, including a very tight envelope and sustainable systems to use energy and water most efficiently. Although some of the sustainable solutions have a payback period longer than 20 years, the energy savings are still crucial and will benefit the long-term operation. Some of the strategies not only can alleviate the environmental costs, but also provide mental and physical protection to the venerable elderly residents.

(3) Social aspect:

Although non-profit, this kind of project provides affordable senior housing in a supportive, caring community. Fifty-seven of the 69 apartments in the Golda Meir House Expansion are restricted to the elderly. Some apartments are designed to meet Massachusetts Architectural Access Board standards, and applicants for these units must require the special design features of these units. All units feature universal design adaptation to help make apartments more livable as people age.

(4) Hedonic aspect:

One benefit we could consider is to provide the elder people an inclusive program to live in the community equally. This project tries to narrow the income gap through Lottery Procedure for Extremely Low-Income units.

As a senior housing project, Golda Meir House provides the elder residents a collective living space. According to The Longevity Economy: Inside the World's Fastest-Growing, Most Misunderstood Market (Public Affairs, 2017), a stronger life purpose was associated with decreased mortality, social engagement, a favorable lifestyle.

7.Appendix

7.1 Appendix A - Existing DCF Analysis Worksheet

Year	Growth Rate	0	1	2	3	4	5	6	7
		2021	2022	2023	2024	2025	2026	2027	2028
A constraint of		(100)							
Acquisition		(100)							
Hard Costs									
Cost of Construction		(23,205,897)							
Contingency		(1,160,295)							
Subtotal Hard Costs		(24,366,192)							
Soft Costs									
Design management investigation		(4 532 387)							
Loan		(44,560)							
DHCD Fee		(82,500)							
Contingency		(232,972)							
Subtotal Soft Costs		(4,892,419)							
Other Fees/Reserves		(3,056,133)							
TOTAL CONSTRUCTION BUDGET		(32,314,844)							
Income	2%								
Sec 8 Units			154,260	157,345	160,492	163,702	166,976	170,316	173,722
MRVP Units			326,328	332,855	339,512	346,302	353,228	360,292	367,498
LIHTC-60%Units			282,264	287,909	293,667	299,541	305,532	311,642	317,875
NEC Units			9,600	9,792	9,988	10,188	10,391	10,599	10,811
Moderate+Market			409,200	417,384	425,/32	434,246	442,931	451,790	460,826
other			20.528	40 219	41 125	41 947	42 786	42 642	44.515
Gross Revenue			1.221.180	1.245,604	1.270.516	1.295.926	1.321.845	1.348,281	1.375.247
				-,	-, 0,010			-/ 0/1.01	-,-, 0,-1/
Vacancy	2%		(61,059)	(62,280)	(63,525)	(64,796)	(66,092)	(67,414)	(68,762)
Effective Gross Income			1,160,121	1,183,324	1,206,990	1,231,130	1,255,753	1,280,868	1,306,485
Percentage Change				2%	2%	2%	2%	2%	2%
Expenses									
(Operating Expenses)									
Management Fee	2%		(59,083)	(60,265)	(61,470)	(62,699)	(63,953)	(65,232)	(66,537)
Adiministration/Payroll	3%		(114,000)	(117,420)	(120,943)	(124,571)	(128,308)	(132,157)	(136,122)
Manintenance&Operating Resident Services	3%		(123,800)	(127,514)	(131,339)	(135,280)	(139,338)	(143,518)	(147,824)
Security	3%		(50,000)	(51,500)	(53,045)	(10.027)	(30,275)	(11 502)	(11.041)
Utilities	3%		(145,000)	(149 350)	(153,831)	(158.445)	(163 199)	(168.095)	(173 138)
Taxes.Insurance	3%		(105.000)	(108,150)	(111,395)	(114,736)	(118,178)	(121,724)	(125,375)
(Total Operating Expenses)			(606,883)	(624,499)	(642.631)	(661,295)	(680,507)	(700.283)	(720.639)
per apartment	67 Units		(9,058)	(9,321)	(9,592)	(9,870)	(10,157)	(10,452)	(10,756)
Percentage Change				2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
Net Operational Income			553,238	558,825	564,359	569,835	575,246	580,585	585,846
Replacement Reserves	3%		(24,480)	(25,214)	(25,971)	(26,750)	(27,552)	(28,379)	(29,230)
			500 350	500.000	500.000	5 43 AAF	F 47 699		
Cash How after RR			528,758	533,611	538,388	543,085	547,693	552,206	556,616
Debt Cash Flow									
First Mortgage P&I			(480.904)	(480.904)	(480.904)	(480.904)	(480.904)	(480.904)	(480.904)
Mortgage interest Premium			(9,644)	(9,571)	(9,498)	(9,425)	(9,352)	(9,279)	(9,206)
DSCR			1.10	1.11	1.12	1.13	1.14	1.15	1.16
Cash Flow after Debt Service			38,210	43,136	47,986	52,756	57,437	62,023	66,506
Cash Flow Priority Payments:									
investor Asset Mgmt Fee	3%		(5,000)	(5,150)	(5,305)	(5,464)	(5,628)	(5,796)	(5,970)
Partnership Mgmt Fee	376		(5,000)	(5,150)	(5,305)	(5,464)	(5,528)	(5,796)	(5,970)
Cash Flow to General Partner			(20,210)	(32,030)	0	(41,023)	(40,102)	(30,430)	(34,303)
Cash Flow to Limited Partner			0	0	0	0	0	0	0
Total Priority Payments			(38,210)	(43,136)	(47,986)	(52,756)	(57,437)	(62,023)	(66,506)
Cash Flow after Priority Payments			0	0	0	0	0	D	0
Adjustments to Derive Cash									
Contributed/Distributed at									
Purchases and Sale:									
Subtract Initial Grossed Up initial									
investment		(32,314,844)							
Add Gross Salas Dependen		11,520,000							
Subtract Sala Transaction Cont									
Subtract Debt paid off at cale									
Add Back cash still in Property that									
owner Distributes out			0	0	0	0	0	0	0
Add Back all other net Working								-	
Capital Still in Property(
Receivable+inventory-all pay)									
Total Net Cash Flow		(20,794,844)							
Total owner Cash in and Cash Out		(10.000.000.000.000.000.000.000.000.000.							
at Purchase and Sale		(20,794,844)							
Contributions/Distributions taken in									
between			0	0	0	0	0	0	0
Total Owner Cash Flow		(20,794,844)	0	0	0	0	0	0	0
Total Cash Flow and Timing for IRR		2010 2 (1011)			~				0
Calculation		(20,794,844)	0	0	0	0	0	0	0
IRR	-3.70%		Multiple on Investment		0				
Baginning Balance			11 500 000	11.020.000	10 559 103	10.077.000	0 506 304	0 115 100	9 634 535
Plus: Loan Amount			11,520,000	11,039,096	10,558,192	10,077,288	9,596,384	9,115,480	8,034,576
Less: Amortization			(480.904)	(480.904)	(480.904)	[480 904]	(480 904)	(480 904)	(480.904)
Ending Balance			11.039.096	10,558,192	10,077,288	9,596.384	9,115,480	8,634,576	8,153,672
Mortgage interest Premium			(9,644)	(9,571)	(9,498)	(9,425)	(9,352)	(9,279)	(9,206)
Interest Premium	0.00%		0	0	0	0	0	0	0
Total Debt Service(interest+Amortiz	ation)		(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)

8	9	10	11	12	13	14	15	16	17	18	19	20 (sale)
2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
177 196	180 740	184 355	188 042	191.803	195.639	199 552	203 543	207.614	211 765	216.001	220 321	0
374,848	382,345	389,992	397,792	405,748	413,863	422,140	430,583	439,195	447,978	456,938	466,077	0
324,233	330,717	337,332	344,078	350,960	357,979	365,139	372,441	379,890	387,488	395,238	403,142	0
11,027	11,248	11,473	11,702	11,936	12,175	12,419	12,667	12,920	13,179	13,442	13,711	0
470,042	479,443	489,032	498,813	508,789	518,965	529,344	539,931	550,729	561,744	572,979	584,438	0
45 405	46 313	47 240	48 184	49 148	50 131	51 134	52 156	53 199	54 263	55 349	56.456	0
1.402.752	1.430.807	1,459,423	1.488.612	1,518,384	1.548,752	1.579.727	1.611.321	1.643.547	1.676.418	1.709.947	1.744,146	0
(70,137)	(71,540)	(72,971)	(74,430)	(75,919)	(77,437)	(78,986)	(80,566)	(82,177)	(83,821)	(85,497)	(87,207)	0
1,332,615	1,359,267	1,386,452	1,414,181	1,442,465	1,471,314	1,500,741	1,530,755	1,561,371	1,592,598	1,624,450	1,656,939	0
2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
(67,868)	(69,225)	(70,610)	(72,022)	(73,462)	(74,932)	(76,430)	(77,959)	(79,518)	(81,108)	(82,730)	(84,385)	0
(140,206)	(144,412)	(148,744)	(153,206)	(157,803)	(162,537)	(167,413)	(172,435)	(177,608)	(182,937)	(188,425)	(194,077)	0
(152,258)	(156,826)	(161,531)	(166,377)	(171,368)	(176,509)	(181,804)	(187,259)	(192,876)	(198,663)	(204,623)	(210,761)	0
(61,494)	(63,339)	(65,239)	(67,196)	(69,212)	(71,288)	(73,427)	(75,629)	(77,898)	(80,235)	(82,642)	(85,122)	0
(178 332)	(12,6682)	(13,048)	(13,439)	(13,842)	(206 735)	(212,037)	(15,126)	(225.005)	(16,047)	(16,528)	(17,024)	0
(129,137)	(133,011)	(137,001)	(141,111)	(145,345)	(149,705)	(154,196)	(158,822)	(163,587)	(168,494)	(173,549)	(178,755)	0
(741,593)	(763,162)	(785,364)	(808,219)	(831,746)	(855,963)	(880,893)	(906,555)	(932,972)	(960,166)	(988,160)	(1,016,978)	0
(11,069)	(11,390)	(11,722)	(12,063)	(12,414)	(12,776)	(13,148)	(13,531)	(13,925)	(14,331)	(14,749)	(15,179)	0
2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	
591 022	596 105	601.088	605 967	610 719	615 351	619 8/8	624 200	678 398	632 /31	636 289	639 961	0
JJI,ULL	330,103	001,000	003,302	010,715	013,331	010,040	014,100	020,000	031,451	050,205	033,501	Ū
(30,107)	(31,011)	(31,941)	(32,899)	(33,886)	(34,903)	(35,950)	(37,028)	(38,139)	(39,283)	(40,462)	(41,676)	0
560,915	565,095	569,147	573,063	576,833	580,448	583,898	587,172	590,259	593,148	595,828	598,285	0
(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	0
(9,133)	(9,060)	(8,987)	(8,914)	(8,841)	(8,768)	(8,695)	(8,621)	(8,548)	(8,475)	(8,402)	(8,329)	0
1.17	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	0.00
70.070	75 4 34	70.255		07.000	00 775	04 200	07.647	400.007	400 700	405 533	100.053	
/0,8/8	/5,131	79,256	83,245	87,088	90,776	94,299	97,647	100,807	103,769	106,522	109,052	U
(6,149)	(6,334)	(6,524)	(6,720)	(6,921)	(7,129)	(7,343)	(7,563)	(7,790)	(8,024)	(8,264)	(8,512)	0
(6,149)	(6,334)	(6,524)	(6,720)	(6,921)	(7,129)	(7,343)	(7,563)	(7,790)	(8,024)	(8,264)	(8,512)	0
(58,579)	(62,463)	(66,208)	(69,806)	(73,246)	(76,519)	(79,614)	(82,521)	(85,227)	(87,722)	(89,993)	(92,028)	0
0	0	0	0	0	0	0	0	0	0	0	0	0
(70,878)	(75,131)	(79,256)	(83,245)	(87,088)	(90,776)	(94,299)	(97,647)	(100,807)	(103,769)	(106,522)	(109,052)	0
0	0	0	0	0	0	0	0	0	0	0	0	0
												12,799,220
												(2 382 824)
												(2,502,021)
0	0	0	0	0	0	0	0	0	0	0	0	0
												10 100 411
												10,160,411
												10,160,411
0					1			0				
0	0	0	0	0	0	0	0	0	0	0	0	10.160.411
0	0	0	0	0	0	0	0	0	0	0	10,160,411	
8,153,672	7,672,768	7,191,864	6,710,960	6,230,056	5,749,152	5,268,248	4,787,344	4,306,440	3,825,536	3,344,632	2,863,728	2,382,824
0	0	0	0	0	0	0	0	0	0	0	0	0
7.672 768	7,191 864	6,710,904)	6,230,056	5,749 152	5,268,248	4,787 344	4,306.440	3,825,536	3,344 632	2.863 728	2,382,824	2 387 874
(9,133)	(9,060)	(8,987)	(8,914)	(8,841)	(8,768)	(8,695)	(8,621)	(8,548)	(8,475)	(8,402)	(8,329)	0
0	0	0	0	0	0	0	0	0	0	0	0	0
(480,904)	(480.904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480.904)	0

7.2 Appendix B - Adjusted with Sustainable Strategies DCF Analysis Worksheet

Year	Growth Rate	0	1	2	3	4	5	6	7
		2021	2022	2023	2024	2025	2026	2027	2028
Acquisition		(100)							
Hard Costs									
Cost of Construction		(23,205,897)							
Sustainable Strategy cost Contingency		(1.160.295)							
Subtotal Hard Costs		(25,199,020)							
Soft Costs		(4 533 307)							
Loan		(4,532,587) (44,560)							
DHCD Fee		(82,500)							
Contingency		(232,972)							
Subtotal Soft Costs		(4,892,419)							
Other Fees / Reserves		(3.056.133)							
		(space) asy							
TOTAL CONSTRUCTION BUDGET		(33,147,672)							
Income Cas 9 Units	2%		154.360	157.345	160 402	162 702	166 076	170 216	172 722
MRVP Units			326,328	332,855	339,512	346,302	353,228	360,292	367,498
LIHTC-60%Units			282,264	287,909	293,667	299,541	305,532	311,642	317,875
NEC Units			9,600	9,792	9,988	10,188	10,391	10,599	10,811
Moderate+Market			409,200	417,384	425,732	434,246	442,931	451,790	460,826
Commercial(more commercial)			25,500	26,010	26,530	27,061	27,602	28,154	28,717
Gross Revenue			1,246,680	1,271,614	1,297,046	1,322,987	1,349,447	1,376,435	1,403,964
portra de California de Califo							angen an stelle kilden.		
Vacancy	2%		(61,059)	(62,280)	(63,525)	(64,796)	(66,092)	(67,414)	(68,762)
Effective Gross Income			1,185,621	1,209,334	1,233,520	1,258,191	1,283,355	1,309,022	1,335,202
Expenses				2%	276	2%	2%	2%	1%
(Operating Expenses)									
Management Fee	2%		(59,083)	(60,265)	(61,470)	(62,699)	(63,953)	(65,232)	(66,537)
Adiministration/Payroll	3%		(114,000)	(117,420)	(120,943)	(124,571)	(128,308)	(132,157)	(136,122)
Manintenance&Operating Resident Services	3%		(123,800)	(127,514)	(131,339)	(135,280)	(139,338)	(143,518)	(147,824)
Security	3%		(10,000)	(10.300)	(10.609)	(10.927)	(11,255)	(11.593)	(11,941)
Utilities	3%		(145,000)	(149,350)	(153,831)	(158,445)	(163,199)	(168,095)	(173,138)
(Utilities savings)	13%		19,566	20,153	20,758	21,380	22,022	22,682	23,363
Taxes, Insurance	3%		(105,000)	(108,150)	(111,395)	(114,736)	(118,178)	(121,724)	(125,375)
per apartment	67 Units		(8,766)	(9.020)	(9.282)	(9.551)	(9.828)	(10.113)	(10.407)
Percentage Change			101.001	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
Net Operational Income			598,304	604,988	611,647	618,276	624,869	631,421	637,926
Replacement Reserves	3%		(24.480)	(25.214)	(25.971)	(26.750)	(27 552)	(28.370)	(29.230)
nepacement neserves	570		(21,100)	(23,234)	(20,072)	(20,750)	(27,552)	(20,575)	(25,250)
Cash Flow after RR			573,824	579,774	585,676	591,526	597,317	603,042	608,696
Debt Cash Flow			1490 0041	(400 004)	(490.004)	(490 004)	(490.004)	(490.004)	1490 0041
Mortgage intsurance Premium			(9.644)	(9.571)	(9.498)	(9.425)	(9.352)	(9.279)	(9.206)
DSCR			1.10	1.11	1.12	1.13	1.14	1.15	1.16
Cash Flow after Debt Service			83,276	89,299	95,274	101,197	107,061	112,859	118,586
Cash Flow Priority Payments:									
investor Asset Mgmt Fee	3%		(5,000)	(5,150)	(5,305)	(5,464)	(5,628)	(5,796)	(5,970)
Partnership Mgmt Fee	3%		(5,000)	(5,150)	(5,305)	(5,464)	(5,628)	(5,796)	(5,970)
Deferred Development Fee			(28,210)	(32,836)	(37,377)	(41,829)	(46,182)	(50,430)	(54,565)
Cash Flow to General Partner			0	0	0	0	0	0	0
Total Priority Payments			45,066	46,163	47,288	48,441	49,624	50,836	52,080
Cash Flow after Priority Payments			128,343	135,462	142,562	149,638	156,685	163,696	170,666
Adjustments to Derive Cash									
Contributed/Distributed at									
r urulases allu salë:									
Subtract Initial Grossed Up initial									
investment		(33,147,672)							
Add Back initial Debt taken		11,520,000							
Subtract Sale Transaction Costs									
Subtract Debt paid off at sale									
Add Back cash still in Property that owner									
Distributes out			0	128,343	135,462	142,562	149,638	156,685	163,696
Add Back all other net Working Canital Still									
in Property(Receivable+inventory-all pay)									
Total Net Cash Flow		(21,627,672)							
Total owner Cash in and Cash Out at Purchase and Sale		121 627 673							
Total investor Contributions/Distributions		(62/027/072)							
taken in between			0	128,343	135,462	142,562	149,638	156,685	163,696
Total Owner Cash Flow		(21,627,672)	0	128,343	135,462	142,562	149,638	156,685	163,696
Total Cash Flow and Timing for IRR Calculation		(21.627.672)	0	100 040	125.462	143 562	140 638	156 695	162 607
caculation		(21,027,072)	U	120,343	155,462	142,502	149,038	120,085	105,090
IRR	-2.02%		Multiple on In	vestment	0.70				
DEBT SEDVICE CALCULATION									
Beginning Balance			11,520,000	11,039,096	10,558,192	10,077.288	9,596.384	9,115,480	8,634.576
Plus: Loan Amount			0	0	0	0	0	0	0
Less: Amortization			(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)
Ending Balance			11,039,096	10,558,192	10,077,288	9,596,384	9,115,480	8,634,576	8,153,672
Interest Expense	0.00%		(9,644)	(9,571)	(9,498)	(9,425)	(9,352)	(9,279)	(9,206)
Total Debt Service(interest+Amortization)	0.00%		(480.904)	(480 904)	(480 904)	(480 904)	(480.904)	(480 904)	(480 904)

8	9	10	11	12	13	14	15	16	17	18	19	20 (sale)
2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
177,196	180,740	184,355	188.042	191.803	195.639	199.552	203.543	207.614	211.766	216.001	220.321	0
374,848	382,345	389,992	397,792	405,748	413,863	422,140	430,583	439,195	447,978	456,938	466,077	0
324,233 11,027	330,717 11,248	337,332	11,702	11,936	12,175	365,139	372,441 12,667	12,920	387,488 13,179	395,238 13,442	403,142	0
470,042	479,443	489,032	498,813	508,789	518,965	529,344	539,931	550,729	561,744	572,979	584,438	0
45,405	46,313	47,240	48,184	49,148	50,131	51,134	52,156	53,199	54,263	55,349	56,456	0
1,432,043	1,460,684	1,489,898	1,519,696	1,550,090	1,581,092	1,612,714	1,644,968	1,677,867	1,711,424	1,745,653	1,780,566	0
(70,137)	(71,540)	(72,971)	(74,430)	(75,919)	(77,437)	(78,986)	(80,566)	(82,177)	(83,821)	(85,497)	(87,207)	0
1,361,906 2%	1,389,144	1,416,927	1,445,266 2%	1,474,171 2%	1,503,654 2%	1,533,728	1,564,402 2%	1,595,690 2%	1,627,604	1,660,156 2%	1,693,359 2%	0
(67,868)	(69,225)	(70,610)	(72,022)	(73,462)	(74,932)	(76,430)	(77,959)	(79,518)	(81,108)	(82,730)	(84,385)	0
(140,206)	(144,412)	(148,744)	(153,206)	(157,803)	(162,537)	(167,413)	(172,435)	(177,608)	(182,937)	(188,425)	(194,077)	0
(61,494)	(63,339)	(65,239)	(67,196)	(69,212)	(71,288)	(73,427)	(75,629)	(77,898)	(80,235)	(82,642)	(85,122)	0
(12,299) (178,332)	(12,668) (183,682)	(13,048) (189,192)	(13,439) (194,868)	(13,842) (200,714)	(14,258) (206,735)	(14,685) (212,937)	(15,126) (219,326)	(15,580) (225,905)	(16,047) (232,682)	(16,528) (239,663)	(17,024) (246,853)	0
24,064	24,786	25,529	26,295	27,084	27,896	28,733	29,595	30,483	31,398	32,340	33,310	0
(717,529)	(738,376)	(759,835)	(781,924)	(804,662)	(828,067)	(154,196) (852,160)	(158,822) (876,960)	(103,587) (902,489)	(928,769)	(955,821)	(178,755) (983,668)	0
(10,709)	(11,021)	(11,341)	(11,671)	(12,010)	(12,359)	(12,719)	(13,089)	(13,470)	(13,862)	(14,266)	(14,682)	0
2.576	2.570	2.576	2.570	2.576	2.576	2.570	2.576	2.570	2.576	2.570	2.576	
644,377	650,768	657,092	663,342	669,509	675,588	681,568	687,442	693,201	698,835	704,335	709,691	0
(30,107)	(31,011)	(31,941)	(32,899)	(33,886)	(34,903)	(35,950)	(37,028)	(38,139)	(39,283)	(40,462)	(41,676)	0
614,270	619,758	625,151	630,442	635,623	640,685	645,618	650,414	655,062	659,552	663,874	668,015	0
(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	(480,904)	0
(9,133)	(9,060)	(8,987)	(8,914)	(8,841)	(8,768)	(8,695)	(8,621)	(8,548)	(8,475)	(8,402)	(8,329)	0
124,233	129,794	135,260	140,624	145,878	151,013	156,019	160,889	165,610	170,173	174,568	178,782	0
16 1 400	16 2241	16 5343	16 7301	16 0010	(7.120)	12 3435	17 56 31	(7 200)	10.0343	10 3641	/0 5131	_
(6,149)	(6,334)	(6,524)	(6,720)	(6,921)	(7,129)	(7,343)	(7,563)	(7,790)	(8,024)	(8,264)	(8,512)	0
(58,579)	(62,463)	(66,208)	(69,806)	(73,246)	(76,519)	(79,614)	(82,521)	(85,227)	(87,722)	(89,993)	(92,028)	0
0	0	0	0	0	0	0	0	0	0	0	0	0
53,355	54,663	56,004	57,379	58,790	60,237	61,720	63,242	64,803	66,404	68,046	69,730	0
177,588	184,457	191,264	198,004	204,668	211,250	217,740	224,131	230,413	236,577	242,613	248,513	0
												14,193,821
												(283,876) (2.382,824)
												(1)001,014)
170,666	177,588	184,457	191,264	198,004	204,668	211,250	217,740	224,131	230,413	236,577	242,613	248,513
												11,775,633
												11,775,633
170.665	177.588	184.457	191,264	198.004	204,668	211.250	217.740	224.131	230.413	236.577	242.613	
170,666	177,588	184,457	191,264	198,004	204,668	211,250	217,740	224,131	230,413	236,577	242,613	11,775,633
170,666	177,588	184,457	191,264	198,004	204,668	211,250	217,740	224,131	230,413	236,577	12,018,247	
1												
8,153,672	7,672,768	7,191,864	6,710,960	6,230,056	5,749,152	5,268,248	4,787,344	4,306,440	3,825,536	3,344,632	2,863,728	0
0 (480,904)	(480,904)	0 (480,904)	(480,904)	(480,904)	0 (480,904)	(480,904)	0 (480,904)	(480,904)	0 (480,904)	(480,904)	(480.904)	0
7,672,768	7,191,864	6,710,960	6,230,056	5,749,152	5,268,248	4,787,344	4,306,440	3,825,536	3,344,632	2,863,728	2,382,824	0
(9,133) 0	(9,060)	(8,987)	(8,914)	(8,841)	(8,768)	(8,695)	(8,621)	(8,548)	(8,475)	(8,402)	(8,329)	0
(480.904)	(490.004)	(490 004)	(490 004)	(490 004)	(490.004)	(400 004)	(490 004)	(490.004)	(490 004)	(490.004)	1490 0041	0

Project	Triple Pane Gla	ss+South Facin	g Exterior Shad	ling												
Lease year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1
Cash Flow	(\$319,080)	\$1,837	\$1,892	\$1,949	\$2,007	\$2,068	\$2,130	\$2,193	\$2,259	\$2,327	\$2,397	\$2,469	\$2,543	\$2,619	\$2,698	\$2,779
Cumulative Balance	(\$319,080)	(\$317,243)	(\$315,351)	(\$313,402)	(\$311,395)	(\$309,327)	(\$307,198)	(\$305,004)	(\$302,745)	(\$300,418)	(\$298,021)	(\$295,552)	(\$293,009)	(\$290,390)	(\$287,692)	(\$284,914
Present Value of Energy Savings	(\$319,080)	\$1,670	\$1,564	\$1,464	\$1,371	\$1,284	\$1,202	\$1.126	\$1,054	\$987	\$924	\$865	\$810	\$759	\$710	\$665
NPV	(\$302,625)	+=,====	+ - /		+ - / - / -		+ -/	+-,	+-,							
Calculate	IRR=	-19.46%	BOI1%=	0.58%	pay	back period=	142.00	Multiple=	0.11							
Project	Occupancy sen	sors														
Lease year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1
Cash Flow	(\$37,400)	\$157	\$161	\$166	\$171	\$176	\$182	\$187	\$193	\$198	\$204	\$211	\$217	\$223	\$230	\$23
Cumulative Balance	(\$37,400)	(\$37,243)	(\$37,082)	(\$36,916)	(\$36,744)	(\$36,568)	(\$36,386)	(\$36,199)	(\$36.007)	(\$35,808)	(\$35,604)	(\$35,393)	(\$35,176)	(\$34,953)	(\$34,723)	(\$34,48)
Present Value of Energy Savings	(\$37,400)	\$142	\$133	\$125	S117	\$110	\$103	\$96	\$90	\$84	\$79	\$74	\$69	\$65	\$61	\$5
NPV	(\$35,996)				1	1	1		10.0					1	1	
Calculate	IRR=	-21.57%	ROI1%=	0.42%	pay	back period=	194.85	Multiple=	0.08							
Depinet	DV Reef															
l aara waar		1	2	3	4	5	6	7	9	0	10	11	17	13	14	1
Carb Flow	(\$420.050)	\$11.600	£11 0.49	\$12.204	\$12.676	\$12.055	C12 449	C12 954	\$14.267	\$14.605	\$15.125	¢15 500	\$16.057	\$16.520	\$17.025	¢17 = 4
Cumulativo Balanco	(\$430,950)	(\$410.250)	311,948	10205 0000	(\$292.420)	10260 2041	844,616	(\$242.000	\$19,207	(\$212,1045	(\$207.060)	\$13,389	16266 2221	(\$240,784)	10323 7401	90,110
Compared Value of Energy Society	(\$430,950)	(3419,350)	(204,1040)	(000,000)	(0002,420)	(0309,304)	(\$355,916)	(7.109	(5327,799)	(5313,104)	(5297,909)	(086,380)	(5200,377)	(3249,784)	(3232,749)	(\$215,20
Anny	(\$430,950)	\$10,545	39,874	39,240	38,038	38,107	\$7,591	\$7,108	90,000	30,232	-25,835	\$5,464	35,110	34,791	\$4,480	\$4,20
Caladata	(3527,041)	7 229/	0.0110/-	2.60%		A set a set of a	20.00	Adultida	0.50							
Calculate	IBK-	-7.2378	R01128*	Z.09%	pay	back period=	30.98	multiple=	0.50							
Project	HWAC															
Lease year	0	1	2	3	4	5	6	7	8	0	10	11	12	13	14	
Cash Elow	(\$255.148)	\$2 722	\$2.824	\$2.040	\$4.067	\$4.180	\$4.315	54.444	\$4.578	\$4.715	\$4.856	\$5.007	\$5.152	\$5 207	\$5.466	\$5.62
Cumulative Balance	(\$266,149)	(\$262,426)	(\$259,502)	(\$254 644)	(\$250.577)	1\$246 2971	(\$242.073)	(\$227.629)	(\$722.051)	(\$229.226)	(\$222.490)	(\$219 477)	(\$212,225)	(\$ 209,010)	(\$202.552)	(\$106.07)
Drocont Value of Energy Swings	(\$266,149)	C2 294	\$2 169	\$2.067	\$2,779	\$2.601	\$2,426	\$2.321	\$2.125	\$2,000	¢1 973	\$1 752	\$1.642	\$1.527	\$1.420	C1 24
NOV	(\$220,148)	\$3,304	\$5,100	\$2,507	\$2,110	52,001	32,430	\$2,201	32,135	\$2,000	\$1,672	31,155	51,012	\$1,337	31,433	31,34
Calculate	(3232,000) IRR=	-12.90%	ROI1%-	1.40%	pay	back period=	58.91	Multiple=	0.26							
Project	Water		2	2				7	0	0	40		42	42		
Lease year	0	1	2	3	4	5	6	1	8	9	10	11	12	13	14	1
Cash Flow	(\$50,400)	\$1,798	\$1,852	\$1,907	\$1,965	\$2,024	\$2,084	\$2,147	\$2,211	\$2,278	\$2,346	\$2,416	\$2,489	\$2,564	\$2,640	\$2,72
Cumulative Balance	(\$50,400)	(\$48,602)	(\$46,750)	(\$44,843)	(\$42,878)	(\$40,854)	(\$38,770)	(\$36,623)	(\$34,412)	(\$32,134)	(\$29,788)	(\$27,372)	(524,883)	(\$22,319)	(\$19,679)	(\$16,959
Present Value of Energy Savings	(\$50,400)	\$1,635	\$1,531	\$1,433	\$1,342	\$1,257	\$1,177	\$1,102	\$1,032	\$966	\$904	\$847	\$793	\$743	\$695	\$65
NPV	(\$34,294)															
Calculate	IRR=	-4.47%	ROI1%=	3.57%	pay	back period=	23.56	Multiple=	0.66							
Project	Wall Insulation															
Lease year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1
Cash Flow	(\$30,250)	\$609	\$627	\$646	\$665	\$685	\$706	\$727	\$749	\$771	\$795	\$818	\$843	\$868	\$894	\$92
Cumulative Balance	(\$30,250)	(\$29,641)	(\$29,014)	(\$28,368)	(\$27,702)	(\$27,017)	(\$26,311)	(\$25,584)	(\$24,835)	(\$24,063)	(\$23,268)	(\$22,450)	(\$21,607)	(\$20,739)	(\$19,844)	(\$18,92)
Present Value of Energy Savings	(\$30,250)	\$554	\$518	\$485	\$455	\$426	\$399	\$373	\$349	\$327	\$306	\$287	\$269	\$252	\$236	\$22
NPV	(\$24,795)											Constanting of the second				
Calculate	IRR=	-9.85%	ROI1%=	2.01%	pay	back period=	41.16	Multiple=	0.37							
Project	Triple Pane Gla	55														
Lease year	0	1	2	3	4	5	6	7	8	9	10	11	. 12	13	14	1
Cash Flow	(\$55,080)	\$1,837	\$1,892	\$1,949	\$2,007	\$2,068	\$2,130	\$2,193	\$2,259	\$2,327	\$2,397	\$2,469	\$2,543	\$2,619	\$2,698	\$2,77
Cumulative Balance	(\$55,080)	(\$53,243)	(\$51,351)	(\$49,402)	(\$47,395)	(\$45,327)	(\$43,198)	(\$41,004)	(\$38,745)	(\$36,418)	(\$34,021)	(\$31,552)	(\$29,009)	(\$26,390)	(\$23,692)	(\$20,91
Present Value of Energy Savings	(\$55,080)	\$1,670	\$1,564	\$1,464	\$1,371	\$1,284	\$1,202	\$1,126	\$1,054	\$987	\$924	\$865	\$810	\$759	\$710	\$66
NPV	(\$38,625)	+-,	1.10.01									4-00	4-10	4.55		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Calculate	IRR=	-5.15%	ROI1%=	3.34%	pay	back period=	25.15	Multiple=	0.62							
We choose 3.4.5.6.7																
Cost	(\$832,828)															
	C10 556															

7.3 Appendix C - Sustainable Strategies financial feasibility Analysis Worksheet