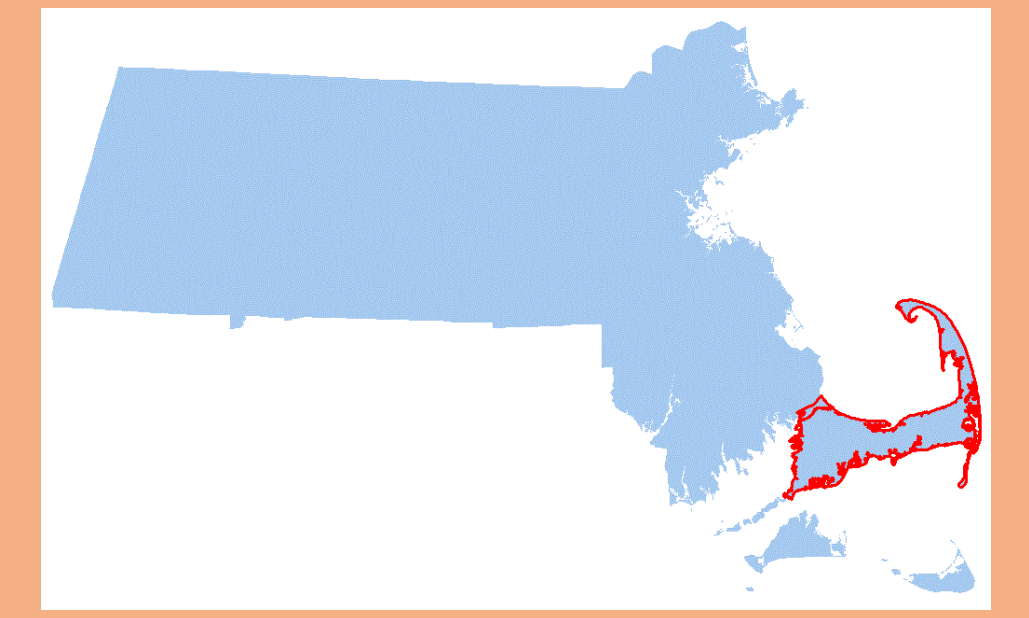


Transfer of Development Rights and Cape Cod: Preliminary Analyses for Barnstable County



Introduction to TDR

Transfer of development rights (TDR) programs attempt to manage low density development by creating a market-based commodity that are often called transferable development rights. Municipal, regional, or state-level planning agencies examine many factors related to land use and create sending and receiving areas that work together to target development in specific places. Sending areas are areas where development would ideally be minimized, generally rural areas including forest and agricultural lands, wellhead protection areas and potential public water supplies, and identified habitats of endangered or protected species. Development rights in these areas are able to be sold to developers to build or redevelop at a greater density than normally allowed in other areas of a city or region where infrastructure, employment, shopping, and public services needed to accommodate increased density already exist (Pruetz & Standridge, 2009).

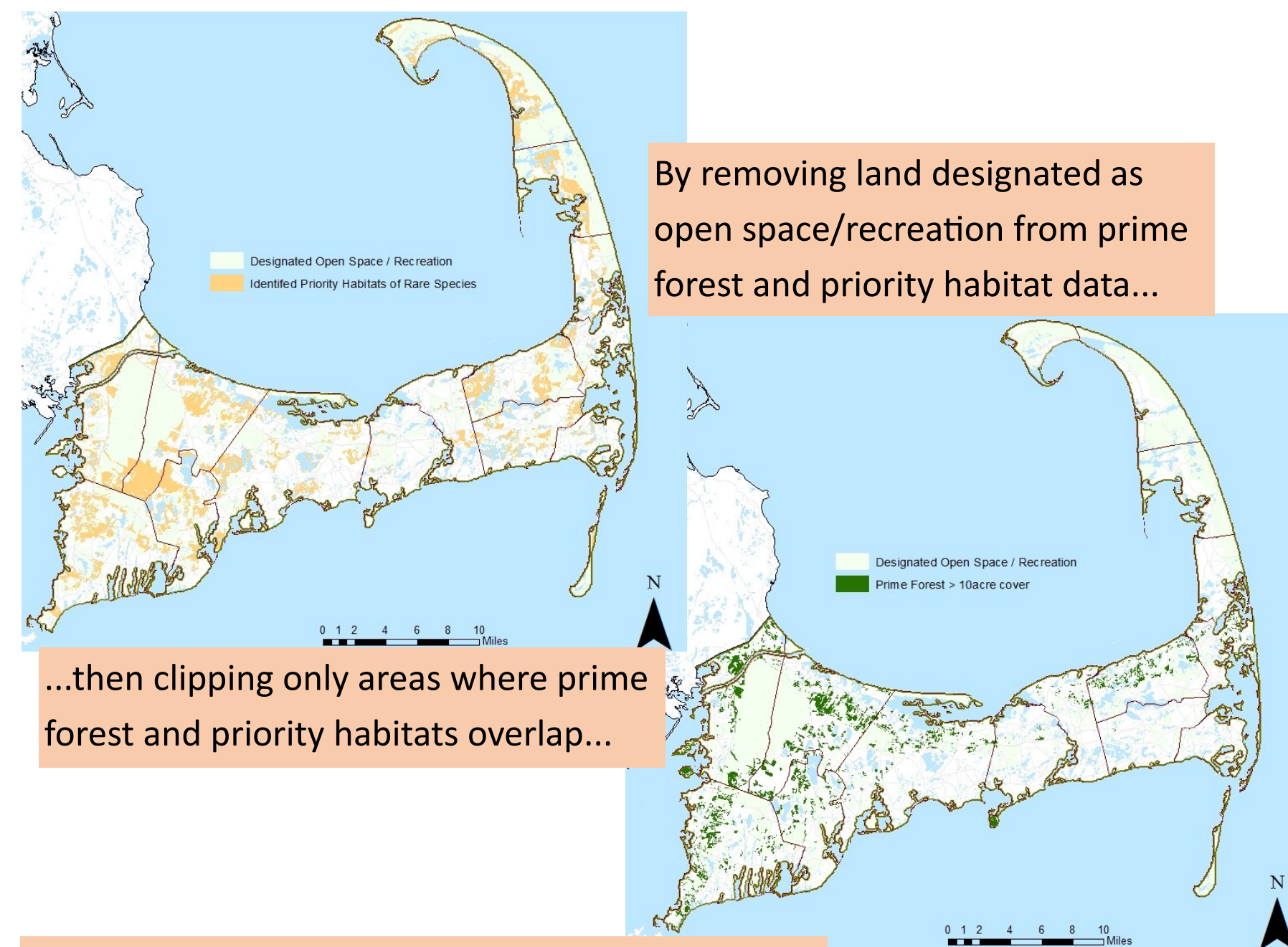
Methods for this project were loosely based on portions of Petit & Pullar, (2004), which indicated land suitability maps must first be examined, or created if none are available, for use in providing well-reasoned, targeted areas for land development to achieve its desired goals. As no TDR suitability analyses exist for Cape Cod, this project focused on identifying factors that should be considered in further analysis for both sending and receiving areas.

Limitations & Conclusions

The main limitation of this analysis was lack of specific and consistent land use data for Barnstable County. MassGIS produces its land use data set for the entire state by analyzing aerial images, and thus it is more appropriate to view this dataset as depicting land cover as opposed to land use. Some towns have produced their own more detailed land use maps for master plans and other purposes; however, town datasets for municipalities in Barnstable County proved difficult to gain access and differences methods of identification and labeling of features would vary by town. Valuation for specific features can also be analyzed further, which would create a suitability scores for both sending and receiving areas.

Additional zoning information could also be utilized to combine this information with buildout studies that have been produced by individual towns, and also a county-wide study completed by the Cape Cod Commission in 2012. The inclusion of this data could allow towns to work to slow greenfield development and subdivision of large parcels of land. This information could also be useful for receiving areas, as towns that are close to being completely built out under current zoning could use transferable development rights to redevelop areas at a greater density than is currently permitted, while also preserving open space in perpetuity. There is still significantly more research that needs to be conducted on the functionality of a Cape-wide TDR program, though this information can still be useful in directing development and preservation efforts, even if simply continuing the status quo of today.

Matthew Capone
Introduction to GIS, Spring, 2014



By removing land designated as open space/recreation from prime forest and priority habitat data...

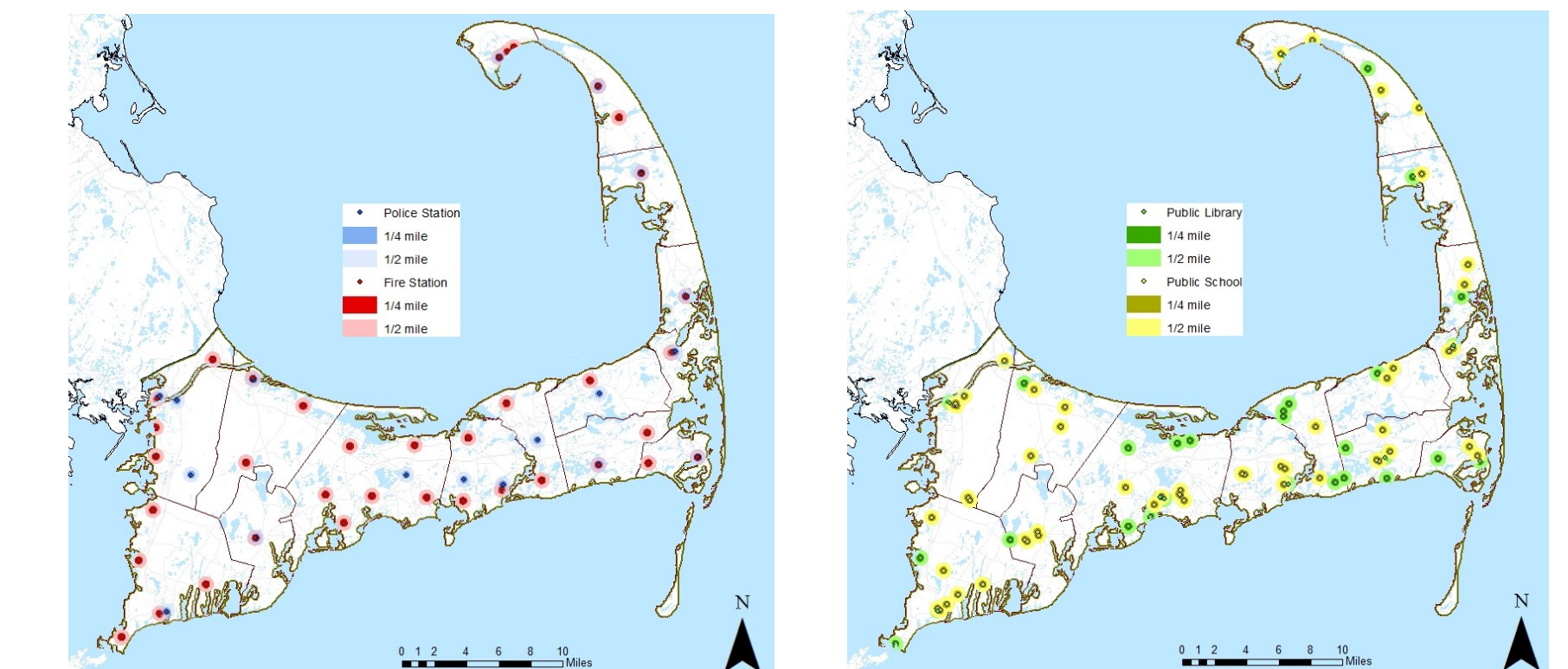
...then clipping only areas where prime forest and priority habitats overlap...

...greater detail can be illustrated for critical areas that should be targeted for preservation.

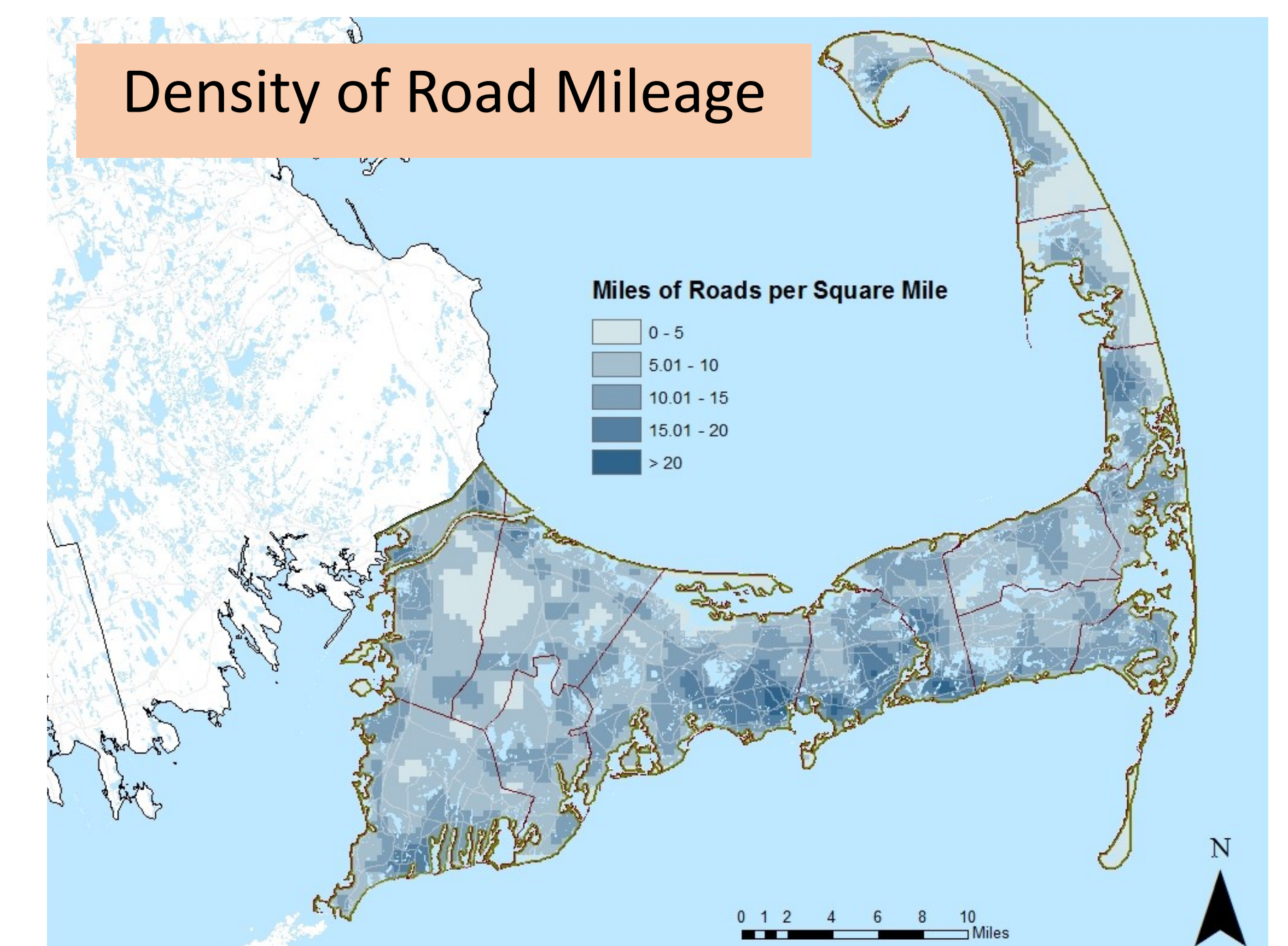


Sending Areas

Sending area datasets included designated open space and recreation areas, areas of prime forest land, and areas of priority habitats for rare species (NHESP Priority Habitats of Rare Species dataset). Prime forest data is based soil survey data derived from MassGIS and the National Resources Conservation Service (NRCS) and thus does not contain individual parcel data related to land ownership. Only units receiving a "prime" rating were included in analysis; other forested areas were excluded. Areas designated as open space and recreation were used to illustrate connectivity of these features to land that already serves recreational purposes. While not all land designated as open space/recreation is protected in perpetuity, most areas have some level of protection.



Proximity to Essential Public Services



Density of Road Mileage

Receiving Areas

All geospatial data was retrieved from MassGIS and clipped to the study area of Barnstable County. Datasets used for receiving area infrastructure and essential services included road layers and locations of police and fire stations. School and library analysis focused solely on public schools and public libraries; other categories were removed to isolate public services. Buffers were placed around building locations to illustrate areas with greater service reach. Kernel density analysis tools were used to examine density of roads across Barnstable County, with a higher density (higher number of road miles per square mile of area) intended to illustrate areas more likely to function as town centers and support more intensive development.