

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Use of Spectrum Bands Above 24 GHz For Mobile Radio Services)	GN Docket No. 14-177
)	
Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands)	IB Docket No. 15-256
)	
Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band)	RM-11664
)	
Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 To Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services)	WT Docket No. 10-112
)	
Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0- 38.0 GHz and 40.0-40.5 GHz for Government Operations)	IB Docket No. 97-95

COMMENTS OF INTERISLE CONSULTING GROUP

We recognize the importance of updating regulations for the use of the upper microwave and millimeter wave bands to facilitate new services, including point-to-multipoint and mobile operation. We wish to focus primarily on one aspect of the new regulations; specifically, the use of counties as a geographic licensing area.

The Commission notes that it has already used several different geographic scopes for its various geographic-area licenses:

110. We propose to use counties as the base geographic area unit for licenses in the 28 GHz,

39 GHz, and 37 GHz bands. Counties are significantly smaller than traditional license areas, such as BTAs and EAs, but are generally larger than the other non-traditional license area the Commission has elsewhere adopted, including census tracts.²³¹ There are currently 3,143 counties,²³² in comparison to 176 EAs, 493 BTAs, and more than 74,000 census tracts.

The Commission also asks [at 113] if alternatives should be used. Before settling on an alternative to counties, we would like to point out that uniform use of counties *per se* is a poor choice even if the Commission seeks to fill the gap between BTAs and census tracts.

Counties (and their equivalents such as Louisiana parishes, Alaska boroughs and Puerto Rico municipios) are state creations, and their use is highly inconsistent between and even within states. In many states – these may have been the ones the Commission had in mind – most counties are relatively similar-sized units of local government, often with nearly-rectangular shapes and a single major town, the county seat, near the middle. In such states, which by way of example could include Georgia, Kansas, and Michigan, county-based licensing may well be appropriate. A county there represents a unit of government, a community of interest, and a rational geographic shape.

That is not, however, the way counties work in all states. We note that in the six New England states, county government has been either abolished or deprecated to a minimal role. The critical unit of local government is the minor civil division (MCD), which is usually called a city or town. Almost all populated land (and all in the three southern New England states) is incorporated into a city or town. The Commission's own map layer collection has even included a New England MCD layer, noting its near-equivalence to other states' counties in importance if not size.

More importantly, the geographic boundaries of the counties in some places, notably in Massachusetts, are uniquely unsuited to licensing. In the populous eastern part of the state, it appears that county lines were first established in the 17th century by drawing radial lines from a mid-point in Cambridge, near Harvard University. Relics of these lines appear in many town boundaries. Several counties nowadays roughly represent quadrants of the Boston area, radiating outward from the city to quite distant suburban and exurban areas.

Interisle works with the Metro Boston Homeland Security Region (MBHSR) in operating PSnet, a hybrid fiber and microwave network used for public safety purposes. The MBHSR consists of the City of Boston and eight contiguous, densely-populated municipalities. While this includes all four MCDs in Suffolk County, it also includes three cities in Middlesex County and two in Norfolk County. This set of nine MCDs is geographically rational. The counties themselves, whose governing functions were moved to the state or MCD level, are not. Middlesex extends from the urban center of Cambridge all the way to

Ashby, over 45 miles away on the New Hampshire border, part of a salient one town wide wedged between Worcester County and New Hampshire. Norfolk County extends from Quincy to the Rhode Island border, while Brookline, in Norfolk, is discontinuous from the rest of its county, separated by Suffolk or Middlesex. Coastal Cohasset is also part of Norfolk though discontinuous, separated by Plymouth.

An illustration of this is Chestnut Hill, Massachusetts, an urban-to-suburban neighborhood with its own ZIP code on Boston's western edge, which is divided across three counties. It includes parts of the City of Newton (Middlesex county), the Town of Brookline (Norfolk county), and the City of Boston (Suffolk county). Chestnut Hill's most prominent feature is probably Boston College, whose main campus straddles the Boston-Newton line, a short distance from Brookline. But for a service provider to cover that not-terribly-large urban campus with county-based licenses, it would need to license the area from downtown Boston to the edge of New Hampshire. A short distance away, a shopping center was positioned with its buildings in Newton and much of its parking in Brookline. The two largest CMRS providers have storefronts there, their front doors almost literally (by design, presumably for tax purposes) on the county line. If *small* license areas are the goal, then counties are clearly not ideal here.

County sizes vary greatly, even within states. Texas, for instance, is a large state with many small counties, though Harris County, home of Houston, is much larger. California has several very large counties, including Los Angeles, with its huge population, and San Bernardino, with a huge desert expanse reaching almost to Las Vegas attached to a smaller urban area in the southwestern corner that is more a part of the Los Angeles area.

We thus suggest that the Commission use alternative license boundaries, or develop a set of its own "county-like areas" that are more consistent nationally. These could be aggregations of MCDs in fully-incorporated states as in New England, or even sub-county areas in southern California. Another option is for the Commission to develop its own groupings of Census Tracts. The Census Bureau creates geographically-compact tracts in urban areas based on a target population. Thus a set of nearby tracts might work well together in urban and suburban areas, even if tracts themselves are appropriate in some rural areas. If the Commission does not wish to create its own new boundaries, then it might wish to stick to an existing one such as the 734 Cellular Market Areas, which, while county-based, aggregate counties within a metropolitan area (MSA or RSA).

Another county-like option suitable for an urbanized area would be Zip Code Tabulation Area – 3 Digits (ZCTA3). This is the area served by a major USPS sorting center. These correspond to actual communities of interest, based upon postal delivery patterns. In rural areas, groups of counties correspond more closely to ZCTA3s. In some cases the central city has a different 3-digit prefix from the other zones

in its service area; e.g., Worcester itself has 016 ZIP codes but its sorting center's actual region also includes the surrounding 015 zones. So the literal 3-digit prefix could be less appropriate than the combined ZCTA3s, but overall these seem more appropriate than counties. Figure 1 shows the relationship of counties (dark red lines) to ZCTA3 (color-coded), where the latter bear a closer relationship to actual metropolitan communities of interest, especially in the Boston area. It shows the inner city area surrounded by a several suburban ZCTA3 regions, compared to the more pie-slice-shaped counties .

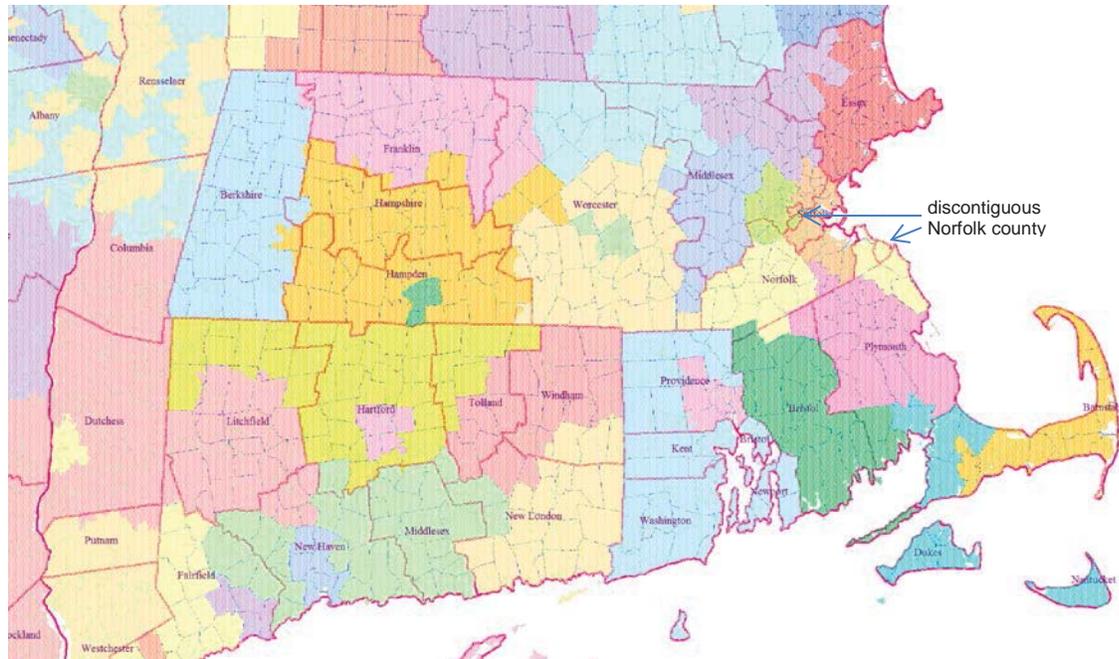


Figure 1. Southern New England 3-digit ZIP Code Tabulation Areas and Counties

Some accommodation should also be made to accommodate cross-boundary short range operations. It is quite possible for a single building, let alone a campus, to cross county or census-tract boundaries. Indoor operation should be allowed on a given premise based on any part of the premise's being in the licensed area, without requiring a disaggregated spectrum lease with the adjacent license holder. Such indoor operations are extremely unlikely to cause interference to the adjacent licensee's operations, as these frequencies do not penetrate walls well and are generally quite limited in range. One way to deal with this is to set up the license to be protection from interference, not monopolization or "banking" of the band. In this respect perhaps the license model should more closely resemble the Priority Access License of the new Part 96 rather than the traditional CMRS spectrum license. On these frequencies, an active SAS should not even be needed for fixed operations, but some kind of database, possibly ULS, should be sufficient to allow potential interference situations to be resolved.

We also would suggest that some frequencies now proposed for geographic area licensing be left available on a coordinated point-to-point basis. While “5G” mobile services may or may not take off, existing Part 101 microwave spectrum is already quite congested in many markets, and high-bandwidth short-haul applications are now largely confined to 60 GHz unlicensed and 80 GHz licensed. Those frequencies are particularly sensitive to rain fade. Additional spectrum in the 24-39 GHz range could benefit users who now have to lease spectrum from third parties who hold geographic licenses for the purpose of leasing.