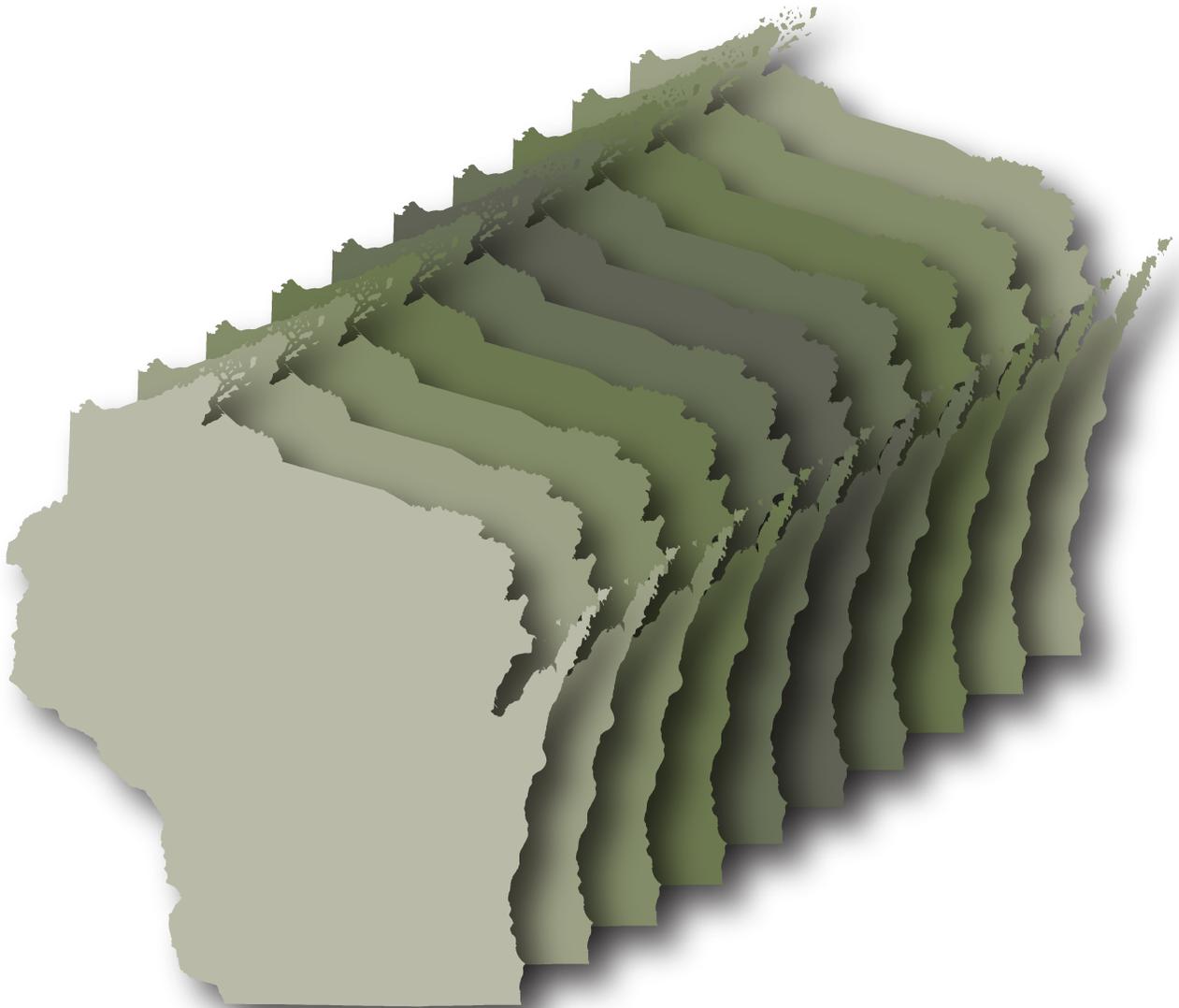


WISCONSIN DIVIDED TEN WAYS:

A REVIEW OF RURAL-URBAN CLASSIFICATION SYSTEMS



WISCONSIN OFFICE OF
Rural Health

WISCONSIN DIVIDED TEN WAYS: A REVIEW OF RURAL-URBAN CLASSIFICATION SYSTEMS

JULY 2019

ACKNOWLEDGEMENTS

The Office of Rural Health would like to thank Amy Perkins, MPH Candidate, for her assistance with updating this report as well as Natalee Desotell, Student Intern; Maria Radtke, former Communications Specialist; John Eich, Director; and Nancy Eberle, external reviewer, for their contributions to the original report.

Questions regarding this report can be sent to Penny Black at pdblack@wisc.edu.

ABBREVIATIONS

CBSA	Core-Based Statistical Area
FAR	Frontier and Remote
FORHP	Federal Office of Rural Health Policy
MSA	Metropolitan Statistical Area
MiSA	Micropolitan Statistical Area
MURC	Municipal-level Urban-Rural Classification
RUCA	Rural-Urban Commuting Areas
RUCA ZIP	RUCA ZIP Code Approximation
RUCC	Rural-Urban Continuum Codes
UA	Urban Area
UzA	Urbanized Area
UC	Urban Cluster
UIC	Urban Influence Codes
URCSC	Urban-Rural Classification Scheme for Counties

WISCONSIN DIVIDED TEN WAYS: A REVIEW OF RURAL-URBAN CLASSIFICATION SYSTEMS

REPORT CONTENTS

Foundation	1
Core Classification Systems	
▪ Urban Areas	3
▪ Core-Based Statistical Areas	3
County-Based Classification Systems	
▪ Rural-Urban Continuum Codes	5
▪ Urban-Rural Classification Scheme for Counties	7
▪ Urban Influence Codes	9
Census Tract-Based Classification Systems	
▪ Rural-Urban Commuting Areas	13
▪ HRSA Rural Definition (county-census tract hybrid)	17
ZIP Code-Based Classification Systems	
▪ Frontier and Remote	19
▪ Rural-Urban Commuting Areas ZIP Code Approximation	21
Municipal-Based Classification System	
▪ Municipal-level Urban-Rural Classification	23
Considerations	27
Information Sources	29
Appendices	online
A. Wisconsin County Classifications	
B. Wisconsin Census Tract Classifications	
C. Wisconsin ZIP Code Classifications	
D. Wisconsin Municipal Classifications	

FOUNDATION

Definitions are important for understanding, communicating, comparing, and contrasting. Defining “rural” is important because, in addition to determining how much land and population are classified as rural, definitions affect the demographic and economic profiles of rural places by which many policy and program decisions are made. The purpose of this report is to increase understanding of commonly-used definitions of rural and to illustrate the implications of these definitions for Wisconsin and the people who live here.

Rural-urban classification systems define rural in many ways but their intent is the same – to provide a structure for describing a complex and multi-dimensional concept. The classification systems in this report were developed over the past 60+ years by a variety of organizations, to meet different needs, and to capture the changing landscape of population settlement; thus, systems reflect organizational priorities and expertise as well as period-relevant demography. It is important to keep all this in mind as we consider each system’s definition of rural Wisconsin as it is today.



CBSA	Core-Based Statistical Areas	RUCA ZIP	RUCA ZIP-Code Approximation
FAR	Frontier and Remote	RUCC	Rural-Urban Continuum Codes
HRSA	HRSA Rural Definition	UA	Urban Areas
MURC	Municipal-level Urban-Rural Classification	UIC	Urban Influence Codes
RUCA	Rural-Urban Commuting Areas	URCSC	Urban-Rural Classification Scheme for Counties

CLASS VARIABLES

Classification systems assign geographic units (counties, census tracts, etc.) to classes based on a variety of components. Seemingly similar, these components, or, variables, are used in different ways, in different orders, and with different sizes by each classification system. All of the variables are population-related either directly or indirectly, including proximity and adjacency (which are used to reflect separation) and commuting (which is used to reflect integration). These variables include:

- CBSA designation
- Adjacency
- Proximity
- Population size
- Population distribution
- Commuting population size
- RUCA score

	CBSA designation	Adjacency	Proximity	Population size	Population distribution	Commuting population size	RUCA score
UA				✓	✓		
CBSA				✓			
RUCC	✓	✓		✓		✓	
URCSC	✓			✓	✓		
UIC	✓	✓		✓		✓	
HRSA	✓						✓
RUCA				✓		✓	
FAR			✓	✓	✓		
RUCA ZIP					✓		✓
MURC			✓	✓	✓		

COMPARING SYSTEMS

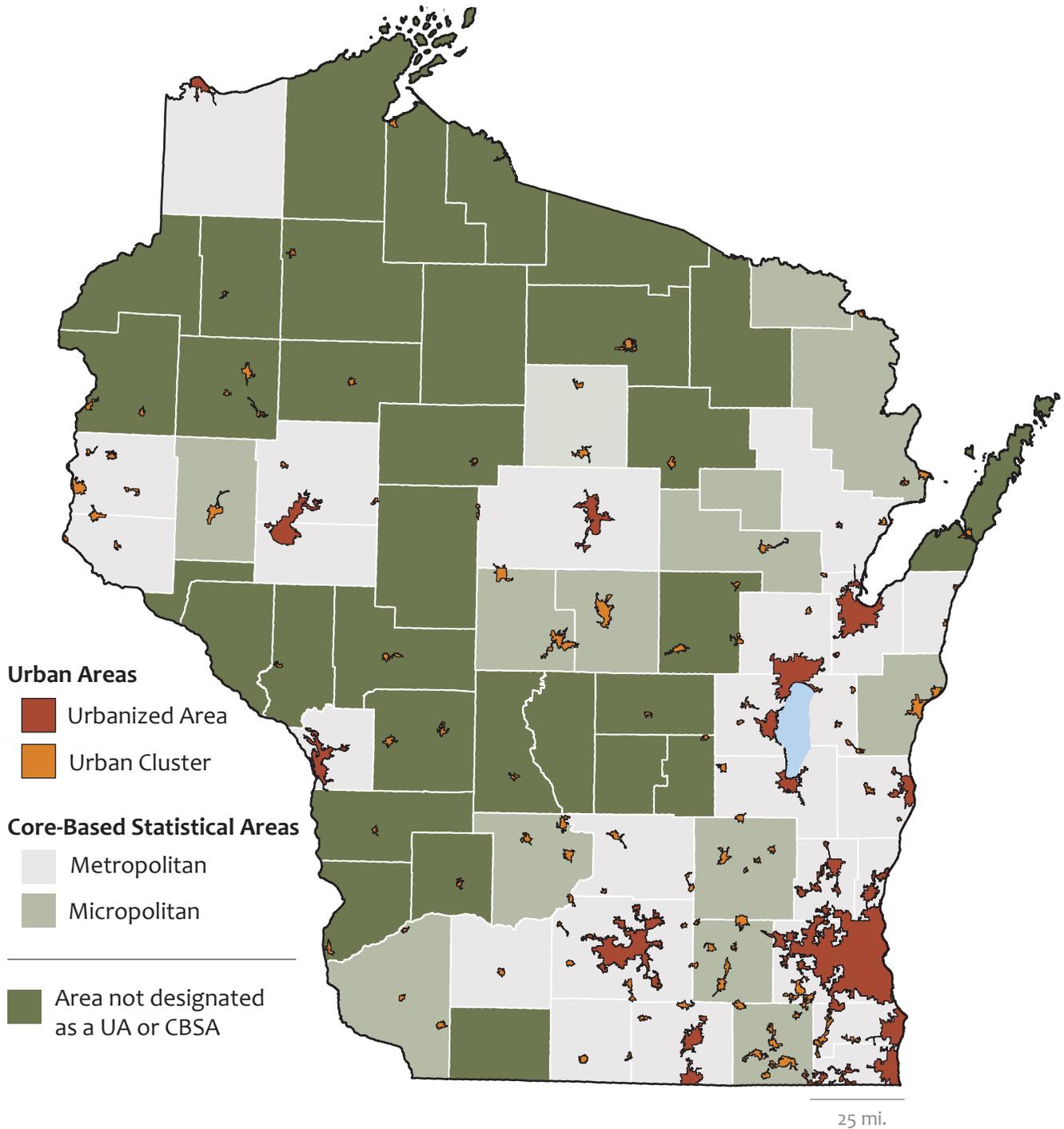
Although systems use similar nomenclature, this should not be interpreted as meaning the same thing; e.g., “non-metro” in System A does not equal “non-metro” in System B. In addition, classes are developed using similar variables but these variables are applied in different orders and with different cut-offs. To illustrate, population size is often used to determine classes, albeit with different population sizes and with different end-points; for example, one system uses a population of 10,000 to 20,000 for a class while another system uses 10,000 to 50,000. The range of class sizes is staggering and a good reminder that comparing across systems should be done with caution, if at all.

When comparisons are necessary, classes, regardless of their size differences, are often combined to create an “urban” category and whatever is left over becomes a “rural” category. Since rural is more than not-urban, however, a slightly more nuanced approach was taken for this report by combining classes to create three categories: metropolitan, micropolitan, and rural.

ABOUT THIS REPORT

The classification system descriptions in this report are meant to provide a high-level overview; more information about each system can be found by clicking on the link under the map. The maps are provided as a visual reference; for a list of specific designations, see the appendices, available online. Core classification systems are described first – systems on which all other systems are based – followed by county-based systems, census tract-based systems, ZIP code-based systems, and municipal-based systems.

URBAN AREAS AND CORE-BASED STATISTICAL AREAS



URBAN AREAS

Developer: US Census Bureau
Website: [Rural-Urban Continuum Codes](#)

CORE-BASED STATISTICAL AREAS

Developer: US Office of Management and Budget
Website: [Rural-Urban Continuum Codes](#)

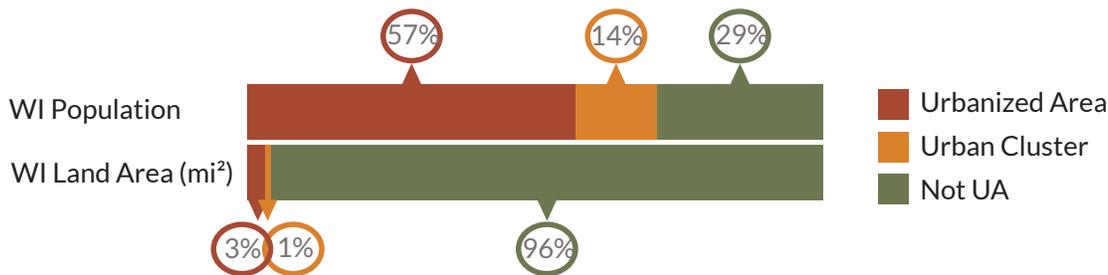
URBAN AREAS AND CORE-BASED STATISTICAL AREAS

Most rural-urban classification systems, including the eight in this report, are based on two area designation systems: Urban Areas^{1,2} and Core-Based Statistical Areas.^{3,4} Both of these systems were developed for the purpose of collecting, tabulating, and reporting federal statistics. Core-Based Statistical Areas include areas designated as Urban Areas as well as areas not designated as Urban Areas, and thus, contain both rural and urban territories and populations. There are no counties in Wisconsin that are 100% urban, although Milwaukee comes close. There are, however, 13 counties that are 100% rural according to the core classification systems.

URBAN AREAS

The US Census Bureau's Urban Areas (UA) are made up of census blocks that meet minimum population density requirements, along with adjacent territory that connects outlying densely-settled territory with the densely-settled core. Urban Areas have two explicit classes: Urbanized Areas and Urban Clusters, and one implied class: Not Urban. Not Urban includes all areas not designated as an Urbanized Area or Urban Cluster.

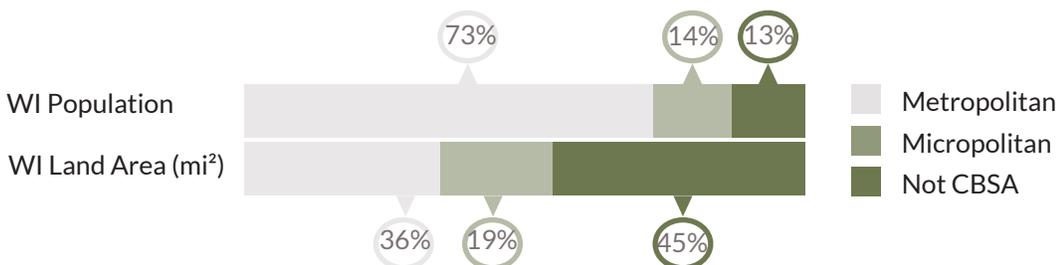
Urbanized Area	Area with a core of 50,000 or more people and a population density of 1,000 persons per mi ² and may contain adjoining territory with at least 500 persons per mi ²
Urban Cluster	Area with a core of at least 2,500 and less than 50,000 people and a population density of 1,000 persons per mi ² and may contain adjoining territory with at least 500 persons per mi ²



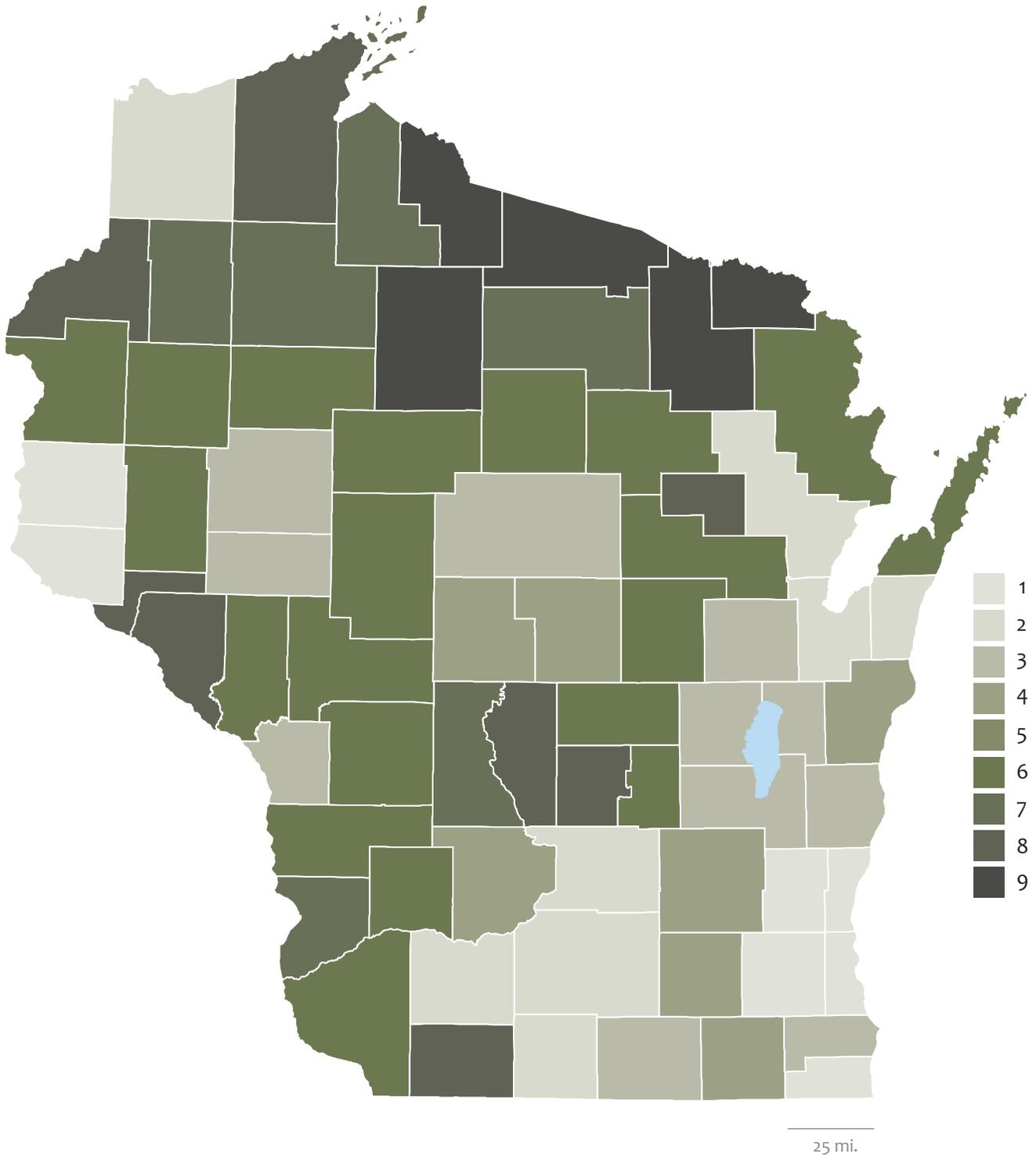
CORE-BASED STATISTICAL AREAS

The US Office of Management and Budget's Core-Based Statistical Areas (CBSA) are made up of counties that a) have at least 50% of their population in Urban Areas; or b) have within their boundaries a population of at least 5,000 located in a single Urban Area. Similar to Urban Areas, Core-Based Statistical Areas have two explicit classes and one implied:

Metropolitan Statistical Area	Area that contains an Urbanized Area of 50,000 or more population
Micropolitan Statistical Area	Area that contains an Urbanized Area of at least 10,000 but less than 50,000 population



RURAL-URBAN CONTINUUM CODES



DEVELOPER: US Department of Agriculture, Economic Research Service

WEBSITE: [Rural-Urban Continuum Codes](https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/)

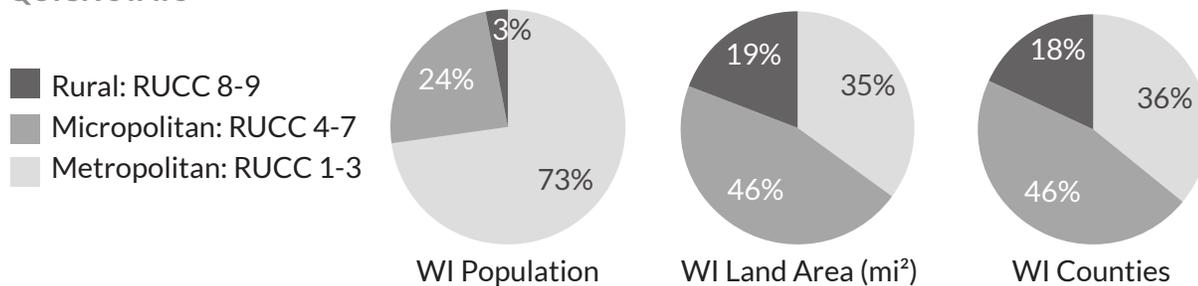
RURAL-URBAN CONTINUUM CODES

The Rural-Urban Continuum Codes (RUCC) were originally developed in 1974 and have been updated each decennial since. This classification system divides Core-Based Statistical Areas (CBSA) into three metropolitan classes based on population size and six nonmetropolitan classes based on adjacency to Metropolitan Statistical Areas (MSA) and population size. Adjacency is defined as abutting a MSA and having at least 2% of employed persons commuting to work in the abutted county.

CLASSES

- 1 MSAs with 1+ million population
- 2 MSAs with 250,000 to 1 million population
- 3 MSAs with less than 250,000 population
- 4 Urban population of 20,000 or more, adjacent to a MSA
- 5 Urban population of 20,000 or more, not adjacent to a MSA
- 6 Urban population of 2,500 to 19,999, adjacent to a MSA
- 7 Urban population of 2,500 to 19,999, not adjacent to a MSA
- 8 Completely rural or less than 2,500 urban population, adjacent to a MSA
- 9 Completely rural or less than 2,500 urban population, not adjacent to a MSA

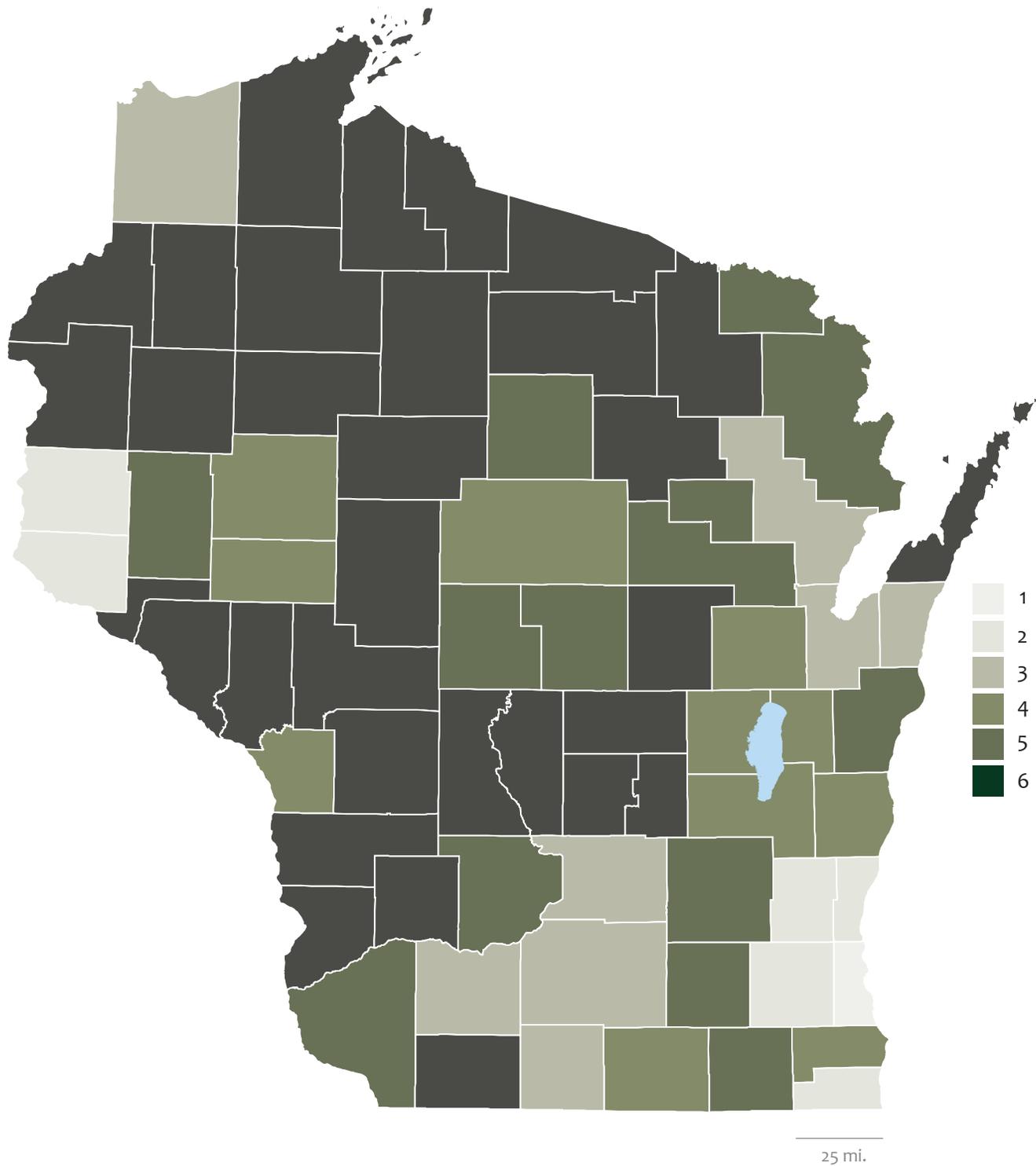
QUICK STATS⁵



Class	Counties (#)	Population	Land Area (mi ²)	Population Density (# people per mi ²)
1	7	1,871,355	2,812	666
2	8	999,422	6,484	154
3	11	1,394,776	7,697	181
4	7	562,154	4,892	115
6	20	648,145	17,483	37
7	6	125,893	5,124	25
8	8	107,304	5,296	20
9	5	54,168	4,371	12

There are no Wisconsin counties in RUCC 5.

URBAN-RURAL CLASSIFICATION SCHEME FOR COUNTIES



DEVELOPER: Centers for Disease Control and Prevention, National Center for Health Statistics
WEBSITE: [Urban-Rural Classification Scheme for Counties](#)

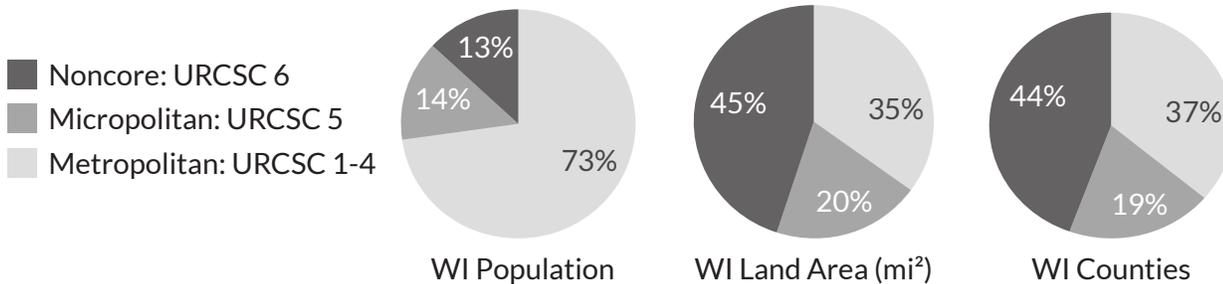
URBAN-RURAL CLASSIFICATION SCHEME FOR COUNTIES

The Urban-Rural Classification Scheme for Counties (URCSC) is often used to study associations between health and urbanization level of residence. Developed by the National Center for Health Statistics, this system divides Core-Based Statistical Areas into four metropolitan classes based on the population size and the principal city population size and two nonmetropolitan classes. Principal city is defined as the incorporated place with the largest population within the Core-Based Statistical Area.

CLASSES

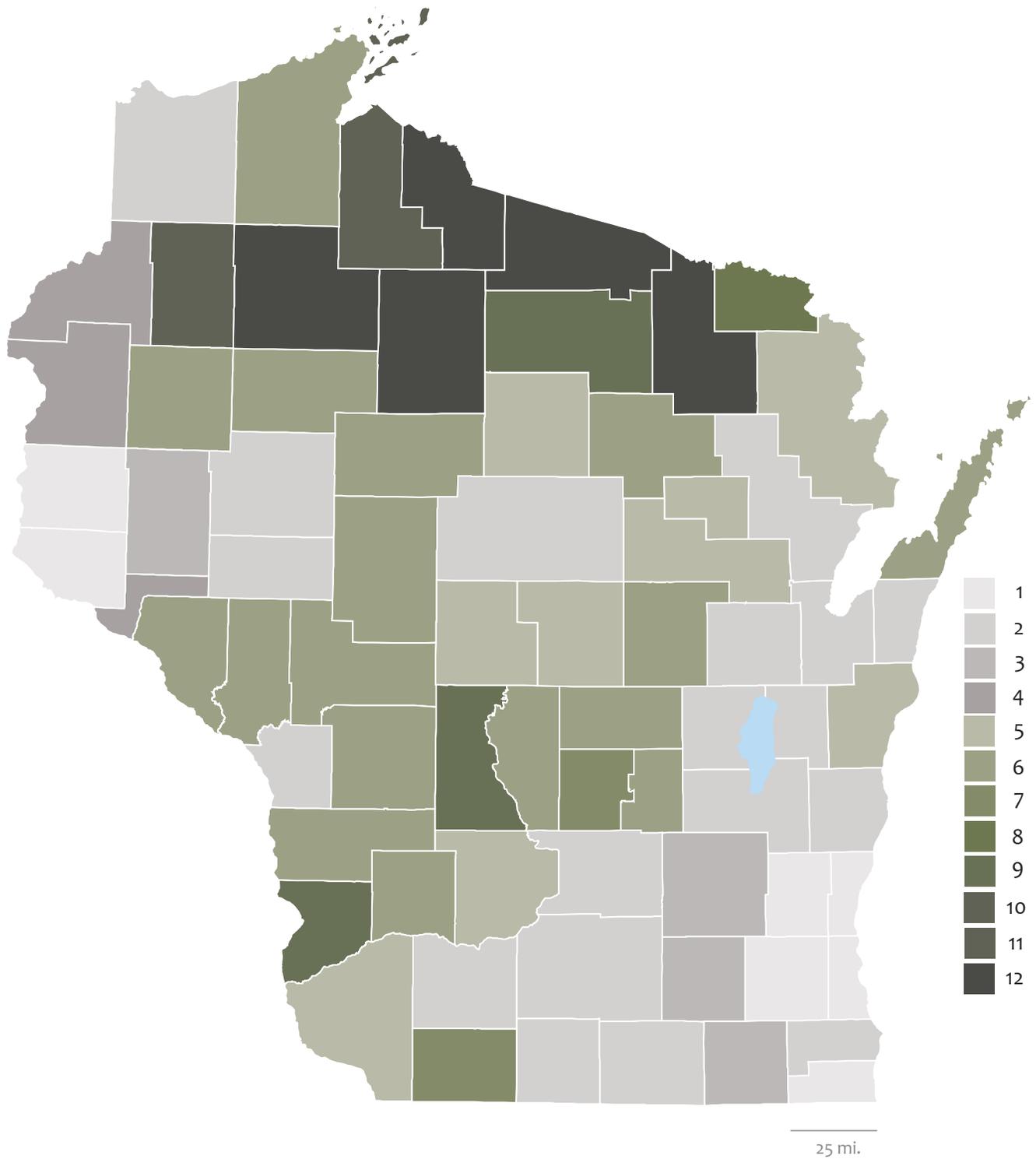
1	Large Central Metro	Metropolitan Statistical Areas (MSA) with 1 million+ population that: <ul style="list-style-type: none"> ▪ Contain the entire population of the largest principal city of the MSA, or ▪ Have their entire population in the largest principal city of the MSA, or ▪ Contain at least 250,000 inhabitants of any principal city of the MSA
2	Large Fringe Metro	MSAs with 1 million+ population that did not qualify as Large Central Metro counties
3	Medium Metro	MSAs with populations of 250,000 to 999,999
4	Small Metro	MSAs with populations less than 250,000
5	Micropolitan	Micropolitan Statistical Areas (MiSA)
6	Noncore	Counties that did not qualify as a MSA or MiSA

QUICK STATS⁵



Class	Counties (#)	Population	Land Area (mi ²)	Population Density (# people per mi ²)
1	1	956,586	241	
2	6	890,967	2,781	320
3	8	999,422	6,484	154
4	11	1,366,824	7,315	187
5	14	803,860	11,015	73
6	32	745,558	26,321	28

URBAN INFLUENCE CODES



DEVELOPER: US Dept of Agriculture, Economic Research Service
WEBSITE: [Urban Influence Codes](#)

URBAN INFLUENCE CODES

The Urban Influence Codes (UIC) are designed to capture differences in economic opportunities among counties. The UIC divides Core-Based Statistical Areas (CBSA) into two metropolitan classes based on population size and three micropolitan and seven “noncore” classes based on adjacency to a CBSA and population size. Adjacency is defined as abutting a CBSA and having at least 2% of employed persons commuting to work in the abutted county.

CLASSES

1	In large Micropolitan Statistical Area (MSA) (1+ million population)
2	In small MSA (less than 1 million population)
3	Micropolitan Statistica Area (MiSA) adjacent to large MSA
4	Noncore adjacent to large MSA
5	MiSA adjacent to small MSA
6	Noncore adjacent to small MSA and contains a town of at least 2,500 population
7	Noncore adjacent to small MSA and does not contain a town of at least 2,500 population
8	MiSA not adjacent to a MSA
9	Noncore adjacent to MiSA and contains a town of at least 2,500 population
10	Noncore adjacent to MiSA and does not contain a town of at least 2,500 population
11	Noncore not adjacent to MiSA and contains a town of at least 2,500 population
12	Noncore not adjacent to MiSA and does not contain a town of at least 2,500 population

QUICK STATS⁵

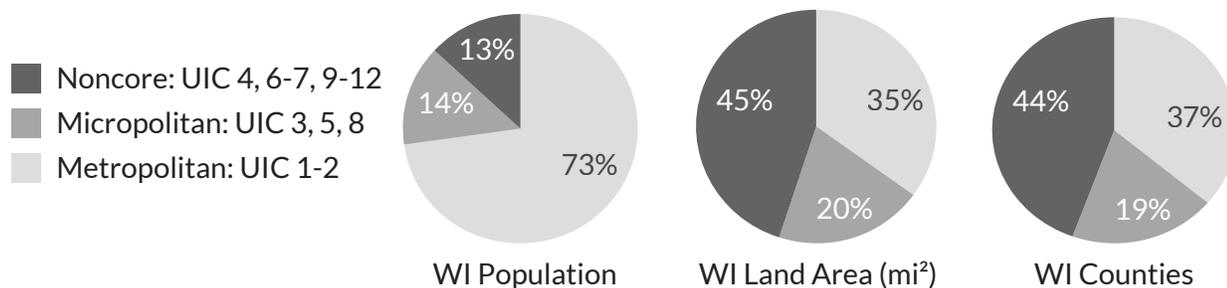


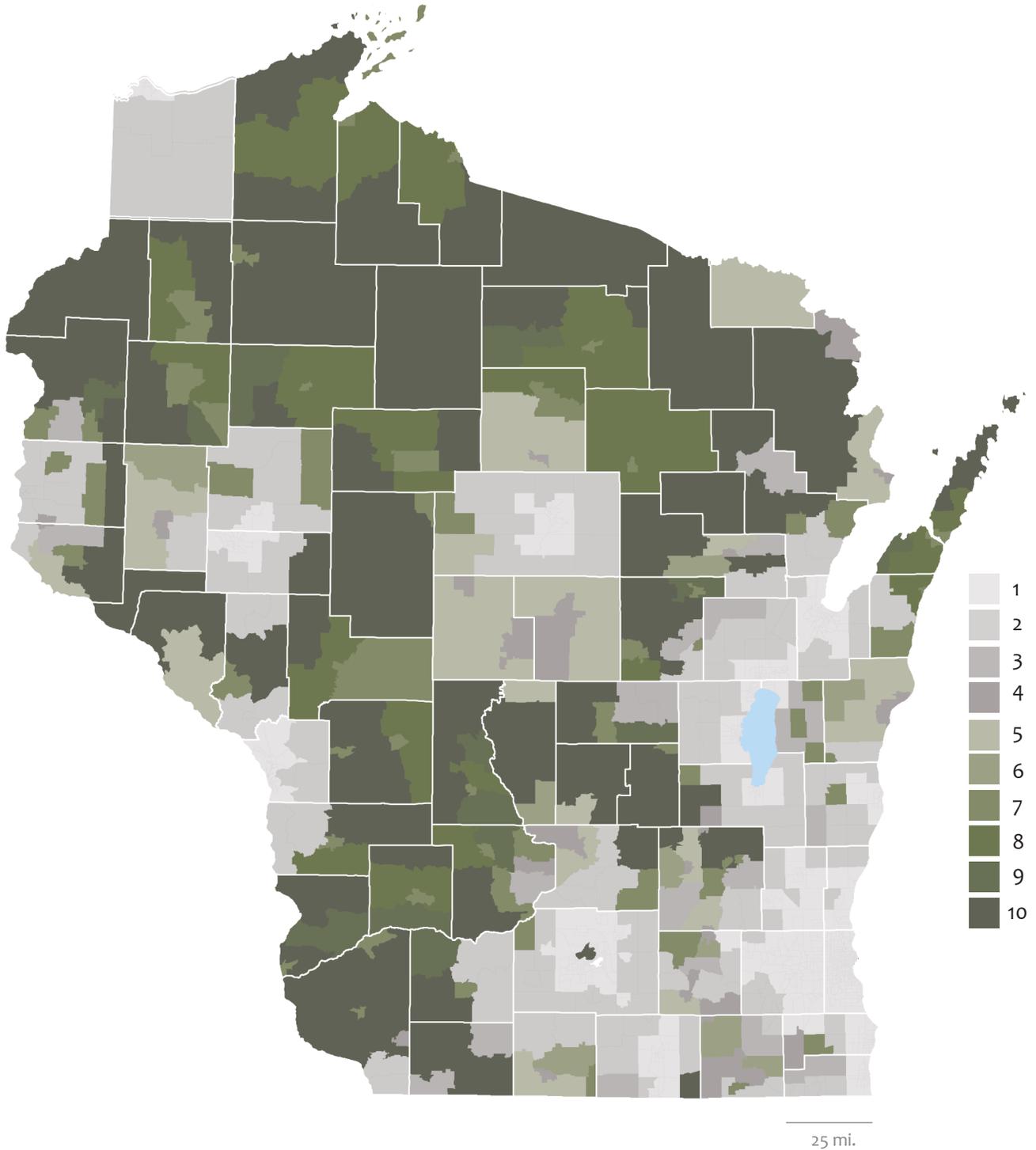
Table on next page.

Class	Counties (#)	Population	Land Area (mi ²)	Population Density (# people per mi ²)
1	7	1,847,553	3,023	611
2	19	2,366,246	13,798	171
3	4	319,596	2,837	113
4	3	65,849	1,968	33
5	9	479,910	7,690	62
6	17	447,331	13,831	32
7	2	31,919	1,089	29
8	1	4,354	488	9
9	3	78,092	2,451	32
11	2	31,417	1,842	17
12	5	90,950	5,141	18

There are no Wisconsin counties in UIC 10.

This page intentionally left blank.

RURAL-URBAN COMMUTING AREAS



DEVELOPER: US Dept of Agriculture, Economic Research Service, US Dept of Health and Human Services
WEBSITE: [Rural-Urban Commuting Areas](#)

RURAL-URBAN COMMUTING AREAS

The Rural-Urban Commuting Area (RUCA) classification system was developed to identify places likely to have poor access to health services. RUCA codes divide census tracts into 21 classes and sub-classes based on population size, commuting population size, commuting destination Urban Area (UA) designation, and commuting destination population size - 10 classes based on primary (largest) commuting population, 11 sub-classes based on secondary (second largest).

CLASSES (SUB-CLASSES ON PAGE 18)

1	Metropolitan area core	Primary commuting flow is <i>within</i> an Urbanized Area (UzA)
2	Metropolitan area high commuting	30%+ of the primary flow is to a UzA
3	Metropolitan area low commuting	10%-30% of the primary flow is to a UzA
4	Micropolitan area core	Primary flow is <i>within</i> a large Urban Cluster (UC) (10,000-49,999 pop)
5	Micropolitan high commuting	30%+ of the primary flow is to a large UC
6	Micropolitan low commuting	10% to 30% of the primary flow is to a large UC
7	Small town core	Primary flow is <i>within</i> a small UC (2,500-9,999 population)
8	Small town high commuting	30%+ of the primary flow is to a small UC
9	Small town low commuting	10%-30% of the primary flow is to a small UC
10	Rural	Primary flow is to a tract outside a UzA or UC

QUICK STATS⁵

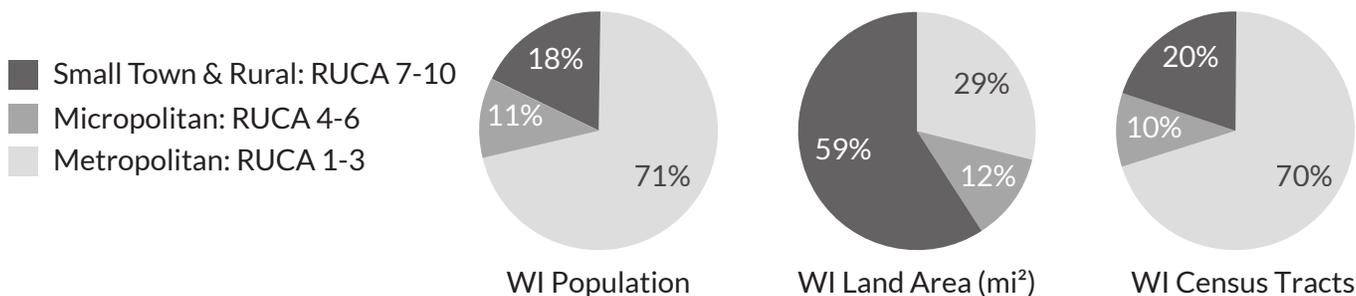


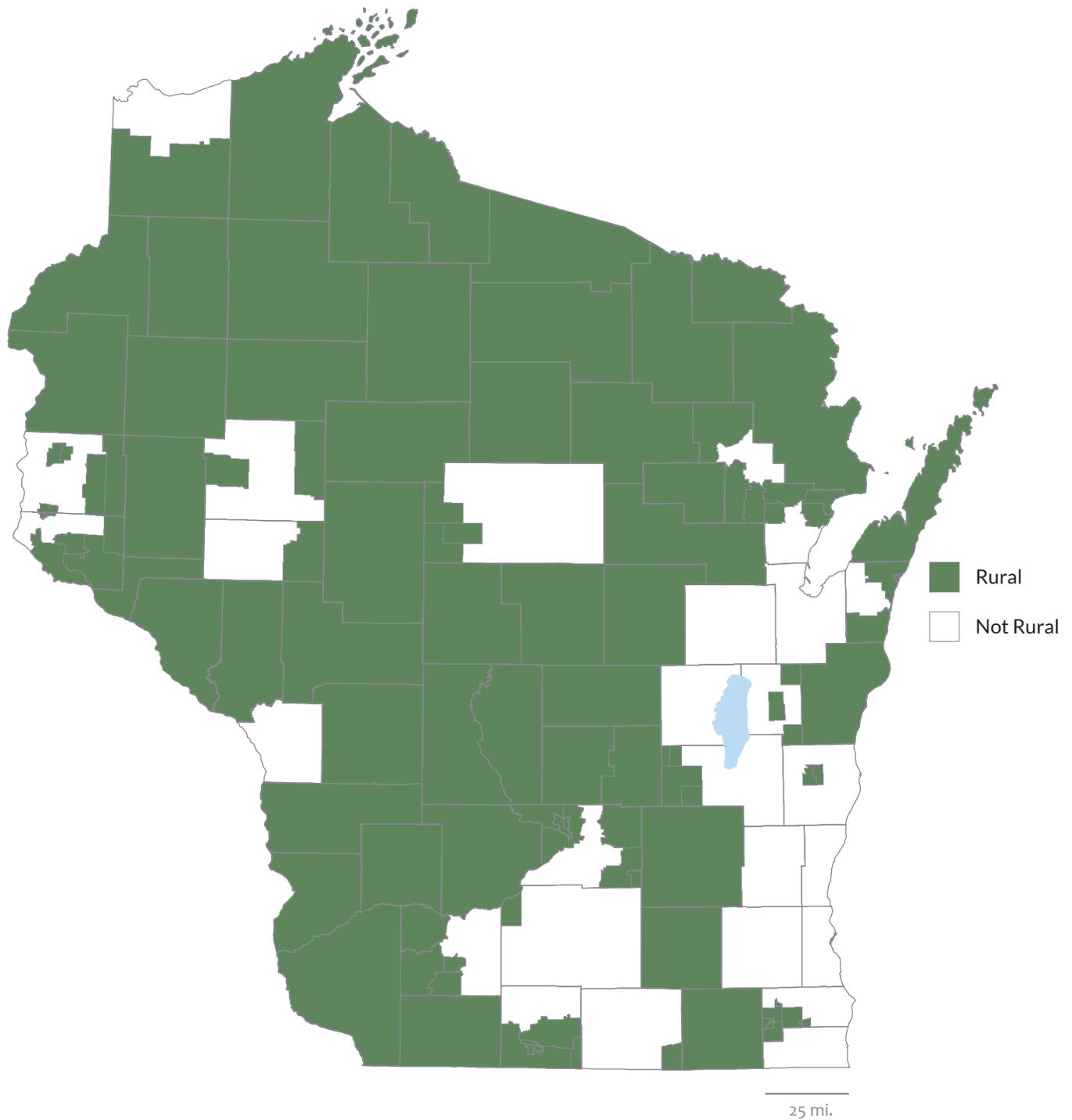
Table on next page.

Class	Census Tracts (#)	Population	Land Area (mi ²)	Population Density (# people per mi ²)
1	820	3,395,684	3,445	986
2	131	657,535	10,303	64
3	20	78,711	1,941	41
4	95	439,060	1,133	388
5	39	152,837	4,526	34
6	10	40,488	962	42
7	85	378,988	3,230	117
8	38	122,673	6,154	20
9	14	42,389	1,699	25
10	142	454,852	20,765	22

RURAL-URBAN COMMUTING AREA CLASSES AND SUB-CLASSES

Class	Description
1	Metropolitan area core
1.1	Primary commuting flow is within a Urbanized Area (UzA) 30%-50% of the secondary flow is to a larger UzA
2	Metropolitan area high commuting
2.1	30%+ of the primary flow is to a UzA 30%-50% of the secondary flow is to a larger UzA
3	Metropolitan area low commuting
4	Micropolitan area core
4.1	Primary flow is within a large Urban Cluster (UC) (10,000-49,999 population) 30%-50% of the secondary flow is to a UzA
5	Micropolitan high commuting
5.1	30%+ of the primary flow is to a large UC 30%-50% of the secondary flow is to a UzA
6	Micropolitan low commuting
7	Small town core
7.1	Primary flow is within a small UC (2,500-9,999 population) 30%-50% of the secondary flow is to a UzA
7.2	30%-50% of the secondary flow is to a large UC
8	Small town high commuting
8.1	30%+ of the primary flow is to a small UC 30%-50% of the secondary flow is to a UzA
8.2	30%-50% of the secondary flow is to a large UC
9	Small town low commuting
10	Rural
10.1	Primary flow is to a tract outside a UzA or UC 30%-50% of the secondary flow is to a UzA
10.2	30%-50% of the secondary flow is to a large UC
10.3	30%-50% of the secondary flow is to a small UC

HRSA RURAL DEFINITION



DEVELOPER: Health Resources and Services Administration
WEBSITE: [HRSA Defining Rural](#)

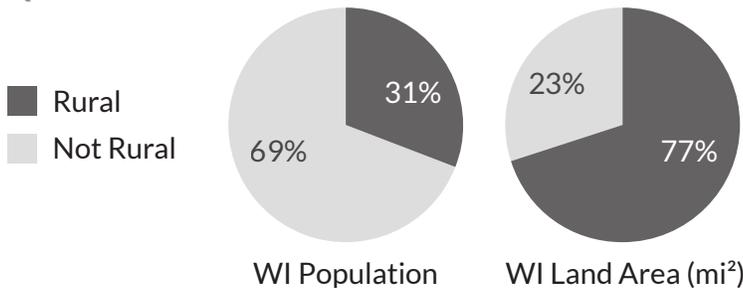
HRSA RURAL DEFINITION

The US Health Resources and Services Administration (HRSA) defines rural for the purpose of establishing eligibility for funding opportunities. HRSA’s definition of rural uses a combination of Core-Based Statistical Areas and Rural-Urban Commuting Areas (RUCA).

CLASSES

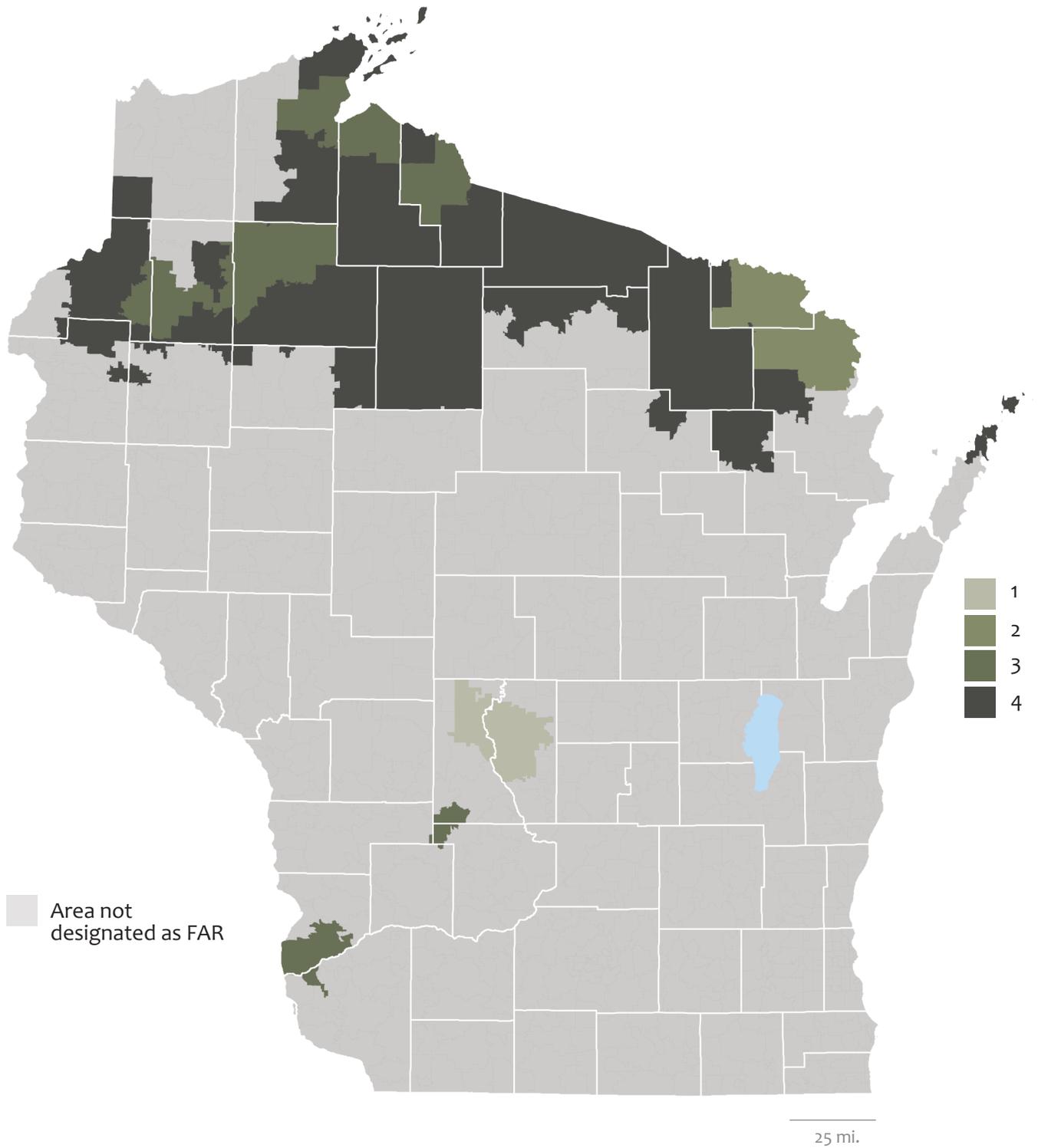
Rural	<ul style="list-style-type: none"> All counties not designated as a Metropolitan Statistical Area (MSA); <i>and</i> Census tracts within MSAs with RUCA codes 4 through 10; <i>and</i> Census tracts within MSAs with RUCA codes 2 or 3 that are at least 400 mi² in area with a population density of no more than 35 people/mi²
Not Rural	<ul style="list-style-type: none"> All counties designated as an MSA; <i>and</i> All census tracts not designated as rural

QUICK STATS⁵



Class	Counties and Census Tracts (CT) (#)	Population	Land Area (mi ²)	Population Density (# people per mi ²)
Rural	46 counties and 65 CTs	1,793,284	42,092	43
Not Rural	8 counties and 646 CTs	3,893,702	12,066	323

FRONTIER AND REMOTE



DEVELOPER: US Dept of Agriculture, Economic Research Service
WEBSITE: [Frontier and Remote](#)

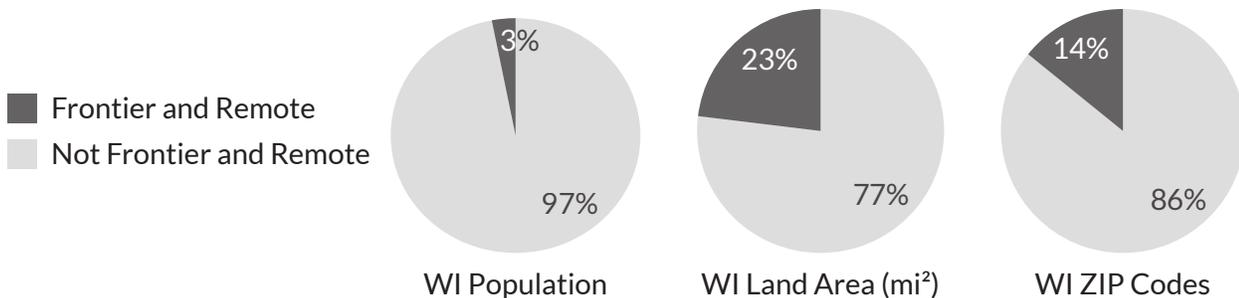
FRONTIER AND REMOTE

The Frontier and Remote (FAR) codes attempt to capture differences in degrees of remoteness at higher or lower population levels that affect access to different types of goods and services. This classification system is unique in that it does not classify urban areas. FAR levels are defined in relation to the time it takes to travel by car to the edge of nearby Urban Areas (UA). Distance is measured using ½ kilometer by ½ kilometer grid cells; the cells are then aggregated to ZIP codes. If 50% or more of the area's population is located in grid cells designated as FAR, then the area is classified as FAR.

CLASSES

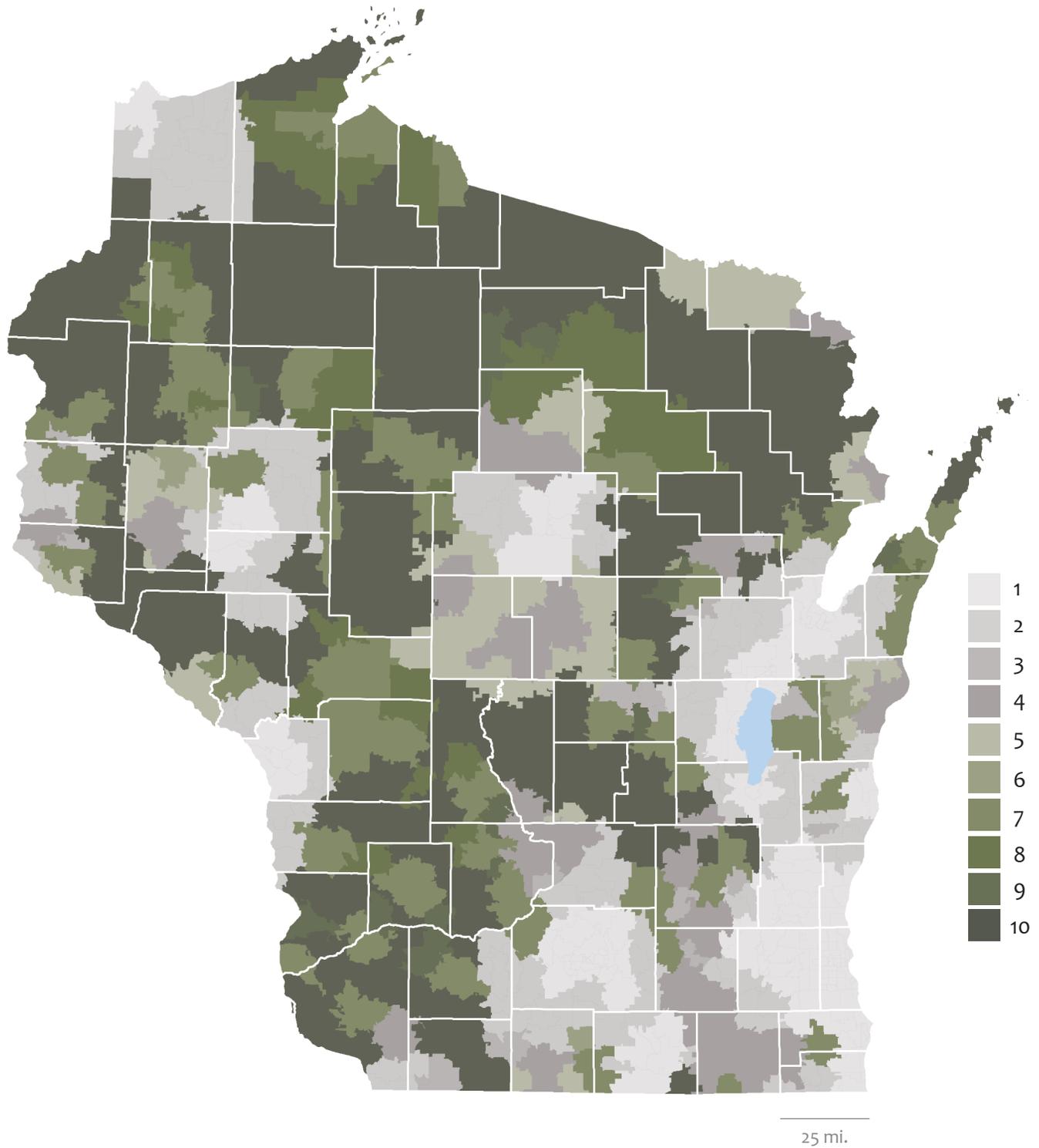
1	Areas up to 50,000 population that are 60 minutes or more from a UA of 50,000 or more population
2	Areas up to 25,000 population that are: 45 minutes or more from a UA of 25,000-49,999 population and 60 minutes or more from a UA of 50,000 or more population
3	Areas up to 10,000 population that are: 30 minutes or more from a UA of 10,000-24,999 population, 45 minutes or more from a UA of 25,000-49,999 population, and 60 minutes or more from a UA of 50,000 or more population
4	Areas that are: 15 minutes or more from a UA of 2,500-9,999 population, 30 minutes or more from a UA of 10,000-24,999 population, 45 minutes or more from a UA of 25,000-49,999 population, and 60 minutes or more from a UA of 50,000 or more people

QUICK STATS⁶



ZIP code-level demographic data is not available.

RUCA ZIP CODE APPROXIMATION



DEVELOPER: University of Washington WWAMI Rural Health Research Center
WEBSITE: [RUCA ZIP Code Approximation](#)

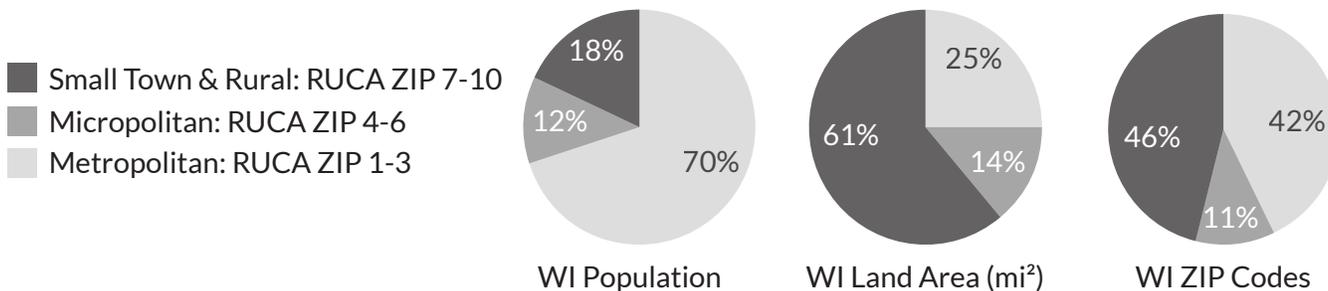
RUCA ZIP CODE APPROXIMATION

The RUCA ZIP Code Approximation assigns each ZIP code a census tract-based RUCA code based on the distribution of the ZIP code's population within a census tract. The ZIP code adopts the RUCA code of the census tract within which 66.7% or more of the ZIP code's population lies.

CLASSES (SUB-CLASSES ON PAGE 20)

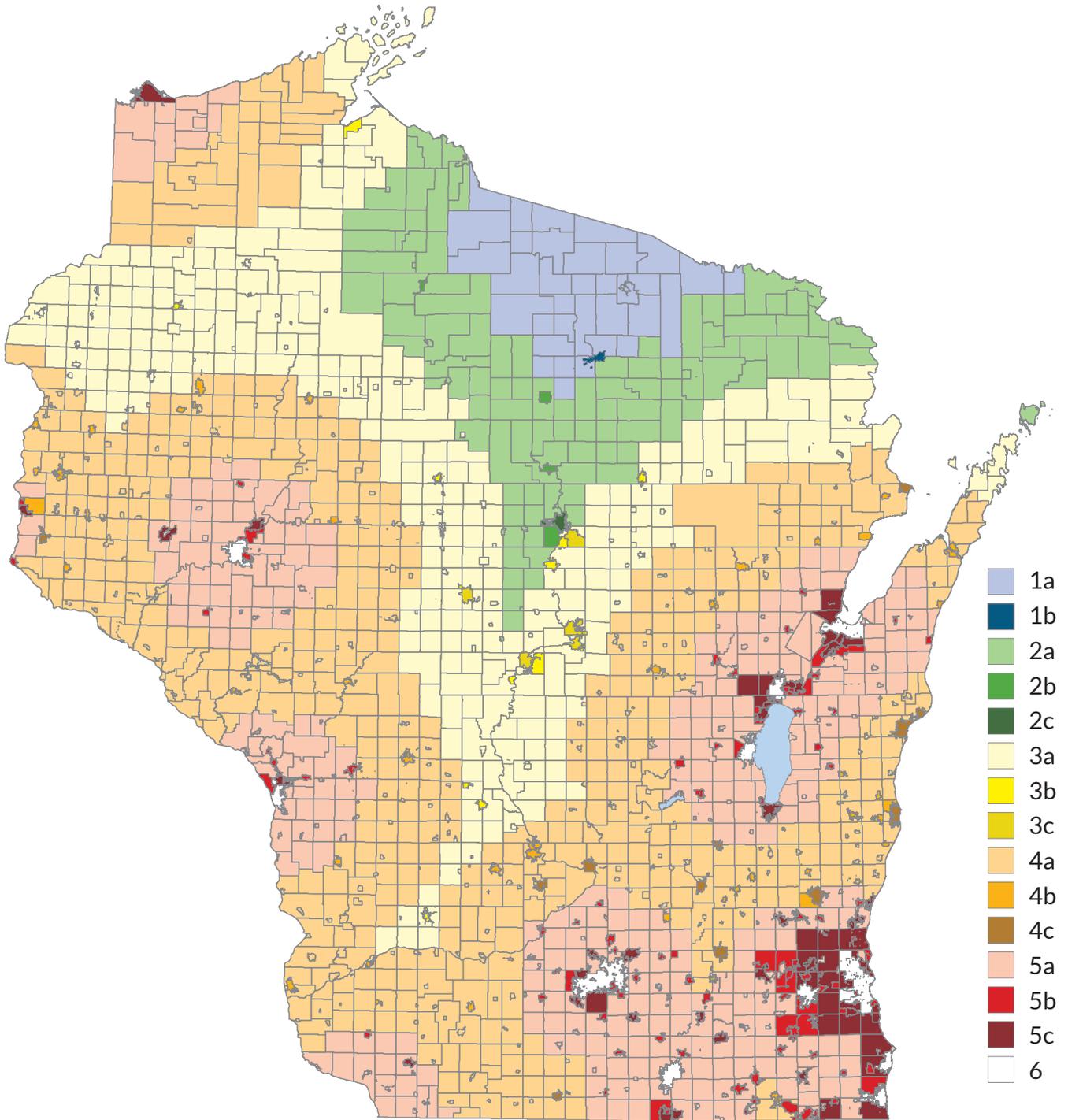
1	Metropolitan area core	Primary commuting flow is <i>within</i> a UzA
2	Metropolitan area high commuting	30%+ of the primary flow is <i>to</i> a UzA
3	Metropolitan area low commuting	10%-30% of the primary flow is <i>to</i> a UzA
4	Micropolitan area core	Primary flow is <i>within</i> a large UC (10,000-49,999 pop)
5	Micropolitan high commuting	30%+ of the primary flow is <i>to</i> a large UC
6	Micropolitan low commuting	10% to 30% of the primary flow is <i>to</i> a large UC
7	Small town core	Primary flow is <i>within</i> a small UC (2,500-9,999 population)
8	Small town high commuting	30%+ of the primary flow is <i>to</i> a small UC
9	Small town low commuting	10%-30% of the primary flow is <i>to</i> a small UC
10	Rural	Primary flow is <i>to</i> a tract outside a UzA or UC

QUICK STATS⁶



ZIP code-level demographic data is not available.

MUNICIPAL-LEVEL URBAN-RURAL CLASSIFICATION



DEVELOPER: Wisconsin Office of Rural Health
WEBSITE: [Municipal Urban-Rural Classification System](#)

MUNICIPAL-LEVEL URBAN-RURAL CLASSIFICATION

The Municipal-level Urban-Rural Classification (MURC) system was developed to identify the level of rurality of each of the 1,850 cities, towns, and villages in Wisconsin. MURC uses population size, population density, and proximity to the nearest population center in order to classify municipalities into 6 classes and 15 sub-classes. Population center is defined as a municipality with 50,000 or more residents.

CLASSES

1a	≥100 miles from a 6; and <2,500 residents or <250 residents/mi ²
1b	≥100 miles from a 6; and 2,500-9,999 residents and >250 residents/mi ²
2a	75-99 miles from a 6; and <2,500 residents or <250 residents/mi ²
2b	75-99 miles from a 6; and 2,500-9,999 residents and >250 residents/mi ²
2c	75-99 miles from a 6; and 10,000-49,999 residents and >250 residents/mi ²
3a	50-74 miles from a 6; and <2,500 residents or <250 residents/mi ²
3b	50-74 miles from a 6; and 2,500-9,999 residents and >250 residents/mi ²
3c	50-74 miles from a 6; and 10,000-49,999 residents and >250 residents/mi ²
4a	25-49 miles from a 6; and <2,500 residents or <250 residents/mi ²
4b	25-49 miles from a 6; and 2,500-9,999 residents and >250 residents/mi ²
4c	25-49 miles from a 6; and 10,000-49,999 residents and >250 residents/mi ²
5a	<25 miles from a 6; and <2,500 residents or <250 residents/mi ²
5b	<25 miles from a 6; and 2,500-9,999 residents and >250 residents/mi ²
5c	<25 miles from a 6; and 10,000-49,999 residents and >250 residents/mi ²
6	≥50,000 residents

QUICK STATS⁷

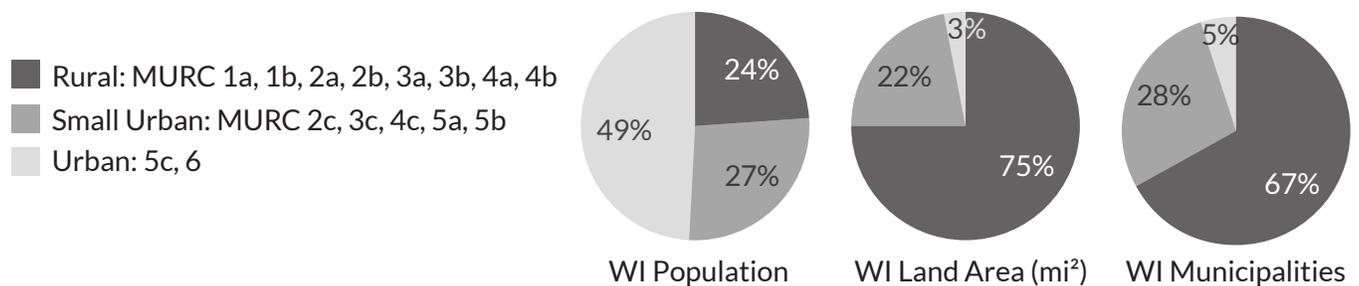


Table on next page.

Class	Municipalities (#)	Population	Land Area (mi ²)	Population Density (# people per mi ²)
1a	35	49,247	2,579	19
1b	1	7,727	9	904
2a	107	81,646	5,890	14
2b	4	22,312	47	475
2c	1	39,063	20	1,958
3a	338	281,374	12,314	23
3b	11	55,028	82	675
3c	5	92,591	80	1,164
4a	708	662,649	20,820	32
4b	42	202,187	215	938
4c	12	236,957	116	2,037
5a	415	711,685	11,569	62
5b	86	475,972	632	753
5c	71	1,241,999	1,059	1,173
6	14	1,581,475	464	3,405

MURC 3-CLASS VERSION

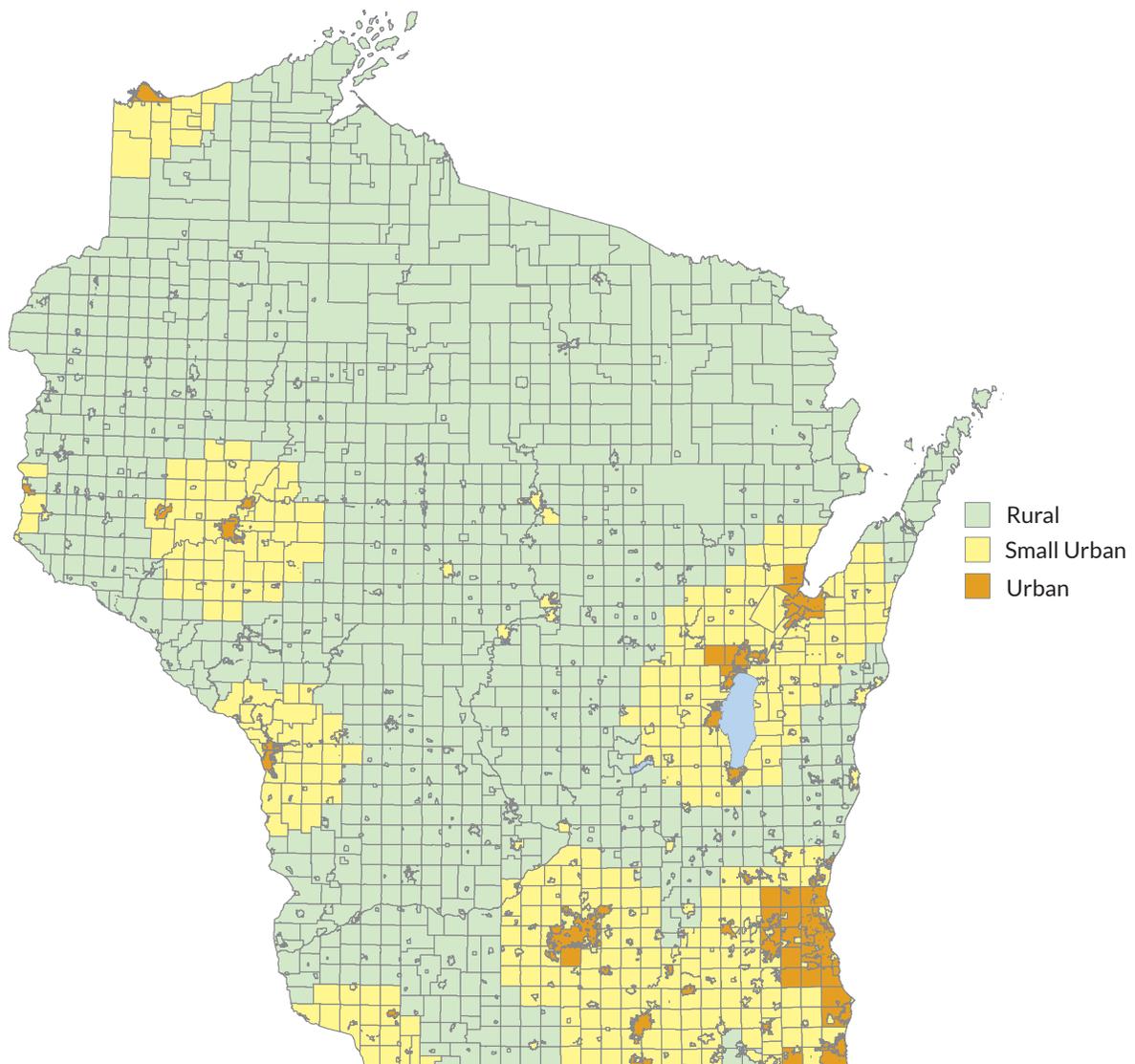
For practical application of the MURC system, classes can be collapsed into a recommended 3-class version.

CLASSES

Rural	≥25 miles from a population center and ≤9,999 residents (1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b)
Small Urban	≥25 miles from a population center and ≥10,000 residents (2c, 3c, 4c); or <25 miles from a population center and ≤9,999 residents (5a, 5b)
Urban	<25 miles from a population center and ≥10,000 residents (5c, 6)

QUICK STATS⁷

Class	Municipalities (#)	Population	Land Area (mi ²)	Population Density (# people per mi ²)
Rural	1,246	1,362,170	41,955	32
Small Urban	519	1,556,268	12,417	125
Urban	85	2,823,474	1,523	1,854



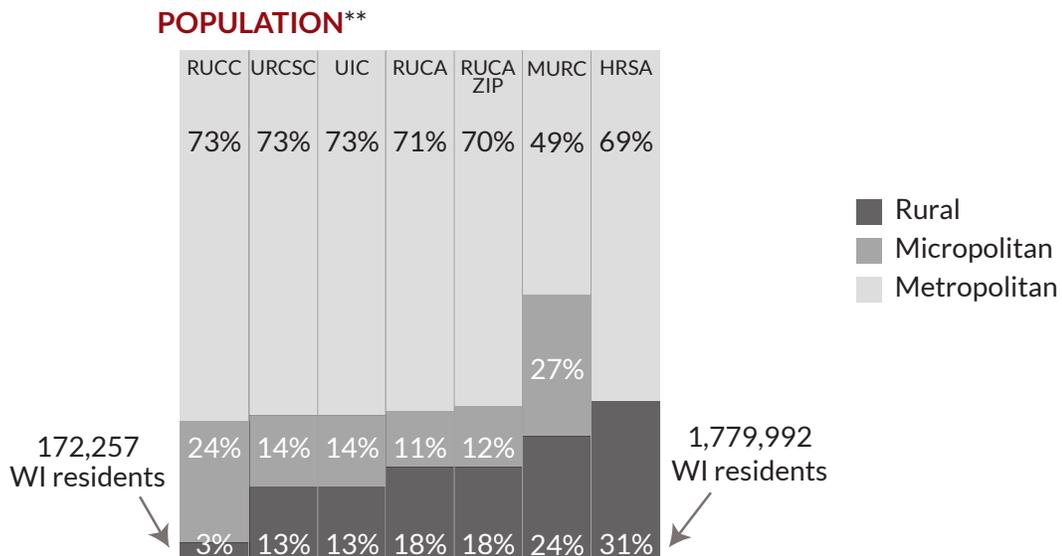
CONSIDERATIONS

So what is the best definition of rural for Wisconsin? Unfortunately, there is no right answer to this question; deciding how to define rural depends on the issue at hand, the geographic level of available data, and the relevant strengths and weaknesses of definition components.

- **ISSUE AT HAND** - One of the most oft-overlooked steps in defining rural is identifying which aspects of rural are relevant to the issue being examined. It is important to use a definition of rural that takes into account those identified aspects⁸ – for example, if the issue is the effect of rurality on use of available health care service, a definition of rural that is able to differentiate between rural areas of different sizes and levels of remoteness would be valuable.¹⁰
- **AVAILABLE DATA** - The geographic level of available data determines the geographic unit of the rural definition. Demographic data is available at almost all geographic units of analysis, allowing for rich analyses and comparisons. Other data, however, is only available at county or larger levels. It is important to define rural using the smallest common geographic unit among all of the data that will be used.
- **STRENGTHS AND WEAKNESSES** - Every definition of rural has strengths and weaknesses, most of which are rooted in the definition’s geographic unit.⁸ Strengths and weaknesses also stem from the variables used to create thresholds for levels^{9,10} and even thresholds themselves.¹¹ See table, next page.

IMPLICATIONS

When it comes to metro vs. non-metro population and land, there is not a lot of difference between systems. When non-metro is parsed, however, the differences become more pronounced, most notably between county-based systems and non-county-based systems.*



In addition to total population and land area, there are differences in other demographic variables. For example, the percent of the rural population over the age of 65 is highest when the Rural-Urban Continuum Codes are used and the median rural household income is highest when the Rural-Urban Commuting Areas definition is used. These differences illustrate the importance of identifying a definition of rural that best fits the question one is trying to answer.

Characteristic	Strength	Weakness
Geographic Unit: County	<ul style="list-style-type: none"> County boundaries remain stable over time Many data sets are available at the county level 	<ul style="list-style-type: none"> The large size of counties can obscure differences within the county⁸ <ul style="list-style-type: none"> Most of Wisconsin's counties classified as urban contain census tracts and ZIP codes classified as rural County boundaries do not necessarily reflect settlement patterns¹²
Geographic Unit: Census Tract	<ul style="list-style-type: none"> Smaller unit of analysis allows for more precise results Similarly, census tracts can reveal differences within larger geographic units 	<ul style="list-style-type: none"> Data other than census is not usually collected by census tract Census tract geography and terminology is unfamiliar to most people
Geographic Unit: ZIP Code	<ul style="list-style-type: none"> Smaller unit of analysis allows for more precise results Useful when data is address-based 	<ul style="list-style-type: none"> Geographic area is contrived so boundaries may be ambiguous and non-contiguous¹² Subject to change by the US Postal Service across time Most demographic and population health data are not available by ZIP code
Variable: Commuting	<ul style="list-style-type: none"> Commuting patterns can be an indicator of resources available, or not available, in a given area 	<ul style="list-style-type: none"> Does not take into account commuting distances and times, which can vary substantially by location Only reflects employment-related commuting – does not include unemployed or retired
Variable: Proximity	<ul style="list-style-type: none"> Good measure of social and economic relationships Can be an indicator of remoteness if used at a geographic unit smaller than county 	<ul style="list-style-type: none"> When used at the county level, this indicator causes counties that would otherwise be considered very rural to be classified as urban⁹
Thresholds	<ul style="list-style-type: none"> Simple Understandable 	<ul style="list-style-type: none"> Arbitrary, reflect preferences for round numbers¹¹ Can create artificial similarities and dissimilarities¹¹ Not independent of spatial scale¹¹

FINAL THOUGHTS

There is a great responsibility in defining rural, especially when used for policy decisions and program eligibility – the definition used may determine which Wisconsin residents benefit from a policy or program and which do not. Rural is more than “not metro” – it is a complex, nuanced concept, and should be carefully thought about when used for research, policy, and program purposes. Rural Wisconsin looks very different today than it did when many of the classification systems reviewed in this report were created. How rural is defined should take into account current characteristics and both separation and integration¹³ of rural and urban areas.

*ZIP code-based systems were not included in the analysis of non-population and non-land area variables.

**FAR is not included in the graphic because it does not classify urban areas.

INFORMATION SOURCES

1. US Census Bureau. 2010 Census Urban and Rural Classification and Urban Area Criteria. <https://www.census.gov/geo/reference/ua/urban-rural-2010.html>
2. Federal Register. Qualifying Urban Areas for the 2010 Census. Volume 77, No. 59. March 27, 2012. <http://www.gpo.gov/fdsys/pkg/FR-2012-03-27/pdf/2012-6903.pdf>
3. Federal Register. 2010 Standards for Delineating Metropolitan and Micropolitan Statistical Areas. Volume 75, No. 123. June 28, 2010. https://www.whitehouse.gov/sites/default/files/omb/assets/fedreg_2010/06282010_metro_standards-Complete.pdf
4. US Census Bureau. Metropolitan and Micropolitan Statistical Areas Main. <http://www.census.gov/population/metro/>
5. US Census Bureau. 2017 American Community Survey, 5-year estimates via American FactFinder. <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>
6. Environmental Systems Research Institute. ArcGIS ZIP code shapefile - boundaries: December 2014, population: 2014.
7. Wisconsin Department of Administration, Demographic Services Center. 2015 population estimates.
8. Hart G, Larson E, Lishner D (2005) Rural Definitions for Health Policy and Research. Am J Public Health 95(7): 1149-1155.
9. Golding S (2012) Defining Rural for Wisconsin. <http://worh.org/WisRuralAreas>
10. Rolfsmeyer R (ed.)(2015) Rural Wisconsin Today: The status and trends of rural Wisconsin.
11. Waldorf B (2006) A Continuous Multi-Dimensional Measure of Rurality: Moving Beyond Threshold Measures. Selected Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, July 24-27, 2006.
12. Morrill R, Cromartie J, Hart G (1999) Metropolitan, urban, and rural commuting areas: Toward a better depiction of the United States settlement system. Urban Geography 20: 727-48.
13. Isserman A (2005) In the National Interest: Defining Rural and Urban Correctly in Research and Public Policy. International Regional Science Review 28: 465.



WISCONSIN OFFICE OF
Rural Health