

Miami Valley Land Development Suitability Assessment

The results of the Land Suitability Measure presented on the previous page only identify whether land is suitable or not suitable for physical development. In order to identify the quantity and location of developable land, the current development condition of the Region's land needs to be examined as well.

This section begins by providing an overview of regional land use in 2007, which was used as a base for developing the Land Development Condition Measure and offers insights in terms of where and how much land was designated for which use.

Results of the 2007 Land Use Analysis

Figure 11 shows the spatial distribution of land by various land use types. Throughout the Region, commercial land is decentralized and scattered while industrial land is mostly situated along the I-75 corridor. Residential land, while located throughout the Region, is concentrated in the eastern portion of Montgomery County and western portion of Greene County. For Miami County, most residential, commercial, and industrial land uses are centered around I-75.

Approximately 60% of the Region's land (65.3%) is identified as agricultural or open space (see figure 12). Residential land (24.2%) makes up the next largest percentage, followed by institutional (3.7%) and commercial (3.3%) land.

Figure 13 presents the composition of county land by land use type. Agricultural and open space land and residential land make up the majority of both Greene and Miami counties. Miami County is mostly agricultural and open space (74.1%), with residential land (20.7%) being the second most prevalent use. This is similar to Greene County, in which 72.4% is agricultural and open space land and 17.7% is residential land. Meanwhile, the composition of land in Montgomery County is substantially different than that of Greene and Miami counties. In Montgomery County, only 51.7% of the land is classified as agricultural and open space, followed by residential (33.2%), institutional (6.1%), commercial (6.1%), and industrial (3.6%) uses.

Montgomery County leads the Region in all residential (46.2%), commercial (62.4%), industrial (53.3%), and institutional (47.3%) land (see table 5). Miami County has the second largest shares of land for residential (27.6%) and industrial (19.5%) uses, while Greene County contains the second largest shares for commercial (18.3%) and institutional (40.7%) uses.

Figure 11 - Regional Land Use/Land Cover Map - 2007

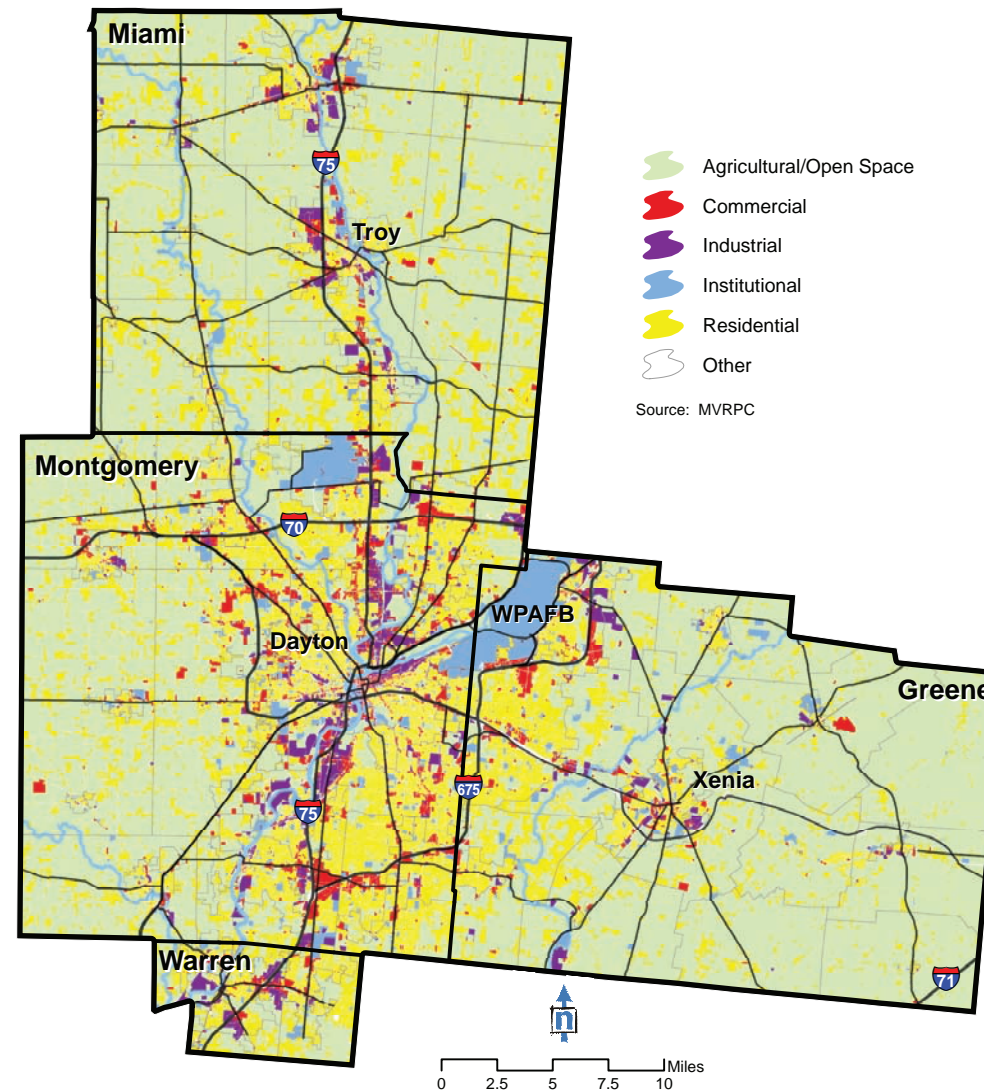


Figure 12 - Regional Land by Land Use Type

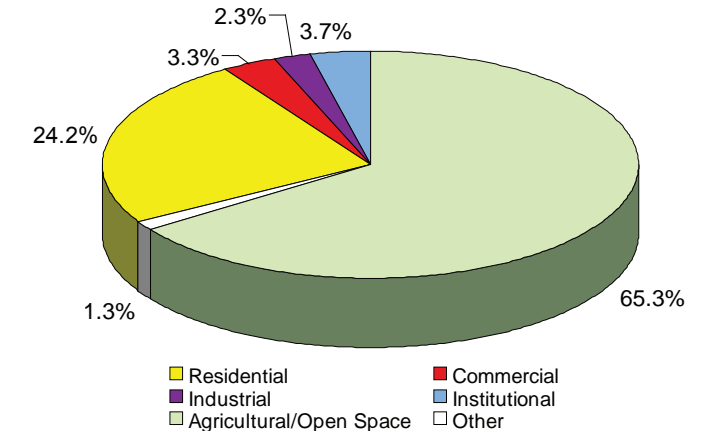


Figure 13 - County Land by Land Use Type

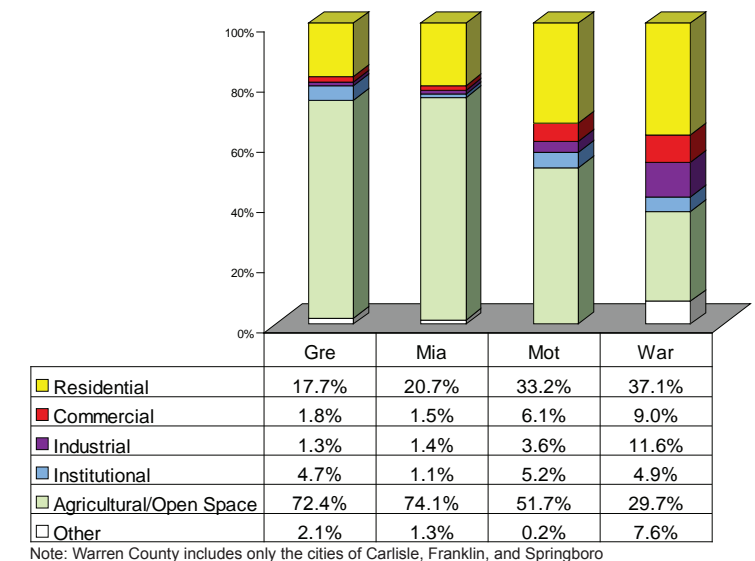


Table 5 - County Share of Land by Land Use Type

	Residential		Commercial		Industrial		Institutional		Agricultural/Open Space		Other		Total
	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	
Greene	46,666.6	23.8%	4,862.6	18.3%	3,480.8	19.1%	12,293.5	40.7%	191,102.5	36.0%	5,471.8	52.7%	263,877.7
Miami	54,154.8	27.6%	3,996.4	15.0%	3,561.5	19.5%	2,964.2	9.8%	194,192.7	36.6%	3,344.2	32.2%	262,213.9
Montgomery	90,511.9	46.2%	16,600.8	62.4%	9,732.3	53.3%	14,283.5	47.3%	141,047.8	26.6%	585.0	5.6%	272,761.2
Warren	4,767.8	2.4%	1,156.9	4.3%	1,495.7	8.2%	630.4	2.1%	3,816.8	0.7%	978.6	9.4%	12,846.2
Regional Total	196,101.1	100.0%	26,616.8	100.0%	18,270.2	100.0%	30,171.6	100.0%	530,159.7	100.0%	10,379.6	100.0%	811,699.0

Note: Warren County includes only the cities of Carlisle, Franklin, and Springboro

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The Land Development Condition Measure was developed using 2007 land use information from various parcel-based land use databases. Regional land was coded into 4 classes: Undeveloped, Fully Developed, Partially Developed, and Protected.

- **Undeveloped land** is generally comprised of parcels that are classified as agricultural, open space, or parcels that do not contain a structure.
- **Developed land** is generally comprised of parcels that do contain a structure and are classified as residential, commercial, industrial, right-of-way, or tax exempt. Developed land is further narrowed into the sub-classifications Fully Developed or Partially Developed.

Fully developed land consists of parcels with occupied structures.

Partially developed land consists of parcels that are classified as developed but contain vacant structures.

- **Protected land** mostly includes park land, active recreation areas, and land protected under conservation easements.

Results of the Land Development Condition Measure Analysis

Figure 14 shows the regional distribution of undeveloped, fully developed, partially developed, and protected land. Most of the Region's fully developed land is located in the eastern portion of Montgomery County and the western portion of Greene County. Fully developed land in Miami County is centered along I-75. In Warren County, most of the land is fully developed since the study area includes only the cities of Carlisle, Franklin, and Springboro.

Figure 15 shows the regional breakdown of the Land Development Condition Measure data. An estimated 28.8% of regional land is classified as fully developed and 0.3% is classified as partially developed. In addition, almost 4.9% the Region's land is identified as protected. The remaining 66.0% of the land is undeveloped.

Figure 14 - Regional Land Development Condition Map

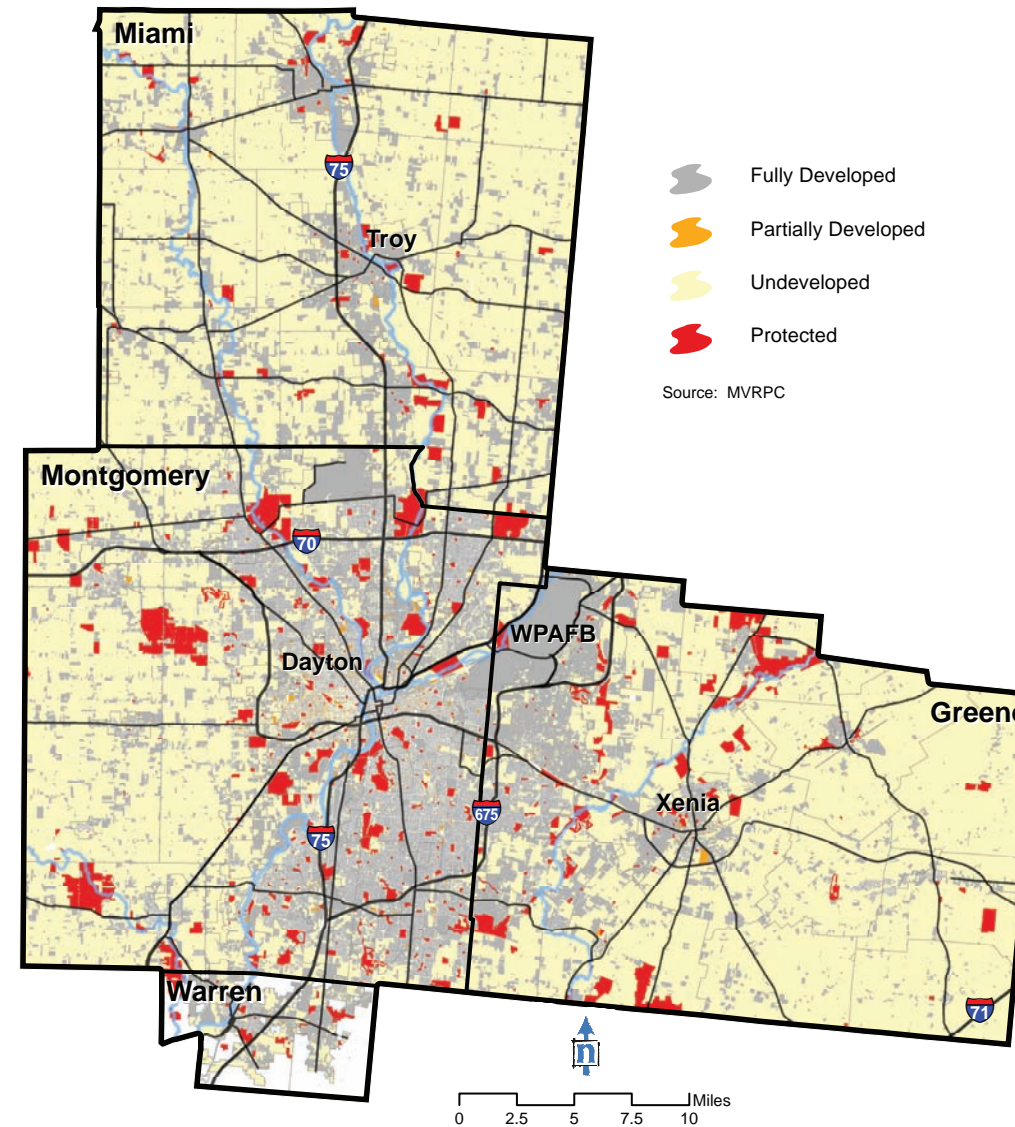


Figure 16 shows the percent breakdown of each county's land by the Land Development Condition Measure. It shows that both Montgomery County (39.5%) and the portions of Warren County (56.3%) included in this assessment are mostly fully developed, while only about a quarter of Greene (23.1%) and Miami (22.0%) counties are identified as fully developed. In Greene and Miami counties, undeveloped land makes up 72.0% and 75.7% of total county land, respectively.

Table 6 shows each county's acreage and share of regional land by the Land Development Condition Measure. Over half of all fully developed land (56.2%) is located in Montgomery County, followed by Greene (26.1%) and Miami (24.7%) counties. Montgomery County also has the largest shares of partially developed (77.5%) and protected (52.7%) land.

Figure 15 - Regional Land by Land Development Condition Measure

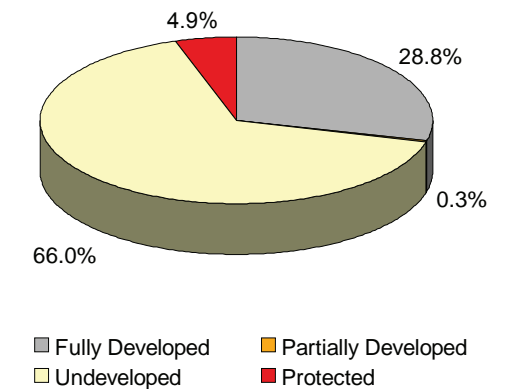


Figure 16 - County Land by Land Development Condition Measure

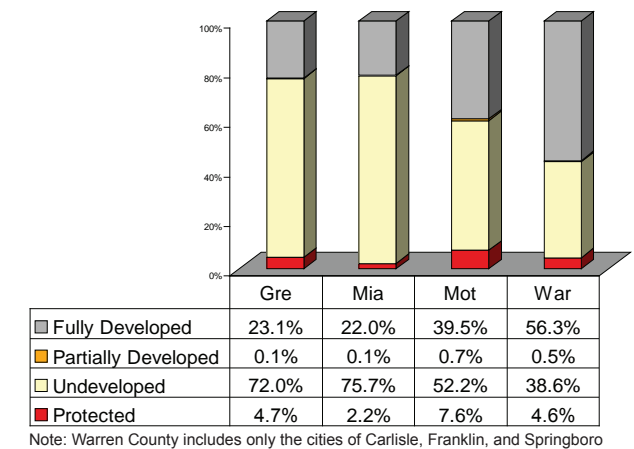


Table 6 - County Share of Land by Land Development Condition Measure

County	Fully Developed		Partially Developed		Undeveloped		Protected		Total
	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	
Greene	61,008.7	26.1%	283.3	11.8%	189,916.2	35.4%	12,404.2	31.4%	266,612.4
Miami	57,637.0	24.7%	192.7	8.0%	198,257.6	37.0%	5,682.0	14.4%	261,769.4
Montgomery	108,028.0	56.2%	1,836.0	77.5%	142,963.3	26.7%	20,823.6	52.7%	273,677.9
Warren	7,139.9	3.1%	64.8	2.7%	4,891.9	0.9%	581.2	1.5%	12,677.8
Regional Total	233,813.7	100.0%	2,403.9	100.0%	536,029.0	100.0%	39,491.1	100.0%	811,737.6

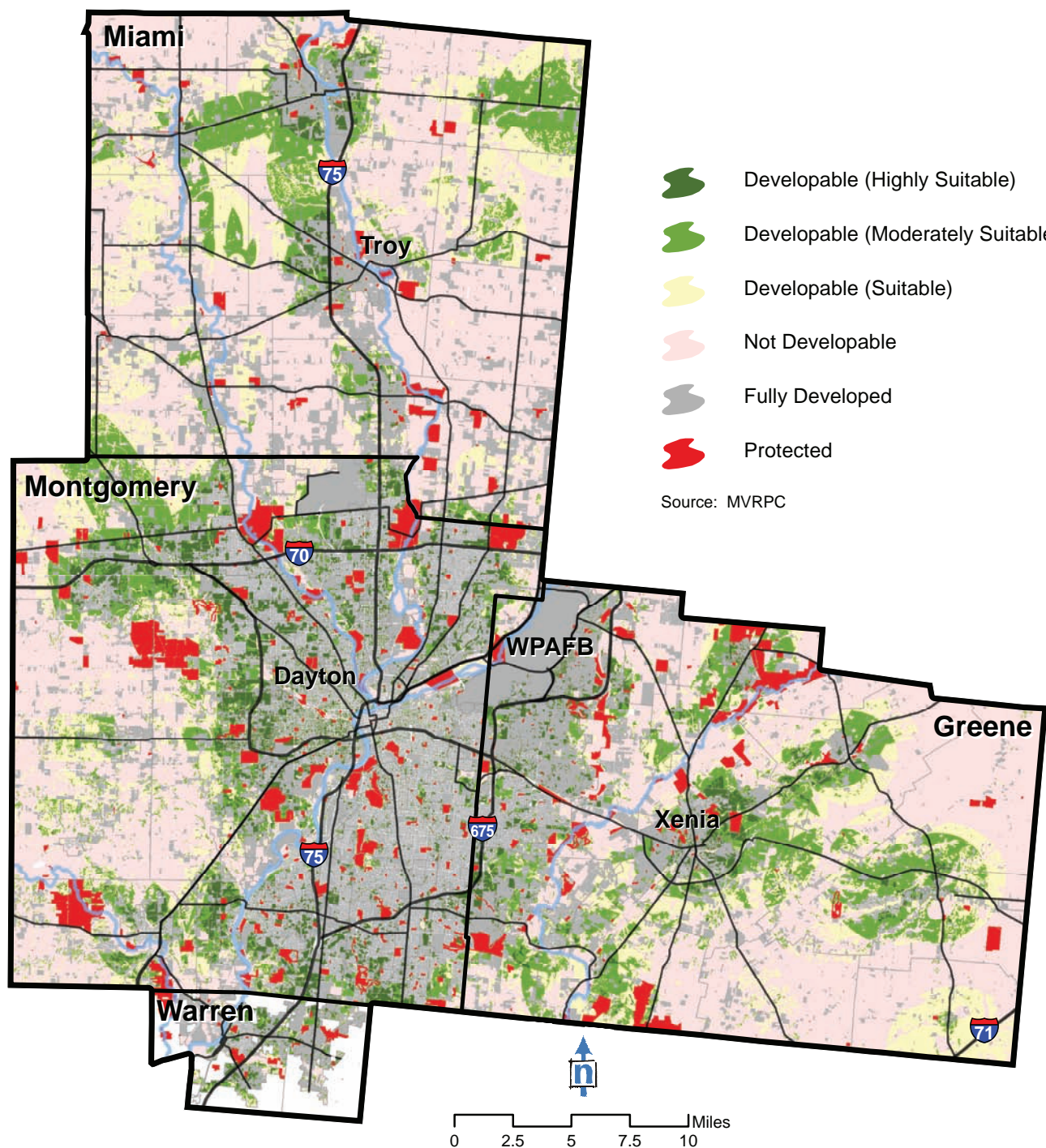
Note: Warren County includes only the cities of Carlisle, Franklin, and Springboro

Developability Analysis - Land Developability Measure

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The Land Developability Measure, which provides information regarding the location and amount of developable land that exists throughout the Region, was determined based on the data pertaining to the Land Suitability Measure and the Land Development Condition Measure. For this analysis, only undeveloped land and partially developed land, identified in the Land Development Condition Measure, were examined against the Land Suitability Measure in order to determine whether a particular tract of land is developable or not. In addition, the developable land was further classified into three classes based on the three levels of land suitability: Developable and Highly Suitable; Developable and Moderately Suitable; and Developable and Suitable.

Figure 17 - Regional Land Developability Measure Map



Most of the developable land is located along the edges of fully developed land or along major transportation corridors.

Results of the Land Developability Measure Analysis

Figure 17 shows the spatial distribution of land classified by the Land Developability Measure. The areas in grey represent fully developed areas, while the areas in red represent protected land. The areas outside fully developed or protected land are color coded to illustrate the Land Developability Measure results.

Figure 18 shows regional shares of land broken down by the Land Developability Measure. Fully developed land and protected land make up 28.8% and 4.9% of the Region, respectively. Of the remaining land, 26.9% is identified as developable and 39.4% as not developable.

Roughly 20% to 25% of each county is found to be developable (see figure 19). The developable land in Greene, Miami, and Montgomery counties make up 28.2%, 26.3%, and 26.5% of each county's land, respectively. On the other hand, 49.5% of Miami County, 44.0% of Greene County and 26.4% of Montgomery County are identified as not developable. For Warren County, since the study area covers only three cities of Carlisle, Franklin, and Springboro, a smaller portion of land (22.6%) is identified as developable.

The examination of each county's share of land by the Land Developability Measure is presented in Table 7. Greene County has the largest share of developable land, with 34.0%, followed by Montgomery (33.2%) and Miami (31.5%) counties.

Figure 18 - Regional Land by Developability Measure

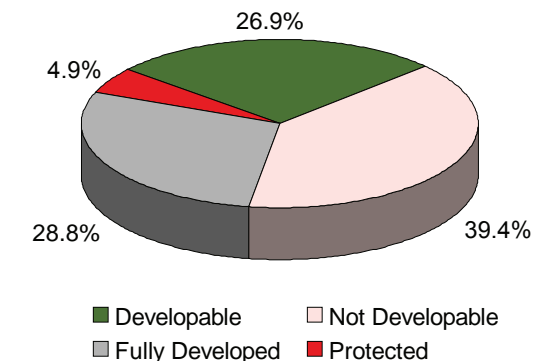


Figure 19 - County Land by Developability Measure

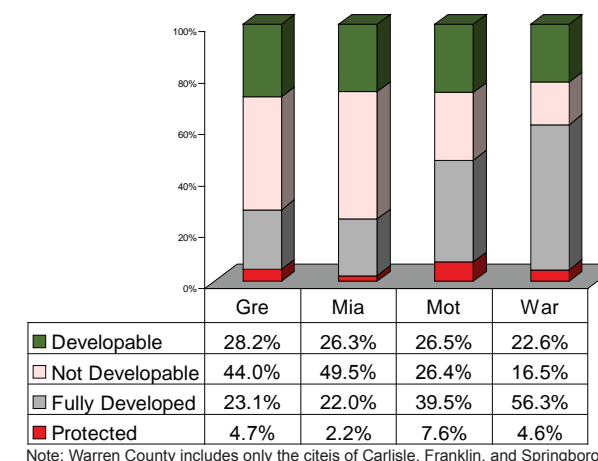


Table 7 - County Share of Land by Developability Measure

	Developable		Not Developable		Fully Developed		Protected		Total
	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	Acreage	County Share of Regional Total	
Greene	74,337.0	34.0%	115,862.5	36.2%	61,008.7	26.1%	12,404.2	31.4%	263,612.4
Miami	68,746.1	31.5%	129,704.2	40.5%	57,637.0	24.7%	5,682.0	14.4%	261,769.4
Montgomery	72,562.3	33.2%	72,264.0	22.6%	108,028.0	46.2%	20,823.6	52.7%	273,677.9
Warren	2,864.0	1.3%	2,092.7	0.7%	7,139.9	3.1%	581.2	1.5%	12,677.8
Regional Total	218,509.4	100.0%	319,923.4	100.0%	233,813.7	100.0%	39,491.1	100.0%	811,737.6

Note: Warren County includes only the cities of Carlisle, Franklin, and Springboro

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Regional development intensity was examined using the concept of Transect that was introduced in the methodology. The advantage of this review is that it provides an alternative regional perspective with an emphasis on development intensity rather than the types of land use (i.e.: residential, commercial or industrial). Further, this alternative perspective can inform local decision makers about the scale of development intensity that best suits their respective communities or specific locations within their communities.

The Regional Land Development Intensity Map was developed by overlaying spatial data representing impervious surfaces, residential density, and non-residential intensity. In general, T-Zone 1 represents the lowest degree of development intensity while T-Zone 5 represents the highest. A detailed methodology and a presentation of the data used for the Regional Land Development Intensity analysis can be found in Appendix B of this report.

The T-Zones for the Development Intensity Map are defined as follows:

- **T-Zone 1 (T1):** Lowest land use intensity, 0-20% impervious surface and mostly open land or agricultural land with a residential density of 0.70 Housing Units per Acre (HUA) or less
- **T-Zone 2 (T2):** Lower land use intensity, 20-40% impervious surface and a residential density of 0.70 - 1.40 HUA
- **T-Zone 3 (T3):** Medium land use intensity typical of suburban areas, 40-60% impervious surface, and mixed land use
- **T-Zone 4 (T4):** Higher land use intensity, urbanized area with 60-80% impervious surface, and greater mixed land use
- **T-Zone 5 (T5):** Urban core with very high land use intensity, 80-100% impervious surface and with a residential density of 4.18 HUA or greater

Results of the Land Development Measure Analysis by Development Intensity

Figure 20 shows the Region according to land development intensity. Most of the Region (72.4%) is classified as T1, or very low intensity. Meanwhile, T5, the highest intensity, makes up the smallest portion of the Region (3.3%). High levels of development intensity were found in the City of Dayton and east of I-75 in Montgomery County. Wright Patterson Air Force Base and the City of Xenia in Greene County, along with the municipalities located along I-75 in Miami County, show a high level of development intensity as well.

Figure 20 - Regional Land Development Intensity Map

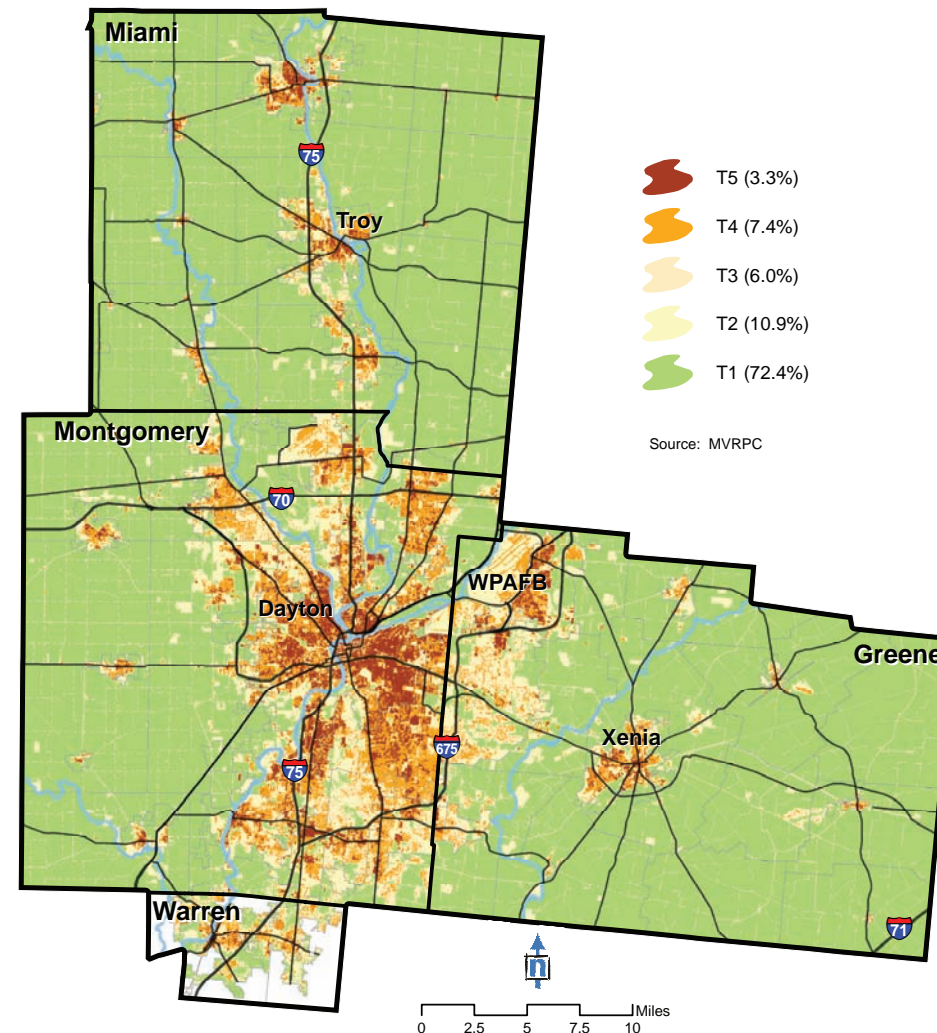


Table 8 presents the cross tabulation of data from the Regional Land Developability Measure with the data from the Regional Land Development Intensity Measure. Within the category of fully developed land, various levels of land development intensity are identified. However, the data suggest that lower development intensity is more prevalent than higher development intensity throughout the Region. As presented in the table, 8.8% of fully developed land has a very high level of intensity (T5) while 37.7% has the lowest level of development intensity (T1).

Of those areas identified as Developable, two different findings are observed between undeveloped-developable land and partially developed-developable land. For undeveloped-developable land, lower levels of development intensity are found to be more prevalent than the higher levels of development intensity. In contrast, higher levels of development intensity are observed for the partially developed-developable land. These data findings are not surprising because undeveloped-developable land is currently not yet developed, therefore, showing lower levels of development intensity. Conversely, partially developed-developable land is showing higher levels of development intensity because it is already developed to a specific intensity.

Table 8 - Regional Land Developability by Transect Zone

	Fully Developed		Developable												Undevelopable		Total
			Undeveloped						Partially Developed								
			Highly Suitable		Moderately Suitable		Suitable		Highly Suitable		Moderately Suitable		Suitable				
Acreage	% Share	Acreage	% Share	Acreage	% Share	Acreage	% Share	Acreage	% Share	Acreage	% Share	Acreage	% Share	Acreage	% Share		
T1	110,689.7	37.7%	19,390.9	68.3%	74,269.9	92.5%	84,328.3	95.2%	45.8	2.9%	65.3	18.1%	31.0	30.9%	319,095.7	92.0%	607,916.7
T2	56,167.7	19.1%	5,057.6	17.8%	4,922.0	6.1%	3,743.8	4.2%	156.3	10.0%	52.9	14.7%	14.3	14.3%	21,733.1	6.3%	91,847.7
T3	42,966.4	14.6%	2,037.4	7.2%	835.5	1.0%	410.5	0.5%	172.9	11.1%	53.1	14.7%	10.2	10.2%	3,935.5	1.1%	50,421.7
T4	58,182.3	19.8%	1,546.2	5.4%	274.1	0.3%	98.3	0.1%	503.5	32.3%	85.5	23.7%	16.9	16.8%	1,700.1	0.5%	62,406.9
T5	25,960.6	8.8%	358.8	1.3%	24.2	0.0%	6.7	0.0%	680.4	43.6%	104.2	28.8%	28.0	27.9%	419.6	0.1%	27,582.4
Regional Total	293,966.7	100.0%	28,390.9	100.0%	80,325.7	100.0%	88,587.7	100.0%	1,558.9	100.0%	361.1	100.0%	100.5	100.0%	346,883.9	100.0%	840,175.4