

NHT-Enterprise.

**20% by 2020: On Track to Meet
Better Buildings Challenge**

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Section 1: Executive Summary



Tracking Progress Towards the Better Buildings Challenge:

Reduce energy and water consumption by 20% by 2020



▼ 20%

2014
Baseline

2015

2016

2017

2018

2019

2020

What Kind of Data is Needed?

Owner-paid utilities

+

Resident-paid utilities



= Total Building Energy & Water Use



This Report Finds that NHT-Enterprise is on track to meet BBC:

Energy



Water



Section 2: NHT-Enterprise Property Portfolio



Asset Managed Properties in 2016:

Property	City	State	# of Units	% Below AMI
Channel Square	Washington	DC	243	N/A
Copeland Manor	Washington	DC	61	Below 80%
Galen Terrace	Washington	DC	83	40%-60%
Meridian Manor	Washington	DC	34	40%-60%
Monsenor Romero	Washington	DC	63	40%-60%
Mountainview	Cumberland	MD	114	30%-60%
Poppleton II	Baltimore	MD	111	Below 60%
R Street	Washington	DC	130	40%-60%
St. Dennis	Washington	DC	32	40%-60%
Belton Woods	Anderson	SC	200	40%-60%
Briarcliff	Vienna	VA	30	30%-50%
Friendship Courts	Charlottesville	VA	150	40%-60%
Harvard House	North Miami Beach	FL	56	40%-60%
Hazel Hill	Fredericksburg	VA	147	40%-60%
Landfair	Ocala	FL	117	40%-60%
Southpoint	Florida City	FL	123	30%-60%
Tequesta Knoll	Miami	FL	100	40%-60%



Total = 1,794 Units

NHT-Enterprise.

Section 3: 2014 Energy Baseline:



Energy Use Intensity (EUI):

$$\text{EUI} = \frac{\text{Total Energy Use (kBTU)}}{\text{Square Footage}}$$

Multifamily	Convenience Store w/ Gas Station	Stadium	Fast Food Restaurant	Hotel
127.9	536.3	85.1	1,015.3	162.1

2014 Portfolio Snap Shot: EUI of 120

Property	EUI
Monsenor Romero	N/A
Hazel Hill	141
Channel Square	138
Harvard House	134
Belton Woods	134
R Street	133
Galen Terrace	129
Multifamily Average	128
Poppleton	124
Southpoint	115
Mountainview	115
Tequesta Knoll	109
Copeland Manor	108
Briarcliff	106
Friendship Courts	98
Landfair	96
St. Dennis	95
Meridian Manor	84

- Total of 210,000,000 kBTU consumed across 1,750,000 square feet for an average EUI of 120



210,000,000 kBTU of energy consumed equates to...

47,677 tons of carbon dioxide emissions

OR:

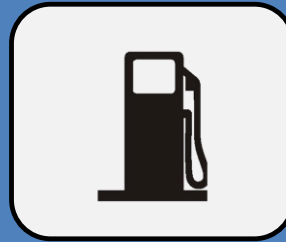
9,000

Passenger
vehicles driven for
1 year



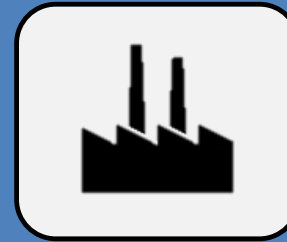
4,800,000

Gallons of
gasoline
consumed



46,000,000

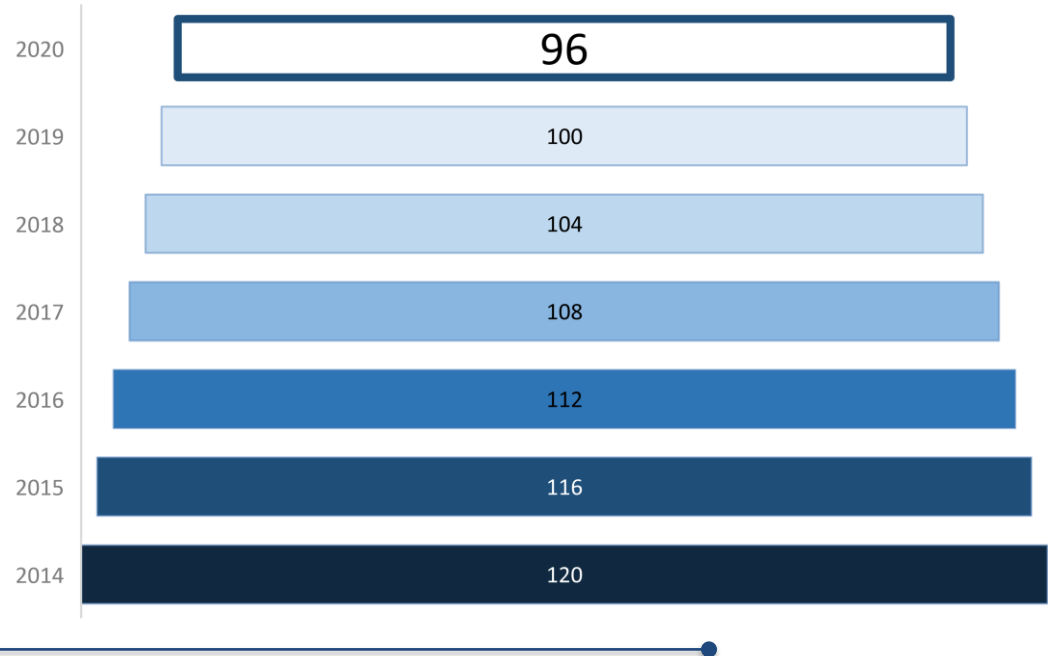
Pounds of coal
burned



NHT-Enterprise Must Reduce EUI to 96 by 2020:

Path Towards BBC Goal:

- In order to meet the BBC, NHT-Enterprise must reduce its portfolio-wide EUI from 120 to 96
- This requires a 4% decrease annually



In 2014 NHT-Enterprise's portfolio consumed:

73 million gallons of water

Equivalent to:

550,000,000

Bottles of water



110

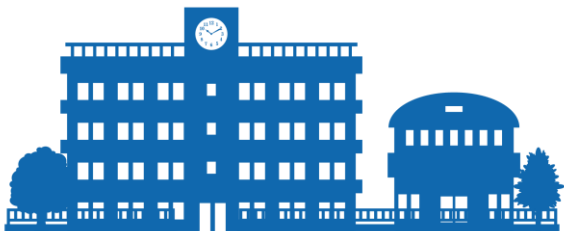
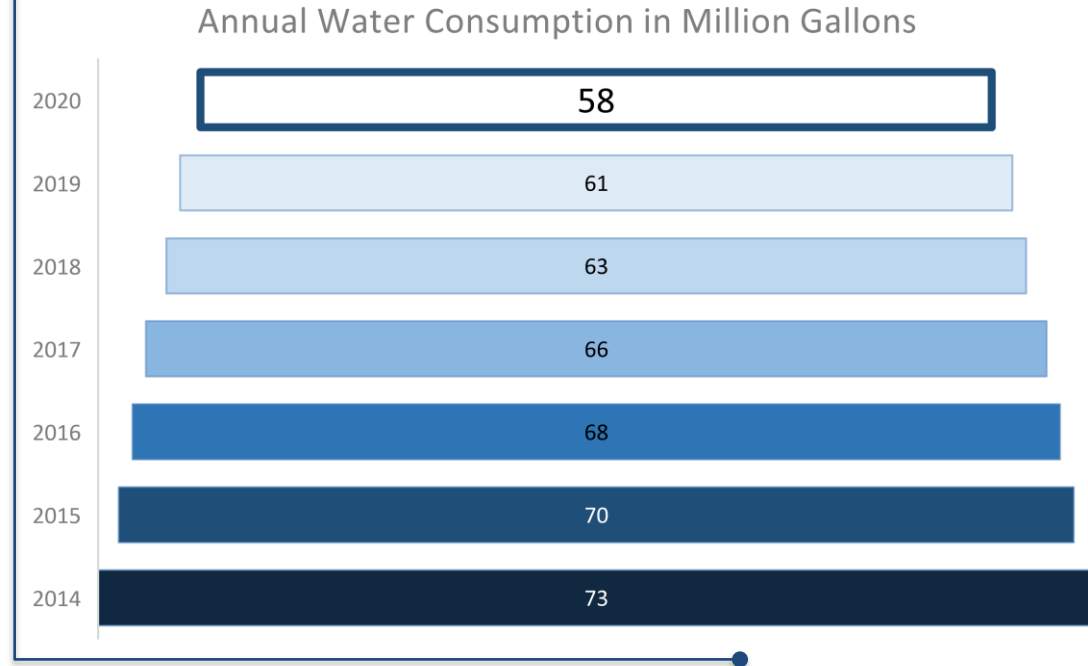
Olympic-sized
swimming pools



NHT-Enterprise Must Reduce Water Consumption to 58 million gallons

Path Towards BBC Goal:

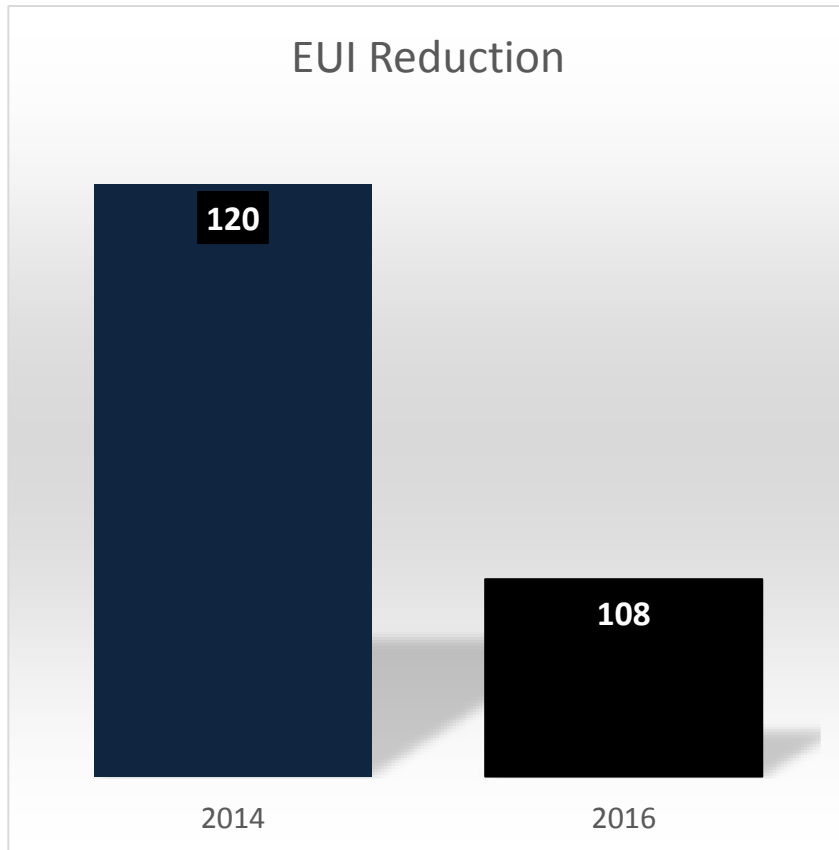
- In order to reduce portfolio-wide water consumption by 20%, NHT-Enterprise must reach 58 million gallons by 2020
- This requires a 4% decrease annually



Section 4: 2016 Energy & Water Consumption



As of 2016 NHT-Enterprise reduced EUI to 108, a reduction of 10%

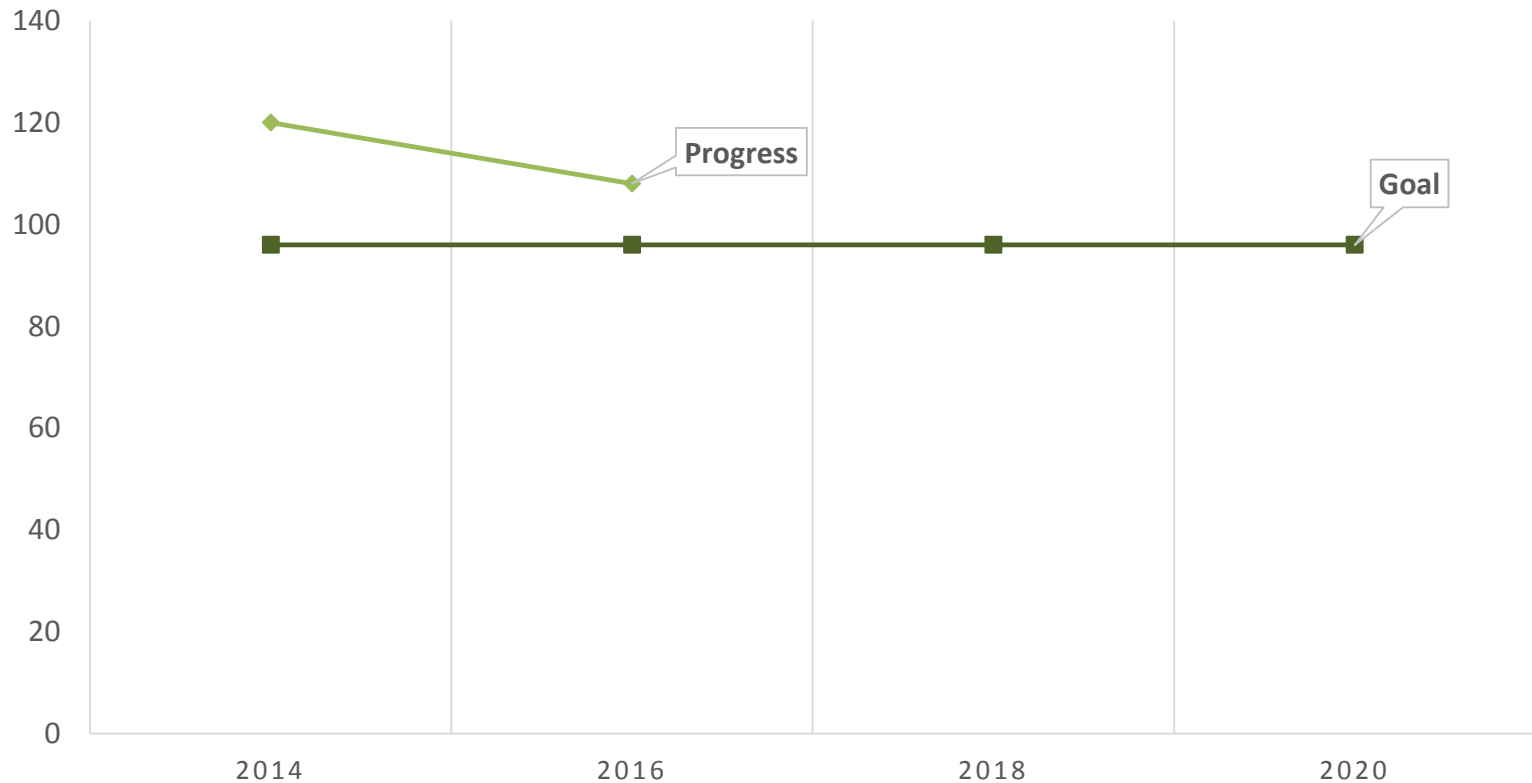


EUI Change 2014-2016	
Poppleton*	▼41%
Harvard House	▼39%
Channel Square*	▼30%
Briarcliff*	▼28%
Hazel Hill	▼21%
St. Dennis	▼9%
Southpoint	▼9%
Mountainview*	▼8%
Belton Woods	▼2%
Meridian Manor	▲1%
Friendship Court	▲7%
Tequesta Knoll	▲7%
Copeland Manor	▲9%
Landfair	▲9%
Galen Terrace	▲12%
R Street	▲19%
Monsenor Romero	N/A
Portfolio Wide	108

*Property underwent energy retrofit between 2014 & 2016

On Track to Meet ▼ 20% Goal by 2020:

2014-2016 EUI REDUCTION VS. BBC GOAL



A ▼10% EUI reduction prevented...

3,800 tons of carbon dioxide emissions

700

Passenger vehicles
driven for 1 year



392,000

Gallons of gasoline
consumed



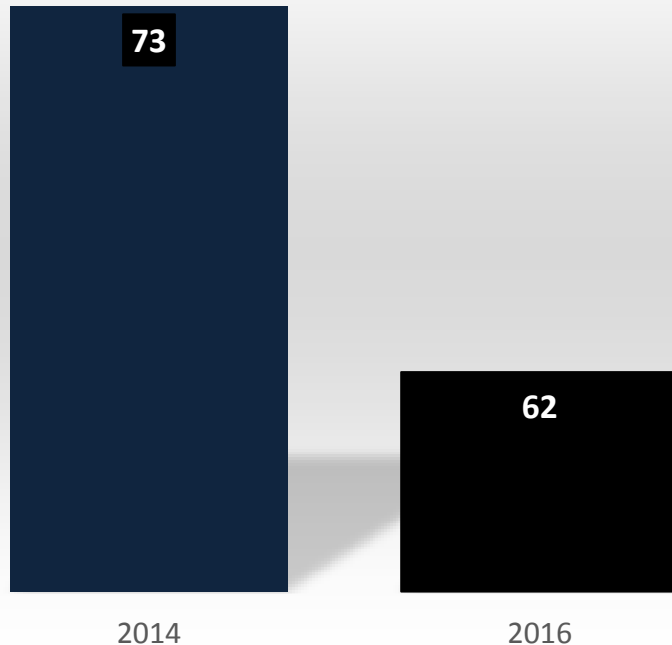
3,700,000

Pounds of coal
burned



Water Consumption: 62 million gal. (▼ 15%)

Water Consumption Reduction

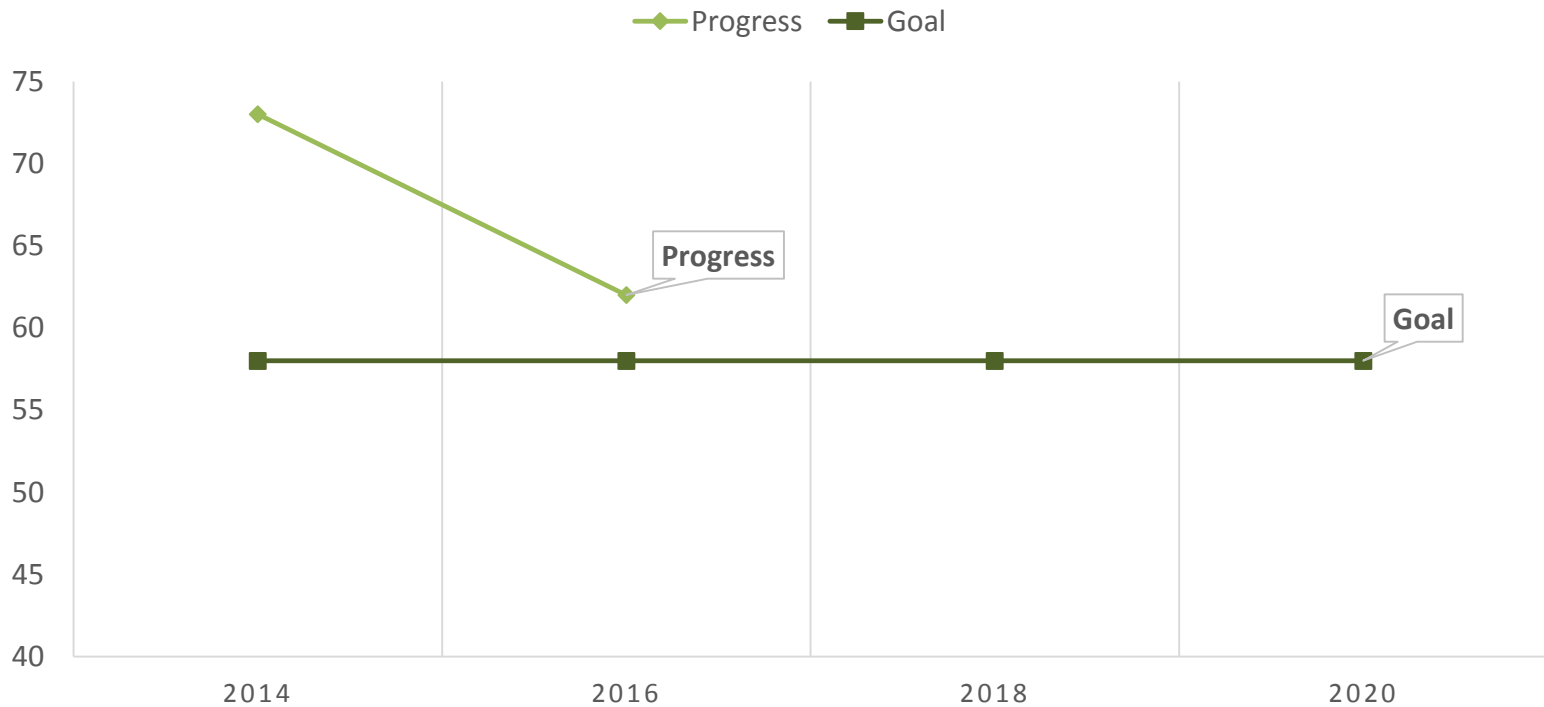


Water Reduction 2014-2016

Friendship Courts*	▼73%
Channel Square*	▼43%
Mountain View*	▼19%
R Street*	▼19%
St. Dennis*	▼19%
Galen Terrace*	▼17%
Hazel Hill	▼16%
Briarcliff*	▼2%
Southpoint	▼1%
Belton Woods	▼1%
Copeland Manor	▲4%
Tequesta Knolls	▲8%
Landfair	▲9%
Meridian Manor	▲11%
Poppleton*	▲17%
Monsenor Romero	▲23%
Harvard House	▲44%
Portfolio Wide (Weighted)	▼15%

On Track to Meet ▼ 20% Goal by 2020:

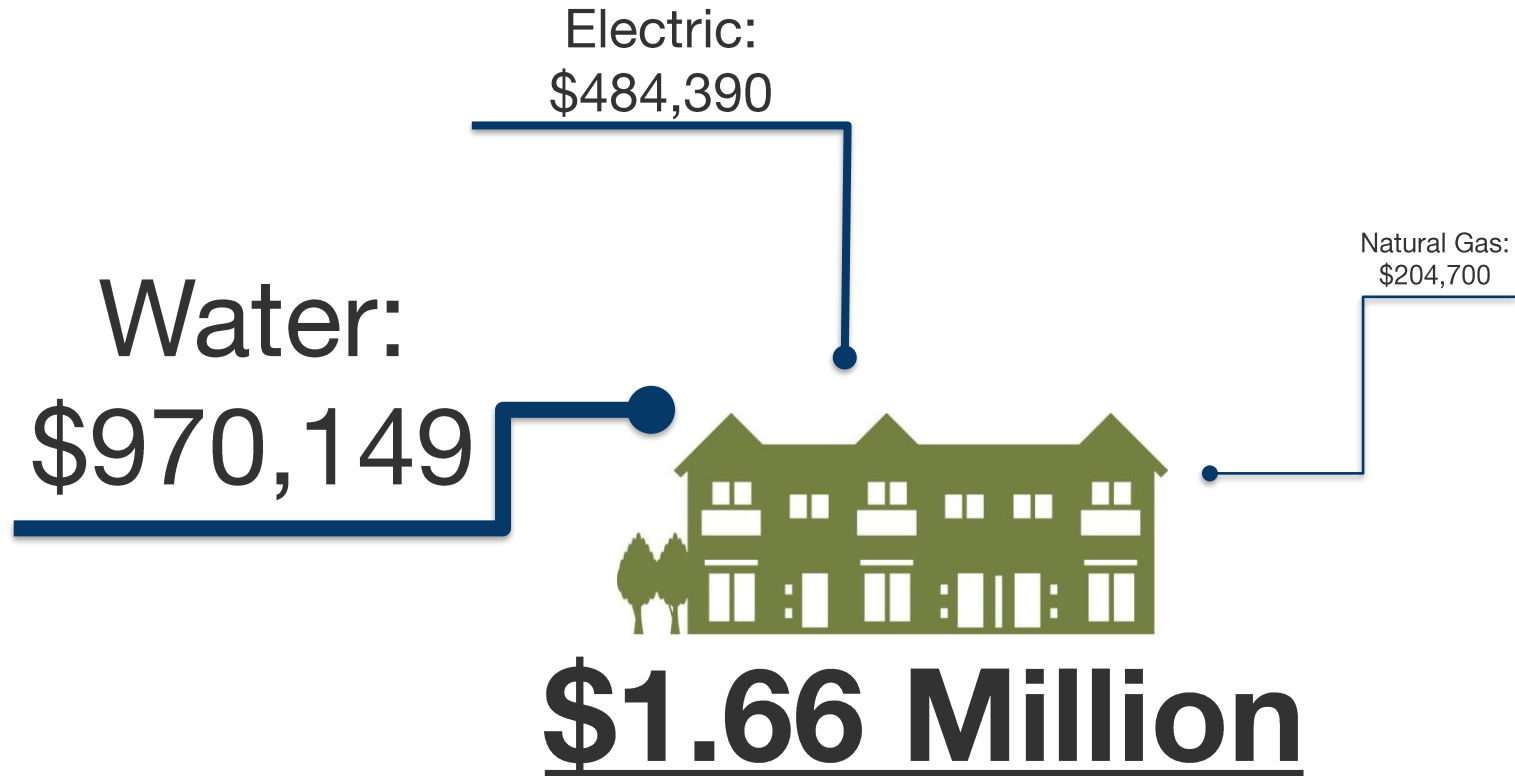
2014-2016 WATER CONSUMPTION REDUCTION



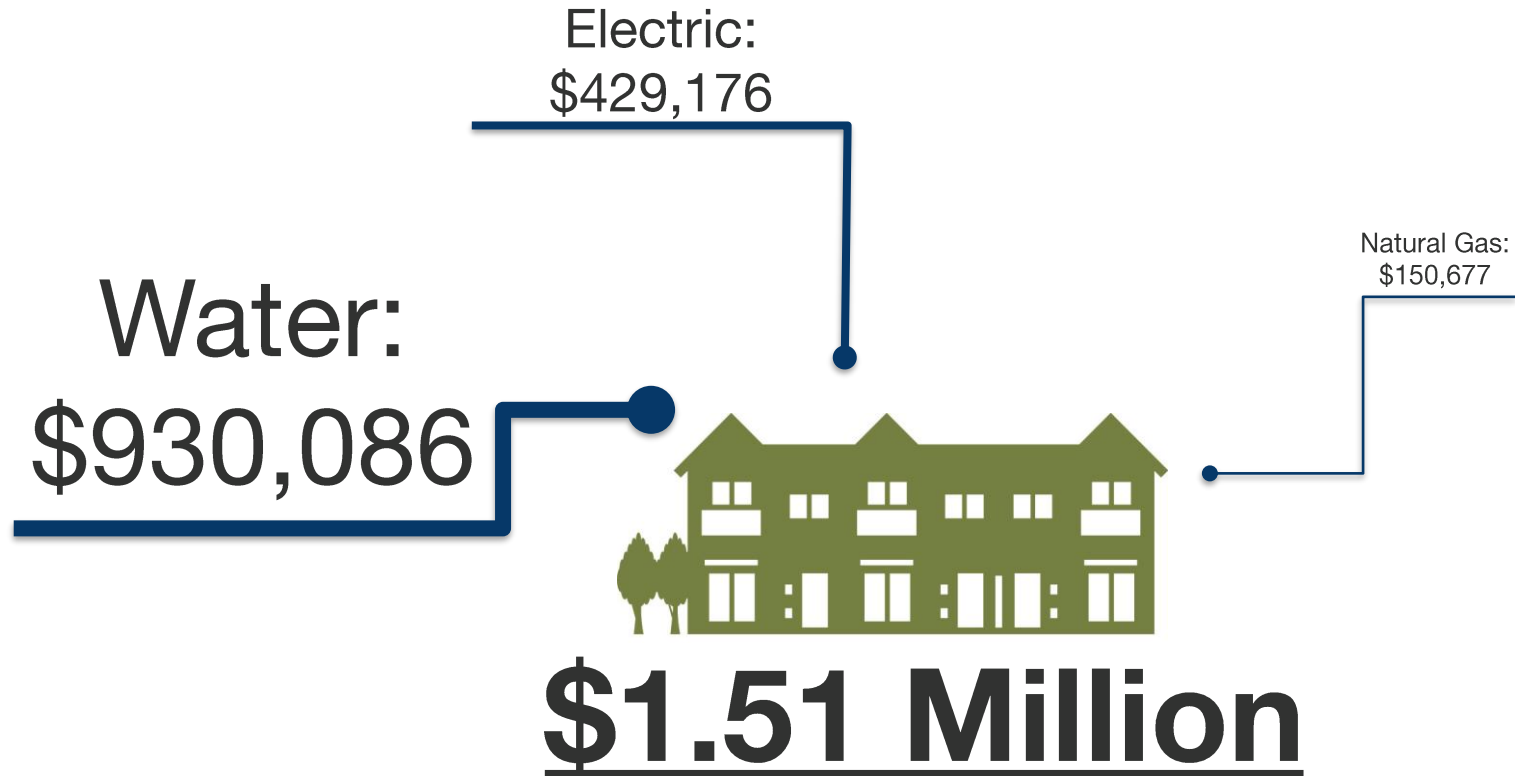
Section 5: Utility Spending



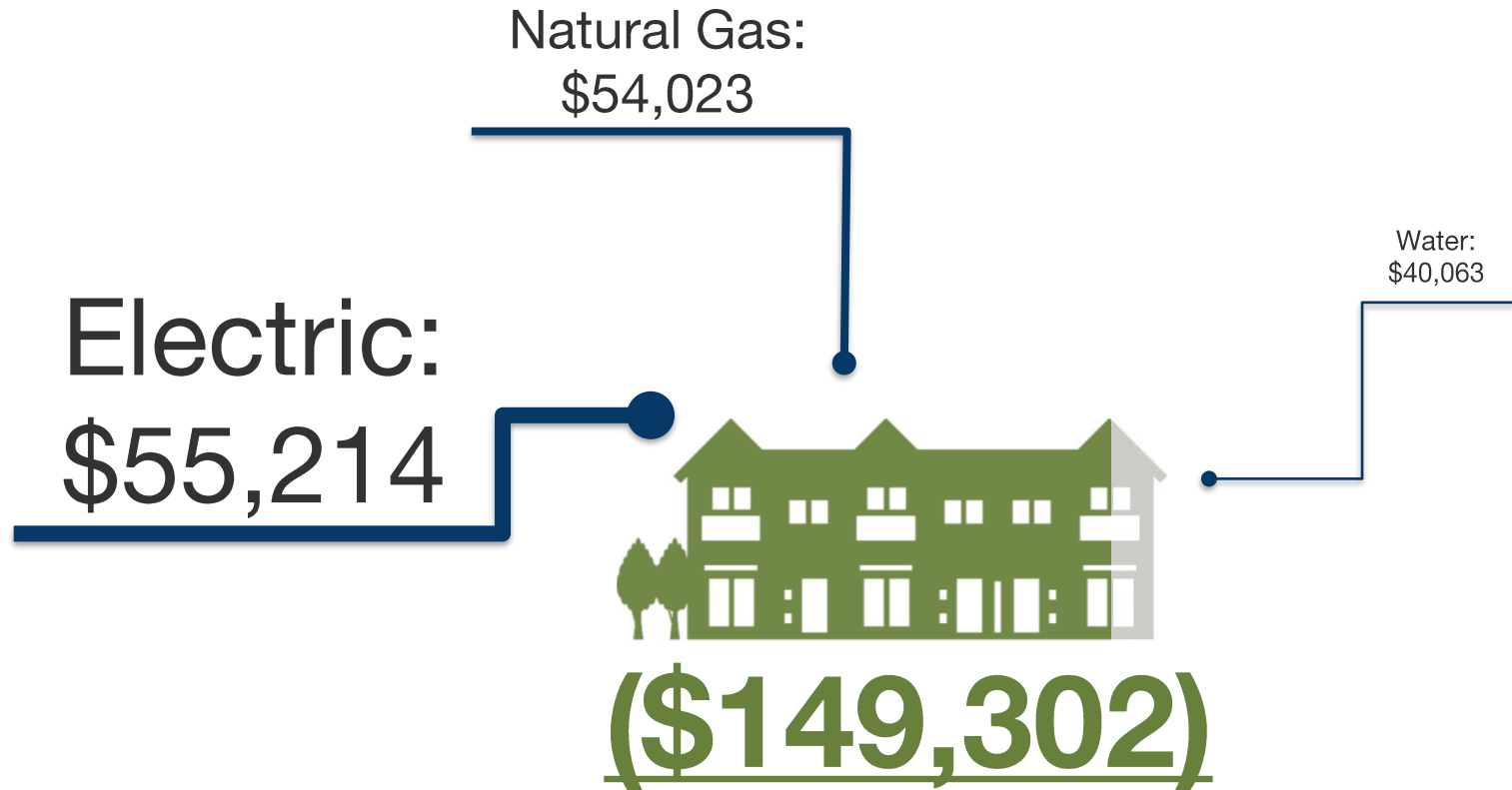
Total Spent on Owner-Paid Utilities in 2014:



Total Spent on Owner-Paid Utilities in 2016:



NHT-Enterprise saved 10% or \$149,302



Change in Utility Spending 2014-2016:

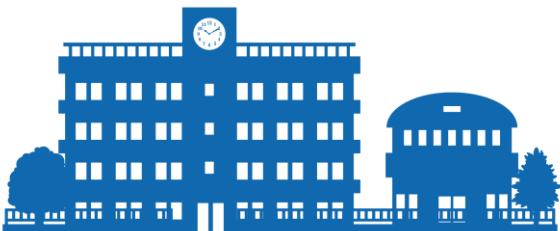
Property	% Savings	Dollar Amount
Channel Square	▼ 57%	\$ (125,032.09)
Friendship Courts	▼ 69%	\$ (64,603.68)
Hazel Hill	▼ 32%	\$ (21,767.23)
R Street	▼ 16%	\$ (10,525.71)
Galen Terrace	▼ 9%	\$ (6,047.79)
St. Dennis	▼ 20%	\$ (3,739.39)
Mountain View	▼ 9%	\$ (3,613.43)
Briarcliff	▼ 2%	\$ (619.52)
Southpoint	▲ 1%	\$ 375.25
Landfair	▲ 46 %	\$ 434.77
Copeland Manor	▲ 6 %	\$ 2,288.48
Meridian Manor	▲ 17 %	\$ 6,376.17
Monsenor Romero	▲ 16 %	\$ 7,188.08
Belton Woods	▲ 19 %	\$ 13,721.42
Tequesta Knoll	▲ 22 %	\$ 13,998.67
Poppleton	▲ 56 %	\$ 20,845.96
Harvard House	▲ 59 %	\$ 21,418.56

Section 6: Renewable Energy Production

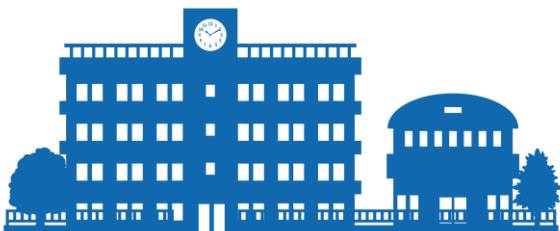
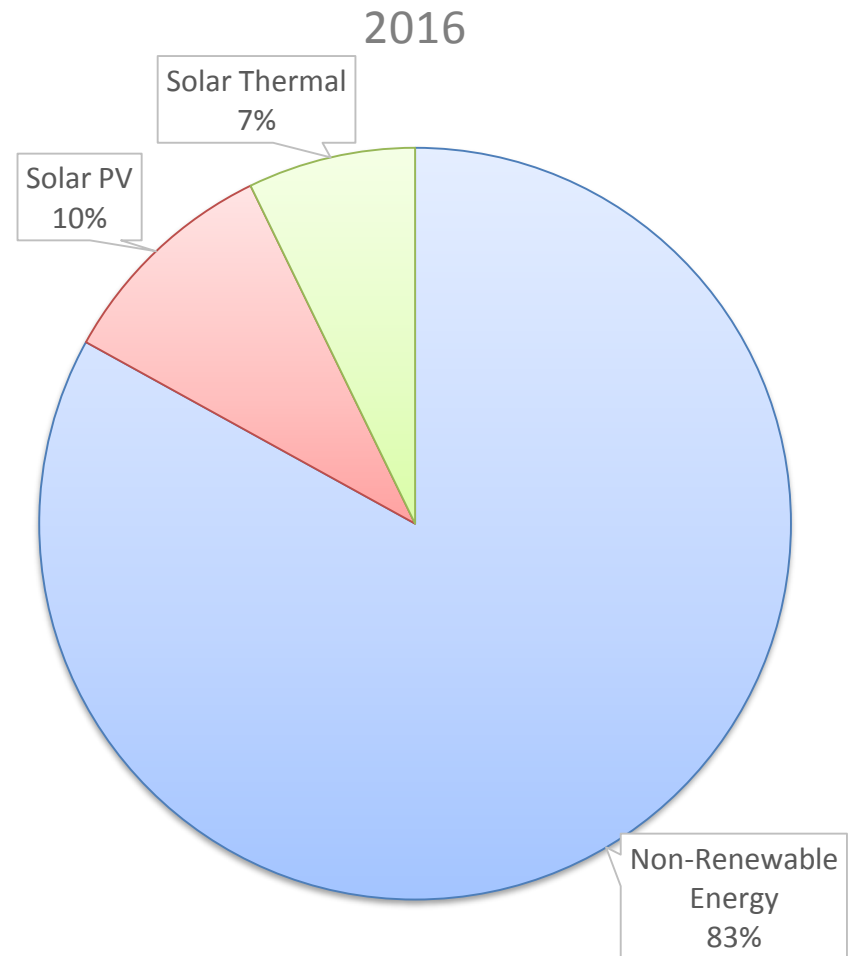
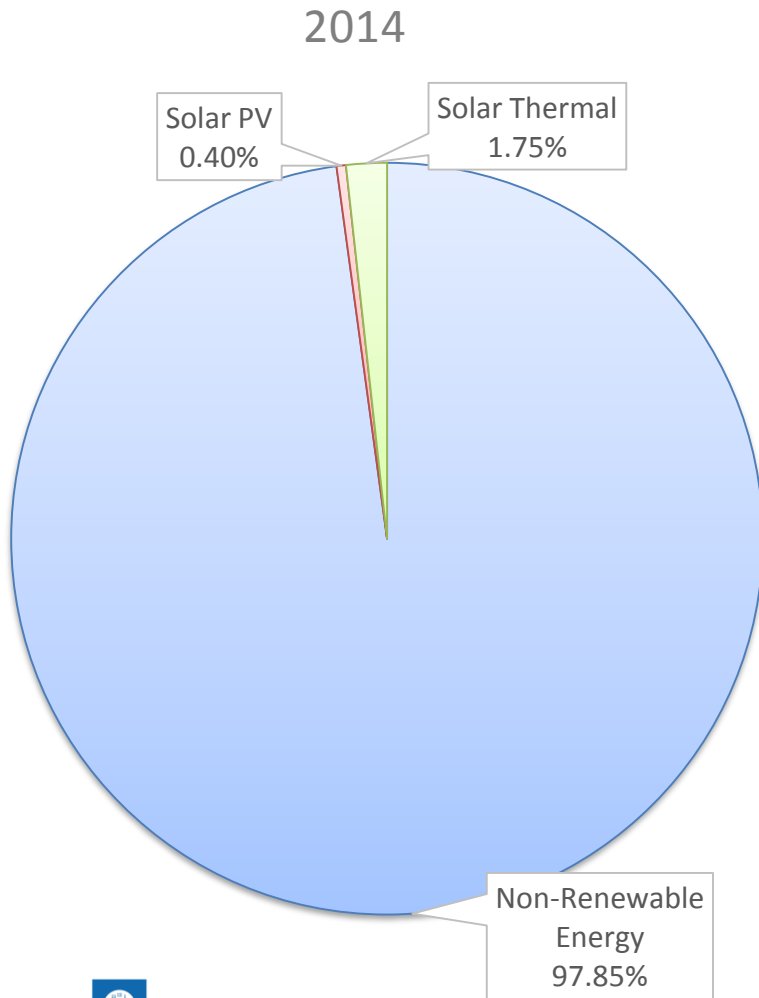


NHT-Enterprise Properties with Solar PV & Thermal Systems:

Property	Solar PV	Solar Thermal
Channel Square	×	
Copeland Manor	×	×
Galen Terrace		×
Meridian Manor	×	
Monsenor Romero		×
R Street	×	
St. Dennis	×	



Portfolio-Wide Renewable Energy Consumption:



NHT-Enterprise's renewable energy production has prevented....

545,350 lbs. of carbon dioxide emissions

Equivalent to Eliminating:

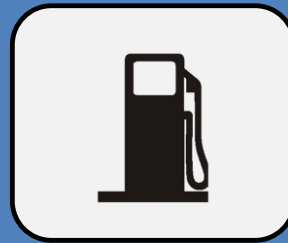
50

Passenger
vehicles driven for
1 year



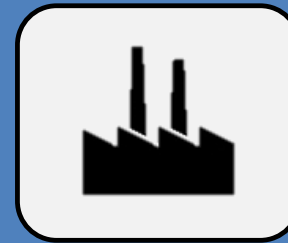
27,800

Gallons of
gasoline
consumed



263,970

Pounds of coal
burned



Section 8: Energy and Water Retrofit Highlights



Energy Retrofits 2014 - 2016:



Property	Upgrades	EUI Improvement
Poppleton	Apartment LED lighting Insulation/weatherization	▼ 41%
Briarcliff	Apartment LED lighting Exterior LED lighting	▼ 28%
Channel Square	LED lighting Efficient Pumps/motors Upgraded heating/cooling systems Solar installation Energy Star appliances	▼ 30%

Water Retrofits 2014 - 2016:



Property	Upgrades	% Reduction
St. Dennis	Low-flow toilets	▼19%
R Street	Low-flow toilets Kitchen and bath aerators Low-flow showerheads	▼19%
Briarcliff	Low-flow toilets Kitchen and bath aerators Low-flow showerheads	▼2%
Channel Square	Low-flow toilets Kitchen and bath aerators Low-flow showerheads Efficient domestic hot water plant Building automation	▼43%
Galen Terrace	Low-flow toilets	▼17%



Channel Square

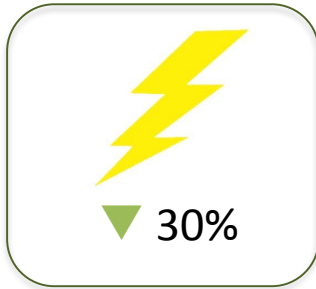
Rehabilitation Included:

- High efficiency heating/cooling systems
- High efficiency lighting
- Solar on 90% of roof
- Air sealing
- Energy star appliances
- Reflective roofing
- Premium efficiency motors/pumps
- Low-flow water fixtures
- Building automation
- High-efficiency hot water plant

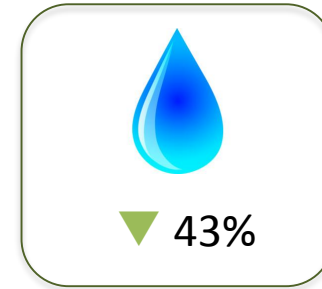
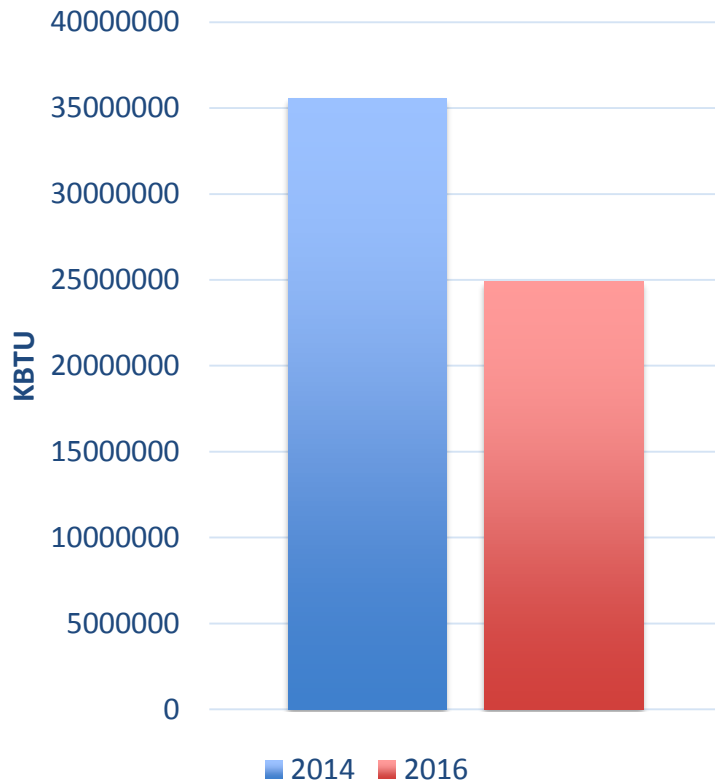


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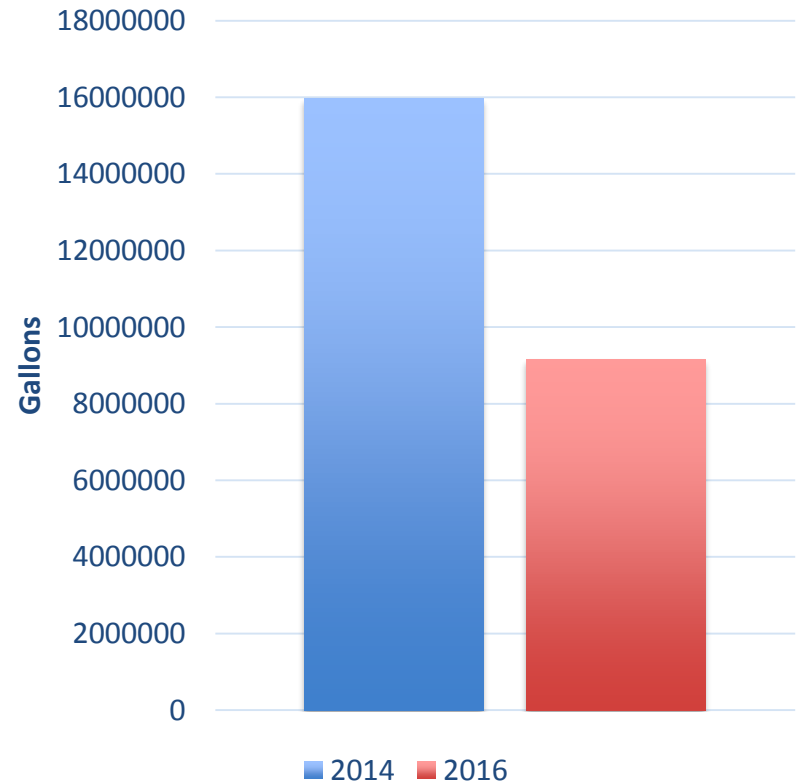
Channel Square Rehabilitation:



Energy Savings 2014-2016



Water Savings 2014-2016





St. Dennis ▼ 19%

Water Efficiency Improvements

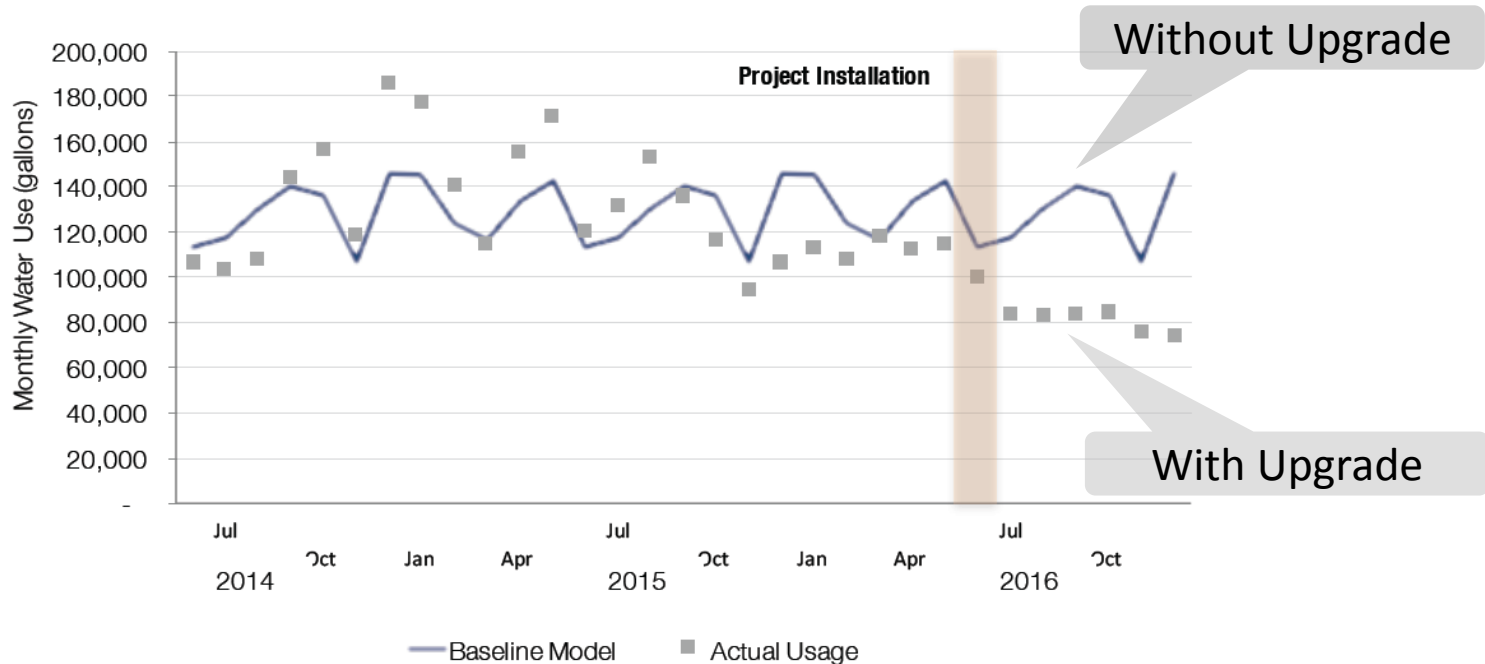
- Low-flow toilets, showerheads and aerators



St. Dennis ▼ 19%

Cost	\$10,081
Gallon Savings	292,911 gallons
\$ Savings	\$4,723 to date \$9,500 annually
% Savings	38%
Payback	1.1 years

St. Dennis Water Consumption Post Upgrade





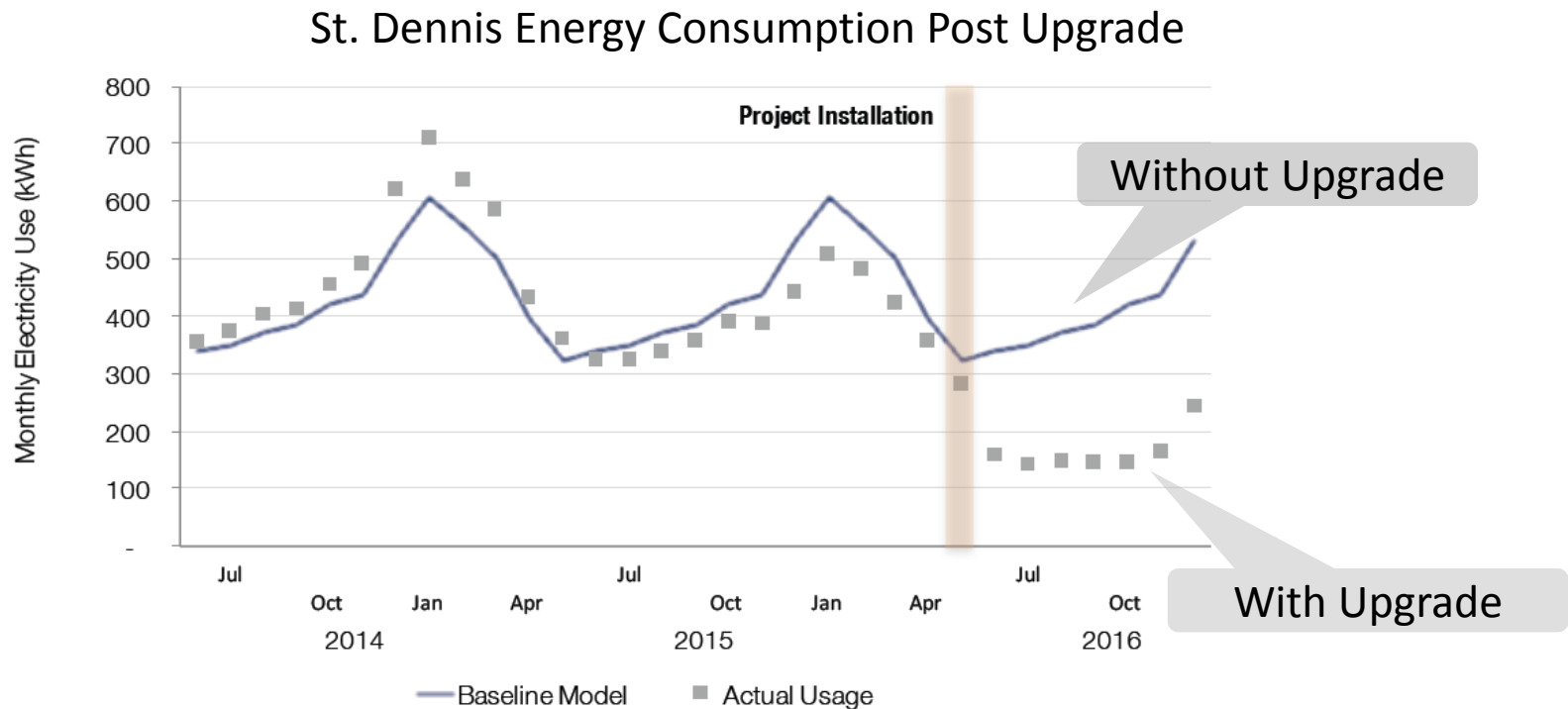
Briarcliff Townhomes ▼ 28%

Energy Efficiency Improvements

- Exterior lighting LED Retrofit
- Apartment LED lighting

Briarcliff Townhomes ▼ 28%

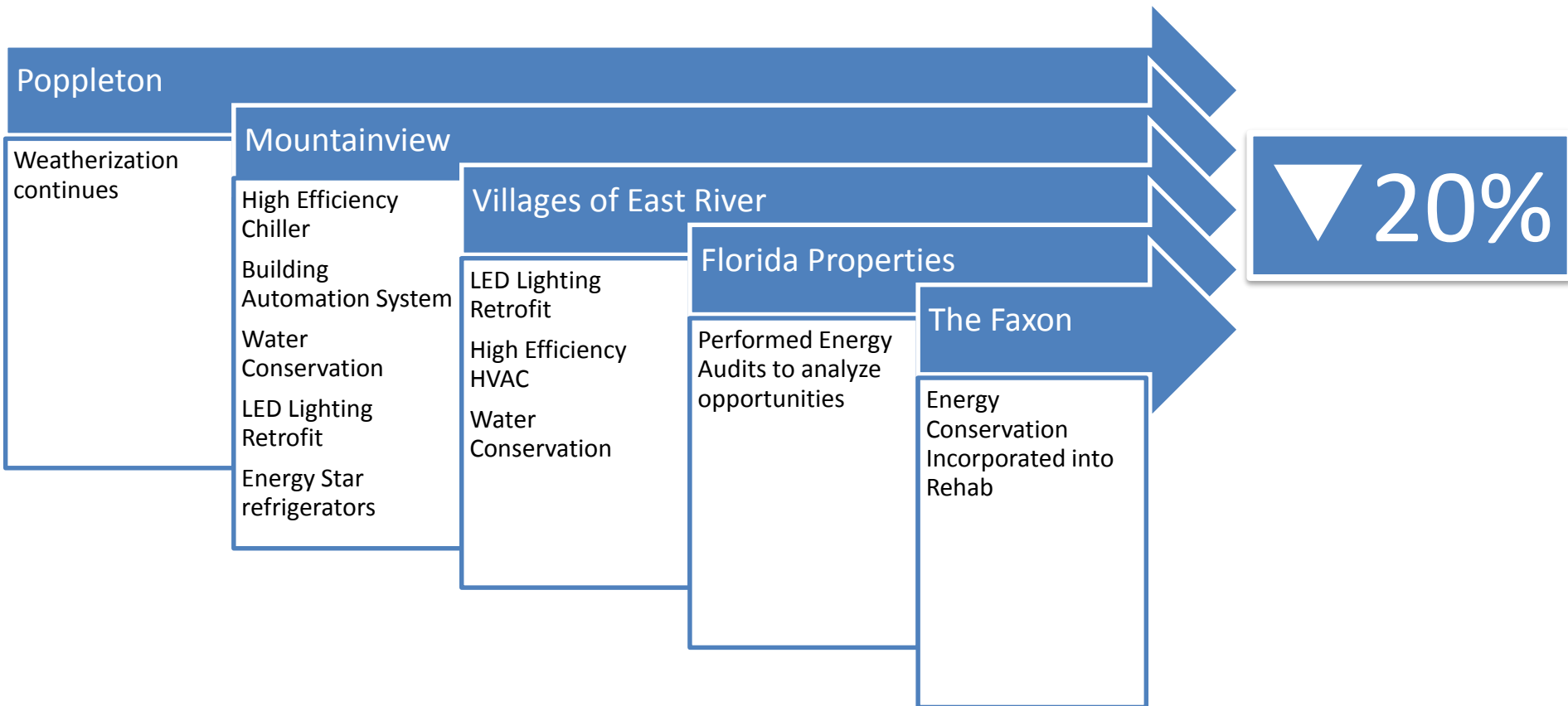
Cost	\$2,622
kWh Savings	1,689 kWh
\$ Savings	\$304 to date \$521 annually
Observed Percent Savings	60%
Payback	5.03 years



Section 9: The Path to 20%



NHT-Enterprise Upcoming Energy & Water Upgrades



Section 10: Conclusion

NHT-Enterprise has reduced its EUI by 10% and reduced its energy consumption by 15% over 2 years. This progress in combination with on-going energy upgrades across the portfolio indicate that the Better Buildings Challenge will be met by 2020.



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