INNOVATIVE HOUSING ANALYSIS TASK 3: CONCEPTUAL DESIGN PACKAGE

Montgomery County, MD

Prepared for:

Montgomery County Planning Department

Prepared by:

Michael Baker International

Date

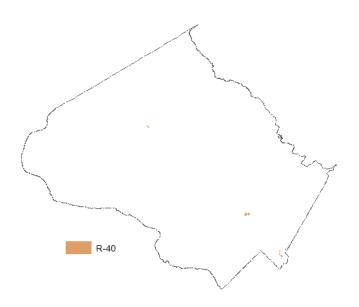
May 2024

EXECUTIVE SUMMARY

The Conceptual Design Package includes conceptual designs to introduce attainable housing into the R-40, R-60, R-90, and R-200 zoning districts.

This report complements Task 2, Zoning Analysis, to understand what barriers exist to introducing attainable housing that follows these conceptual designs.

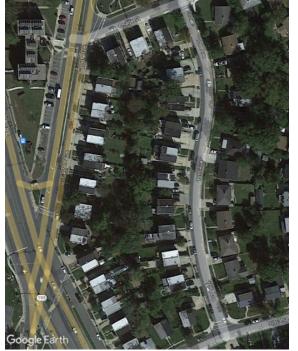
There are 181 acres of R-40 zoning districts in County and it makes up less than 1% of the four residential districts analyzed in this report.

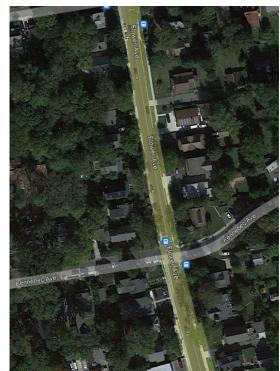


Land Pattern Examples



Examples of duplexes in R-40. Location: Takoma Park.





Examples of single-family detached in R-40. Location: Takoma Park.



Attainable Housing Study Zoning Regulations

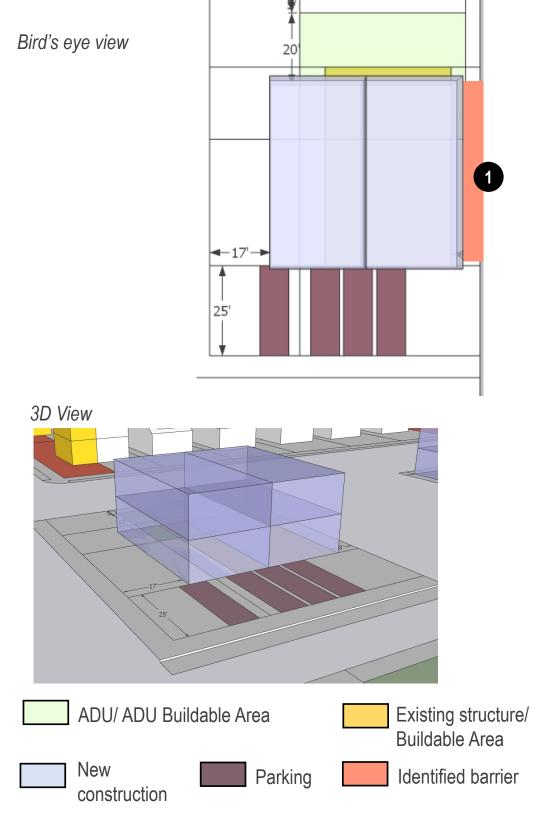
	Detached	Duplex	Multiplex
Site Area	n/a	8,000 sf	8,000 sf
Lot Area Per Unit	6,000 sf	3,000 sf	1,500 sf
Site/Lot Width at Front Building Line	60 ft	60 ft	60 ft
Site/Lot Coverage	35%	40%	40%
Front Setback	25 ft	25 ft	25 ft
Side Setback	8 ft	10 ft	10 ft
Rear Setback	20 ft	20 ft	20 ft
Height	35 ft	35 ft	35 ft

Duplex	Permitted
Triplex	Must conform with pattern book
Quadplex	Must conform with pattern book and be located in Priority Housing District



Side-by-side duplex

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	8,000 sf	7,500 sf	Noncompliant
Lot Area Per Unit	3,000 sf	3,750 sf	Compliant
Site/Lot Width at Front Building Line	60 ft	75 ft	Compliant
Site/Lot Coverage	40%	33%	Compliant
Front Setback	25 ft	25 ft	Compliant
Side Street Setback/ Side Setback	25 ft (side street)/10 ft	17/8 ft	1 Noncompliant
Rear Setback	20 ft	20 ft	Compliant
Height	35 ft	24 ft	Compliant

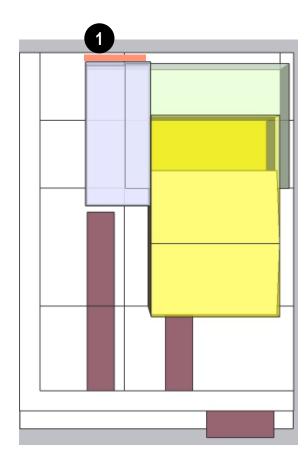


Addition of one unit and an ADU

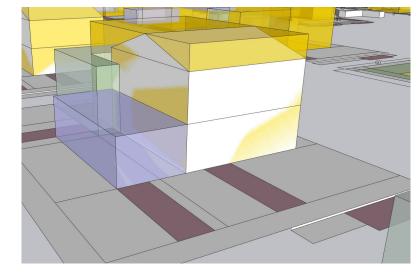
Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	8,000 sf	7,500 sf	Compliant
Lot Area Per Unit	1,500 sf	2,500 sf	Compliant
Site/Lot Width at Front Building Line	60 ft	75 ft	Compliant
Site/Lot Coverage	40%	44%	Noncompliant
Front Setback	25 ft	25 ft	Compliant
Side Street Setback/ Side Setback	25 ft (side street)/10 ft 5 ft (ADU)	4/14 ft	Compliant
Rear Setback	20 ft 5ft (ADU)	5 ft	1 Noncompliant
Height	35 ft	30 ft	Compliant

Bird's eye view







ADU/ ADU Buildable Area

Existing structure/
Buildable Area

New construction

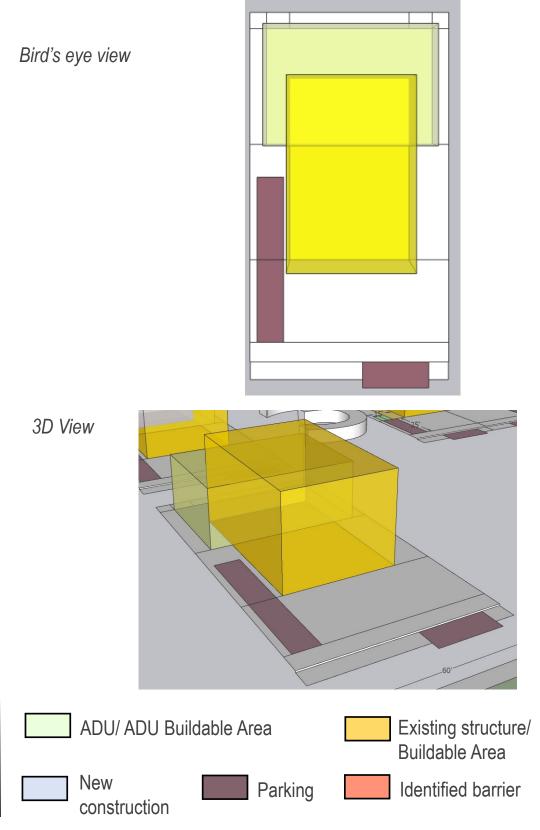


Parking



Addition of an ADU

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	8,000 sf	6,000 sf	Noncompliant
Lot Area Per Unit	3,000 sf	3,000 sf	Compliant
Site/Lot Width at Front Building Line	60 ft	60 ft	Compliant
Site/Lot Coverage	40%	50%	Noncompliant
Front Setback	25 ft	25 ft	Compliant
Side Street Setback/ Side Setback	25 ft (side street)/10 ft 5 ft ADU	12 ft/12 ft 5 ft/5 ft (ADU)	Compliant
Rear Setback	20 ft 5 ft (ADU)	5 ft	Compliant
Height	35 ft	30 ft	Compliant

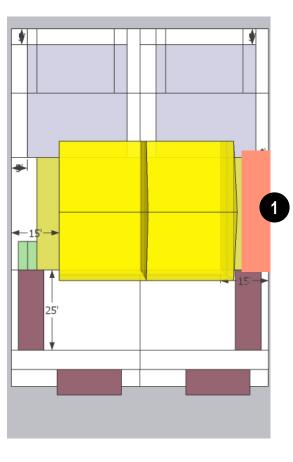


Conversion of duplex into quadplex

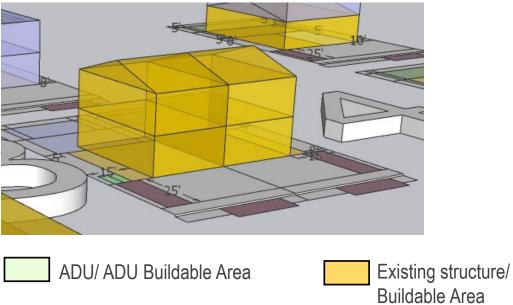
Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	8,000 sf	7,200 sf	Noncompliant
Lot Area Per Unit	1,500 sf	1,800 sf	Compliant
Site/Lot Width at Front Building Line	60 ft	60 ft	Compliant
Site/Lot Coverage	40%	38%	Compliant
Front Setback	25 ft	25 ft	Compliant
Side Street Setback/ Side Setback	25 ft (side street)/10 ft	15 ft/8ft	1 Noncompliant
Rear Setback	20 ft	30 ft	Compliant
Height	35 ft	35 ft	Compliant

Bird's eye view



3D View

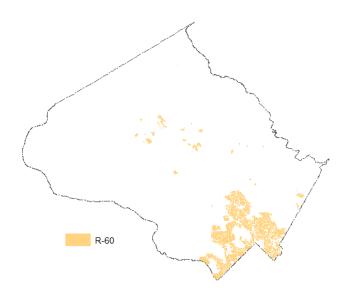


Parking

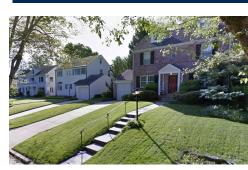
New

construction

There are 17,354 acres of R-60 zoning districts in County and it makes up 24% of the four residential districts analyzed in this report.



Land Pattern Examples



7,000 – 9,000 sf lots in R-60. Location: Chevy Chase.





10,000 – 13,000 sf lots in R-60. Location: Bethesda.

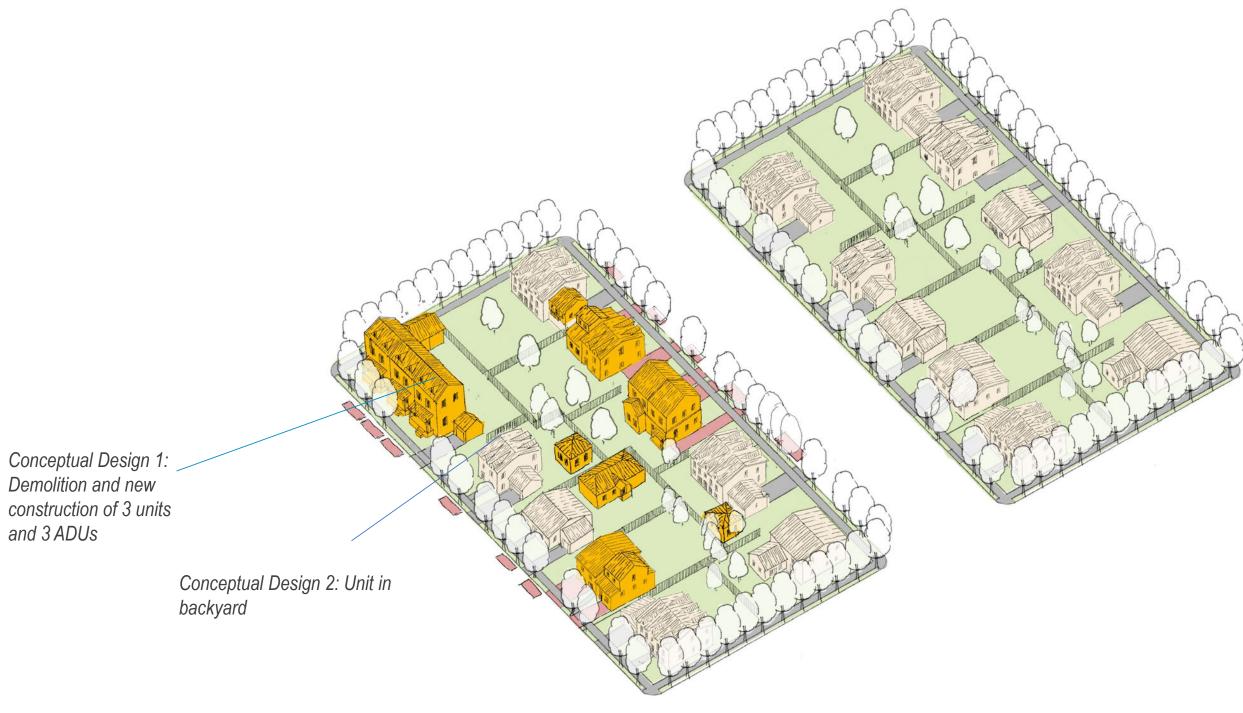


Attainable Housing Study Zoning Regulations

	Detached	Duplex	Multiplex
Site Area	n/a	6,000 sf	6,000 sf
Lot Area Per Unit	6,000 sf	3,000 sf	1,500 sf
Site/Lot Width at Front Building Line	60 ft	60 ft	60 ft
Site/Lot Coverage	35%	40%	40%
Front Setback	25 ft	25 ft	25 ft
Side Setback	8 ft	8 ft	8 ft
Rear Setback	20 ft	20 ft	20 ft
Height	35 ft	35 ft	35 ft

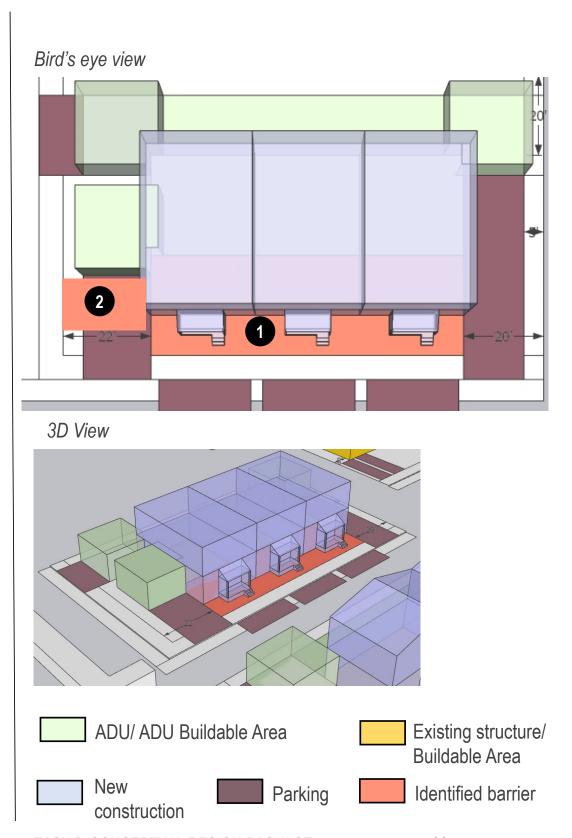
Duplex	Must conform with pattern book
Triplex	Must conform with pattern book
Quadplex	Must conform with pattern book and be located in Priority Housing District

R-60 Sample Block (Existing – Right, Attainable Housing Additions – Left)



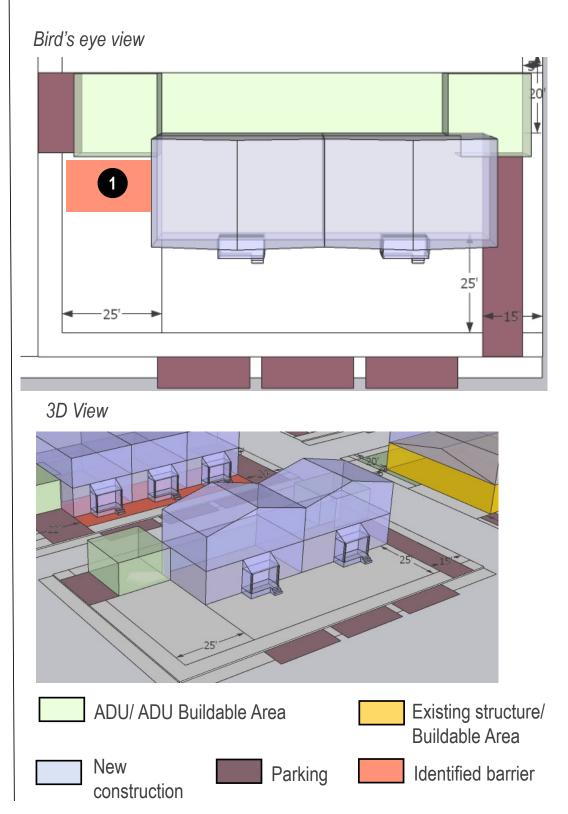
New construction of three units and three ADUs

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	6,000 sf	9,000 sf	Compliant
Lot Area Per Unit	1,500 sf	1,500 sf	Compliant
Site/Lot Width at Front Building Line	60 ft	120 ft	Compliant
Site/Lot Coverage	35%	48%	Noncompliant
Front Setback	25 ft	10 ft	1 Noncompliant
Side Street Setback/ Side Setback	40 ft (side street)/12 ft 5 ft (ADU)	22ft (side street)/20 ft 5 ft (ADU)	2 Noncompliant
Rear Setback	20 ft 5 ft (ADU)	20 ft 5 ft (ADU)	Compliant
Height	35 ft	30 ft	Compliant



Alternative conceptual design 1 with new construction of two duplexes and two ADUs

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	6,000 sf	9,000 sf	Compliant
Lot Area Per Unit	1,500 sf	3,333 sf	Compliant
Site/Lot Width at Front Building Line	60 ft	120 ft	Compliant
Site/Lot Coverage	35%	44%	Noncompliant
Front Setback	25 ft	25 ft	Compliant
Side Street Setback/ Side Setback	40 ft (side street)/12 ft 5 ft (ADU)	25 ft (side street)/15 ft 5 ft (ADU)	1 Noncompliant
Rear Setback	20 ft 5 ft (ADU)	20 ft 5 ft (ADU)	Compliant
Height	35 ft	30 ft	Compliant

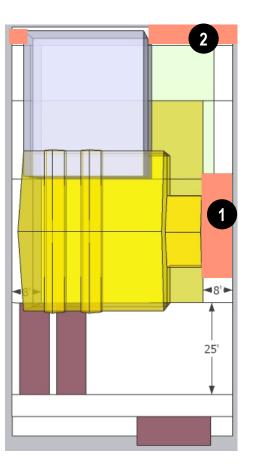


Addition of unit

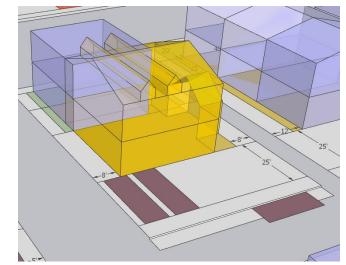
Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	6,000 sf	6,000 sf	Compliant
Lot Area Per Unit	3,000 sf	3,000 sf	Noncompliant
Site/Lot Width at Front Building Line	60 ft	60 ft	Compliant
Site/Lot Coverage	35%	31%	Compliant
Front Setback	25 ft	25 ft	Compliant
Side Street Setback/ Side Setback	40 ft (side street)/12 ft	8 ft/8ft	Noncompliant
Rear Setback	20 ft	5 ft	2 Noncompliant
Height	35 ft	30 ft	Compliant

Bird's eye view



3D View



ADU/ ADU Buildable Area

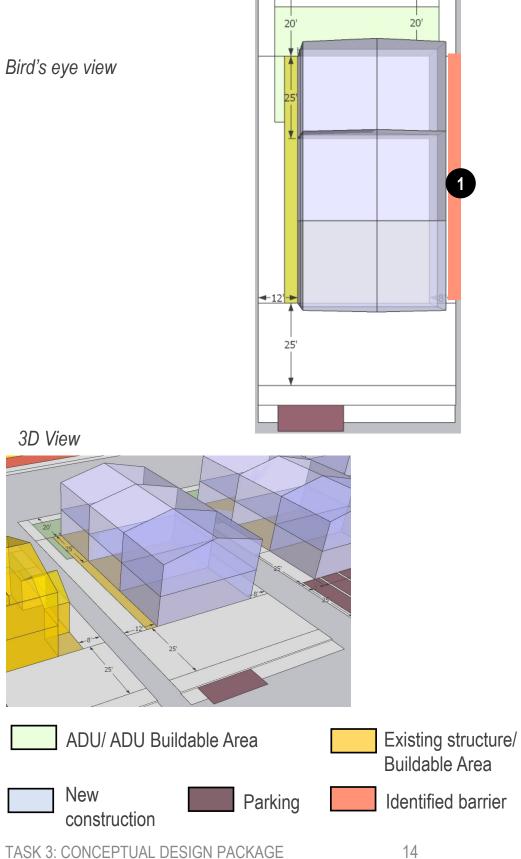
Existing structure/
Buildable Area

New construction

Parking

Three units

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	6,000 sf	7,200 sf	Compliant
Lot Area Per Unit	1,500 sf	2,400 sf	Compliant
Site/Lot Width at Front Building Line	60 ft	60 ft	Compliant
Site/Lot Coverage	35%	33%	Noncompliant
Front Setback	25 ft	25 ft	Compliant
Side Street Setback/ Side Setback	40 ft (side street)/12 ft	12/8 ft	1 Noncompliant
Rear Setback	20 ff	20 ft	Compliant
Height	35 ft	30 ft	Compliant

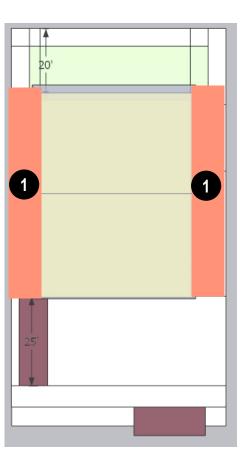


Addition of second story unit.

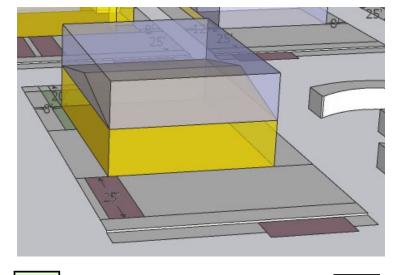
Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	6,000 sf	6,000 sf	Compliant
Lot Area Per Unit	3,000 sf	3,000 sf	Compliant
Site/Lot Width at Front Building Line	60 ft	60 ft	Compliant
Site/Lot Coverage	35%	38%	Noncompliant
Front Setback	25 ft	25 ft	Compliant
Side Street Setback/ Side Setback	40 ft (side street)/12 ft	8 ft/8 ft	1 Noncompliant
Rear Setback	20 ft	20 ft	Compliant
Height	35 ft	30 ft	Compliant

Bird's eye view



3D View



ADU/ ADU Buildable Area

Area Existing structure/
Buildable Area

New construction



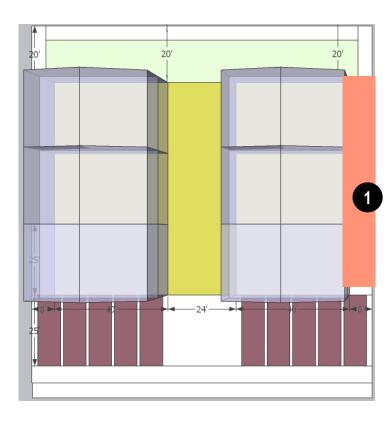
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New construction of six units

Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	6,000 sf	14,000 sf	Compliant
Lot Area Per Unit	1,500 sf	2,333 sf	Compliant
Site/Lot Width at Front Building Line	60 ft	120 ft	Compliant
Site/Lot Coverage	35%	42%	Noncompliant
Front Setback	25 ft	25 ft ft	Compliant
Side Street Setback/ Side Setback	40 ft (side street)/12 ft	8 ft/ 8 ft	1 Noncompliant
Rear Setback	20 ff	20 ft	Compliant
Height	35 ft	30 ft	Compliant

Bird's eye view



3D View



ADU/ ADU Buildable Area

Existing structure/
Buildable Area

New construction

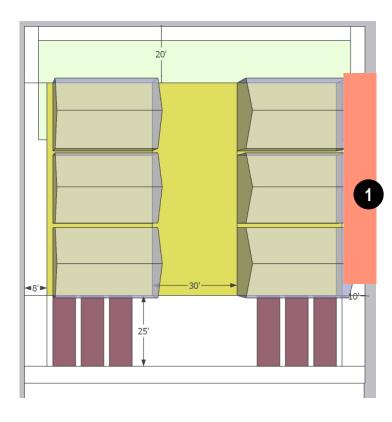
Parking

Alternative conceptual design 4 with cottage cluster

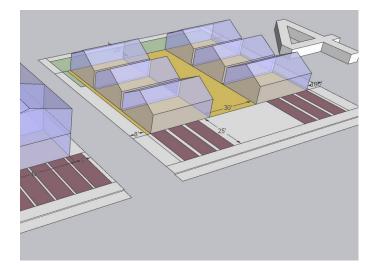
Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	6,000 sf	14,000 sf	Compliant
Lot Area Per Unit	1,500 sf	2,333 sf	Noncompliant
Site/Lot Width at Front Building Line	60 ft	120 ft	Compliant
Site/Lot Coverage	35%	35%	Compliant
Front Setback	25 ft	25	Compliant
Side Street Setback/ Side Setback	40 ft (side street)/12 ft	8 ft/ 8 ft	1 Noncompliant
Rear Setback	20 ff	20 ft	Compliant
Height	35 ft	17 ft	Compliant

Bird's eye view



3D View



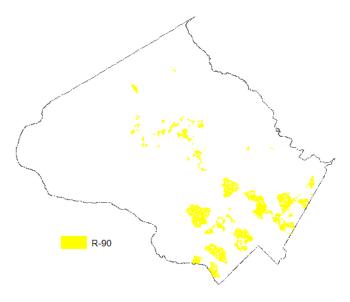
ADU/ ADU Buildable Area

Existing structure/
Buildable Area

New construction

Parking

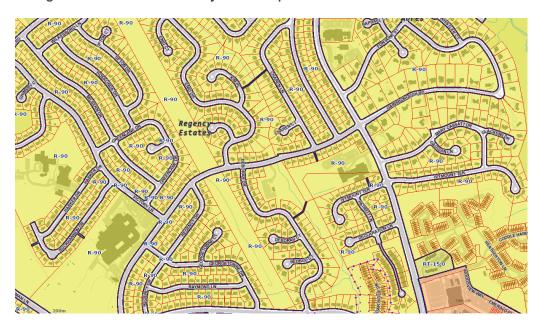
There are 16,646 acres of R-60 zoning districts in County and it makes up 23% of the four residential districts analyzed in this report.



Land Pattern Examples

Land patterns in R-90 are similar to R-60 and R-90 districts with a mix of single-family detached with lots varying from 7,000 - 10,000 sf to 15,000 - 20,000 sf.

Image below shows variety of land patterns in R-90.

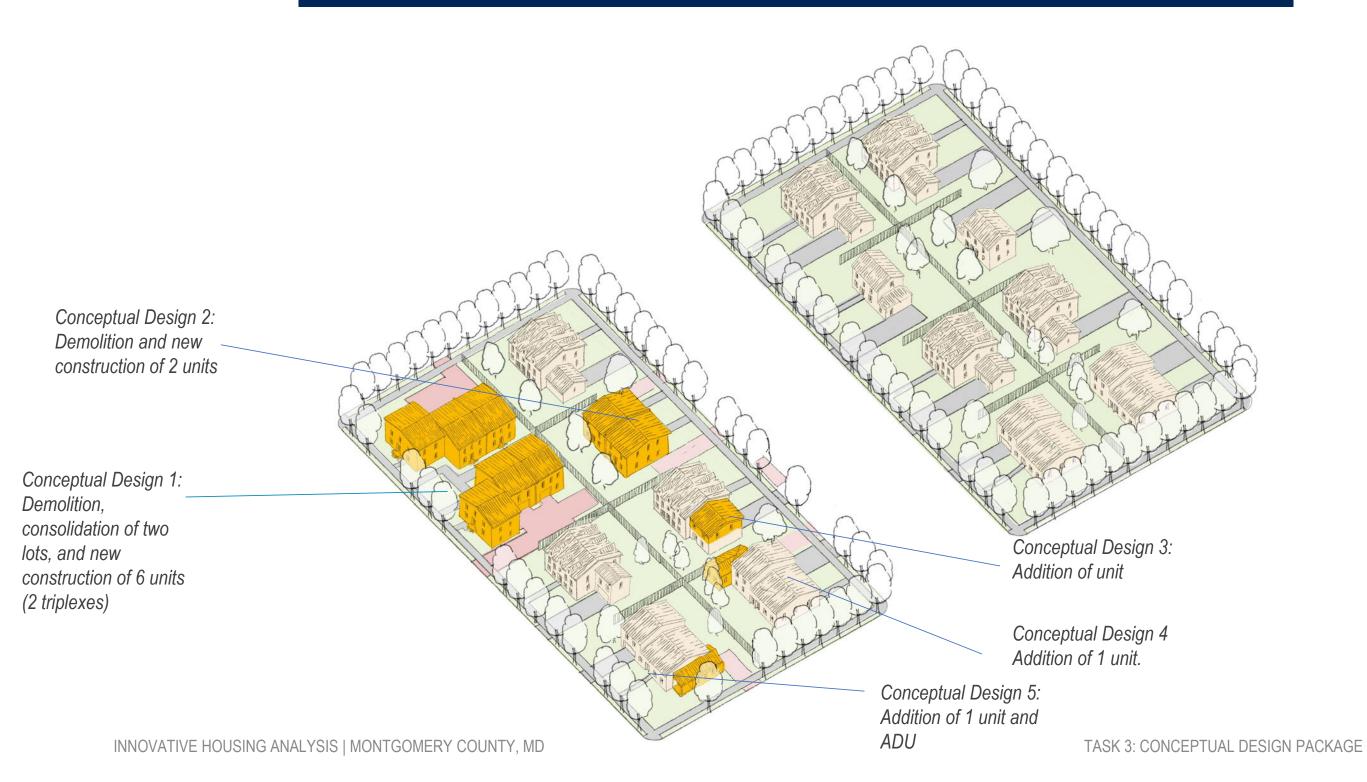


Attainable Housing Study Zoning Regulations

	Detached	Duplex	Multiplex
Site Area Min	n/a	9,000 sf	9,000 sf
Lot Area Per Unit	9,000 sf	4,500 sf	2,250 sf
Site/Lot Width at Front Building Line	25 ft	25 ft	25 ft
Site/Lot Coverage	30%	30%	30%
Front Setback	30 ft	30 ft	30 ft
Side Setback	5 ft.	5 ft	5 ft.
Rear Setback	10 ft	10 ft	10 ft
Height	35 ft	35 ft	35 ft

Duplex	Must conform with pattern book
Triplex	Must conform with pattern book
Quadplex	Must conform with pattern book and be located in Priority Housing District

R-90 Sample Block (Existing – Right, Attainable Housing Additions – Left)



Demolition, consolidation of two lots, and new construction of 6 units (2 triplexes)

Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	9,000 sf	18,000 sf	Compliant
Lot Area Per Unit	2,250 sf	3,000 sf	Compliant
Site/Lot Width at Front Building Line	n/a	180 ft	Compliant
Site/Lot Coverage	30%	35%	Compliant
Front Setback	30 ft	10.5 ft	1 Noncompliant
Side Street Setback/ Side Setback	30 ft (side street)/10 ft	26 ft/ 21 ft	Compliant
Rear Setback	25 ft	10 ft	2 Noncompliant
Height	35 ft	30 ft	Compliant

Bird's eye view 2 3D View

Parking

New

construction

ADU/ ADU Buildable Area

Existing structure/

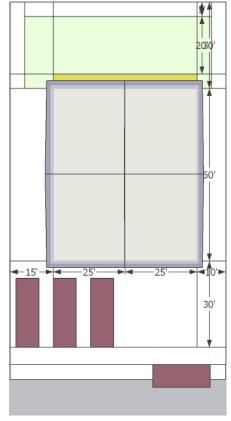
Identified barrier

Buildable Area

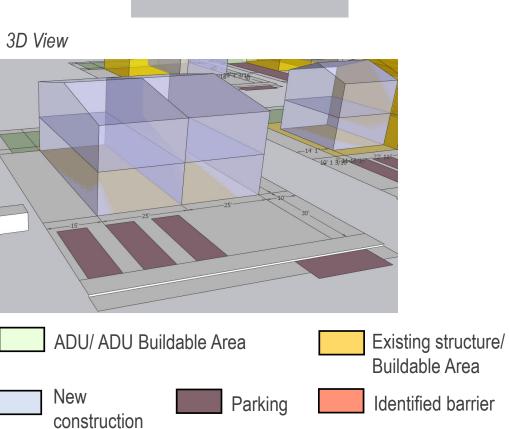
Demolition and new construction of 2 units

Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	9,000 sf	9,000 sf	Compliant
Lot Area Per Unit	4,500 sf	4,500 sf	Compliant
Site/Lot Width at Front Building Line	n/a	75 ft	Compliant
Site/Lot Coverage	30%	33%	Noncompliant
Front Setback	30 ft	30 ft	Compliant
Side Street Setback/ Side Setback	30 ft (side street)/10 ft	15 ft/10 ft	Compliant
Rear Setback	25 ft	30 ft	Compliant
Height	35 ft	30 ft	Compliant

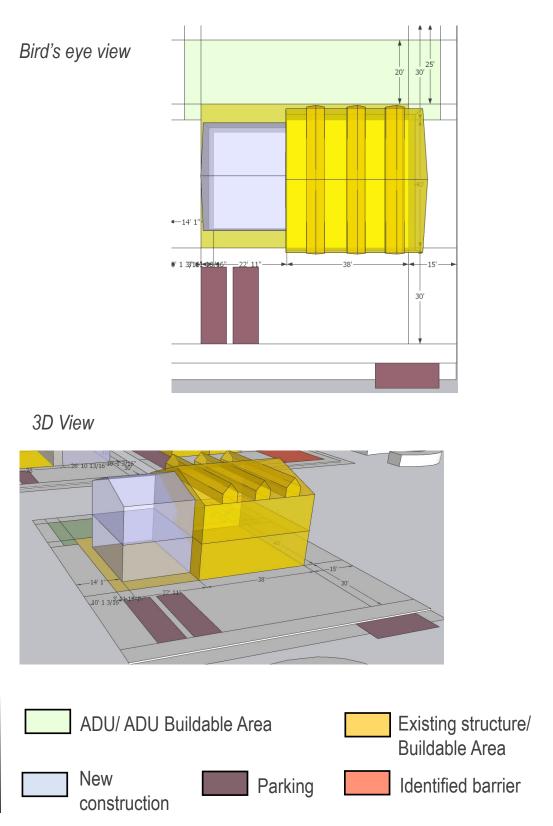


Bird's eye view



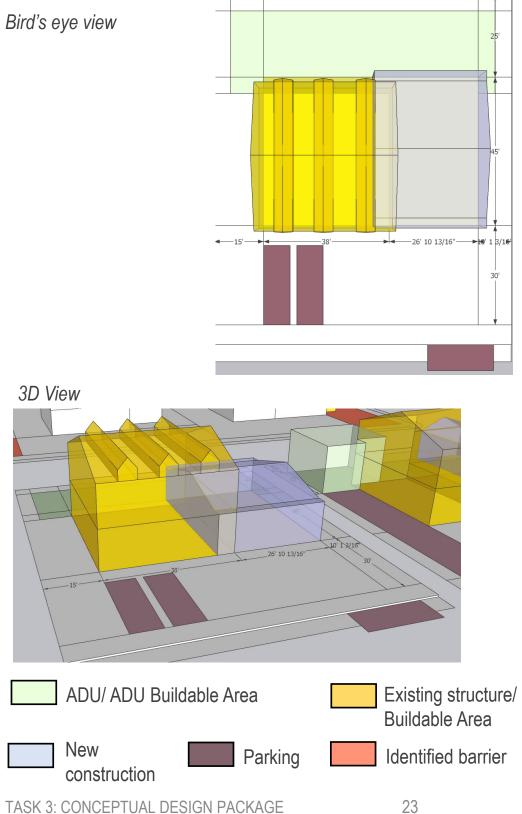
Addition of two-story unit

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	9,000 sf	9,000 sf	Compliant
Lot Area Per Unit	4,500 sf	4,500 sf	Compliant
Site/Lot Width at Front Building Line	n/a	90 ft	Compliant
Site/Lot Coverage	30%	24%	Compliant
Front Setback	30 ft	30 ft	Compliant
Side Street Setback/ Side Setback	30 ft (side street)/10 ft	14 ft/ 15 ft	Compliant
Rear Setback	25 ft	30 ft	Compliant
Height	35 ft	30 ft	Compliant



Addition of one unit

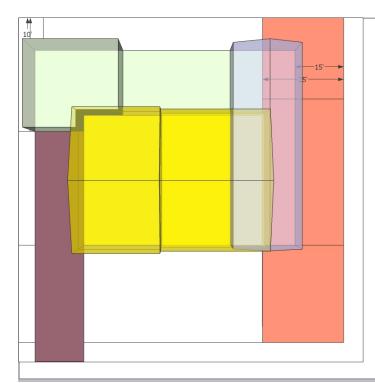
	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	9,000 sf	9,000 sf	Compliant
Lot Area Per Unit	4,500 sf	4,500 ft	Compliant
Site/Lot Width at Front Building Line	n/a	90 ft	Compliant
Site/Lot Coverage	30%	32%	Noncompliant
Front Setback	30 ft	30 ft	Compliant
Side Street Setback/ Side Setback	30 ft (side street)/10 ft	15 ft/10 ft	Compliant
Rear Setback	25 ft	25 ft	Compliant
Height	35 ft	30 ft	Compliant

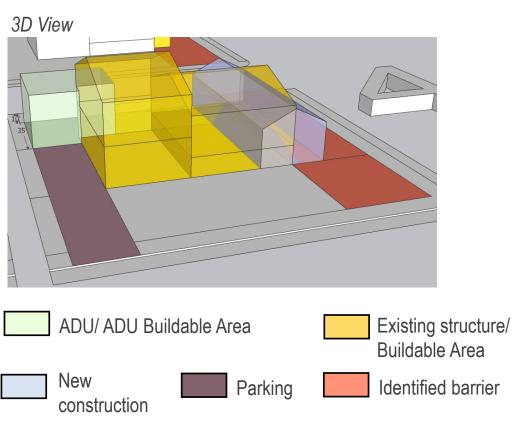


Addition of one unit and ADU

Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	9,000 sf	9,000 sf	Compliant
Lot Area Per Unit	2,250 sf	3,000 sf	Compliant
Site/Lot Width at Front Building Line	n/a	90 ft	Compliant
Site/Lot Coverage	30%	39%	Noncompliant
Front Setback	30 ft	30 ft	Compliant
Side Street Setback/ Side Setback	30 ft (side street)/10 ft 5 ft (ADU)	15 ft 5 ft (ADU)	Compliant
Rear Setback	25 ft	10 ft	Compliant
Height	35 ft	30	Compliant





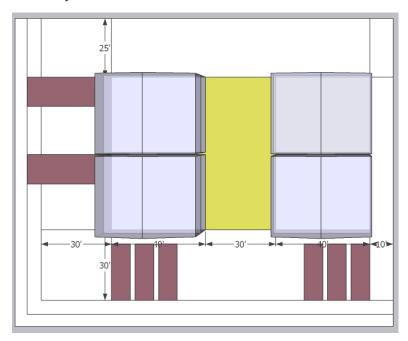
Bird's eye view

2 duplexes

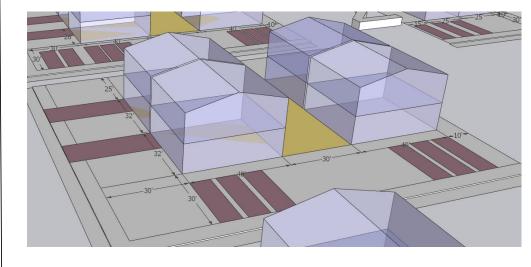
Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	9,000 sf	18,000 sf	Compliant
Lot Area Per Unit	2,250 sf	4,500 sf	Compliant
Site/Lot Width at Front Building Line	n/a	150 ft	Compliant
Site/Lot Coverage	30%	30%	Compliant
Front Setback	30 ft	30 ft	Compliant
Side Street Setback/ Side Setback	30 ft (side street)/10 ft	30 ft (side street)/10 ft	Compliant
Rear Setback	25 ft	25 ft	Compliant
Height	35 ft	30 ft	Compliant

Bird's eye view



3D View



ADU/ ADU Buildable Area

Existing structure/
Buildable Area

New construction

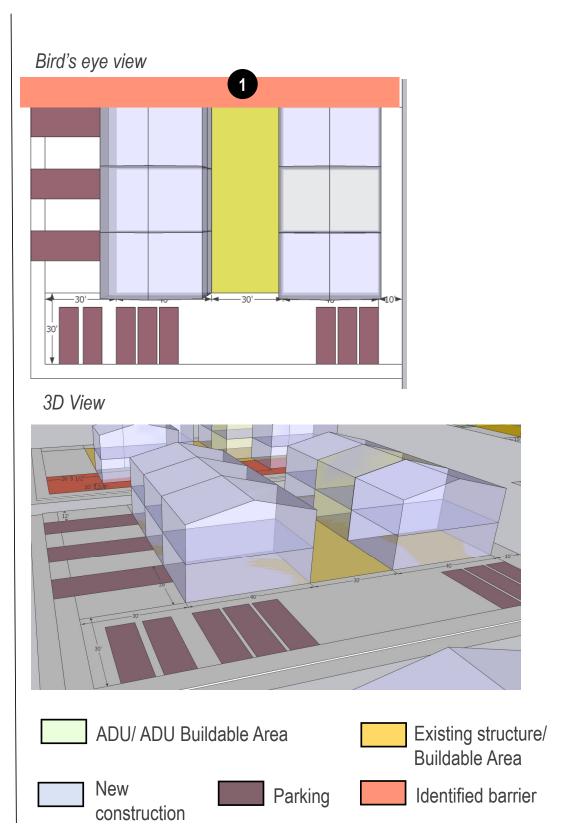


Parking

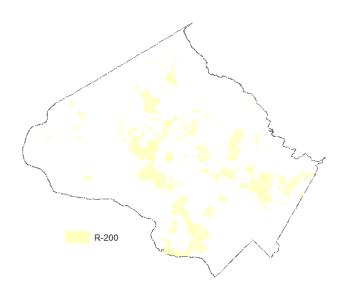


6 townhouses

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	9,000 sf	18,000 sf	Compliant
Lot Area Per Unit	2,250 sf	3,000 sf	Compliant
Site/Lot Width at Front Building Line	n/a	150 ft	Compliant
Site/Lot Coverage	30%	30%	Compliant
Front Setback	30 ft	30 ft	Compliant
Side Street Setback/ Side Setback	30 ft (side street)/10 ft	30 ft (side street)/10 ft	Compliant
Rear Setback	25 ft	12 ft	1 Noncompliant
Height	35 ft	30 ft	Compliant



There are 37,506 acres of R-200 zoning districts in County and it makes up the majority (52%) of the four residential districts analyzed in this report.



Land Pattern Examples



15,000 sf lots in R-60. Location: Montgomery Village.





20,000 – 30,000 sf lots in R-200. Location: Germantown.



Attainable Housing Study Zoning Regulations

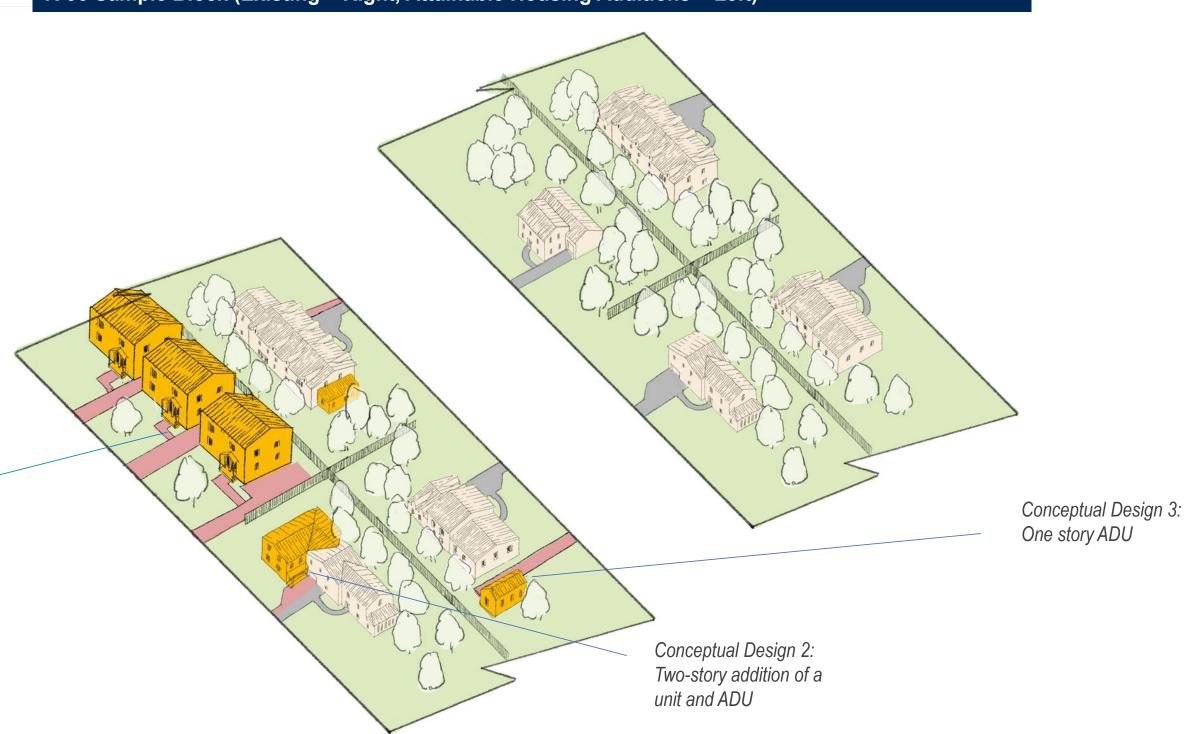
	Detached	Duplex	Multiplex
Site Area	n/a	48,000 sf	n/a
Lot Area Per Unit	20,000 sf	10,000 sf	n/a
Site/Lot Width at Front Building Line	100 ft	100 ft	n/a
Site/Lot Coverage	25%	25%	n/a
Front Setback	40 ft	40 ft	n/a
Side Setback	12 ft	12 ft	n/a
Rear Setback	30 ft	30 ft	n/a
Height	40 ft	40 ft	n/a

Duplex	Must conform with pattern book	
Triplex	Not Permitted	
Quadplex	Not Permitted	

Conceptual Design 1: Demolition and new

construction of 6 units in "mansion houses."

R-90 Sample Block (Existing – Right, Attainable Housing Additions – Left)



INNOVATIVE HOUSING ANALYSIS | MONTGOMERY COUNTY, MD

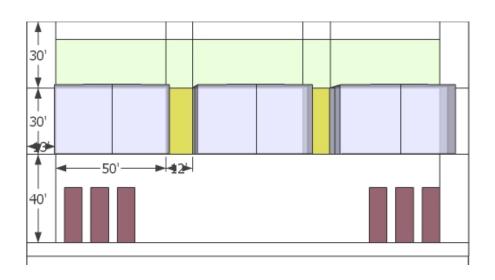
TASK 3: CONCEPTUAL DESIGN PACKAGE

Demolition and new construction of 6 units. Multiplexes are not permitted in R-200 per the AHS regulations

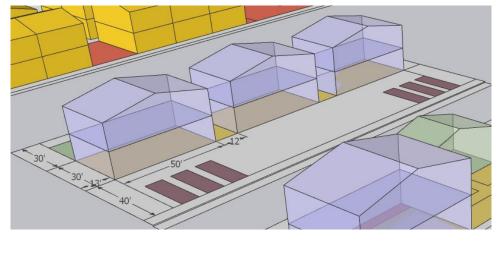
Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	48,000 sf (max)	20,000 sf	Compliant
Lot Area Per Unit	10,000 sf	3,333 sf	Noncompliant
Site/Lot Width at Front Building Line	100 ft	200 ft	Compliant
Site/Lot Coverage	25%	22%	Compliant
Front Setback	40 ft	40 ft	Compliant
Side Street Setback/ Side Setback	40 ft/12 ft	13 ft	Compliant
Rear Setback	30 ft	30 ft	Compliant
Height	40 ft	30 ft	Compliant

Bird's eye view



3D View



ADU Buildable Area

Existing structure/
Buildable Area

New construction



R-200 CONCEPTUAL DESIGN 1B

Alternative for Conceptual Design 1 with an ADU instead of a third mansion house. Multiplexes are not permitted in R-200 per the AHS regulations

Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	48,000 sf (max)	20,000 sf	Compliant
Lot Area Per Unit	10,000 sf	4,000 sf	Noncompliant
Site/Lot Width at Front Building Line	100 ft	200 ft	Compliant
Site/Lot Coverage	25%	20%	Compliant
Front Setback	40 ft	40 ft	Compliant
Side Street Setback/ Side Setback	40 ft/12 ft	13 ft	Compliant
Rear Setback	30 ft	25 ft	1 Noncompliant
Height	40 ft	30 ft	Compliant

Bird's eye view 25' 3D View Existing structure/ ADU/ ADU Buildable Area Buildable Area New Identified barrier Parking

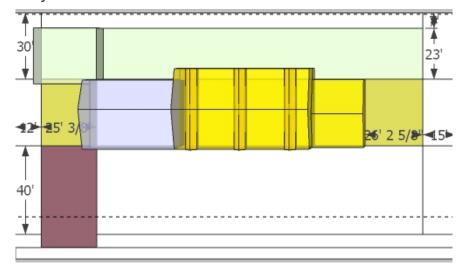
construction

Conceptual Design 2 with additional two-story unit and ADU.

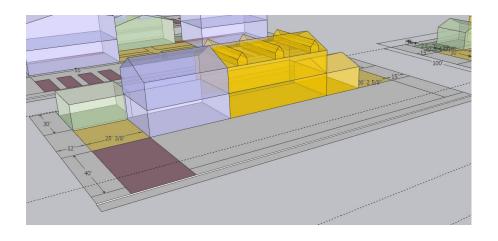
Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	48,000 sf (max)	20,000 sf	Compliant
Lot Area Per Unit	10,000 sf	6,666 sf	Noncompliant
Site/Lot Width at Front Building Line	100 ft	200 ft	Compliant
Site/Lot Coverage	25%	25%	Compliant
Front Setback	40 ft	40 ft	Compliant
Side Street Setback/ Side Setback	40 ft/12 ft	39 ft/37	Compliant
Rear Setback	30 ft	30 ft	Compliant
Height	40 ft	30 ft	Compliant

Bird's eye view



3D View



ADU/ADU Buildable Area

Existing structure/
Buildable Area

New

Parking

Identified barrier

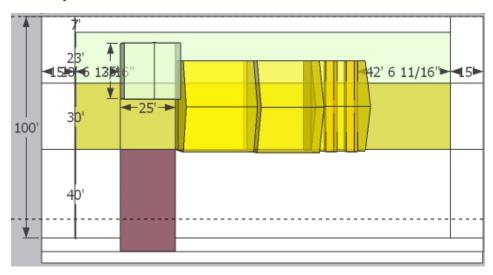
construction

Conceptual Design 3 with one story ADU.

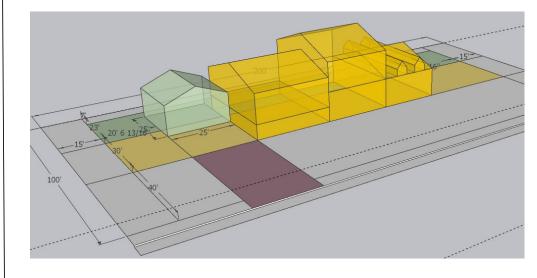
Comparison Between AHS Regulations & Conceptual Design

	AHS Regulations	Conceptual Design	Barriers to Building/Notes
Site Area	48,000 sf (max)	20,000 sf	Compliant
Lot Area Per Unit	10,000 sf	10,000 sf	Compliant
Site/Lot Width at Front Building Line	100 ft	200 ft	Compliant
Site/Lot Coverage	25%	17%	Compliant
Front Setback	40 ft	40 ft	Compliant
Side Street Setback/ Side Setback	40 ft/12 ft	15ft	Compliant
Rear Setback	30 ft	12 ft	Compliant
Height	40 ft	30 ft	Compliant

Bird's eye view



3D View





construction