

## **Springfield Multi-Unit Design Standards**

Transportation and Growth Management Program  
Oregon Department of Transportation  
Oregon Department of Land Conservation and Development

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# 1. - INTRODUCTION

## Purpose and Objectives

In the Spring of 1998, the City of Springfield initiated the Multi-Unit Design Standards Project to:

Respond to community concerns about multi-unit housing by:

Developing draft design standards or guidelines for multi-unit housing in Springfield.

Recommending a strategy to implement these standards/guidelines to Planning Commission and City Council for adoption.

Overall objectives for the project include:

Improve the livability, neighborhood compatibility and public safety of multi-unit housing in the community and thereby make these developments more acceptable in all zones where multi-unit housing can occur; and,

Promote higher residential densities inside the urban growth boundary that will utilize existing infrastructure and improve the efficiency of public services and facilities.

Incorporate Smart Development principles into the new multi-unit standards.

## Purpose and Elements of this Report

This report summarizes the major work products prepared by Otak, Inc., with assistance by Pacific Rim Resources, during the project. This report includes:

- A summary of Smart Development principles and multi-unit objectives
- A proposed new zoning code section: 16.110 Multi-Unit Design Standards.
- Code graphics illustrating key ordinance requirements

The attached appendix includes the following materials that were developed during the planning process:

• A survey and prioritization of the project objectives. This was used to determine what types of standards should be emphasized in the code and what key issues were important to the Citizen Advisory Committee.

• An examination of design review procedural options (August 4, 1998 memorandum by Otak). This memorandum was the basis for a discussion of how multi-unit developments ought to be reviewed in Springfield, once the new standards are in place. A case study and cost analysis. This report tested the feasibility of draft multi-unit standards by applying them to three approved (two built) projects in Springfield. The report includes both redesigns and an evaluation of the cost implications of the new standards.

• Code concepts report. This report was the preliminary recommendations developed prior to the writing of the ordinance.

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*Multi-Unit Design Standards Project*

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# Introduction

This report is one part of the City of Springfield's effort to develop design standards for multi-unit housing. In this project, multi-unit means any attached housing of three or more units in a building (e.g., tri-plexes, town homes, condominiums, and apartments). Guidance for this project is being provided by a Citizens Advisory Committee.

The purpose of this report is to test the feasibility of draft standards (Code Concepts Report, 9/22/98) and analyze cost implications through application of these standards to three built/proposed apartment projects in Springfield. The three projects are:

- The Anderson Lane Apartments
- Kambria Village
- Lindsey Apartments

*Please note:* This report is not a full cost analysis of the three projects or an exhaustive review of all the possible implications of the draft code concepts. Rather, it evaluates selected design, cost and code issues in an effort to discover cost and feasibility consequences that can be used to refine the draft code concepts.

## Methods

The three sites were selected by the City of Springfield. The city provided site plans and elevations of the projects. The following steps were then conducted:

1. Preparation of site plan redesigns for each site, as if the draft code concepts were in effect. Some interpretation of the standards was required at this stage.

2. Preparation of cost estimates of those elements of the plans that were changes from the original plan. For example, if additional landscaping or decks were required, cost estimates were prepared for those selected features.

*Note:* Typical, representative costs for selected features were used (e.g. landscape at \$2 per sq. ft.). These are then compared to typical, representative project costs (e.g. \$55 per sq. ft.) to give a percentage comparison of cost change. The typical costs were derived from the experience of Otak architects on many multifamily projects in cities similar to Springfield. No attempt was made to check actual construction costs for these projects.

3. Preparation of a checklist listing the code implications for each design element for each project.

4. Preparation of conclusions regarding cost and the feasibility of the code issues.

# Anderson Lane Apartments (Centennial Park)

*Continued*

## Project Analysis

Type I Design Standards	Standard Met?	Analysis	Cost Implications
<b>Building Orientation Standards</b>			
50% of site frontage will have buildings oriented to street.	No	By relocating (3) 4-unit buildings and 1 6-unit building along Anderson Lane, 55% of frontage will be met.	<1% increase in project cost
<b>Transition Between Multifamily and Adjacent LDR Zones</b>			
Height restriction in 30-foot transition area.	Yes		
No circulation or parking adjacent to LDR zones for a distance of 25 feet.	N/A	No adjacent LDR zones.	
No trash enclosures or active recreation areas within 25 feet of abutting LDR zone.	Yes		
No unit entries on facades within 25 feet of and facing toward adjacent LDR zones.	N/A		
Light standards at 12 feet maximum height and shielded from abutting LDR zone.			

# Anderson Lane Apartments (Centennial Park)

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Site obscuring landscaping or minimum 6-foot high fence with 2-inch minimum caliper shade trees planted in 25-foot transition zone.			
Mechanical equipment screened from adjacent LDR.	Yes		
<b>Open Space</b>			
Minimum 15% of gross site shall be open space (do not include required yards in open space total).	Yes		
Minimum of 25% of gross floor area must be in common open space.	Yes		
Minimum 96 s.f. per first floor units and 46 s.f. per upper floor units must be private open space.	No	No upper floor unit decks. No ground floor patios.	3.5% increase in project cost
Designate 250 s.f. of children's play area for every 20 units. No horizontal dimension less than 15 feet.	Yes	Play area noted, size not shown sufficient area exists to accommodate.	
<b>Building Form</b>			
Maximum continuous horizontal distance of 160 feet.	Yes		

# Anderson Lane Apartments (Centennial Park)

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Recesses/extensions/offsets every 30 feet.	No	Buildings offset every 46 feet; decks on rear facade could meet standard.	
Roof form.	Yes		
Windows.	Yes		
<b>Parking</b>			
Parking lots placed to side or rear of buildings.	No	Could be achieved with reduction of parking ratio to 1.5:1.	
Parking lots and maneuvering areas occupy a maximum of 50% of site street frontage.	Yes		
Adequate lighting.	Possible		
Planter islands every 10 spaces.	No	Could be achieved by adding 2 islands.	<.5% increase in project cost
Parking separated from habitable room windows by 6-foot planter area.	Yes		
All parking areas connected to unit entrances by sidewalks.	No	Parking on west site boundary isolated; sidewalk construction constrained by noise berm. Crossing points in drive aisle could be constructed.	<.5% increase in project cost
On corner lots, parking areas not adjacent to intersections.	N/A		

City of Springfield Multi-Unit Design Standards Project

# Anderson Lane Apartments (Centennial Park)

*Continued*

Type I Design Standards	Standard Met?	Analysis	Cost Implications
25-foot landscape buffer between parking/maneuvering areas and adjacent LDR zones.	N/A		
Minimum 5-foot planter strip between parking/maneuvering areas and adjacent right-of-way.	Yes		
<b><i>Landscape Fences and Walls</i></b>			
Planter strips 4-foot wide (minimum) between back of curb and sidewalk are required along all street frontages.	Yes		
Fences front yard: 3-foot maximum height side yard: 4-foot maximum height rear yard 6-foot maximum height	Yes		
All landscape areas shall be irrigated as required to ensure their initial establishment and continued viability.	Yes	Noted on site plan.	
<b><i>Storage</i></b>			

# Anderson Lane Apartments (Centennial Park)

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Dumpsters and refuse containers shall be screened from view by a solid wood fence or masonry wall a minimum of 5 feet and maximum of 8 feet in height.	Yes		
No refuse areas shall be located in any front yard setback or within 25 feet of property lines adjacent to LDR.	Yes		
Screen ground-mounted utility and communications installations with walls or plant material.	N/A		
<i>Pedestrian Circulation</i>			
Provide continuous pedestrian pathways on-site; stub to off-site existing and proposed pedestrian linkages.	No	See parking standard analysis above.	
Pedestrian pathways shall be placed a minimum of 5 feet from dwelling units.	Yes		
Pedestrian pathways shall connect adjacent streets to all unit entries.	Yes		

# Anderson Lane Apartments (Centennial Park)

*Continued*

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Pedestrian pathways shall connect all units, parking, and amenities on site.	No	See parking standard analysis above.	
Pathways shall be concrete, asphalt, or masonry pavers; at least 5 feet in width.	Yes		
Clearly marked crosswalks shall occur at all pedestrian crossings of vehicular circulation routes.	No	Crosswalks could be provided at two locations.	
Pathways shall be separated from adjacent vehicular travel lanes by raised curb, bollard or landscaping, except at crossing points.	Yes		
Pedestrian pathways shall be lighted to a minimum .5-foot candle level.	Possible	Wall-mount building lights provided. Pole mount fixtures provided in play area.	
<b>Vehicular Circulation</b>			
On-site vehicular circulation system will connect to public streets adjacent to the site.	Yes		
On-site vehicular circulation system will stub to adjacent MDR/HDR properties.	N/A		

# Anderson Lane Apartments (Centennial Park)

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Developments over 8 acres in size shall be developed as a series of complete blocks. Average block size shall be a maximum of 4 acres in size.	N/A		
Parking areas shall be accessed from alleys when properties abut an alley.	N/A		

## Costs

Description	Unit	Quantity	Unit Cost	Cost
Asphalt Paving - Deleted				
18' x 18' = 324 SF	SF	324	(\$2.00)	(\$648.00)
Concrete Sidewalks - Added				
45' x 5' Sidewalk = 225 SF	SF	225	\$3.00	\$675.00
10' x 5' Sidewalk = 50 SF	SF	50	\$3.00	\$150.00
10' x 5' Sidewalk = 50 SF	SF	50	\$3.00	\$150.00
Concrete Sidewalks - Deleted				
55' x 5' Sidewalk = 275 SF	SF	275	(\$3.00)	(\$825.00)
Concrete Patios (8' x 12') - Added				

# Anderson Lane Apartments (Centennial Park)

*Continued*

Description	Unit	Quantity	Unit Cost	Cost
50 Units	EA	50	\$400.00	\$20,000.00
<i>Decks - 6' x 8' - Added</i>				
50 Units	EA	50	\$1,400.00	\$70,000.00
<i>Landscaping - Added</i>				
18' x 18' = 324 SF	SF	324	\$2.00	\$648.00
55' x 5' = 275 SF	SF	275	\$2.00	\$550.00
<i>Landscaping - Deleted</i>				
45' x 5' = 225 SF	SF	225	(\$2.00)	(\$450.00)
10' x 5' = 50 SF	SF	50	(\$2.00)	(\$100.00)
10' x 5' = 50 SF	SF	50	(\$2.00)	(\$100.00)
<i>Windows - 50 - 3' x 4' - Deleted</i>	EA	50	(\$150.00)	(\$7,500.00)
<i>Patio/Deck Door - 100 - 6' - Added</i>	EA	100	\$500.00	\$50,000.00
<i>Apartment Siding - Added</i>				
(3 Bldgs.)(2)(32' x 25') = 4800 SF	SF	4800	\$3.00	\$14,400.00
(25 Deck Gables)(80 SF) = 2000 SF	SF	2000	\$3.00	\$6,000.00
<i>Apartment Footing Walls - Added</i>				
(3 Bldgs.)(32') = 96 LF	LF	96	\$30.00	\$2,880.00
<i>Apartment Roofing - Added</i>				

# Anderson Lane Apartments (Centennial Park)

Continued

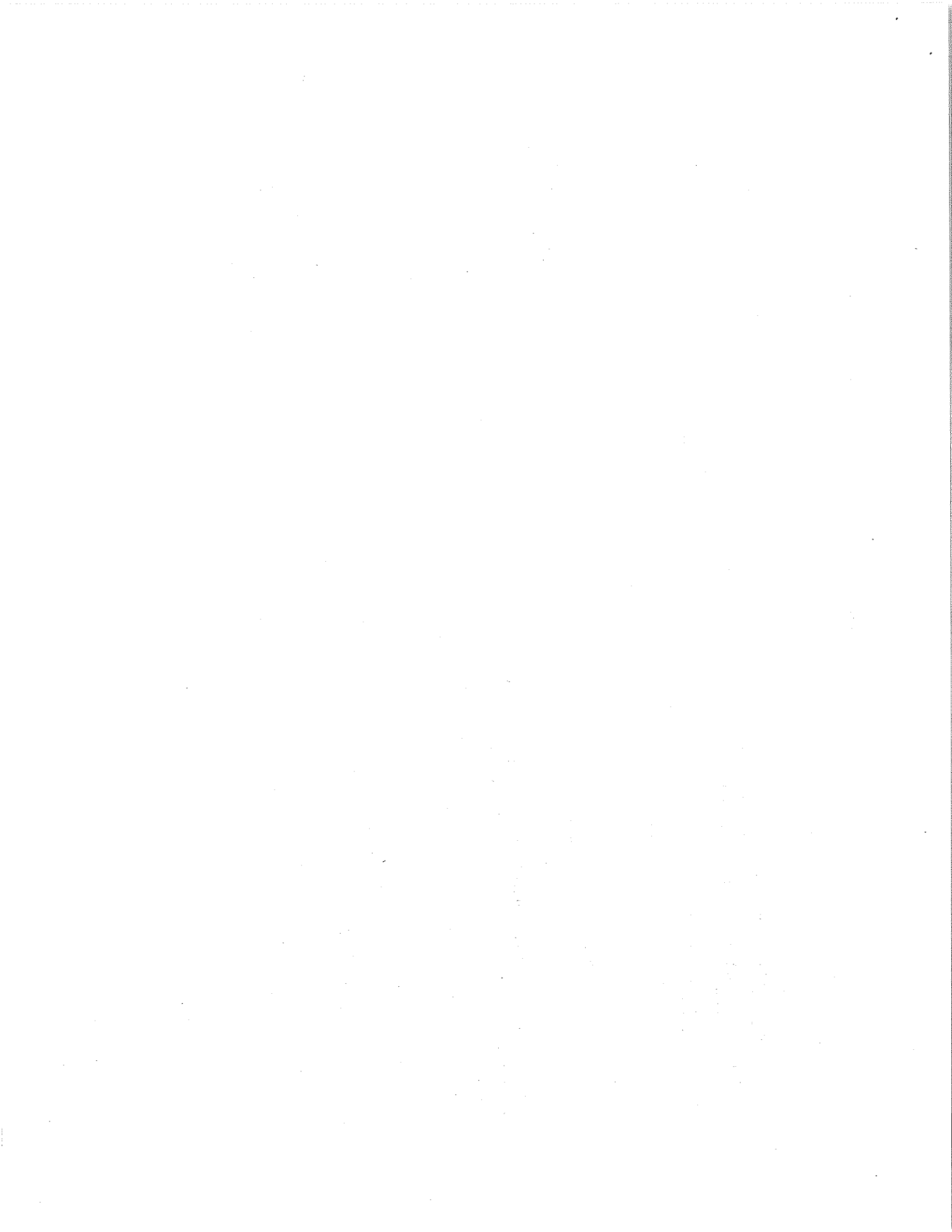
Description	Unit	Quantity	Unit Cost	Cost
(3 Bldgs.)(4')(40') = 480 SF	SF	480	\$3.00	\$1,440.00
(25 Deck Gables)(96 SF) = 2400 SF	SF	2400	\$6.00	\$14,400.00
<b>Apartment Insulation - Added</b>				
(3 Bldgs.)(2)(32' x 20') = 3840 SF	SF	3840	\$0.75	\$2,880.00

### Added Cost to Meet Requirements

<b>Total</b>	<b>\$174,550.00</b>
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From site drawings the average unit plan is approximately 770 square feet. Using a site unit cost multiplier of \$50.00 per square foot, the individual unit cost is approximately \$38,500.00 and the total project cost for the 100 units would be \$3,850,000.00. With these costs in mind, the \$174,550.00 added costs to meet these new planning requirements calculates to a 4.53% total project increase. Looking at it per unit, it calculates to a \$1745.50 per unit cost increase.

No. Units	Average Unit SF	Unit SF Cost	Approx. Unit Cost	Total Project Cost	Total Project Cost Increase	Total Unit Cost Increase
100	770 SF	\$50.00	\$38,500.00	\$3,850,000.00		\$174,550.00



# Kambria Village

Continued

## Project Analysis

Type I Design Standards	Standard Met?	Analysis	Cost Implications
<b>Building Orientation Standards</b>			
50% of site frontage will have buildings oriented to street.	No	Building reorientation can achieve 45% frontage.	<.5% increase in project cost
<b>Transition Between Multifamily and Adjacent LDR Zones</b>			
Height restriction in 30-foot transition area.	Possible	12-unit buildings could exceed standard.	
No circulation or parking adjacent to LDR zones for a distance of 25 feet.	No	Fire lane in southwest quadrant of site violates standard. Compliance with standard loses 4 spaces.	
No trash enclosures or active recreation areas within 25 feet of abutting LDR zone.	Yes		
No unit entries on facades within 25 feet of and facing toward adjacent LDR zones.	Yes		
Light standards at 12 feet maximum height and shielded from abutting LDR zone.	Yes		

# Kambria Village

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Site obscuring landscaping or minimum 6-foot high fence with 2-inch minimum caliper shade trees planted in 25-foot transition zone.	Yes/No	Size and placement of trees not shown.	
Mechanical equipment screened from adjacent LDR.	Yes		
<b>Open Space</b>			
Minimum 15% of gross site shall be open space (do not include required yards in open space total).	Yes		
Minimum of 25% of gross floor area must be in common open space.	Yes		
Minimum 96 s.f. per first floor units and 46 s.f. per upper floor units must be private open space.	Yes	Assumes deck/patios on 12-unit buildings.	
Designate 250 s.f. of children's play area for every 20 units. No horizontal dimension less than 15 feet.	No	No play area shown on plan.	<.5% increase in project cost
<b>Building Form</b>			
Maximum continuous horizontal distance of 160 feet.	Yes		

# Kambria Village

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Recesses/extensions/offsets every 30 feet.	Yes		
Roof form.	Yes		
Windows trim and 15% coverage.	Yes		
<b>Parking</b>			
Parking lots placed to side or rear of buildings.	No	Rotation of duplex and 5-plex would provide partial compliance; elimination of (8) parking spaces on north "A" Street side would also assist compliance.	<.5% increase in project cost
Parking lots and maneuvering areas occupy a maximum of 50% of site street frontage.	Yes		
Adequate lighting.	Yes		
Planter islands every 10 spaces.	No	Addition of (3) landscape islands would achieve compliance.	<.5% increase in project cost
Parking separated from habitable room windows by 6-foot planter area.	No	Shift 12-plexes 2 feet.	
All parking areas connected to unit entrances by sidewalks.	Yes		
On corner lots, parking areas not adjacent to intersections.	N/A		

# Kambria Village

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
25-foot landscape buffer between parking/maneuvering areas and adjacent LDR zones.	No	Loss of (4) parking spaces due to shift in turn-around area.	
Minimum 5-foot planter strip between parking/maneuvering areas and adjacent right-of-way.	Yes		
<i>Landscape Fences and Walls</i>			
Trees shall be 2-inch caliper minimum.			
Planter strips 4-foot wide (minimum) between back of curb and sidewalk are required along all street frontages.	N/A		
Fences front yard: 3-foot maximum height side yard: 4-foot maximum height rear yard 6-foot maximum height	Yes		
All landscape areas shall be irrigated as required to ensure their initial establishment and continued viability.	Possible		

# Kambria Village

*Continued*

Type I Design Standards	Standard Met?	Analysis	Cost Implications
<b>Storage</b>			
Dumpsters and refuse containers shall be screened from view by a solid wood fence or masonry wall a minimum of 5 feet and maximum of 8 feet in height.	Yes		
No refuse areas shall be located in any front yard setback or within 25 feet of property lines adjacent to LDR.	Yes		
Screen ground-mounted utility and communications installations with walls or plant material.	Possible	No installations shown.	
<b>Pedestrian Circulation</b>			
Provide continuous pedestrian pathways on-site; stub to off-site existing and proposed pedestrian linkages.	Yes		
Pedestrian pathways shall be placed a minimum of 5 feet from dwelling units.	No	Shift 12-unit buildings.	
Pedestrian pathways shall connect adjacent streets to all unit entries.	Yes		

Kambria Village  
Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Pedestrian pathways shall connect all units, parking, and amenities on site.	Yes		
Pathways shall be concrete, asphalt, or masonry pavers; at least 5 feet in width.	Yes		
Clearly marked crosswalks shall occur at all pedestrian crossings of vehicular circulation routes.	Yes		
Pathways shall be separated from adjacent vehicular travel lanes by raised curb, bollard or landscaping, except at crossing points.	Yes		
Pedestrian pathways shall be lighted to a minimum .5-foot candle level.	Possible		
<b>Vehicular Circulation</b>			
On-site vehicular circulation system will connect to public streets adjacent to the site.	Yes		
On-site vehicular circulation system will stub to adjacent MDR/HDR properties.	N/A		



# Kambria Village

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Developments over 8 acres in size shall be developed as a series of complete blocks. Average block size shall be a maximum of 4 acres in size.	N/A		
Parking areas shall be accessed from alleys when properties abut an alley.	N/A		

**Costs**

Description	Unit	Quantity	Unit Cost	Cost
<b>Asphalt Paving - Deleted</b>				
(4 Parking)(9' x 18') = 648 SF	SF	648	(\$2.00)	(\$1,296.00)
(2 Parking)(9' x 18') = 324 SF	SF	324	(\$2.00)	(\$648.00)
24' x 18' Parking Aisle = 432 SF	SF	432	(\$2.00)	(\$864.00)
43' x 55' Parking & Aisle = 2,365 SF	SF	2365	(\$2.00)	(\$4,730.00)
<b>Concrete Sidewalks - Added</b>				
15' x 5' Sidewalk = 75 SF	SF	75	\$3.00	\$225.00
76' x 5' Sidewalk = 380 SF	SF	380	\$3.00	\$1,140.00
85' x 5' Sidewalk = 425 SF	SF	425	\$3.00	\$1,275.00

# Kambria Village

Continued

Description	Unit	Quantity	Unit Cost	Cost
33' x 8' Sidewalk = 264 SF	SF	264	\$3.00	\$792.00
16' x 10' Sidewalk = 160 SF	SF	160	\$3.00	\$480.00
5' x 5' Sidewalk = 25 SF	SF	25	\$3.00	\$75.00
16' x 7' Sidewalk = 112 SF	SF	112	\$3.00	\$336.00
<b>Concrete Sidewalks - Deleted</b>				
18' x 5' Sidewalk = 90 SF	SF	90	(\$3.00)	(\$270.00)
7' x 8' Sidewalk = 56 SF	SF	56	(\$3.00)	(\$168.00)
7' x 5' Sidewalk = 355 SF	SF	355	(\$3.00)	(\$1,065.00)
<b>Landscaping - Added</b>				
(4)(9' x 18') = 648 SF	SF	648	\$2.00	\$1,296.00
(2)(9' x 18') = 324 SF	SF	324	\$2.00	\$648.00
24' x 18' = 432 SF	SF	432	\$2.00	\$864.00
43' x 55' = 2,365 SF	SF	2365	\$2.00	\$4,730.00
18' x 5' = 90 SF	SF	90	\$2.00	\$180.00
7' x 8' = 56 SF	SF	56	\$2.00	\$112.00
7' x 5' = 355 SF	SF	355	\$2.00	\$710.00
<b>Landscaping - Deleted</b>				

# Kambria Village

Continued

Description	Unit	Quantity	Unit Cost	Cost
15' x 5' = 75 SF	SF	75	(\$2.00)	(\$150.00)
76' x 5' = 380 SF	SF	380	(\$2.00)	(\$760.00)
85' x 5' = 425 SF	SF	425	(\$2.00)	(\$850.00)
33' x 8' = 264 SF	SF	264	(\$2.00)	(\$528.00)
16' x 10' = 160 SF	SF	160	(\$2.00)	(\$320.00)
5' x 5' = 25 SF	SF	25	(\$2.00)	(\$50.00)
16' x 7' = 112 SF	SF	112	(\$2.00)	(\$224.00)
Windows - 20 - 5' x 5' - Added	EA	20	\$300.00	\$6,000.00
Windows - Deleted				
10 - 4' x 4' Window	EA	10	(\$200.00)	(\$2,000.00)
10 - 4' x 5' Window	EA	10	(\$250.00)	(\$2,500.00)
Play Area - Added	EA	1	\$2,500.00	\$2,500.00
<b>Added Cost to Meet Requirements</b>				<b>\$4,924.00</b>

The following data is based on the townhouse units and some interpolation due to the lack of information on the larger 12-plex building units. For our calculations, the 12-plex units were assumed to have decks and private exterior space of the minimums proscribed and the correct percentage of exterior glazing. If this is not true the additional costs noted below would be more in line with those of the Anderson Lane Apartments on a per unit basis.

# Kambria Village

*Continued*

We assume the average unit plan is approximately 830 square feet. Using a site unit cost multiplier of \$50.00 per square foot, the individual unit cost is approximately \$41,500.00 and the total project cost for the 34 units would be \$1,411,000.00. With these costs in mind, the \$4,940.00 added costs to meet these new planning requirements calculates to a 0.35% total project increase. Looking at it per unit, it calculates to a \$145.29 per unit cost increase.

No. Units	Average Unit SF	Unit SF Cost	Approx. Unit Cost	Total Project Cost	Total Project Cost Increase	Total Unit Cost Increase
34	830 SF	\$50.00	\$41,500.00	\$1,411,000.00	0.35%	\$145.29

# Lindsey Apartments

*Continued*

## Project Analysis

Type I Design Standards	Standard Met?	Analysis	Cost Implications
<b>Building Orientation Standards</b>			
50% of site frontage will have buildings oriented to street.	No	Possible to achieve 44% with 2 units facing street on both sides of entry drive.	<.5% increase in project cost
<b>Transition Between Multifamily and Adjacent LDR Zones</b>			
Height restriction in 30-foot transition area.	Yes		
No circulation or parking adjacent to LDR zones for a distance of 25 feet.	No	Can be achieved by eliminating 16 parking spaces.	
No trash enclosures or active recreation areas within 25 feet of abutting LDR zone.	No	3 trash enclosures shown; could be moved to interior of site.	
No unit entries on facades within 25 feet of and facing toward adjacent LDR zones.	Yes		
Light standards at 12 feet maximum height and shielded from abutting LDR zone.	No	4 fixtures shown as 20-foot mounting height; could add 3 additional fixtures.	

# Lindsey Apartments

*Continued*

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Site obscuring landscaping or minimum 6-foot high fence with 2-inch minimum caliper shade trees planted in 25-foot transition zone.	Yes	Fence standards met (6-foot height shown). Trees shown at 2-inch caliper - none shown in transition area. Can be achieved by adding trees.	
Mechanical equipment screened from adjacent LDR.	None shown		
<b>Open Space</b>			
Minimum 15% of gross site shall be open space (do not include required yards in open space total).	No	Sufficient private open space. Insufficient common open space; need additional 11,500 s.f. Requires loss of 5 units.	<.5% increase in project cost
Minimum of 25% of gross floor area must be in common open space.	No	12,460 s.f. required; need additional 11,500 s.f.	
Minimum 96 s.f. per first floor units and 46 s.f. per upper floor units must be private open space.	Yes	Approximately 112 s.f./unit average.	
Designate 250 s.f. of children's play area for every 20 units. No horizontal dimension less than 15 feet.	No	No play areas shown; could be accommodated in new common open space.	
<b>Building Form</b>			
Maximum continuous horizontal distance of 160 feet.	Yes	Maximum length of attached units = 160 feet.	

# Lindsey Apartments

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Recesses/extensions/offsets.	Yes	2-foot offsets every unit (16 feet).	
Roof form.	Yes	Gable; 3/12 pitch with 2-foot overhangs.	
Windows.	No	Horizontal sliders shown; no trim - could be added; larger windows needed to achieve 15%.	<.5% increase in project cost
<b>Parking</b>			
Parking lots placed to side or rear of buildings.	No	Site dimensions become major constraint; could be accomplished with the loss of 10 to 12 units.	
Parking lots and maneuvering areas occupy a maximum of 50% of site street frontage.	No	Could be achieved by moving 4 units to street frontage, shifting parking behind.	
Adequate lighting.	Possible		
Planter islands every 10 spaces.	Yes		
Parking separated from habitable room windows by 6-foot planter area.	Yes		
All parking areas connected to unit entrances by sidewalks.	Yes		
On corner lots, parking areas not adjacent to intersections.	N/A		

# Lindsey Apartments

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
25-foot landscape buffer between parking/maneuvering areas and adjacent LDR zones.	No	See transition standards analysis above.	
Minimum 5-foot planter strip between parking/maneuvering areas and adjacent right-of-way.	Yes		
<b>Landscape Fences and Walls</b>			
A minimum of 15% of site shall be landscaped; trees shall be 2-inch caliper minimum.	No	Provision exists for tenant improvements in private open space.	
Planter strips 4-foot wide (minimum) between back of curb and sidewalk are required along all street frontages.	No	Existing sidewalk was "curb-tight".	
<b>Fences</b>			
front yard: 3-foot maximum height	N/A		
side yard: 4-foot maximum height	No	Side yard fences between units are 6 feet high.	
rear yard 6-foot maximum height	Yes		
All landscape areas shall be irrigated as required to ensure their initial establishment and continued viability.	No	None shown; possible to provide.	

# Lindsey Apartments

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
<b>Storage</b>			
Dumpsters and refuse containers shall be screened from view by a solid wood fence or masonry wall a minimum of 5 feet and maximum of 8 feet in height.	Possible	"Enclosures" noted, no description of materials or heights.	
No refuse areas shall be located in any front yard setback or within 25 feet of property lines adjacent to LDR.	No	See transition standards analysis above.	
Screen ground-mounted utility and communications installations with walls or plant material.	N/A		
<b>Pedestrian Circulation</b>			
Provide continuous pedestrian pathways on-site; stub to off-site existing and proposed pedestrian linkages.	No	Building No. 10 sidewalk isolated; could provide 30-foot extension to public sidewalk.	
Pedestrian pathways shall be placed a minimum of 5 feet from dwelling units.	No	Could shift parking and aisle to accommodate additional dimension.	
Pedestrian pathways shall connect adjacent streets to all unit entries.	No	See above concerning Building No. 10 analysis.	

# Lindsey Apartments

*Continued*

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Pedestrian pathways shall connect all units, parking, and amenities on site.	No	See previous analysis.	
Pathways shall be concrete, asphalt, or masonry pavers; at least 5 feet in width.	Yes		
Clearly marked crosswalks shall occur at all pedestrian crossings of vehicular circulation routes.	Yes	Shown as "raised pavement".	
Pathways shall be separated from adjacent vehicular travel lanes by raised curb, bollard or landscaping, except at crossing points.	Yes		
Pedestrian pathways shall be lighted to a minimum .5-foot candle level.	Possible	Assumes wall-mounted fixtures on building.	
<b>Vehicular Circulation</b>			
On-site vehicular circulation system will connect to public streets adjacent to the site.	Yes		
On-site vehicular circulation system will stub to adjacent MDR/HDR properties.	N/A		

# Lindsey Apartments

Continued

Type I Design Standards	Standard Met?	Analysis	Cost Implications
Developments over 8 acres in size shall be developed as a series of complete blocks. Average block size shall be a maximum of 4 acres in size.	N/A		
Parking areas shall be accessed from alleys when properties abut an alley.	N/A		

## Costs

Description	Unit	Quantity	Unit Cost	Cost
Asphalt Paving - Added				
30' x 42' Paving = 1260 SF	SF	1260	\$2.00	\$2,520.00
Asphalt Paving - Deleted				
Parking Area 70' x 42' = 2940 SF	SF	2940	(\$2.00)	(\$5,880.00)
5 Spaces @ 9' x 18' = 810 SF	SF	810	(\$2.00)	(\$1,620.00)
2 Areas Parking 45' x 60' = 5400 SF	SF	5400	(\$2.00)	(\$10,800.00)
Concrete Sidewalks - Added				
120' x 5' Sidewalk = 600 SF	SF	600	\$3.00	\$1,800.00
35' x 5' Sidewalk = 175 SF	SF	175	\$3.00	\$525.00

# Lindsey Apartments

*Continued*

Description	Unit	Quantity	Unit Cost	Cost
<b>Landscaping - Added</b>				
70' x 42' = 2940 SF	SF	2940	\$2.00	\$5,880.00
(5)(9' x 18') = 810 SF	SF	810	\$2.00	\$1,620.00
(2)(45' x 60') = 5400 SF	SF	5400	\$2.00	\$10,800.00
<b>Landscaping - Deleted</b>				
120' x 5' = 600 SF	SF	600	(\$2.00)	(\$1,200.00)
35' x 5' = 175 SF	SF	175	(\$2.00)	(\$350.00)
30' x 42' = 1260 SF	SF	1260	(\$2.00)	(\$2,520.00)
<b>Windows - Added</b>				
49 - 5' x 4' Window	EA	49	\$250.00	\$12,250.00
49 - 5' x 5' Window	EA	49	\$300.00	\$14,700.00
<b>Windows - Deleted</b>				
49 - 4' x 4' Window	EA	49	(\$200.00)	(\$9,800.00)
49 - 4' x 5' Window	EA	49	(\$250.00)	(\$12,250.00)
<b>Apartment Units - 5 Units - Deleted</b>				
Apartment Siding - Added	EA	5	(\$49,500.00)	(\$247,500.00)
(4 Bldgs.)(28' x 18') = 2016 SF	SF	2016	\$3.00	\$6,048.00

# Lindsey Apartments

Continued

Description	Unit	Quantity	Unit Cost	Cost
Apartment Footing Walls - Added (2 Bldgs.)(28') = 56 LF	LF	56	\$30.00	\$1,680.00
Apartment Roofing - Added (2 Bldgs.)(2')(38') = 152 SF	SF	152	\$3.00	\$456.00
Apartment Insulation - Added (4 Bldgs.)(28' x 18') = 2016 SF	SF	2016	\$0.75	\$1,512.00
Play Area - Added	EA	1	\$2,500.00	\$2,500.00

Added Cost to Meet Requirements	Total
	<b>(\$29,629.00)</b>

From the plan and elevation drawings, the average unit plan is approximately 900 square feet. Using a site unit cost multiplier of \$55.00 per square foot, the individual unit cost is approximately \$49,500.00 and the total project cost for the 56 original units would be \$2,772,000.00. With these costs in mind, the \$229,629.00 in reduced costs to meet these new planning requirements calculates to a 8.28% total project reduction. Looking at it per unit, it calculates to a \$4,100.52 per unit cost reduction.

Even though there is a large reduction in total project cost there are 5 fewer units, a reduction in revenue to the developer and potentially a higher cost per unit with fewer units to absorb the total land cost.

# Lindsey Apartments

*Continued*

No. Units	Average Unit SF	Unit SF Cost	Approx. Unit Cost	Total Project Cost	Total Project Cost Reduction	Total Unit Cost Reduction
56	900 SF	\$55.00	\$49,500.00	\$2,772,000.00	\$128%	(\$110,000)

# Conclusions

## Project Analysis Conclusions

### *Anderson Lane Apartments*

- The building orientation standard is achievable by rotating four buildings at the street.
- The parking orientation standard is achievable with substantial reduction in the parking ratio (2:1 to 1.5:1).
- The open space standard is achievable; this standard has implications for building construction costs due to the private open space deck requirement for upper floor units.
- The architectural standards can be met with the addition of the required decks.

### *Kambria Village*

- The building orientation standard is difficult to meet due to the existing street pattern and the original building program.
- The parking orientation standard is difficult to meet due to the site size and the building program.
- The open space standard requires a loss of parking, while not necessarily resulting in more usable and significant spaces.
- The LDR buffer requirement constrains the site plan.
- The architectural standards are achievable with minor modifications (window size).

### *Lindsey Apartments*

- The building orientation standard is difficult to meet due to the narrowness of the site.
- The parking orientation standard is difficult to meet with the existing program of 2-story units.
- The open space requirement results in loss of units, largely because no common open space was provided in the original plan.
- The buffer requirement constrains the site plan by removing 50 feet of a 140-foot wide site.
- The architectural standards are achievable with minor modifications (window size).

# Conclusions

*Continued*

## General Conclusions

- The building orientation standard is appropriate, 50 percent of frontage can be achieved; and issue exists regarding street type (are there streets you shouldn't front on?).
- The parking orientation standard is somewhat confusing; it works in relation to public streets – parking/building relationships in the interior of the site are more complex.
- The open space standard is appropriate, though it doesn't necessarily result in significant spaces with focal points. The private open space requirement for decks on upper floor units results in unit cost increases.
- The LDR buffer requirement can constrain site development on narrow and awkwardly shaped infill parcels.
- The architectural standards are appropriate and easily achievable; are additional standards necessary for building materials/colors?