

## MULTIMODAL CENTERS CALCULATOR TOOL

The following pages show screenshots of a spreadsheet-based tool that computes typical building heights and floor-area-ratios for the Transect Zones, Multimodal Center Types, and TOD Nodes based on activity density and other assumptions. The yellow boxes indicate inputs to the tool, and reflect the assumptions for the Transect Zones and Multimodal Center types as presented in these Guidelines. The additional metrics of building heights and floor-area-ratios provide readers with a deeper understanding of the building and activity patterns within the Guidelines typology.

Planners may change the assumptions in the yellow boxes to better reflect the conditions within their locality, such as the percentage of activity units that are jobs or the square footage per dwelling unit. Revising these assumptions will change the floor-area-ratios and building heights. However, it is **not** recommended that planners change the values that describe the range of activity densities for each Transect Zone, as these were specifically calibrated for real places in Virginia to accurately span the range of contexts that exist in the Commonwealth.

Additional information about the Multimodal Center typology and recommended metrics is located in Chapter 3 of these Guidelines.

Calculations for Transect Zone and Place Type (Center Type) Activity Density, FAR, and other density metrics

Values in yellow boxes can be changed

Values in orange are calculated values

Values in grey are necessary for calculation.

**TRANSECT DENSITIES**

**MULTIMODAL CENTER DENSITIES**

Transect Zone	ACTIVITY DENSITY by TRANSECT ZONE (Jobs + Pop)/acre		BUILDING HEIGHT based on visual inspection (No. of stories)		TOTAL FLOOR-AREA-RATIO based on Activity Density (combined residential and commercial)				Multi-modal Centers	TRANSECT ZONES		MULTIMODAL CENTER GROSS ACTIVITY DENSITY (Jobs + HH)/acre		TOTAL FLOOR-AREA-RATIO based on Activity Density (combined residential and commercial)				BUILDING HEIGHT based on visual inspection (No. of stories)	
	Low	High	Average Building Height	Typical Maximum Bldg Height	Gross Building FAR (includes res + com)		Net Building FAR (includes res + com)			Inner	Outer	Low	High	Gross Building FAR (includes res + com)		Net Building FAR (includes res + com)		Average Building Height	Typical Maximum Bldg Height
					Low	High	Low	High						Low	High	Low	High		
T1	-	1	1	2	-	0.01	-	0.02	P1 Rural or Village Center	T2	T1	-	2.13	-	0.03	-	0.05	1	2
T2	1	10	1.5	3	0.01	0.15	0.02	0.23	P2 Small Town or Suburban Ce	T2	T2	2.13	6.63	0.03	0.10	0.05	0.15	1.5	3
T3	10	25	3	5	0.15	0.37	0.23	0.57	P3 Medium Town or Suburban	T3	T2	6.63	13.75	0.10	0.21	0.15	0.32	2	4
T4	25	60	4	8	0.37	0.90	0.57	1.38	P4 Large Town or Suburban Ce	T4	T3	13.75	33.75	0.21	0.50	0.32	0.77	3	6
T5	60	100	6	12	0.90	1.49	1.38	2.30	P5 Urban Center	T5	T4	33.75	70.00	0.50	1.04	0.77	1.61	5	9
T6	100	-	8	20	1.49	-	2.30	-	P6 Urban Core	T6	T5	70.00	-	1.04	-	1.61	-	7	14

  

**REVISE ASSUMPTIONS BELOW**

ASSUMPTIONS

- 50% of activity units are jobs
- 50% of activity units are population
- 500 sq. ft. = 1 job
- 2,000 sq. ft. = 1 dwelling unit
- 2.5 persons = 1 dwelling unit
- 0.65 Gross-to-Net Ratio
- 50% of inner quarter-mile residential density concentrated to 1/8 mile TOD node
- 50% of inner quarter-mile residential density located outside of 1/8 mile TOD node
- 50% of inner quarter-mile employment density concentrated to 1/8 mile TOD node
- 50% of inner quarter-mile employment density located outside of 1/8 mile TOD node

\*The inner 1/8 mile circle contains 25% of the land area of the entire 1/4 mile circle.  
A distribution of 25% within and 75% outside will result in equal densities in the inner circle and outer ring.

Create your own Center. Enter Inner and Outer T Zones.	Transect Zones		ACTIVITY DENSITY (Jobs + HH)/acre		TOTAL FLOOR-AREA-RATIO based on Activity Density (combined residential and commercial)			
	Inner	Outer	Low	High	Gross Building FAR (includes res + com)		Net Building FAR (includes res + com)	
Custom MM Center A	T6	T4	31.25	-	0.47	-	0.72	-
Custom MM Center B	T5	T5	30.00	50.00	0.45	0.75	0.69	1.15
Custom MM Center C	T3	T1	-	6.50	-	0.10	-	0.15

**TRANSIT-ORIENTED DEVELOPMENT NODE DENSITIES (Multimodal Centers P3 and Above)**

Multimodal Center Types	INSIDE TOD NODE (1/8 mile radius circle)								OUTSIDE TOD NODE (1/8 mile to 1/4 radius ring)							
	ACTIVITY DENSITY		TOTAL FLOOR-AREA-RATIO based on Activity Density (combined residential and commercial)				BUILDING HEIGHT based on visual inspection (No. of stories)		ACTIVITY DENSITY		TOTAL FLOOR-AREA-RATIO based on Activity Density (combined residential and commercial)				BUILDING HEIGHT based on visual inspection (No. of stories)	
	Low	High	Gross Building FAR (includes res + com)		Net Building FAR (includes res + com)		Average Building Height	Typical Maximum Bldg Height	Low	High	Gross Building FAR (includes res + com)		Net Building FAR (includes res + com)		Average Building Height	Typical Maximum Bldg Height
<b>P3 Medium Town or Suburban Center</b>	13.3	27.5	0.20	0.41	0.30	0.63	4	7	4.4	9.2	0.07	0.14	0.10	0.21	3	5
<b>P4 Large Town or Suburban Center</b>	27.5	67.5	0.41	1.01	0.63	1.55	7	12	9.2	22.5	0.14	0.34	0.21	0.52	4	8
<b>P5 Urban Center</b>	67.5	140.0	1.01	2.09	1.55	3.21	9	18	22.5	46.7	0.34	0.70	0.52	1.07	6	12
<b>P6 Urban Core</b>	140.0	-	2.09	-	3.21	-	13	28	46.7	-	0.70	-	1.07	-	9	19