Baseline Housing Study Update

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EWR Collaborative
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CADMUS

MMP
MORGAN MARKETING PARTNERS

Consumers Energy
Count on Us

NAVIGANT

DTE

EMI CONSULTING

Agenda

1

Background:
2017-today

2

Status:
Home visit results

3

Deliverables and Timeline:
Through 2020

Background

2017

- Vintage Study
  - Implementer data suggested homes characteristics do not align with MEMD
- Planning
  - Began planning for calibration study of weather sensitive measures

2018

- Identified Key Characteristics
  - Envelope
  - Heating and Cooling
  - Water Heating
- Sample Stratification
  - By Climate Zone
  - By Home Type
  - By Income

2019

- Pilot Phase
  - Collected data on 20 homes
  - Analyze Results
- Main Phase
  - Collected data on 90 homes

	Recruitment	Thermostats	Insulation
PILOT FINDINGS	• Multifamily renters more challenging to recruit • US Census data not precise enough for targeting	• Programmable thermostats or better were the most common • Thermostats of all types were often used in manual mode	• Little correlation between attic insulation and home vintage • New homes are less efficient than assumed • Windows are better than assumed
Current Status	• With targeted messaging, recruitment is continuing as planned	• Programmable or better and manual thermostats are equally common • Thermostats of all types are often used in manual mode	• Stronger correlation between attic insulation and vintage, but lower than MEMD assumptions • New homes are less efficient than assumed • Windows are better than assumed

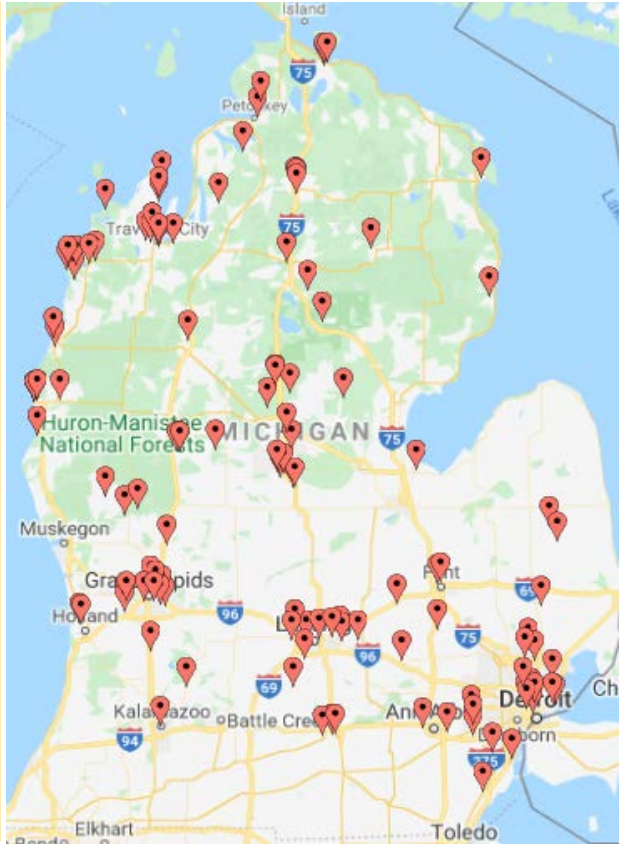
Status and Current Data

DRAFT RESULTS ARE UNWEIGHTED AND INTENDED FOR INFORMATIONAL DICUSSION

121 of 204
homes inspected

92 of 184
thermostat loggers deployed

14 of 62
furnace monitors deployed



60% of site visits are complete

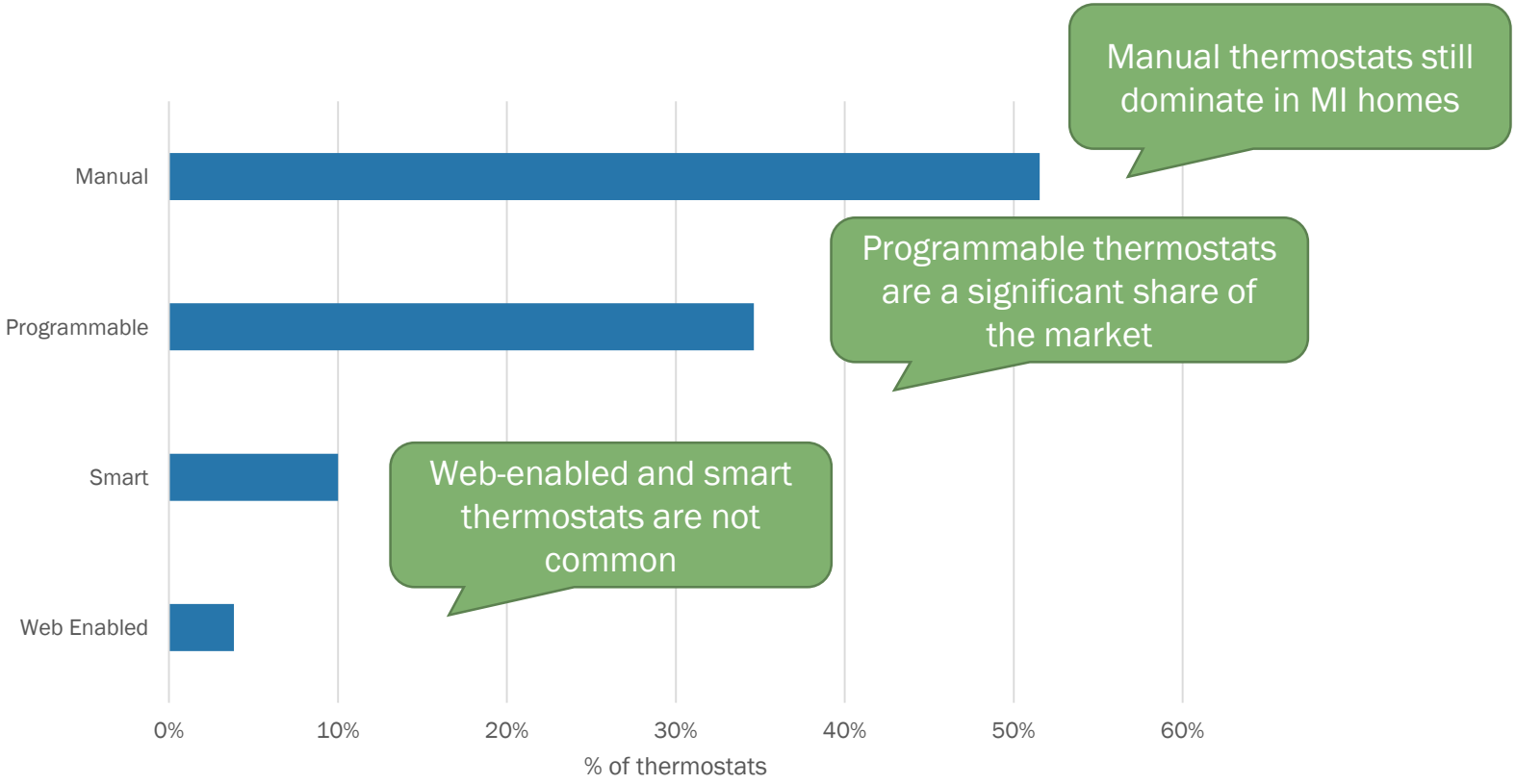
Single Family homeowners have the highest response rate

- 88% of site visits completed

Multifamily renters have the lowest response rate

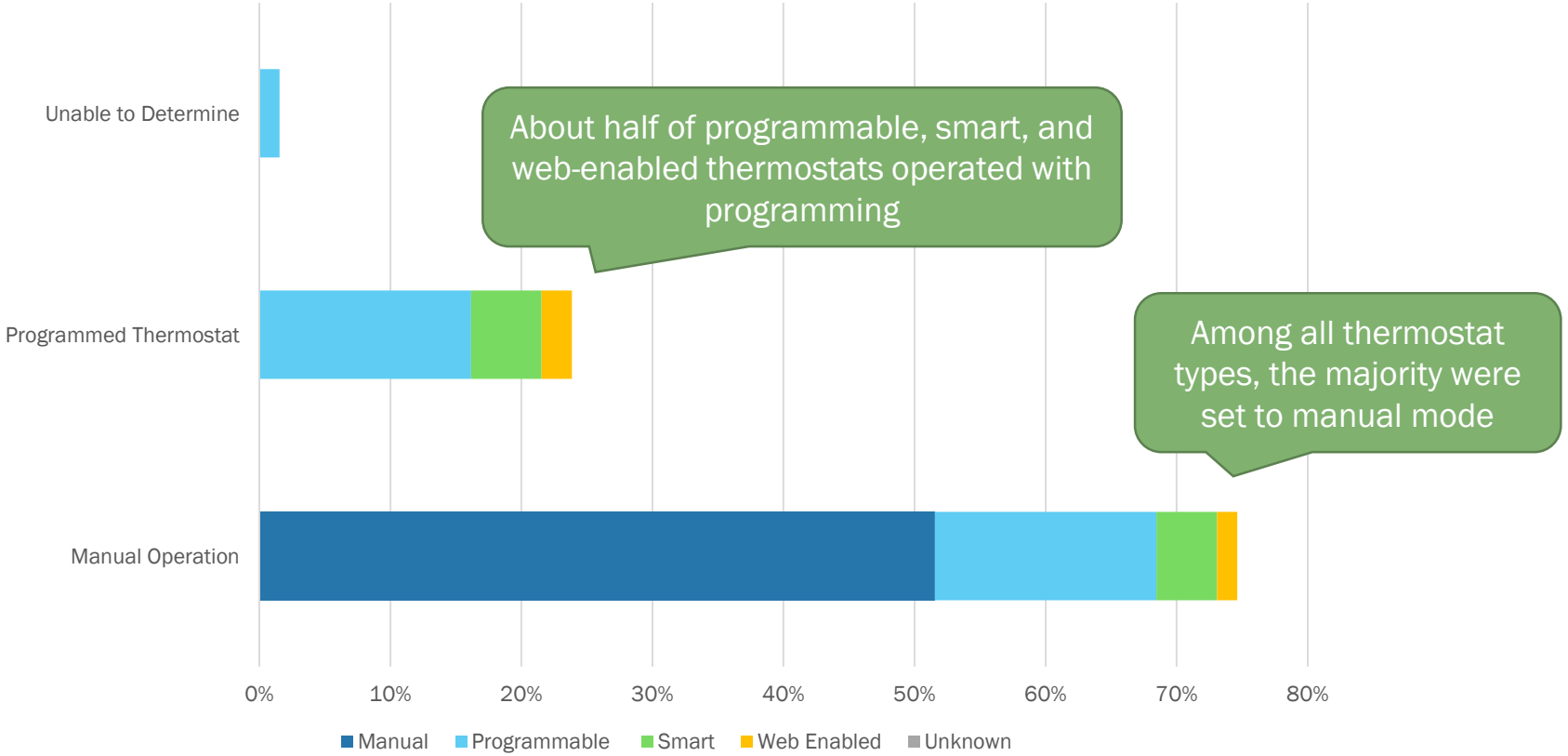
- 31% of site visits completed
- Study survey and messaging are targeting these customers

Thermostat Types



N= 130

Thermostats – Programming Status



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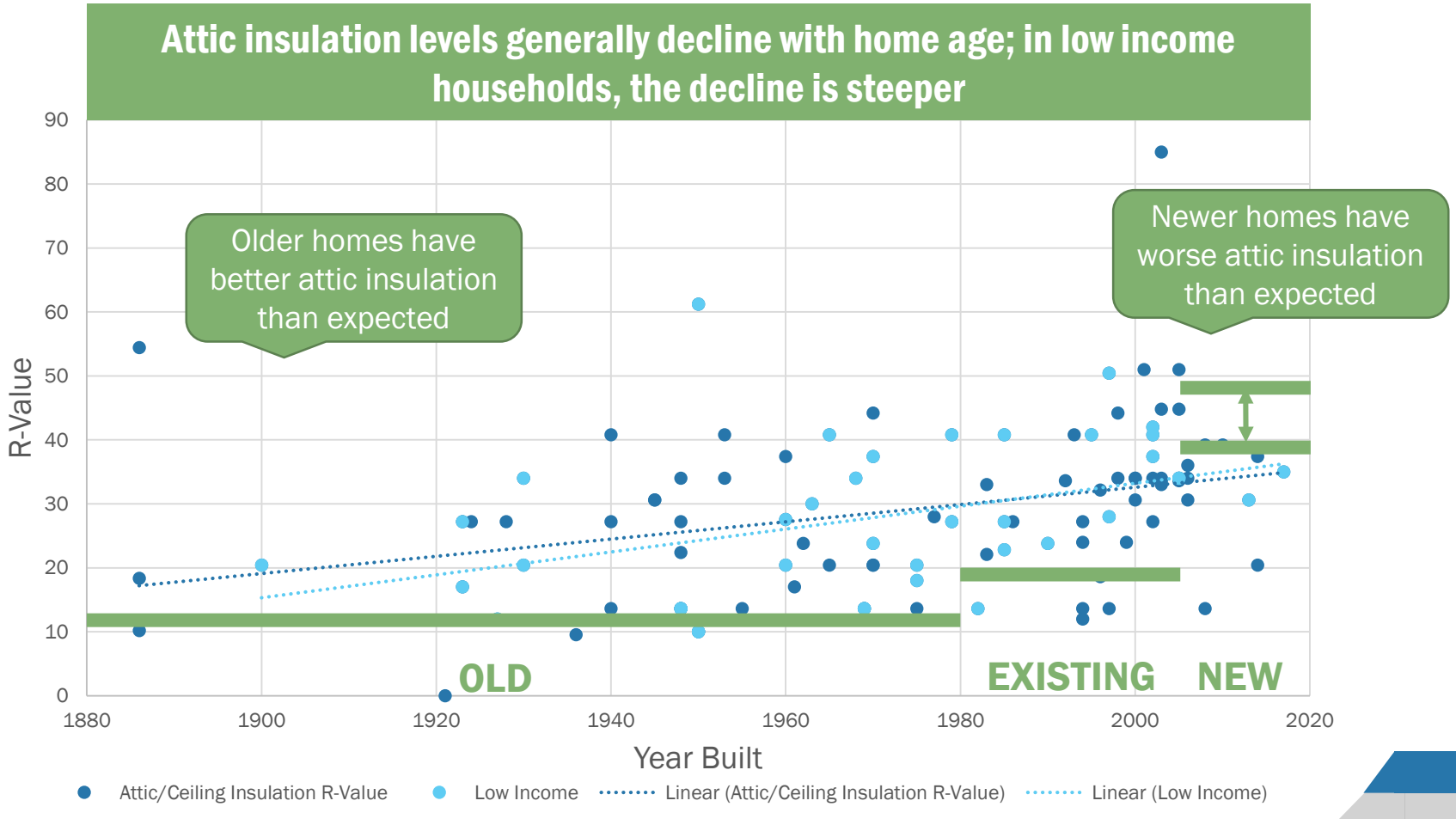
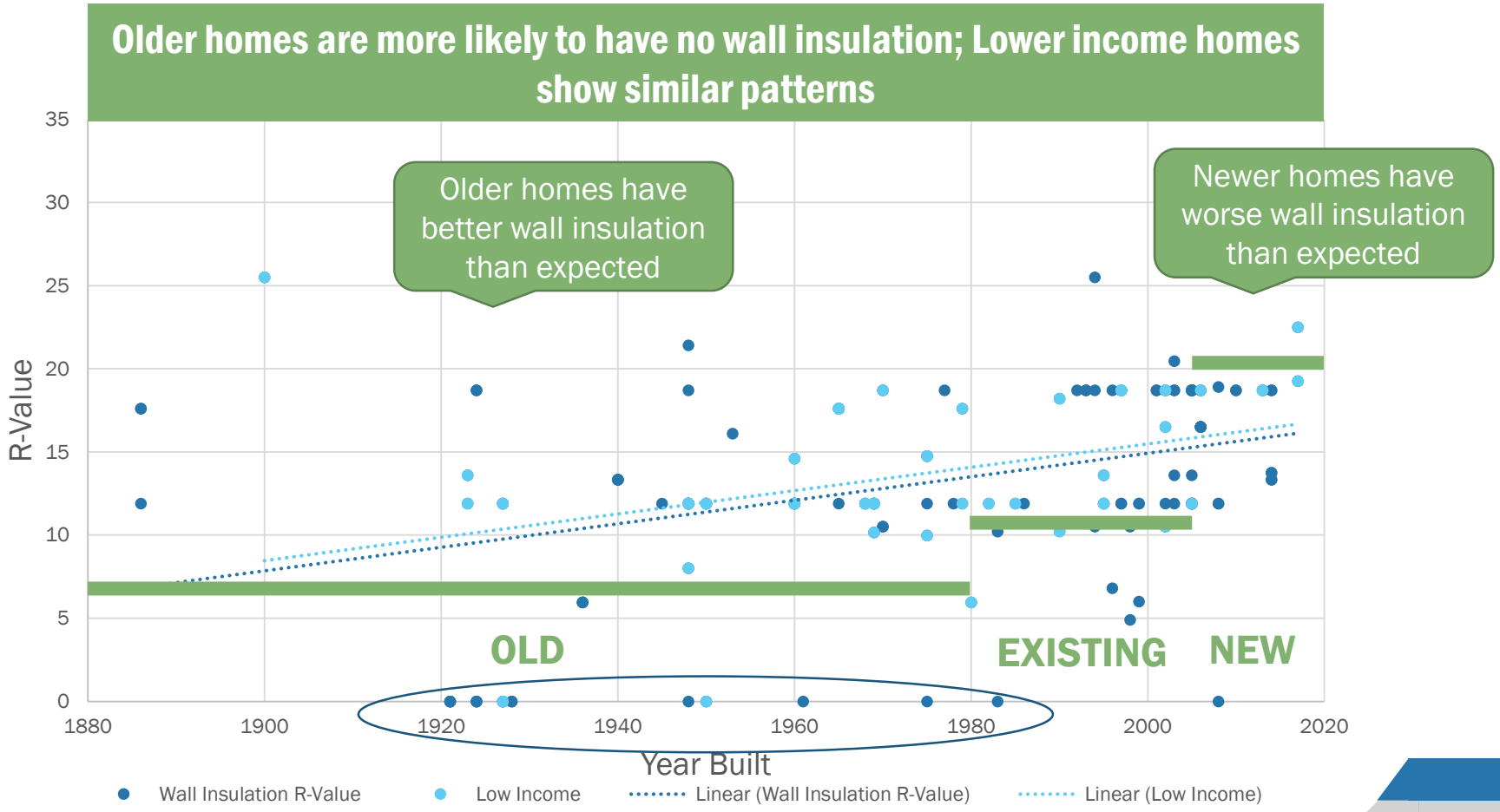
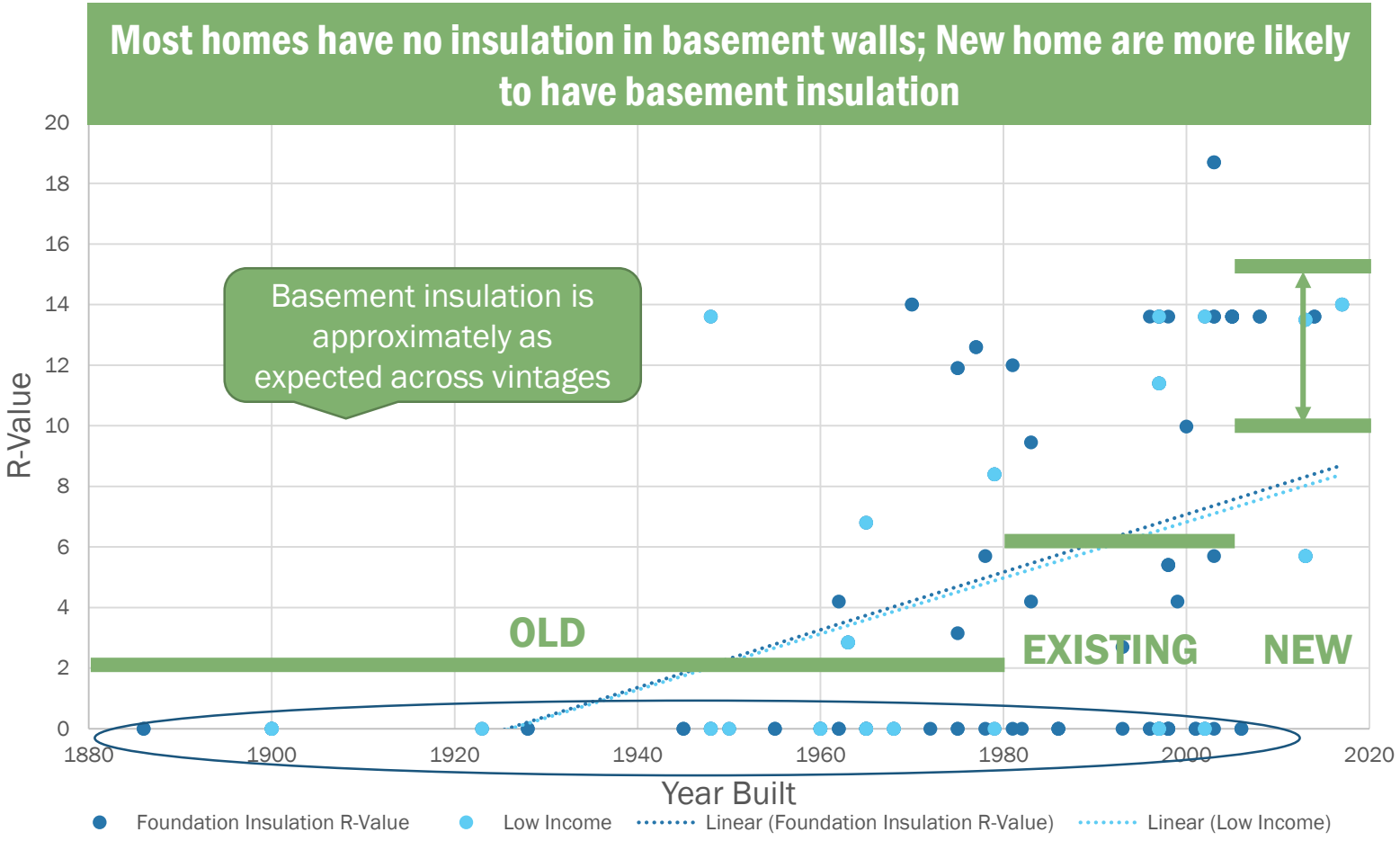

Attic insulation levels generally decline with home age; in low income households, the decline is steeper
Older homes have better attic insulation than expected
Newer homes have worse attic insulation than expected
OLD
EXISTING
NEW
R-Value
Year Built
0
10
20
30
40
50
60
70
80
90
1880
1900
1920
1940
1960
1980
2000
2020
Attic/Ceiling Insulation R-Value
Low Income
Linear (Attic/Ceiling Insulation R-Value)
Linear (Low Income)

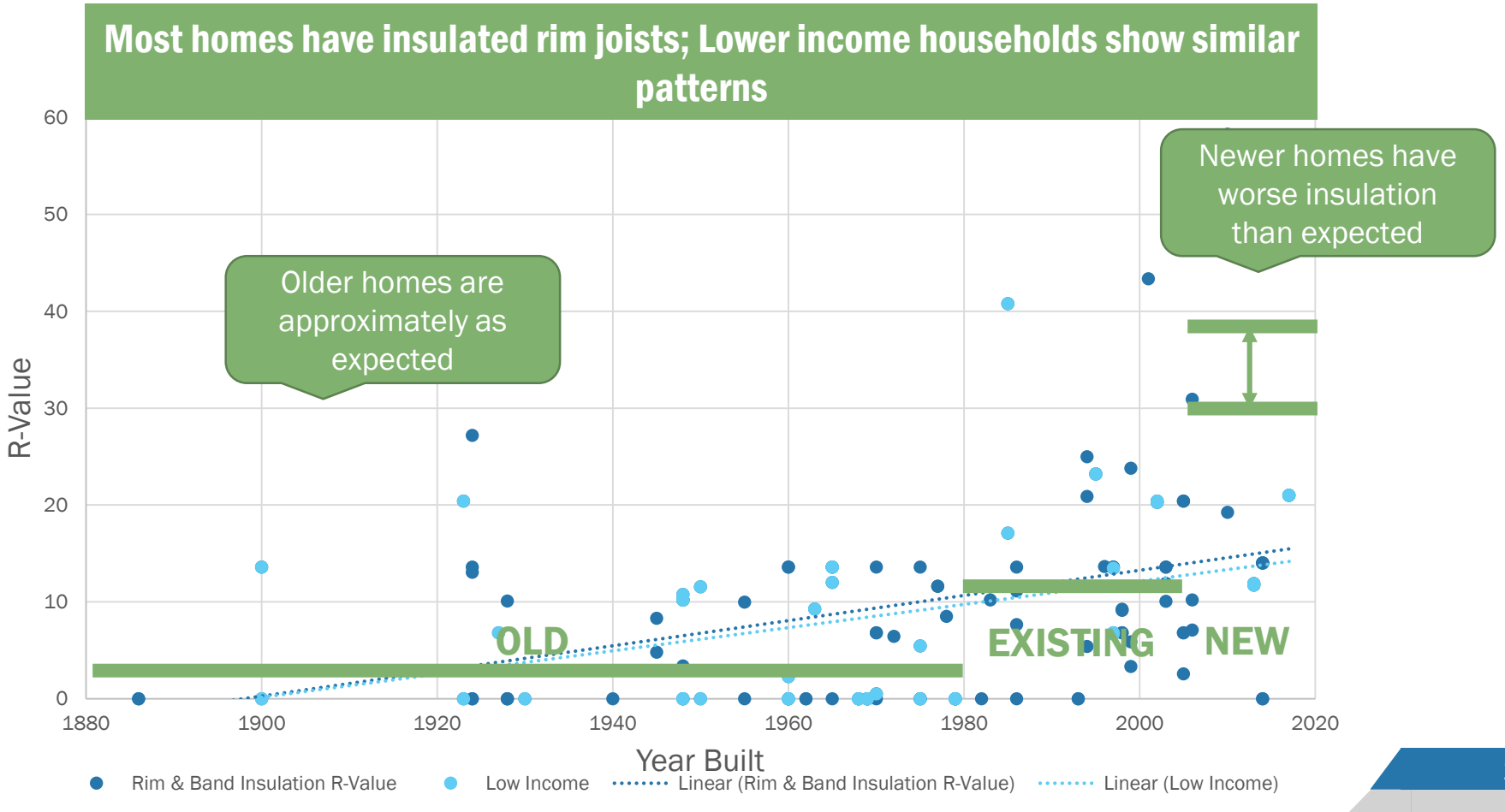
N= 105


Older homes are more likely to have no wall insulation; Lower income homes show similar patterns
Older homes have better wall insulation than expected
Newer homes have worse wall insulation than expected
OLD
EXISTING
NEW
R-Value
Year Built
35
30
25
20
15
10
5
0
1880
1900
1920
1940
1960
1980
2000
2020
Wall Insulation R-Value
Low Income
Linear (Wall Insulation R-Value)
Linear (Low Income)

N= 168

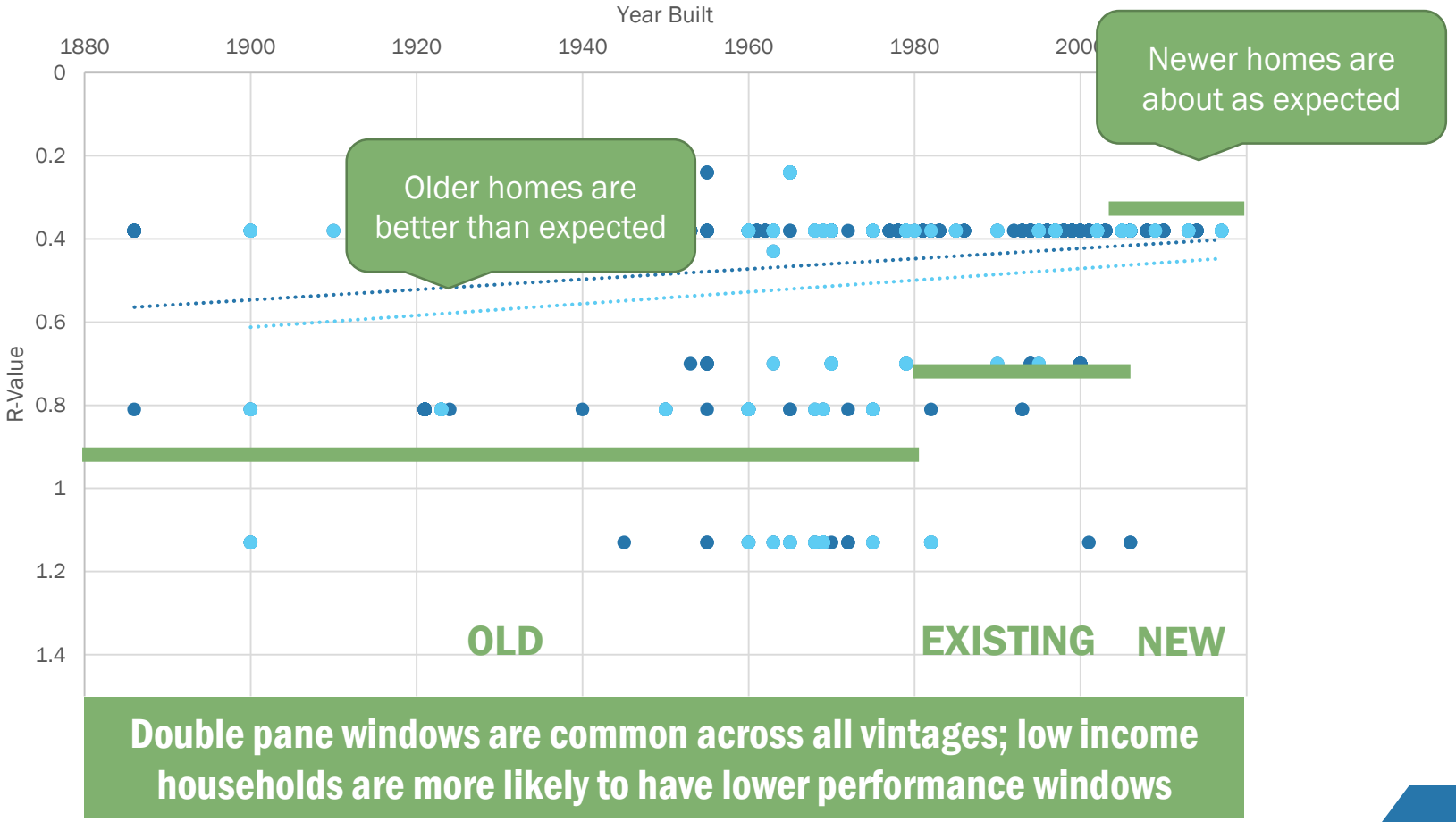

Most homes have no insulation in basement walls; New home are more likely to have basement insulation
Basement insulation is approximately as expected across vintages
OLD
EXISTING
NEW
R-Value
Year Built
0
2
4
6
8
10
12
14
16
18
20
1880
1900
1920
1940
1960
1980
2000
2020
Foundation Insulation R-Value
Low Income
Linear (Foundation Insulation R-Value)
Linear (Low Income)

N= 106


Most homes have insulated rim joists; Lower income households show similar patterns
Older homes are approximately as expected
Newer homes have worse insulation than expected
OLD
EXISTING
NEW
R-Value
Year Built
60
50
40
30
20
10
0
1880
1900
1920
1940
1960
1980
2000
2020
Rim & Band Insulation R-Value
Low Income
Linear (Rim & Band Insulation R-Value)
Linear (Low Income)

N= 123

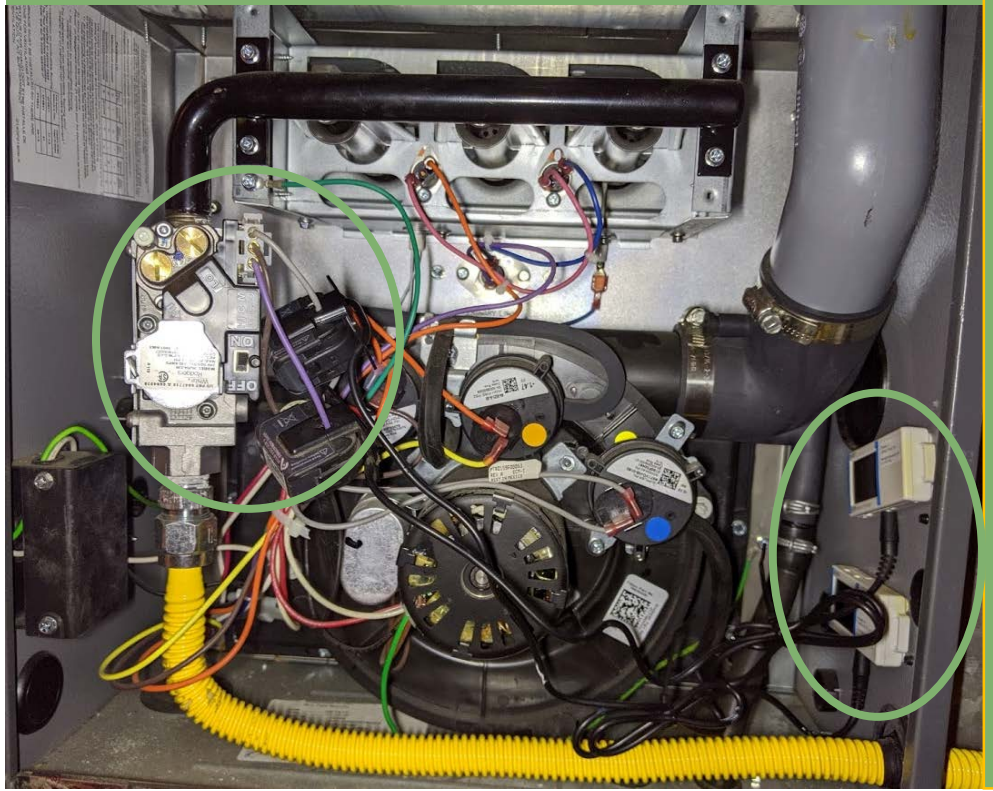
Windows



Double pane windows are common across all vintages; low income households are more likely to have lower performance windows

N= 970

Furnace metering launched in January



Sampling from Baseline Housing Study participants

- 3-5 month metering period
- Non-invasive metering
- Determining furnace usage by monitoring gas valve operation

Deliverables & Timeline

Findings will cover

- Weighting schema
- Building types and size characteristics
- Insulation values
- HVAC types and efficiency
- DWH types and efficiencies
- Thermostat characteristics and settings

Mar	April	May	June	July
Complete Field Data Collection			Remove Metering Equipment	
Aug	**Sept**	**Oct**	**Nov**	**Dec**
Data Analysis		**Present Draft Findings**	Feedback process	**Submit White Papers**

Thank you, Questions?

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