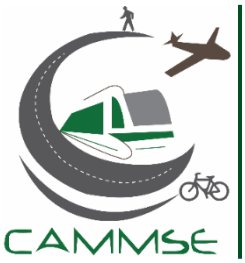

Center for Advanced Multimodal Mobility Solutions and Education

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INVESTIGATING THE LINKAGE BETWEEN TRANSIT ACCESS TO SERVICES AND AFFORABLE HOUSING AVAILABILITY

Final Report

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DISCLAIMER

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EXCUTIVE SUMMARY

This work was motivated by the needs of the affordable housing advocacy non-profit Partnership for Strong Communities. They would like to provide objective analysis of the access of low-income housing units to basic services like education facilities, fresh grocery stores, health clinics, and government offices in the Greater Hartford region in Connecticut. The analysis area around Hartford includes 38 towns with approximately one million residents over one thousand square miles (CRCOG, 2019b). The current regional transit network includes local buses, express commuter buses, and one bus rapid transit route which together account for about 17 million trips per year (CRCOG, 2019a), along with limited commuter rail service that began in 2018.

In the Greater Hartford region about 50% of travel trips are in single occupant vehicles and 4.5% of trips are via public transit (CRCOG, 2019a), so the transportation system is mostly optimized for personal vehicle travel. However, more than 10% of households in this region do not have a vehicle so there is likely an unmet need for viable alternatives to personal vehicle travel in the region. Affordable housing advocates in the Greater Hartford region are concerned that given the strong focus on personal vehicle travel in the area, transit dependent populations do not have adequate access to opportunities. It is known that accessibility is not always fully assessed in transit plans; instead less comprehensive measures are used that only capture mobility or proximity to service (Boisjoly & El-Geneidy, 2017).

The overall goal of this project was to provide a more complete measure of access to policy makers in the region by focusing on access to specific destinations including schools and colleges, fresh grocery stores, healthcare facilities, and government services. Subsidized housing units were scored using a metric called the Transit Opportunity Index which factors in proximity of transit service, the frequency of the nearby service, and the travel time to desirable destinations using the transit network. The results of this work will be shared with local affordable housing advocates to inform policymakers and promote the use of accessibility measures in funding decisions.

Chapter 1. Introduction

1.1 Problem Statement

Low income households greatly benefit from public transportation access but transit accessibility to destinations is often not factored into funding decisions for affordable housing projects. More complete accessibility measurements need to be incorporated into decisions on where to build and subsidize affordable housing.

1.2 Objectives

This project focused on two mutually supportive objectives. The first goal was (1) develop a methodology for measuring service-specific (i.e., healthcare, food, jobs) access to opportunities via the public transportation system across a region. The second goal (2) was to apply this methodology to a Hartford, CT case study in which these metrics are used to identify areas currently lacking in access, and those that have good access and present opportunities for affordable housing investment.

1.3 Expected Contributions

The results of this work will be shared with the affordable housing advocates Partnership for Strong Communities who will use the findings to advise policy makers on the best locations for affordable housing. Since transit access to destinations is rarely incorporated into project alternatives analysis, it is hoped that this will encourage other agencies to use more complete accessibility metrics in the future.

1.4 Report Overview

The remainder of this report is organized as follows:

- Chapter 2 is a literature review looking at the current methods for evaluating affordable housing projects and scoring transit access.
- Chapter 3 describes in detail the accessibility score utilized in this project and the data sources that were used.
- Chapter 4 looks in detail at the results of this score for one particular city as a demonstration of how the transit access grading scheme applies to real life examples.
- Appendix A contains tables of transit access scores for subsidized housing units by town and for all of the block groups in the study area.
- Appendix B contains maps of the complete transit access scoring results for the Greater Hartford region.
- Appendix C shows the results of the time decay curve calibration for all types of destinations.

Chapter 2. Literature Review

2.1 Introduction

Having access to alternative transportation is closely tied to a location's affordability for low-income households (Hamidi, Ewing, & Renne, 2016). Because of this connection, a lot of attention has focused on how to measure the accessibility of low-income residents and other transit dependent populations (Carleton & Porter, 2018). This work is driven by federal regulations in the United States that require equity analysis for transportation funding and an international and multidisciplinary interest in determining whether vulnerable populations can access basic services (Kamruzzaman, Yigitcanlar, Yang, & Mohamed, 2016). Transportation planning agencies, for instance, have attempted to use accessibility measures in their regional plans to show the social and economic benefits of different project alternatives (Boisjoly & El-Geneidy, 2017). As another example, geographers have also been increasingly interested in the concept of food deserts, areas in which fresh healthy groceries are not easily accessible (Widener et al., 2015). In areas where most trips are completed by personal vehicles, like in the state of Connecticut, measuring and providing quality transit service for low-income residents is especially important as walking or cycling to certain destinations may not be feasible. Despite the continuous development of new accessibility metrics, planning and affordable housing agencies are still behind in integrated complete accessibility measures into their own funding scores.

2.2 Low Income Households and Transit Accessibility

2.2.1 Benefits of Transit Accessibility

Since low-income households have lower vehicle ownership rates they can be more dependent on alternative modes of transportation to access important services (HUD, 2014). The reason for this has to do with personal vehicle costs, which average $6,000-$10,000 per year according to AAA (2018). Owning a car can be a major expense for low income households and, in fact, vehicle ownership decreases with decreasing household income. The lowest income quintile households ($20,019 and below) in the U.S. own an average of 1.0 cars while the highest income quintile households own 2.8 vehicles (BTS, 2018). Increasing accessibility would allow low-income households to own fewer, or no cars, bringing down their overall transportation costs and making where they live more affordable.

2.2.2 Current Affordable Housing Location Scores

Affordable housing agencies in the United States use quantitative scores, mostly based on demographics, to help identify areas for affordable housing funding (Mast, 2015). For example, Connecticut's affordable housing funding agency uses a number of demographic factors to analyze which projects qualify for subsidies (CHFA, 2018). There has been growing concern, however, that current affordable housing metrics are missing the hidden costs of transportation inside the US (Hamidi, Ewing, & Renne, 2016). In the case of Connecticut, affordable housing funding criteria does not put any real emphasis on transportation accessibility. In fact, proximity to transit accounts for just 4 of more than 100 possible points used to score affordable housing projects (CHFA, 2018). Opportunity scores used by other affordable housing agencies in the US also seem to only tangentially measure

accessibility. These scores use proxies such as car ownership or physical proximity to jobs and transit as stand-in measures for accessibility, without comprehensively evaluating transit service in each neighborhood (Freddie Mac, 2018; Mast, 2015). Transportation accessibility metrics have the potential to supplement the opportunity indices already used by agencies in order to create a more complete picture of affordability and access.

2.3 Accessibility Metrics

2.3.1 Defining Accessibility

In the context of transportation planning, access is typically defined as the ability to reach opportunities at a reasonable cost and time (Handy & Niemeier, 1997). These opportunities can include jobs, necessary services, and recreation activities. The ability to access these destinations is impacted by the transportation infrastructure, the time of day, and person level factors. Measuring the accessibility of a neighborhood or an individual has been an area of interest for decades by practitioners and researchers in diverse fields and has its origins in transportation planning, the social sciences, and geography.

2.3.2 Historical Background

Accessibility measures have common requirements of spatial and demographic data to establish the locations of the transportation network and the people who need to use it. For many metrics, the locations of desirable destinations are also required. Apart from these common inputs, the formulation of the models use different levels of aggregation, from zonal to individual, and different factors for calculating access, including temporal service variability and different measures of travel cost. One of the first accessibility metrics was introduced by Hansen in 1959 using concepts from social research. Many scores, including the one used in this study, can be traced back to this basic method (Harris, 2001). Some commonly referenced categories of metrics that are still routinely used today include Lorenz curves (Delbosc & Currie, 2011), integral measures (Ingram, 1971), gravity models (Hansen, 1959; Koenig, 1980), cumulative-opportunity models/isochrones (Wickstrom, 1971; Wachs & Kumagai, 1973), needs gap analyses (Currie, 2010), and space-time prisms (Hägerstrand, 1970).

2.3.3 Inconsistent Application

Researchers working with accessibility indicators began to split into divergent methods and theories not too long after the field began (Pirie, 1979). This pattern continues in the current literature where entirely new accessibility metrics are routinely proposed and old formulations are updated (Owen & Levinson, 2017). This fragmentation in accessibility scoring methods is reflected in how the scores are used by practitioners. There is a great deal of variability in how accessibility scores are calculated and utilized by planners (Karner, 2018; Boisjoly & El-Geneidy, 2017).

Due to the variability of accessibility scoring methods and the continuous introduction of updates and new methods, there has always been a strong need to establish best practices with regard to calculating and verifying accessibility indicators (Geurs & van Wee, 2004; Fransen et al., 2018). In practice, accessibility and social impact measures have also not been fully integrated into alternatives analyses for transportation projects. Equity analyses for

infrastructure projects are often incomplete or are not included in project cost-benefit analyses (Boisjoly & El-Geneidy, 2017; van Wee 2016). It is hoped that this project will promote the use of accessibility metrics by planning and affordable housing agencies and the adoption of best practices for measuring access.

2.3.4 Recent Method Improvements

In recent years, increased use of GIS and transit schedule data, usually in the form of GTFS, has introduced several improvements to accessibility measures that are becoming more widespread (Lei & Church, 2010; Rodnyansky, 2018; Wessel & Farber, 2019). This has been accompanied by wider access to open sources for spatial data (Owen & Levinson, 2017; Gil, 2015) and passenger information from travel surveys, cell data, and automated passenger counts (Iacono, Krizek, & El-Geneidy, 2010; Cai, Wang, & Chen, 2017). As a result, accessibility scores have been improved by a number of modifications including real transportation network distances rather than uniform distance buffers; actual route schedules to calculate true travel and transfer times; specific destination locations based on trip purpose rather than generic activity zone destinations; and calibrating travel time penalties based on passenger behavior. The accessibility score used in this project utilizes all of these improvements and is detailed below.

2.3.5 Transit Opportunity Index

The accessibility scoring method used in this paper is called the Transit Opportunity Index (TOI) and was originally described in 2013 (Mamun et al.) and later updated (Bertolaccini, Lownes, & Mamun, 2018). This index scores an origin location based on the time it takes to reach destinations in the transit system and could be considered an integral measure, or a gravity model without an attractiveness indicator (Ingram, 1971). An integral measure calculates an accessibility score for each origin and destination pair and then sums all the scores for each origin to all destinations, resulting in a single score for each origin location.

The TOI score for an origin in a transit network consists of three components: spatial coverage, temporal coverage, and trip coverage (Bertolaccini, Lownes, & Mamun, 2018). Spatial coverage deals with the proximity of the origin to transit service. If the origin is a neighborhood or other large area, then the spatial coverage is the proportion of the origin area within walking distance of a transit stop. For a point origin, spatial coverage is simply whether there is a transit stop within walking distance of the origin location or not. Temporal coverage has to do with the level of transit service near the origin and includes both the frequency of service and the available seats on the transit vehicles along that route. Trip coverage is the most complex element of the score and involves calculating the time it would take to travel from the origin to the destination using real scheduled travel times, real walking distances, and an impedance factor called the connectivity decay variable.

The trip coverage factor first determines if there is a feasible transit route between an origin and destination pair. If an origin and destination are not connected by transit, then the trip coverage score is zero. If the trip between the two points is possible, the real travel time between the origin and destination is calculated by identifying the shortest scheduled transit route between the origin and destination pair using GTFS data. Walking access time and transfer time are also added to the total travel time, with one route transfer allowed. The total

travel time is then used to calculate the connectivity decay variable for the trip. This impedance factor uses an exponential decay function to calculate the likelihood of someone traveling a particular length of time. Previous work has shown a negative exponential relationship between travel time and people's willingness to travel (Handy & Niemeier, 1997; Zhao et al., 2003). The connectivity decay variable is calibrated based on destination type since travel surveys have shown that trip purpose effects the shape of the travel time decay curve (Iacono, Krizek, & El-Geneidy, 2008).

A full description of the calculations for each of these elements is outlined in the methods section

2.4 Summary

Suitability scores are being used by affordable housing and transportation planning agencies to judge projects but they rarely include a comprehensive accessibility metric. Many accessibility metrics have been developed but their application has been inconsistent. Introducing an accessibility score, such as the Transit Opportunity Index, into criteria for affordable housing locations would help fully incorporate transportation considerations into funding decisions.

Chapter 3. Solution Methodology

3.1 Introduction

This paper presents variations of the Transit Opportunity Index (TOI) described in Mamun et al. (2013), Bertolaccini, Lownes, & Mamun (2018), and Bertolaccini (2018) to quantify access to important activities. In both Mamun et al. and Bertolaccini, Lownes, & Mamun, TOI provides the generalized level of access between two zones, such as block groups. Bertolaccini (2018) measures the TOI from origin zones to destination points as part of an equity analysis. This paper will use two TOI measures: a Zone to Point TOI and a Point to Point TOI. The Zone to Point TOI is similar to the measure used in Bertolaccini (2018). It will measure a block group's level of access to important destinations, such as education, healthcare, supermarkets, and government services. The Point to Point TOI will measure subsidized housing units' access to the same important destinations.

3.2 Zone to Point Transit Opportunity Index

The Zone to Point TOI retains the three components of the original TOI: spatial coverage, temporal coverage, and trip coverage.

3.2.1 Spatial Coverage

The spatial coverage is the proportion of origin block group (*i*) within walking access to route *l*. **Equation 1** below calculates spatial coverage for the Zone to Point TOI.

$$R_{il} = \frac{B_{il,buffer}}{B_i} \quad (1)$$

$B_{il,buffer}$ is the area block group *i* within maximum walking distance *r* of route *l*. B_i is the area of block group *i*. The quotient of the two is spatial coverage R_{il}. Spatial coverage values range from 0 (no spatial coverage) to 1 (complete spatial coverage).

3.2.2 Temporal Coverage

Temporal coverage is estimated as the number of vehicle seats available between origin *i* and destination *j* on route *l* over a period of time. For this application, temporal coverage is calculated for one weekday. **Equation 2** below calculates temporal coverage for directly connected origin-destination pairs.

$$S_{ijl} = v_{ijl} * U_l \quad (2)$$

v_{ijl} is the number of vehicles connecting origin *i* to destination *j* on route *l*. U_l is the seated capacity of vehicles operating on route *l*. The product of these variables is temporal coverage S_{ijl}.This application assumed all vehicles servicing a route have the same capacity. Temporal coverage values have a minimum value 0 and no maximum.

This application also considers the access provided by a journey requiring a single transfer. In this case, the leg of the journey offering the least temporal coverage determines the overall journey's temporal coverage, as shown in **Equation 3**.

$$S_{ijl_1l_2} = min(v_{ijl_1} * U_{l_1}, v_{ijl_2} * U_{l_2}) \quad (3)$$

Indices l_1 and l_2 represent the first and second routes in a journey requiring a transfer.

3.2.3 Trip Coverage

Trip coverage contains two components: a binary connectivity variable δ_{ijl} and connectivity decay variable f_{ijl}. If origin *i* and destination *j* are connected by *l*, δ_{ijl} equals 1, otherwise δ_{ijl} equals 0. When considering journeys with a single transfer, the binary connectivity variable becomes $\delta_{ijl_1l_2}$. If origin *i* and destination *j* are connected by the combination of routes l_1 and l_2, $\delta_{ijl_1l_2}$ equals 1. Otherwise, $\delta_{ijl_1l_2}$ equals 0.
The connectivity decay variable is calculated using **Equation 4** below.

$$f_{ijl} = \frac{M}{1 + \alpha e^{-\beta T_{ijl}}} \quad (4)$$

M, α, and β are parameters that determine the shape of the decay curve. The section 3.4 describes the method used to calibrate the shaping parameters. T_{ij} is the total travel time between origin *i* and destination *j* using route *l.* Total travel time is calculated using **Equation 5 – 7** below.

$$T_{ijl} = T_{access,ijl} + T_{wait,ijl} + T_{In\,Vehicle,ijl} + T_{egress,ijl} \quad (5)$$

$$T_{access,ijl} = \frac{r}{\sqrt{2}} * walkspeed \quad (6)$$

$$T_{wait,ijl} = min\left(\frac{1}{2} * headway_{ijl}, max\ wait\ time\right) \quad (7)$$

The total travel time is the sum of access time($T_{access,ijl}$), wait time$\left(T_{wait,ijl}\right)$, in-vehicle travel time($T_{In\,Vehicle,ijl}$), and egress time$\left(T_{egress,ijl}\right)$. Access time is the expected walk time from a person's home to a stop on route (*l*). In this application, access time is a function of the average walking speed (*walkspeed*) and maximum walking distance (*r*). Because the origin is a zone rather than a point, this application cannot use real walk times. Wait time is estimated from the headways of route (*l*), as shown in **Equation 7**. Egress time is the real walk time between the nearest stop on route (*l*) and the destination.
When considering a single transfer journey using l_1 and l_2, the **Equations 4 and 5** were replaced with **Equations 8 and 9**.

$$f_{ijl_1l_2} = \frac{M}{1 + \alpha e^{-\beta T_{ijl_1l_2}}} \quad (8)$$

$$T_{ijl_1l_2} = T_{access,ijl_1} + T_{wait,ijl_1} + T_{In\,Vehicle,ijl_1} + penalty + T_{In\,Vehicle,ijl_2} + T_{egress,ijl_2} \quad (9)$$

If T_{ijl} or $T_{ijl_1l_2}$ is greater than 2 hours, f_{ijl} is set equal to 0.

3.2.4 Calculating TOI Values

The final step combines the three coverages into a single TOI value that can be assigned to origin (*i*). First, the pairwise TOI values are calculated for both direct journeys and those requiring a single transfer, as shown in **Equation 10** below.

$$TOI_{ij}^{\circ} = \sum_{l} R_{il} S_{ijl} \delta_{ijl} f_{ijl} + \sum_{l_1} \sum_{l_2} R_{il} S_{ijl} \delta_{ijl} f_{ijl} \quad (10)$$

Then the TOI_{ij}° values are normalized by the maximum value of TOI_{ij}°, as shown in **Equations 11 and 12**.

$$TOI_{ij,max} = \max(\{TOI_{ij}^{\circ} : \forall i \in I, \forall j \in J\}) \quad (11)$$

$$TOI_{ij} = \frac{TOI_{ij}^{\circ}}{TOI_{ij,max}} \quad (12)$$

This normalization process will ensure that TOI_{ij}values range from 0 to 1. Next, for all cases in which destination (*j*) is located inside of origin (*i*), TOI_{ij} is set equal to 1. This assumes that origin zones have maximal access to destinations located within them.
Finally, **Equation 13** is used to assign a TOI value to each origin zone.

$$TOI_i = \sum_{j} TOI_{ij} \quad (13)$$

3.3 Point to Point Transit Opportunity Index

The Point to Point TOI is built from a similar theory of opportunity as the Zone to Point TOI. However, there are several important differences in the calculation methods.

3.3.1 Spatial Coverage

The accessibility scoring method used in this paper is called the Transit Opportunity Index (TOI) and was originally described in 2013. Spatial coverage is no longer relevant when the origin is a point location. An origin point is either within reasonable walking distance of stops on a particular route, or it is not. In this application, the reasonableness of a walking distance depends on the transit options available near the origin. For example, if an origin is within a quarter mile of five or more stops, the analysis assumed people will only be willing to walk a quarter mile to access public transit. However, if the nearest stop is more than a mile away, this analysis assumed that people may be willing to walk a mile. Section 3.5 explains how real walking times were calculated.

3.3.2 Temporal Coverage

Temporal coverage for the Point to Point TOI is calculated in the same way as the Zone to Point TOI in **Equations 2 and 3**.

3.3.3 Trip Coverage

Similar to the Zone to Point TOI, trip coverage for the Point to Point TOI is calculated from the combination of a binary connectivity and a connectivity decay variable. The definition of the binary connectivity variables and the equations for calculating connectivity decay, **Equations 4 and 8**, remain the same for Point to Point TOI. The only difference is the calculation of the access time component of total travel time. Rather than calculate the expected access time using **Equation 6**, this application incorporates the actual walking distance (d_{il}) from origin (*i*) to the nearest stop on route (*l*), as shown in **Equation 14** below.

$$T_{access,ijl} = d_{il} * walkspeed \quad (14)$$

The distance $d_{il}$is calculated using the ArcGIS Network Analyst Tool (ESRI) utilizing OpenStreetMap data. If total travel time between an origin (*i*) and destination (*j*) by transit is more than twice the walk time between origin (*i*) and destination (*j*), than f_{ijl} is set equal to zero.

3.3.4 Calculating TOI Values

To combine the temporal and trip coverage components into an origin based TOI value, the first step is to calculate the pairwise TOI values, as shown in **Equation 15** below.

$$TOI_{ij}^{\circ} = \sum_{l} S_{ijl}\delta_{ijl}f_{ijl} + \sum_{l_1}\sum_{l_2} S_{ijl}\delta_{ijl}f_{ijl} \quad (15)$$

Similar to the Zone to Point TOI, the next step is to normalize TOI_{ij}° values by the maximum pairwise TOI value, $TOI_{ij,max}$. See **Equations 11 and 12**.
If the real walking time between an origin (*i*) and destination (*j*) is less than 10 minutes, the origin destination pair's TOI_{ij} value is set equal to 1. This assumes that destinations located within a 10 minute walk of an origin are maximally accessible. Walking time and walk distances were calculated using average walk speed of 4.0 feet per second and real walk distances as explained in section 3.5
Finally, **Equation 13** is used to calculate the point origins' TOI value.

3.4 Calculating Impedance Decay Curve Parameters

The parameters *M*, α, and β that shape the connectivity decay curve in **Equations 4 and 8** must be calibrated to reflect real travel behavior. Parameter *M* defines the upper bound of the curve and, in this application, is set to 1. Parameters α and β determine the shape of the decay curve and are calibrated based by destination type. This application considered four destination

types: healthcare facilities, grocery stores, educational institutions, and government services. The value of the decay variable should reflect the proportion of travelers willing to travel that length of time to the destination type. For example, if half of travelers are willing to travel 30 minutes to access healthcare services, then the decay variable should ideally equal 0.5 for a 30 minute travel time to healthcare. Travel data from the 2016 Connecticut Statewide Travel Survey was used for this calibration. **Figure 3.1a** shows the distribution of grocery trips greater than a particular travel time from this survey as a complementary cumulative distribution reported in 5 minute intervals. This distribution shows the typical negative exponential relationship between time and willingness to travel (Iacono, Krizek, & El-Geneidy, 2008).

Two points were used to solve for α and β for each destination type. The first point assumed that the minimum transit travel time was 10 minutes, so at 10 minutes the decay variable would be equal to 1. The second point was based on the proportion of travelers at the highest 10% of travel time for a particular destination. For example, if only 10% of travelers would travel 30 minutes or more to the grocery store than the decay variable would be set equal to 0.1 when the travel time was 30 minutes. The resulting travel time decay curve is shown in **Figure 3.1b**.

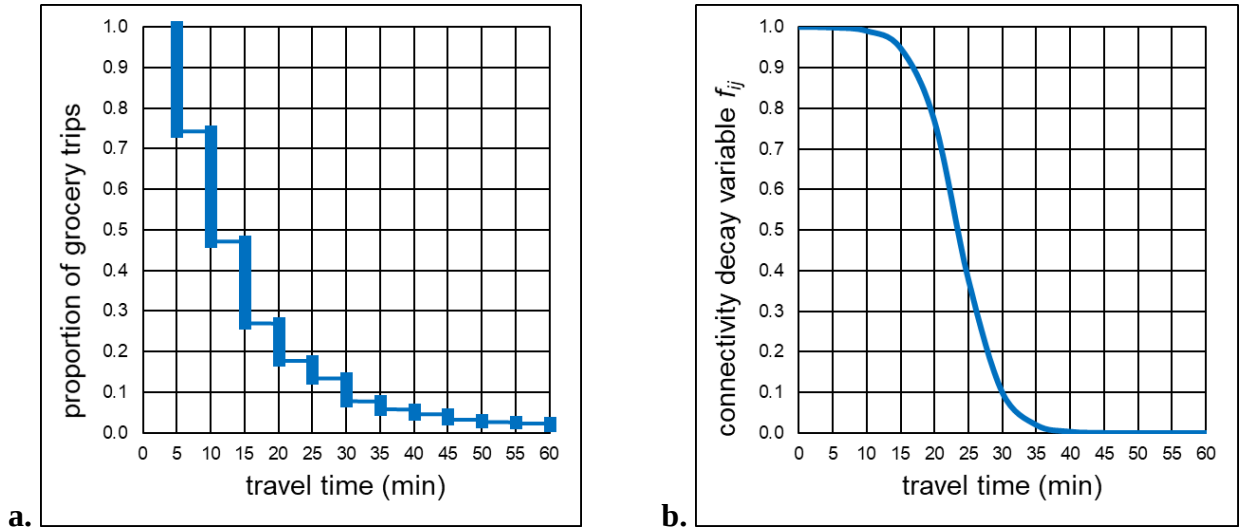

Figure 3.1: Grocery trip travel time decay curves for a) real trips as proportion of grocery trips greater than a given travel time and b) the calibrated connectivity decay impedance factor. Real trip data is from the 2016 Connecticut Statewide Travel Survey (n = 3,690)

The calibration of α and β parameters was performed for all four types of destinations. **Table 3.1** shows the 90th percentile of travel time for each trip purpose according to the 2016 Connecticut Statewide Travel Survey. These values were used to calibrate the α and β parameters and represent the travel time for each trip purpose that only 10% of people exceeded. The decay curves for each trip purpose are shown in **Appendix C**.

Table 3.1: 90th Percentile Travel Times by Destination

Trip Purpose	90th Percentile Travel Time (mins)	Total Trips
Grocery Store	30	3,690
Medical	45	1,496
Errands	40	3,667
School	35	4,241

3.5 Data Sources

The TOI score requires spatial data for origins, destinations, and the transportation network to determine the nearest stops, walking times, and route options for each origin and destination pair.

Transit network spatial and schedule data was derived from publicly available GTFS data from CTtransit, the local transit operator (CTtransit, 2019).

Road, foot path, and sidewalk shapefiles were obtained from OpenStreetMap (Geofabrik, 2019) and walking distances between origins, destinations, and transit stops were derived from OD cost matrices made with ArcGIS Network Analyst. This method of determining walking distance, using OpenStreetMap data with Network Analyst, was fast and inexpensive. It was validated by comparing walking distances against Google Maps API using 200 random test origin destination pairs from the study (**Figure 3.2**).

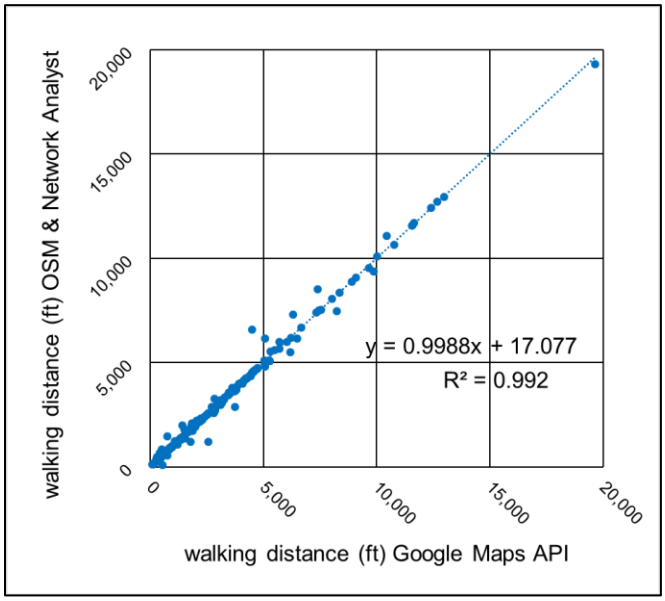

Figure 3.2: Comparison of walking distances derived from Google Maps API versus Open Street Map and ArcGIS Network Analyst for 200 random origin destination pairs from the study. Linear regression shows nearly 1:1 relationship between distances derived from each method. Google Maps API has a cost per callout while the OD cost matrix from ArcGIS is unlimited with a Network Analyst license.

Block group geometry data was obtained from the US Census American Community Survey Data (Census, 2019b).

Point location information for origins and destinations was obtained by geocoding facility addresses using ArcMap and the ArcGIS World Geocoding Service tool (ESRI). Addresses of

subsidized housing units in the Greater Hartford region were provided by the Partnership for Strong Communities, an affordable housing advocacy organization. Destination addresses were obtained from a variety of sources and are outlined in **Table 3.2**. Grocery stores with fresh food and more than 4 employees were considered fresh grocery destinations (Zhang, 2017)

Table 3.2: Data Sources for Destination Facility Addresses

Category	Facility Type	Data Source
Education	Public K-12 Schools	National Center for Education Statistics (NCES) public school database
	Colleges and Universities	ESRI Business analyst tool (NAICS code 6113)
	Community Colleges	State of Connecticut database of community colleges
Government Services	Town Halls & Senior Centers	Municipal websites
	US Postal Offices	USPS locations website
	Libraries and Police Stations	ESRI Business analyst tool (NAICS codes 51912 & 92212)
	Courts, DMV Offices, Social Services	State of Connecticut databases and websites
Fresh Grocery	Grocery Stores & Supermarkets	ESRI Business analyst tool (NAICS code 445110)
	Retailers with fresh groceries	Company websites (Walmart, Target, Costco, BJ's, Sam's Club)
Healthcare	Clinics, Hospitals, Family Practices, & Specialists	Connecticut Department of Consumer Protection elicense look up for Hospitals, Infirmaries/Clinics, and Outpatient Surgical Centers

3.6 Summary

The TOI score used in this report consists of three elements which are spatial coverage, temporal coverage, and trip coverage. Time impedance factors for the trip coverage component were calibrated based on destination type using trip purpose survey data. The spatial data used for this project was provided by the non-profit partners, the local transit agency, and private and public databases.

Chapter 4. Summary and Conclusions

4.1 Introduction

TOI scores were calculated for every subsidized housing unit and block group in the Greater Hartford Area. These results are fully presented in maps and tables in **Appendix A** and **Appendix B** but are explained and demonstrated for one city, New Britain, in section 4.2. Project collaborators Partnership for Strong Communities provided ideas for how this work can be applied and the future directions that this work can take.

4.2 Results

The TOI calculations were performed using Python 2.7 with the ArcPy module to analyze the spatial data. ArcGIS version 10 (ESRI) was used to visualize the results for the point and zone scores for each type of destination.

Raw TOI scores for the subsidized housing point locations and the block group zones were categorized into five groups using Jenks natural breaks method. The points and zones were then assigned a grade of A, B, C, D, or F, with A being the category with the highest score and F being the lowest. Since TOI scores can vary in magnitude, the log of the raw score was used to categorize point locations and zones. The zone and point score results for City of New Britain are illustrated in **Figures 4.1-4** and the grades are calibrated based on the scores within that city. This city has good examples of both highly accessible and less connected neighborhoods based on its bus coverage and destination facilities. There is also a bus rapid transit (BRT) line connecting downtown New Britain to the city of Hartford. Full results for the region are presented in the appendices.

Subsidized housing units that are scored the same grade generally share common features in regards to accessibility. Units with a grade of “A” are usually within walking distance of two or more destinations, or are walkable to one destination while also being connected to other nearby destinations by a frequent transit route (50 or more trips per day). Locations with a “B” grade are usually walkable to one destination or can access multiple nearby destinations by a frequent route. Units that are far from destinations but near frequent transit service (within a 5 minute walk) typically receive a “C” grade, especially if more than one route is available nearby. A typical “D” grade location is near only one transit line, usually a route with less than 50 trips per day. A location with a grade of “F” is typically more than a 10 minute walk to an infrequent transit service or not near any transit stops or destinations.

It should be noted that TOI grades are combination of factors so proximity to transit or destinations alone will not always predict the final score. **Figure 4.5** shows some typical results of individual units and shows the influence of the walking network and transit frequency on the overall accessibility score.

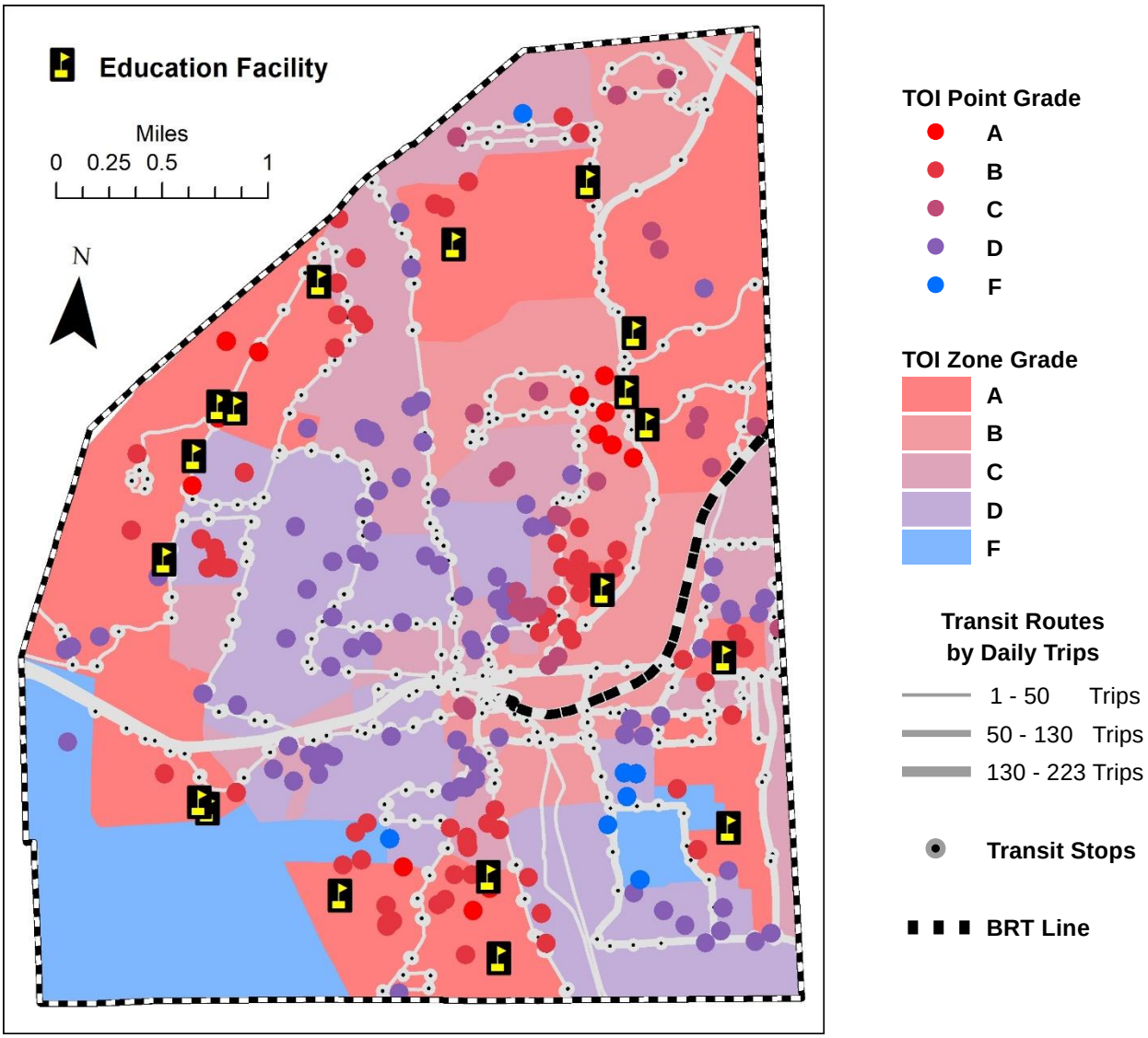

Figure 4.1: Point to Point and Zone to Point TOI values measuring accessibility to education facilities for the city of New Britain. Block group zones are color coded by grade. Subsidized housing unit point locations are also identified as color dots. Red areas and red point locations have the highest score of "A" while blue areas and points have the lowest accessibility score of "F".

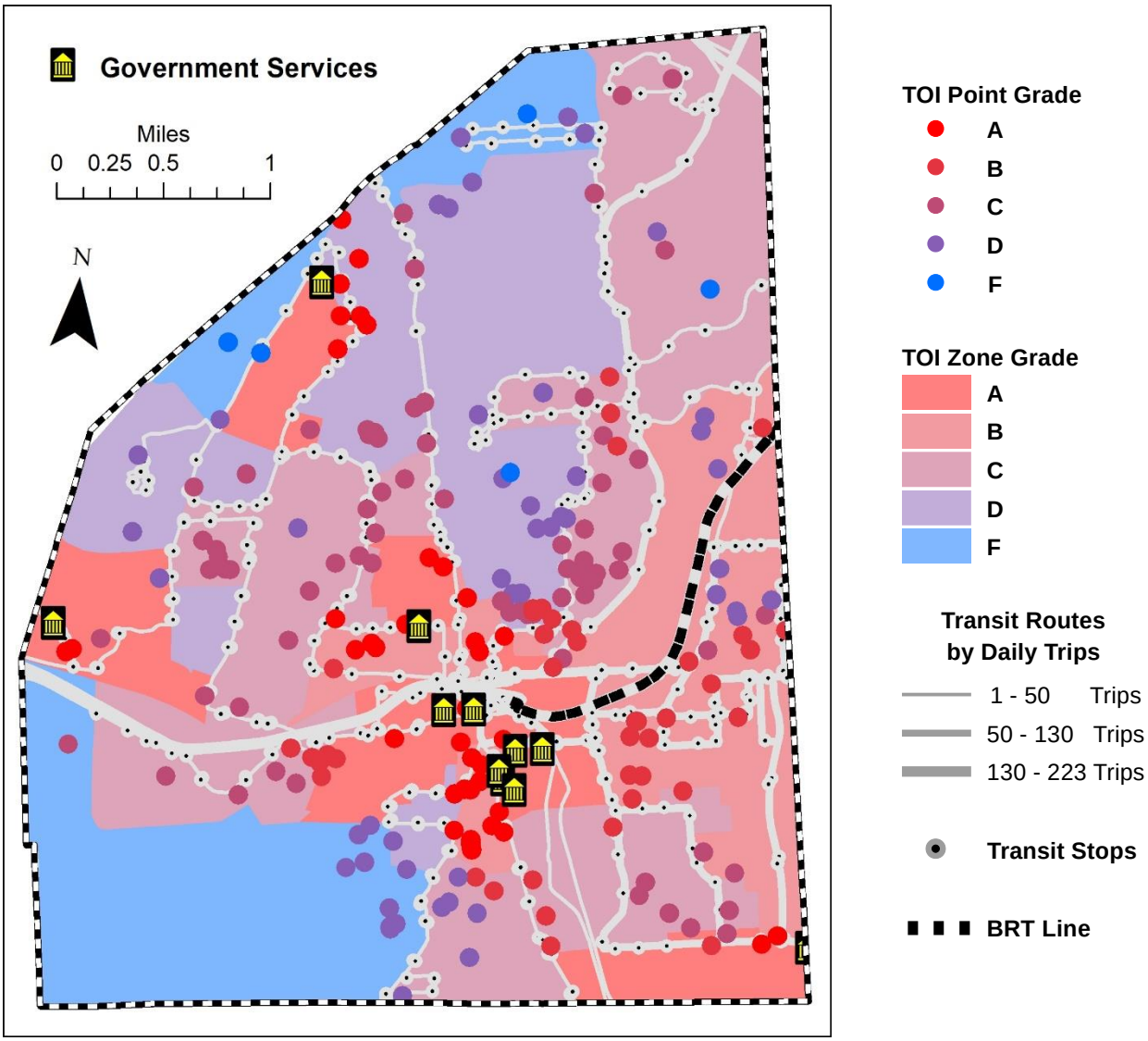

Figure 4.2: Point to Point and Zone to Point TOI values measuring accessibility to government services for the city of New Britain. Symbology follows Figure 4.1.

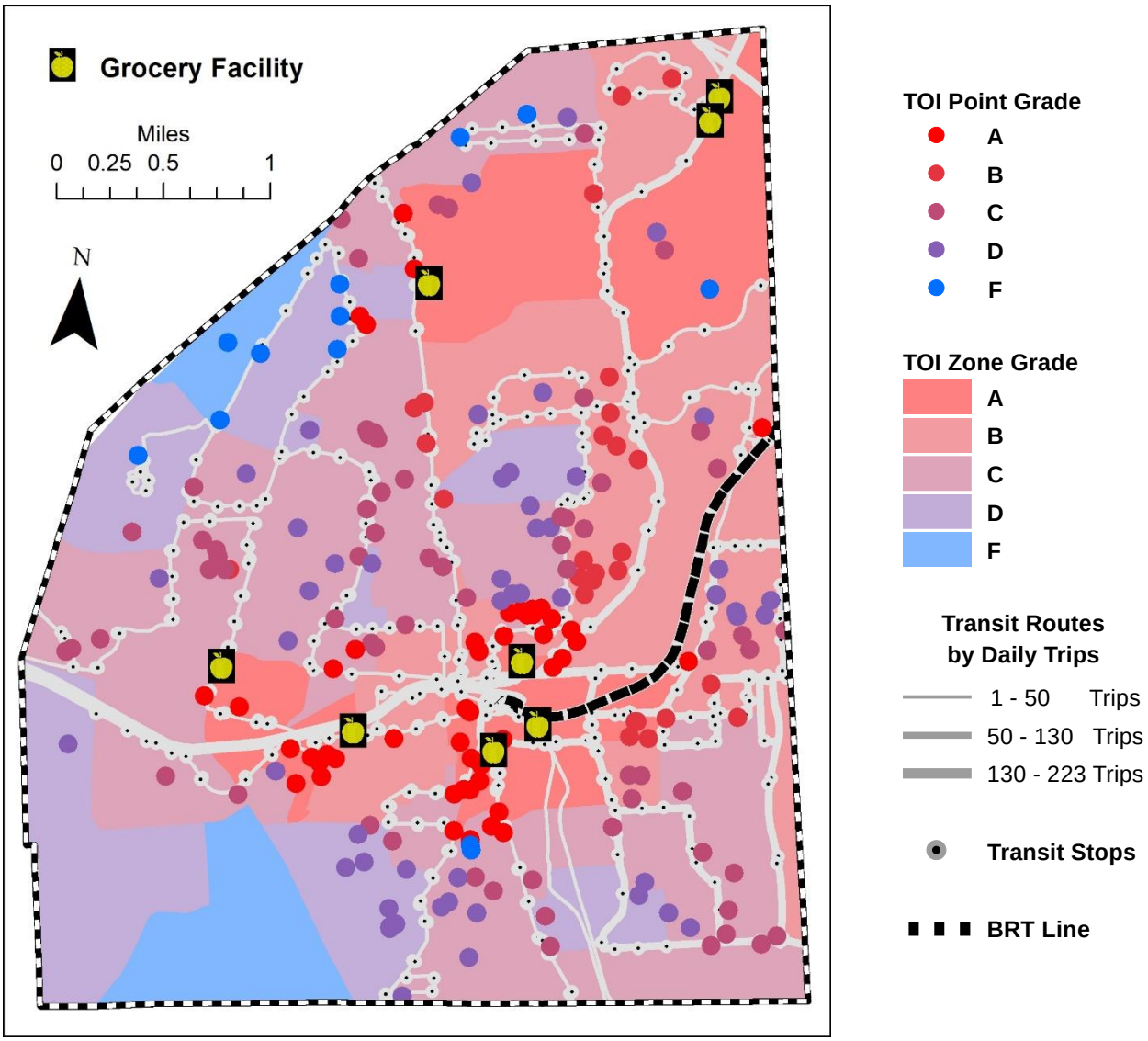

Figure 4.3: Point to Point and Zone to Point TOI values measuring accessibility to fresh grocery facilities for the city of New Britain. Symbology follows Figure 4.1.

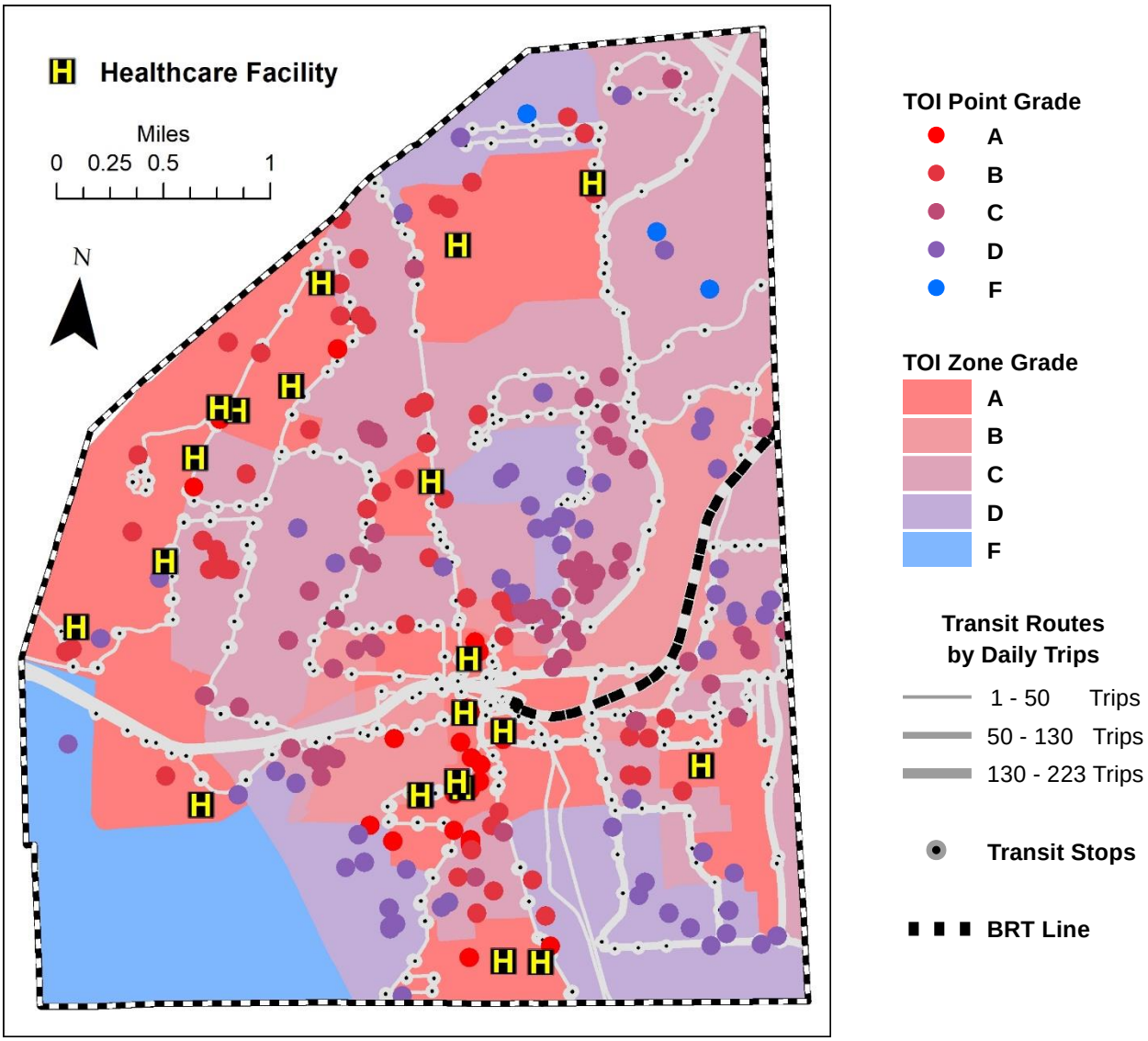

Figure 4.4: Point to Point and Zone to Point TOI values measuring accessibility to healthcare facilities for the city of New Britain. Symbology follows Figure 4.1.

a.  b. 

Figure 4.5: Neighborhood examples of TOI grades with the walking network. The first example a) shows two "B" units in close proximity to a blue "F" unit. The "F" location is a far walk to transit since it is at the end of a cul de sac. The second example b) shows "A" and "B" units closer to high frequency stops (thicker route lines), with the bright red "A" unit closest to a BRT stop. Units close to low frequency stops or that do not have direct walking paths to transit stops have lower grades.

4.3 Discussion

The results of this project, including maps and accessibility grades for towns and block groups, will be shared with affordable housing advocates in the Greater Hartford region. It is believed that a quantitative accessibility score will aid policy makers in allocating funds for affordable housing. As discussed above, current affordable housing opportunity indexes do not always include good measures of transit access. The TOI score can supplement the demographic and spatial information already required in most affordable funding requests, bringing a more complete measure of transit accessibility to project analyses. Common patterns seen in the TOI score are discussed in the results section, but in general, units that required longer walks to transit stops or were only near infrequent transit service received poorer scores.

4.4 Limitations of this Method

As with all accessibility metrics, there are some limitations of this score which may overestimate access for some locations and underestimate access for others.

One of the first limitations is that TOI is primarily a transit access score, walking or other alternative modes are not meant to be fully reflected in this score. If an agency is interested in including other alternative modes in their accessibility metric, then the formula of this score would have to change.

Some short walking trips were considered in this score for point origins as explained in section 3.3.4. If a destination was within a 10 minute walk of an origin, using a walking speed of 4 ft/s along the road network, than that pair was given the highest TOI of 1. Outside of this 10 minute buffer, however, a trip required a transit connection in order to calculate a score. This means some opportunities just outside of the buffer were not included if there was no transit connection. Also, this buffer does not reflect trips taken on bicycles or scooters. At the same time, this formulation could also overestimate access for some people who have issues walking or for people who live in areas where it is not possible to walk along the road network as they may not be able to reach destinations in the 10 minute walking buffer. This could be addressed by fully incorporating walking as a part of the TOI score, however, the different value or utility of a walk trip versus transit trip would have to be addressed. For example, it could be assumed

that for short distances, a person may favor walking over transit if the travel times are equal, but at longer distances it is likely the transit trip would be favored over walking.

Walking trips were handled differently for zone origins. If a destination was inside a block group, the block group received a TOI score of 1. Destinations are typically on the edges of block groups, however, since they are located near larger roads which form block group boundaries. This means the whole block group may receive a score of 1 when the destination is on a far edge of the zone. This also means that a neighboring block group on the opposite side of a boundary street may get a TOI of 0 despite the destination being across the street. This could be addressed through a more geographical weighted approach, such as assigning a walk score based on the distance between the block group centroid and the point destination, which would be a more continuous metric than whether the destination is inside the block group. This may be explored in the future.

Beyond walking considerations, there are other limitations to the score such as factoring in the utility or attractiveness of destinations. All destination facilities currently provide the same value or utility for travelers regardless of size or amenities. For example, a small clinic and a large hospital would have the same TOI score as long as they are the same travel time from an origin. This could, however, be addressed with small modifications to the script which modify TOI based on the size of the facility, number of employees, or other attractiveness measures, which would create a gravity model score. Another possible issue is that the number of accessible destinations to an origin and its cumulative TOI score are linearly related. This is an issue for a destination like a grocery store. The utility of having a single grocery store close to an origin versus no grocery facility is probably high, but the presence of additional grocery stores nearby likely does not add the same amount of value or access. One grocery store is mostly adequate to meet a household's grocery needs. Including some consideration for this in the score would require detailed traveler attitude data.

Another issue is that frequency of transit service is also linearly related to the TOI of a destination. If a destination is on a route with twice the frequency of another destination, then the TOI score values the destination on the more frequent route twice as much. This value relationship may not hold true in practice. For example, for a transit trip taking 30 minutes or more it may not be important to passengers whether the bus arrives every 5 minutes or every 10 minutes, that route would still offer adequate access. Again, these issues could be addressed in future versions of the score but would require a lot of detailed traveler behavior data.

The limitations outlined above are issues that are inherent in most accessibility scores being explored today. It is likely that given more work by researchers, many of these shortcomings can be addressed. As outlined in section 2.3.4 there have been immense recent improvements in the accuracy of accessibility metrics due to the rapid adoption of powerful GIS tools and the exponential increase in available passenger and system data.

4.5 Other Directions for Future Work

Since TOI is a spatial score it can easily be overlaid with other features using GIS to identify neighborhoods where affordable housing is likely to be funded. Other criteria that open up opportunities to funding include neighborhood demographics, the presence of historical buildings, and sites identified for remediation. All of these factors can be spatially overlaid with TOI score to determine sites that would receive funding and also have adequate transit access.

There is further interest in expanding the TOI score to measure access to different types of jobs in the region. The U.S. Census provides detailed employment data for every census

block, including the numbers of jobs in each industry (Census, 2019a). The TOI score could be used to analyze which neighborhoods have the best access to each type of employment category.

4.6 Summary

This work has shown that accessibility scores developed by transportation professionals can have value for affordable housing agencies. Accessibility measures, including the TOI score, can serve as a tool for affordable housing agencies and other organizations that want to know where people are best served by transit and where improvements to the transit system need to be made. As with all measures, TOI has limitations but these can be addressed by adjusting methods to fit agency needs and by incorporating more data and spatial tools as they become available.

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Appendix A: Tables of All Transit Access Scores

A.1 Notes on Grading System

The tables in Appendix A show the transit access grades for point scores aggregated by town, and all the block group scores. Grades are calculated as described in section 4.2 and calibrated on the system wide raw scores. The average grade was calculated by simple gradepoint average and so weighted the four destination grades equally.

A.2 Point to Point TOI Grades by Town

On the following page are average transit access grades for subsidized housing units in each town in the study area. The number of subsidized housing units in each town is also noted

Town	Transit Access Grades					Subsidized Housing Units	Subsidized Units Per Capita	% of Total Housing Units
	Education Facilities	Government Services	Fresh Grocery	Heath Facilities	Average			
Andover	F	A	F	D	D	18	0.014	0.56
Avon	A	A	D	D	B	244	0.033	1.34
Berlin	D	B	D	D	C	566	0.067	2.77
Bloomfield	A	A	B	B	A	546	0.062	2.73
Canton	A	C	C	D	C	242	0.056	2.37
Columbia	F	A	F	F	D	40	0.018	0.74
Coventry	F	A	F	F	D	123	0.024	0.99
East Granby	F	F	F	F	F	72	0.034	1.38
East Hartford	A	A	A	A	A	1573	0.073	3.13
East Windsor	D	A	C	D	C	572	0.114	5.12
Ellington	B	A	F	D	C	260	0.038	1.64
Enfield	A	B	F	B	B	1347	0.077	3.28
Farmington	A	C	C	C	B	625	0.058	2.48
Glastonbury	C	A	B	C	B	584	0.042	1.70
Granby	A	A	A	F	B	90	0.020	0.81
Hartford	A	A	A	A	A	10032	0.188	8.63
Hebron	A	A	F	F	C	58	0.016	0.61
Manchester	B	B	B	B	B	1832	0.073	3.19
Mansfield	A	A	F	D	C	177	0.029	1.37
Marlborough	F	F	F	F	F	24	0.010	0.38
New Britain	A	A	A	A	A	3151	0.100	4.51
Newington	A	A	B	B	A	566	0.044	1.88
Plainville	B	A	C	D	B	227	0.028	1.29
Rocky Hill	C	C	A	C	B	235	0.027	1.23
Simsbury	C	C	C	D	C	289	0.031	1.22
Somers	F	A	F	F	D	146	0.040	1.58
South Windsor	D	B	B	D	C	427	0.041	1.66
Southington	A	A	A	F	B	553	0.031	1.28
Stafford	F	F	F	F	F	257	0.049	2.19
Suffield	B	A	A	F	B	227	0.043	1.74
Tolland	F	A	F	F	D	92	0.017	0.62
Vernon	C	A	C	B	B	1520	0.107	5.29
West Hartford	B	A	A	A	A	855	0.033	1.39
Wethersfield	B	B	B	C	B	745	0.065	2.83
Willington	F	F	F	F	F	160	0.062	2.72
Windsor	B	B	B	C	B	180	0.016	0.63
Windsor Locks	D	A	D	D	C	137	0.025	1.10

A.3 Zone to Point TOI Scores by Block Group

On the following pages are transit access grades for each block group in the study area grouped by town. The number of subsidized housing units in each block group is also noted

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Andover	090135281001	F	A	F	F	D	18	0.041	1.56
Andover	090135281002	F	A	F	F	D	0	0.000	0.00
Avon	090034621011	F	F	F	F	F	0	0.000	0.00
Avon	090034621012	A	F	F	F	D	4	0.009	0.35
Avon	090034621013	F	F	F	F	F	0	0.000	0.00
Avon	090034621014	F	F	F	F	F	0	0.000	0.00
Avon	090034621015	F	F	F	F	F	0	0.000	0.00
Avon	090034621021	F	F	F	F	F	0	0.000	0.00
Avon	090034621022	F	F	F	F	F	0	0.000	0.00
Avon	090034622011	C	C	A	A	B	92	0.119	7.04
Avon	090034622012	A	F	D	F	D	0	0.000	0.00
Avon	090034622013	A	A	C	D	B	148	0.157	7.12
Avon	090034622021	A	D	D	A	B	0	0.000	0.00
Berlin	090034001001	A	C	A	C	B	4	0.005	0.23
Berlin	090034001002	A	A	D	F	C	0	0.000	0.00
Berlin	090034001003	A	A	C	D	B	402	0.298	14.60
Berlin	090034002001	D	D	D	F	D	84	0.096	4.00
Berlin	090034002002	F	F	F	F	F	6	0.006	0.23
Berlin	090034002003	F	F	F	F	F	0	0.000	0.00
Berlin	090034003001	C	C	B	C	C	0	0.000	0.00
Berlin	090034003002	C	C	C	C	C	0	0.000	0.00
Berlin	090034003003	C	A	C	D	C	0	0.000	0.00
Berlin	090034003004	D	A	D	F	C	70	0.089	3.62
Berlin	090034003005	F	F	F	F	F	0	0.000	0.00
Berlin	090034003006	D	D	D	D	D	0	0.000	0.00
Bloomfield	090034711001	C	C	D	C	C	0	0.000	0.00
Bloomfield	090034711002	B	B	B	B	B	0	0.000	0.00
Bloomfield	090034711003	B	B	B	A	B	30	0.060	2.22
Bloomfield	090034712001	A	C	B	A	B	0	0.000	0.00
Bloomfield	090034712002	B	A	A	B	A	0	0.000	0.00
Bloomfield	090034713001	A	C	C	C	B	4	0.009	0.33

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Bloomfield	090034713002	B	C	B	A	B	0	0.000	0.00
Bloomfield	090034713003	A	A	B	C	B	181	0.183	9.36
Bloomfield	090034713004	A	A	A	C	A	0	0.000	0.00
Bloomfield	090034714001	C	C	D	D	C	176	0.145	6.85
Bloomfield	090034714002	D	F	F	F	F	0	0.000	0.00
Bloomfield	090034714003	D	D	C	D	D	6	0.006	0.31
Bloomfield	090034715001	A	C	D	A	B	0	0.000	0.00
Bloomfield	090034715002	A	C	D	A	B	149	0.158	7.18
Bolton	090135291001	D	D	F	D	D	0	0.000	0.00
Bolton	090135291002	F	F	F	F	F	0	0.000	0.00
Bolton	090135291003	F	A	F	F	D	0	0.000	0.00
Bolton	090135291004	F	F	F	F	F	0	0.000	0.00
Canton	090034641011	F	F	F	F	F	0	0.000	0.00
Canton	090034641012	A	D	D	F	C	0	0.000	0.00
Canton	090034641013	F	D	C	D	D	0	0.000	0.00
Canton	090034641021	D	F	D	F	D	18	0.034	1.33
Canton	090034641022	A	A	C	D	B	13	0.019	0.84
Canton	090034641023	D	A	A	D	B	211	0.201	10.37
Columbia	090138601001	F	A	F	F	D	0	0.000	0.00
Columbia	090138601002	F	A	F	F	D	0	0.000	0.00
Columbia	090138601003	F	F	F	F	F	0	0.000	0.00
Columbia	090138601004	F	A	F	F	D	40	0.057	1.99
Coventry	090138501001	F	F	F	F	F	0	0.000	0.00
Coventry	090138501002	F	F	F	F	F	0	0.000	0.00
Coventry	090138501003	F	F	F	F	F	0	0.000	0.00
Coventry	090138502001	F	F	F	F	F	0	0.000	0.00
Coventry	090138502002	F	F	F	F	F	80	0.152	7.13
Coventry	090138502003	F	A	F	F	D	1	0.002	0.10
Coventry	090138502004	F	F	F	F	F	42	0.096	3.29
Coventry	090138502005	F	F	F	F	F	0	0.000	0.00
Coventry	090138502006	F	F	F	F	F	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
East Granby	090034701001	F	F	F	F	F	72	0.105	4.03
East Granby	090034701002	F	D	D	F	D	0	0.000	0.00
East Granby	090034701003	F	F	F	F	F	0	0.000	0.00
East Granby	090034701004	A	A	F	F	C	0	0.000	0.00
East Hartford	090035101001	C	B	C	B	B	111	0.120	4.94
East Hartford	090035102001	B	A	A	A	A	0	0.000	0.00
East Hartford	090035102002	A	A	B	A	A	189	0.341	15.45
East Hartford	090035103001	C	C	D	A	C	46	0.078	3.33
East Hartford	090035103002	B	B	C	B	B	150	0.212	7.84
East Hartford	090035103003	A	B	C	B	B	0	0.000	0.00
East Hartford	090035104001	B	A	B	A	A	0	0.000	0.00
East Hartford	090035104002	B	A	B	B	B	0	0.000	0.00
East Hartford	090035104003	B	A	A	A	A	120	0.274	12.40
East Hartford	090035104004	B	A	B	A	A	0	0.000	0.00
East Hartford	090035105001	B	A	A	B	A	59	0.065	3.12
East Hartford	090035105002	A	B	A	A	A	0	0.000	0.00
East Hartford	090035106001	B	B	A	B	B	181	0.478	19.82
East Hartford	090035106002	A	B	A	A	A	325	0.337	15.66
East Hartford	090035106003	B	B	A	B	B	50	0.080	3.65
East Hartford	090035106004	A	B	A	A	A	80	0.240	23.60
East Hartford	090035107001	B	C	B	B	B	0	0.000	0.00
East Hartford	090035107002	A	A	B	B	A	0	0.000	0.00
East Hartford	090035107003	B	B	A	B	B	85	0.180	9.79
East Hartford	090035107004	B	B	A	A	A	47	0.055	2.15
East Hartford	090035108001	A	C	B	A	B	0	0.000	0.00
East Hartford	090035108002	B	B	A	A	A	0	0.000	0.00
East Hartford	090035108003	B	B	A	B	B	0	0.000	0.00
East Hartford	090035109001	C	C	C	C	C	0	0.000	0.00
East Hartford	090035109002	C	C	C	C	C	0	0.000	0.00
East Hartford	090035109003	A	C	C	C	B	0	0.000	0.00
East Hartford	090035109004	C	C	C	C	C	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
East Hartford	090035110001	A	D	C	C	C	0	0.000	0.00
East Hartford	090035110002	C	C	C	C	C	0	0.000	0.00
East Hartford	090035110003	B	C	B	C	B	0	0.000	0.00
East Hartford	090035111001	B	B	A	B	B	0	0.000	0.00
East Hartford	090035111002	B	B	A	A	A	0	0.000	0.00
East Hartford	090035111003	C	C	B	C	C	0	0.000	0.00
East Hartford	090035112001	B	B	B	B	B	0	0.000	0.00
East Hartford	090035112002	A	C	D	A	B	0	0.000	0.00
East Hartford	090035112003	B	B	B	B	B	29	0.052	1.99
East Hartford	090035113001	B	B	B	B	B	0	0.000	0.00
East Hartford	090035113002	A	B	B	A	A	0	0.000	0.00
East Hartford	090035113003	B	B	B	B	B	0	0.000	0.00
East Hartford	090035114001	A	B	D	A	B	0	0.000	0.00
East Hartford	090035114002	A	C	D	A	B	1	0.002	0.06
East Windsor	090034841001	A	A	A	D	B	55	0.171	8.68
East Windsor	090034841002	F	F	F	F	F	41	0.066	3.08
East Windsor	090034841003	A	D	A	A	B	14	0.014	0.61
East Windsor	090034841004	F	D	D	D	D	16	0.025	1.48
East Windsor	090034842001	F	A	F	F	D	445	0.323	13.90
East Windsor	090034842002	F	F	F	F	F	0	0.000	0.00
East Windsor	090034842003	F	F	F	F	F	0	0.000	0.00
Ellington	090135351001	D	D	C	D	D	0	0.000	0.00
Ellington	090135351002	F	F	F	F	F	2	0.002	0.09
Ellington	090135351003	F	F	F	F	F	0	0.000	0.00
Ellington	090135351004	F	A	F	F	D	43	0.045	2.38
Ellington	090135351005	F	F	F	F	F	216	0.245	14.00
Ellington	090135351006	F	F	F	F	F	0	0.000	0.00
Ellington	090135352001	A	C	C	D	C	0	0.000	0.00
Ellington	090135352002	F	F	F	F	F	0	0.000	0.00
Ellington	090135352003	F	F	F	F	F	0	0.000	0.00
Ellington	090135352004	F	F	F	F	F	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Enfield	090034803001	F	F	F	F	F	0	0.000	0.00
Enfield	090034803002	D	D	F	D	D	0	0.000	0.00
Enfield	090034804001	A	F	F	F	D	0	0.000	0.00
Enfield	090034804002	F	D	D	A	C	0	0.000	0.00
Enfield	090034805001	D	C	F	D	D	7	0.011	0.44
Enfield	090034805002	D	C	C	A	C	84	0.108	4.40
Enfield	090034806001	D	C	F	A	C	12	0.040	2.04
Enfield	090034806002	D	C	D	D	D	0	0.000	0.00
Enfield	090034806003	D	A	F	D	C	511	0.532	25.68
Enfield	090034806004	C	C	D	C	C	115	0.196	7.20
Enfield	090034807001	D	D	D	D	D	80	0.184	8.22
Enfield	090034807002	A	D	F	A	C	174	0.417	16.59
Enfield	090034808001	F	F	F	F	F	8	0.011	0.51
Enfield	090034808002	A	F	F	A	C	0	0.000	0.00
Enfield	090034808003	F	A	F	F	D	0	0.000	0.00
Enfield	090034808004	A	D	A	D	B	82	0.358	22.59
Enfield	090034809001	F	F	F	F	F	0	0.000	0.00
Enfield	090034809002	F	F	F	F	F	20	0.049	2.03
Enfield	090034810001	F	F	F	F	F	0	0.000	0.00
Enfield	090034810002	F	F	F	F	F	0	0.000	0.00
Enfield	090034811001	F	F	F	F	F	90	0.102	3.81
Enfield	090034811002	A	A	F	F	C	40	0.062	2.54
Enfield	090034812001	F	F	F	F	F	0	0.000	0.00
Enfield	090034812002	F	F	F	F	F	0	0.000	0.00
Enfield	090034812003	A	F	F	F	D	208	0.204	9.64
Enfield	090034813001	F	F	F	F	F	0	0.000	0.00
Enfield	090034813002	F	F	F	F	F	0	0.000	0.00
Enfield	090035243001	F	F	F	F	F	0	0.000	0.00
Enfield	090035243002	F	F	F	F	F	0	0.000	0.00
Enfield	090035243003	F	F	F	F	F	0	0.000	0.00
Enfield	090035243004	F	F	F	F	F	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Farmington	090034601001	A	A	C	A	A	111	0.121	5.59
Farmington	090034601002	C	A	B	A	B	28	0.059	2.55
Farmington	090034602021	C	C	C	A	B	40	0.040	1.65
Farmington	090034602022	C	D	C	C	C	161	0.225	8.63
Farmington	090034602031	C	C	C	C	C	0	0.000	0.00
Farmington	090034602032	A	C	C	C	B	0	0.000	0.00
Farmington	090034602041	C	C	C	D	C	70	0.079	2.91
Farmington	090034602042	A	C	C	D	C	93	0.088	3.86
Farmington	090034602043	D	D	C	D	D	25	0.038	1.91
Farmington	090034603011	C	A	B	C	B	1	0.001	0.04
Farmington	090034603012	A	A	B	C	B	0	0.000	0.00
Farmington	090034603021	C	C	C	D	C	1	0.002	0.07
Farmington	090034603022	C	C	A	D	C	7	0.010	0.60
Farmington	090034603023	C	C	B	C	C	76	0.161	7.11
Glastonbury	090035201001	F	F	F	F	F	0	0.000	0.00
Glastonbury	090035201002	A	F	F	D	D	7	0.007	0.26
Glastonbury	090035201003	F	F	F	F	F	0	0.000	0.00
Glastonbury	090035202011	F	F	F	F	F	0	0.000	0.00
Glastonbury	090035202012	F	F	F	F	F	2	0.003	0.09
Glastonbury	090035202021	F	F	F	F	F	0	0.000	0.00
Glastonbury	090035202022	F	F	F	F	F	0	0.000	0.00
Glastonbury	090035202023	A	A	F	F	C	0	0.000	0.00
Glastonbury	090035203011	A	D	C	A	B	32	0.031	1.30
Glastonbury	090035203012	C	C	C	C	C	199	0.216	9.39
Glastonbury	090035203021	C	A	B	C	B	90	0.180	11.57
Glastonbury	090035203022	A	C	A	C	B	160	0.168	9.06
Glastonbury	090035203023	A	C	A	D	B	0	0.000	0.00
Glastonbury	090035204001	A	D	C	D	C	0	0.000	0.00
Glastonbury	090035204002	D	C	C	D	C	1	0.003	0.16
Glastonbury	090035204003	D	A	C	D	C	92	0.106	5.24
Glastonbury	090035204004	F	F	D	F	F	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Glastonbury	090035205011	D	A	A	D	B	0	0.000	0.00
Glastonbury	090035205012	A	D	F	F	D	1	0.001	0.04
Granby	090034681011	F	F	F	F	F	5	0.008	0.40
Granby	090034681012	F	F	F	F	F	0	0.000	0.00
Granby	090034681013	F	A	D	F	D	2	0.003	0.12
Granby	090034681014	F	F	F	F	F	2	0.004	0.17
Granby	090034681015	F	F	F	F	F	0	0.000	0.00
Granby	090034681021	A	F	F	F	D	32	0.050	1.99
Granby	090034681022	D	A	A	D	B	49	0.114	6.25
Granby	090034681023	D	C	A	D	C	0	0.000	0.00
Hartford	090035001001	A	A	A	A	A	22	0.021	0.96
Hartford	090035001002	B	A	C	A	B	116	0.212	7.35
Hartford	090035002001	A	A	A	A	A	80	0.084	3.02
Hartford	090035003001	A	A	A	A	A	205	0.313	15.72
Hartford	090035003002	A	A	A	A	A	133	0.277	18.45
Hartford	090035004001	A	A	B	A	A	486	0.626	29.63
Hartford	090035005001	A	A	A	A	A	387	0.992	53.16
Hartford	090035005002	A	A	A	A	A	127	0.324	19.51
Hartford	090035007001	B	A	B	A	A	0	0.000	0.00
Hartford	090035009001	A	A	A	A	A	167	0.293	11.37
Hartford	090035009002	A	A	A	A	A	313	0.972	32.47
Hartford	090035012001	B	B	A	B	B	230	0.411	16.87
Hartford	090035012002	B	A	B	B	B	211	0.358	16.21
Hartford	090035013001	B	B	A	B	B	227	0.772	35.36
Hartford	090035013002	B	B	A	B	B	119	0.318	13.54
Hartford	090035014001	A	A	B	A	A	80	0.156	8.14
Hartford	090035014002	A	A	B	A	A	415	0.535	22.97
Hartford	090035015001	A	A	B	A	A	104	0.120	5.40
Hartford	090035015002	B	B	B	B	B	116	0.156	6.84
Hartford	090035017001	A	A	A	A	A	70	0.120	4.62
Hartford	090035018001	A	A	A	A	A	314	0.793	26.36

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Hartford	090035018002	A	A	B	A	A	40	0.132	5.89
Hartford	090035018003	A	A	B	A	A	159	0.300	13.04
Hartford	090035021001	A	A	A	A	A	100	0.089	7.35
Hartford	090035021002	A	A	A	A	A	207	0.444	34.27
Hartford	090035023001	B	A	B	A	A	0	0.000	0.00
Hartford	090035023002	A	B	C	A	B	0	0.000	0.00
Hartford	090035023003	B	B	C	B	B	0	0.000	0.00
Hartford	090035023004	B	B	B	B	B	0	0.000	0.00
Hartford	090035023005	B	B	B	B	B	0	0.000	0.00
Hartford	090035024001	B	A	C	A	B	0	0.000	0.00
Hartford	090035024002	B	B	C	B	B	0	0.000	0.00
Hartford	090035024003	A	B	C	A	B	0	0.000	0.00
Hartford	090035025001	C	A	C	C	B	0	#DIV/0!	#DIV/0!
Hartford	090035025002	A	B	C	A	B	60	0.068	2.92
Hartford	090035026001	B	B	A	A	A	0	0.000	0.00
Hartford	090035026002	B	B	B	B	B	0	0.000	0.00
Hartford	090035027001	A	B	A	A	A	0	0.000	0.00
Hartford	090035027002	A	A	A	A	A	138	0.174	9.06
Hartford	090035027003	A	A	A	A	A	75	0.135	7.35
Hartford	090035028001	A	A	A	A	A	78	0.096	4.53
Hartford	090035028002	B	A	A	A	A	105	0.285	12.38
Hartford	090035029001	A	A	A	A	A	0	0.000	0.00
Hartford	090035029002	A	A	A	A	A	612	1.131	80.00
Hartford	090035029003	B	B	A	B	B	226	0.444	18.62
Hartford	090035030001	A	A	A	A	A	351	0.397	21.12
Hartford	090035030002	A	A	A	A	A	0	0.000	0.00
Hartford	090035031001	A	A	A	A	A	217	0.223	16.33
Hartford	090035031002	A	A	A	A	A	54	0.194	16.77
Hartford	090035031003	A	A	A	A	A	16	0.038	2.26
Hartford	090035031004	A	B	A	A	A	122	0.135	13.54
Hartford	090035031005	A	A	A	A	A	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Hartford	090035033001	A	A	A	A	A	82	0.161	8.33
Hartford	090035033002	A	A	A	A	A	262	0.255	17.29
Hartford	090035035001	A	A	B	A	A	18	0.025	1.09
Hartford	090035037001	A	A	B	A	A	3	0.006	0.30
Hartford	090035037002	A	A	B	A	A	0	0.000	0.00
Hartford	090035038001	A	B	B	B	B	770	1.146	138.49
Hartford	090035039001	A	B	B	B	B	0	0.000	0.00
Hartford	090035039002	A	B	B	A	A	0	0.000	0.00
Hartford	090035039003	B	B	B	B	B	0	0.000	0.00
Hartford	090035039004	A	B	A	B	A	0	0.000	0.00
Hartford	090035039005	B	B	B	B	B	0	0.000	0.00
Hartford	090035040001	B	B	B	A	B	0	0.000	0.00
Hartford	090035040002	B	B	B	B	B	0	0.000	0.00
Hartford	090035040003	B	B	B	B	B	0	0.000	0.00
Hartford	090035041001	A	A	A	A	A	0	0.000	0.00
Hartford	090035042001	A	B	A	B	A	42	0.115	6.15
Hartford	090035042002	A	A	A	A	A	428	0.411	24.56
Hartford	090035042003	A	B	A	B	A	0	0.000	0.00
Hartford	090035042004	B	B	B	B	B	50	0.092	6.41
Hartford	090035043001	B	A	A	A	A	0	0.000	0.00
Hartford	090035043002	A	A	A	A	A	0	0.000	0.00
Hartford	090035045001	B	B	A	B	B	0	0.000	0.00
Hartford	090035045002	B	A	A	B	A	126	0.199	8.93
Hartford	090035045003	A	B	A	B	A	0	0.000	0.00
Hartford	090035048001	B	B	A	B	B	0	0.000	0.00
Hartford	090035048002	B	B	B	B	B	0	0.000	0.00
Hartford	090035048003	B	B	A	B	B	0	0.000	0.00
Hartford	090035048004	A	B	A	A	A	0	0.000	0.00
Hartford	090035049001	B	A	A	B	A	113	0.126	5.38
Hartford	090035049002	A	B	B	A	A	151	0.189	6.55
Hartford	090035244001	A	B	B	A	A	294	0.444	21.09

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Hartford	090035244002	A	B	A	A	A	133	0.186	7.32
Hartford	090035245011	B	B	A	B	B	0	0.000	0.00
Hartford	090035245012	B	B	A	B	B	8	0.025	1.24
Hartford	090035245013	B	B	B	B	B	0	0.000	0.00
Hartford	090035245021	A	B	B	B	B	0	0.000	0.00
Hartford	090035245022	A	B	B	B	B	473	0.536	26.15
Hartford	090035246001	A	B	A	B	A	0	0.000	0.00
Hartford	090035246002	A	A	A	A	A	70	0.149	8.20
Hartford	090035246003	A	A	A	A	A	187	0.310	17.76
Hartford	090035246004	A	A	A	A	A	157	1.236	55.09
Hartford	090035247001	A	B	A	B	A	1	0.003	0.15
Hartford	090035247002	B	B	A	B	B	0	0.000	0.00
Hartford	090035247003	A	B	A	A	A	113	0.208	8.53
Hebron	090135261011	F	F	F	F	F	0	0.000	0.00
Hebron	090135261012	F	A	F	F	D	58	0.043	1.63
Hebron	090135261021	F	F	F	F	F	0	0.000	0.00
Hebron	090135261022	F	F	F	F	F	0	0.000	0.00
Hebron	090135261023	A	F	F	F	D	0	0.000	0.00
Manchester	090035141011	C	C	D	C	C	0	0.000	0.00
Manchester	090035141012	D	D	F	D	D	1	0.002	0.10
Manchester	090035141021	A	B	C	A	B	0	0.000	0.00
Manchester	090035141022	C	C	C	C	C	0	0.000	0.00
Manchester	090035141023	C	C	C	C	C	16	0.013	0.62
Manchester	090035141024	C	C	B	C	C	290	0.330	16.58
Manchester	090035142001	A	C	B	C	B	181	0.314	16.22
Manchester	090035142002	C	A	A	A	A	25	0.061	3.08
Manchester	090035142003	C	C	C	C	C	0	0.000	0.00
Manchester	090035143001	C	C	C	C	C	0	0.000	0.00
Manchester	090035143002	C	C	C	C	C	0	0.000	0.00
Manchester	090035143003	A	A	B	A	A	0	0.000	0.00
Manchester	090035143004	A	B	B	C	B	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Manchester	090035143005	B	B	B	C	B	0	0.000	0.00
Manchester	090035144001	B	A	C	A	B	0	0.000	0.00
Manchester	090035144002	B	B	B	B	B	0	0.000	0.00
Manchester	090035144003	B	B	B	A	B	0	0.000	0.00
Manchester	090035144004	C	C	B	C	C	0	0.000	0.00
Manchester	090035144005	B	A	A	C	B	0	0.000	0.00
Manchester	090035145001	C	C	B	C	C	0	0.000	0.00
Manchester	090035145002	B	C	B	C	B	0	0.000	0.00
Manchester	090035145003	A	C	B	C	B	0	0.000	0.00
Manchester	090035145004	B	B	B	B	B	20	0.024	0.95
Manchester	090035146001	A	B	C	C	B	57	0.098	3.98
Manchester	090035146002	B	B	B	C	B	0	0.000	0.00
Manchester	090035146003	B	A	B	A	A	0	0.000	0.00
Manchester	090035146004	B	B	B	B	B	0	0.000	0.00
Manchester	090035146005	A	B	B	C	B	319	0.582	40.69
Manchester	090035147001	B	B	C	B	B	14	0.033	1.46
Manchester	090035147002	A	C	C	C	B	0	0.000	0.00
Manchester	090035147003	B	C	C	C	C	395	0.798	43.84
Manchester	090035147004	B	A	C	C	B	16	0.017	0.77
Manchester	090035148001	C	C	C	C	C	0	0.000	0.00
Manchester	090035148002	C	C	D	D	C	12	0.010	0.45
Manchester	090035149001	C	A	C	C	B	0	0.000	0.00
Manchester	090035149002	B	B	B	C	B	0	0.000	0.00
Manchester	090035149003	A	C	C	C	B	0	0.000	0.00
Manchester	090035150001	D	D	A	D	C	0	0.000	0.00
Manchester	090035150002	D	D	D	D	D	1	0.003	0.12
Manchester	090035150003	A	C	C	C	B	4	0.011	0.43
Manchester	090035151011	A	C	C	A	B	32	0.048	2.08
Manchester	090035151012	B	C	C	C	C	38	0.131	4.68
Manchester	090035151021	A	B	A	B	A	408	0.355	13.09
Manchester	090035151022	D	D	D	D	D	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Manchester	090035151023	D	D	C	D	D	1	0.001	0.05
Manchester	090035152001	F	F	F	F	F	0	0.000	0.00
Manchester	090035152002	F	F	F	F	F	0	0.000	0.00
Manchester	090035152003	A	D	D	D	C	2	0.005	0.28
Mansfield	090138811001	D	D	D	F	D	0	0.000	0.00
Mansfield	090138811002	D	F	F	A	D	0	0.000	0.00
Mansfield	090138811003	F	F	F	F	F	0	0.000	0.00
Mansfield	090138811004	F	A	F	F	D	0	0.000	0.00
Mansfield	090138812001	A	A	B	A	A	0	0.000	0.00
Mansfield	090138813001	A	D	C	D	C	0	0.000	0.00
Mansfield	090138813002	C	D	C	D	C	35	0.070	4.11
Mansfield	090138813003	F	F	F	F	F	0	0.000	0.00
Mansfield	090138813004	F	F	F	F	F	0	0.000	0.00
Mansfield	090138815001	A	A	F	D	C	140	0.291	30.17
Mansfield	090138815002	F	F	F	F	F	2	0.003	0.12
Mansfield	090138815003	F	F	F	F	F	0	0.000	0.00
Mansfield	090138815004	F	D	F	F	F	0	0.000	0.00
Marlborough	090035241001	D	D	F	D	D	0	0.000	0.00
Marlborough	090035241002	F	F	F	F	F	0	0.000	0.00
Marlborough	090035241003	D	A	F	D	C	0	0.000	0.00
Marlborough	090035241004	D	A	F	A	C	0	0.000	0.00
Marlborough	090035241005	F	A	F	F	D	24	0.027	1.00
New Britain	090034153001	B	B	A	B	B	4	0.007	0.31
New Britain	090034153002	C	B	A	C	B	6	0.012	0.45
New Britain	090034154001	B	B	A	C	B	1	0.002	0.09
New Britain	090034154002	A	B	B	A	A	89	0.120	4.79
New Britain	090034154003	D	B	B	C	C	3	0.007	0.39
New Britain	090034154004	C	B	B	C	B	62	0.127	7.20
New Britain	090034154005	C	A	B	C	B	4	0.010	0.45
New Britain	090034155001	D	B	B	C	C	3	0.010	0.39
New Britain	090034155002	C	C	B	C	C	13	0.034	1.81

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
New Britain	090034155003	C	B	B	C	B	4	0.007	0.31
New Britain	090034156001	B	B	B	C	B	231	0.388	21.06
New Britain	090034156002	A	C	B	C	B	9	0.015	0.51
New Britain	090034156003	A	C	B	A	B	2	0.003	0.11
New Britain	090034157001	C	C	B	A	B	48	0.127	6.68
New Britain	090034157002	A	C	B	C	B	12	0.015	0.65
New Britain	090034157003	C	C	B	C	C	6	0.021	1.07
New Britain	090034158001	C	A	A	B	B	7	0.015	0.86
New Britain	090034158002	C	C	B	C	C	1	0.005	0.14
New Britain	090034158003	B	B	A	C	B	8	0.016	0.65
New Britain	090034159001	B	B	A	A	A	72	0.173	8.96
New Britain	090034159002	C	B	B	B	B	18	0.047	2.44
New Britain	090034160001	B	C	B	A	B	5	0.011	0.56
New Britain	090034160002	C	C	B	C	C	4	0.009	0.35
New Britain	090034160003	C	A	B	C	B	58	0.044	2.17
New Britain	090034161001	B	C	B	C	B	116	0.187	6.70
New Britain	090034161002	B	B	A	B	B	111	0.217	11.51
New Britain	090034161003	C	C	B	C	C	23	0.021	0.90
New Britain	090034162001	B	C	A	C	B	1	0.001	0.08
New Britain	090034162002	A	B	A	C	B	89	0.326	13.61
New Britain	090034162003	B	C	A	C	B	70	0.154	6.40
New Britain	090034163001	B	B	A	C	B	8	0.014	0.65
New Britain	090034163002	B	B	A	B	B	275	0.329	18.26
New Britain	090034163003	A	B	A	B	A	4	0.013	0.49
New Britain	090034164001	A	C	B	A	B	5	0.009	0.41
New Britain	090034164002	D	D	C	D	D	0	0.000	0.00
New Britain	090034164003	C	C	C	D	C	1	0.003	0.09
New Britain	090034165001	C	C	B	C	C	1	0.005	0.20
New Britain	090034165002	C	C	B	C	C	6	0.013	0.44
New Britain	090034165003	A	C	B	A	B	217	0.537	19.27
New Britain	090034165004	B	C	B	C	B	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
New Britain	090034165005	A	A	B	A	A	13	0.027	1.26
New Britain	090034166001	C	C	B	C	C	384	0.397	19.48
New Britain	090034166002	C	B	A	C	B	1	0.003	0.14
New Britain	090034167001	B	C	B	C	B	161	0.388	15.96
New Britain	090034167002	B	C	C	C	C	72	0.276	12.61
New Britain	090034167003	B	C	B	C	B	2	0.004	0.14
New Britain	090034167004	B	C	B	C	B	9	0.014	0.53
New Britain	090034167005	A	A	B	A	A	305	0.664	41.11
New Britain	090034167006	A	D	D	A	B	1	0.003	0.10
New Britain	090034168001	B	C	A	C	B	9	0.013	0.60
New Britain	090034168002	B	C	B	C	B	7	0.011	0.50
New Britain	090034171001	B	A	A	A	A	222	0.314	20.85
New Britain	090034171002	B	B	A	A	A	76	0.232	18.05
New Britain	090034172001	A	B	A	B	A	154	0.192	9.51
New Britain	090034173001	A	B	B	C	B	0	0.000	0.00
New Britain	090034174001	B	B	A	C	B	151	0.154	9.47
New Britain	090034174002	A	C	A	C	B	3	0.006	0.31
New Britain	090034175001	B	C	B	C	B	6	0.010	0.42
New Britain	090034175002	B	C	B	C	B	1	0.002	0.08
New Britain	090034175003	A	C	A	A	A	4	0.004	0.21
Newington	090034941001	C	C	A	A	B	128	0.105	5.03
Newington	090034941002	C	C	A	C	B	0	0.000	0.00
Newington	090034941003	A	B	B	C	B	0	0.000	0.00
Newington	090034941004	C	C	B	C	C	0	0.000	0.00
Newington	090034942011	A	C	B	C	B	114	0.151	6.41
Newington	090034942012	C	C	B	C	C	0	0.000	0.00
Newington	090034942013	C	C	A	D	C	0	0.000	0.00
Newington	090034942021	D	D	C	D	D	0	0.000	0.00
Newington	090034942022	D	D	B	D	C	0	0.000	0.00
Newington	090034943001	C	C	B	C	C	0	0.000	0.00
Newington	090034943002	B	B	B	C	B	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Newington	090034943003	B	B	A	C	B	0	0.000	0.00
Newington	090034944001	B	B	B	C	B	0	0.000	0.00
Newington	090034944002	B	A	A	C	B	111	0.146	7.43
Newington	090034944003	B	A	B	C	B	59	0.075	3.28
Newington	090034945001	B	C	B	C	B	0	0.000	0.00
Newington	090034945002	A	C	B	C	B	0	0.000	0.00
Newington	090034945003	A	B	B	B	B	0	0.000	0.00
Newington	090034945004	B	B	A	B	B	0	0.000	0.00
Newington	090034946001	A	B	A	B	A	0	0.000	0.00
Newington	090034946002	A	B	A	A	A	154	0.171	8.30
Plainville	090034204001	C	D	C	D	C	16	0.043	2.20
Plainville	090034204002	A	D	F	F	D	0	0.000	0.00
Plainville	090034205001	C	C	C	D	C	9	0.013	0.46
Plainville	090034205002	C	C	B	D	C	45	0.055	3.07
Plainville	090034205003	D	D	C	D	D	0	0.000	0.00
Plainville	090034205004	C	A	A	C	B	0	0.000	0.00
Plainville	090034206001	C	A	B	C	B	0	0.000	0.00
Plainville	090034206002	A	C	B	C	B	32	0.054	2.26
Plainville	090034206003	F	F	F	F	F	120	0.122	6.85
Plainville	090034206004	C	C	B	C	C	5	0.016	0.69
Plainville	090034206005	A	C	B	C	B	0	0.000	0.00
Plainville	090034207001	C	C	C	D	C	0	0.000	0.00
Plainville	090034207002	C	C	C	D	C	0	0.000	0.00
Plainville	090034207003	C	C	A	A	B	0	0.000	0.00
Rocky Hill	090034901001	D	A	C	D	C	0	0.000	0.00
Rocky Hill	090034901002	C	C	B	C	C	70	0.076	3.89
Rocky Hill	090034901003	C	A	A	A	A	10	0.009	0.47
Rocky Hill	090034903021	F	F	D	F	F	0	0.000	0.00
Rocky Hill	090034903022	D	D	A	D	C	0	0.000	0.00
Rocky Hill	090034903023	C	D	B	D	C	0	0.000	0.00
Rocky Hill	090034903024	C	D	A	A	B	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Rocky Hill	090034903025	D	D	C	D	D	0	0.000	0.00
Rocky Hill	090035242001	C	C	B	C	C	0	0.000	0.00
Rocky Hill	090035242002	C	D	B	D	C	155	0.294	13.83
Rocky Hill	090035242003	A	A	C	D	B	23	0.036	1.94
Rocky Hill	090035242004	A	C	B	C	B	0	0.000	0.00
Rocky Hill	090035242005	C	C	A	A	B	0	0.000	0.00
Simsbury	090034661011	D	D	C	D	D	0	0.000	0.00
Simsbury	090034661012	D	A	D	D	C	0	0.000	0.00
Simsbury	090034661013	F	F	F	F	F	0	0.000	0.00
Simsbury	090034661021	D	D	A	D	C	0	0.000	0.00
Simsbury	090034661022	F	F	F	F	F	0	0.000	0.00
Simsbury	090034661023	F	F	F	F	F	0	0.000	0.00
Simsbury	090034661024	F	F	F	F	F	0	0.000	0.00
Simsbury	090034662011	F	F	D	F	F	0	0.000	0.00
Simsbury	090034662012	D	C	C	D	C	208	0.320	13.26
Simsbury	090034662021	F	F	F	F	F	0	0.000	0.00
Simsbury	090034662022	F	F	F	F	F	0	0.000	0.00
Simsbury	090034662023	F	F	F	F	F	0	0.000	0.00
Simsbury	090034663001	F	D	D	F	D	0	0.000	0.00
Simsbury	090034663002	A	A	A	D	B	0	0.000	0.00
Simsbury	090034663003	F	F	F	F	F	0	0.000	0.00
Simsbury	090034663004	D	C	C	D	C	0	0.000	0.00
Simsbury	090034663005	F	F	F	F	F	0	0.000	0.00
Simsbury	090034664001	F	D	D	F	D	0	0.000	0.00
Simsbury	090034664002	F	F	F	F	F	81	0.129	6.16
Somers	090135381001	F	F	F	F	F	0	#DIV/0!	#DIV/0!
Somers	090135382011	F	F	F	F	F	0	0.000	0.00
Somers	090135382012	F	F	F	F	F	0	0.000	0.00
Somers	090135382013	A	F	F	F	D	0	0.000	0.00
Somers	090135382014	F	F	F	F	F	0	0.000	0.00
Somers	090135382021	F	F	F	F	F	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Somers	090135382022	F	F	F	F	F	0	0.000	0.00
Somers	090135382023	F	A	F	F	D	146	0.268	11.43
South Windsor	090034871001	F	F	F	F	F	0	0.000	0.00
South Windsor	090034871002	A	A	F	D	C	0	0.000	0.00
South Windsor	090034871003	D	D	C	D	D	0	0.000	0.00
South Windsor	090034871004	F	D	F	D	D	0	0.000	0.00
South Windsor	090034872011	D	D	C	D	D	0	0.000	0.00
South Windsor	090034872012	F	F	F	F	F	30	0.073	3.30
South Windsor	090034872013	A	F	D	D	C	200	0.258	12.93
South Windsor	090034872021	F	F	F	F	F	1	0.001	0.04
South Windsor	090034872022	F	F	F	F	F	0	0.000	0.00
South Windsor	090034873001	D	A	C	C	C	0	0.000	0.00
South Windsor	090034873002	C	A	A	C	B	0	0.000	0.00
South Windsor	090034874001	C	C	B	C	C	0	0.000	0.00
South Windsor	090034874002	D	A	A	C	B	0	0.000	0.00
South Windsor	090034874003	C	C	C	C	C	0	0.000	0.00
South Windsor	090034875001	A	C	C	C	B	0	0.000	0.00
South Windsor	090034875002	D	A	A	A	B	196	0.143	6.31
South Windsor	090034875003	C	C	B	C	C	0	0.000	0.00
Southington	090034301001	F	A	F	A	C	40	0.051	1.95
Southington	090034301002	F	F	F	F	F	40	0.038	1.93
Southington	090034302011	F	F	F	F	F	0	0.000	0.00
Southington	090034302012	F	F	F	F	F	2	0.002	0.08
Southington	090034302021	F	F	F	F	F	1	0.001	0.05
Southington	090034302022	A	F	F	F	D	4	0.004	0.14
Southington	090034302031	F	F	F	F	F	1	0.002	0.07
Southington	090034302032	F	F	F	F	F	100	0.095	5.46
Southington	090034302033	A	F	F	F	D	0	0.000	0.00
Southington	090034303011	F	F	F	F	F	7	0.009	0.36
Southington	090034303012	F	F	F	F	F	0	0.000	0.00
Southington	090034303021	F	F	F	F	F	41	0.058	1.99

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Southington	090034303022	F	F	F	F	F	1	0.002	0.11
Southington	090034304001	F	A	D	D	C	1	0.001	0.04
Southington	090034304002	F	A	F	D	D	20	0.023	1.18
Southington	090034305001	F	F	F	F	F	6	0.007	0.30
Southington	090034305002	F	F	F	F	F	3	0.004	0.11
Southington	090034305003	F	F	F	F	F	5	0.006	0.22
Southington	090034306011	F	F	A	F	D	278	0.297	15.93
Southington	090034306012	F	F	F	F	F	1	0.002	0.06
Southington	090034306013	F	F	A	F	D	0	0.000	0.00
Southington	090034306021	F	F	F	F	F	1	0.001	0.06
Southington	090034306022	F	F	F	F	F	2	0.002	0.08
Stafford	090138901001	A	A	F	F	C	36	0.045	1.94
Stafford	090138901002	F	F	F	F	F	0	0.000	0.00
Stafford	090138901003	F	F	F	F	F	221	0.335	20.02
Stafford	090138902011	F	F	F	F	F	0	0.000	0.00
Stafford	090138902013	F	F	F	F	F	0	0.000	0.00
Stafford	090138902021	F	F	F	F	F	0	0.000	0.00
Stafford	090138902022	F	F	F	F	F	0	0.000	0.00
Stafford	090138902023	F	F	F	F	F	0	0.000	0.00
Suffield	090034771011	A	F	F	F	D	4	0.007	0.35
Suffield	090034771012	F	F	F	F	F	0	0.000	0.00
Suffield	090034771013	F	F	F	F	F	0	0.000	0.00
Suffield	090034771021	F	F	F	F	F	11	0.021	0.95
Suffield	090034771022	F	F	F	F	F	0	0.000	0.00
Suffield	090034771023	F	F	F	F	F	212	0.317	13.40
Suffield	090034771024	F	D	D	F	D	0	0.000	0.00
Suffield	090034772001	F	F	F	F	F	0	0.000	0.00
Suffield	090034772002	F	F	F	F	F	0	0.000	0.00
Suffield	090034772003	F	F	F	F	F	0	0.000	0.00
Tolland	090135331011	F	F	F	F	F	33	0.036	1.17
Tolland	090135331012	F	F	F	F	F	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Tolland	090135331013	F	F	F	F	F	0	0.000	0.00
Tolland	090135331014	A	A	D	D	B	30	0.060	2.33
Tolland	090135331015	F	F	F	F	F	28	0.032	1.23
Tolland	090135331021	A	D	D	D	C	0	0.000	0.00
Tolland	090135331022	F	F	A	F	D	0	0.000	0.00
Tolland	090135331023	F	F	F	F	F	1	0.001	0.05
Tolland	090135331024	F	F	F	F	F	0	0.000	0.00
Vernon	090135301001	C	B	C	C	C	122	0.242	11.05
Vernon	090135301002	D	C	C	C	C	0	0.000	0.00
Vernon	090135301003	C	B	C	C	C	0	0.000	0.00
Vernon	090135302001	C	A	C	A	B	72	0.135	7.05
Vernon	090135302002	C	A	B	A	B	0	0.000	0.00
Vernon	090135302003	F	F	F	F	F	9	0.010	0.51
Vernon	090135302004	C	A	B	A	B	300	0.421	21.23
Vernon	090135303011	A	C	B	C	B	148	0.129	7.21
Vernon	090135303012	C	B	B	C	B	461	0.437	23.50
Vernon	090135303013	A	C	B	A	B	0	0.000	0.00
Vernon	090135303021	C	C	A	C	B	0	0.000	0.00
Vernon	090135303022	A	A	C	D	B	31	0.037	1.49
Vernon	090135303023	C	C	B	A	B	0	0.000	0.00
Vernon	090135304001	F	F	F	F	F	0	0.000	0.00
Vernon	090135304002	D	C	D	D	D	190	0.280	15.09
Vernon	090135304003	F	F	F	F	F	0	0.000	0.00
Vernon	090135305001	C	C	B	C	C	83	0.232	9.66
Vernon	090135305002	D	A	C	D	C	101	0.107	4.40
Vernon	090135306001	F	F	F	F	F	1	0.002	0.07
Vernon	090135306002	F	A	D	D	C	2	0.004	0.20
West Hartford	090034961001	B	A	A	B	A	22	0.040	1.79
West Hartford	090034961002	B	A	A	A	A	1	0.003	0.13
West Hartford	090034961003	B	A	A	B	A	0	0.000	0.00
West Hartford	090034962001	B	B	A	B	B	96	0.298	15.02

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
West Hartford	090034962002	C	C	B	C	C	9	0.030	0.92
West Hartford	090034962003	B	B	A	B	B	6	0.023	0.90
West Hartford	090034962004	B	B	A	B	B	5	0.009	0.47
West Hartford	090034962005	A	B	A	B	A	8	0.020	0.80
West Hartford	090034963001	B	B	A	B	B	7	0.017	0.66
West Hartford	090034963002	B	B	A	B	B	6	0.024	1.03
West Hartford	090034963003	B	B	A	B	B	7	0.019	1.06
West Hartford	090034963004	A	B	B	B	B	1	0.002	0.08
West Hartford	090034964001	C	C	B	C	C	1	0.003	0.10
West Hartford	090034964002	A	B	A	A	A	8	0.028	1.43
West Hartford	090034964003	A	C	B	C	B	2	0.007	0.22
West Hartford	090034964004	B	B	A	B	B	3	0.013	0.76
West Hartford	090034965001	B	A	A	B	A	1	0.002	0.12
West Hartford	090034965002	A	B	B	B	B	1	0.002	0.08
West Hartford	090034965003	B	B	B	B	B	0	0.000	0.00
West Hartford	090034966001	C	C	A	C	B	2	0.003	0.13
West Hartford	090034966002	C	C	B	C	C	4	0.008	0.36
West Hartford	090034967001	B	B	A	A	A	2	0.003	0.13
West Hartford	090034967002	A	B	A	B	A	7	0.028	1.38
West Hartford	090034967003	B	B	A	B	B	13	0.032	1.77
West Hartford	090034967004	B	B	A	B	B	8	0.018	0.74
West Hartford	090034968001	B	B	A	B	B	25	0.054	2.01
West Hartford	090034968002	B	B	A	A	A	12	0.030	1.23
West Hartford	090034968003	A	B	A	B	A	17	0.033	1.52
West Hartford	090034969001	B	B	A	A	A	0	0.000	0.00
West Hartford	090034969002	B	B	A	A	A	8	0.020	1.02
West Hartford	090034969003	B	B	A	B	B	16	0.059	3.83
West Hartford	090034969004	A	B	A	A	A	144	0.248	13.04
West Hartford	090034969005	B	B	A	B	B	5	0.011	0.44
West Hartford	090034969006	B	A	A	A	A	1	0.003	0.15
West Hartford	090034969007	B	B	A	B	B	10	0.018	0.80

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
West Hartford	090034970001	B	B	B	B	B	0	0.000	0.00
West Hartford	090034970002	B	B	B	C	B	4	0.012	0.46
West Hartford	090034970003	B	B	B	C	B	5	0.011	0.38
West Hartford	090034970004	B	B	A	B	B	6	0.013	0.41
West Hartford	090034971001	A	B	A	B	A	0	0.000	0.00
West Hartford	090034971002	A	B	A	B	A	2	0.006	0.26
West Hartford	090034971003	B	B	A	A	A	3	0.008	0.36
West Hartford	090034971004	B	B	A	B	B	2	0.003	0.21
West Hartford	090034972001	B	B	B	B	B	1	0.003	0.12
West Hartford	090034972002	A	B	B	B	B	104	0.234	12.26
West Hartford	090034973001	A	A	B	A	A	0	0.000	0.00
West Hartford	090034973002	B	B	B	B	B	0	0.000	0.00
West Hartford	090034973003	B	B	B	C	B	0	0.000	0.00
West Hartford	090034973004	A	B	B	C	B	5	0.017	0.59
West Hartford	090034973005	A	B	B	A	A	71	0.100	5.27
West Hartford	090034974001	A	B	A	A	A	3	0.008	0.31
West Hartford	090034974002	C	C	B	C	C	10	0.021	0.76
West Hartford	090034974003	A	B	A	B	A	0	0.000	0.00
West Hartford	090034974004	B	C	C	C	C	3	0.010	0.39
West Hartford	090034975001	B	A	A	B	A	152	0.248	17.88
West Hartford	090034975002	A	C	B	C	B	0	0.000	0.00
West Hartford	090034975003	B	B	B	B	B	5	0.009	0.32
West Hartford	090034975004	A	B	B	C	B	0	0.000	0.00
West Hartford	090034976001	B	B	A	B	B	2	0.006	0.30
West Hartford	090034976002	B	B	A	A	A	5	0.014	0.58
West Hartford	090034976003	A	C	B	C	B	5	0.016	0.70
West Hartford	090034977001	D	D	C	D	D	0	0.000	0.00
West Hartford	090034977002	C	C	C	C	C	0	0.000	0.00
West Hartford	090034977003	C	C	C	C	C	1	0.003	0.10
West Hartford	090034977004	C	D	C	C	C	0	0.000	0.00
Wethersfield	090034921001	A	B	B	C	B	7	0.013	0.56

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Wethersfield	090034921002	B	B	B	C	B	0	0.000	0.00
Wethersfield	090034921003	C	A	C	C	B	0	0.000	0.00
Wethersfield	090034922001	A	A	B	B	A	75	0.155	7.80
Wethersfield	090034922002	B	B	B	B	B	30	0.052	1.94
Wethersfield	090034922003	B	C	B	C	B	168	0.503	25.57
Wethersfield	090034922004	A	C	C	C	B	1	0.003	0.11
Wethersfield	090034923001	B	B	B	B	B	0	0.000	0.00
Wethersfield	090034923002	B	B	B	B	B	0	0.000	0.00
Wethersfield	090034923003	A	A	B	B	A	0	0.000	0.00
Wethersfield	090034923004	C	C	A	C	B	83	0.117	7.33
Wethersfield	090034923005	A	A	B	B	A	28	0.059	2.27
Wethersfield	090034924001	A	C	C	C	B	0	0.000	0.00
Wethersfield	090034924002	C	C	B	C	C	0	0.000	0.00
Wethersfield	090034925001	C	C	C	C	C	0	0.000	0.00
Wethersfield	090034925002	A	C	C	C	B	0	0.000	0.00
Wethersfield	090034926001	B	B	A	C	B	282	0.447	28.92
Wethersfield	090034926002	B	C	B	C	B	113	0.149	7.09
Wethersfield	090034926003	C	C	B	C	C	0	0.000	0.00
Wethersfield	090034926004	A	D	C	C	C	0	0.000	0.00
Wethersfield	090034926005	C	F	C	D	D	0	0.000	0.00
Wethersfield	090034926006	D	D	C	D	D	0	0.000	0.00
Willington	090138401001	F	F	F	F	F	0	0.000	0.00
Willington	090138401002	F	F	F	F	F	160	0.318	13.41
Willington	090138401003	F	F	F	F	F	0	0.000	0.00
Willington	090138401004	F	A	F	F	D	0	0.000	0.00
Willington	090138401005	F	F	F	F	F	0	0.000	0.00
Windsor	090034731001	C	C	D	A	C	2	0.005	0.16
Windsor	090034731002	C	C	C	C	C	2	0.004	0.12
Windsor	090034731003	A	D	F	D	C	1	0.002	0.07
Windsor	090034731004	D	C	C	D	C	0	0.000	0.00
Windsor	090034731005	D	A	F	D	C	0	0.000	0.00

TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Windsor	090034734001	C	A	B	C	B	100	0.212	13.44
Windsor	090034734002	C	C	A	C	B	0	0.000	0.00
Windsor	090034735011	C	D	C	D	C	0	0.000	0.00
Windsor	090034735012	D	C	B	D	C	0	0.000	0.00
Windsor	090034735013	D	C	C	D	C	0	0.000	0.00
Windsor	090034735021	D	D	D	D	D	1	0.002	0.07
Windsor	090034735022	A	C	B	C	B	0	0.000	0.00
Windsor	090034735023	A	C	A	A	A	0	0.000	0.00
Windsor	090034736011	D	D	C	D	D	0	0.000	0.00
Windsor	090034736012	A	D	C	D	C	0	0.000	0.00
Windsor	090034736013	D	D	C	D	D	0	0.000	0.00
Windsor	090034736021	C	C	B	C	C	0	0.000	0.00
Windsor	090034736022	C	A	A	A	A	0	0.000	0.00
Windsor	090034737001	A	C	B	A	B	0	0.000	0.00
Windsor	090034737002	A	C	B	A	B	0	0.000	0.00
Windsor	090034737003	C	C	B	C	C	0	0.000	0.00
Windsor	090034737004	C	B	A	C	B	1	0.006	0.24
Windsor	090034737005	C	B	B	A	B	3	0.008	0.23
Windsor	090034737006	C	B	B	C	B	55	0.100	4.21
Windsor	090034737007	C	B	A	C	B	2	0.007	0.46
Windsor	090034738001	B	A	B	B	B	9	0.019	0.70
Windsor	090034738002	B	A	B	B	B	4	0.014	0.80
Windsor Locks	090034761001	A	A	D	A	B	0	0.000	0.00
Windsor Locks	090034761002	D	A	D	D	C	97	0.155	7.93
Windsor Locks	090034761003	D	C	C	D	C	0	0.000	0.00
Windsor Locks	090034762001	D	A	D	D	C	0	0.000	0.00
Windsor Locks	090034762002	A	C	C	D	C	0	0.000	0.00
Windsor Locks	090034763001	C	C	B	C	C	0	0.000	0.00
Windsor Locks	090034763002	A	F	F	F	D	0	0.000	0.00
Windsor Locks	090034763003	C	D	C	C	C	0	0.000	0.00
Windsor Locks	090034763004	D	D	C	D	D	40	0.082	3.01

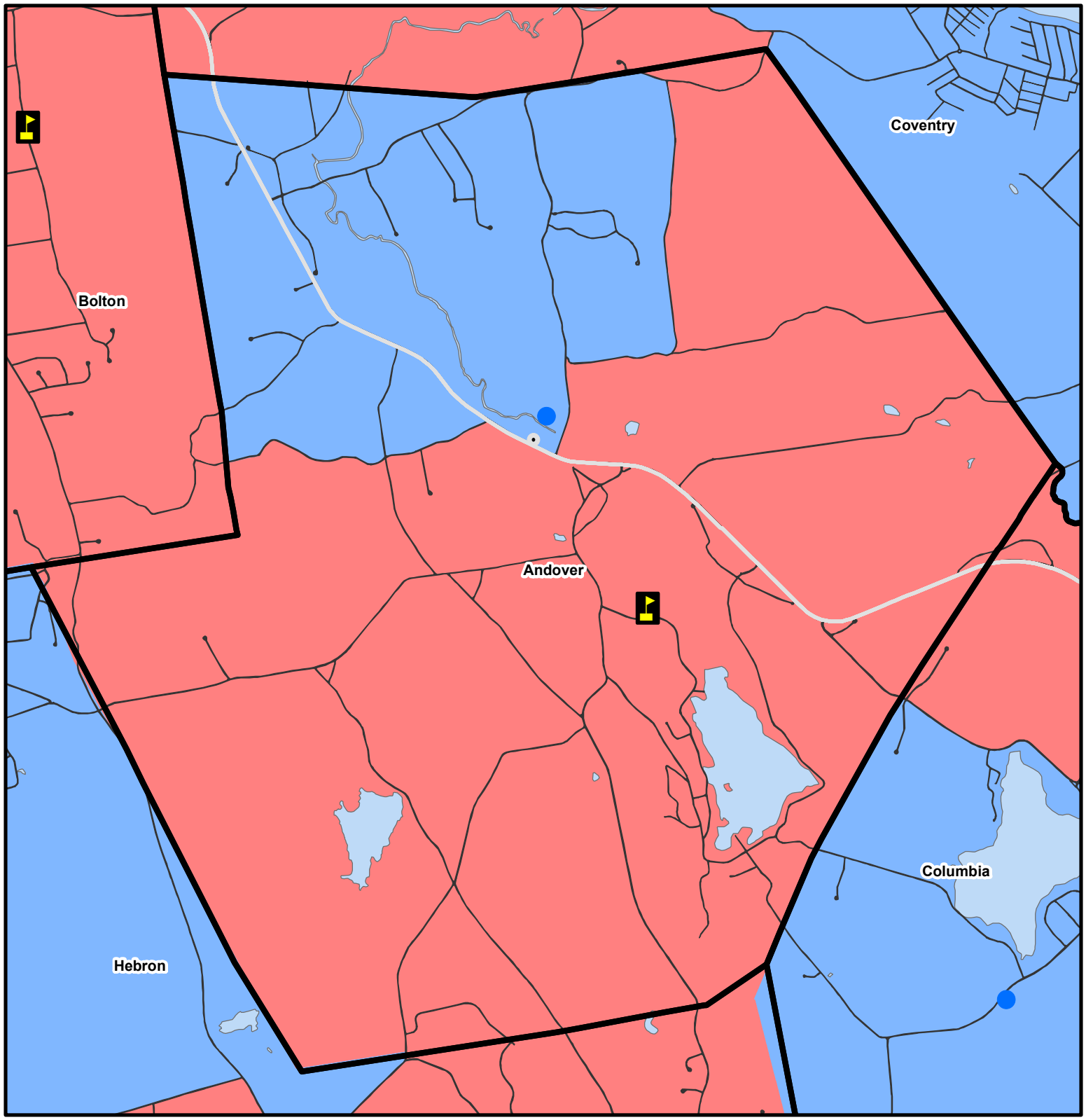
TOWN	GEOID	Education Grade	Government Services Grade	Fresh Grocery Grade	Healthcare Grade	Average Grade	Subsidized Housing Units	Subsidized Units Per Capita	% Of All Housing Units
Windsor Locks	090039800001	C	A	C	D	C	0	#DIV/0!	#DIV/0!

Appendix B: Maps of All Transit Access Scores

B.1 Notes on Grading System

The maps in Appendix B show the transit access grades for point scores (subsidized housing units) and zone scores (block group). Grades are calculated as described in section 4.2 and calibrated on the system wide raw scores. The transit and road network are also represented in the maps to show how their location influence the access grades for point locations and zones.

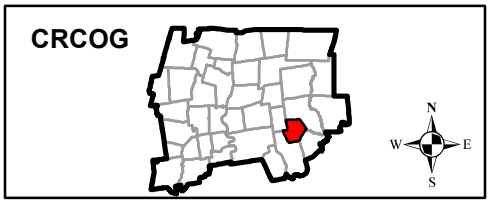
B.2 Maps of Point and Zone Transit Access Scores for Education Facilities



Andover

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

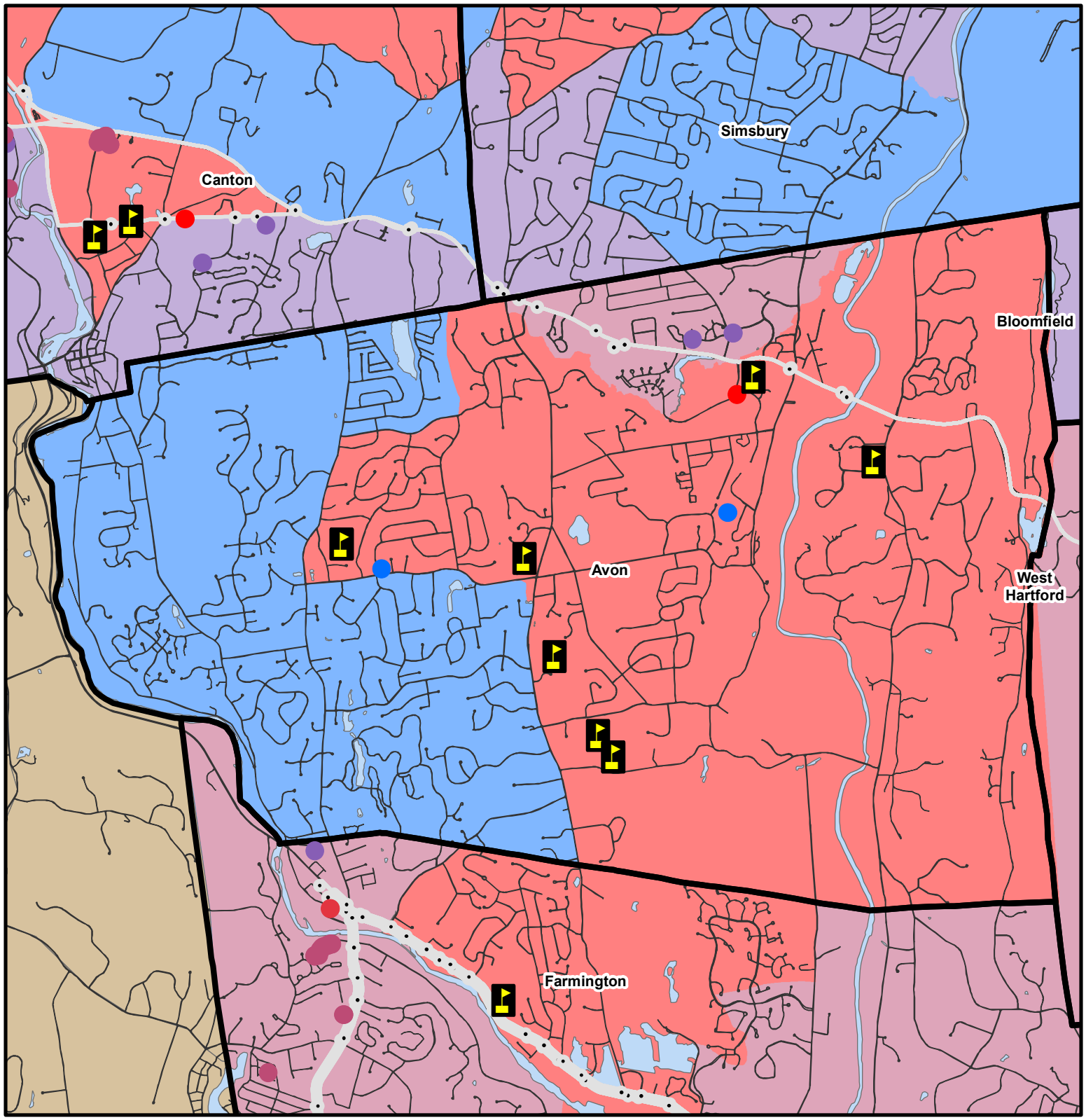
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

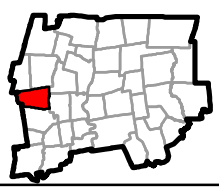
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Avon

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

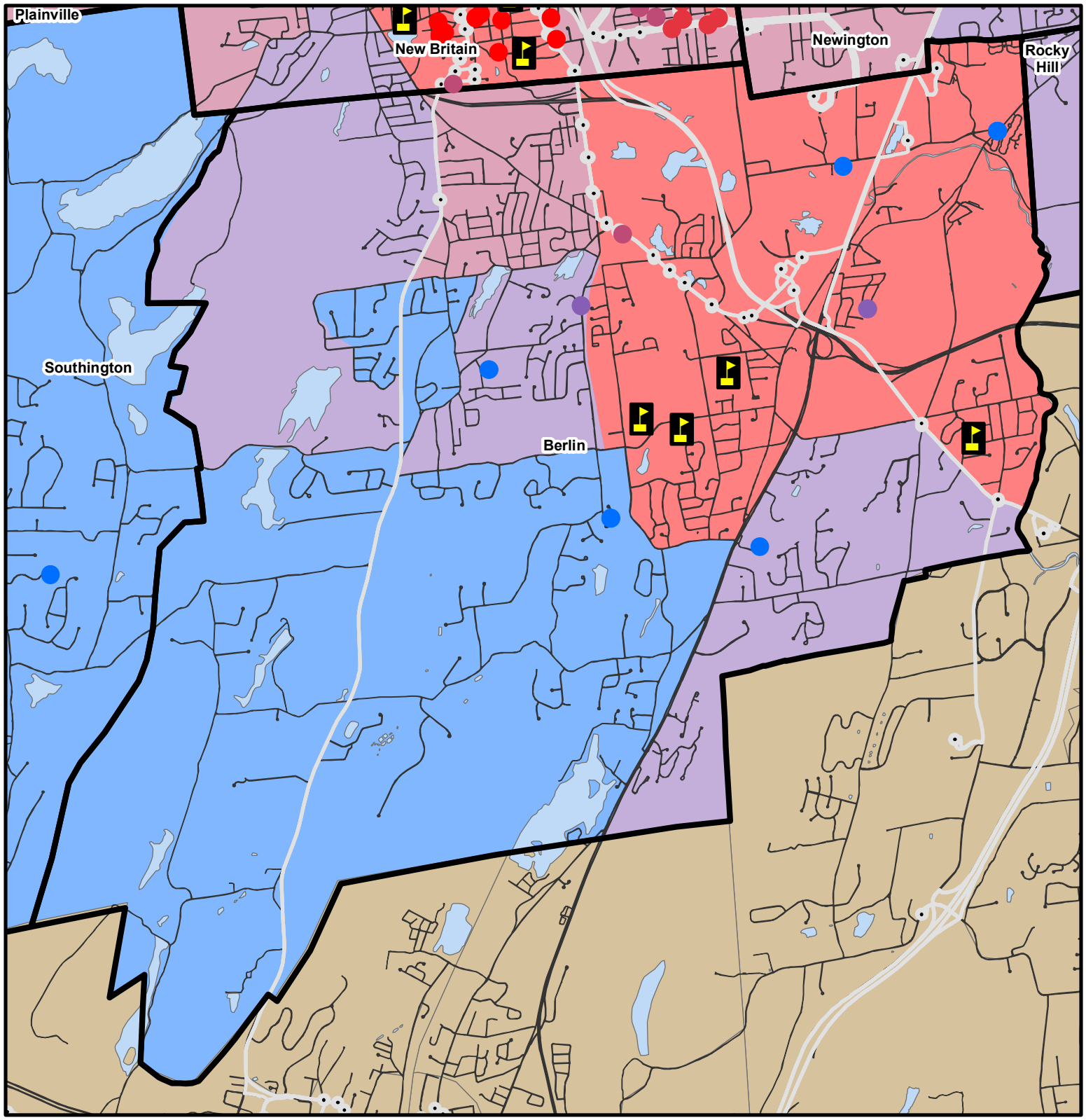
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

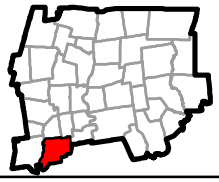
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Berlin

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

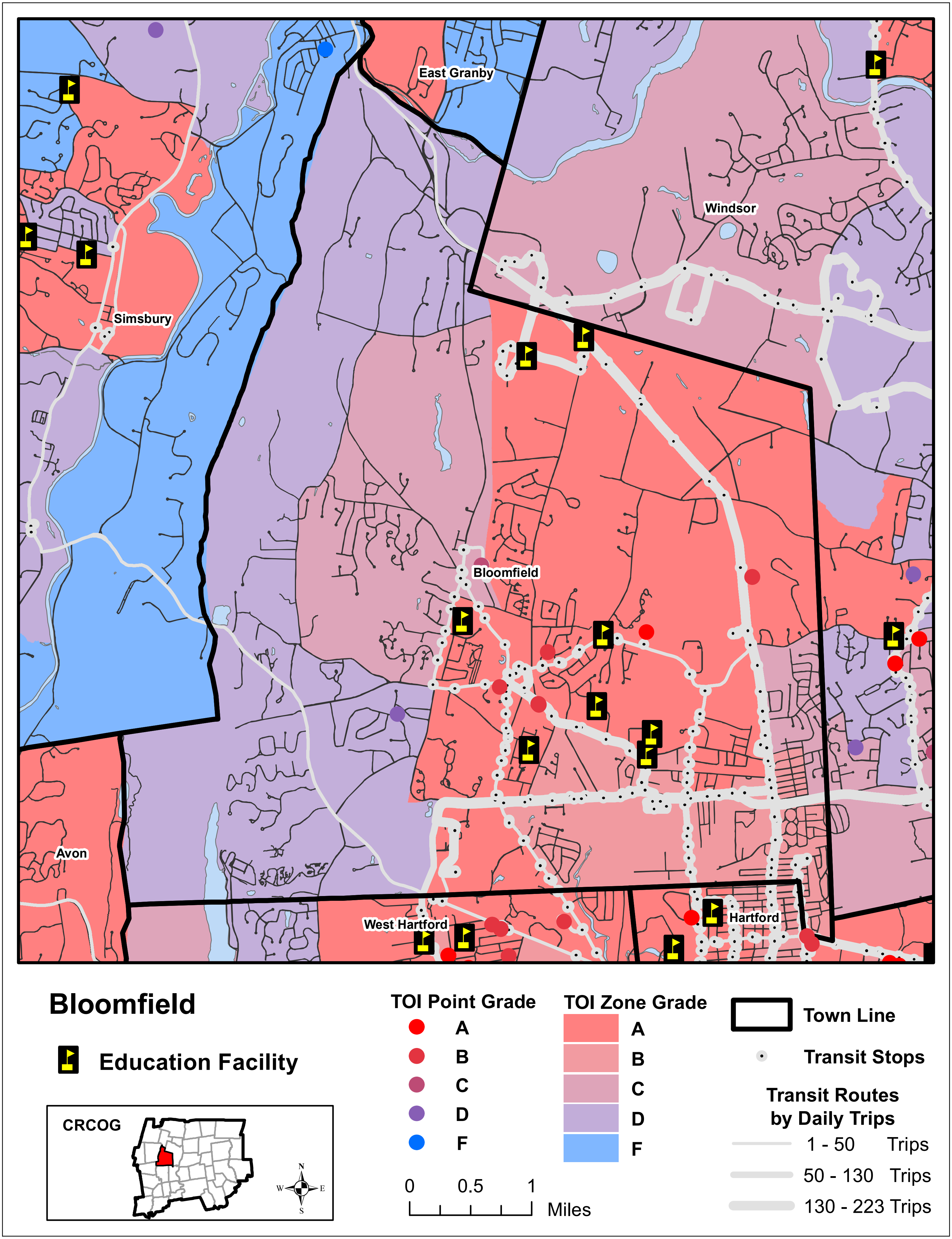
0 0.5 1 Miles

Town Line

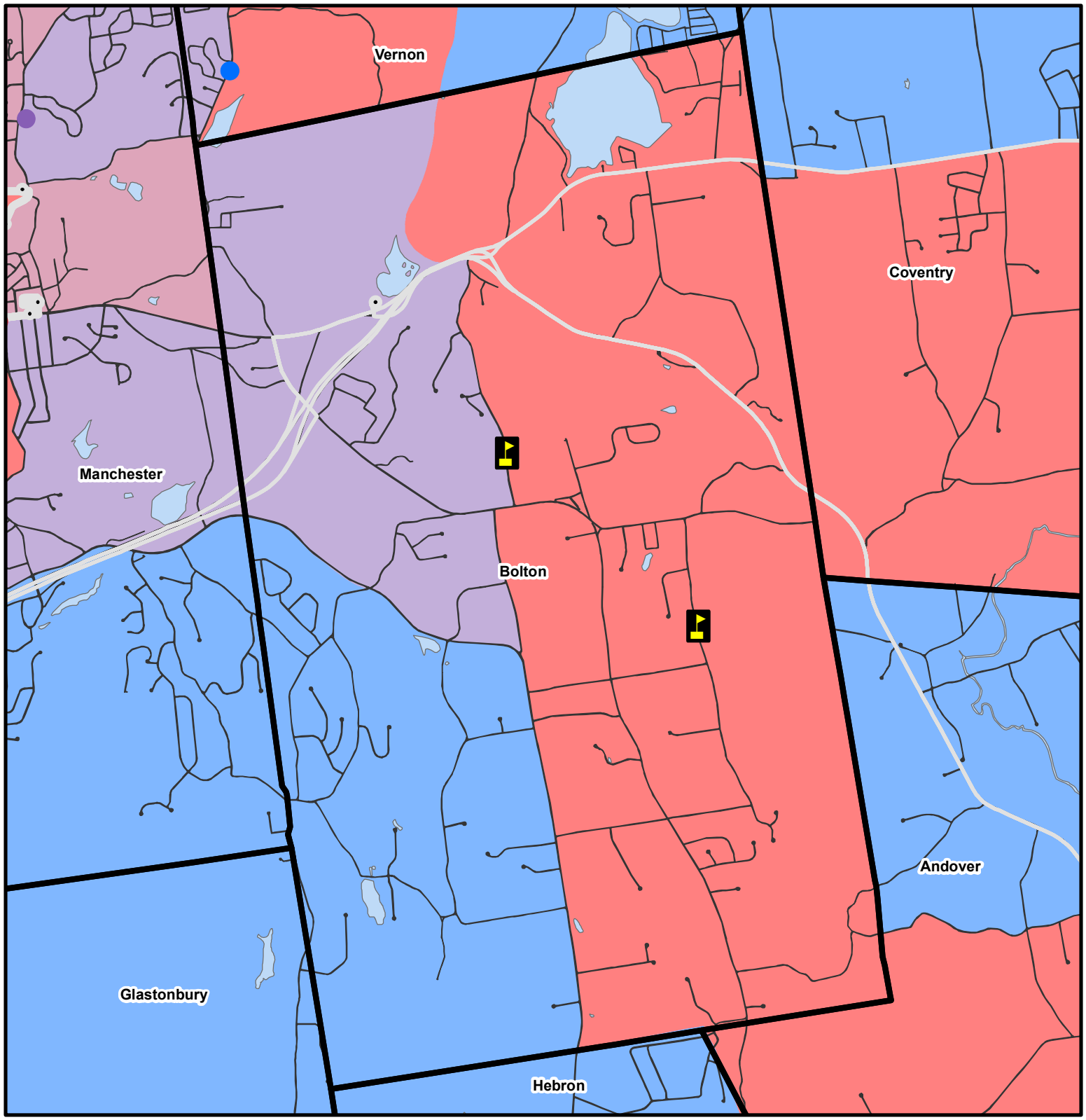
Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



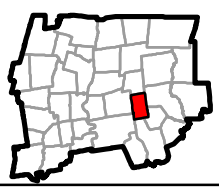
East Granby
Windsor
Simsbury
Bloomfield
Avon
West Hartford
Hartford
Bloomfield
Education Facility
CRCOG
N
W
E
S
TOI Point Grade
A
B
C
D
F
0
0.5
1
Miles
TOI Zone Grade
A
B
C
D
F
Town Line
Transit Stops
Transit Routes by Daily Trips
1 - 50 Trips
50 - 130 Trips
130 - 223 Trips



Bolton

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

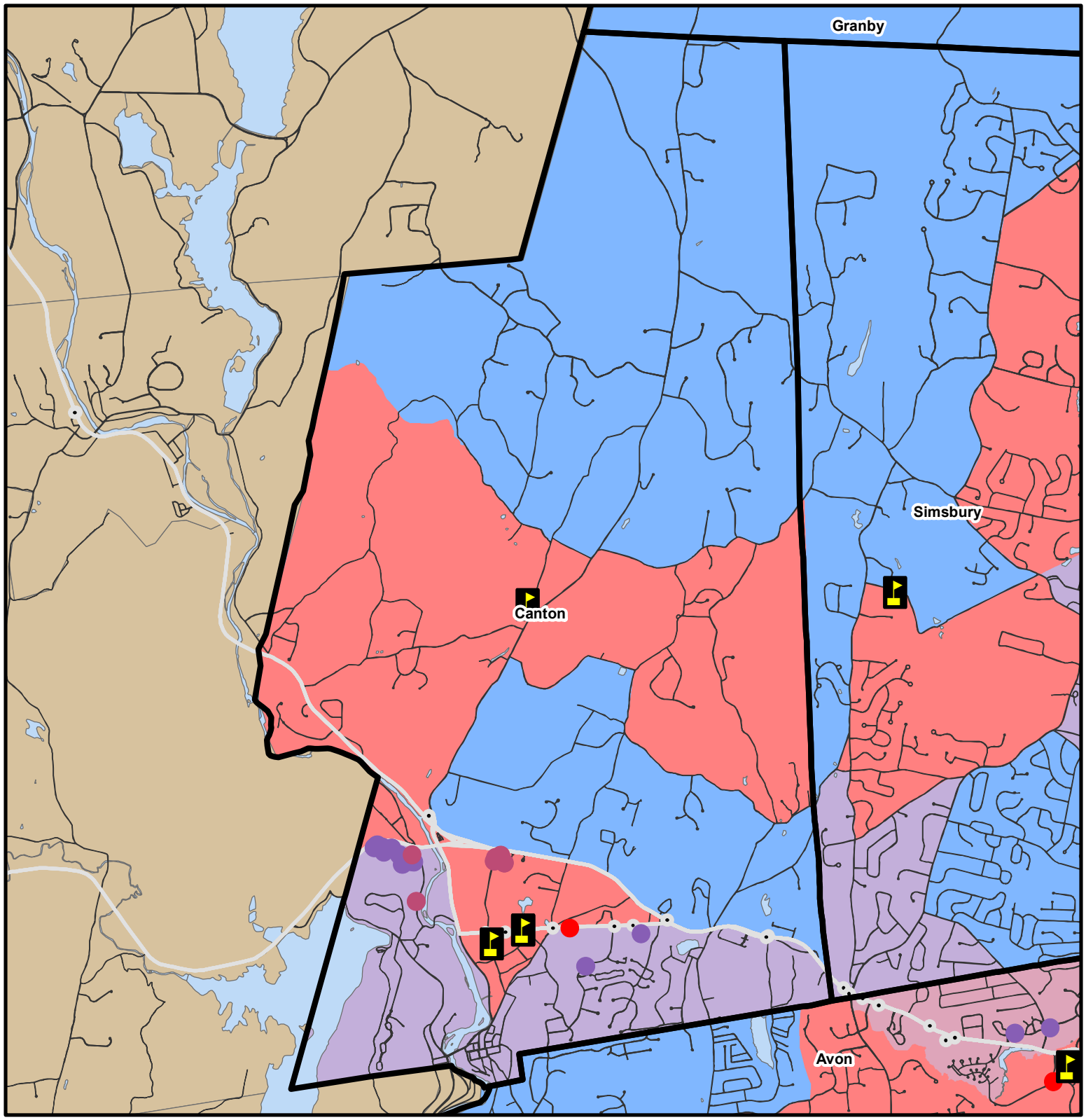
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

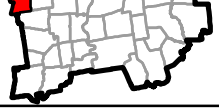
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Canton

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

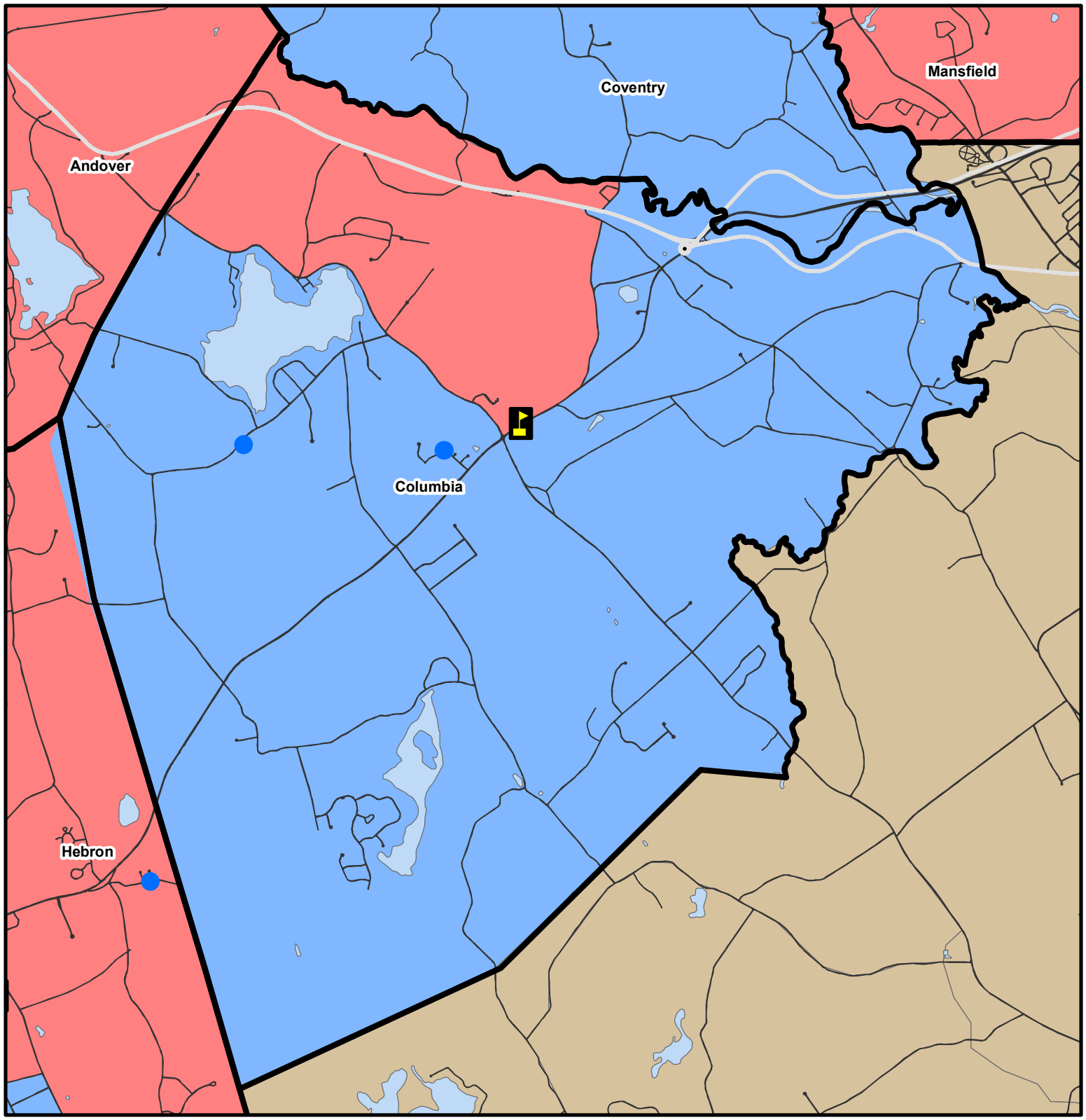
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

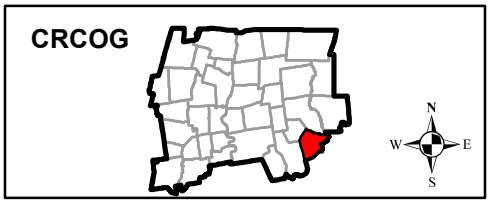
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Columbia

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

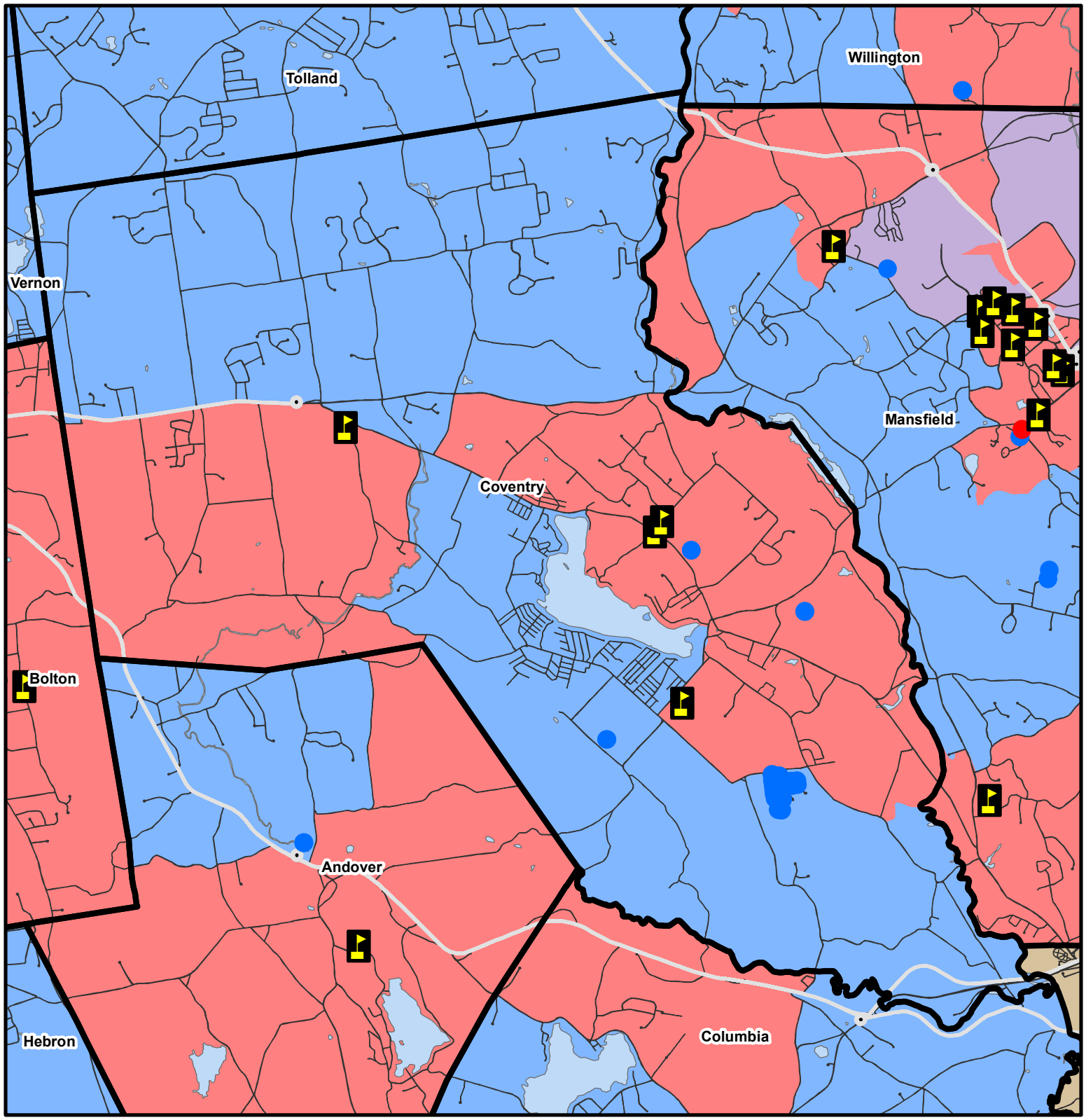
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

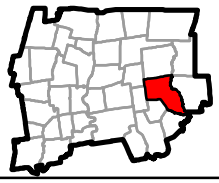
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Coventry

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

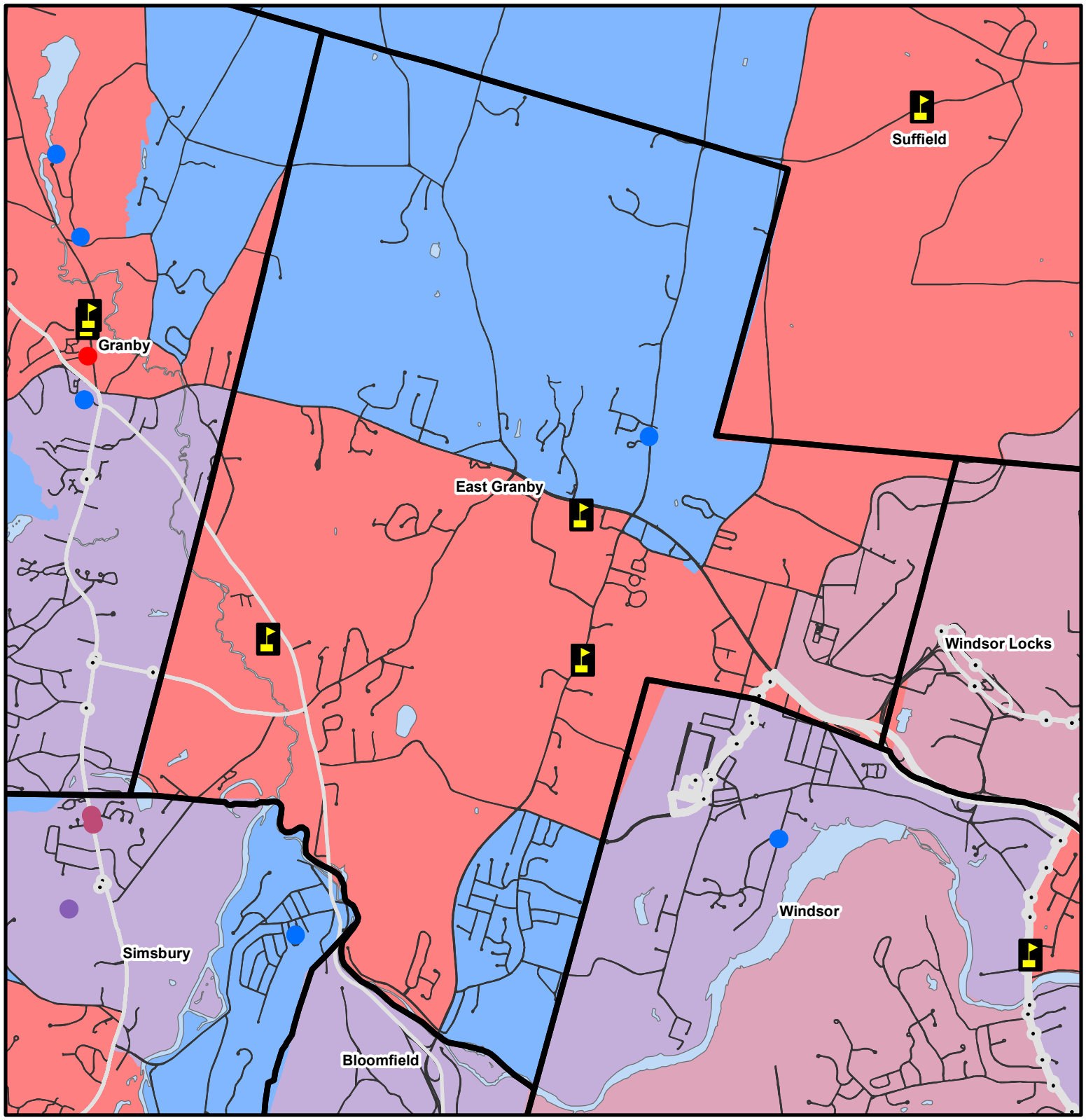
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

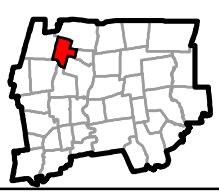
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



East Granby

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

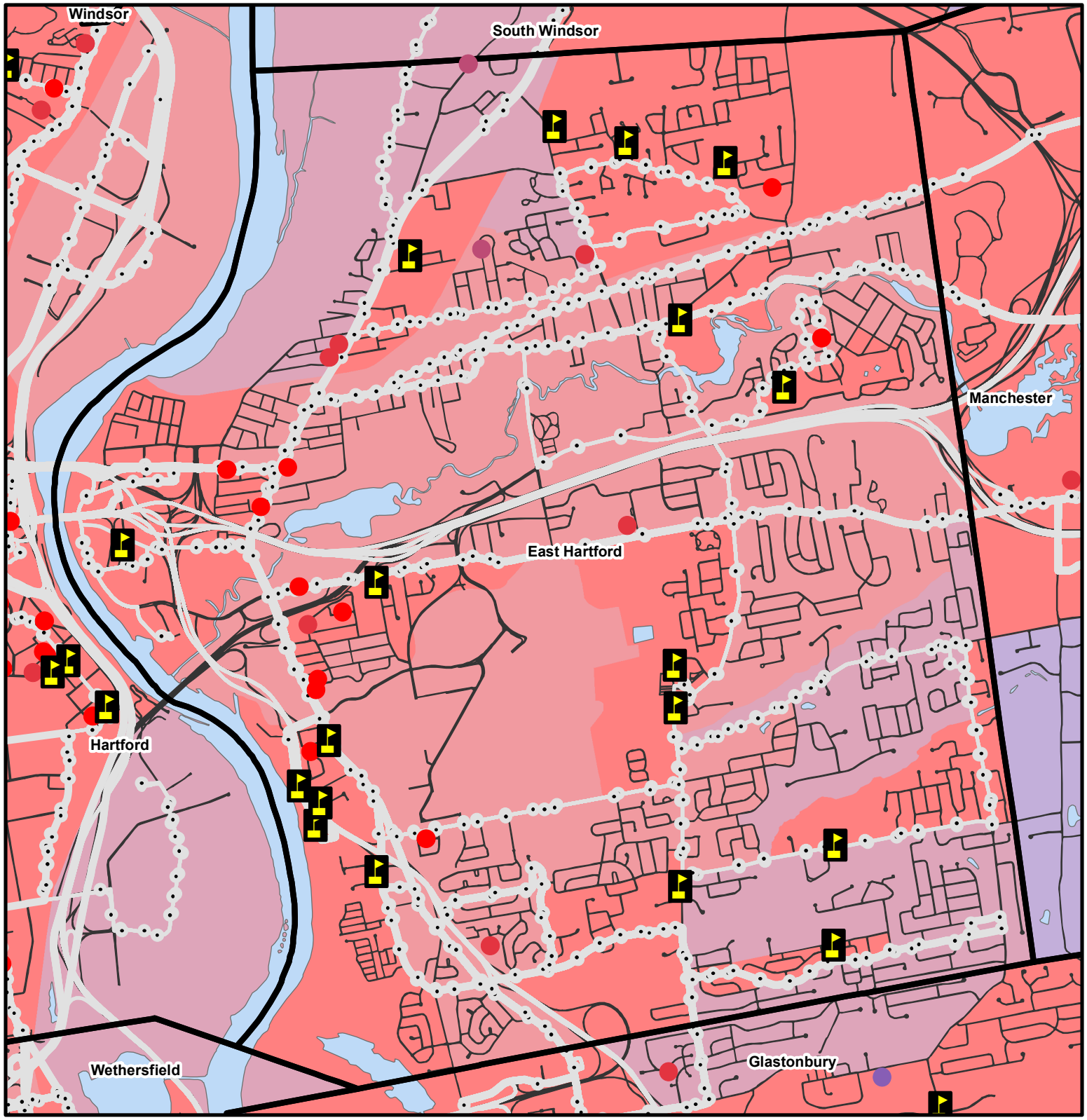
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

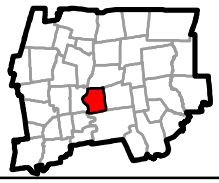
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



East Hartford

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

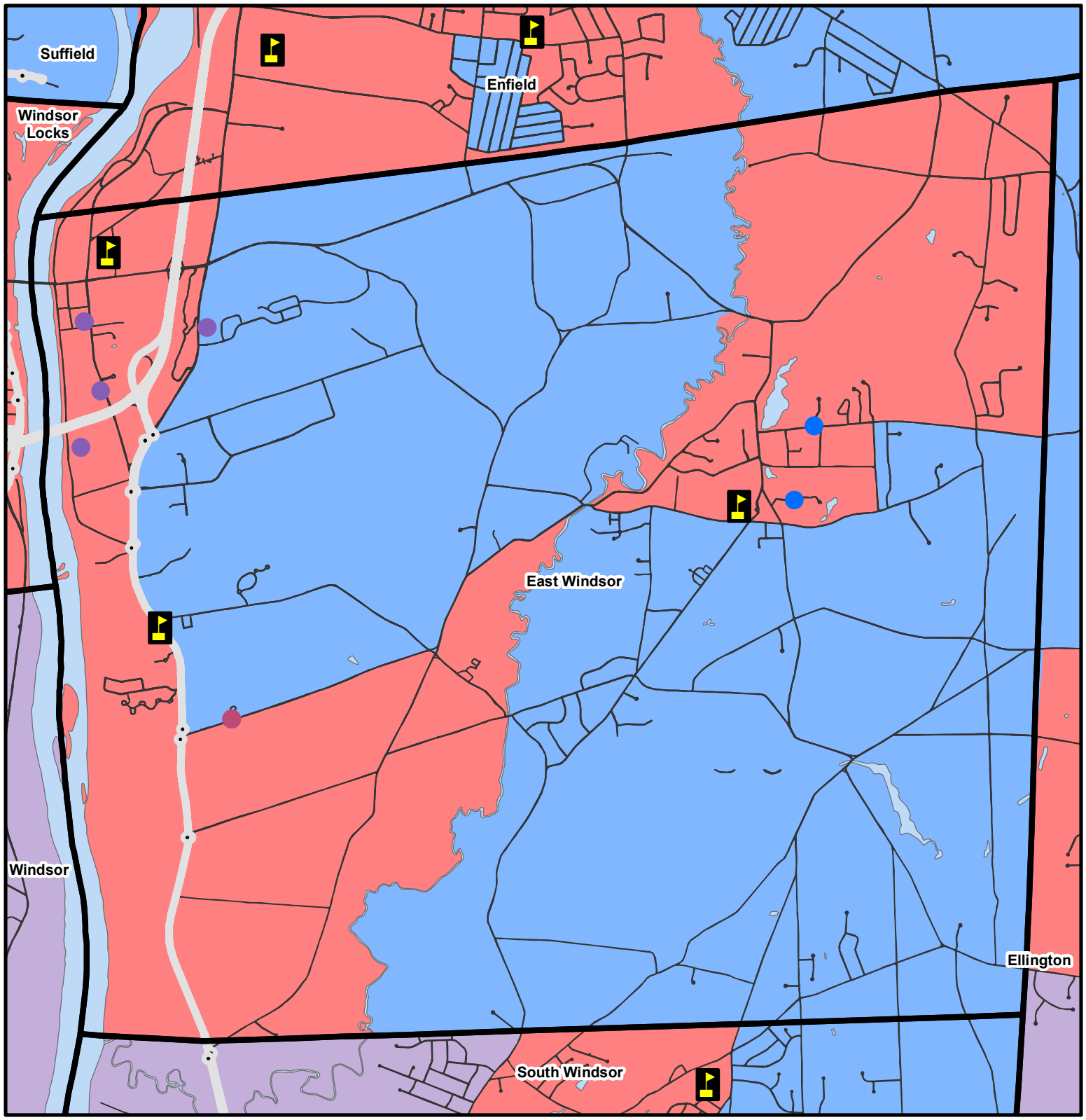
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

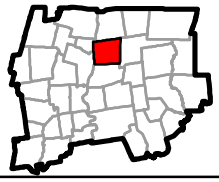
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



East Windsor

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

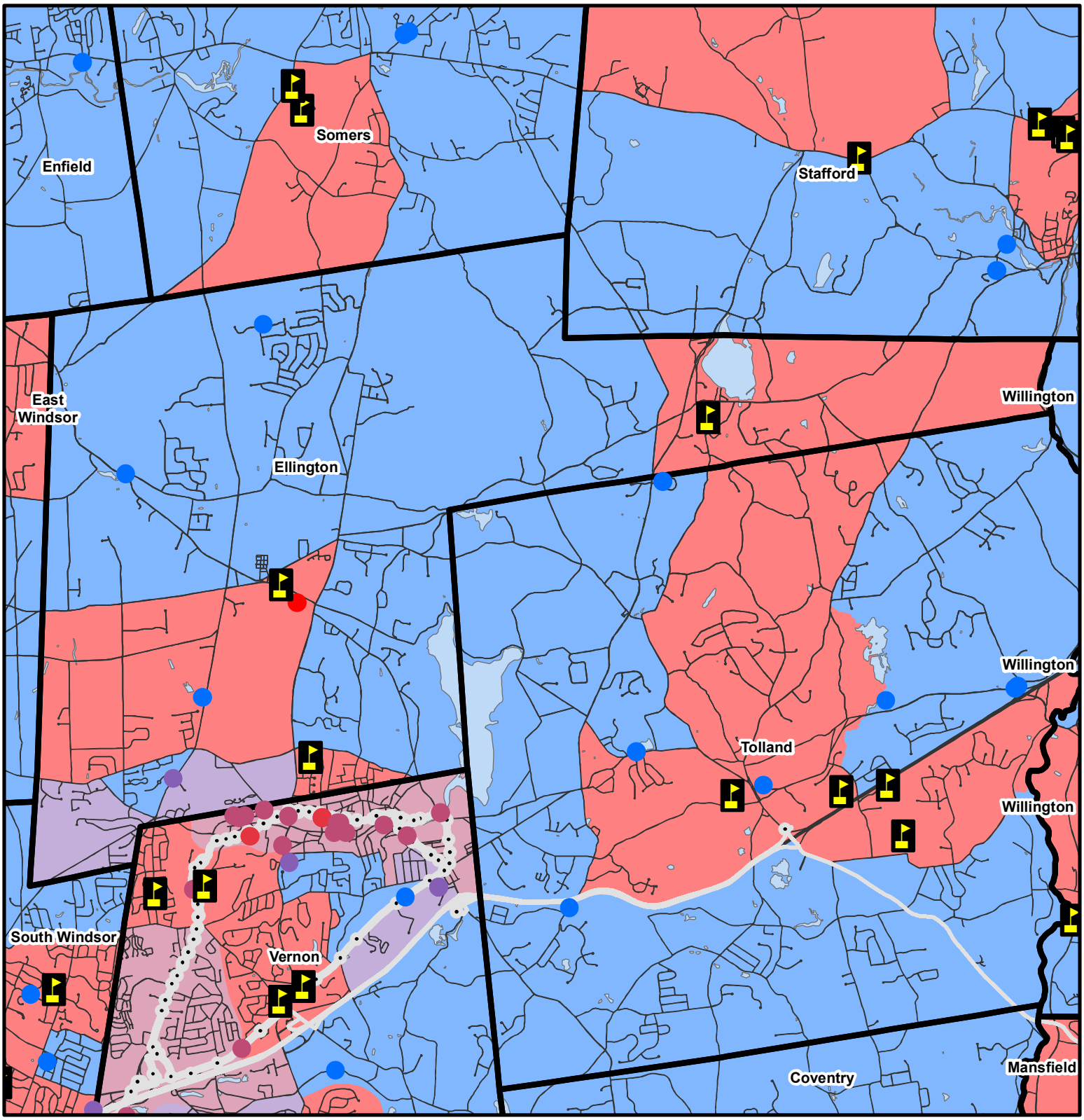
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Ellington

Education Facility

CRCOG

TOI Point Grade
A
B
C
D
F

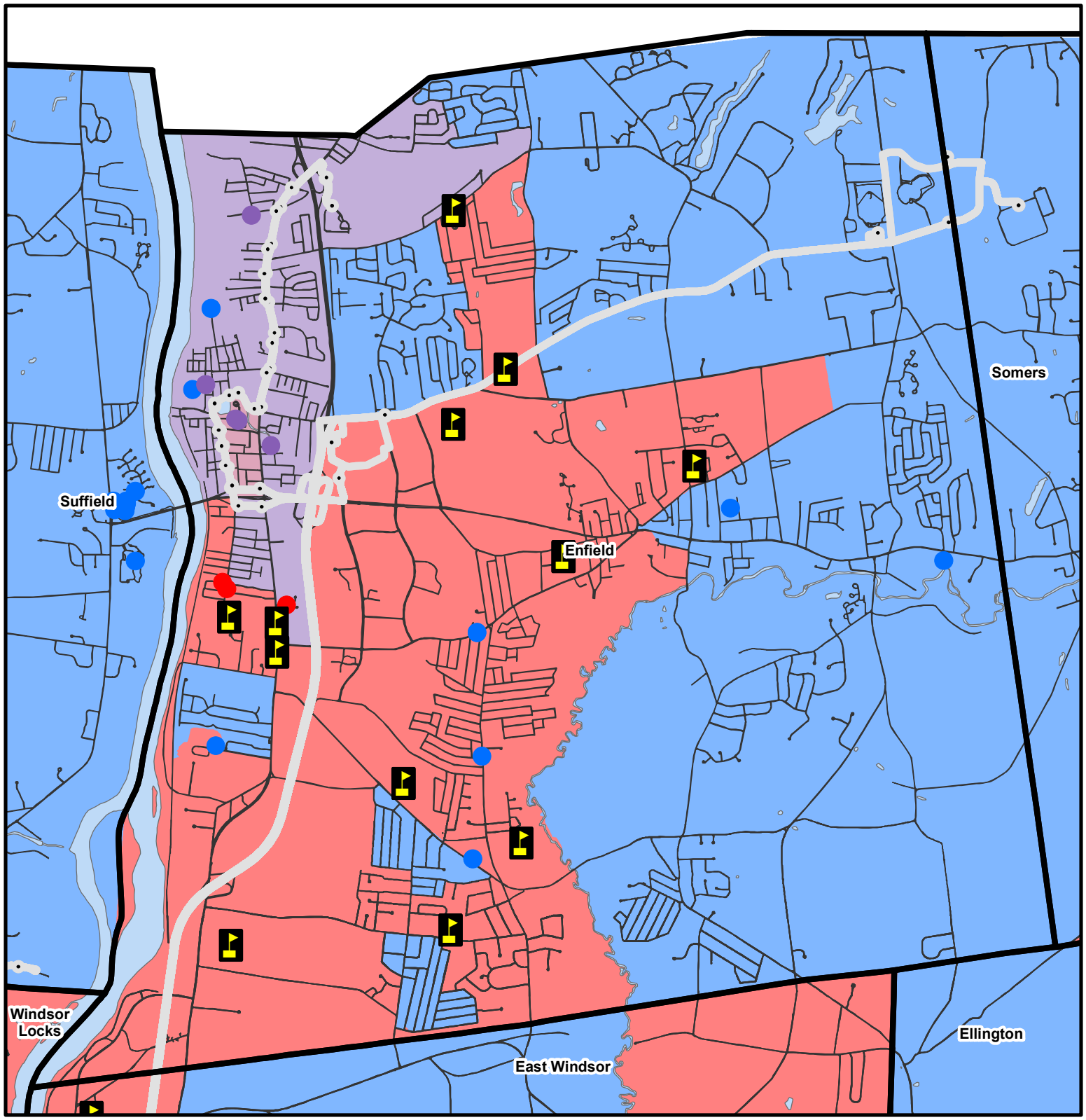
TOI Zone Grade
A
B
C
D
F

0 0.5 1
Miles

Town Line

Transit Stops

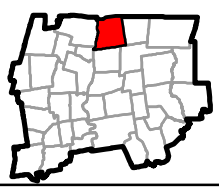
Transit Routes by Daily Trips
1 - 50 Trips
50 - 130 Trips
130 - 223 Trips



Enfield

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

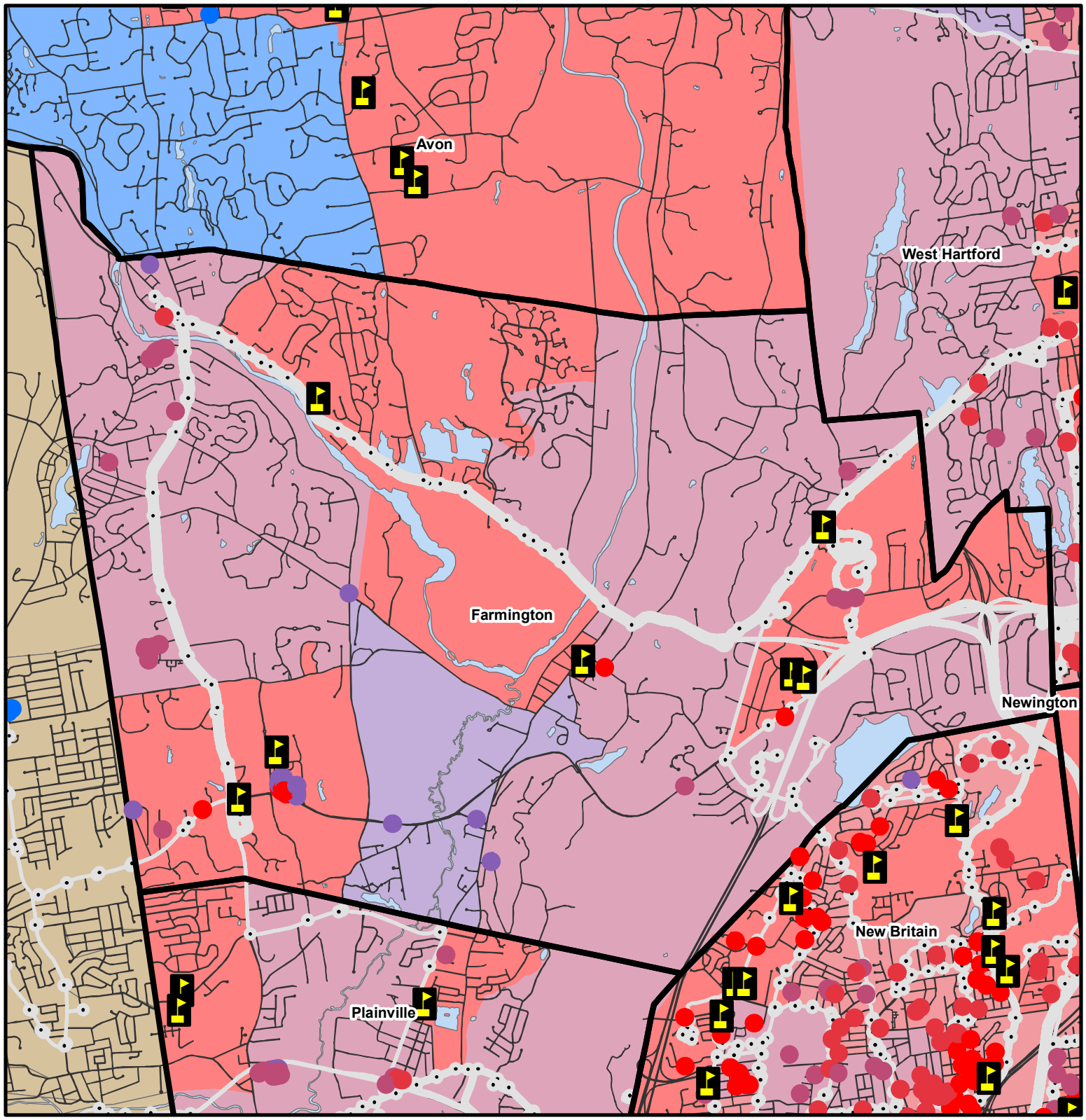
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

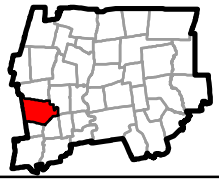
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Farmington

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

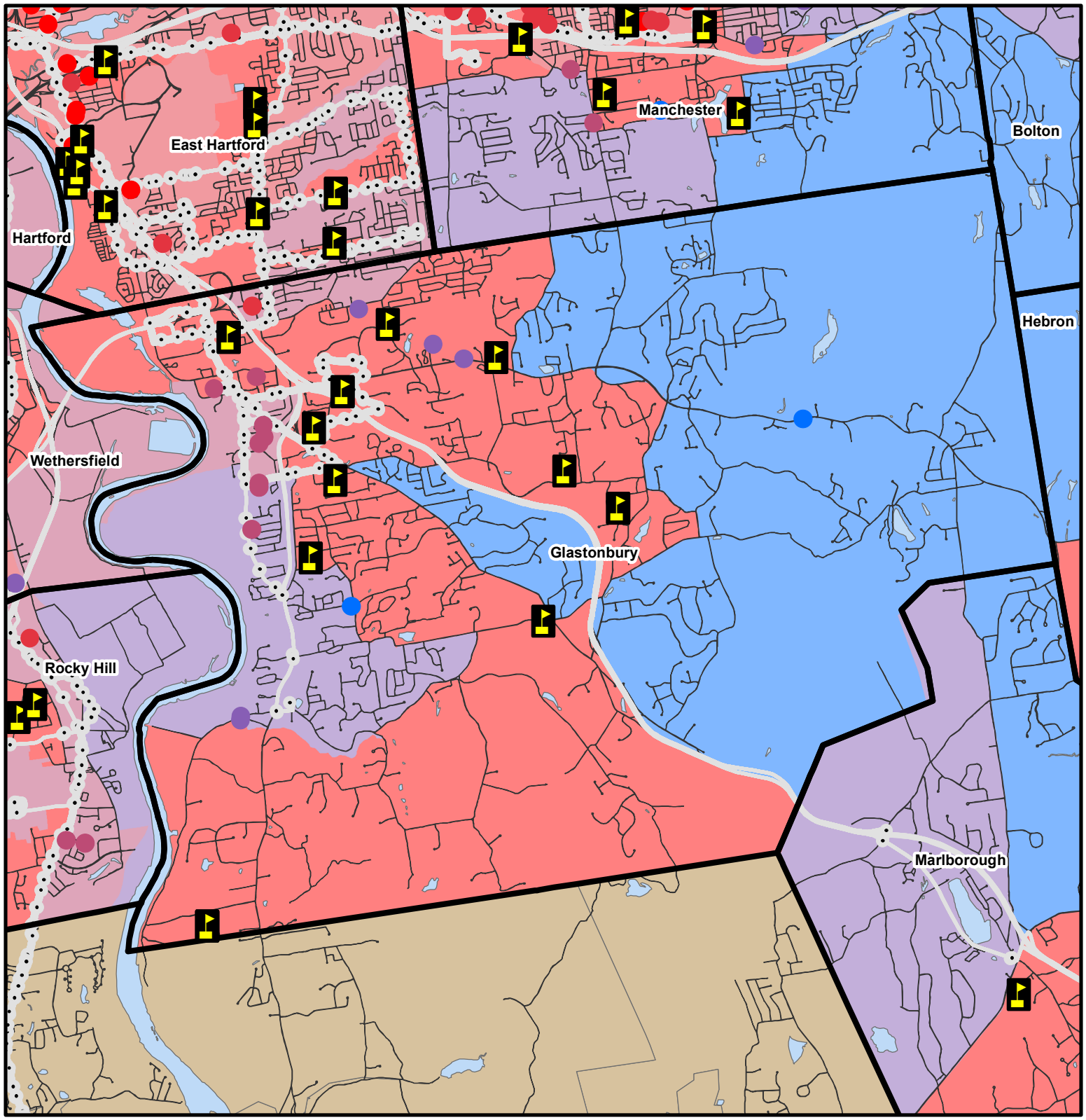
- A
- B
- C
- D
- F

0 0.5 1 Miles

- Town Line
- Transit Stops

Transit Routes by Daily Trips

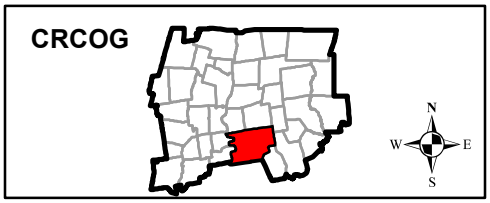
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Glastonbury

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

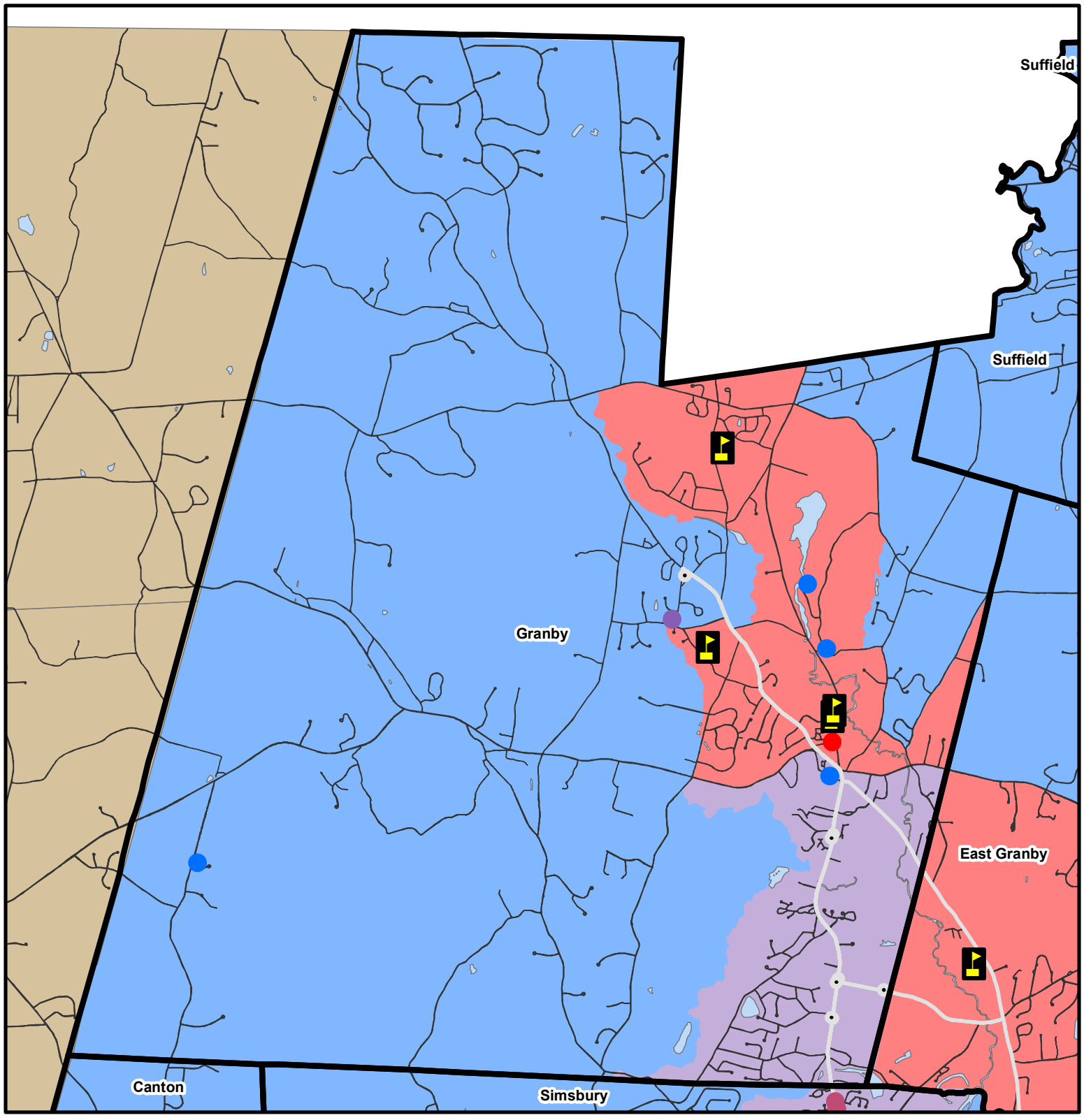
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

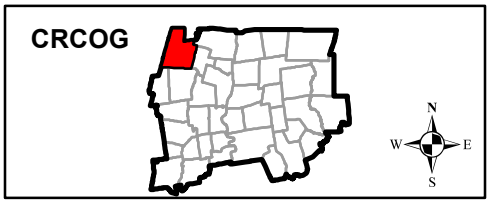
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Granby

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

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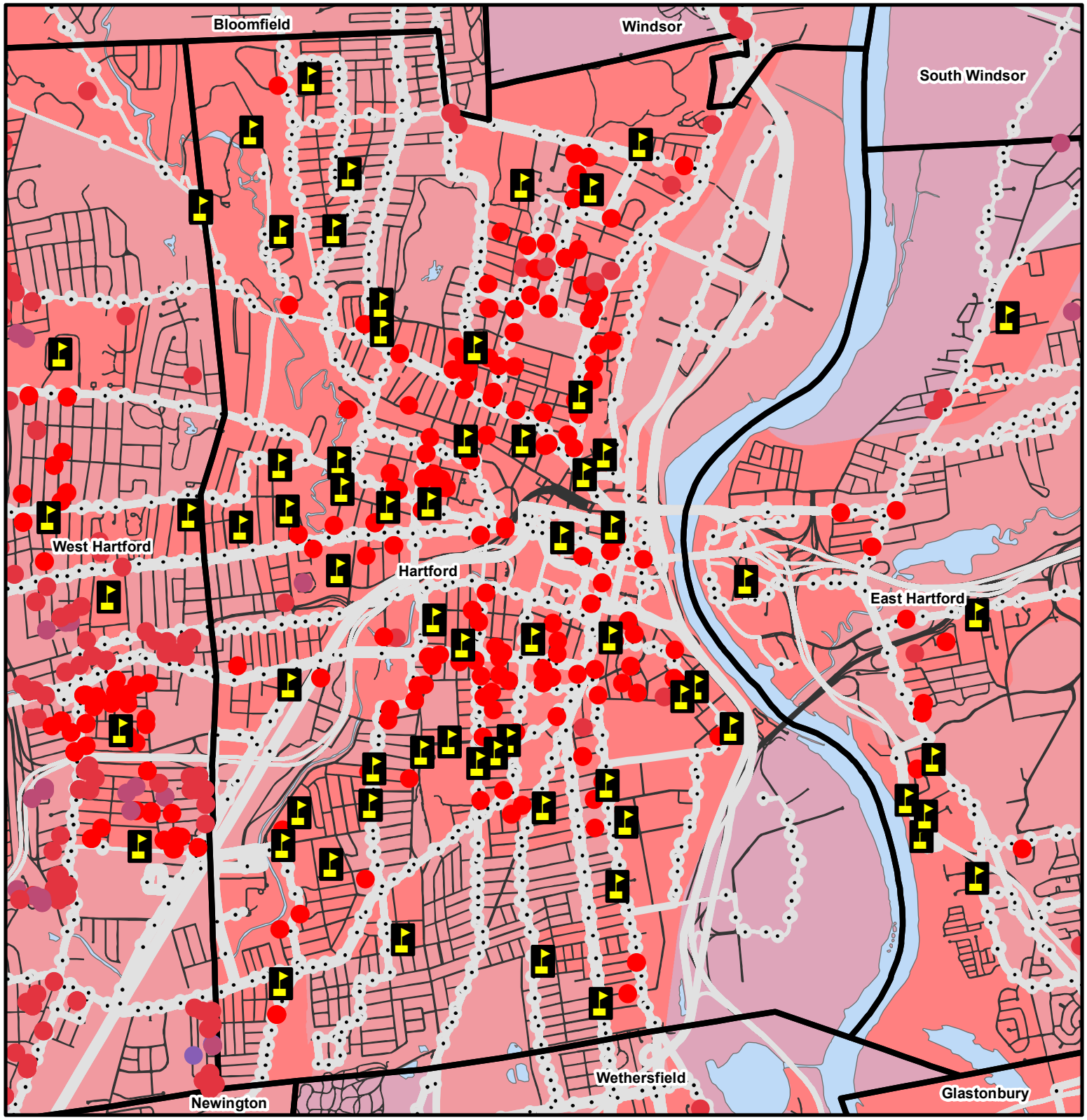
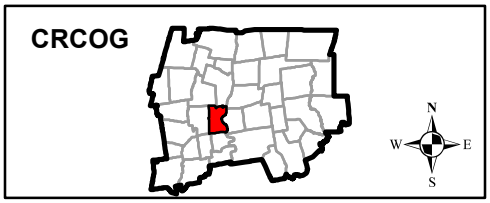


Hartford

Education Facility

CRCOG



TOI Point Grade

- A
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- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
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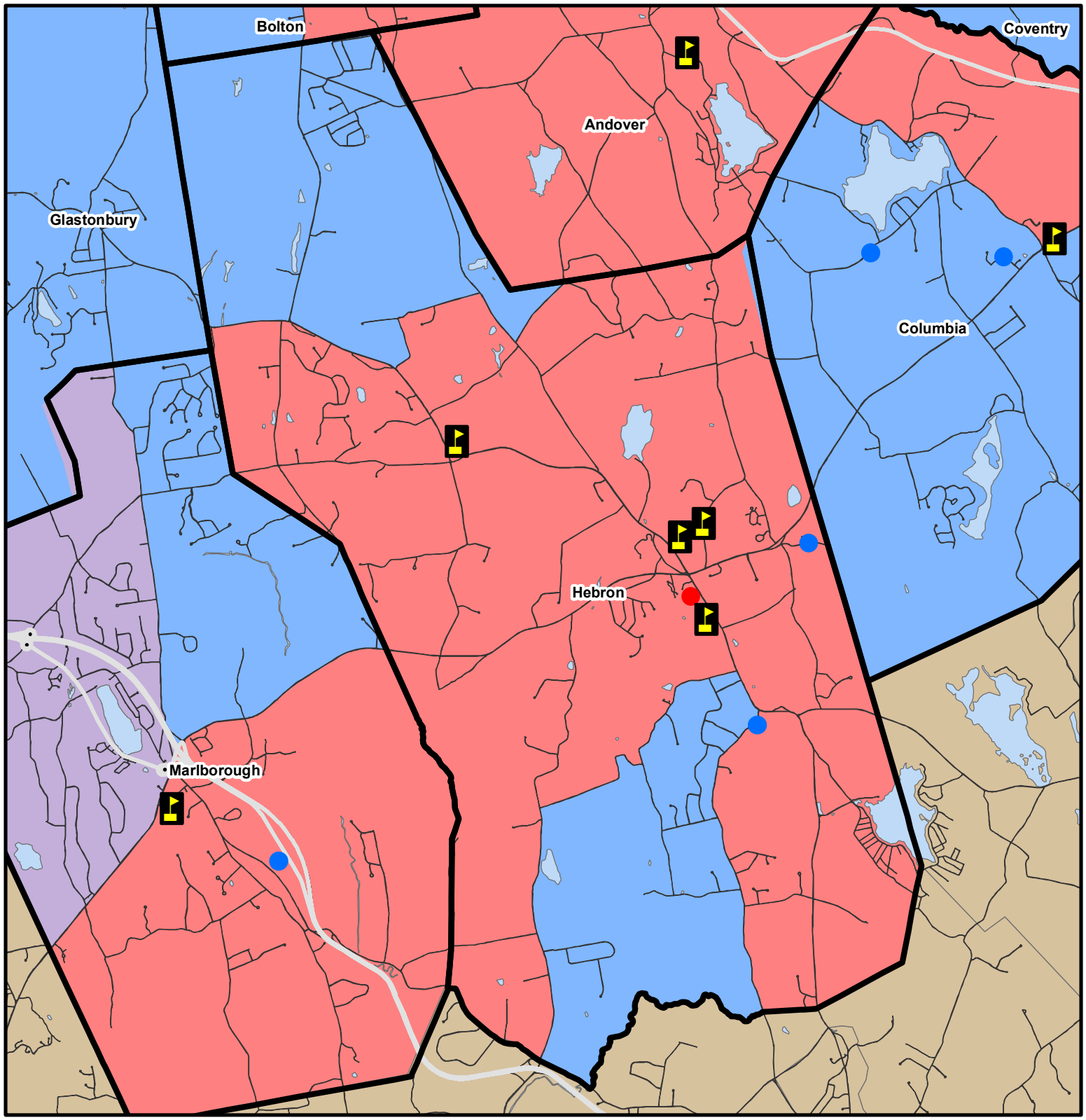
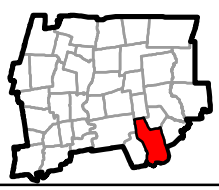


Hebron

Education Facility

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

- A
- B
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- D
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0 0.5 1 Miles

Town Line

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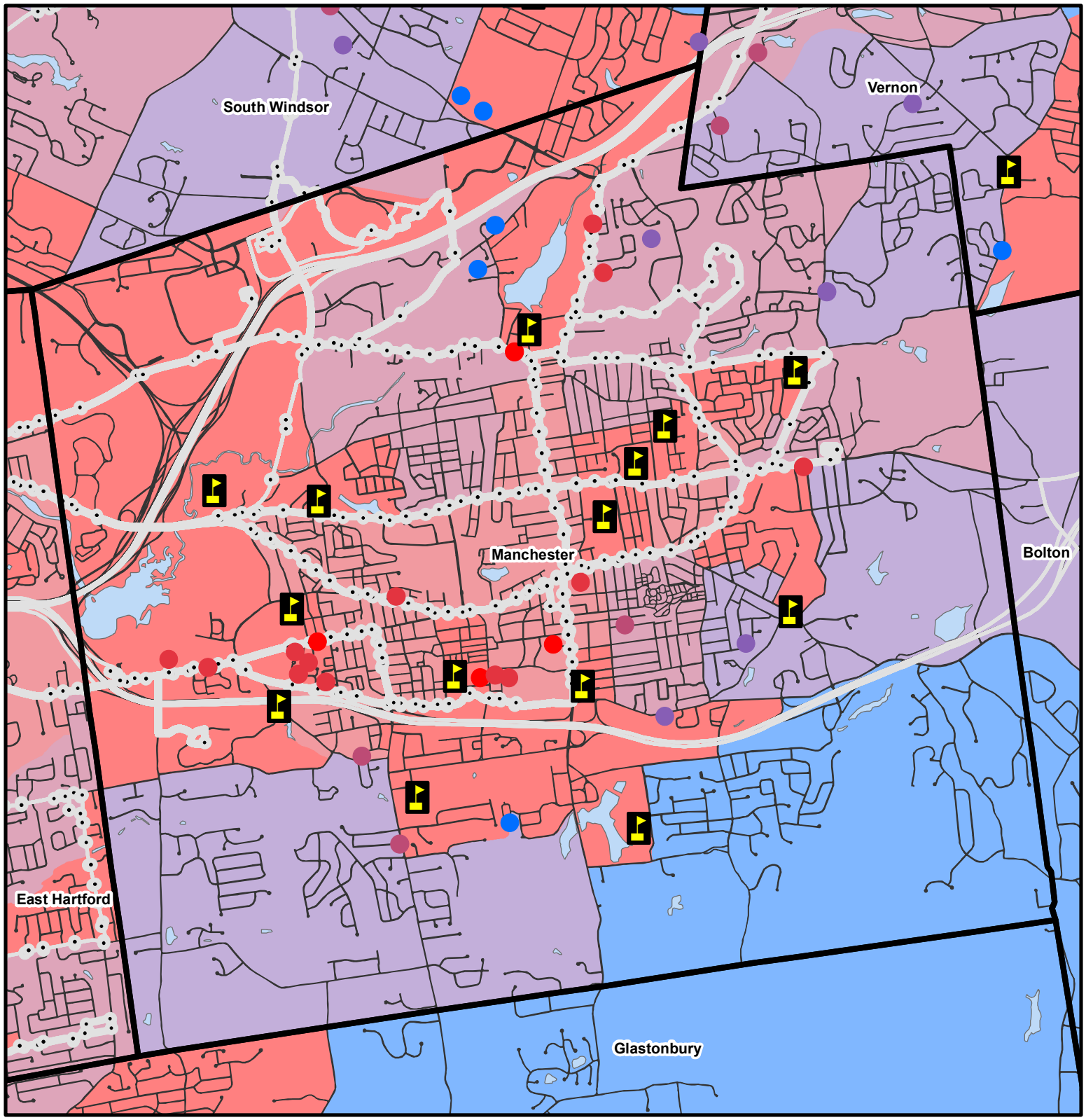
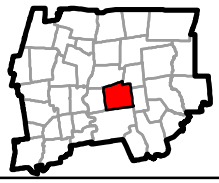


Manchester

Education Facility

CRCOG



TOI Point Grade

- A
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- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

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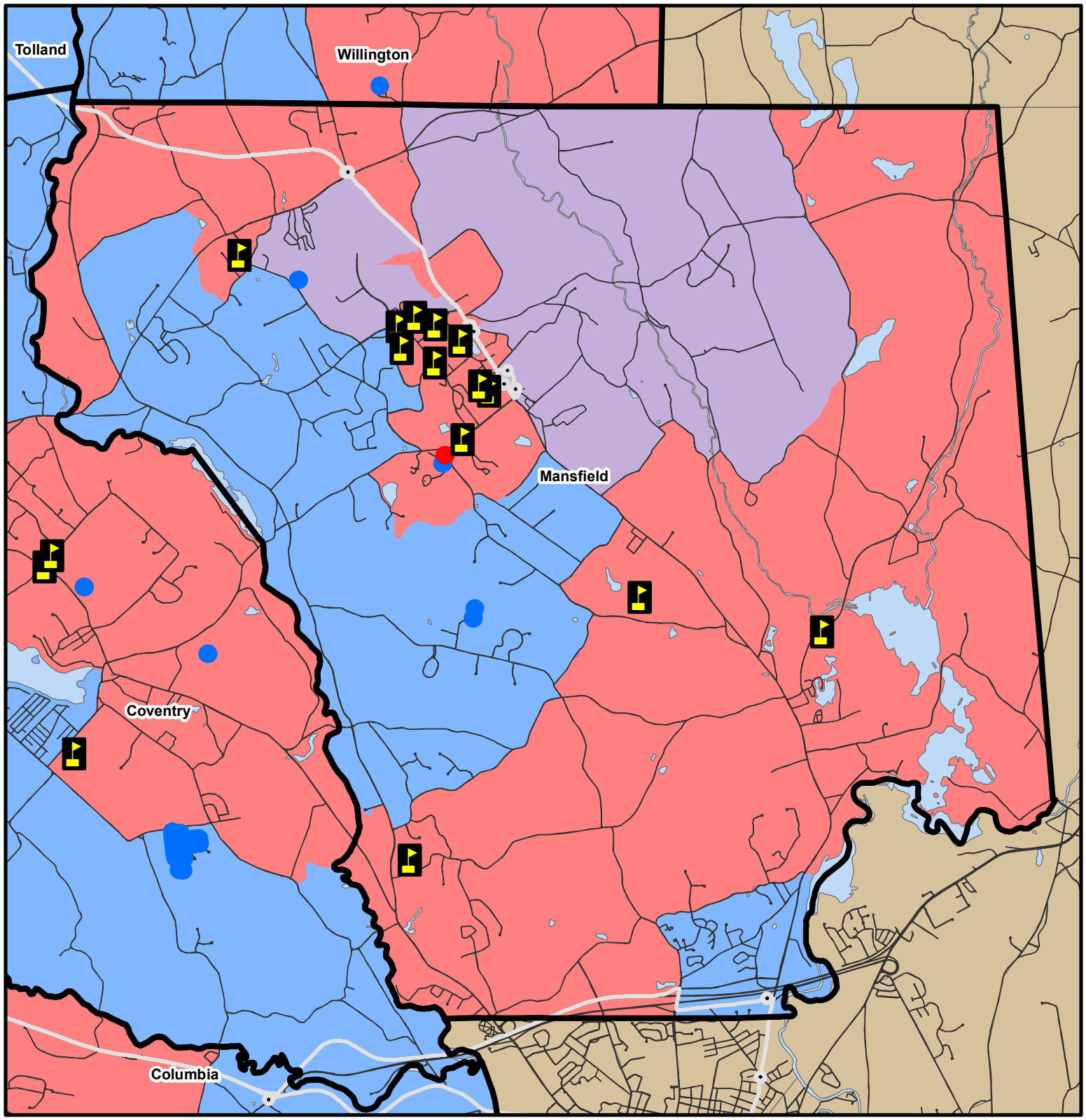
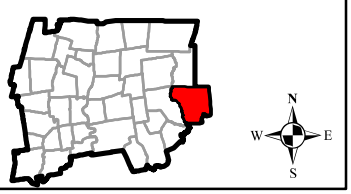


Mansfield

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

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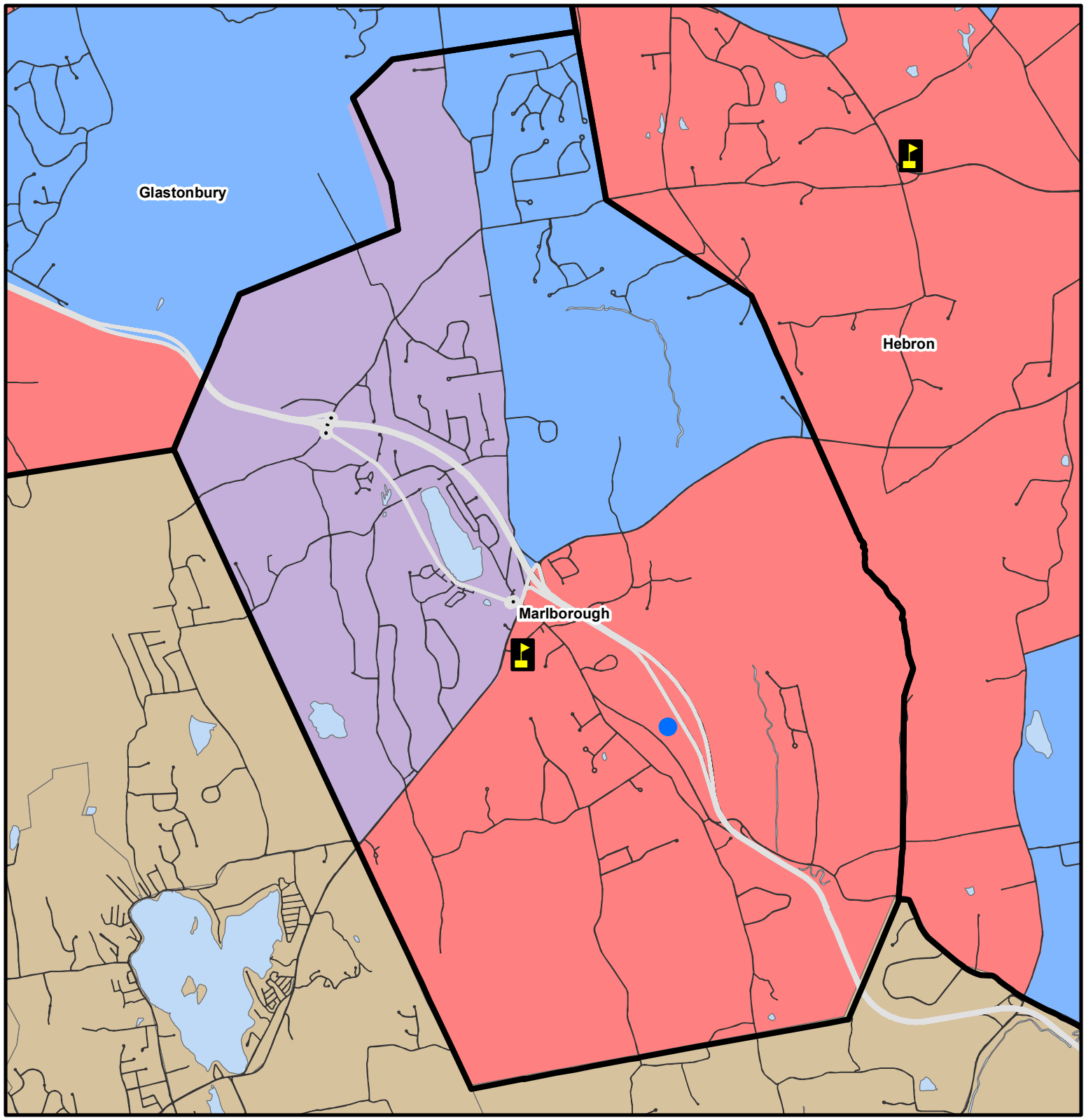
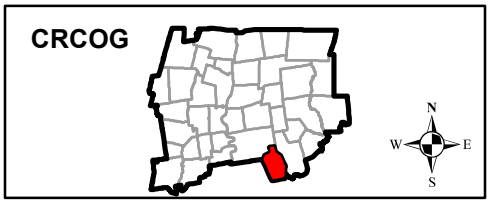


Marlborough

Education Facility

CRCOG



TOI Point Grade

- A
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- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

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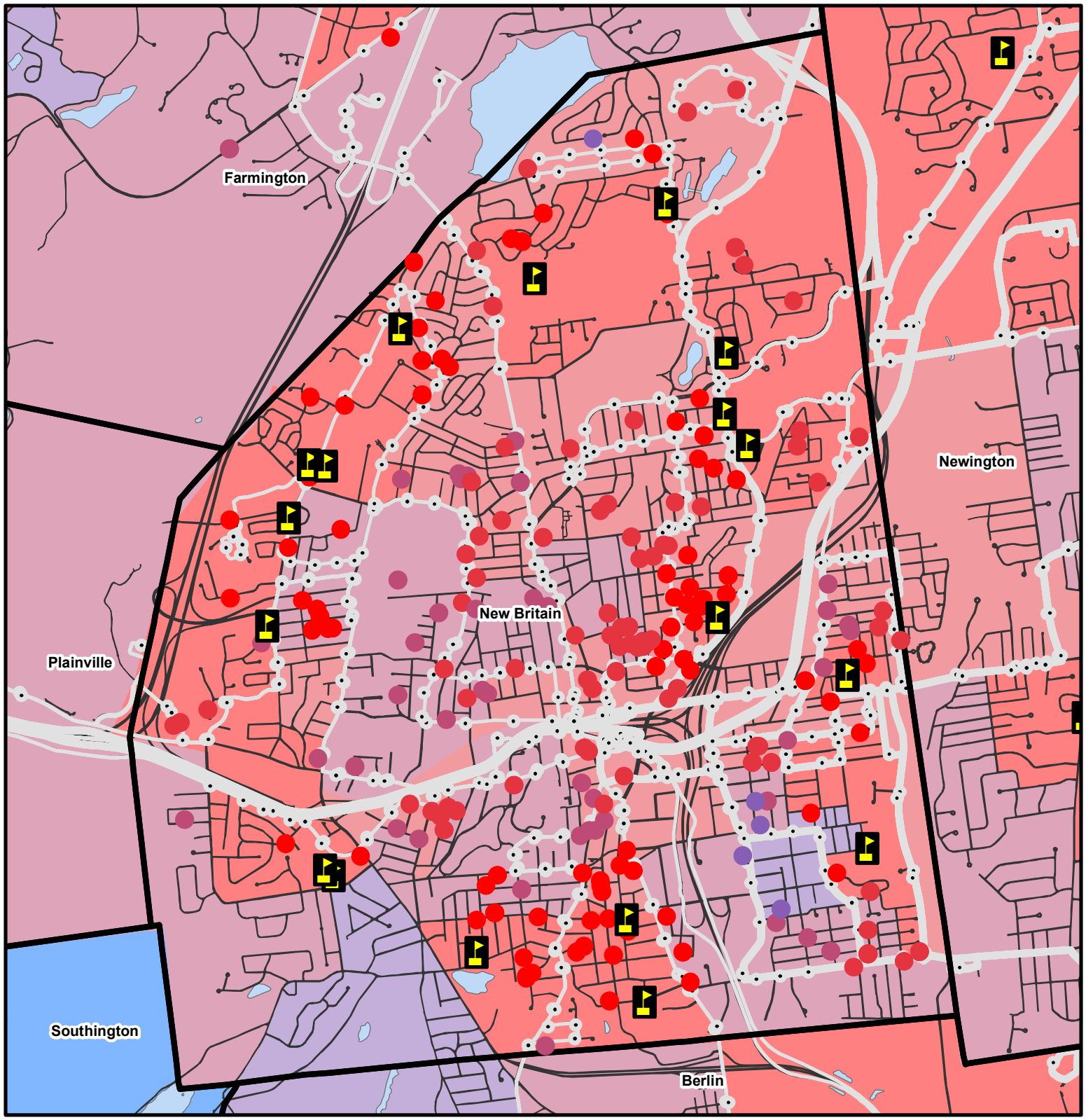
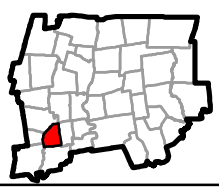


New Britain

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
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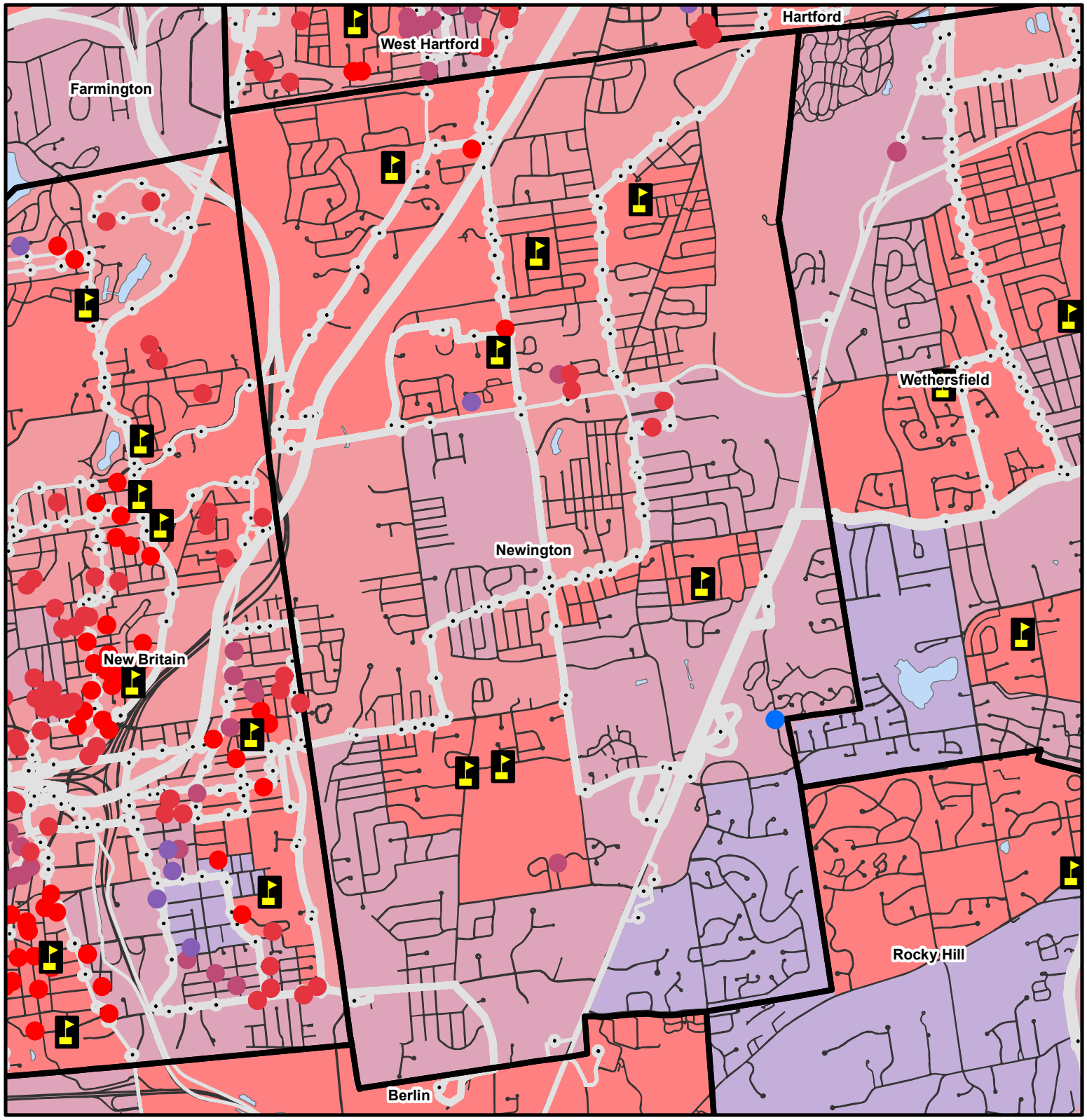
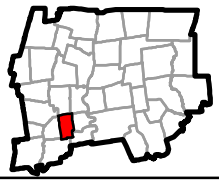


Newington

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

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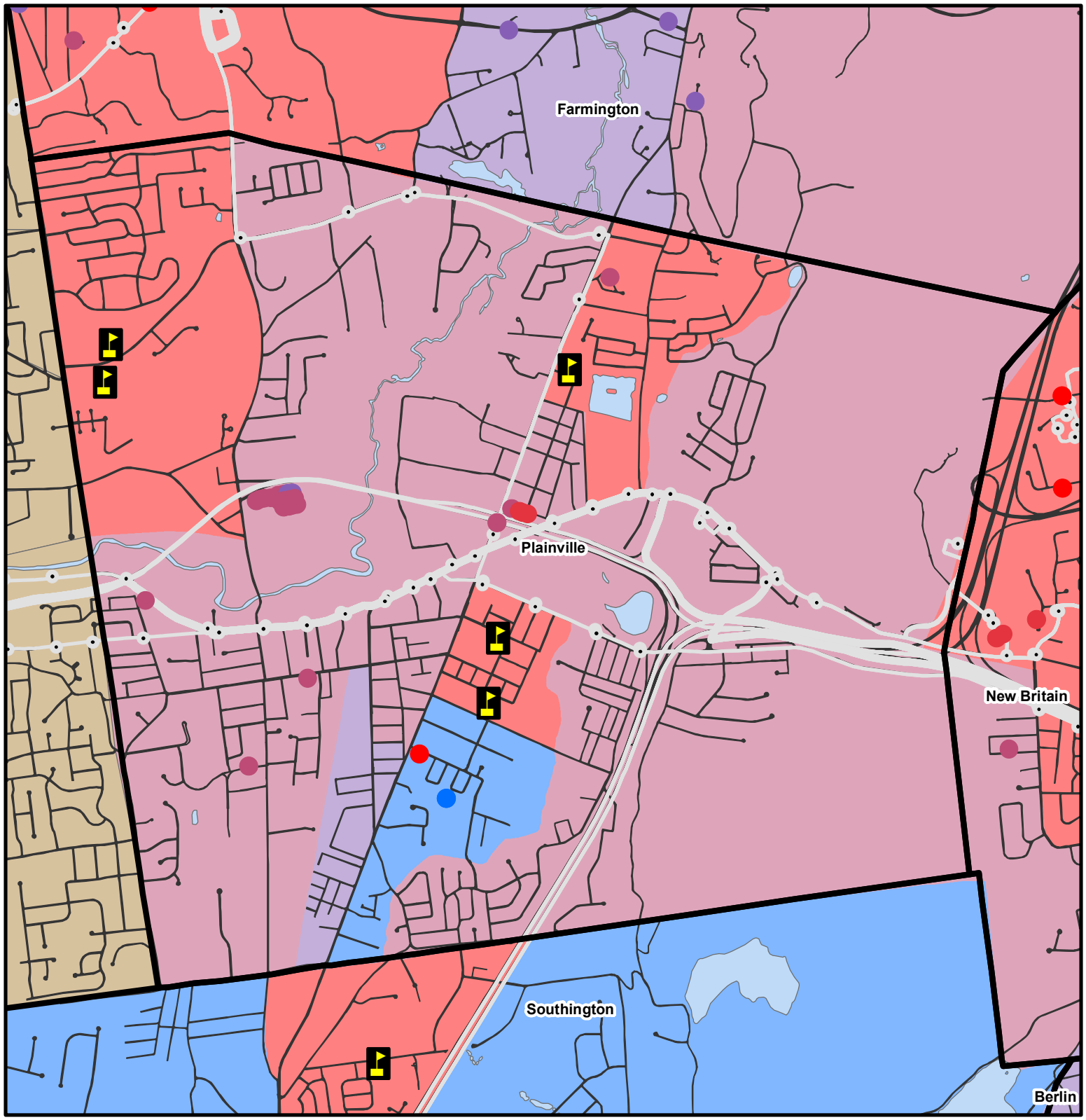
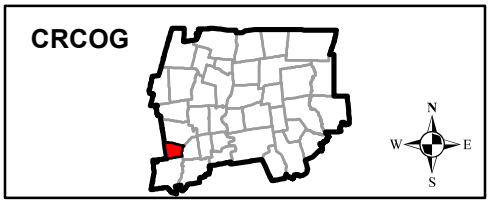


Plainville

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
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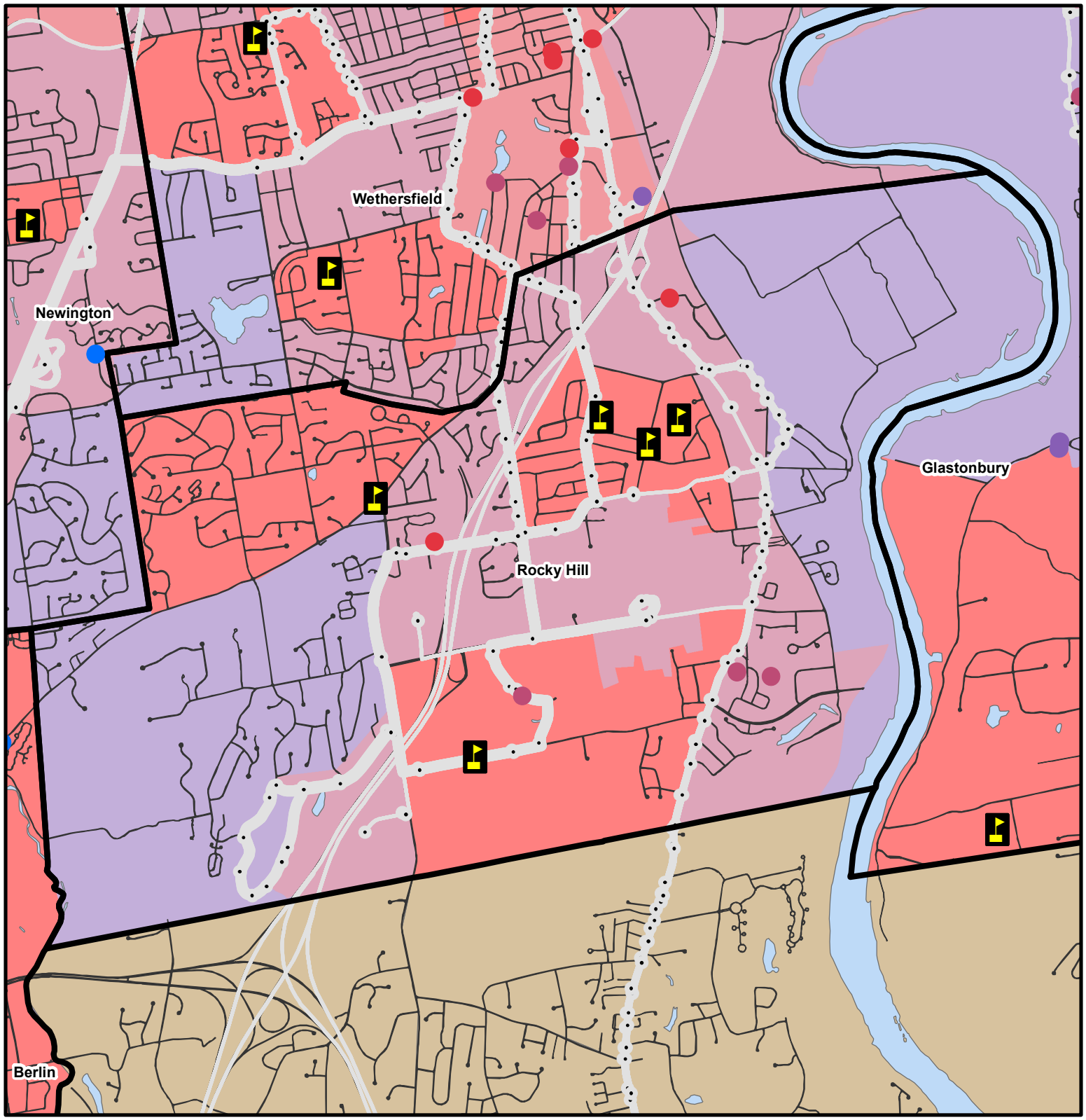
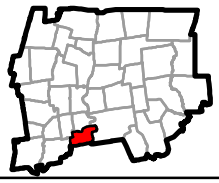
- 130 - 223 Trips



Rocky Hill

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

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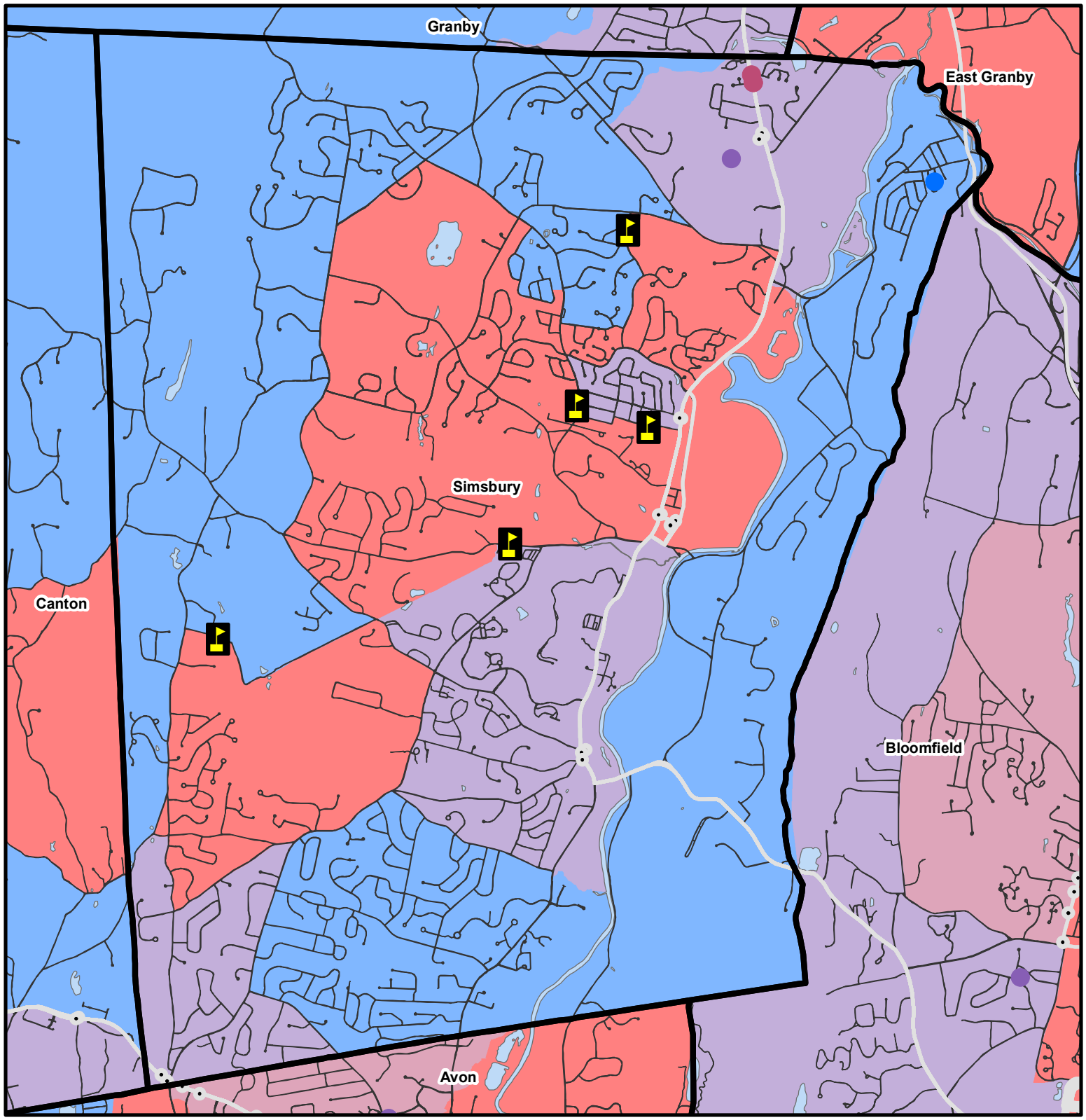
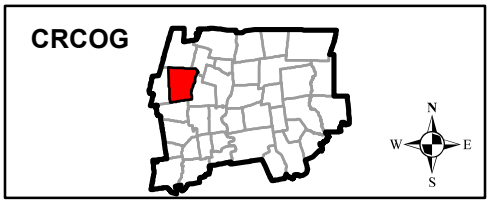


Simsbury

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
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- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

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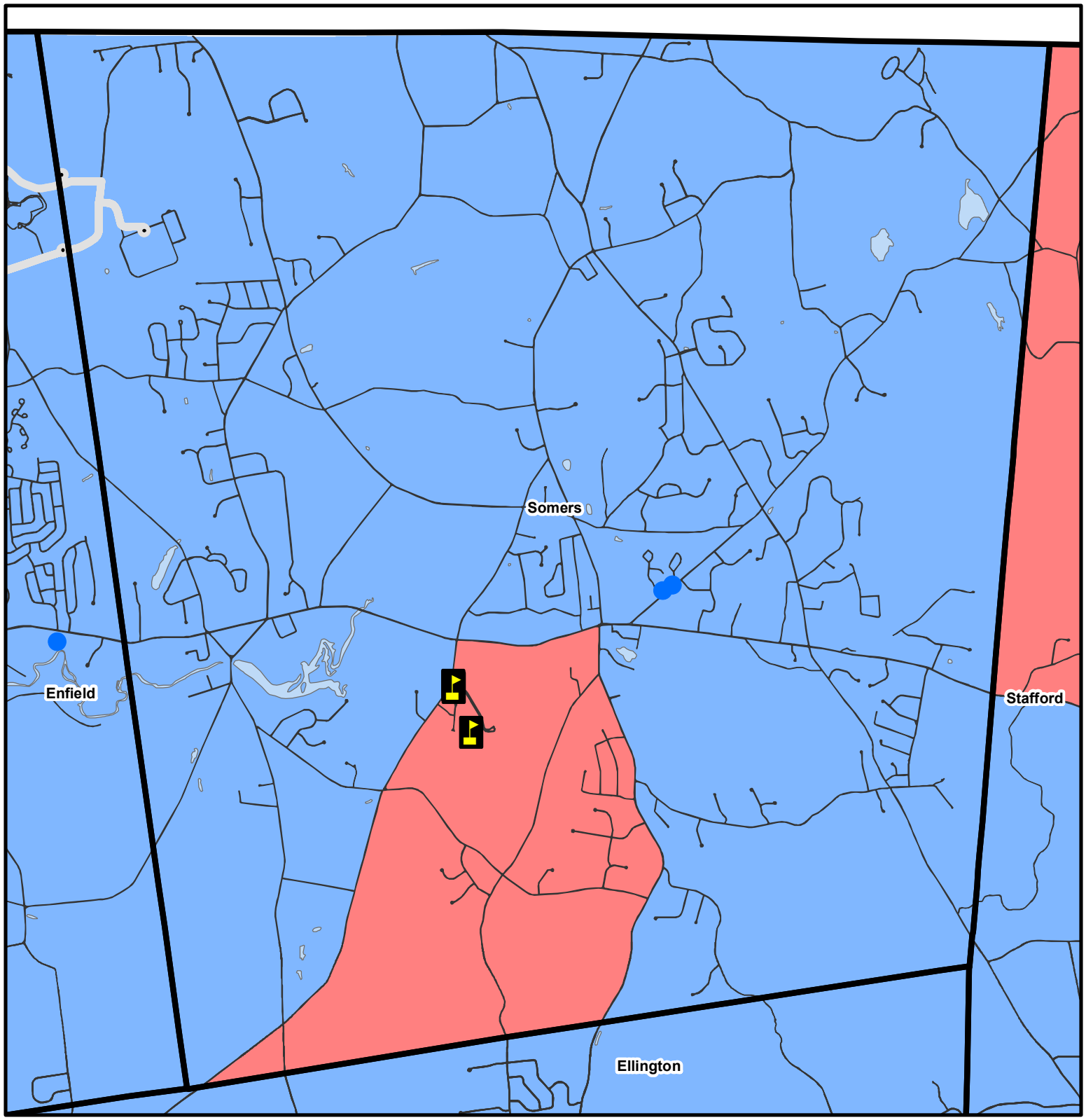
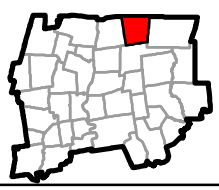


Somers

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

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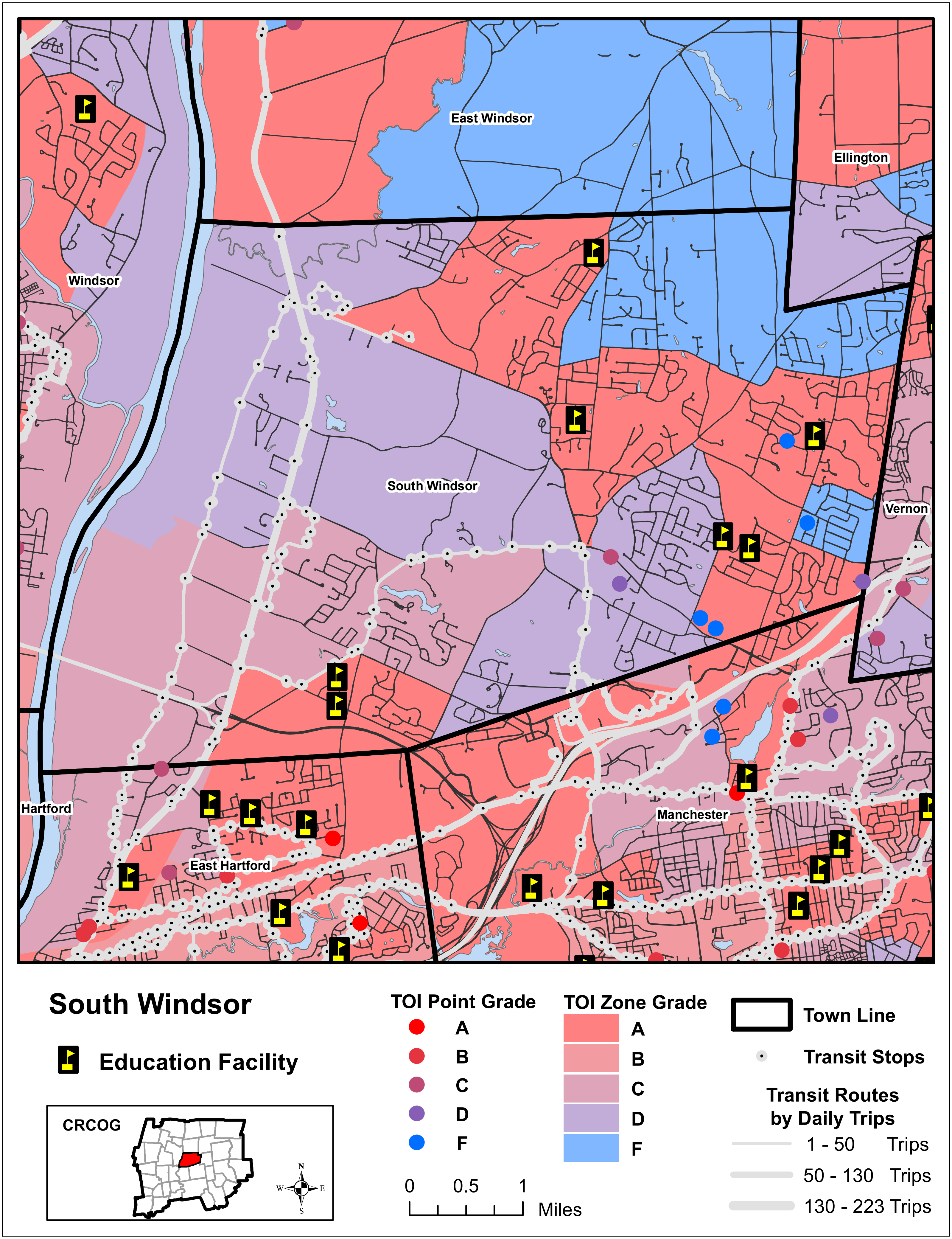
East Windsor
Ellington
Windsor
South Windsor
Vernon
Hartford
East Hartford
Manchester
South Windsor
Education Facility
CRCOG
TOI Point Grade
A
B
C
D
F
TOI Zone Grade
A
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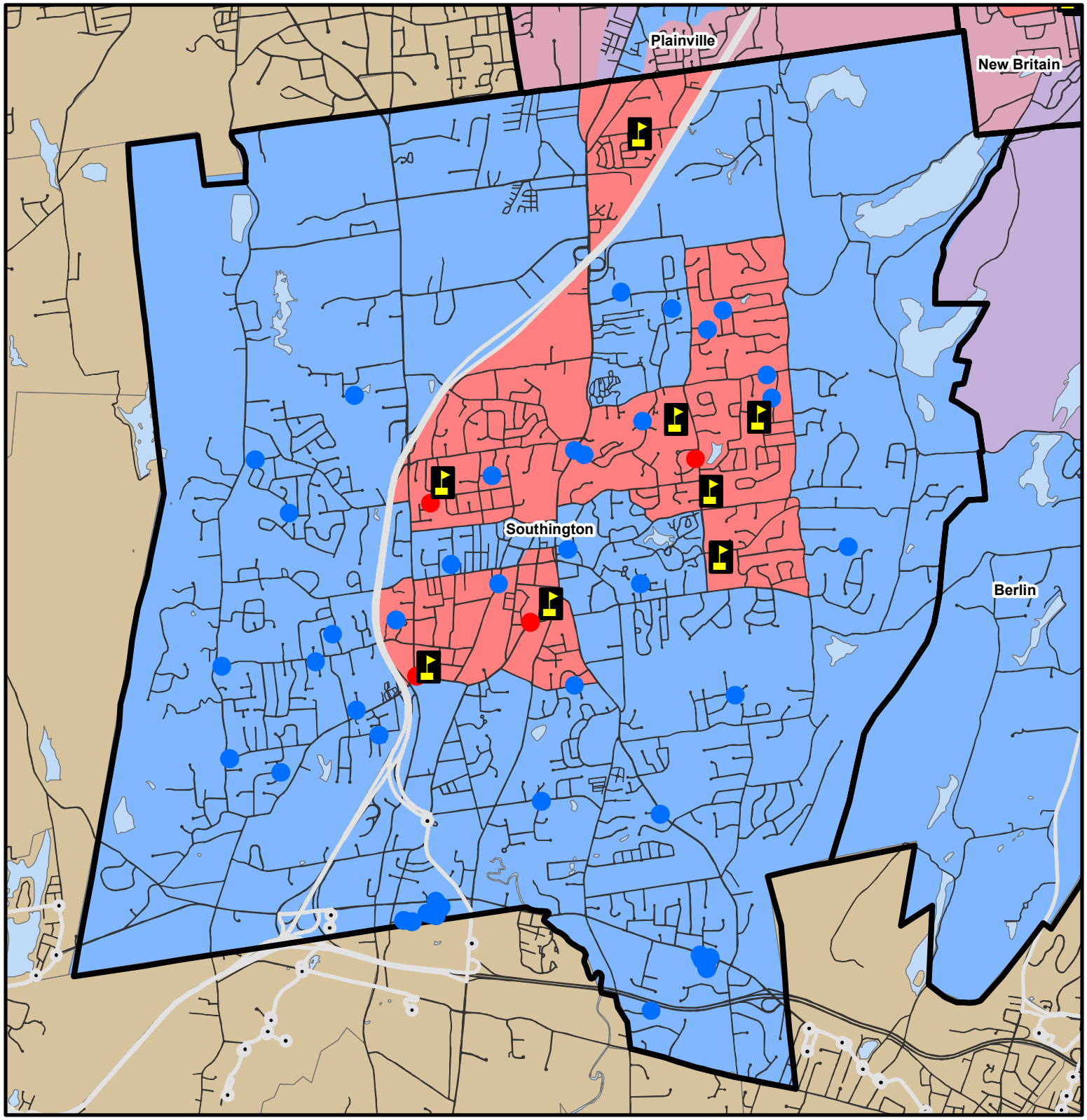
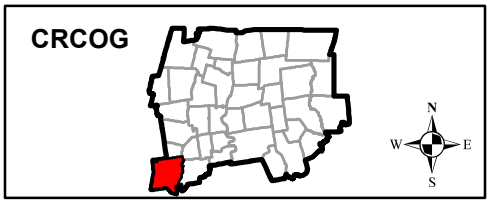


Southington

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
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- D
- F

0 0.5 1 Miles

Town Line

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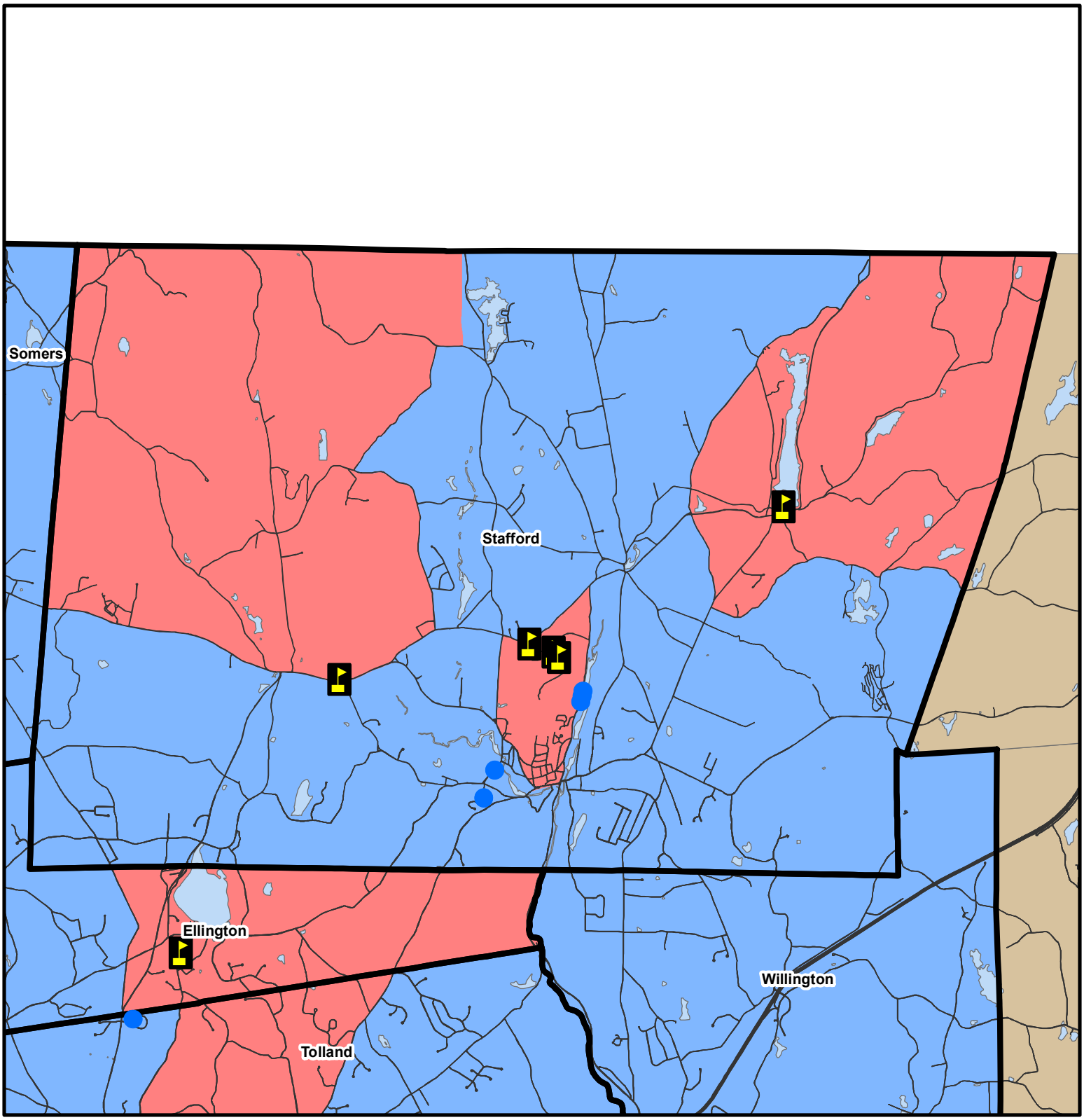
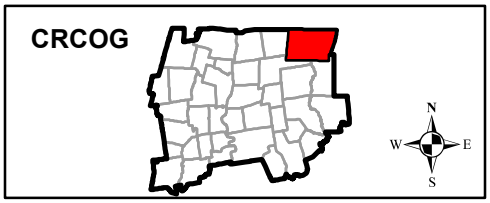


Stafford

Education Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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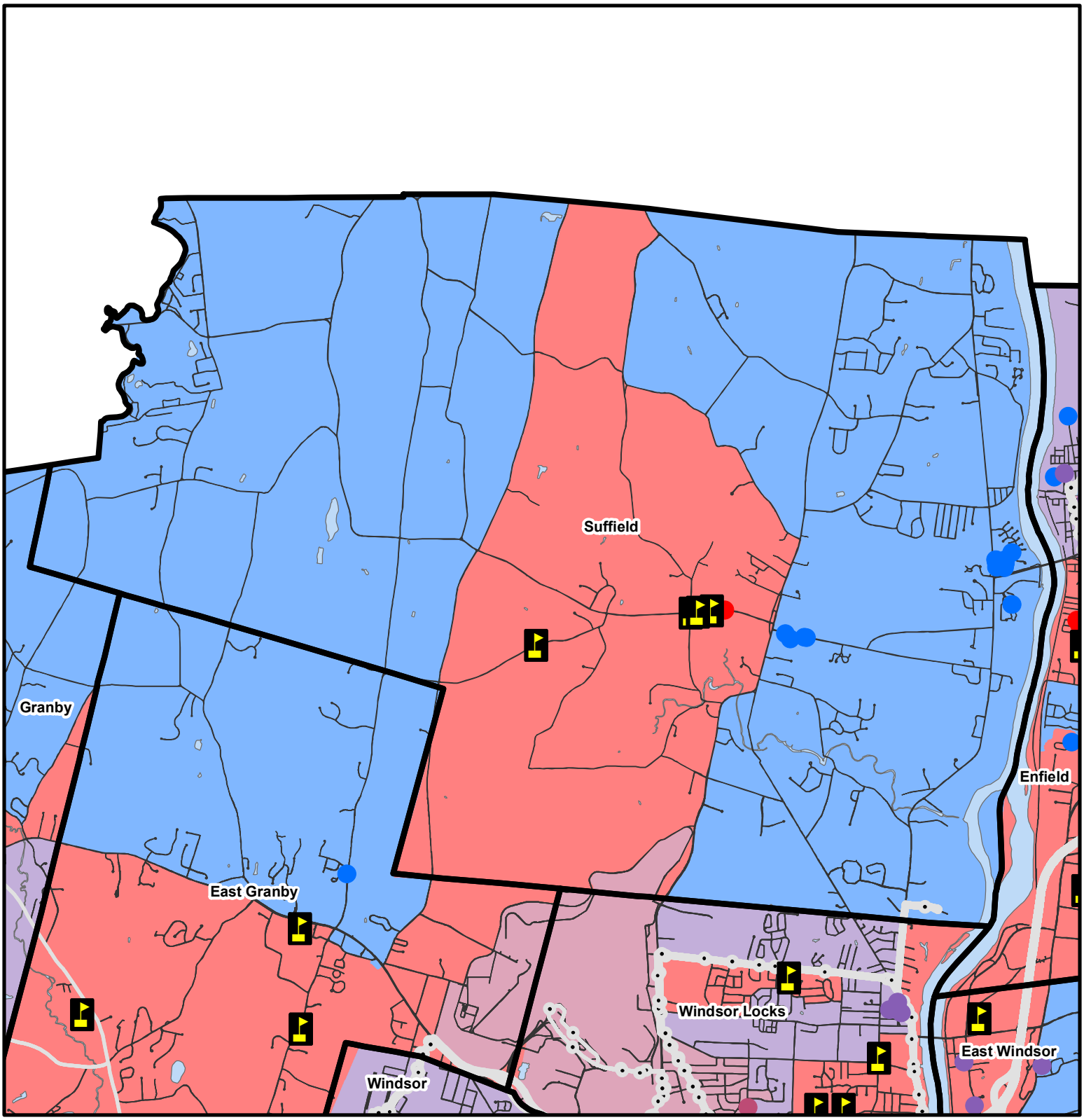
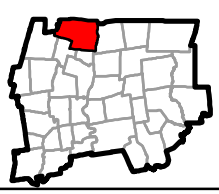


Suffield

Education Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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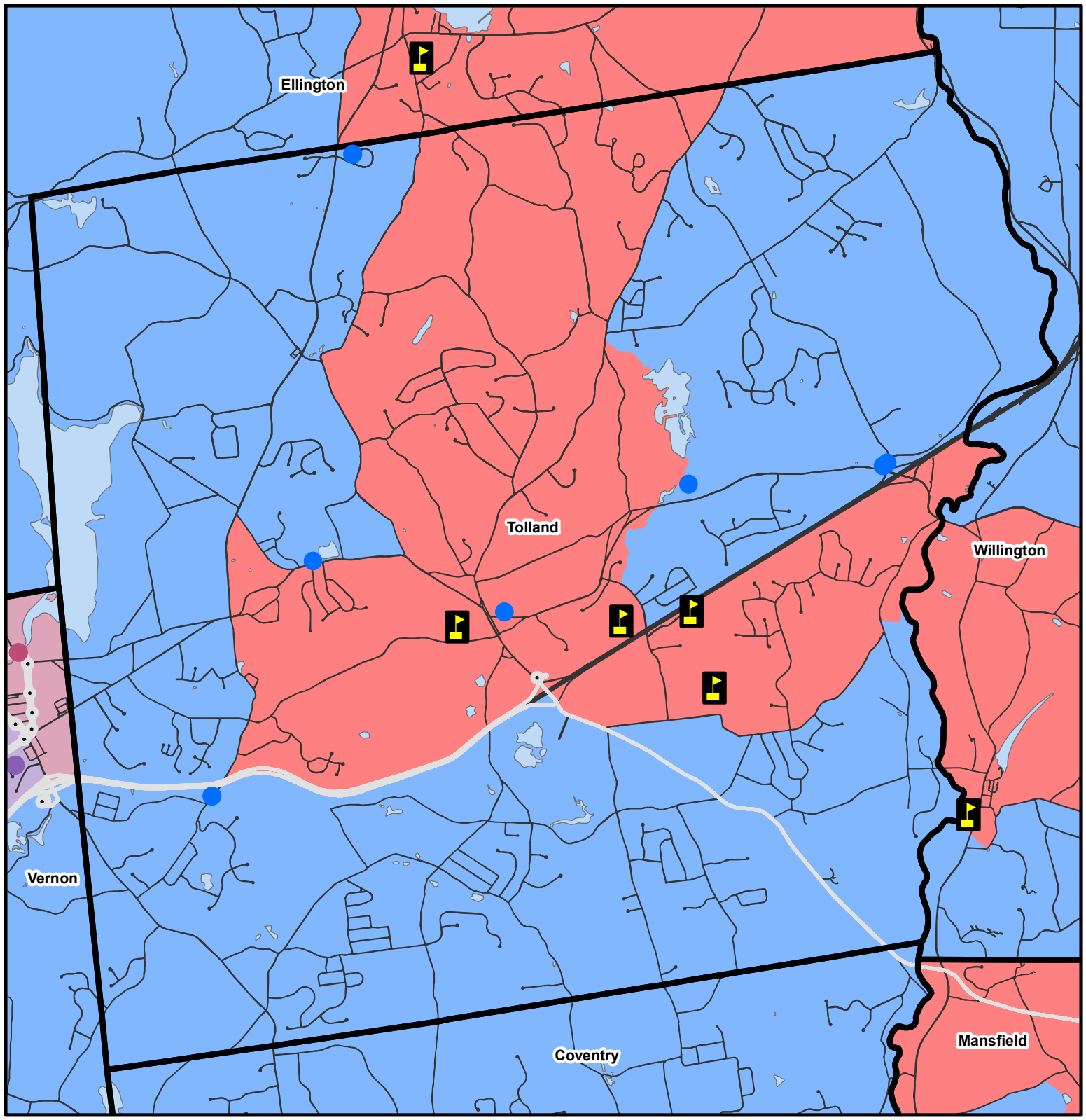
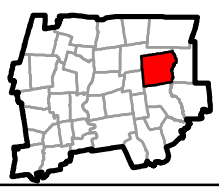


Tolland

Education Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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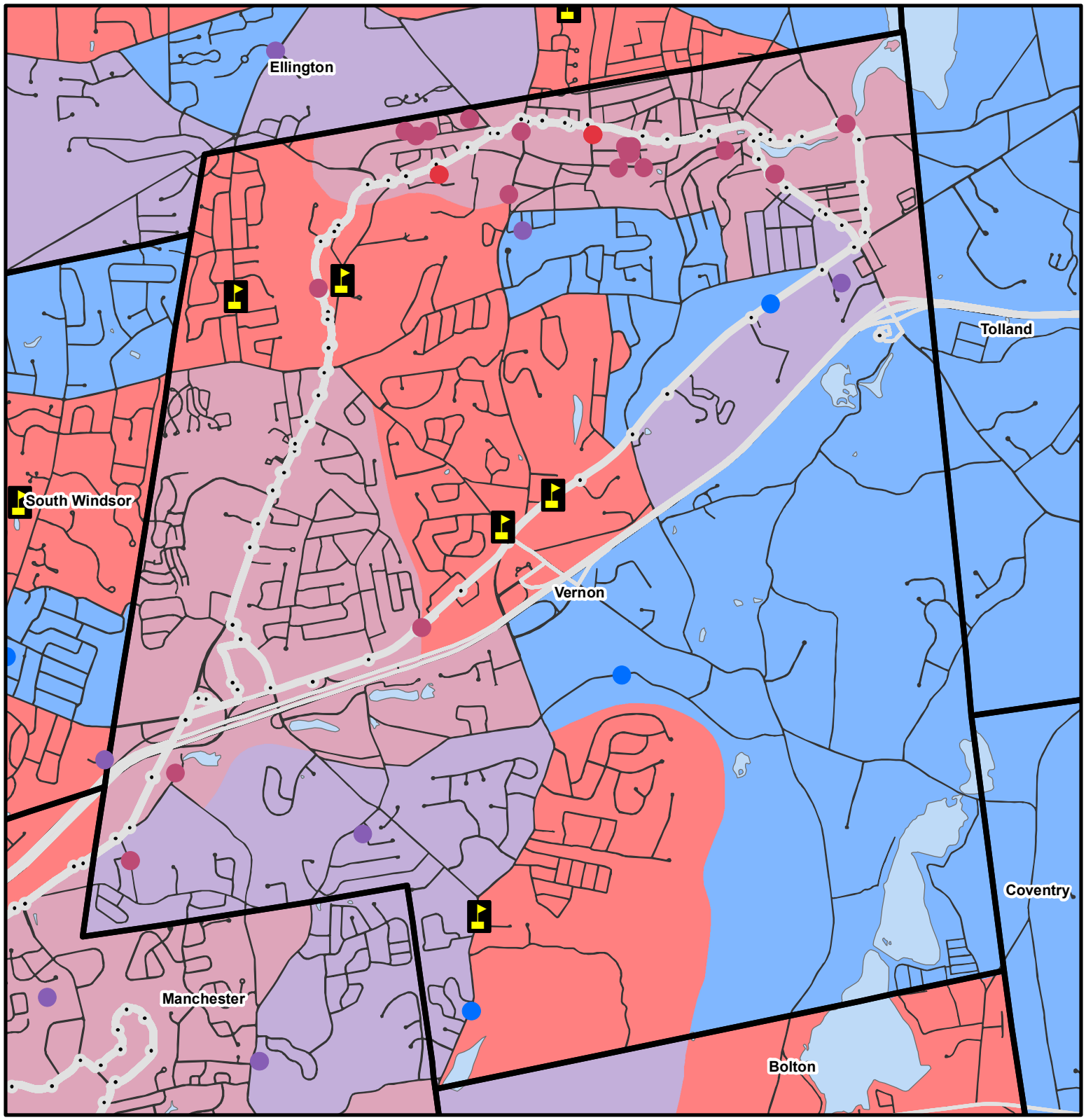
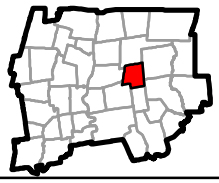


Vernon

Education Facility

CRCOG



TOI Point Grade

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- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

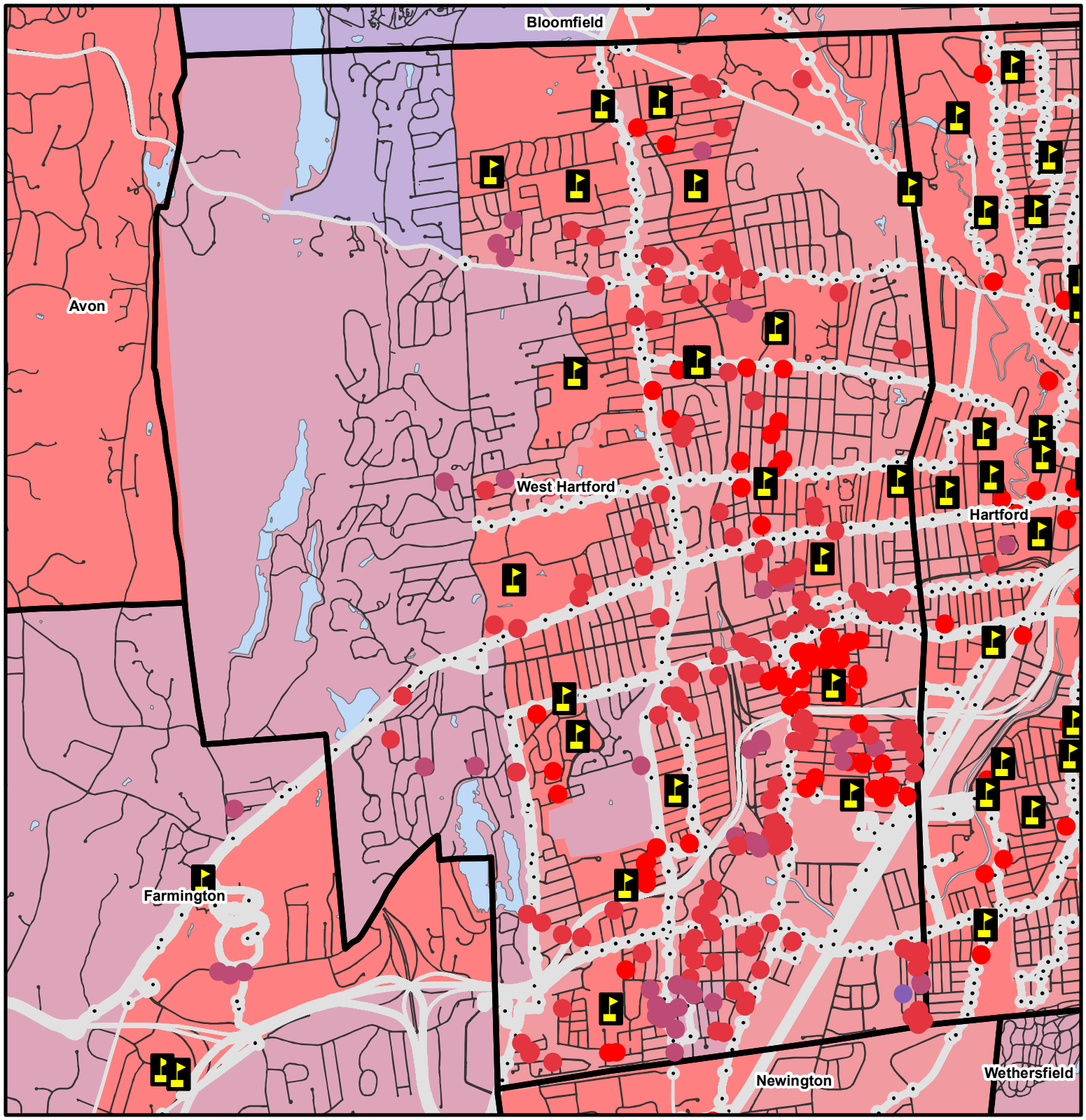
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

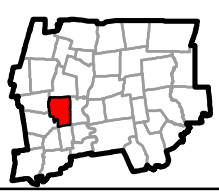
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



West Hartford

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

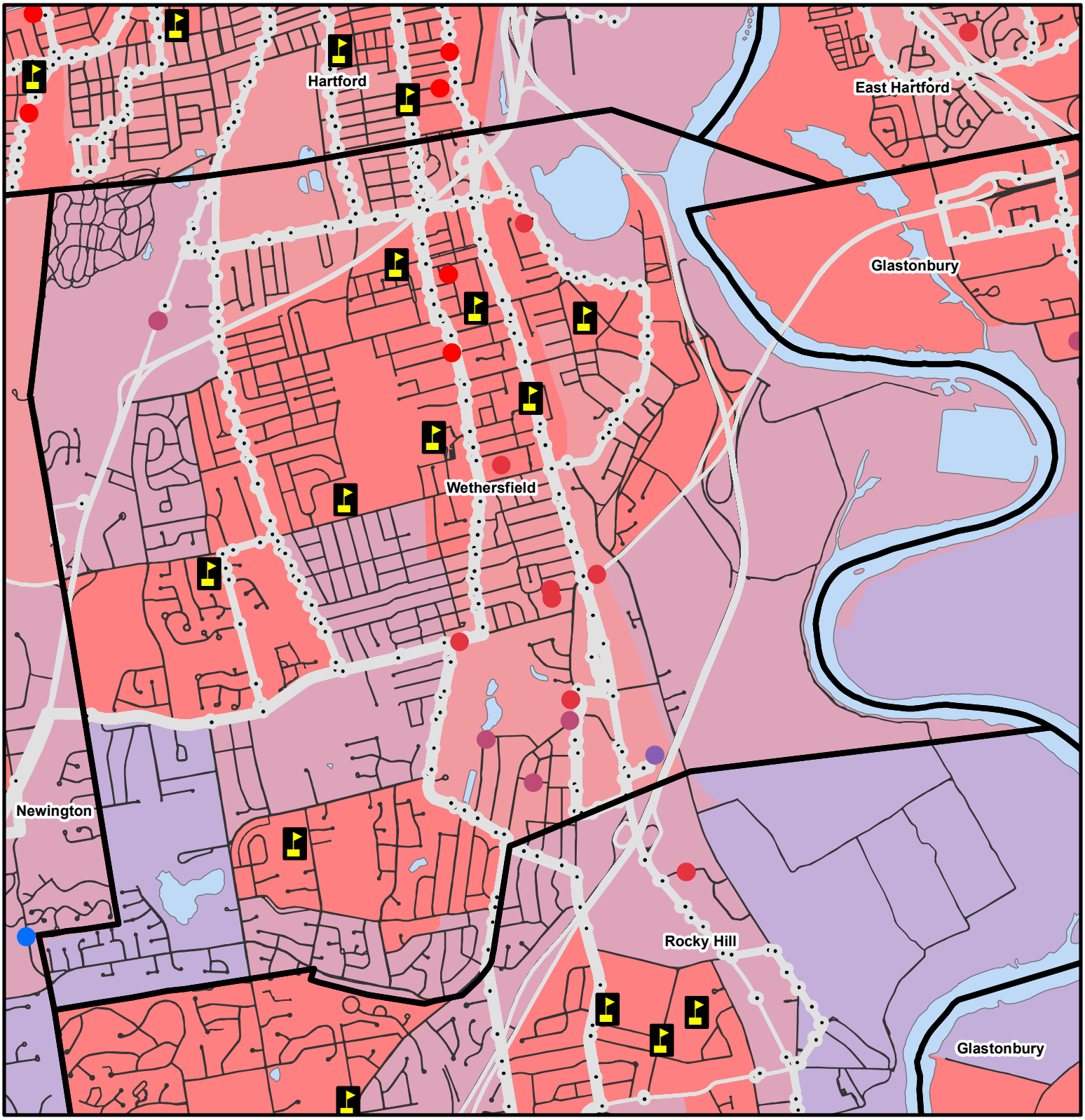
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Wethersfield

Education Facility

CRCOG

TOI Point Grade
A
B
C
D
F

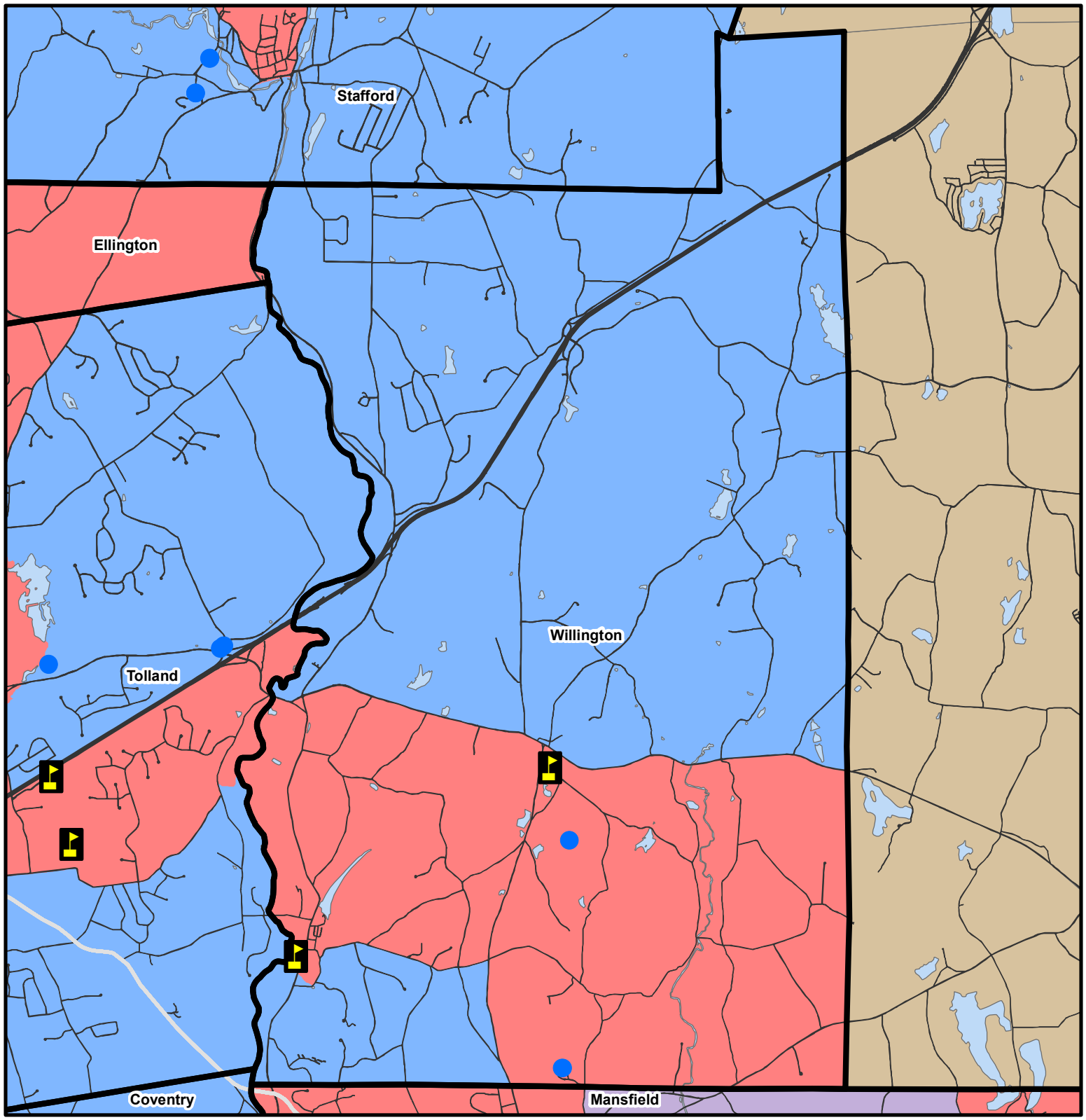
TOI Zone Grade
A
B
C
D
F

0 0.5 1 Miles

Town Line

Transit Stops

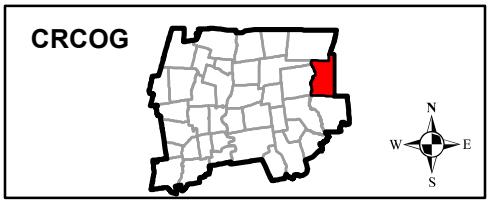
Transit Routes by Daily Trips
1 - 50 Trips
50 - 130 Trips
130 - 223 Trips



Willington

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
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- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

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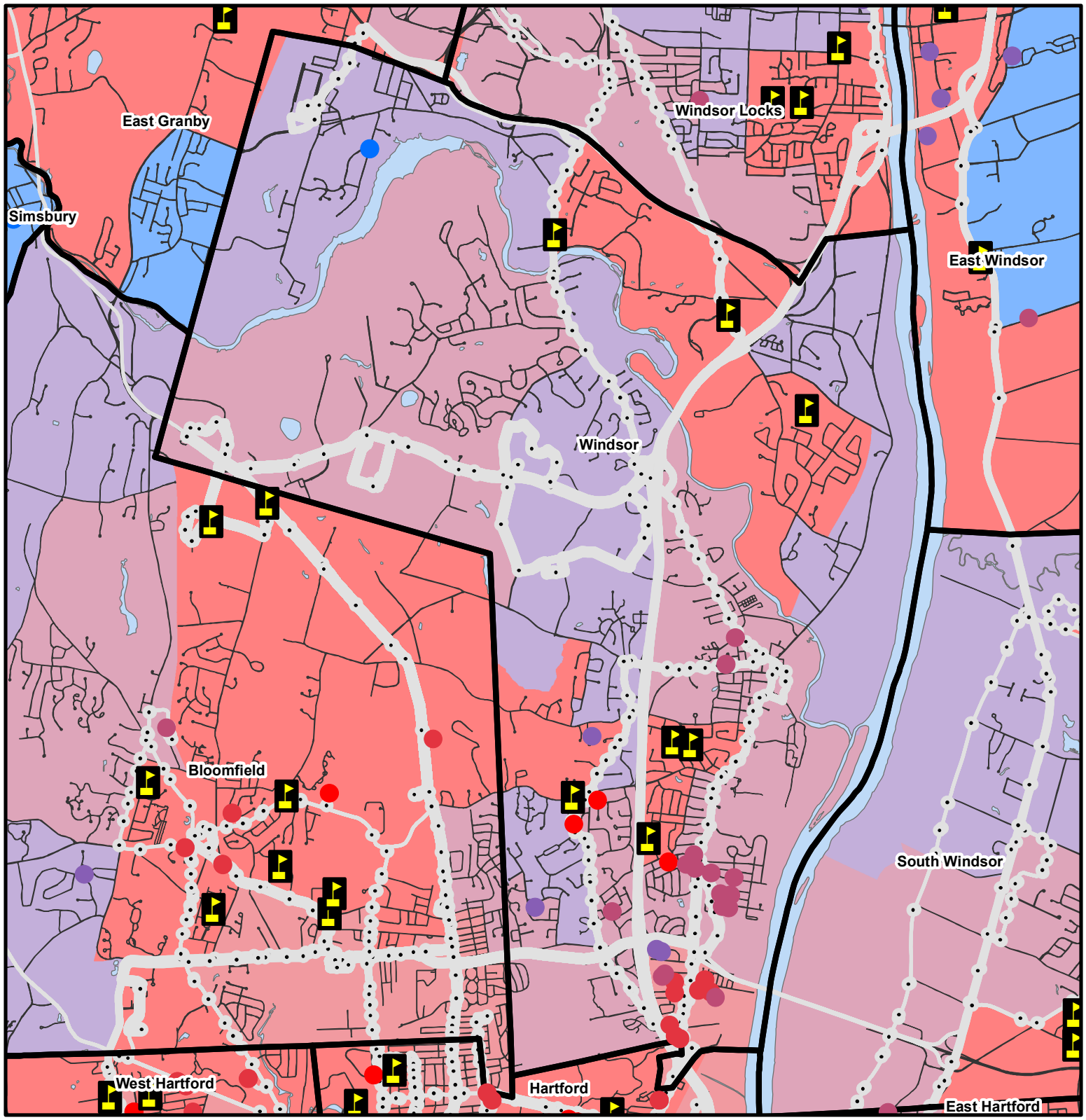
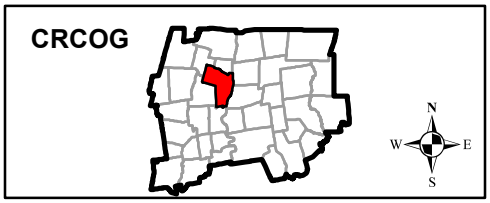
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Windsor

Education Facility

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

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- F

0 0.5 1 Miles

Town Line

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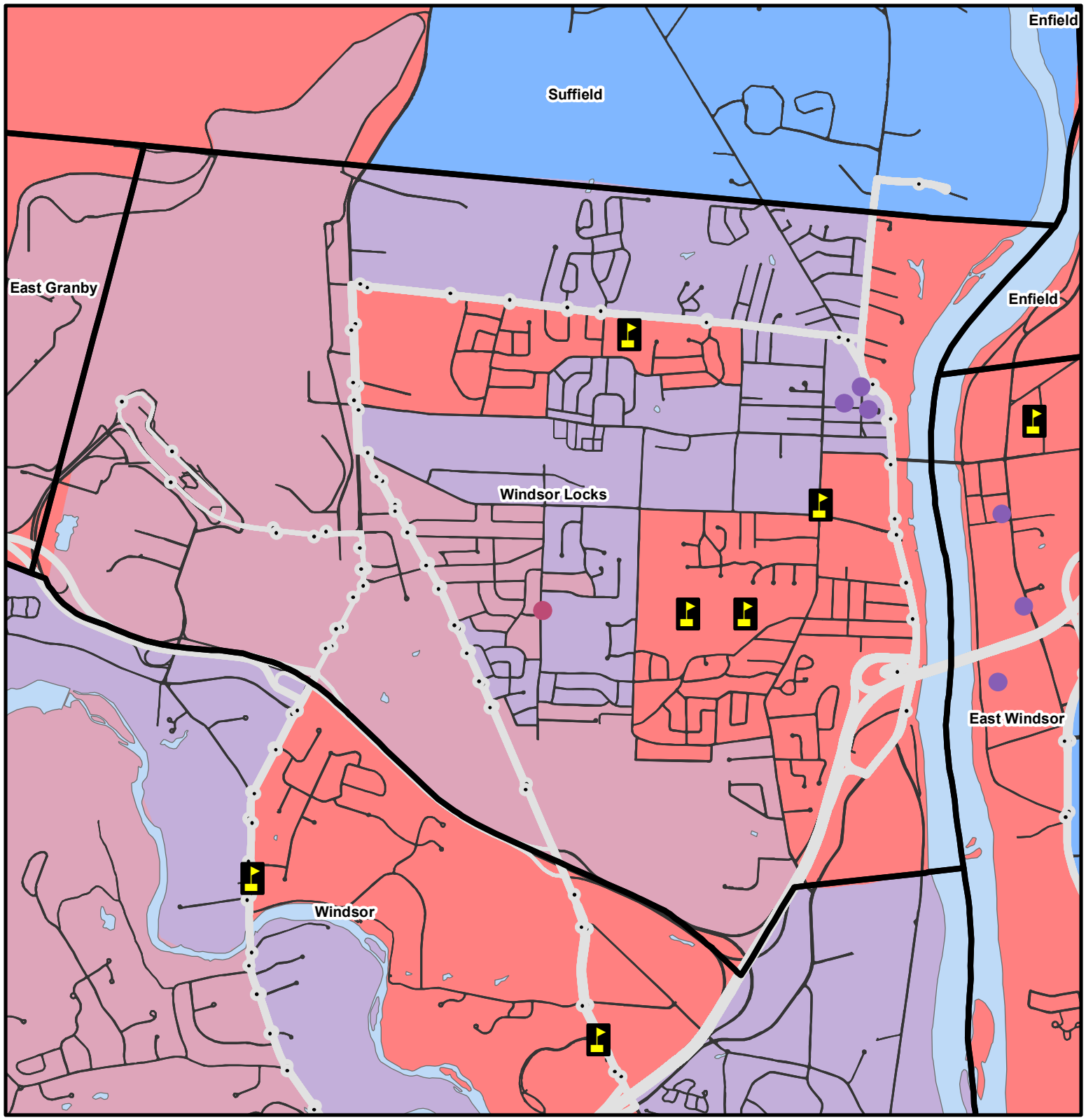
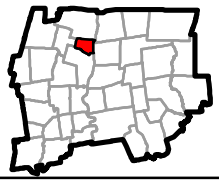


Windsor Locks

Education Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

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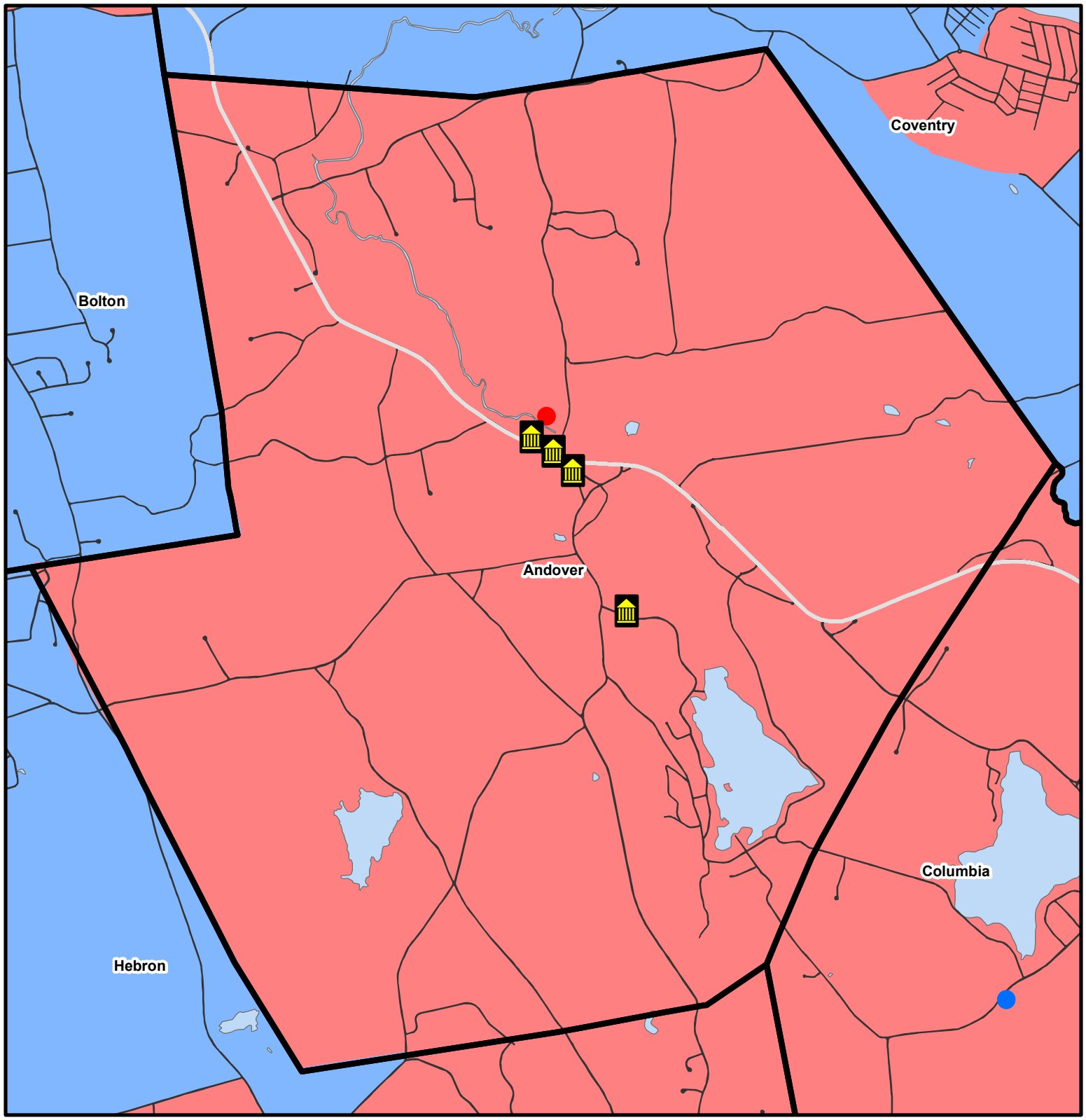
- 50 - 130 Trips
- 130 - 223 Trips

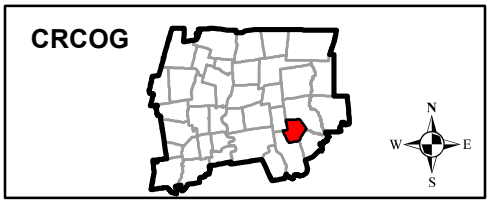
B.3 Maps of Point and Zone Transit Access Scores for Government Services



Andover

Government Services

CRCOG



TOI Point Grade

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TOI Zone Grade

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0 0.5 1 Miles

Town Line

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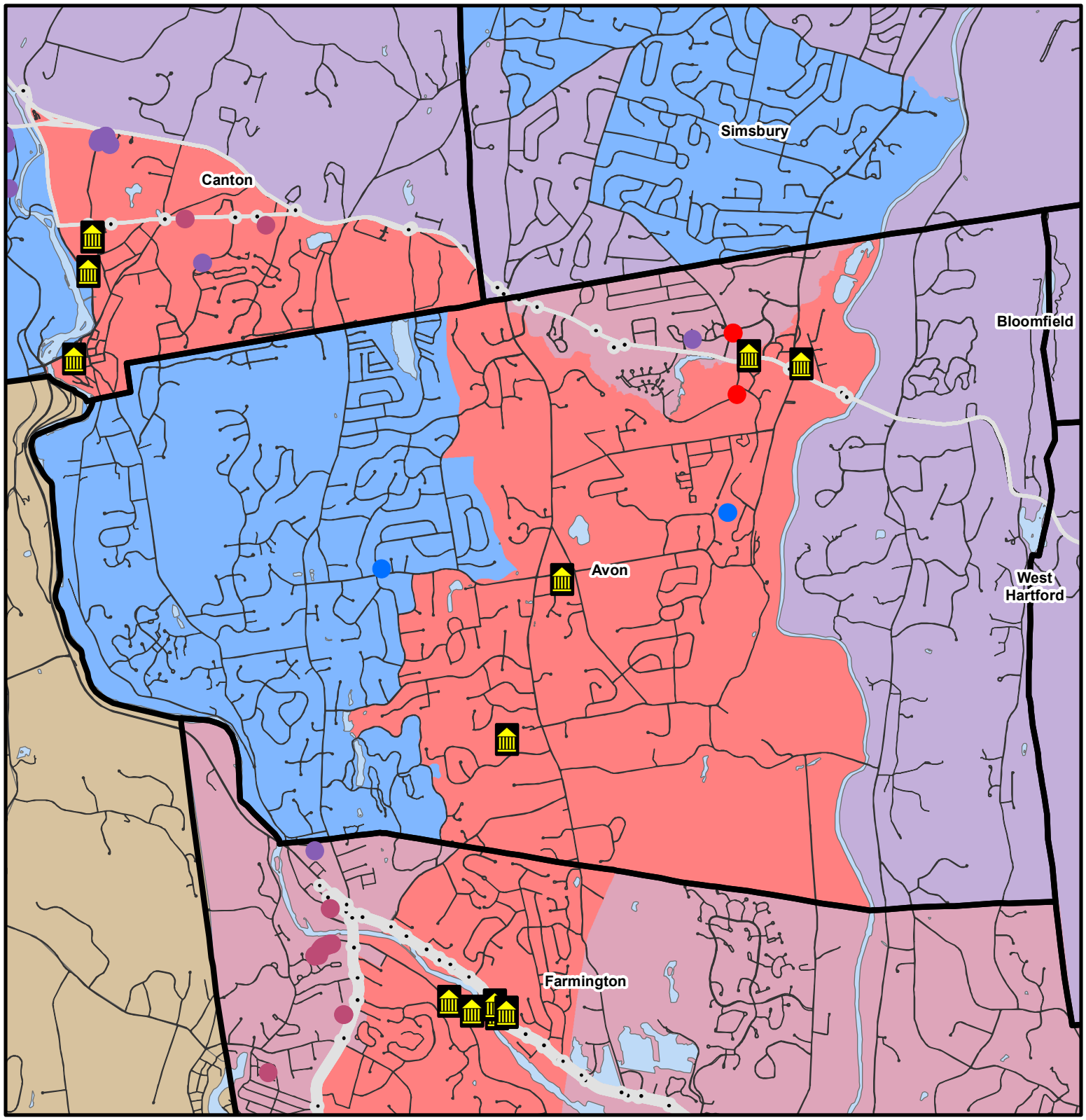
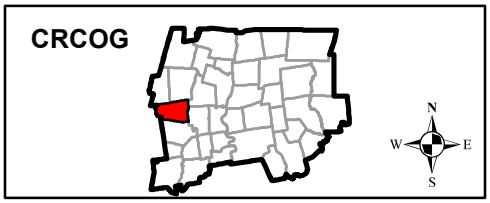


Avon

Government Services

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

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0 0.5 1 Miles

Town Line

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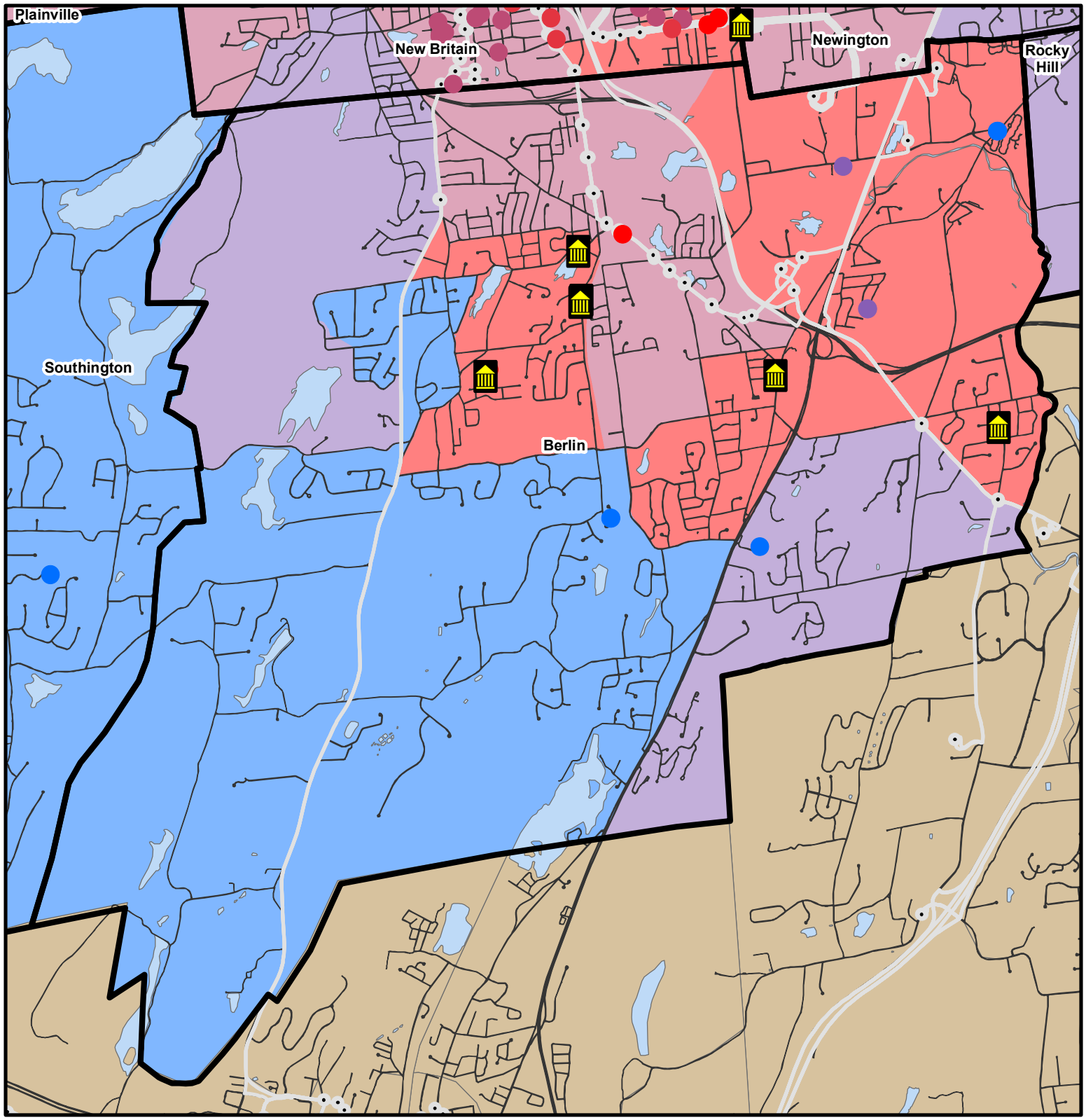
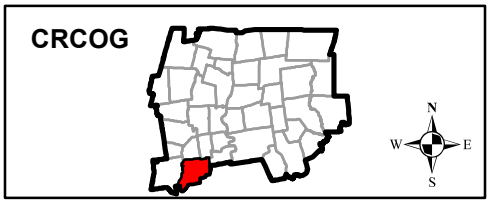


Berlin

Government Services

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
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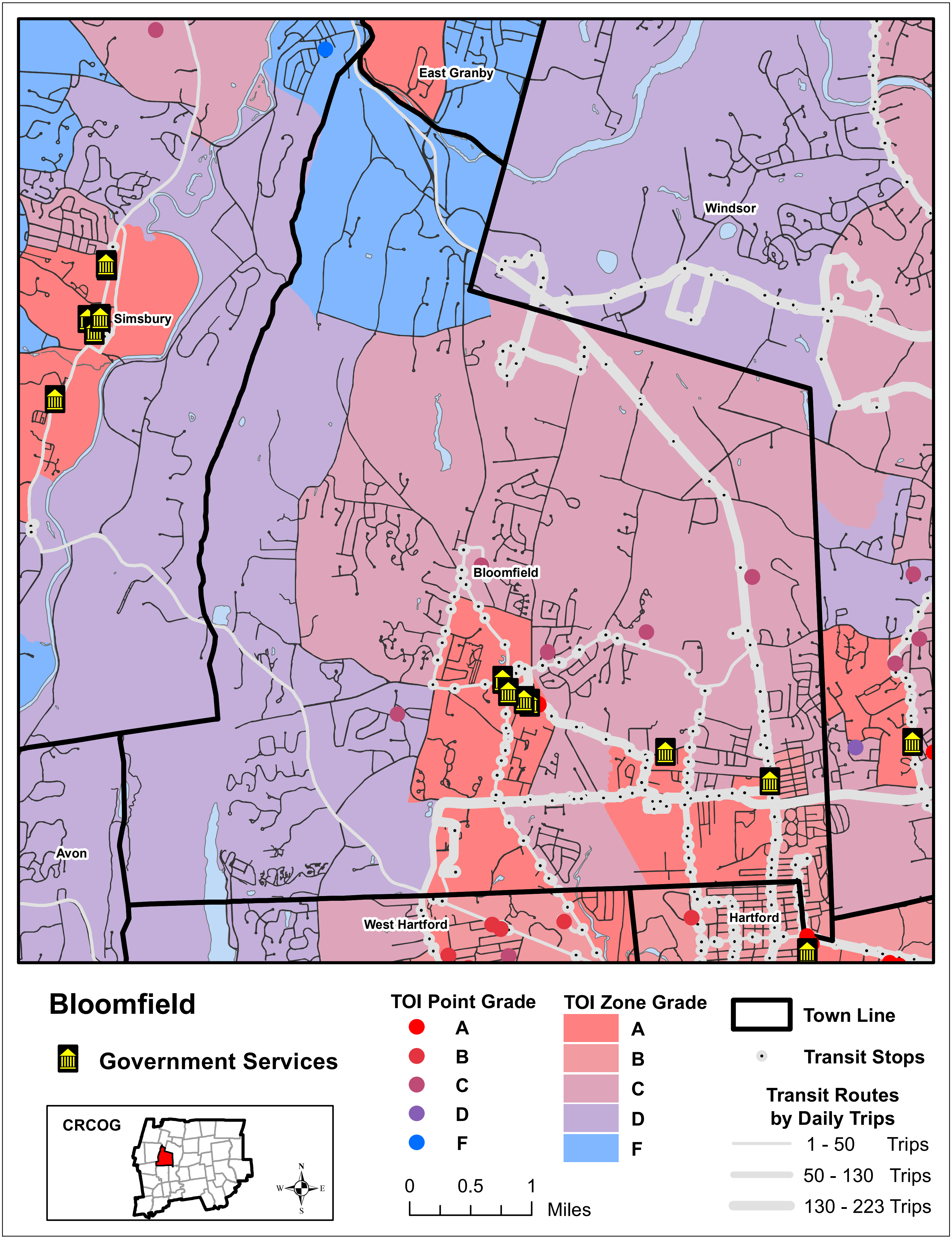
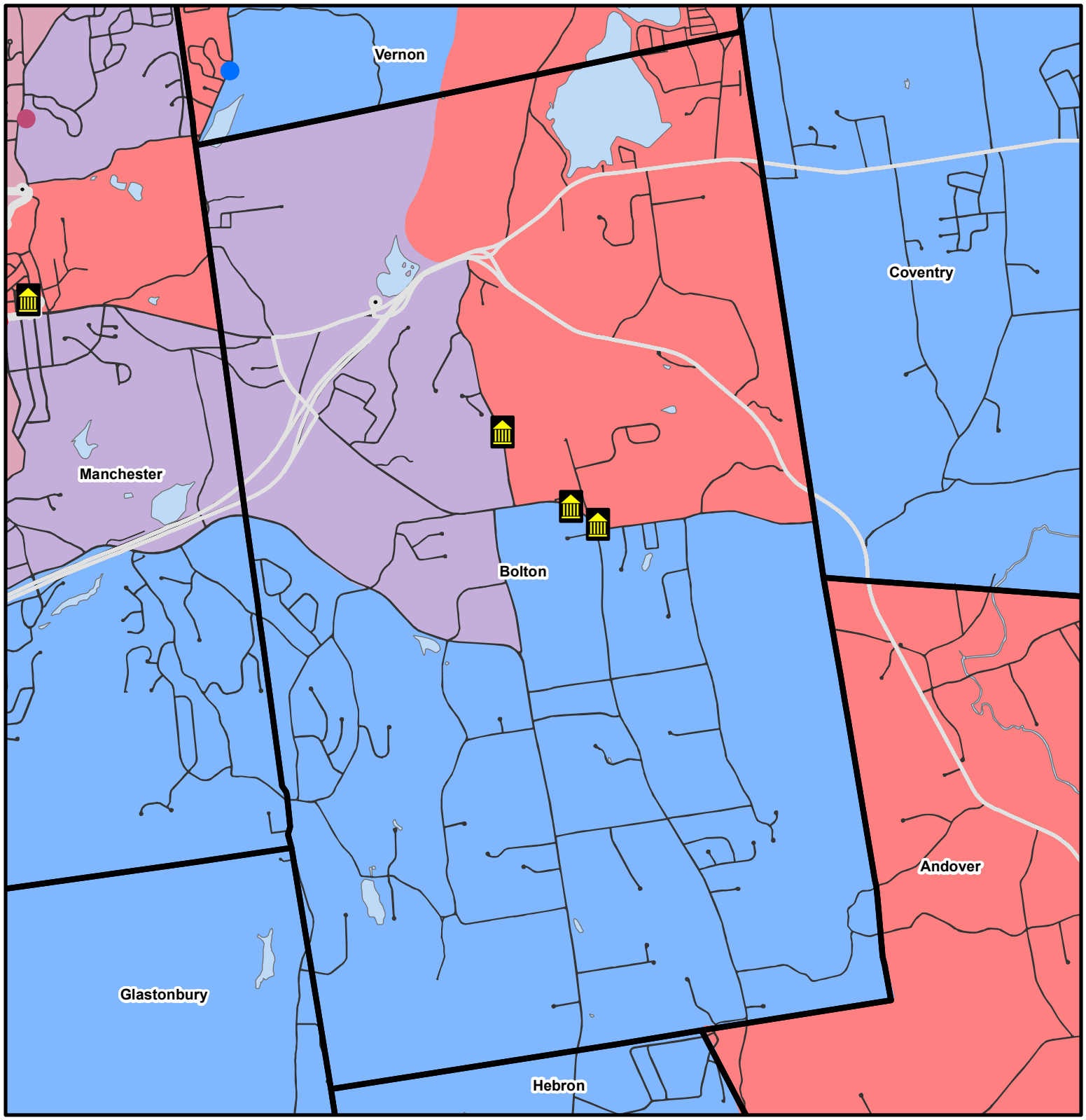
- 130 - 223 Trips

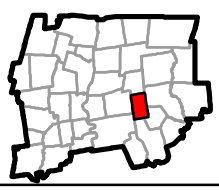

East Granby
Windsor
Simsbury
Bloomfield
Avon
West Hartford
Hartford
Bloomfield
Government Services
TOI Point Grade
A
B
C
D
F
TOI Zone Grade
A
B
C
D
F
Town Line
Transit Stops
Transit Routes by Daily Trips
1 - 50 Trips
50 - 130 Trips
130 - 223 Trips
CRCOG
0 0.5 1
Miles



Bolton

Government Services

CRCOG



TOI Point Grade

- A
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- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

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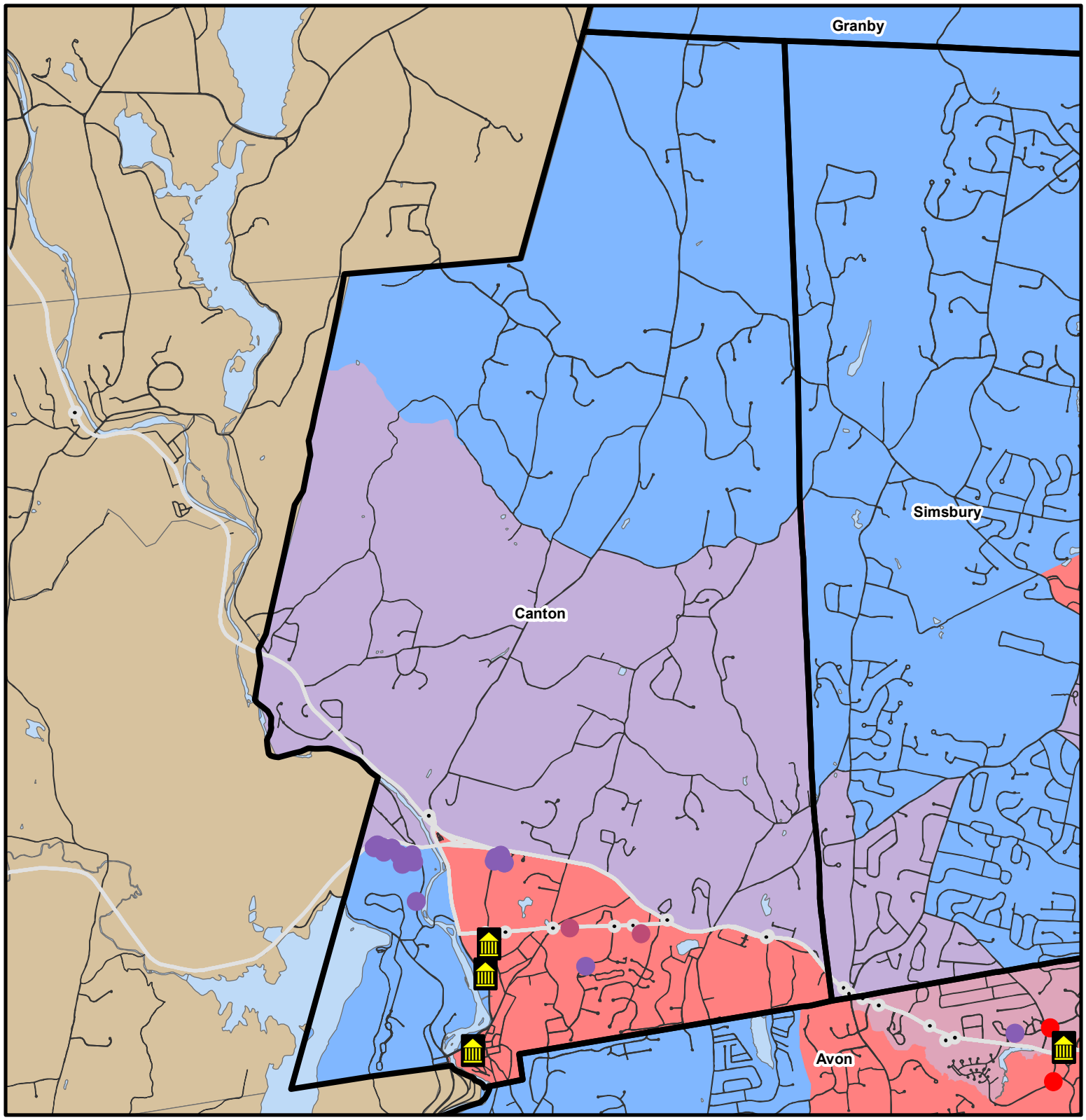
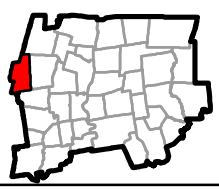


Canton

Government Services

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
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- F

0 0.5 1 Miles

Town Line

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- 1 - 50 Trips
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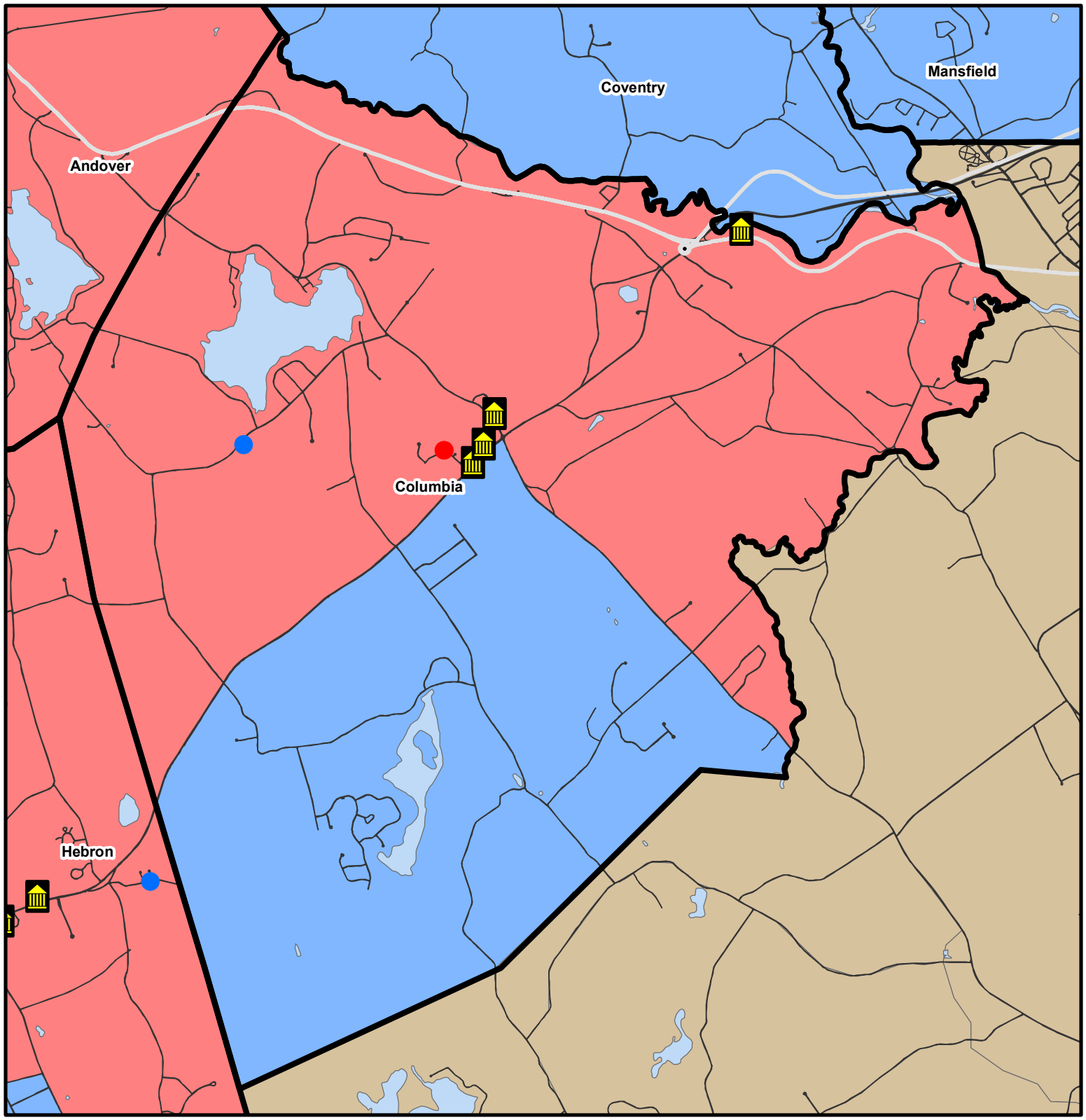
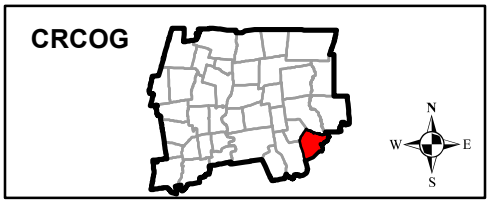


Columbia

Government Services

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

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0 0.5 1 Miles

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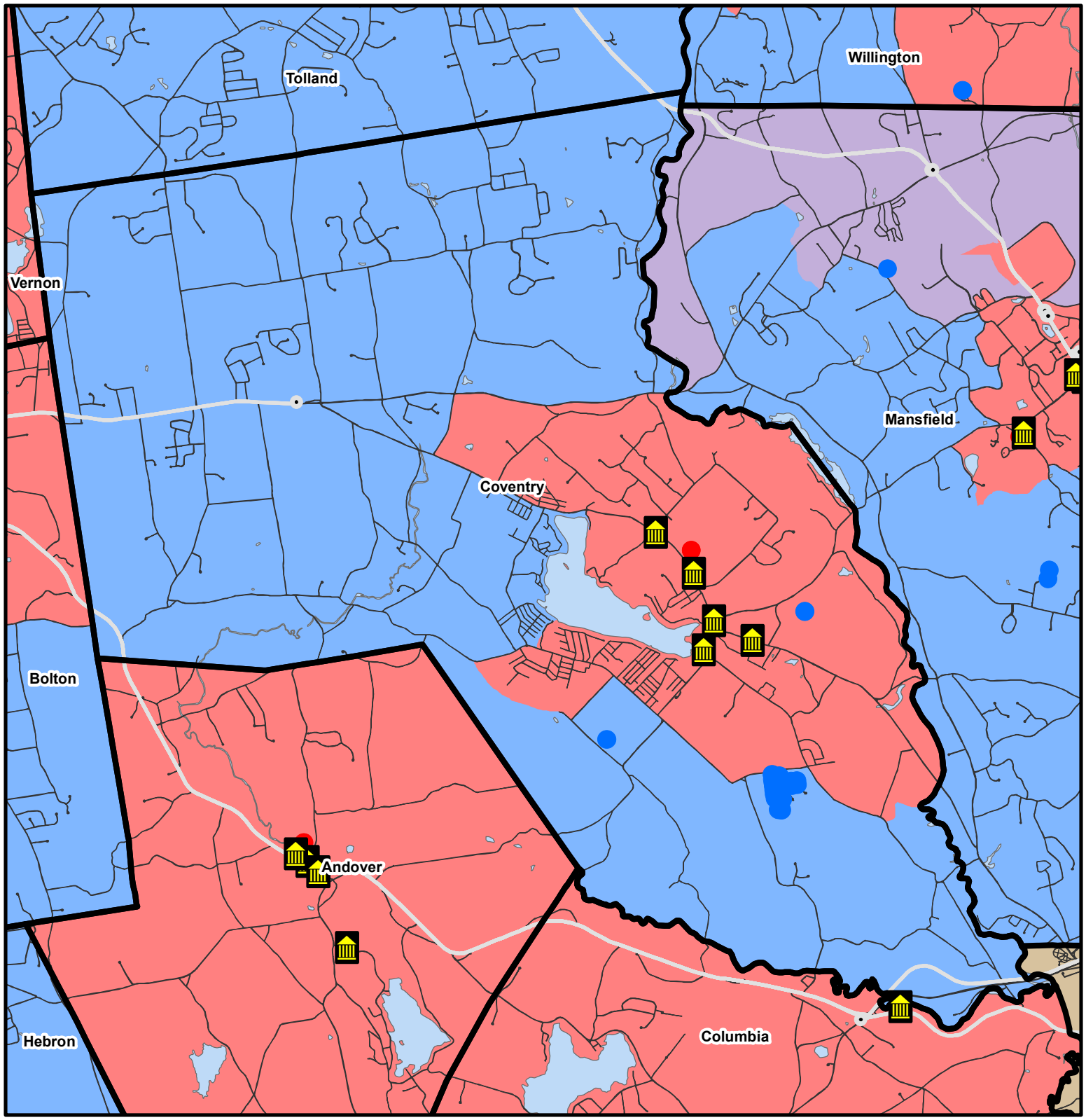
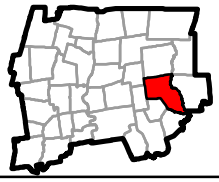


Coventry

Government Services

CRCOG



TOI Point Grade

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TOI Zone Grade

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0 0.5 1 Miles

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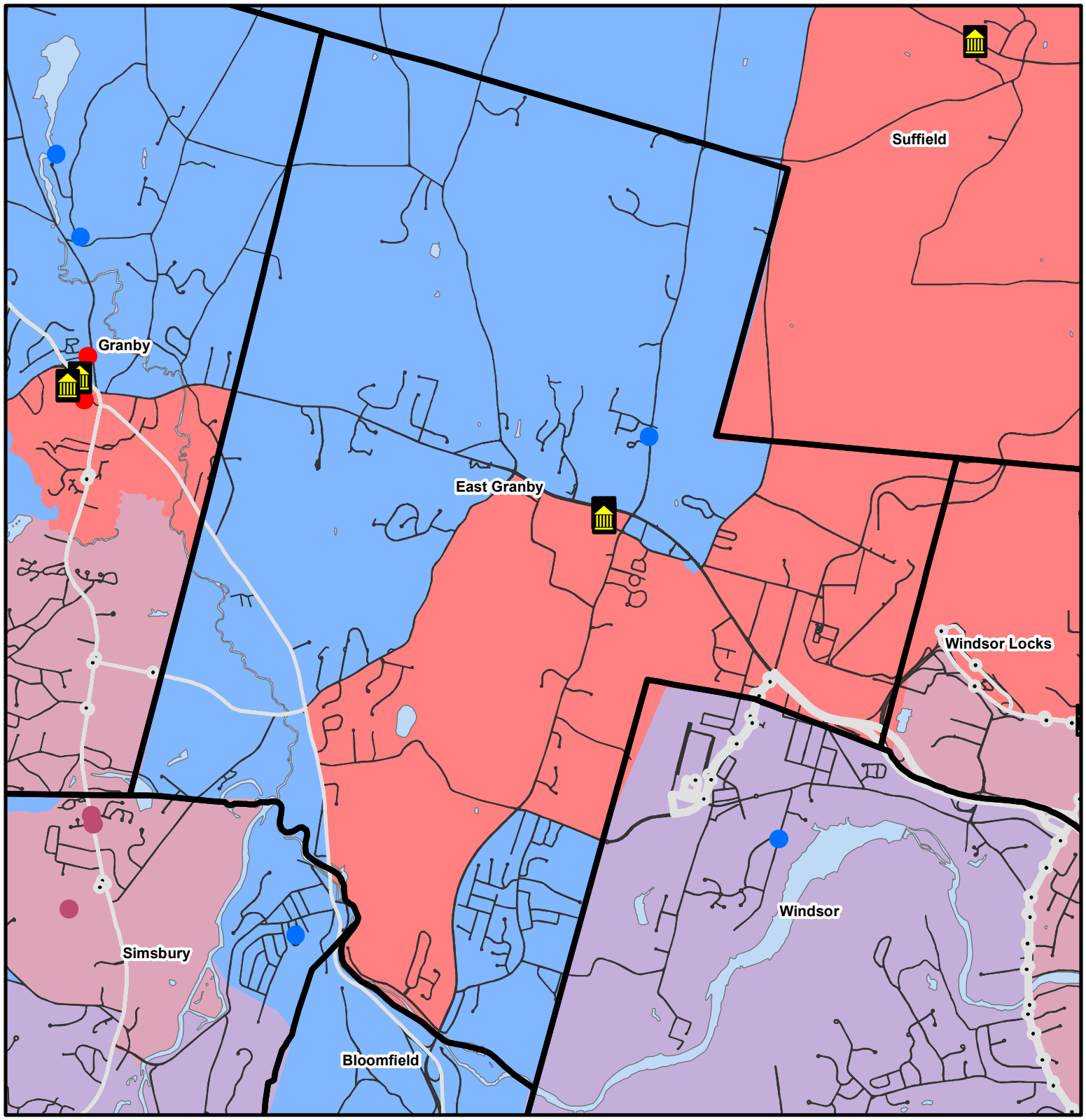
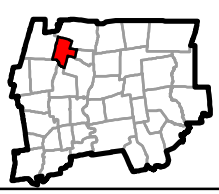


East Granby

Government Services

CRCOG



TOI Point Grade

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TOI Zone Grade

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0 0.5 1 Miles

Town Line

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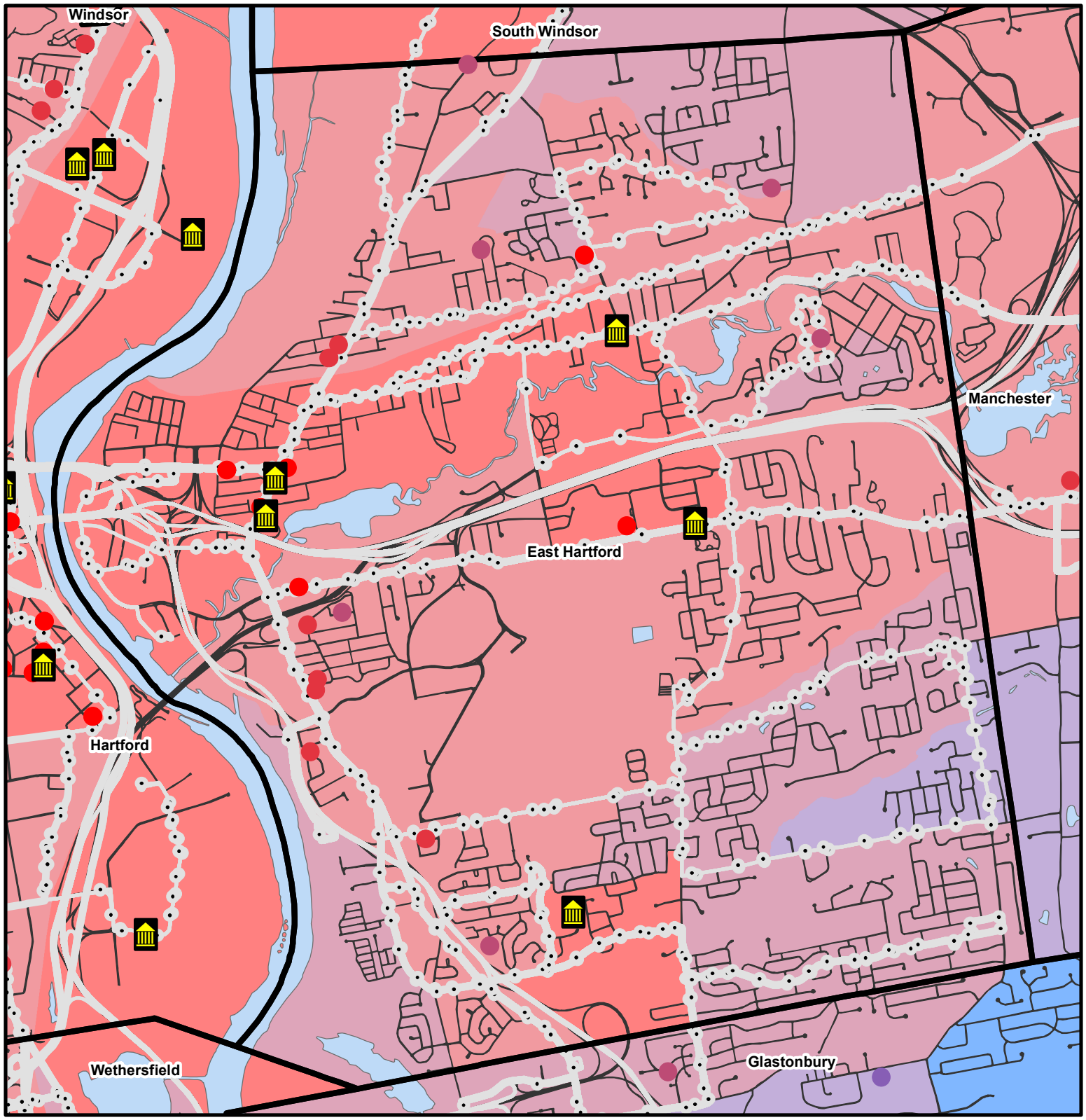
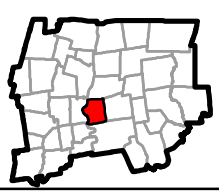


East Hartford

Government Services

CRCOG



TOI Point Grade

- A
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0 0.5 1 Miles

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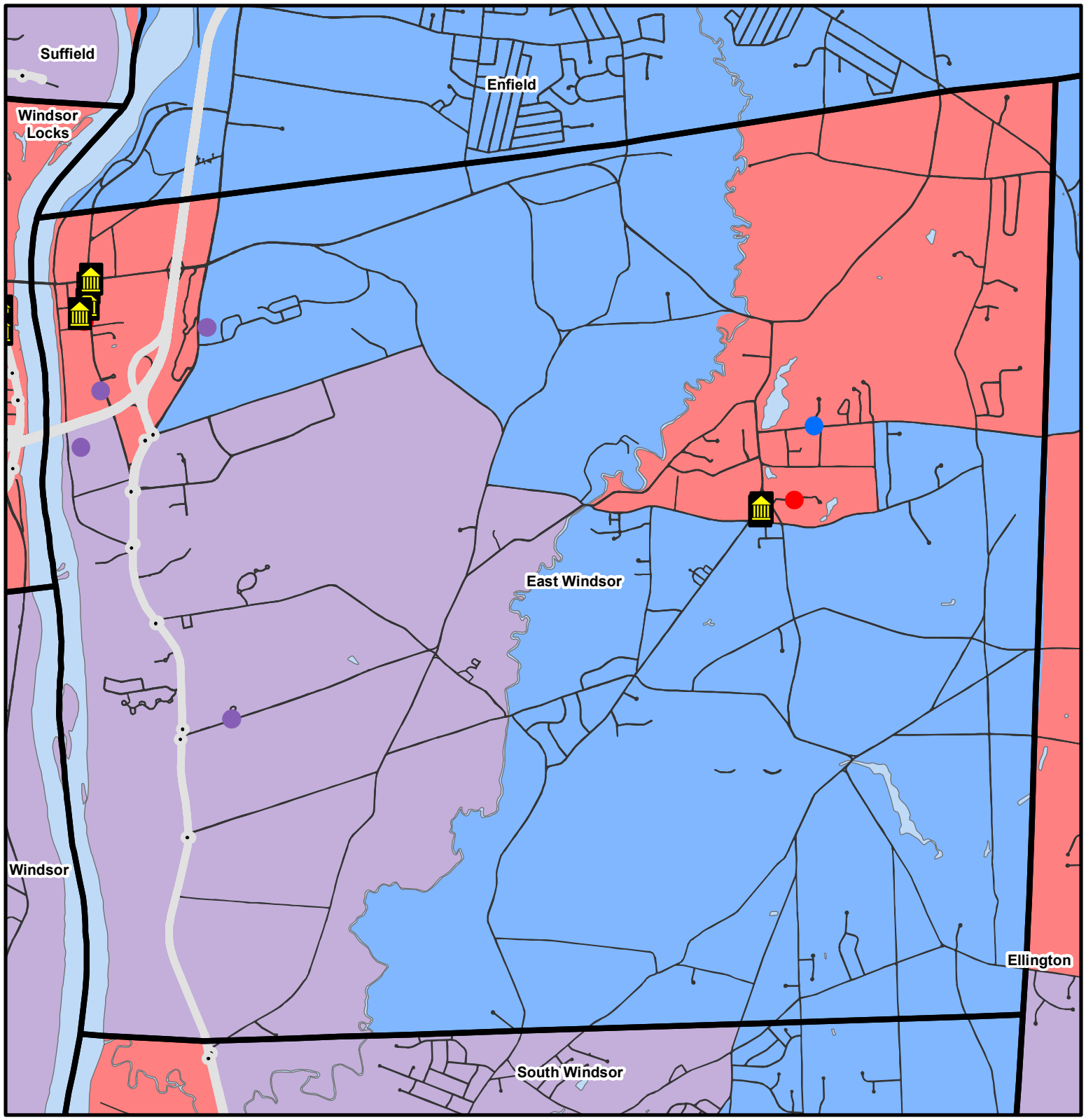
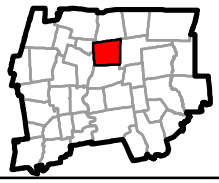


East Windsor

Government Services

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

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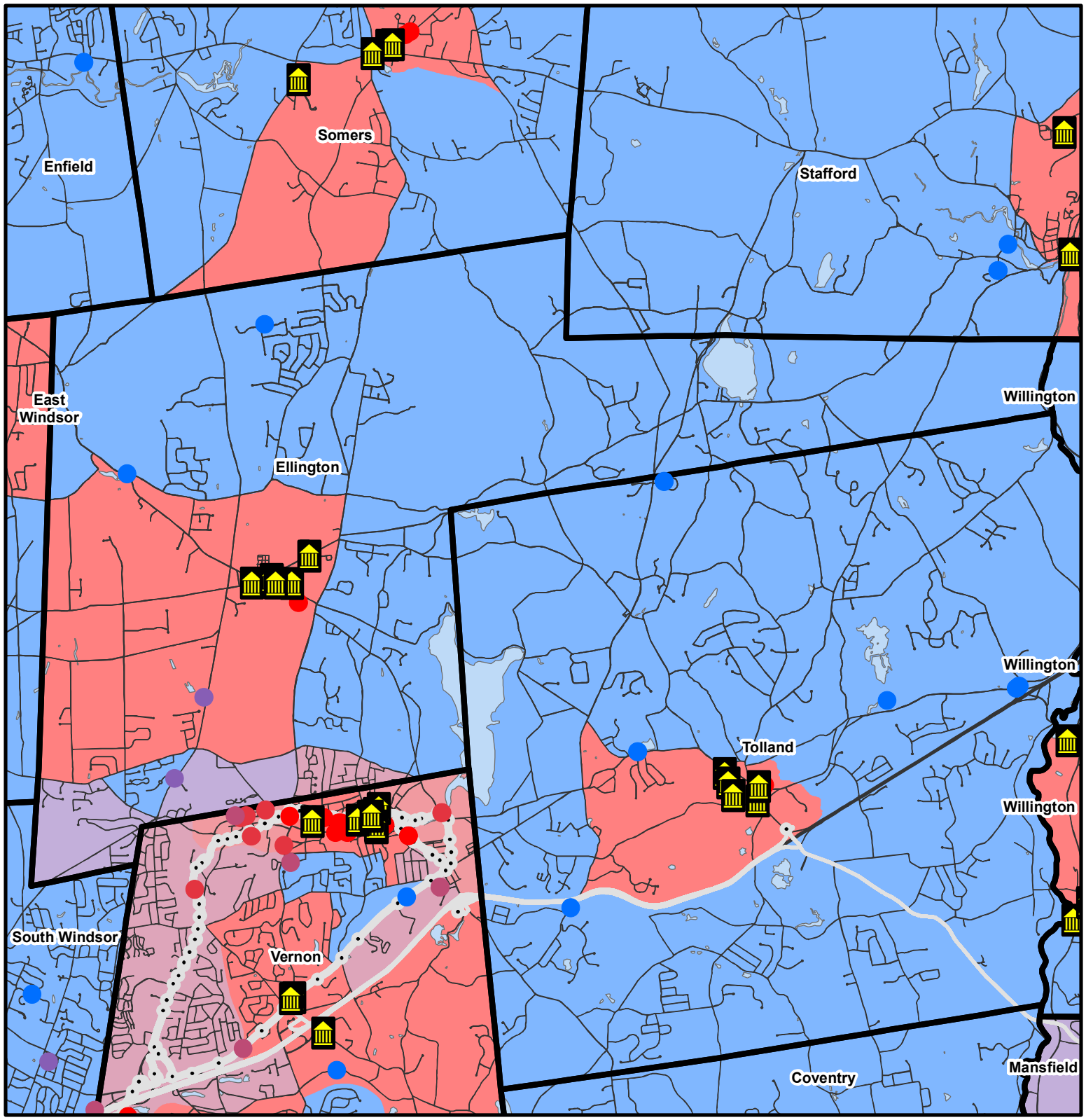
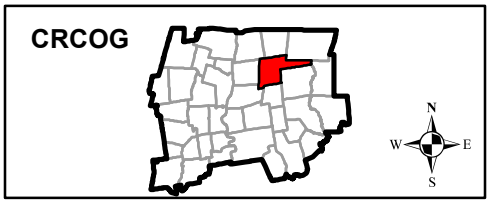


Ellington

Government Services

CRCOG



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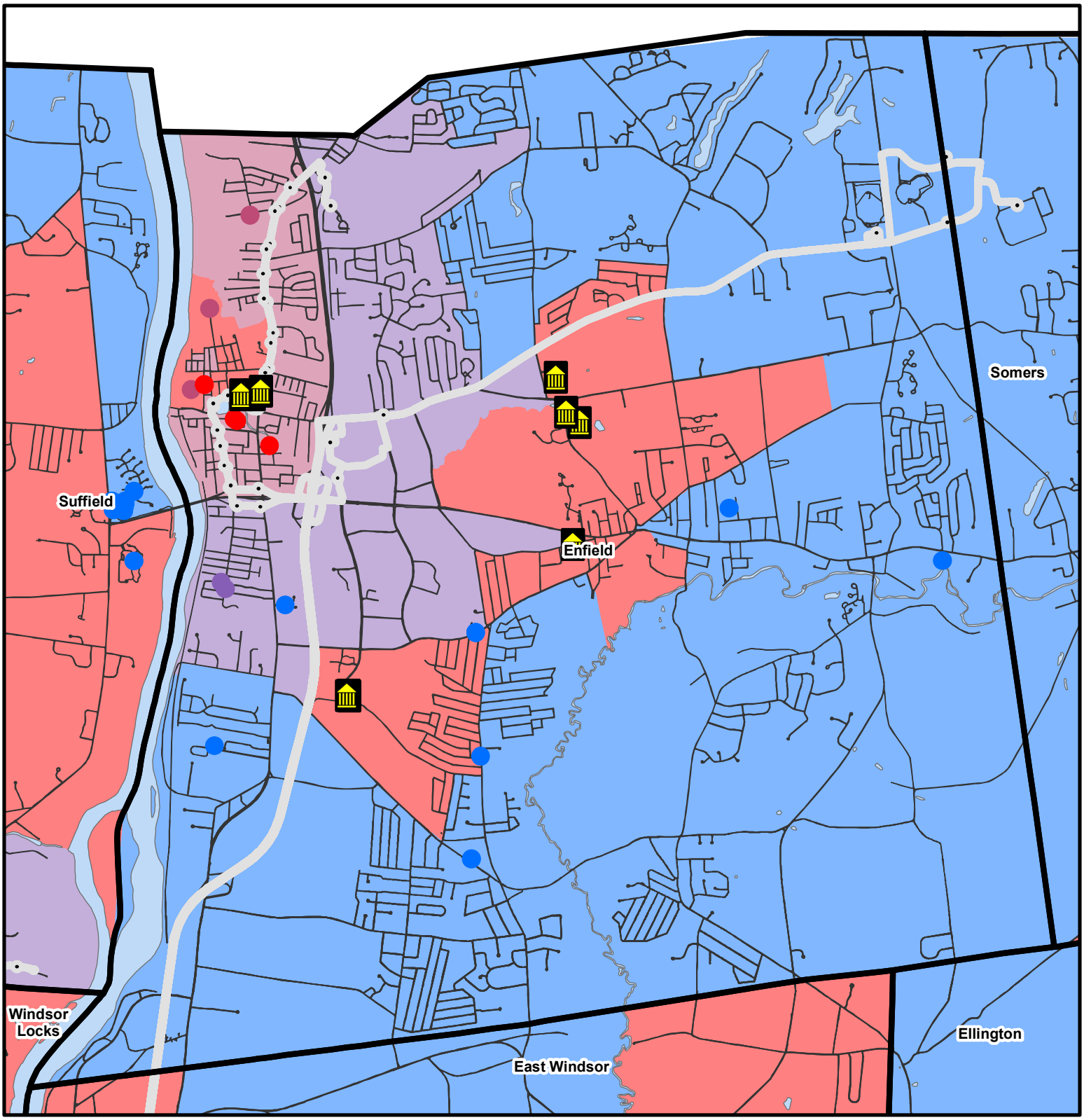
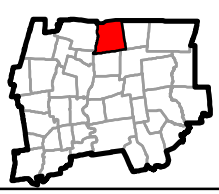


Enfield

Government Services

CRCOG



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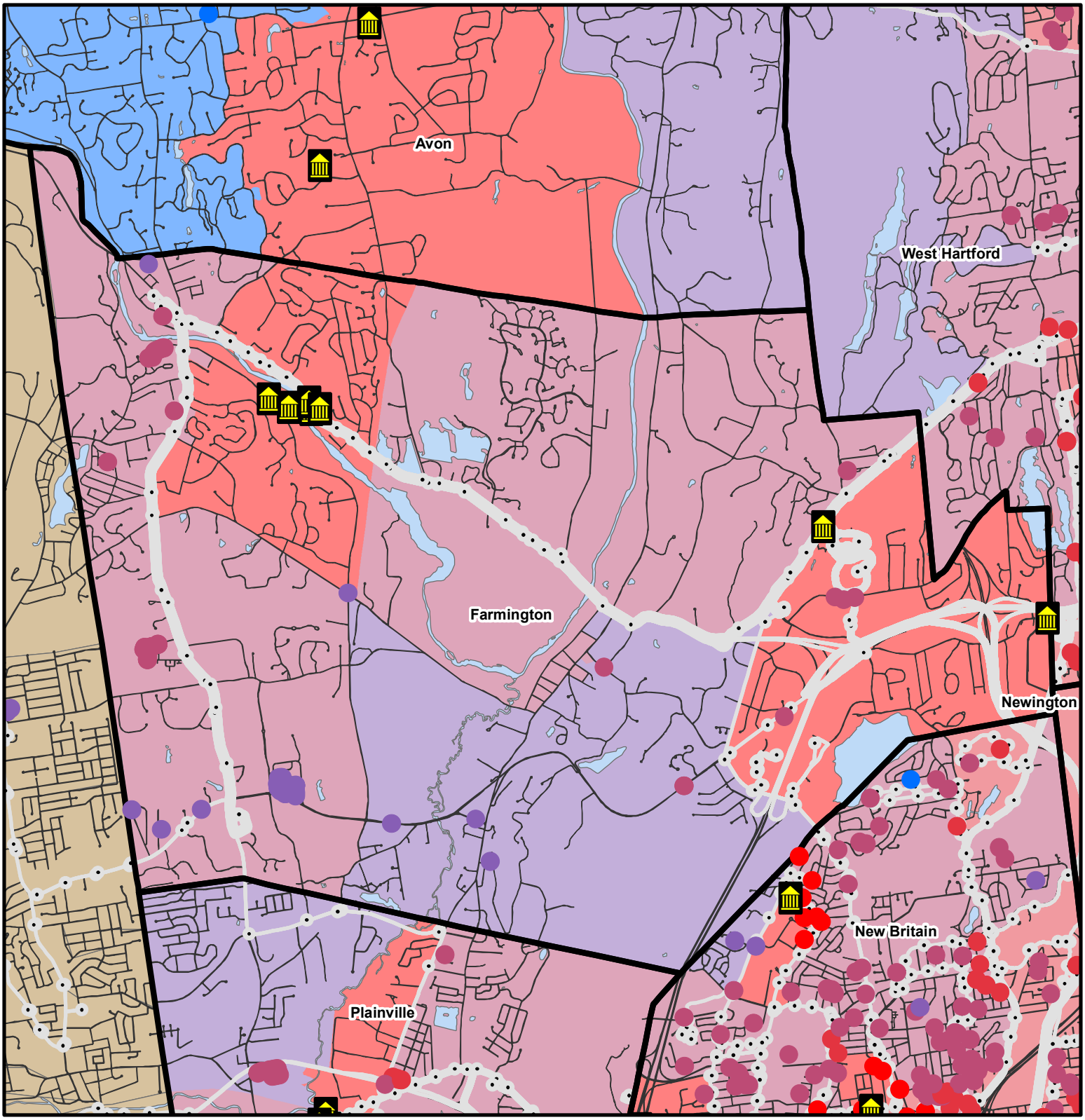
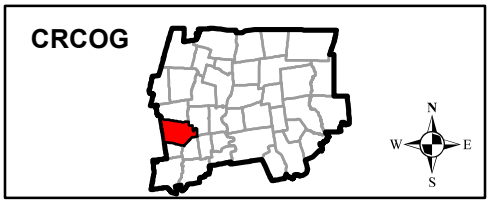


Farmington

Government Services

CRCOG



TOI Point Grade

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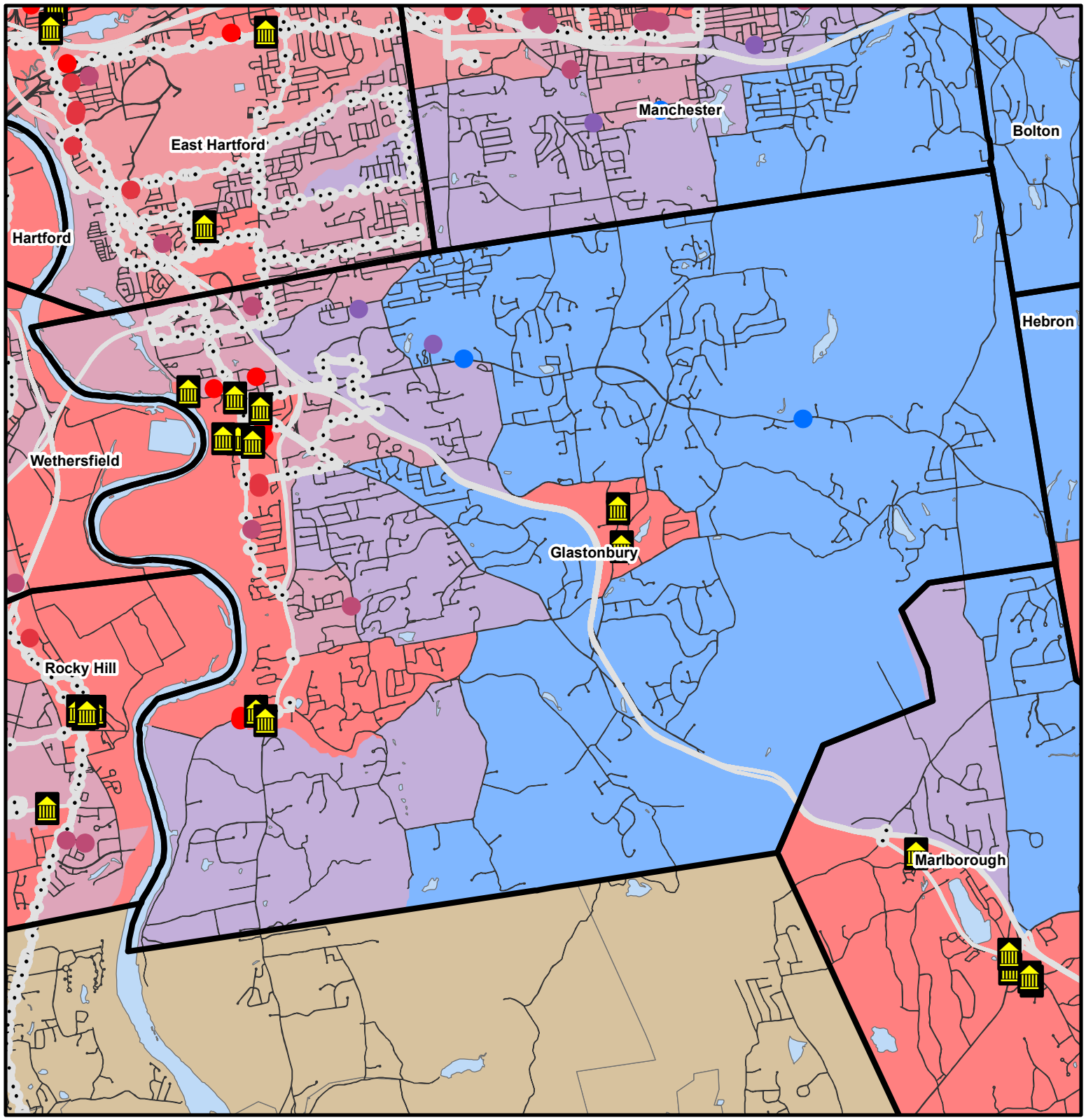
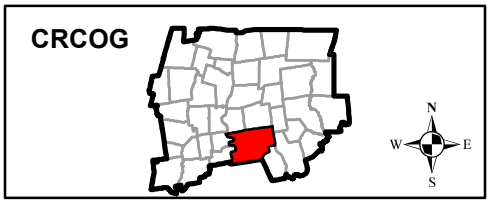


Glastonbury

Government Services

CRCOG



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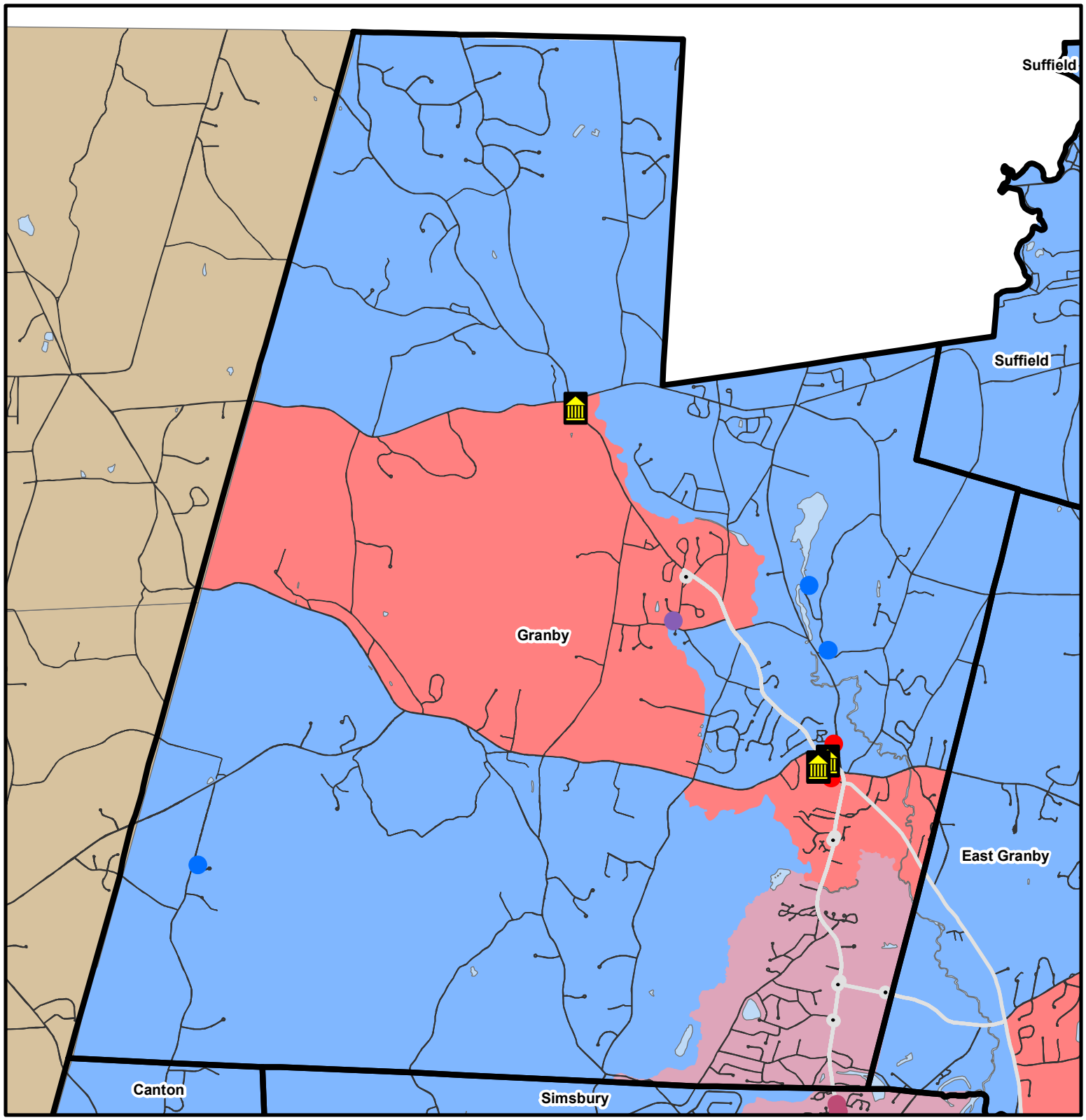
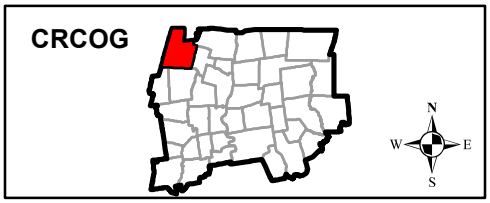


Granby

Government Services

CRCOG



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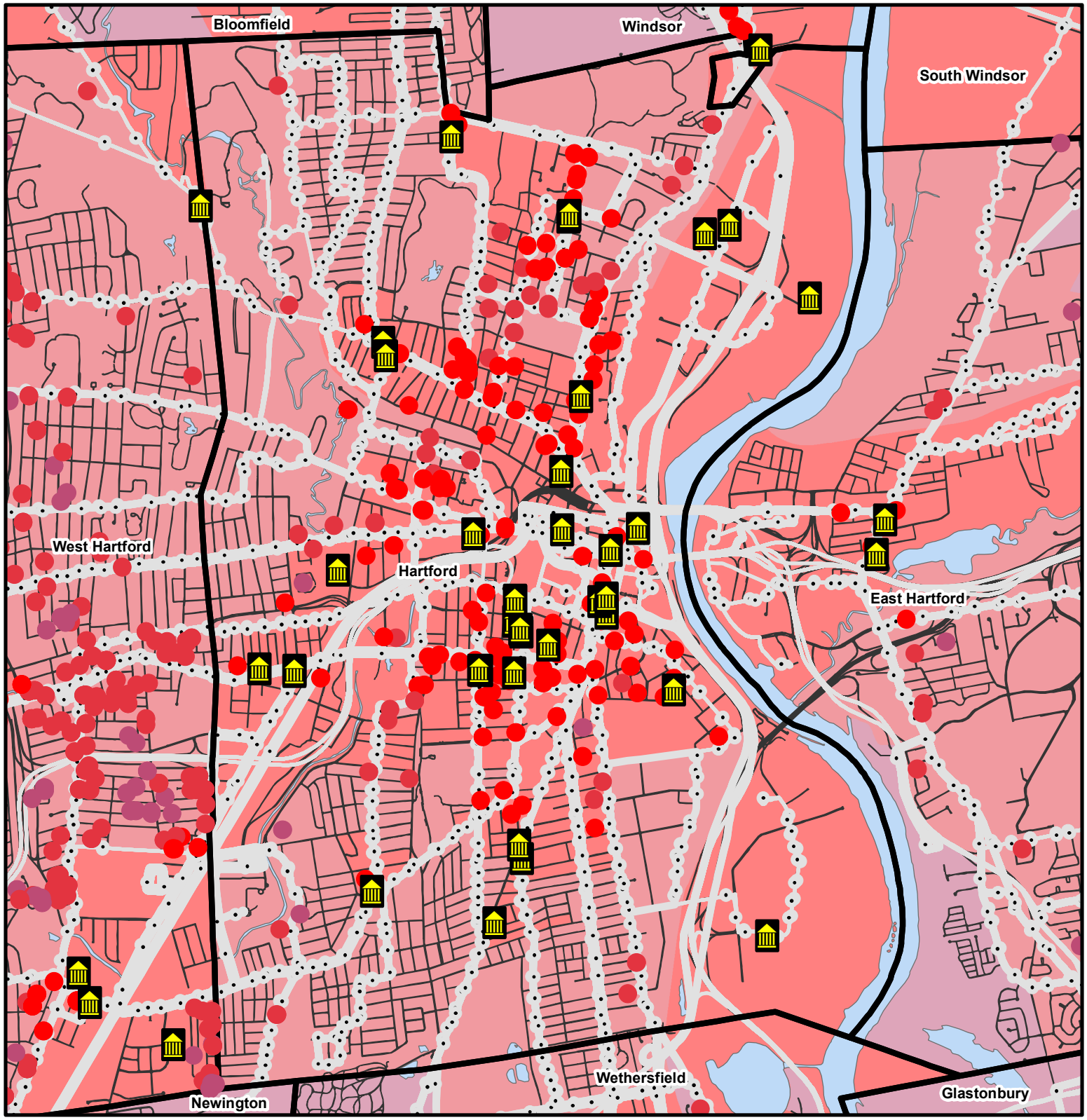
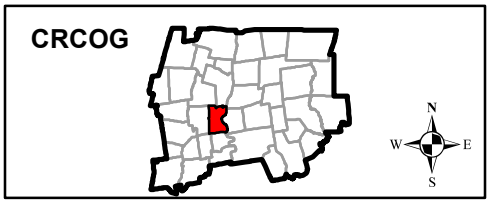


Hartford

Government Services

CRCOG



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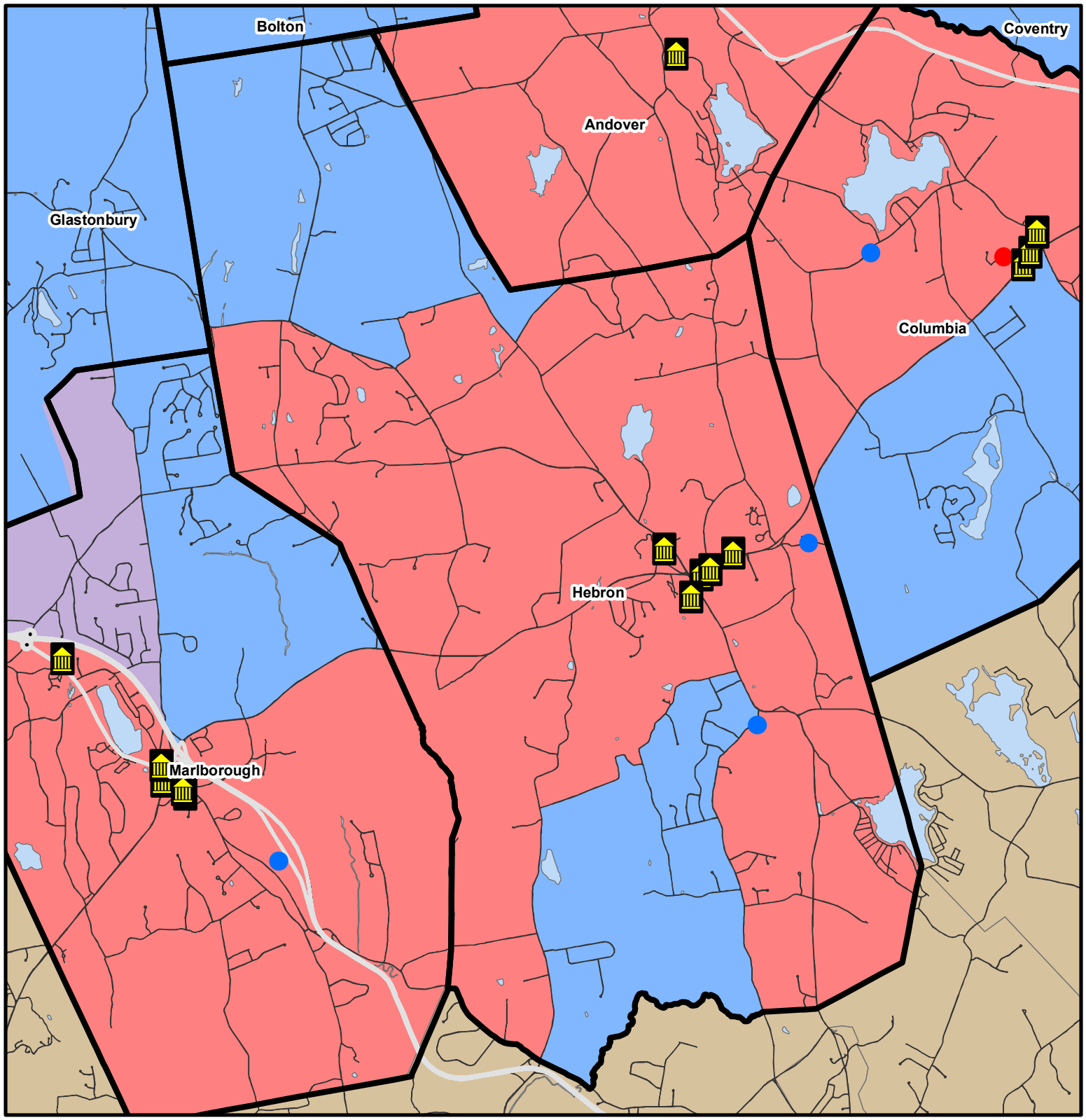
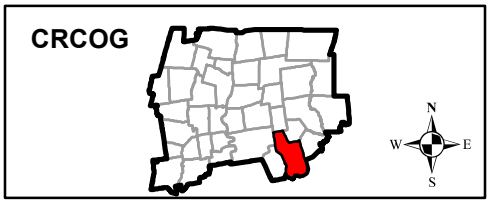


Hebron

Government Services

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

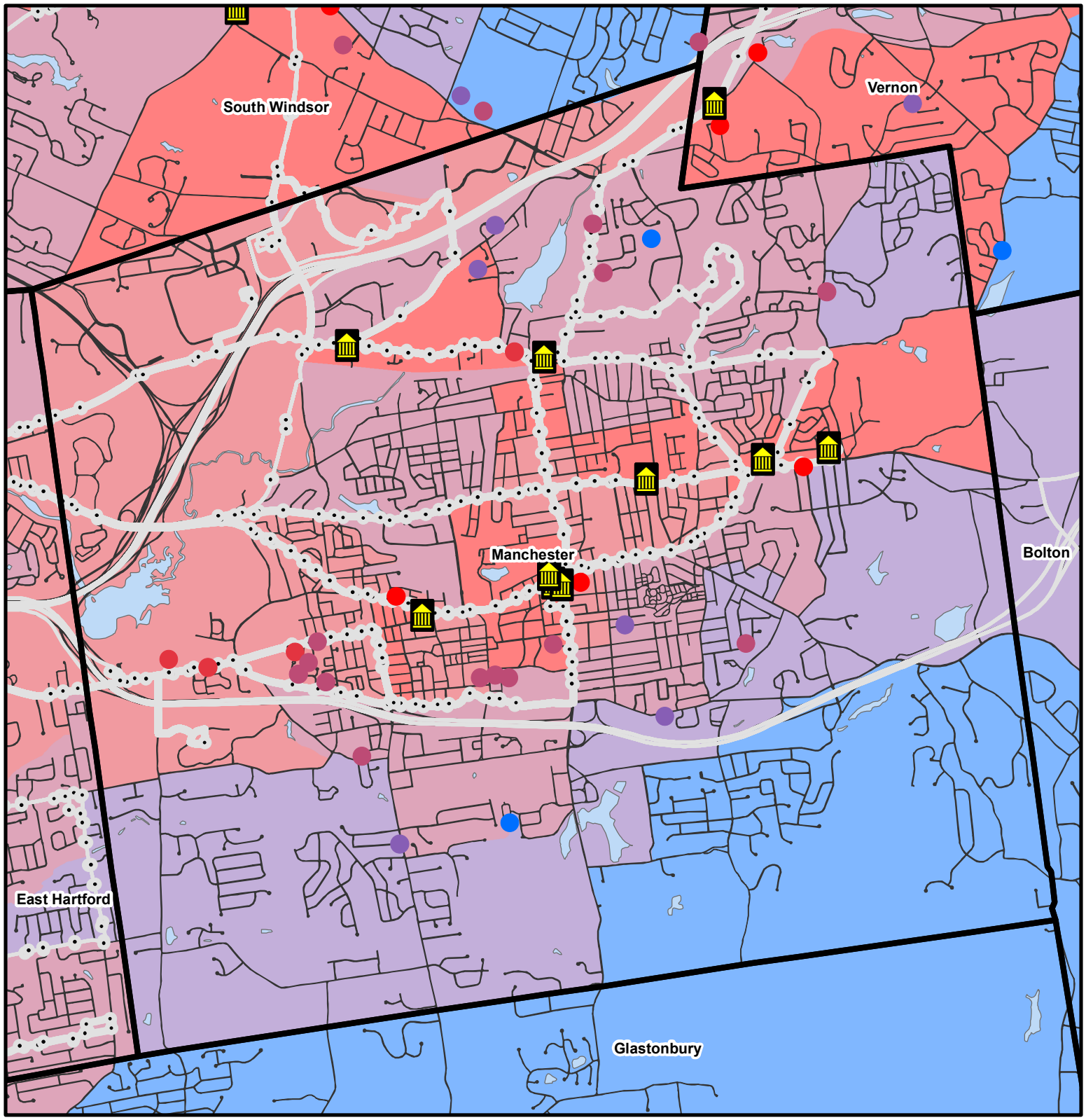
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

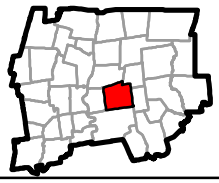
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Manchester

Government Services

CRCOG



TOI Point Grade

- A
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- F

TOI Zone Grade

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- D
- F

0 0.5 1 Miles

Town Line

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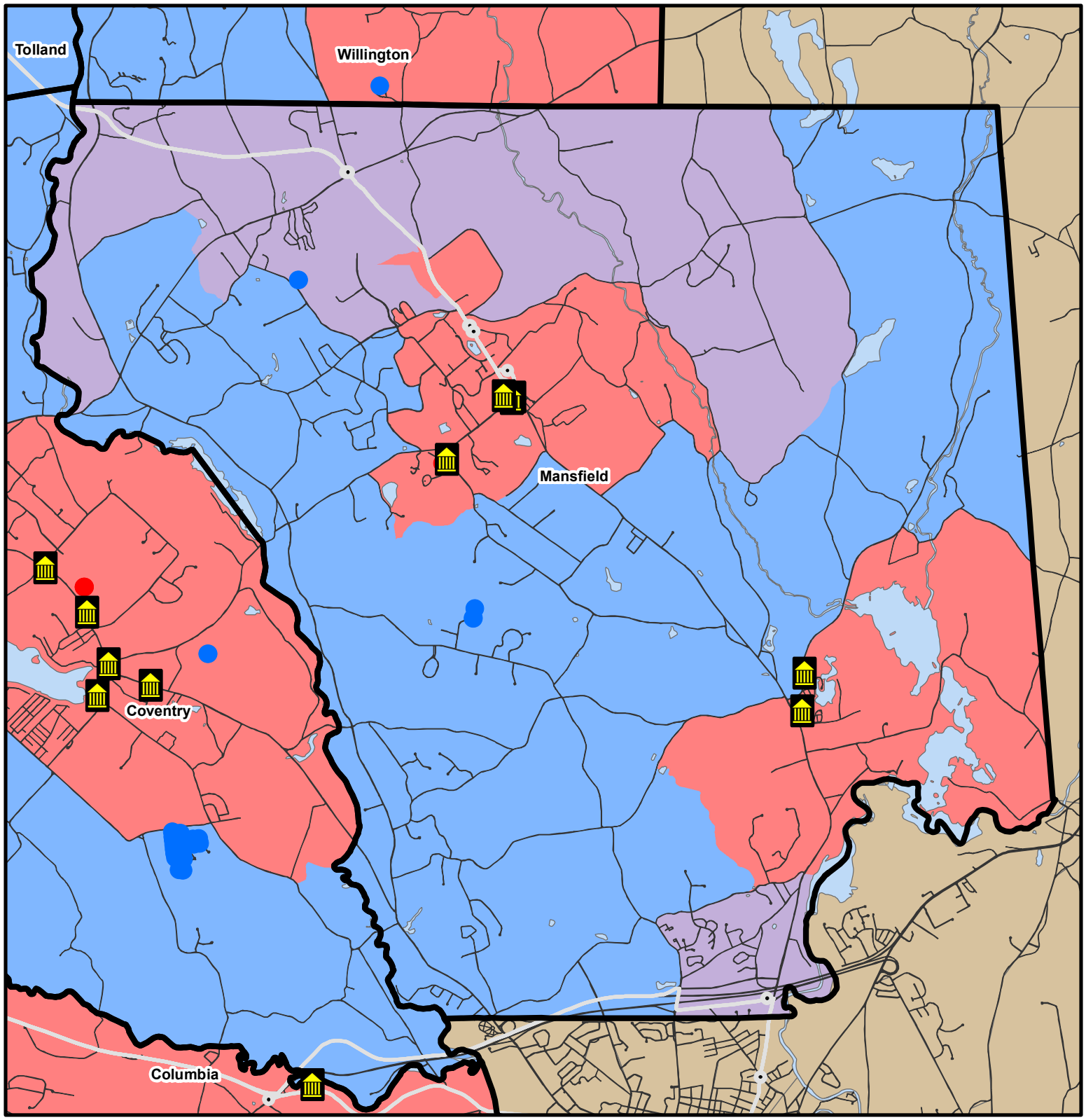
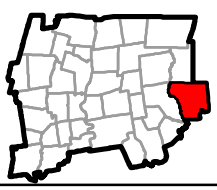


Mansfield

Government Services

CRCOG



TOI Point Grade

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0 0.5 1 Miles

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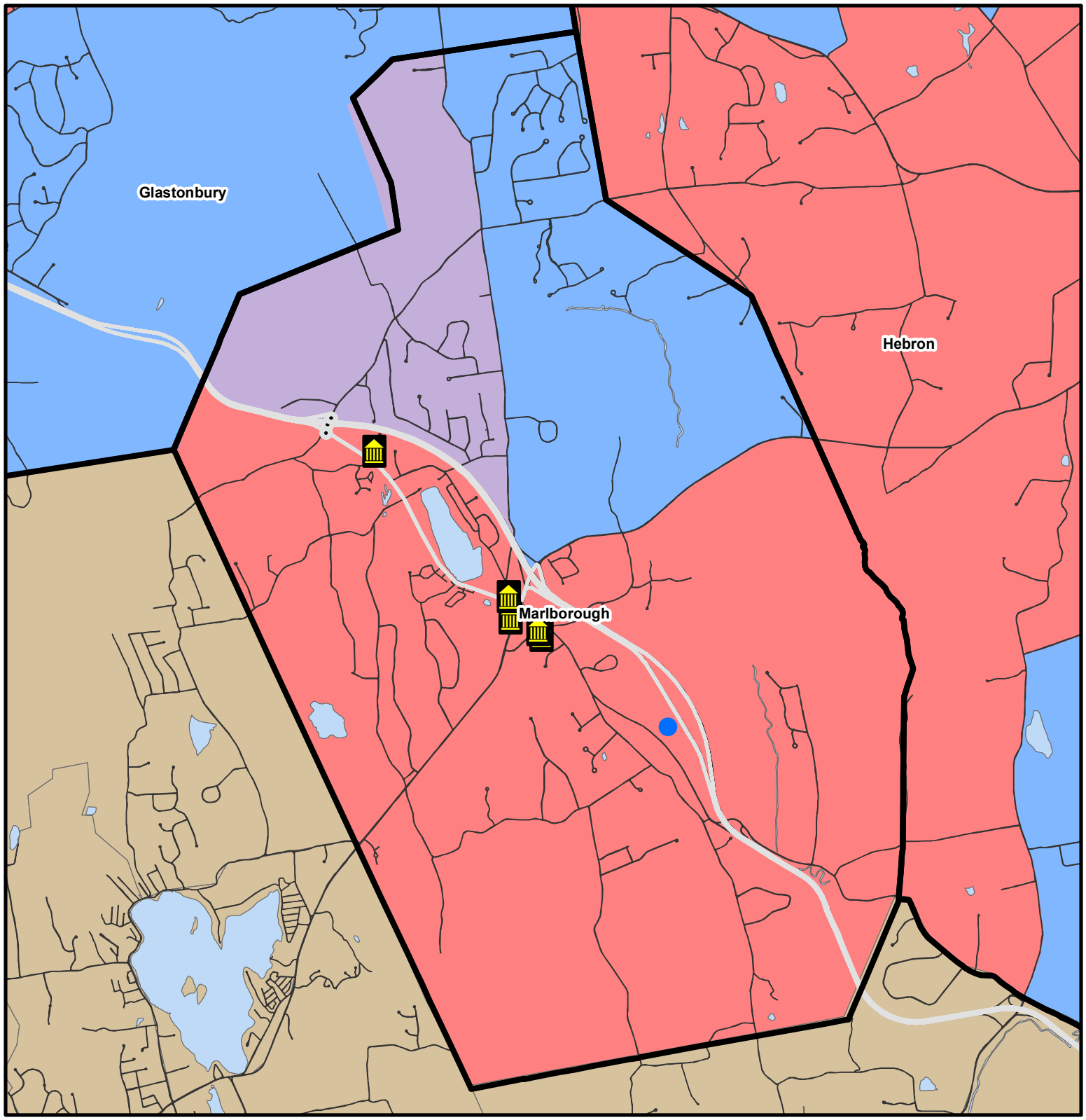
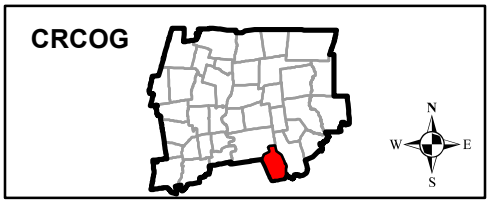


Marlborough

Government Services

CRCOG



TOI Point Grade

- A
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- D
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0 0.5 1 Miles

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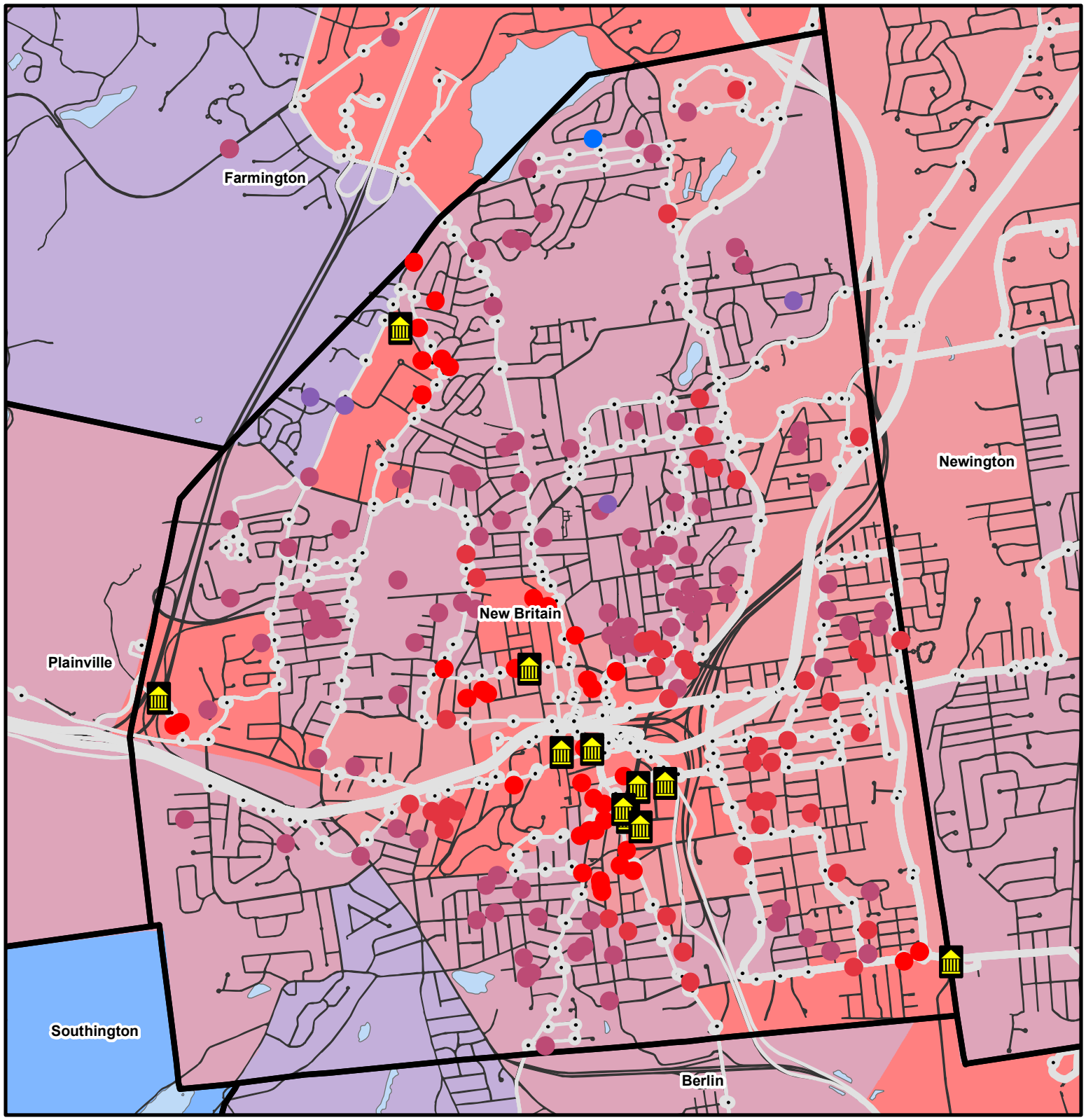
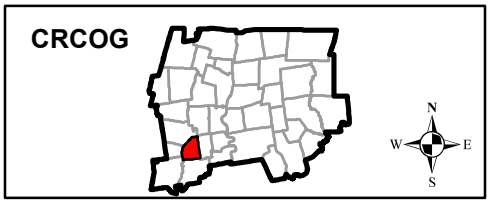


New Britain

Government Services

CRCOG



TOI Point Grade

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- F

TOI Zone Grade

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- F

0 0.5 1 Miles

Town Line

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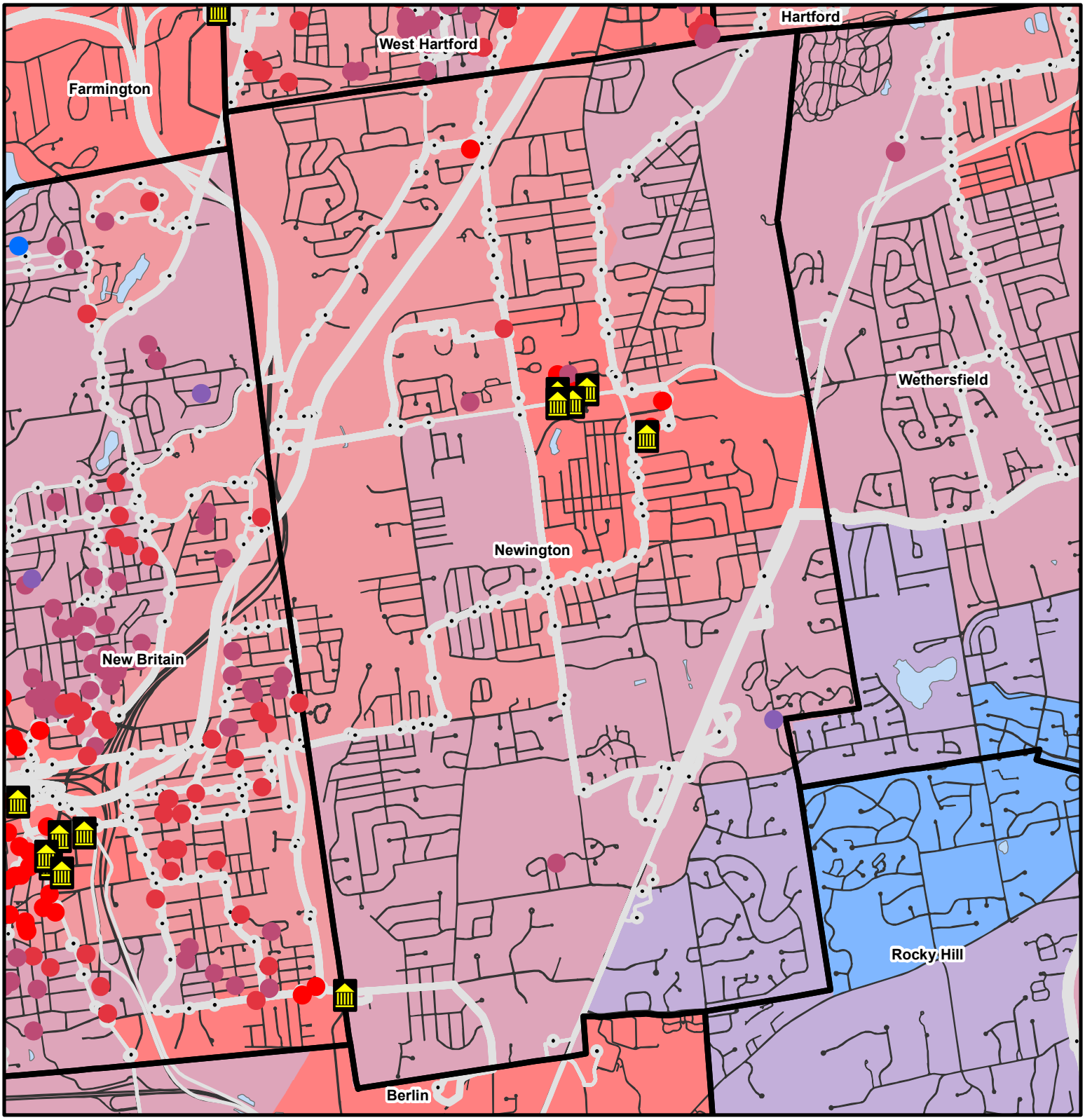
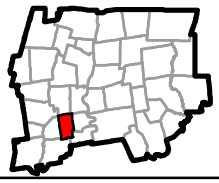


Newington

Government Services

CRCOG



TOI Point Grade

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TOI Zone Grade

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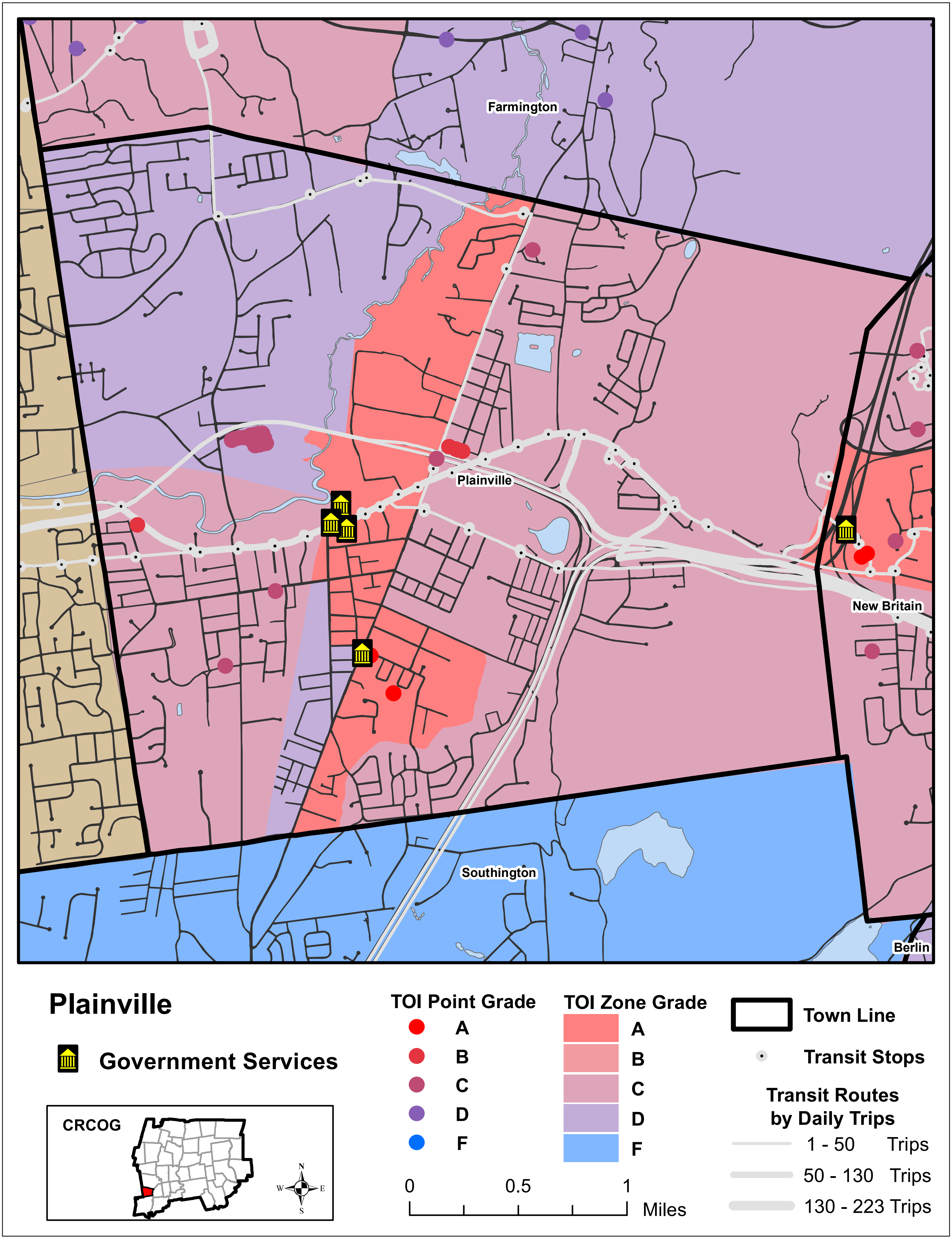
Farmington
Plainville
New Britain
Southington
Berlin
Plainville
Government Services
CRCOG
TOI Point Grade
A
B
C
D
F
TOI Zone Grade
A
B
C
D
F
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Miles
Town Line
Transit Stops
Transit Routes by Daily Trips
1 - 50 Trips
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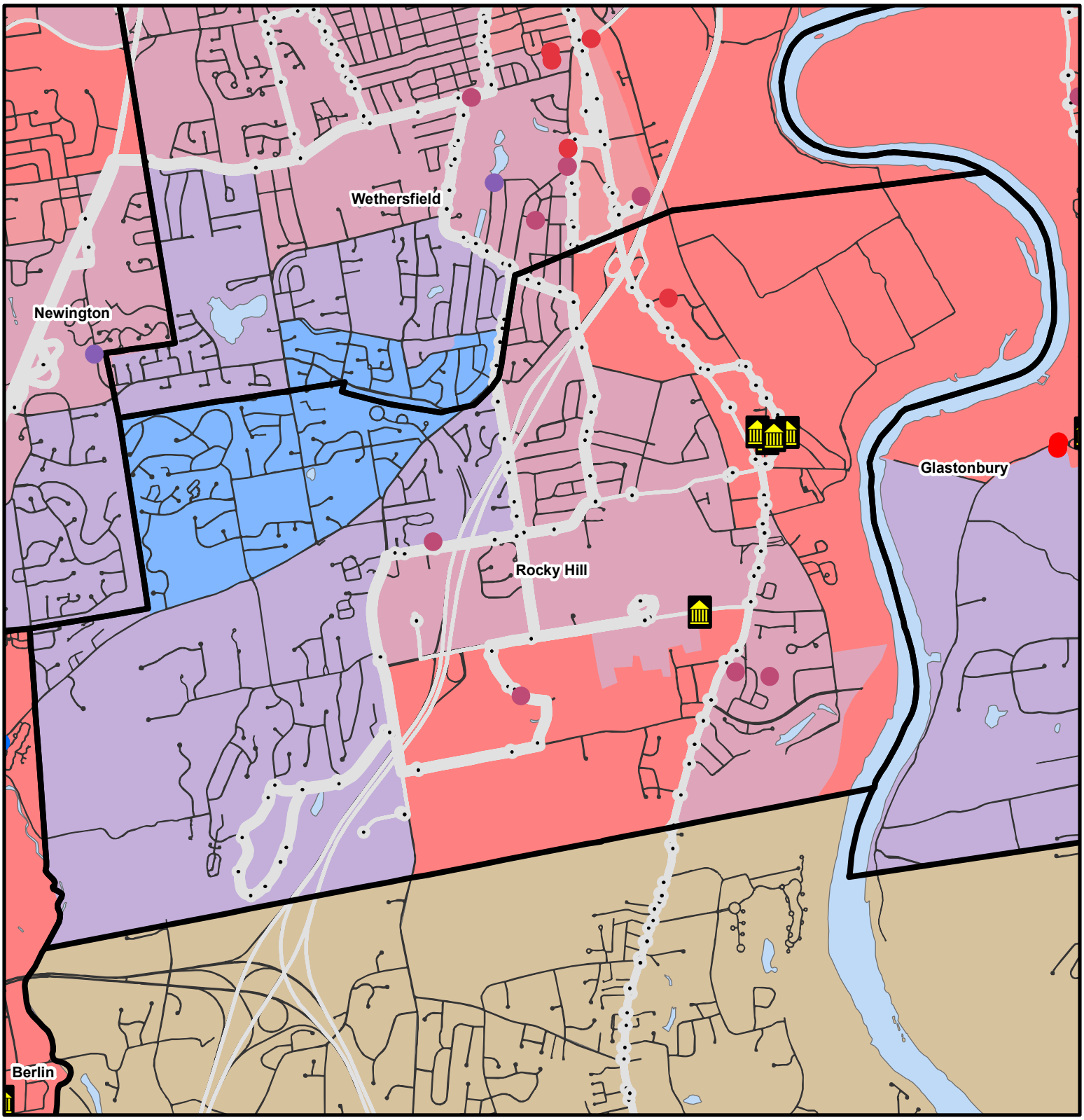
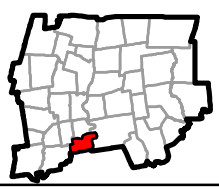


Rocky Hill

Government Services

CRCOG



TOI Point Grade

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0 0.5 1 Miles

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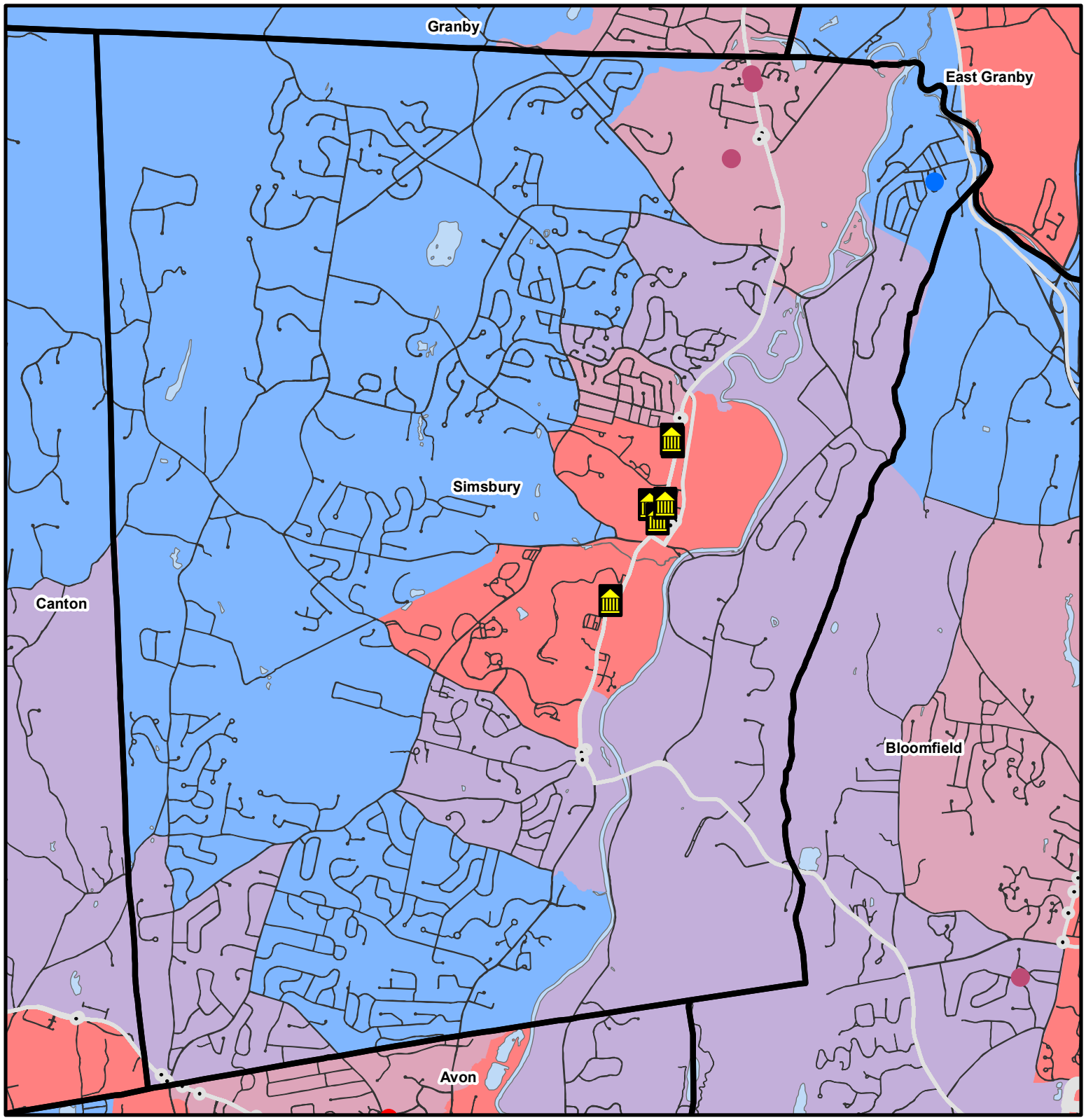
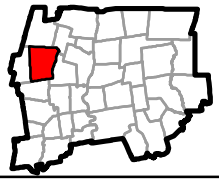
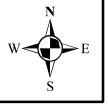


Simsbury

Government Services

CRCOG





TOI Point Grade

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- A
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- F

0 0.5 1 Miles

Town Line

Transit Stops

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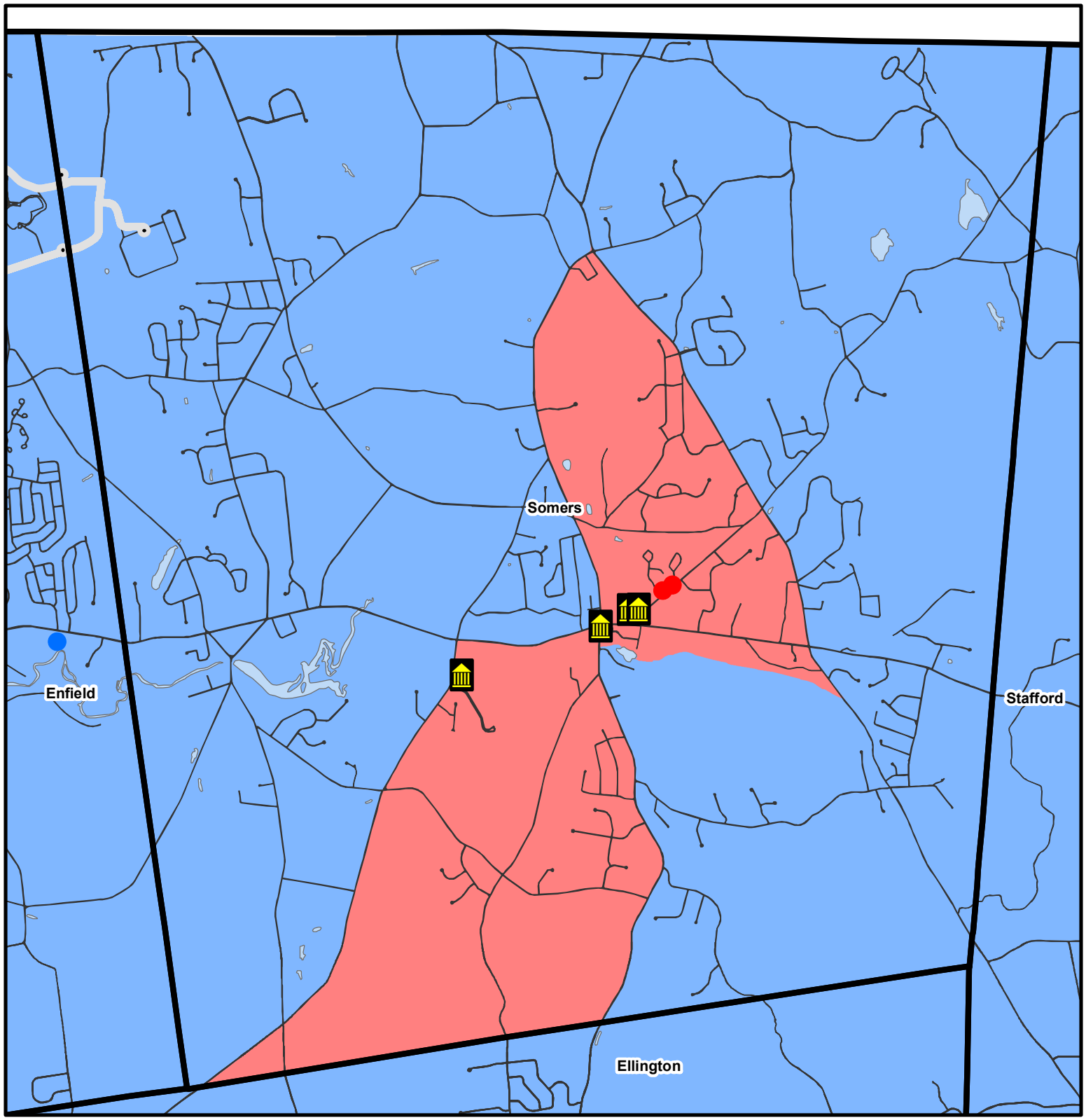
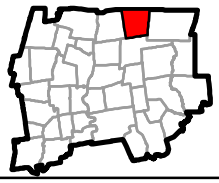


Somers

Government Services

CRCOG



TOI Point Grade

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TOI Zone Grade

- A
- B
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0 0.5 1 Miles

Town Line

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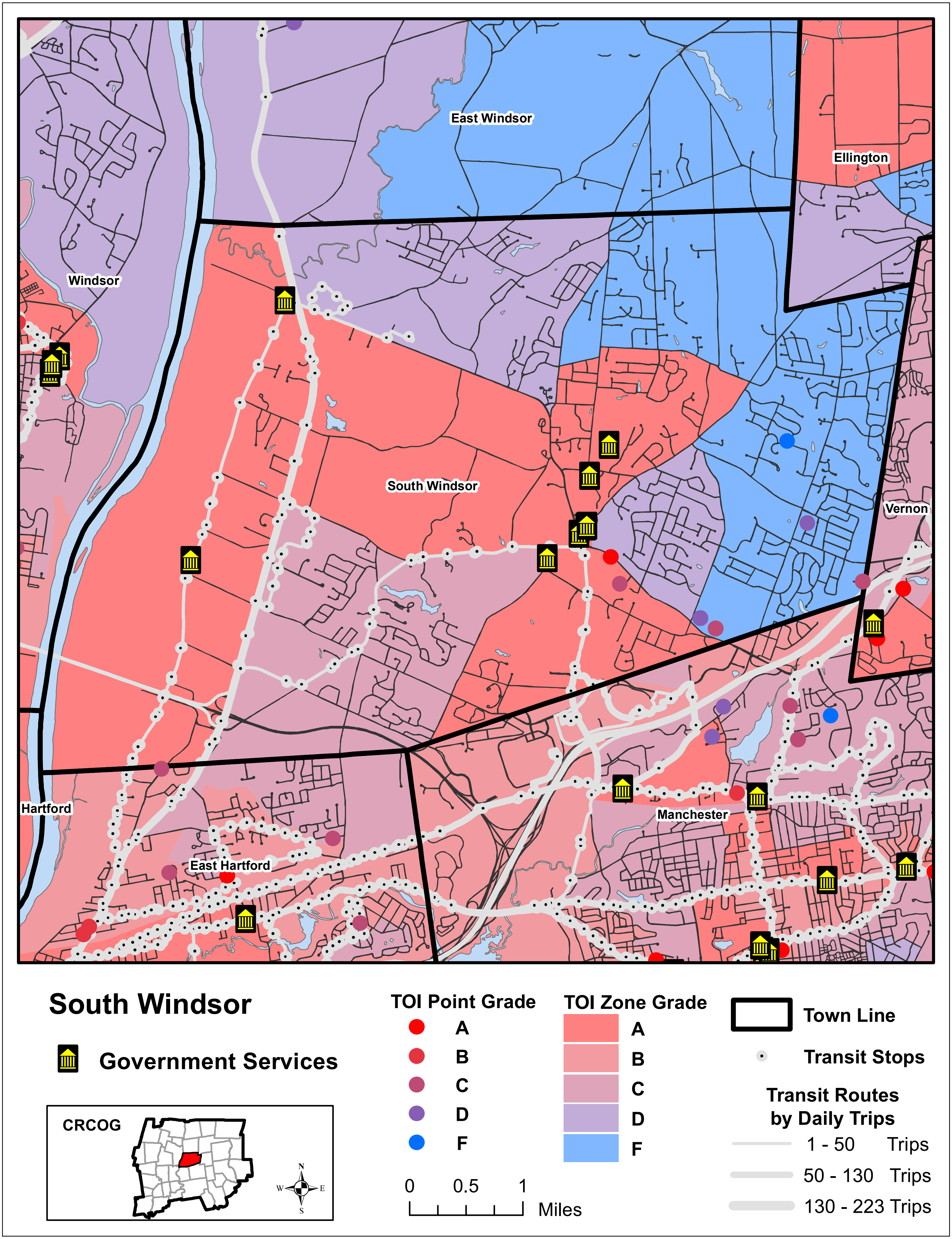
East Windsor
Ellington
Windsor
South Windsor
Vernon
Hartford
Manchester
East Hartford
South Windsor
Government Services
CRCOG
N
W
E
S
TOI Point Grade
A
B
C
D
F
TOI Zone Grade
A
B
C
D
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1
Miles
Town Line
Transit Stops
Transit Routes by Daily Trips
1 - 50 Trips
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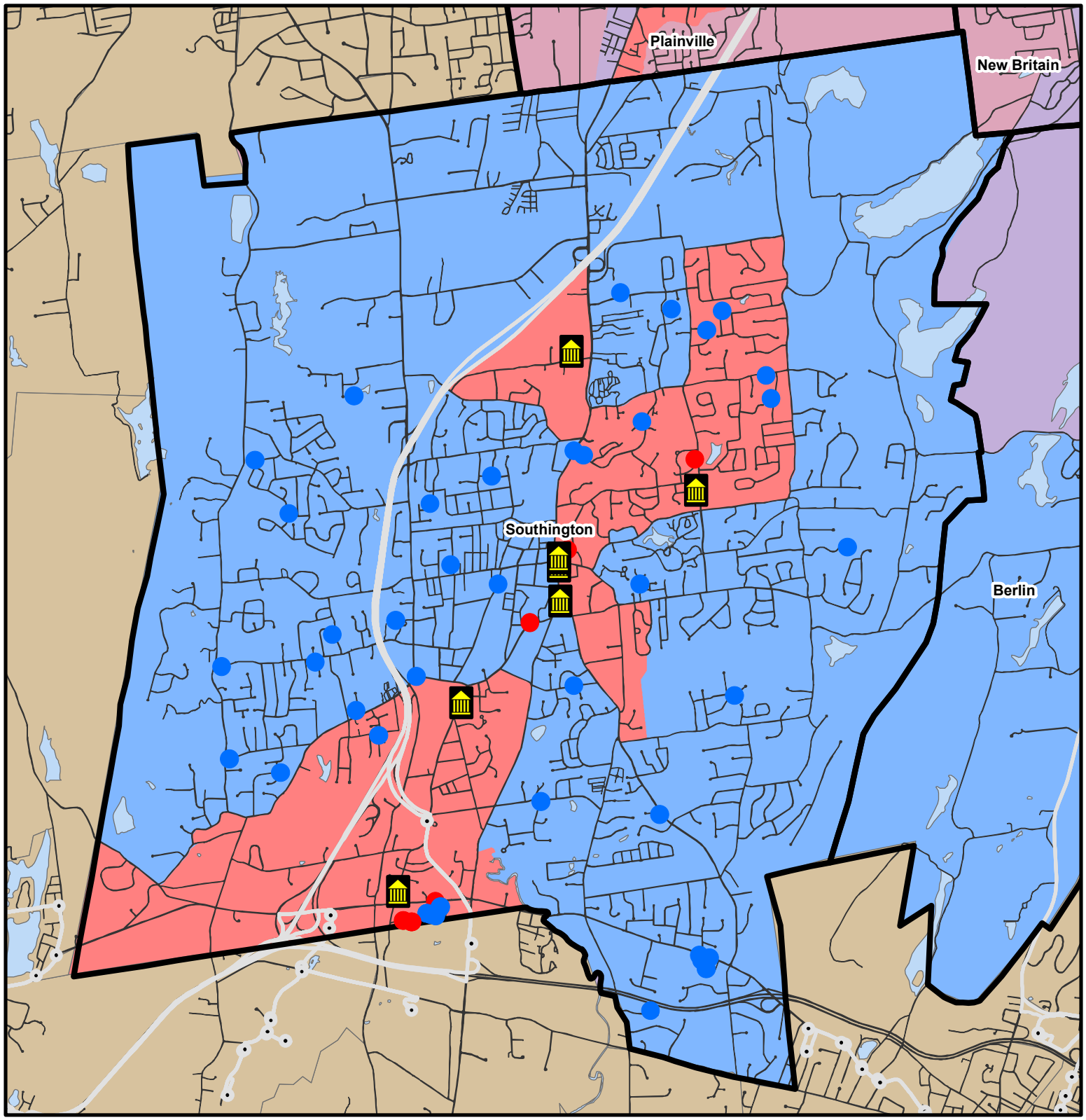
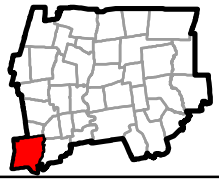


Southington

Government Services

CRCOG



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0 0.5 1 Miles

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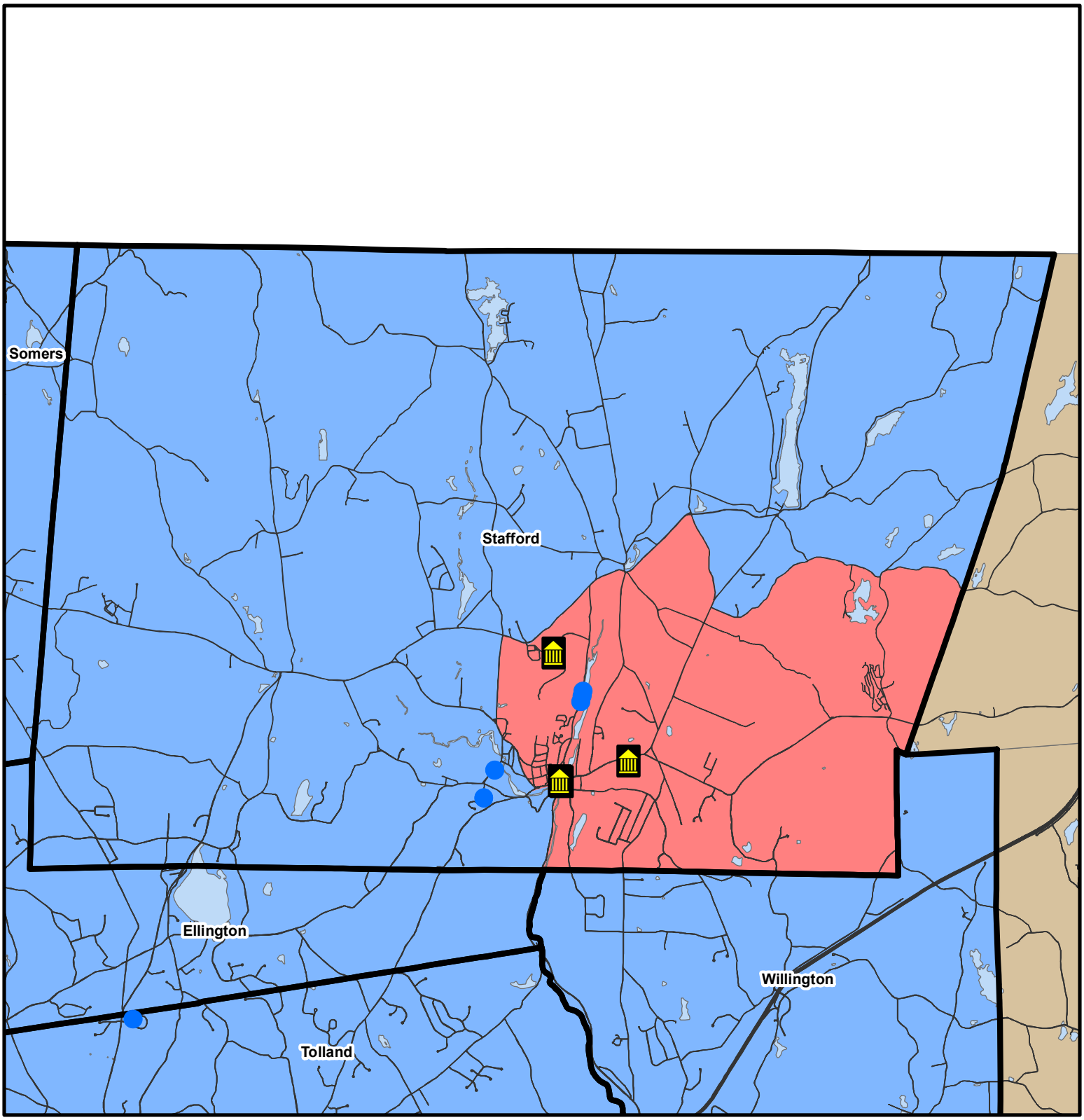
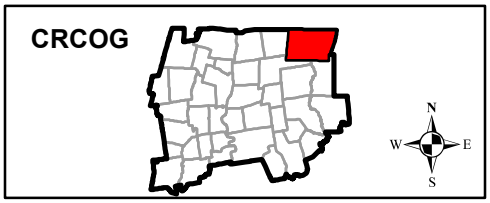


Stafford

Government Services

CRCOG



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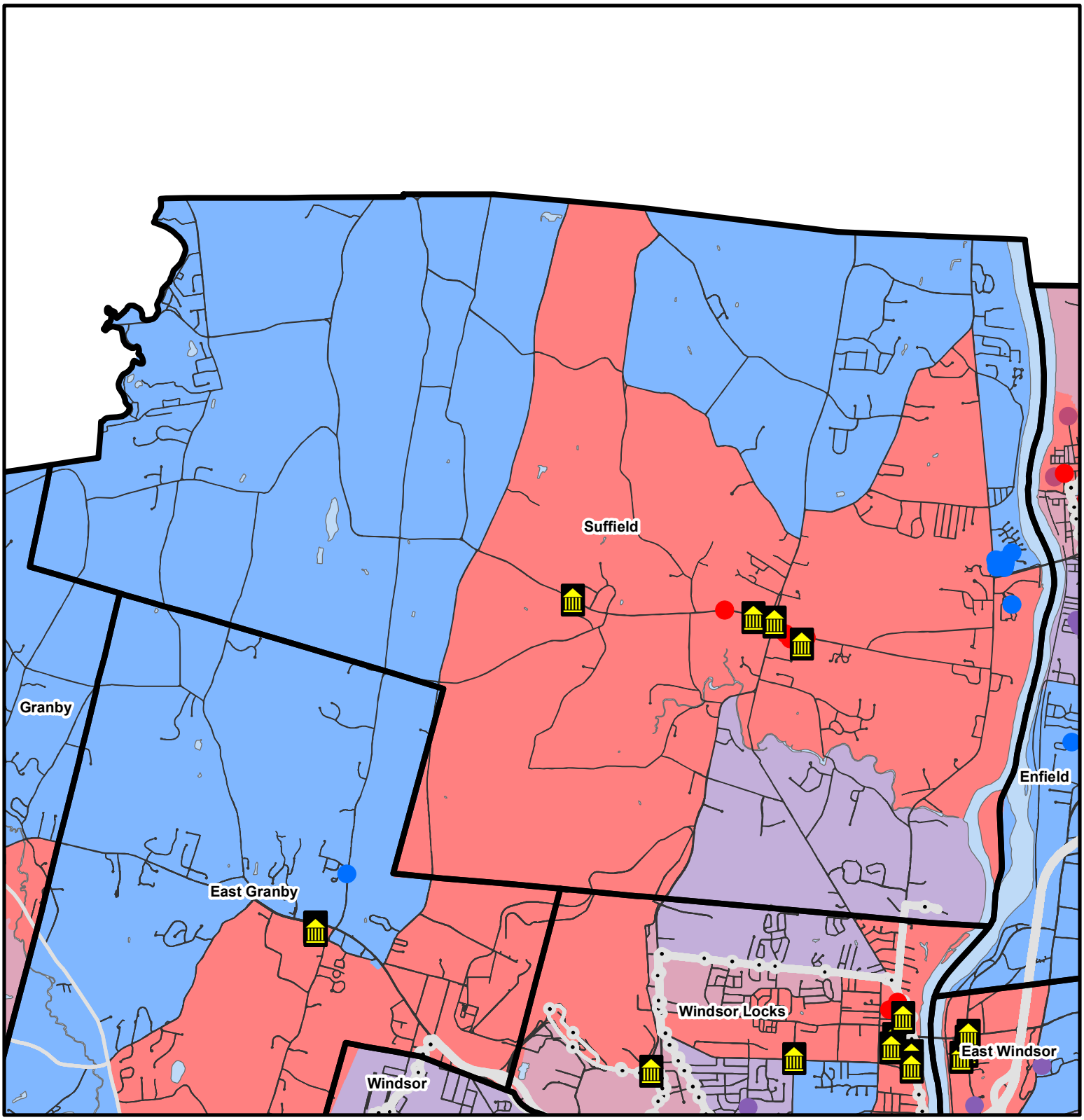
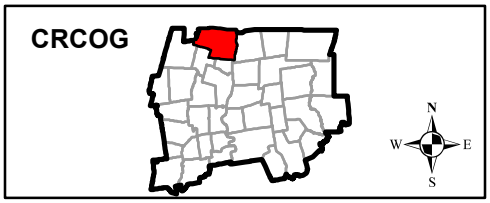


Suffield

Government Services

CRCOG



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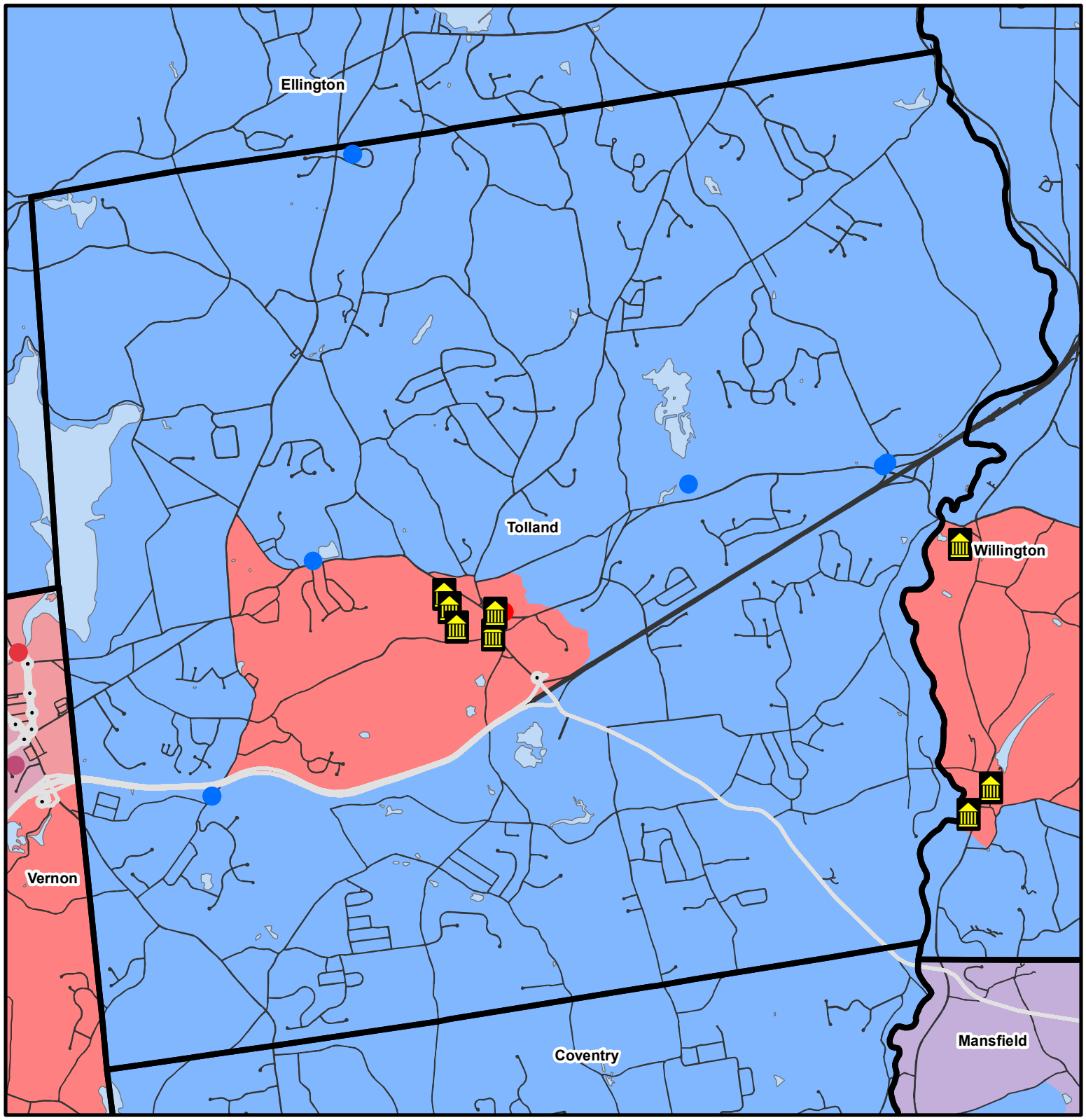
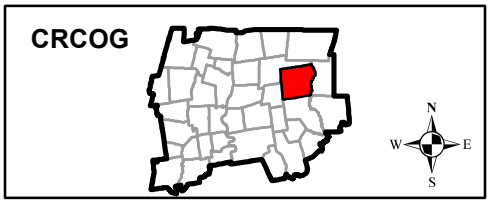


Tolland

Government Services

CRCOG



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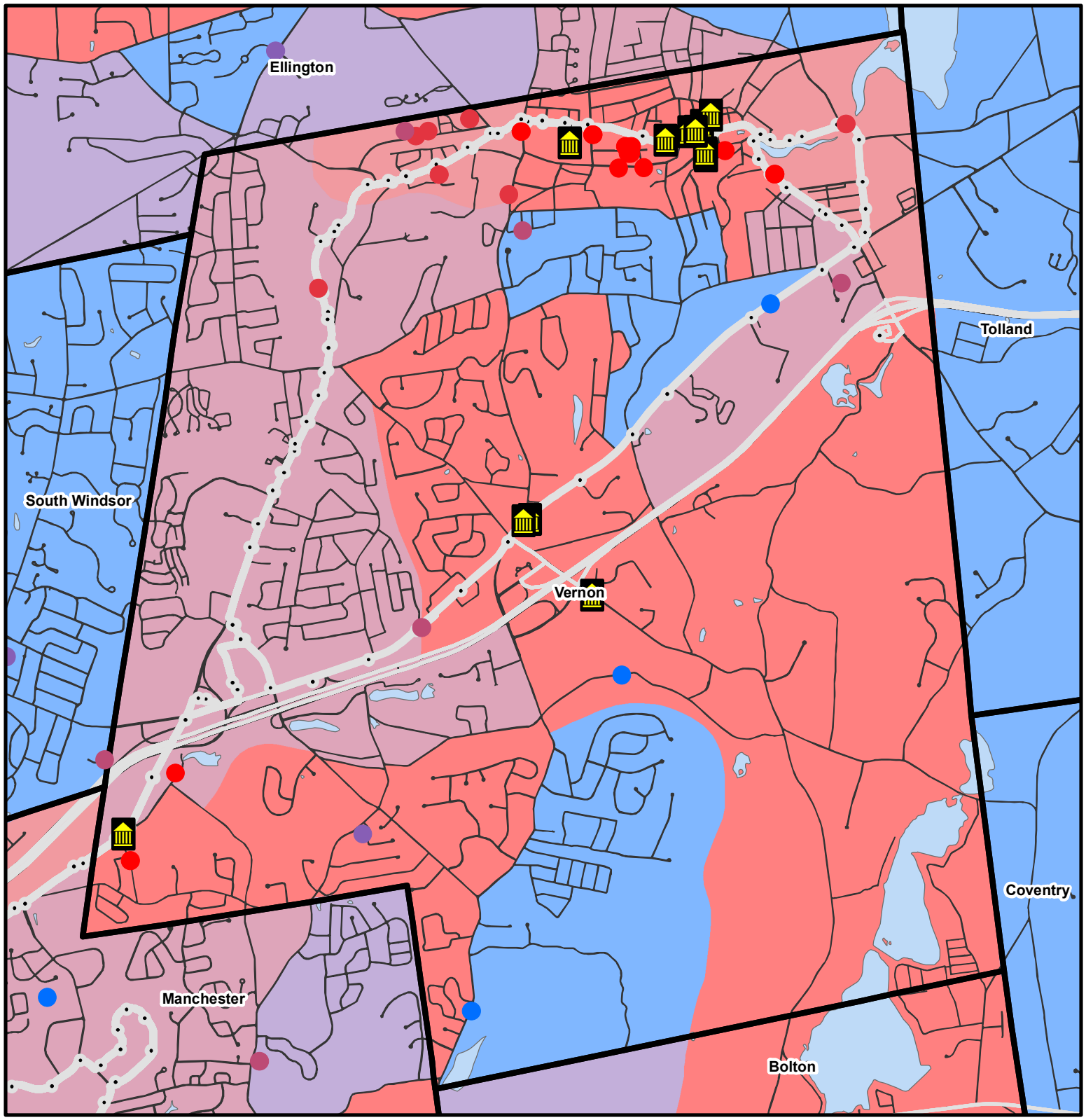
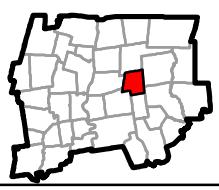


Vernon

Government Services

CRCOG



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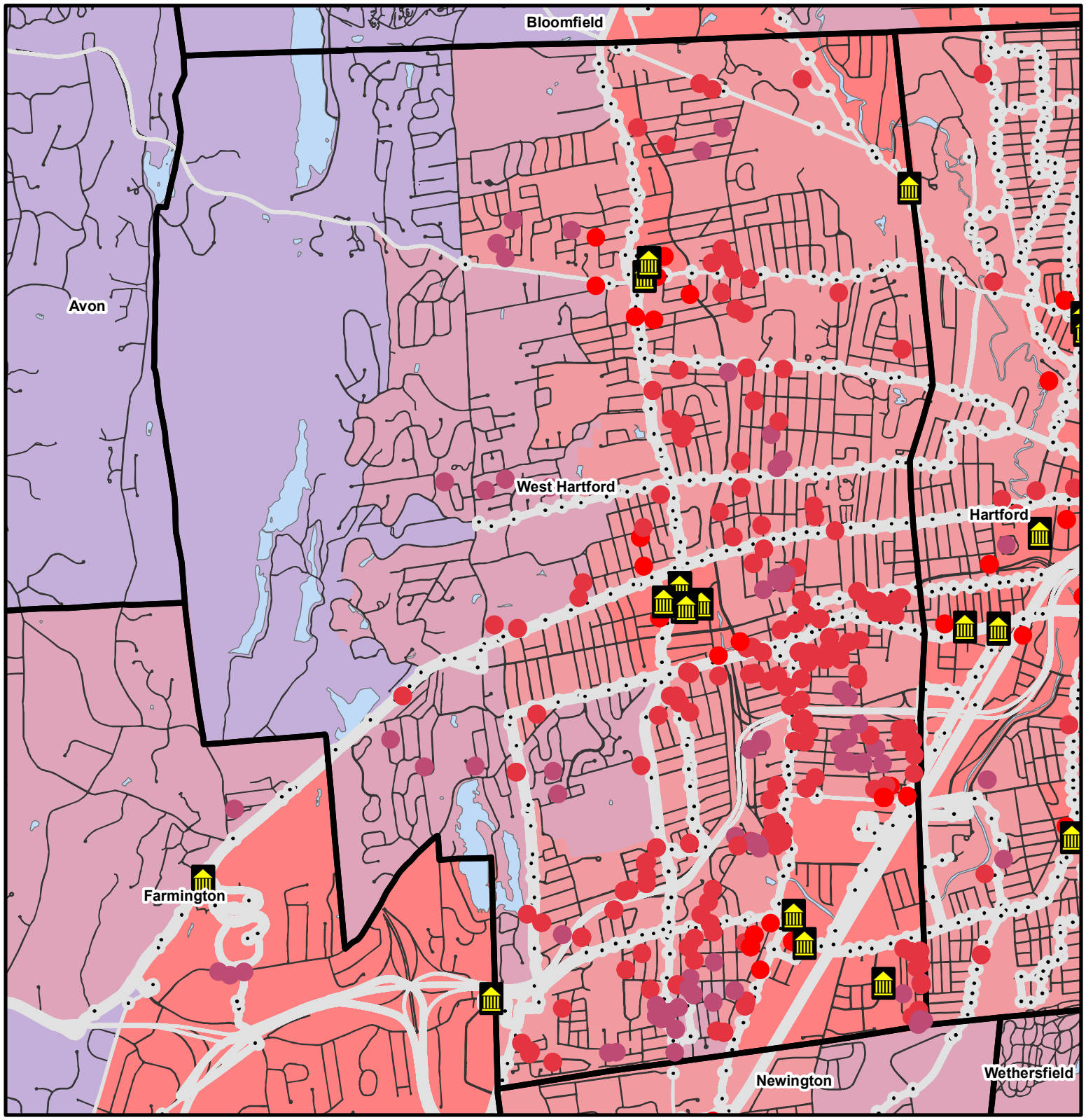
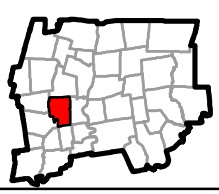


West Hartford

Government Services

CRCOG



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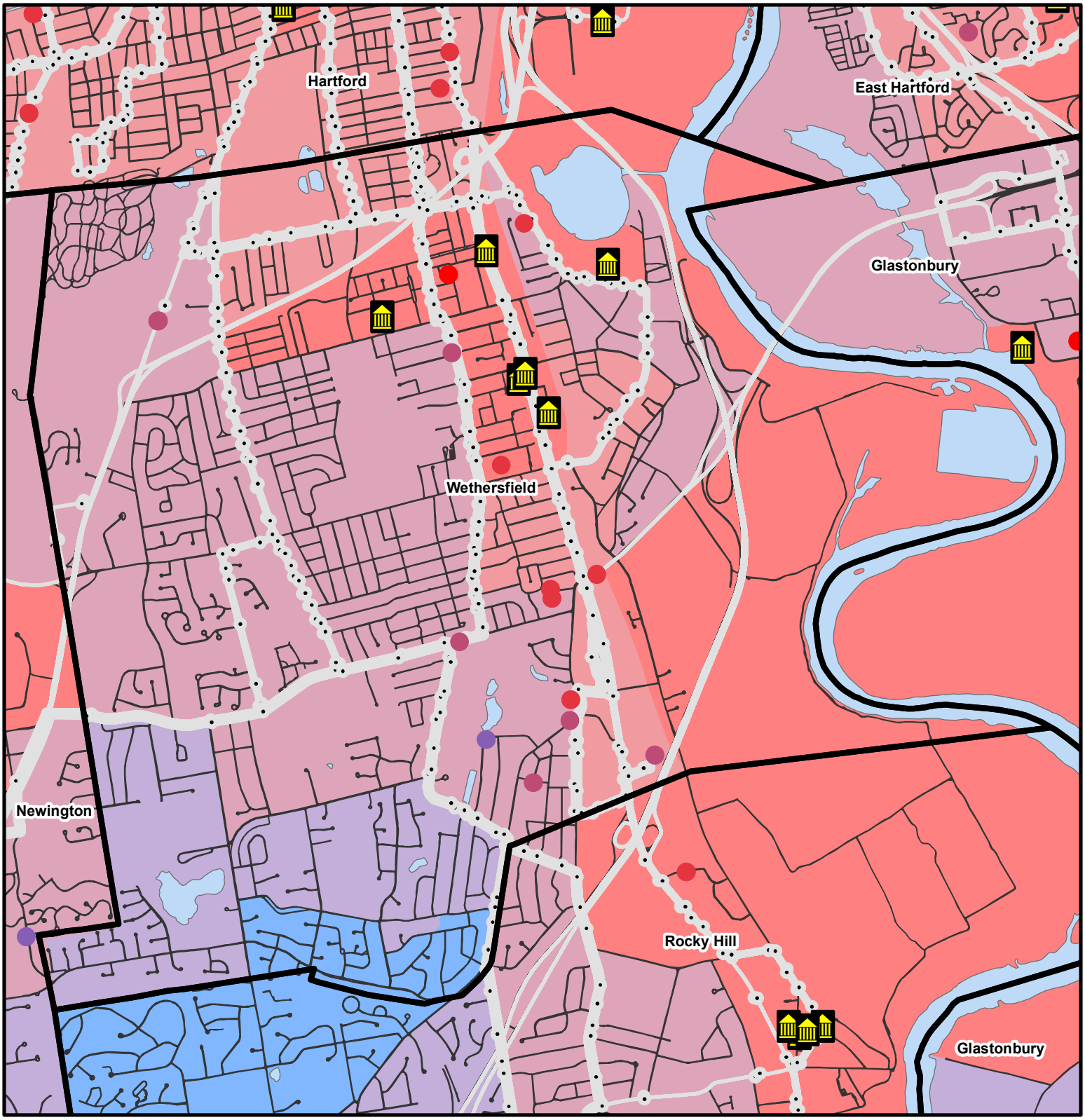
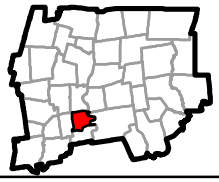


Wethersfield

Government Services

CRCOG



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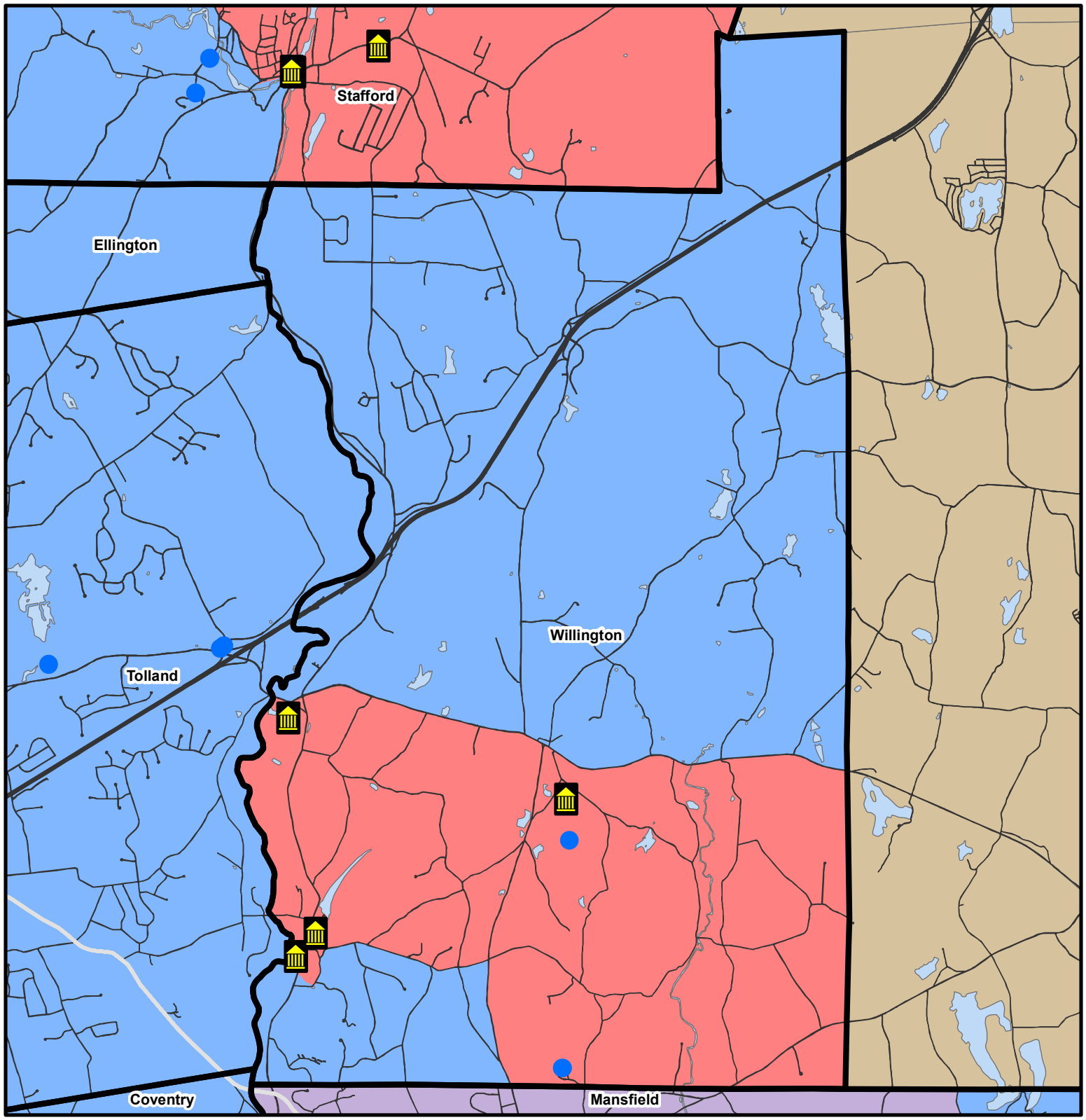
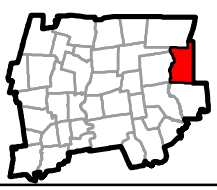


Willington

Government Services

CRCOG



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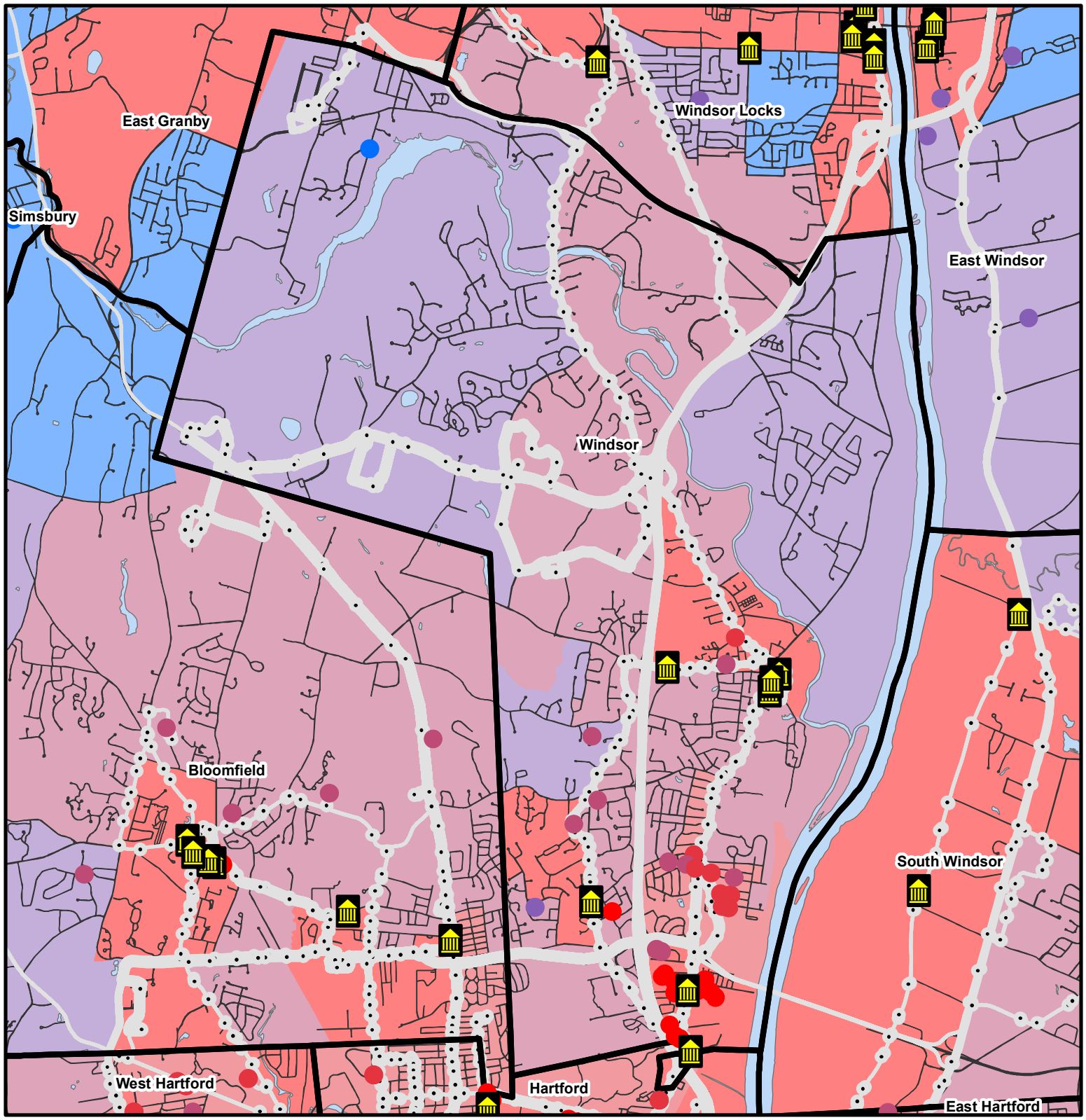
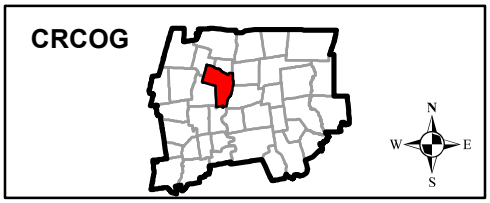


Windsor

Government Services

CRCOG



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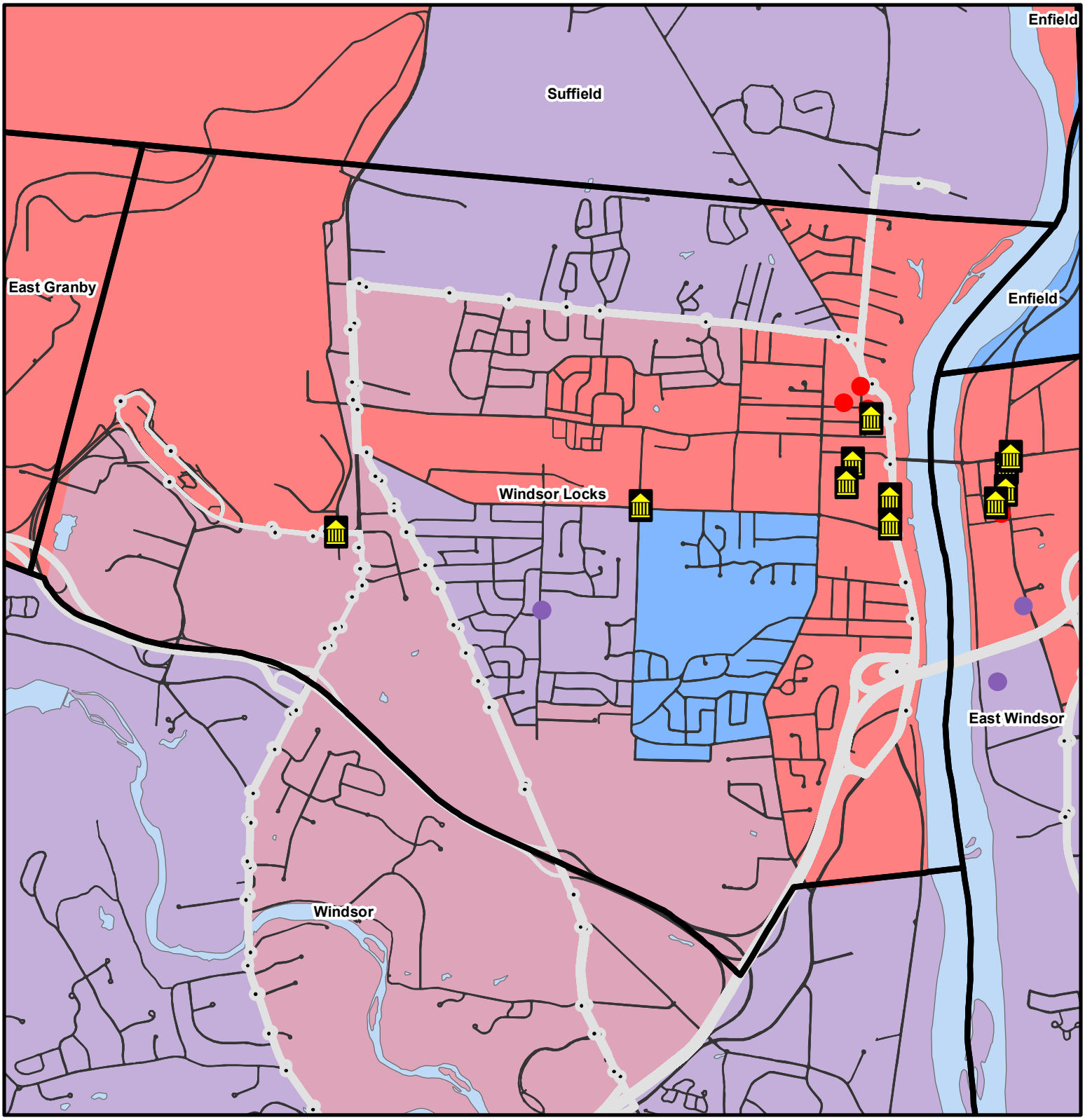
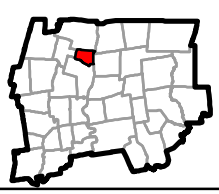


Windsor Locks

Government Services

CRCOG



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TOI Zone Grade

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0 0.5 1 Miles

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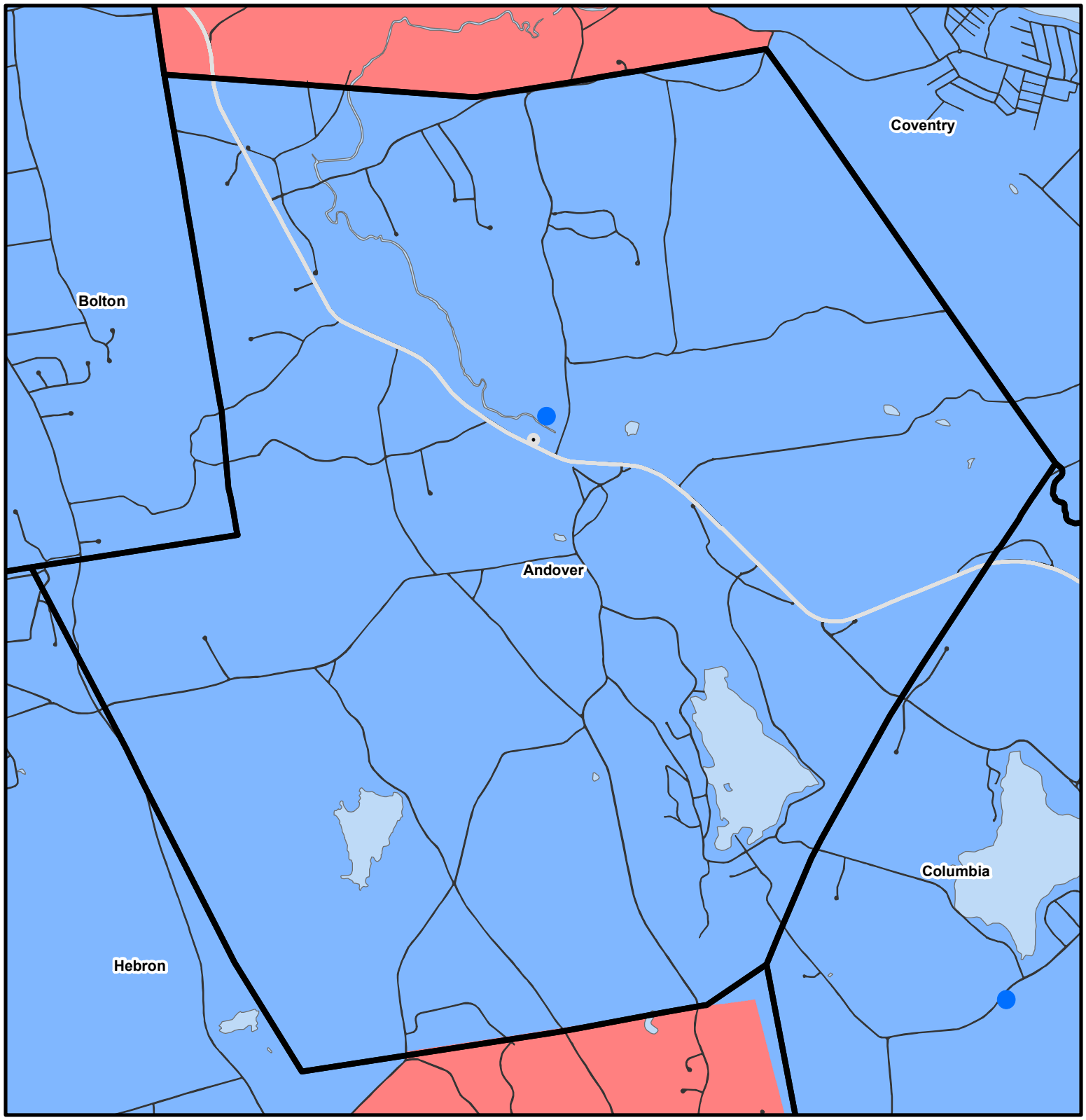
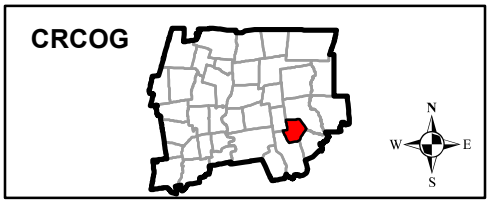
B.4 Maps of Point and Zone Transit Access Scores for Fresh Grocery Facilities



Andover

Grocery Facility

CRCOG



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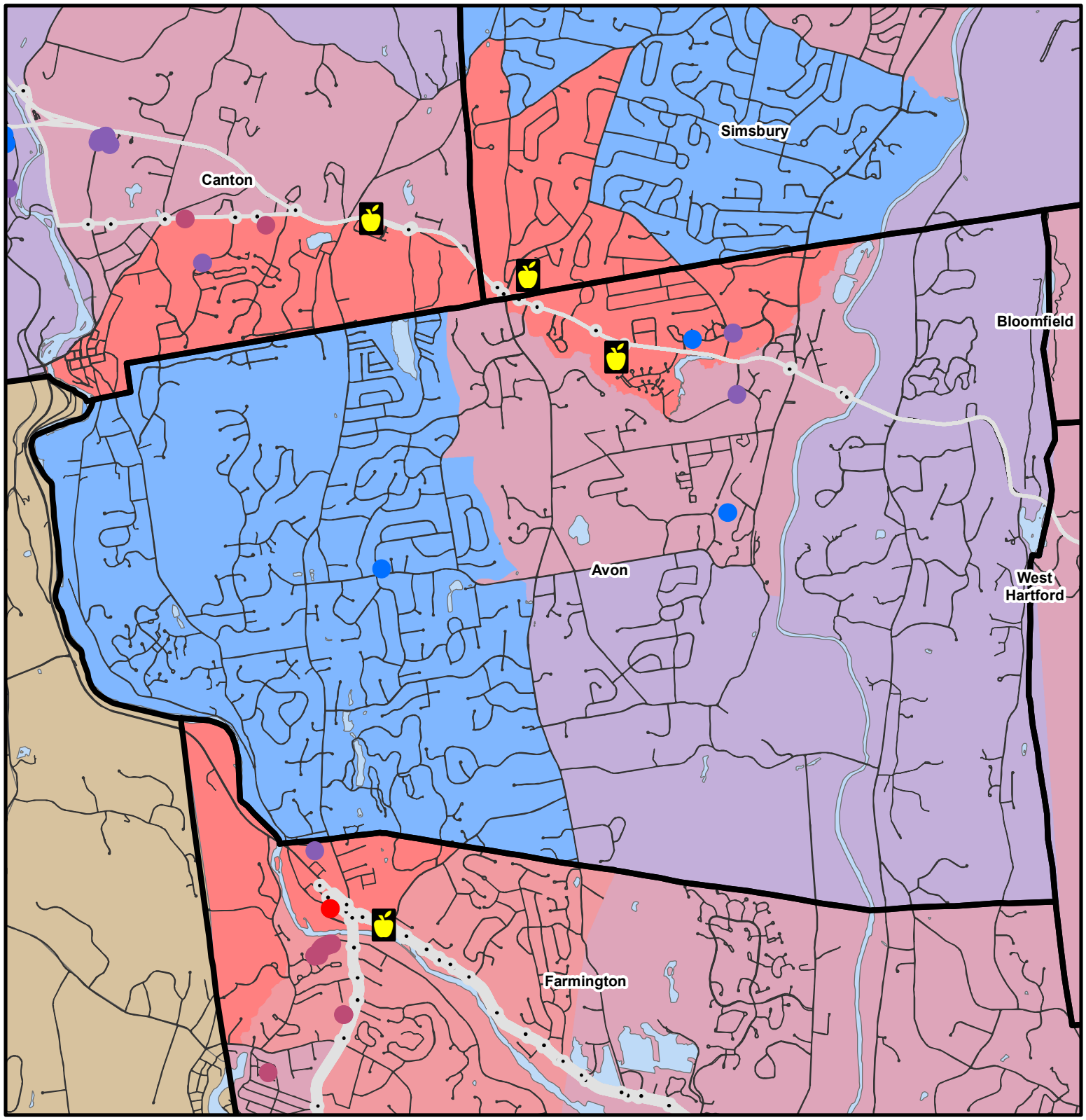
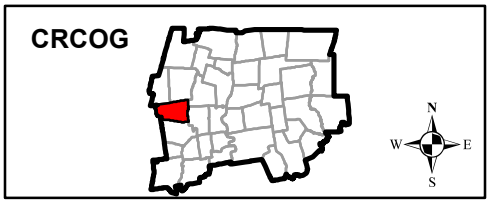


Avon

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

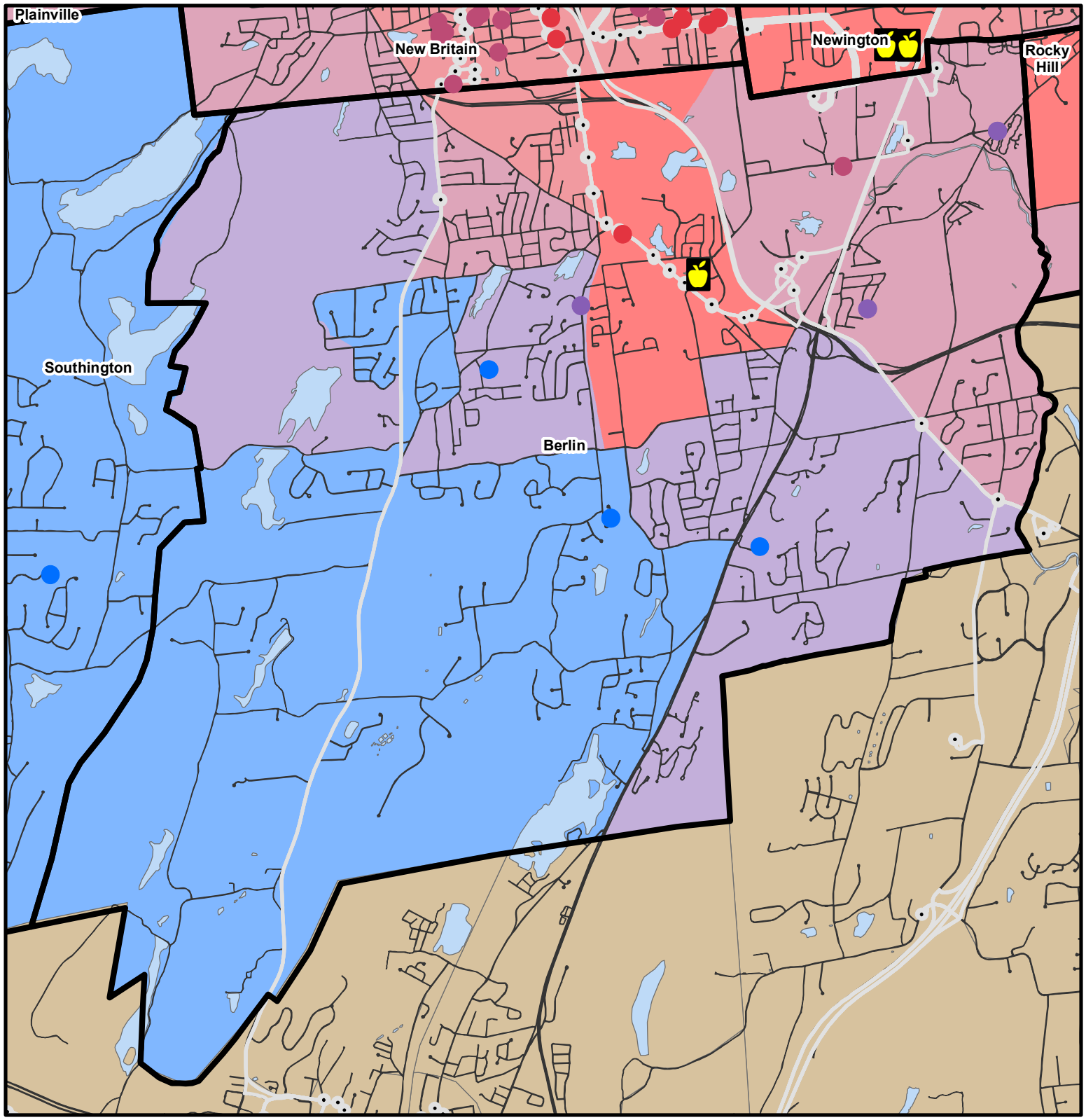
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

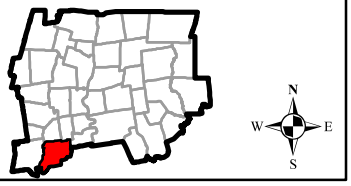
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Berlin

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

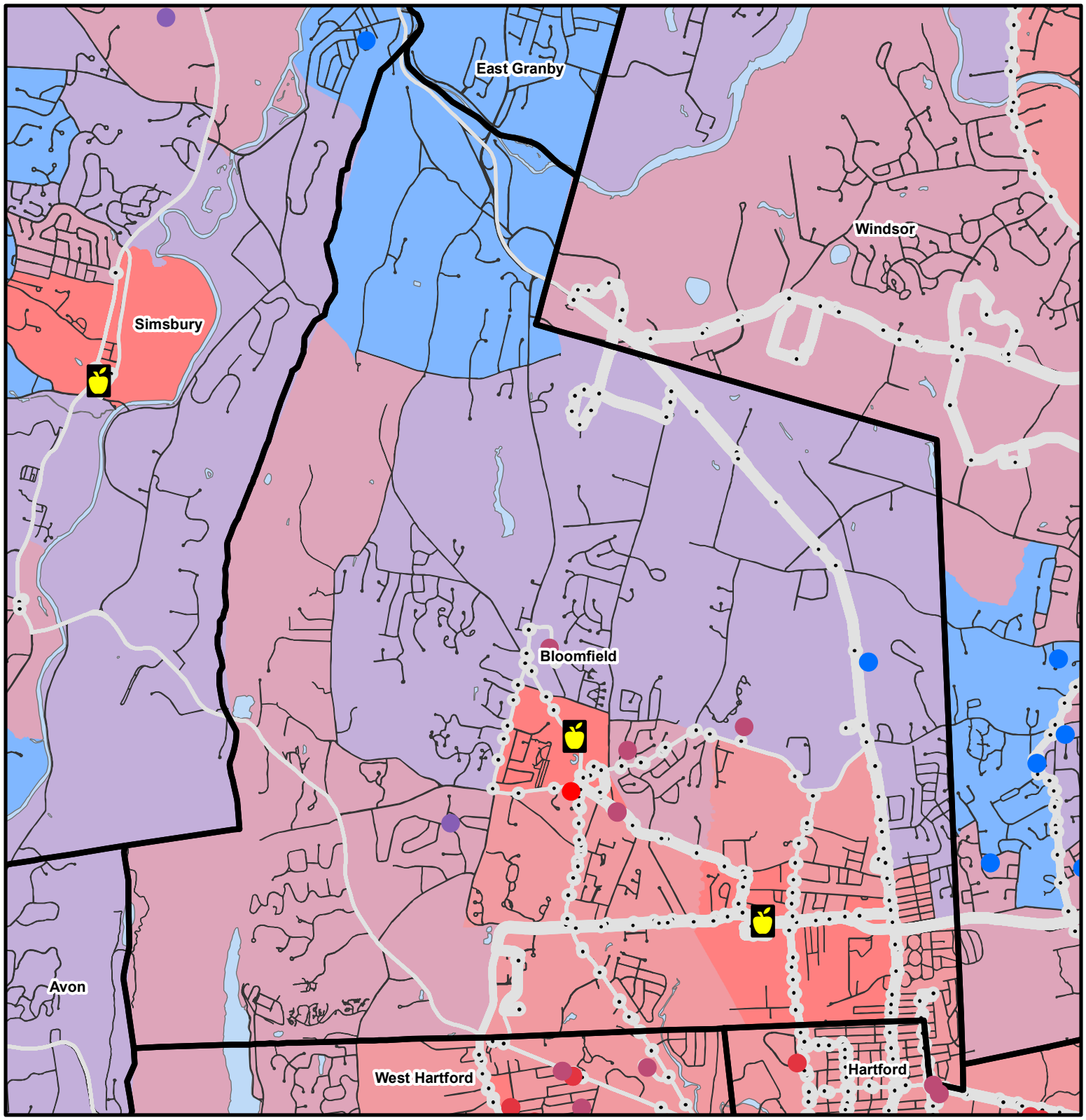
- A
- B
- C
- D
- F

0 0.5 1 Miles

- Town Line
- Transit Stops

Transit Routes by Daily Trips

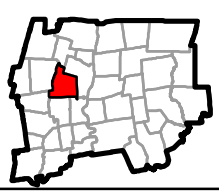
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Bloomfield

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
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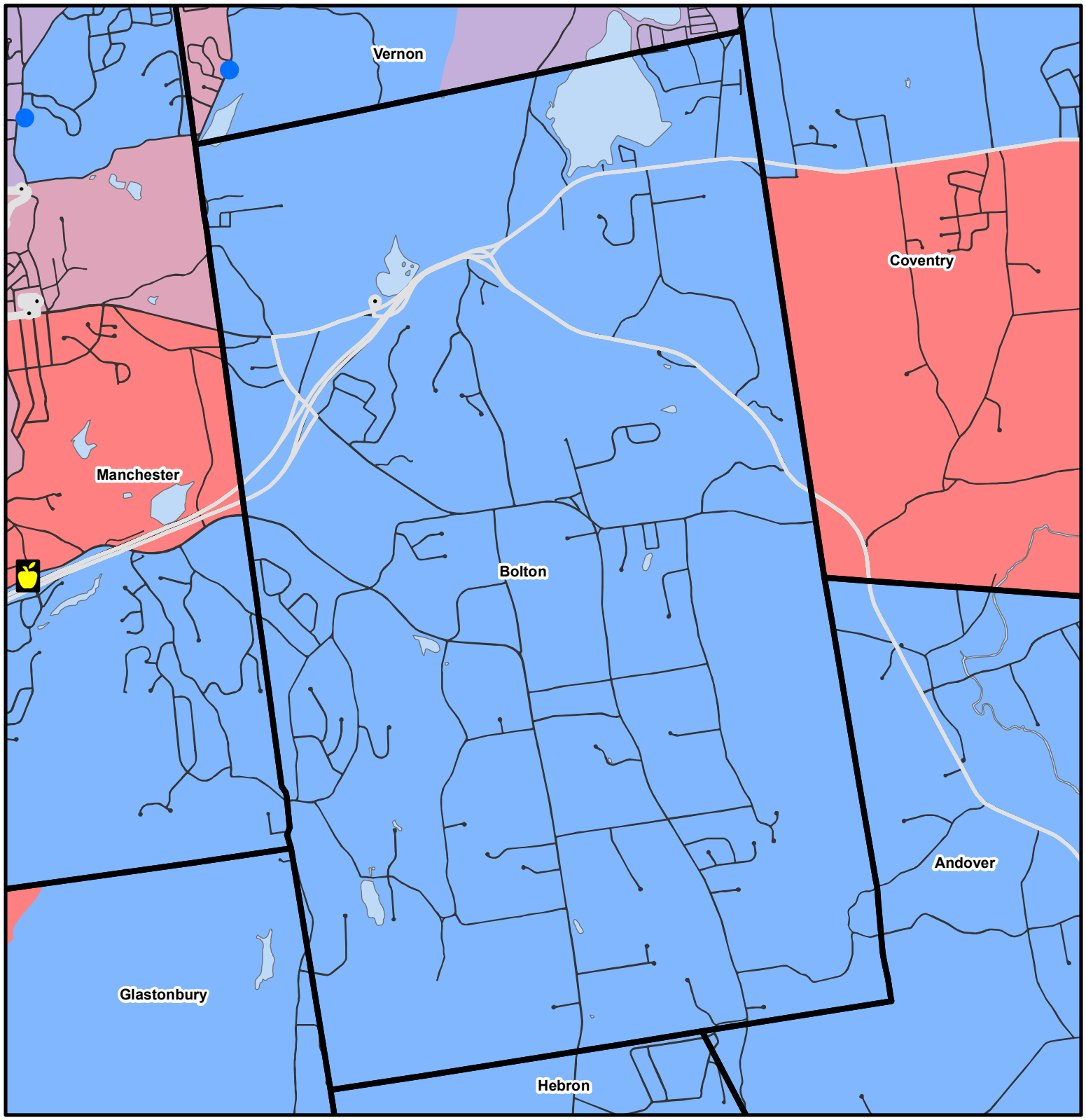
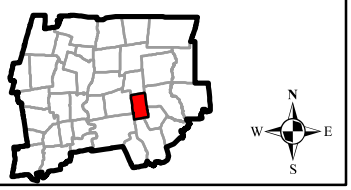


Bolton

Grocery Facility

CRCOG



TOI Point Grade

- A
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- C
- D
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TOI Zone Grade

- A
- B
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- D
- F

0 0.5 1 Miles

Town Line

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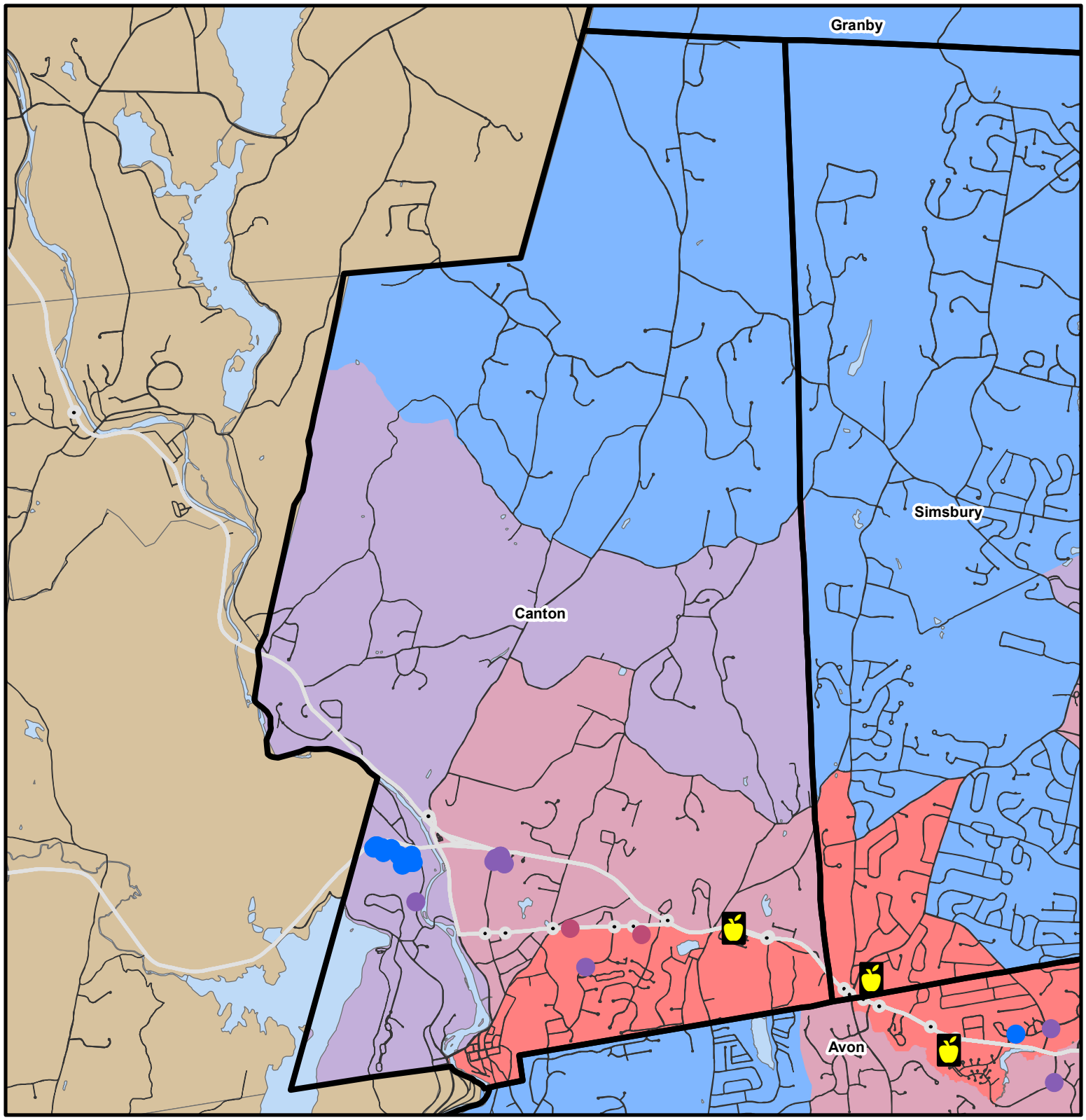
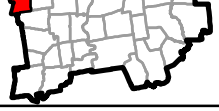


Canton

Grocery Facility

CRCOG



TOI Point Grade

- A
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- C
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- F

TOI Zone Grade

- A
- B
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- D
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0 0.5 1 Miles

Town Line

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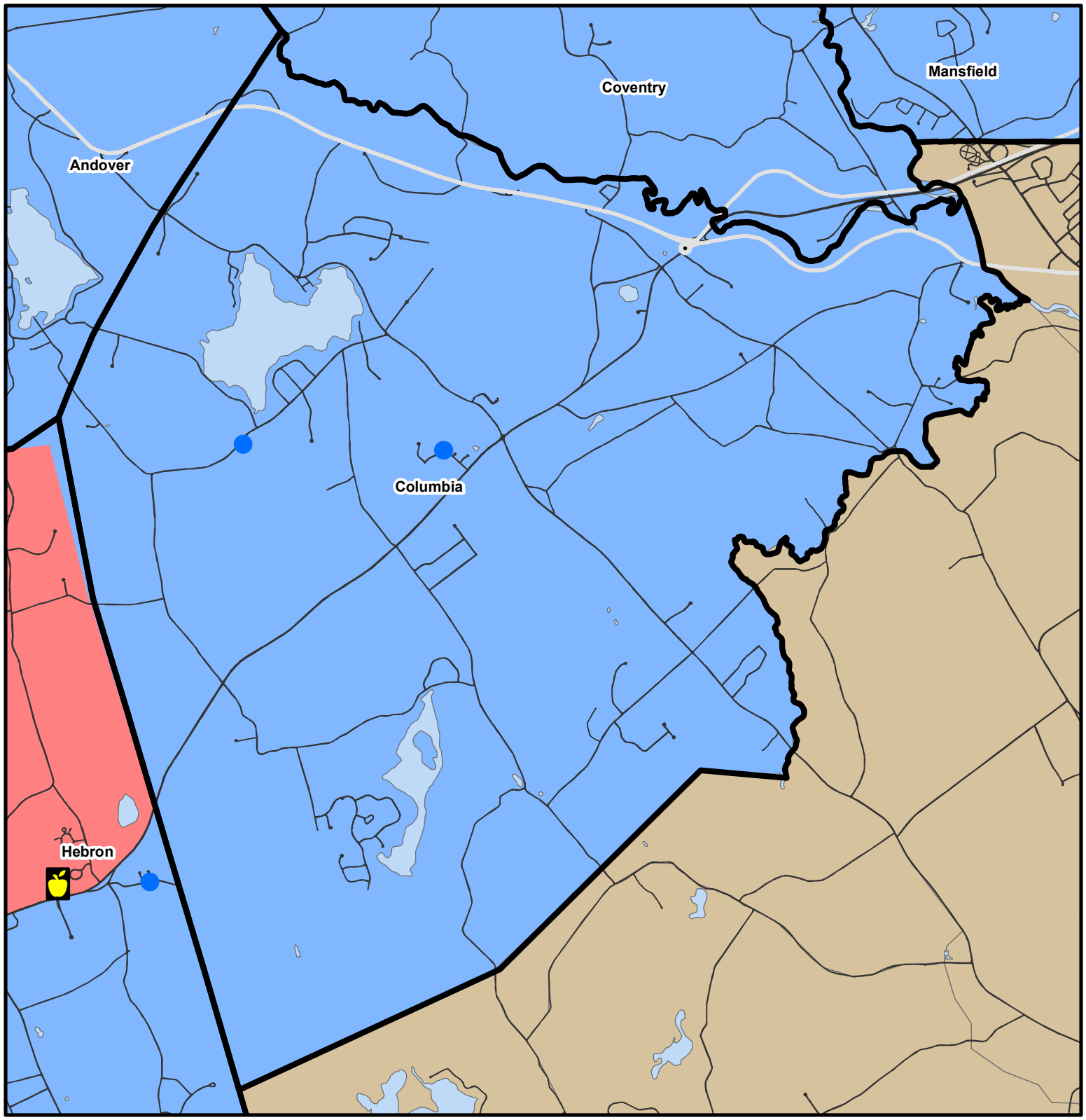
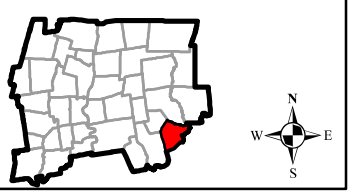


Columbia

Grocery Facility

CRCOG



TOI Point Grade

- A
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- F

TOI Zone Grade

- A
- B
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- F

0 0.5 1 Miles

Town Line

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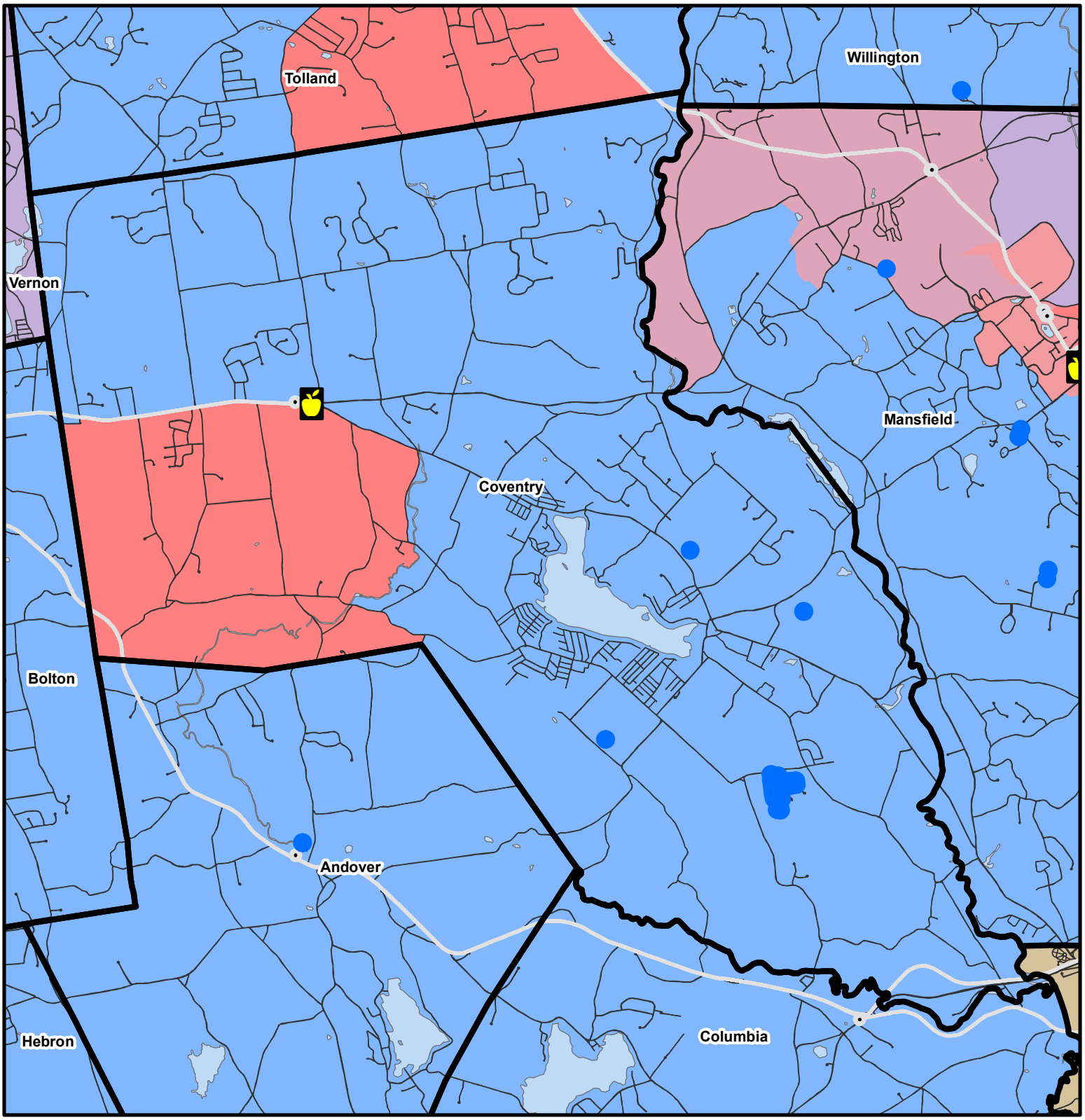
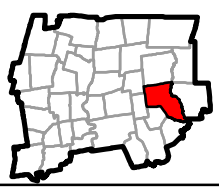


Coventry

Grocery Facility

CRCOG



TOI Point Grade

- A
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- C
- D
- F

TOI Zone Grade

- A
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0 0.5 1 Miles

Town Line

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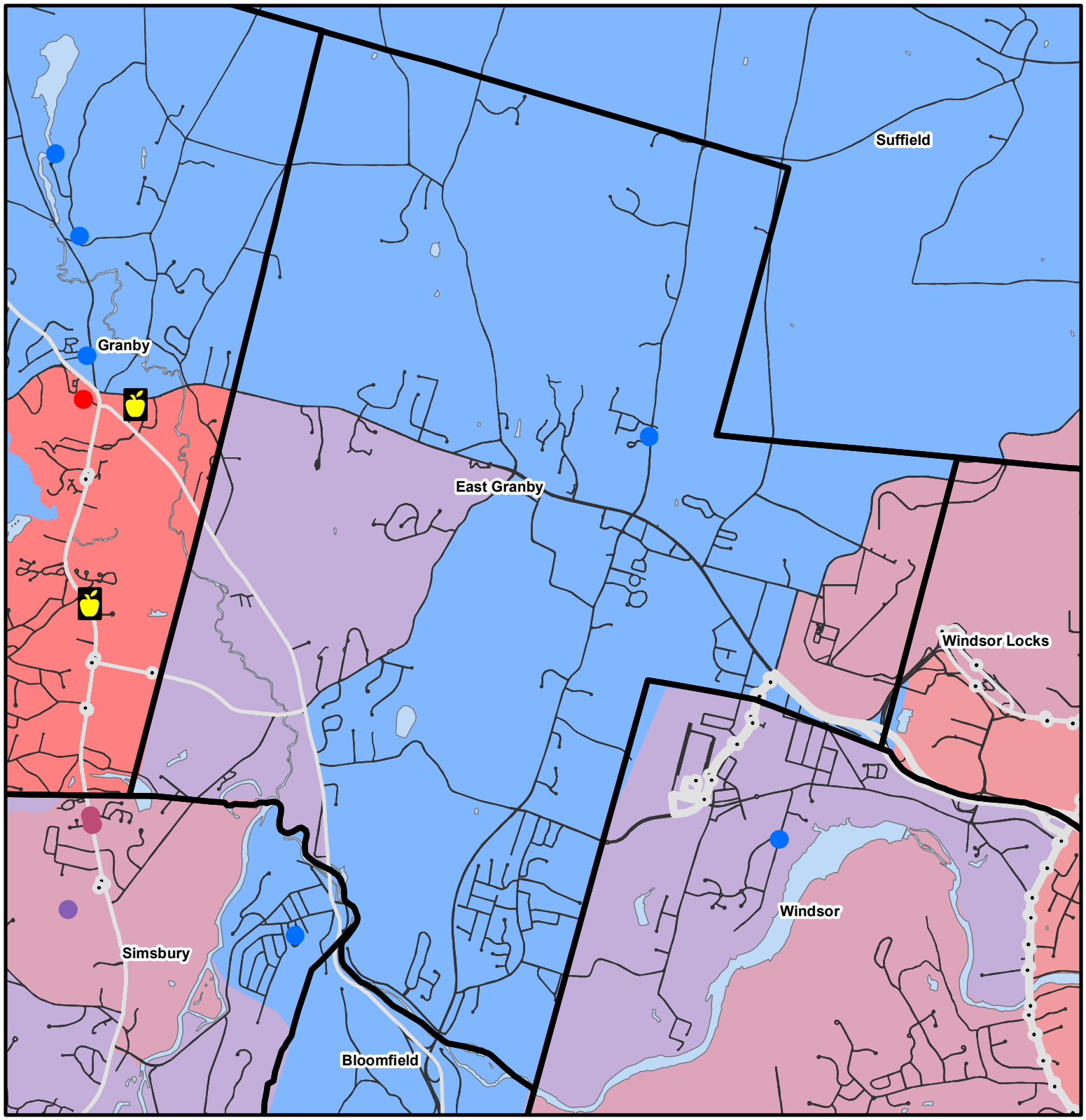
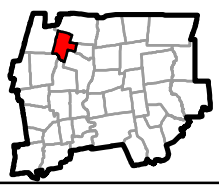


East Granby

Grocery Facility

CRCOG



TOI Point Grade

- A
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- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

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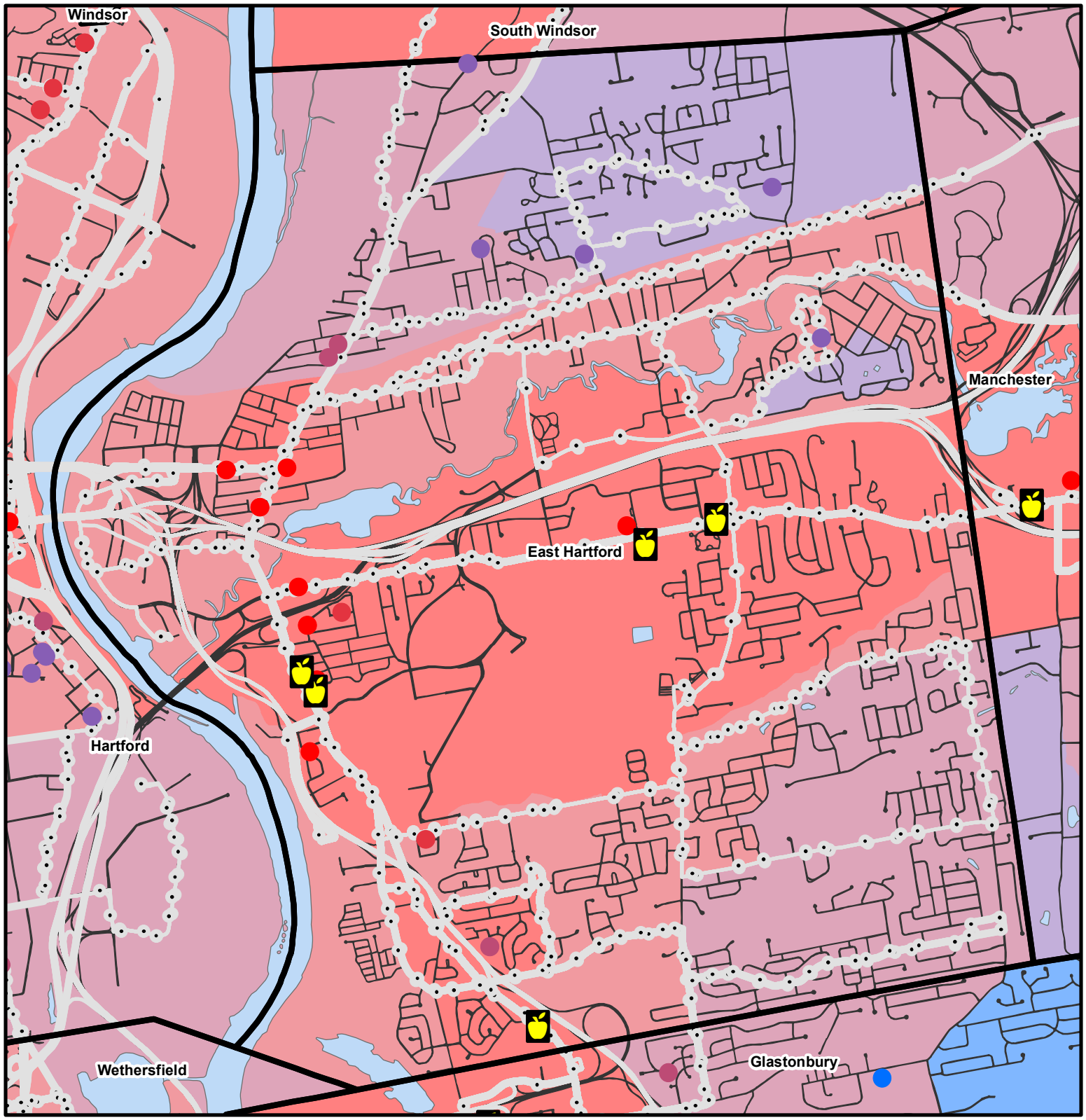
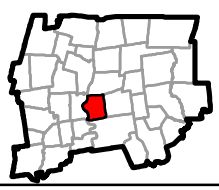


East Hartford

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

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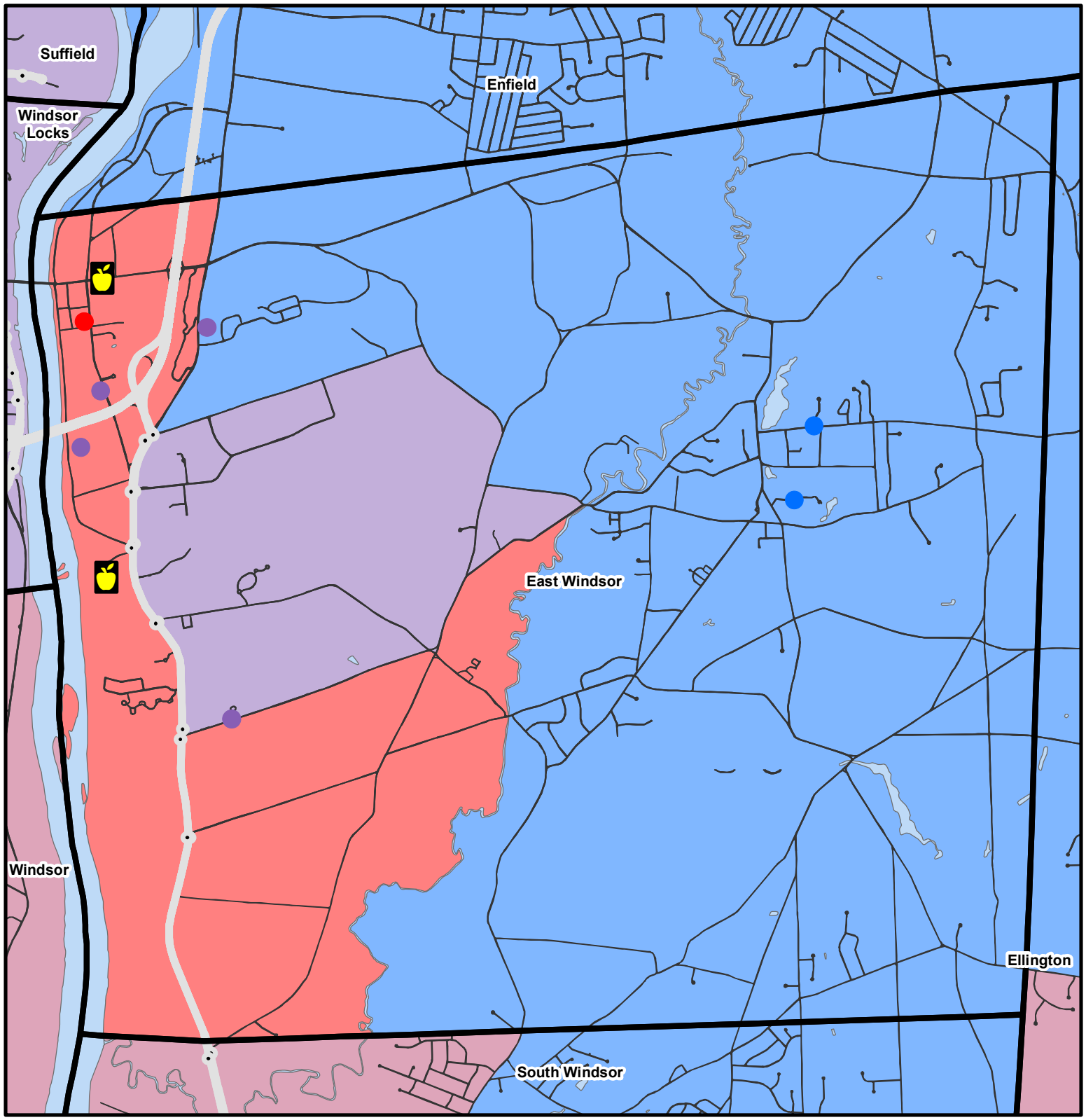
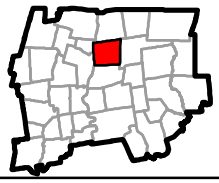


East Windsor

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

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- 1 - 50 Trips
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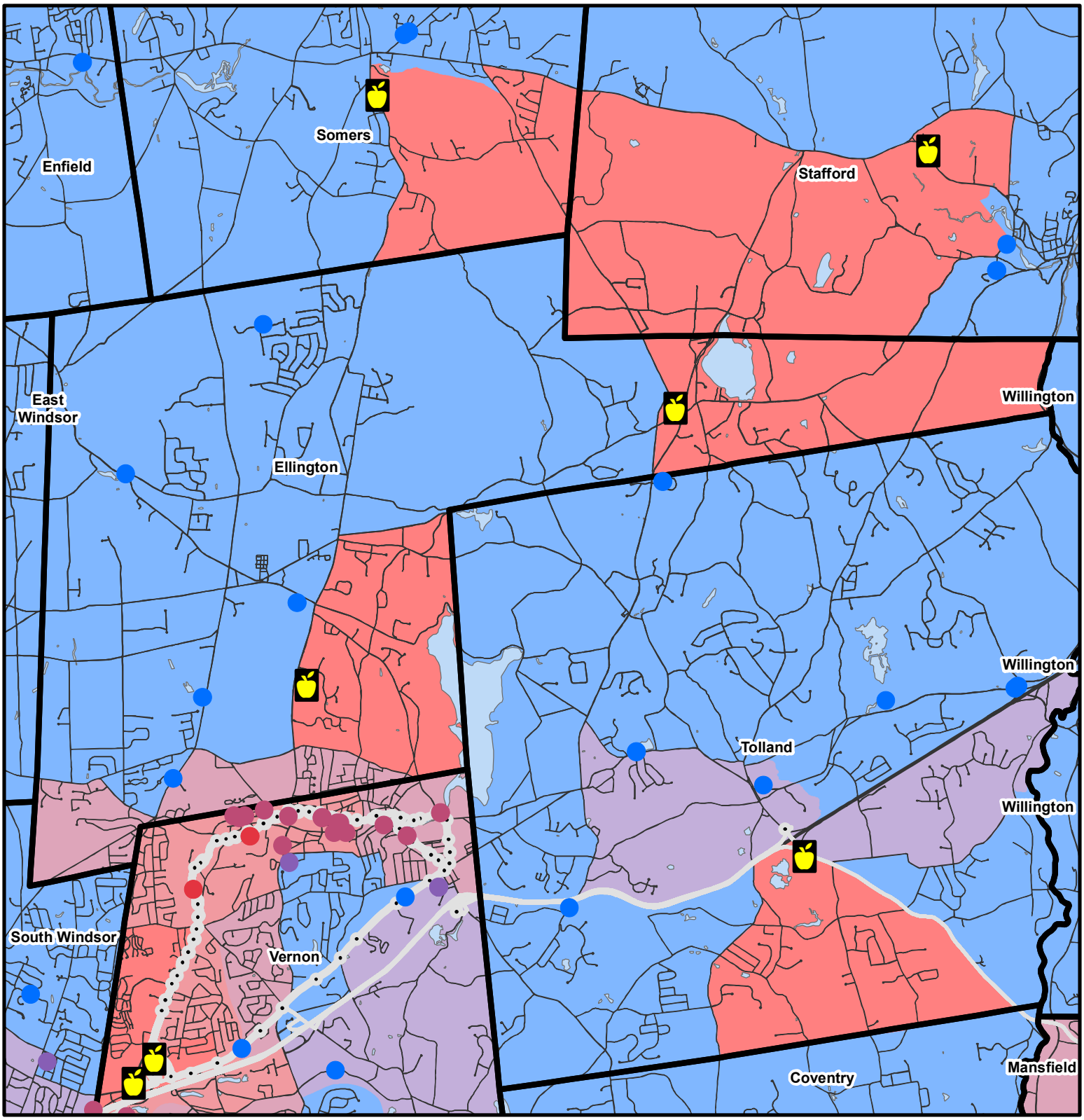
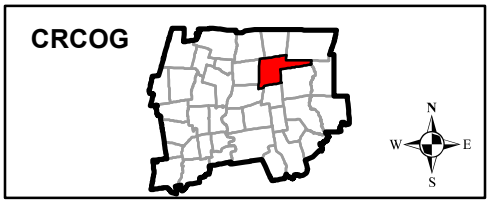


Ellington

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

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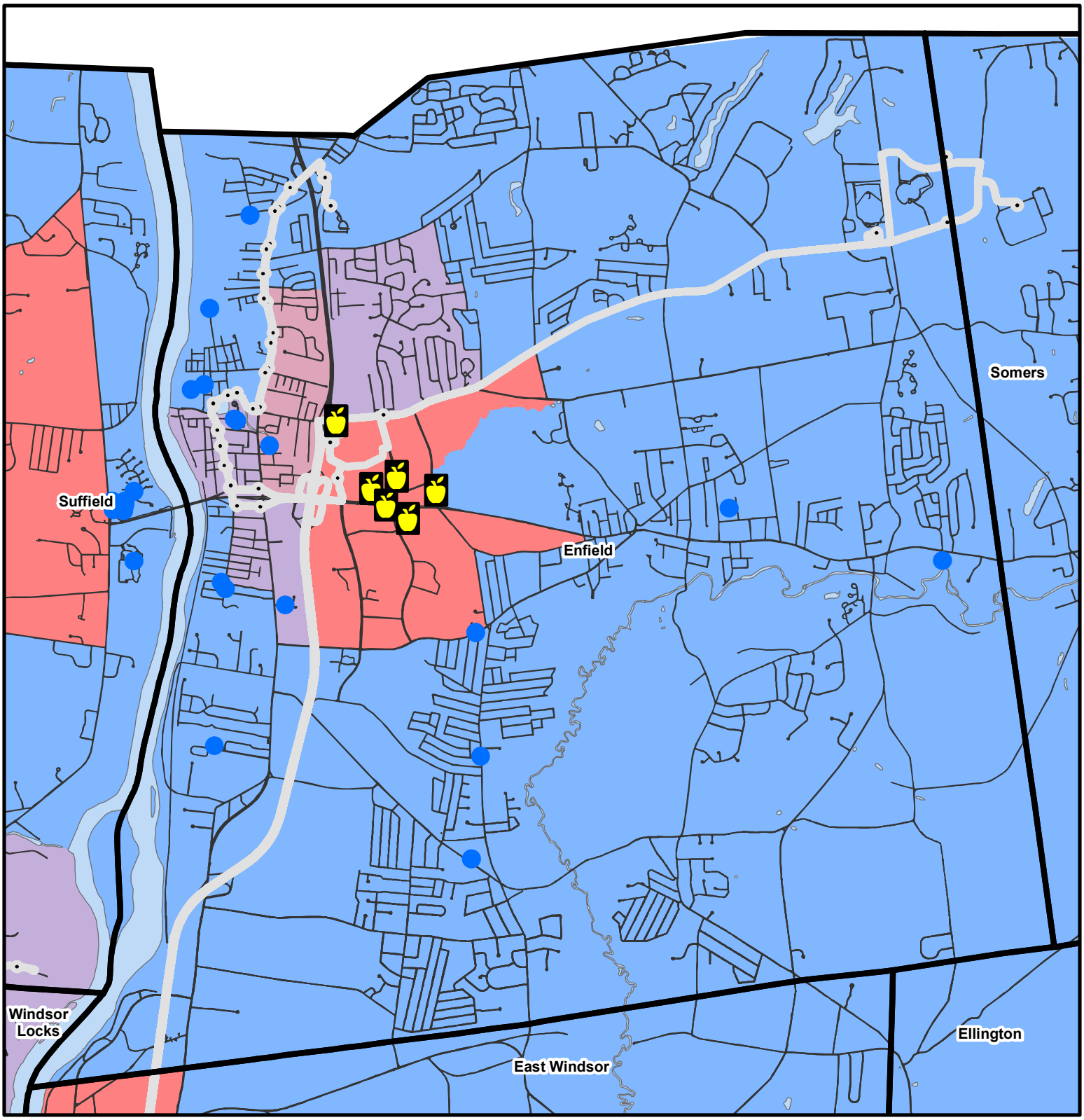
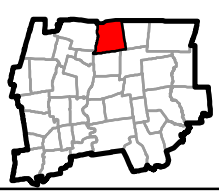


Enfield

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

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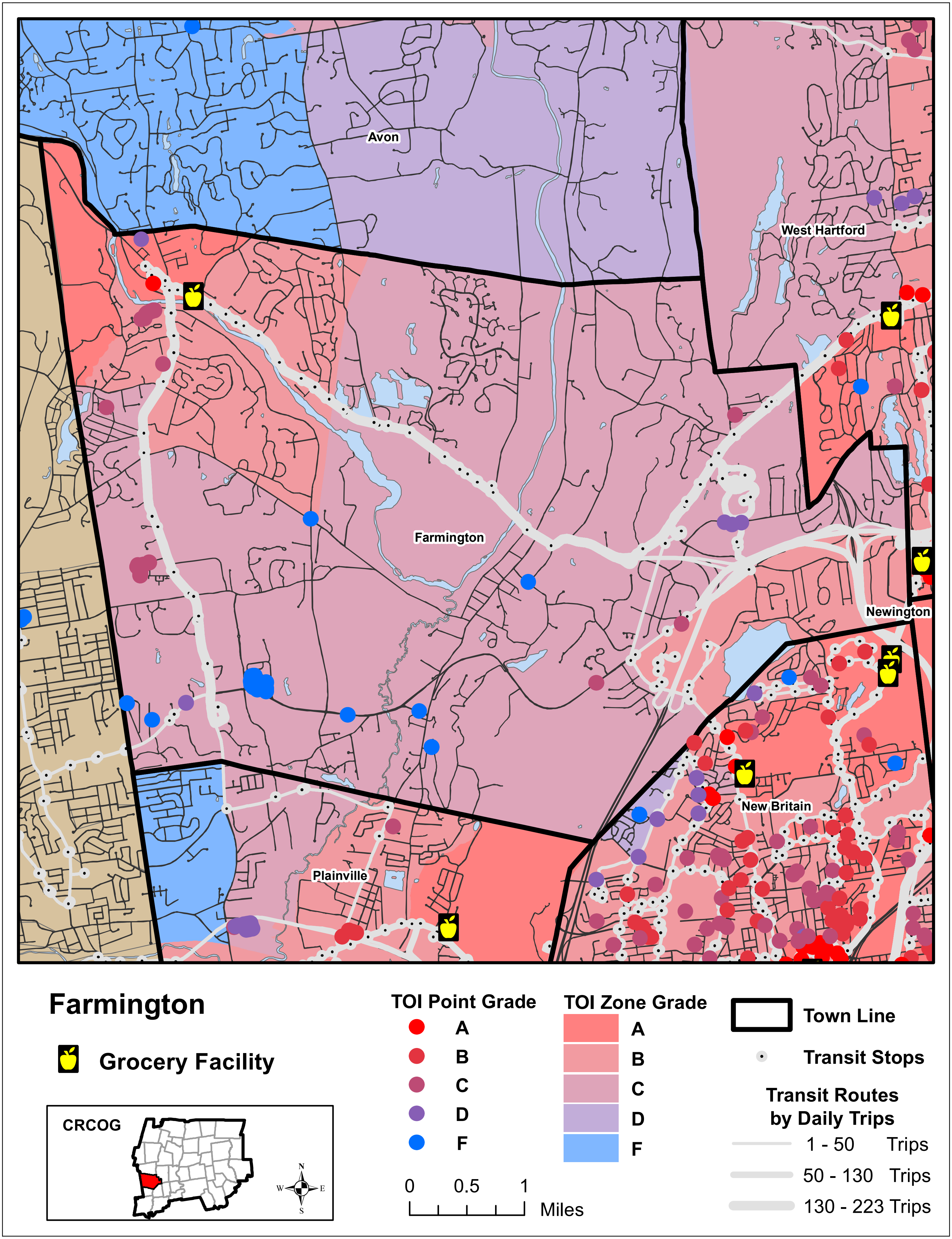
Avon
West Hartford
Farmington
Newington
New Britain
Plainville
Farmington
Grocery Facility
CRCOG
N
W
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S
TOI Point Grade
A
B
C
D
F
0
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1
Miles
TOI Zone Grade
A
B
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F
Town Line
Transit Stops
Transit Routes by Daily Trips
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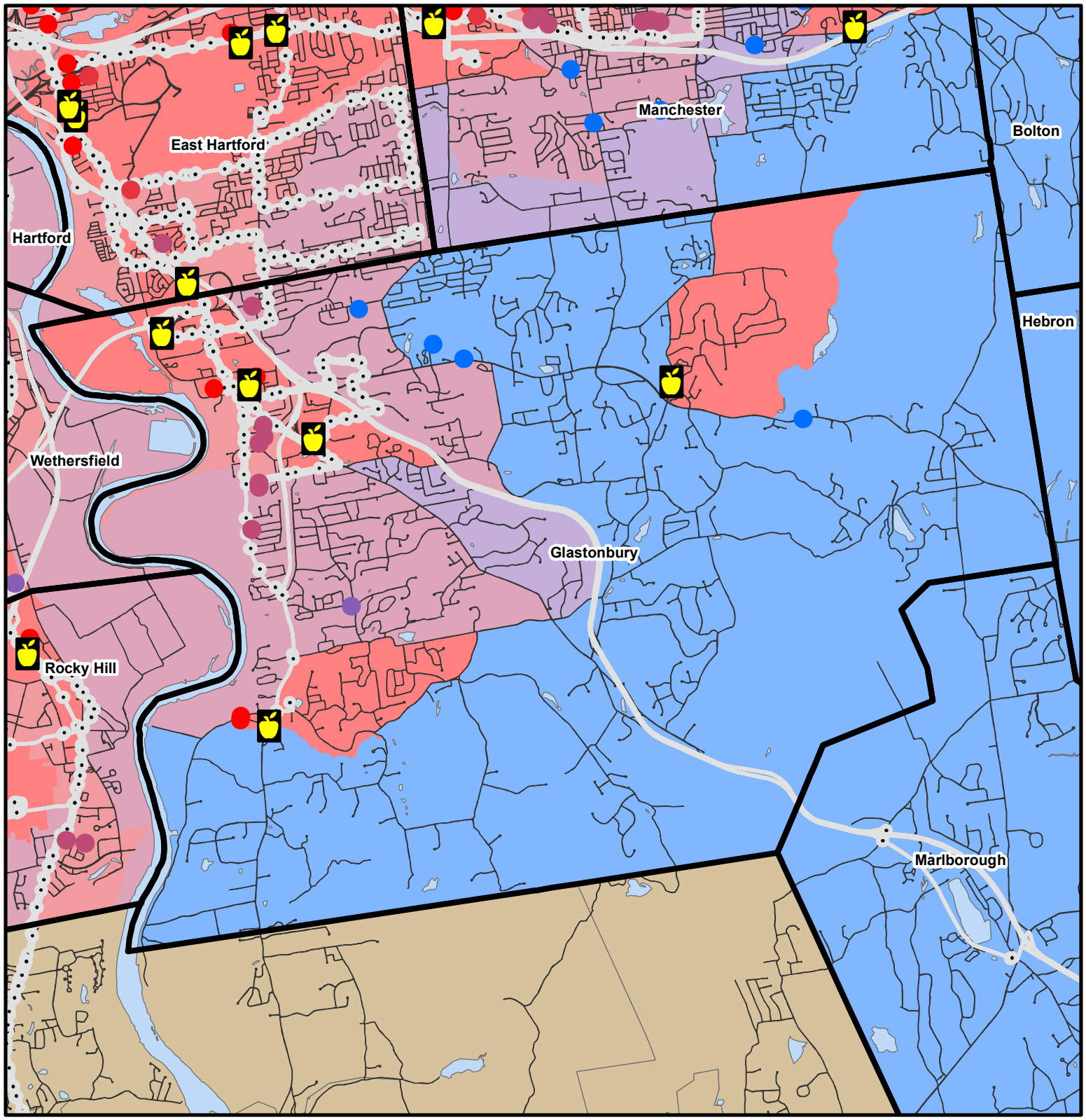

Glastonbury

Grocery Facility

CRCOG

TOI Point Grade
- A
- B
- C
- D
- F

TOI Zone Grade
- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips
- 1 - 50 Trips
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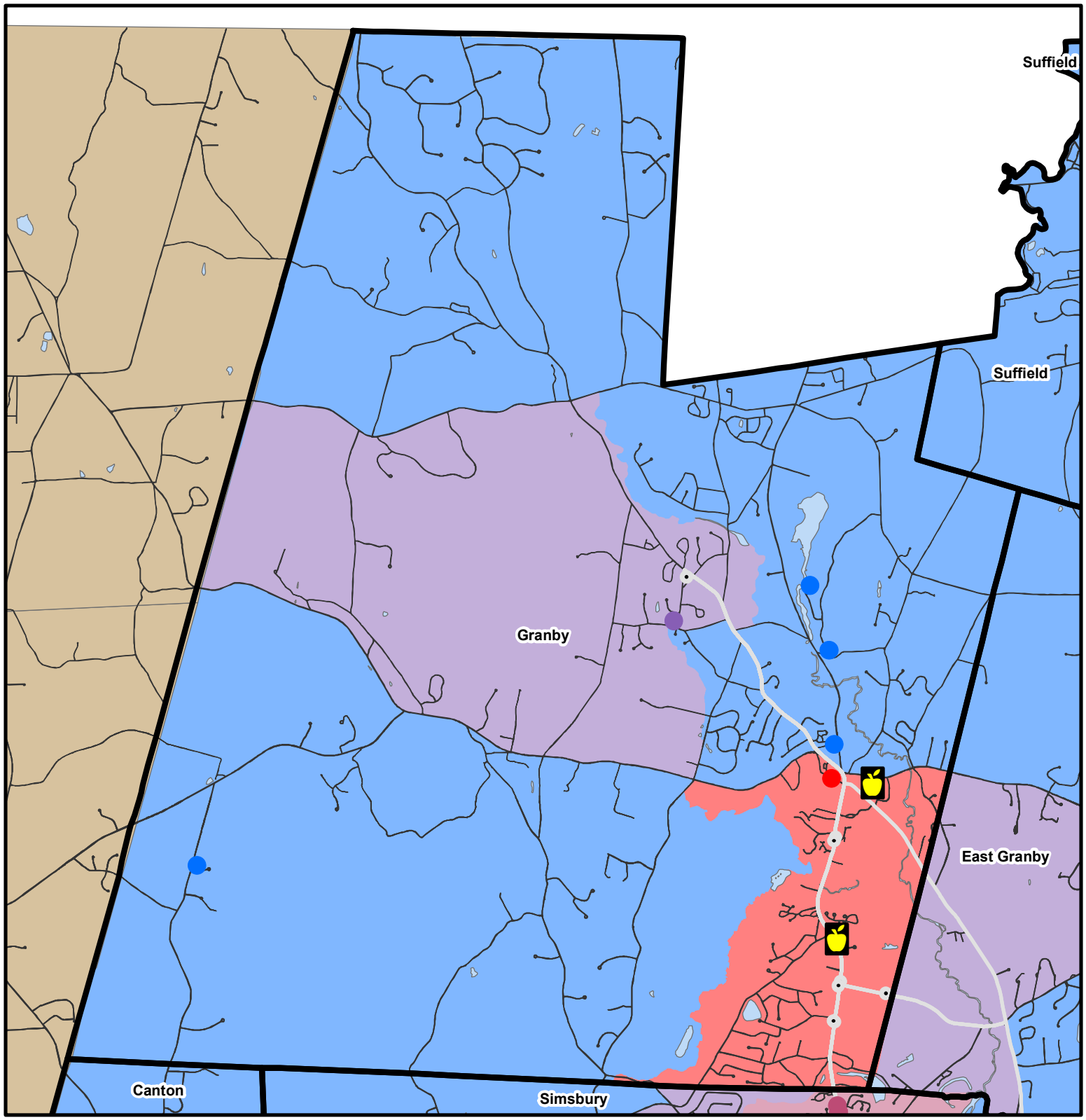
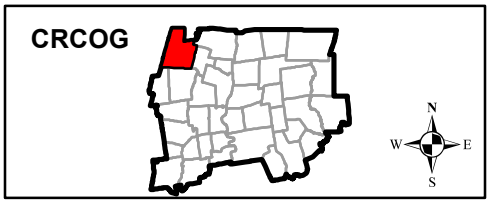


Granby

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
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0 0.5 1 Miles

Town Line

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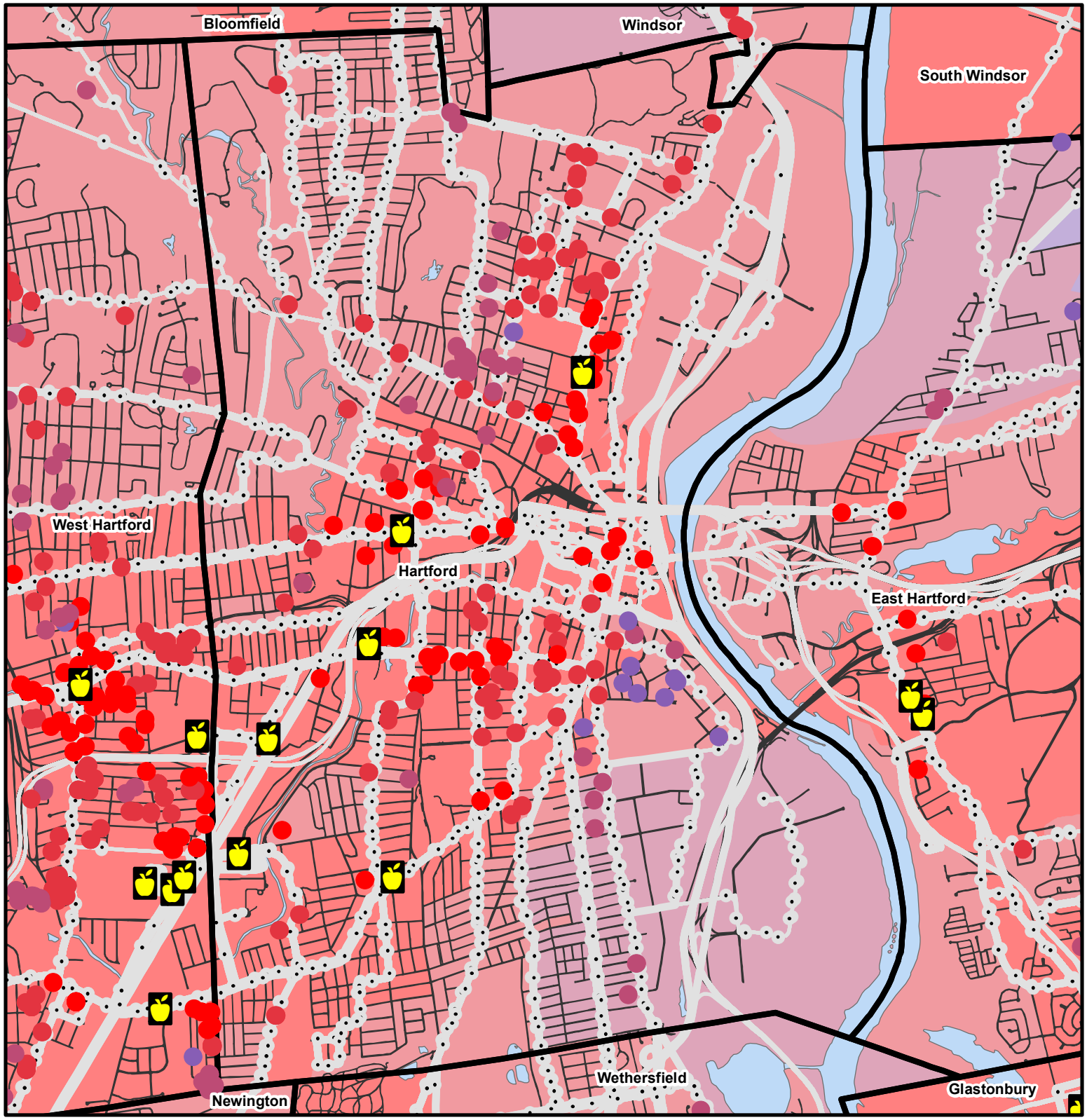
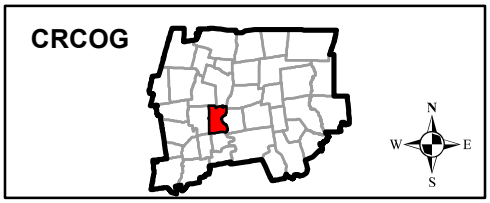


Hartford

Grocery Facility

CRCOG



TOI Point Grade

- A
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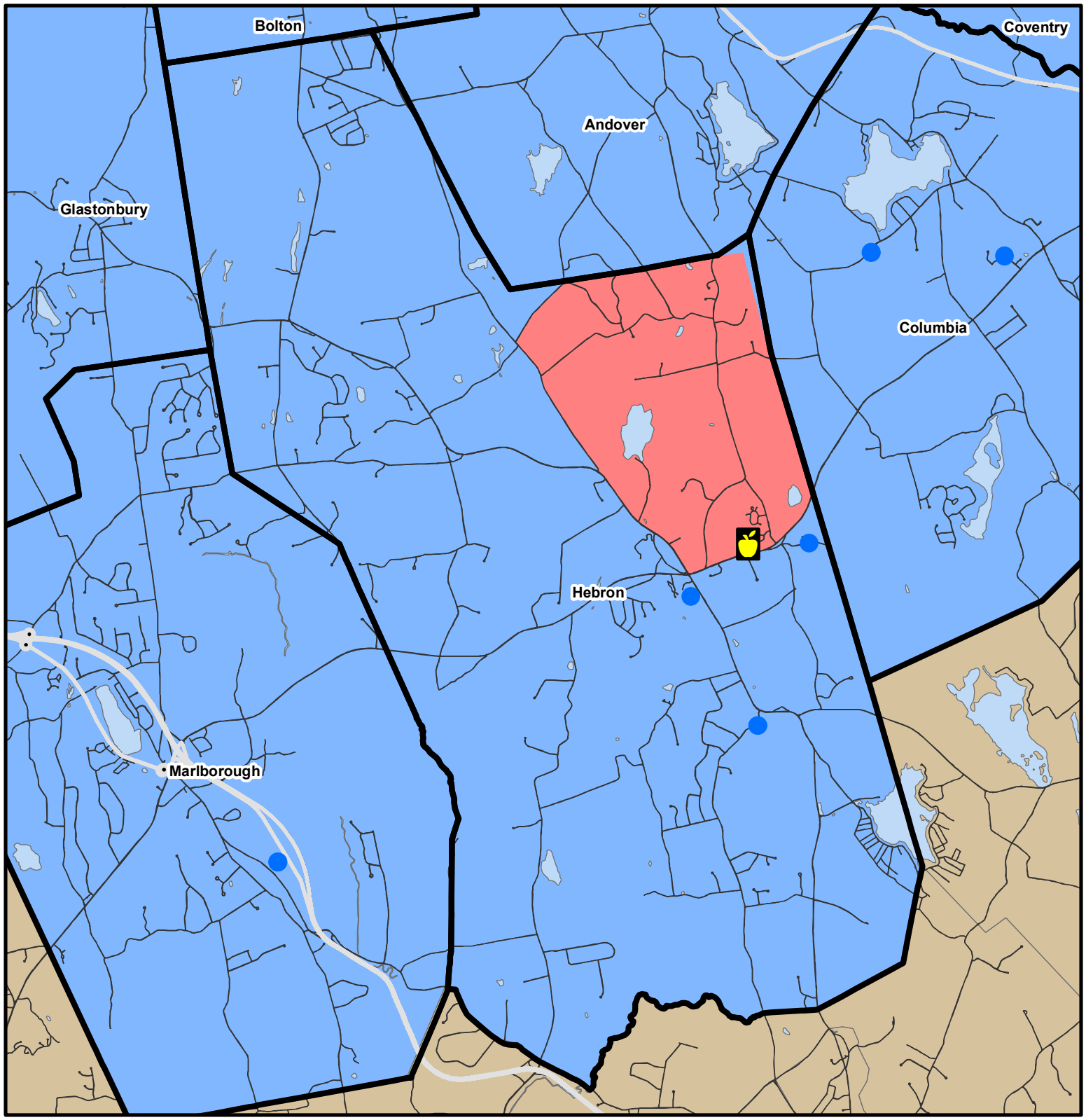
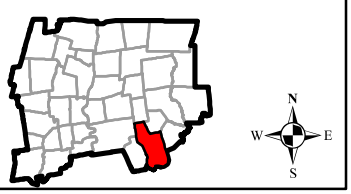


Hebron

Grocery Facility

CRCOG



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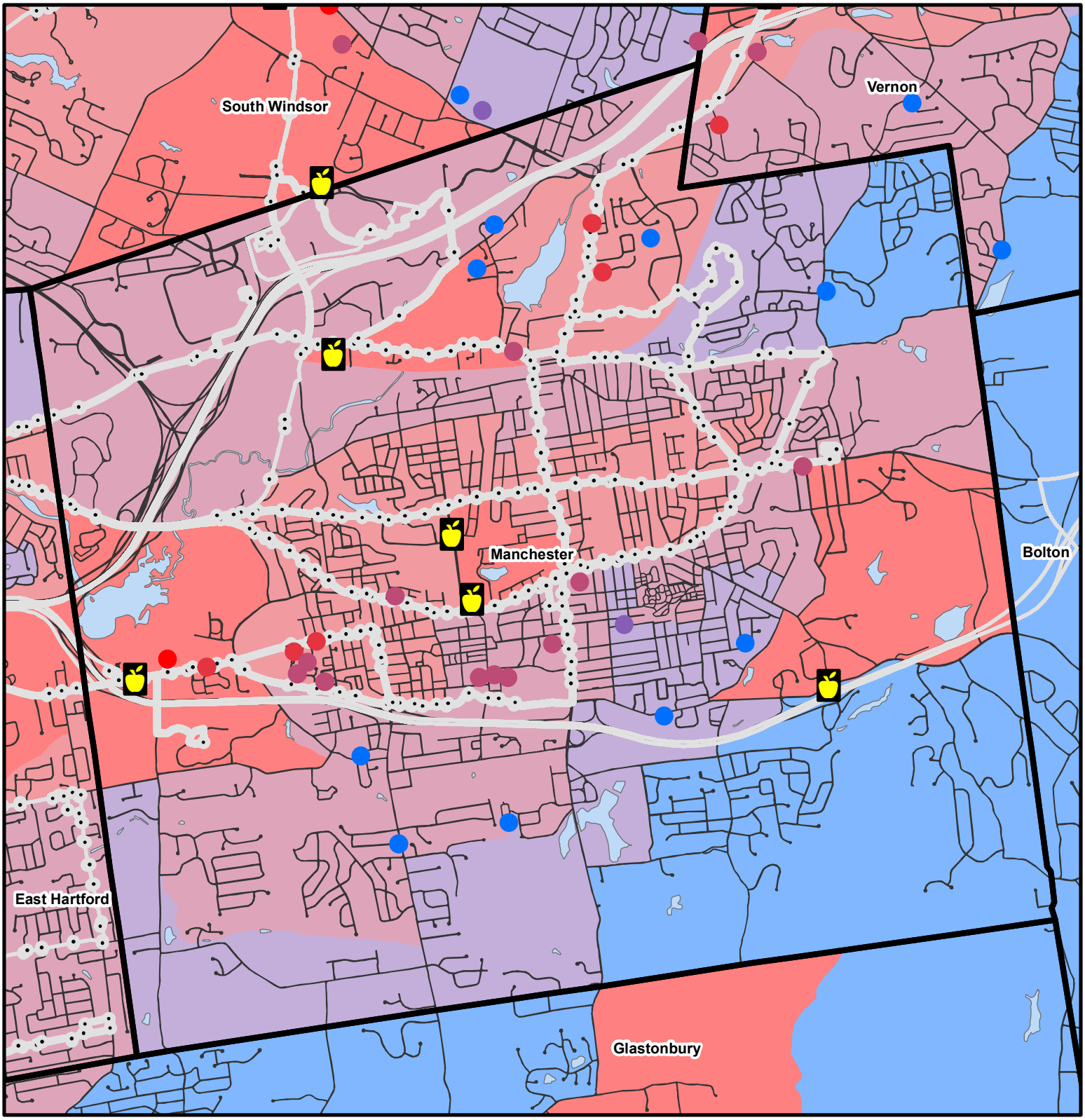
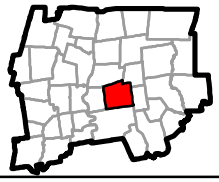


Manchester

Grocery Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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0 0.5 1 Miles

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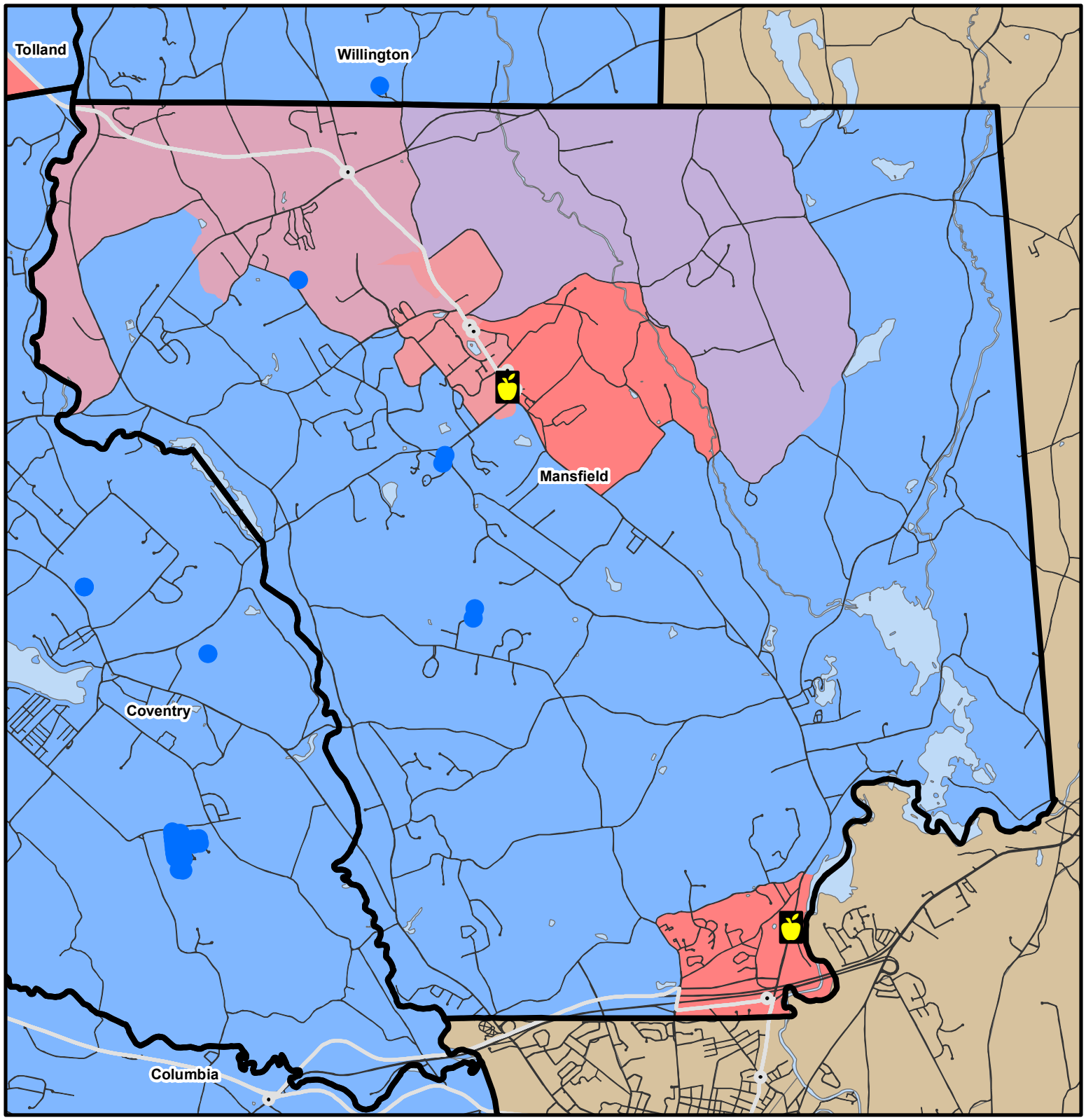
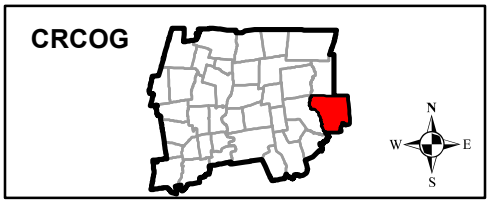


Mansfield

Grocery Facility

CRCOG



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TOI Zone Grade

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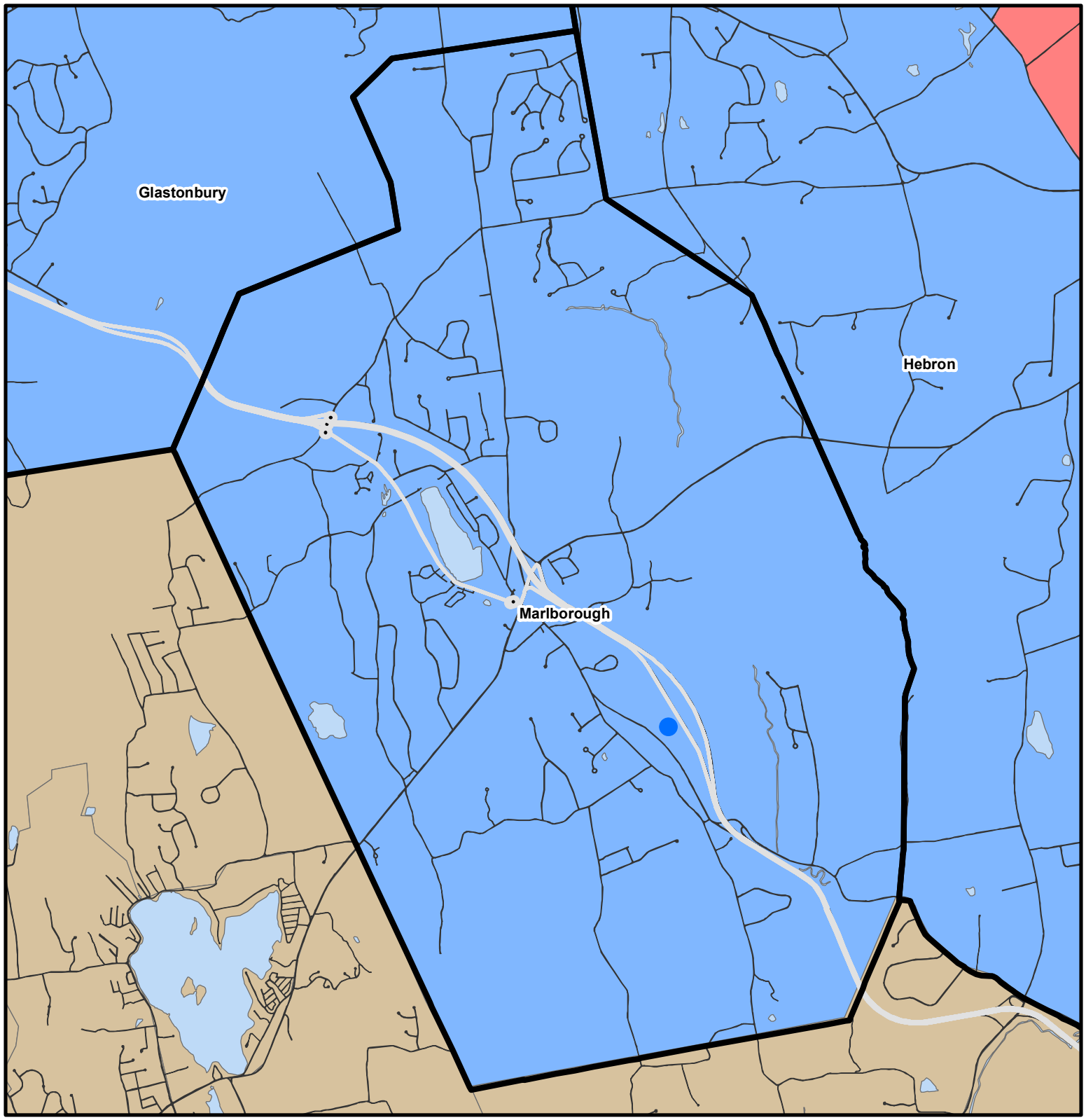
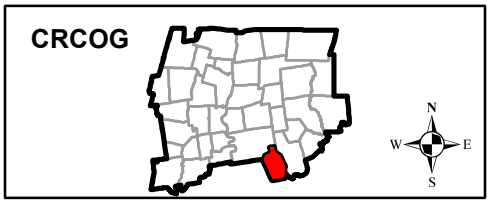


Marlborough

Grocery Facility

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

- A
- B
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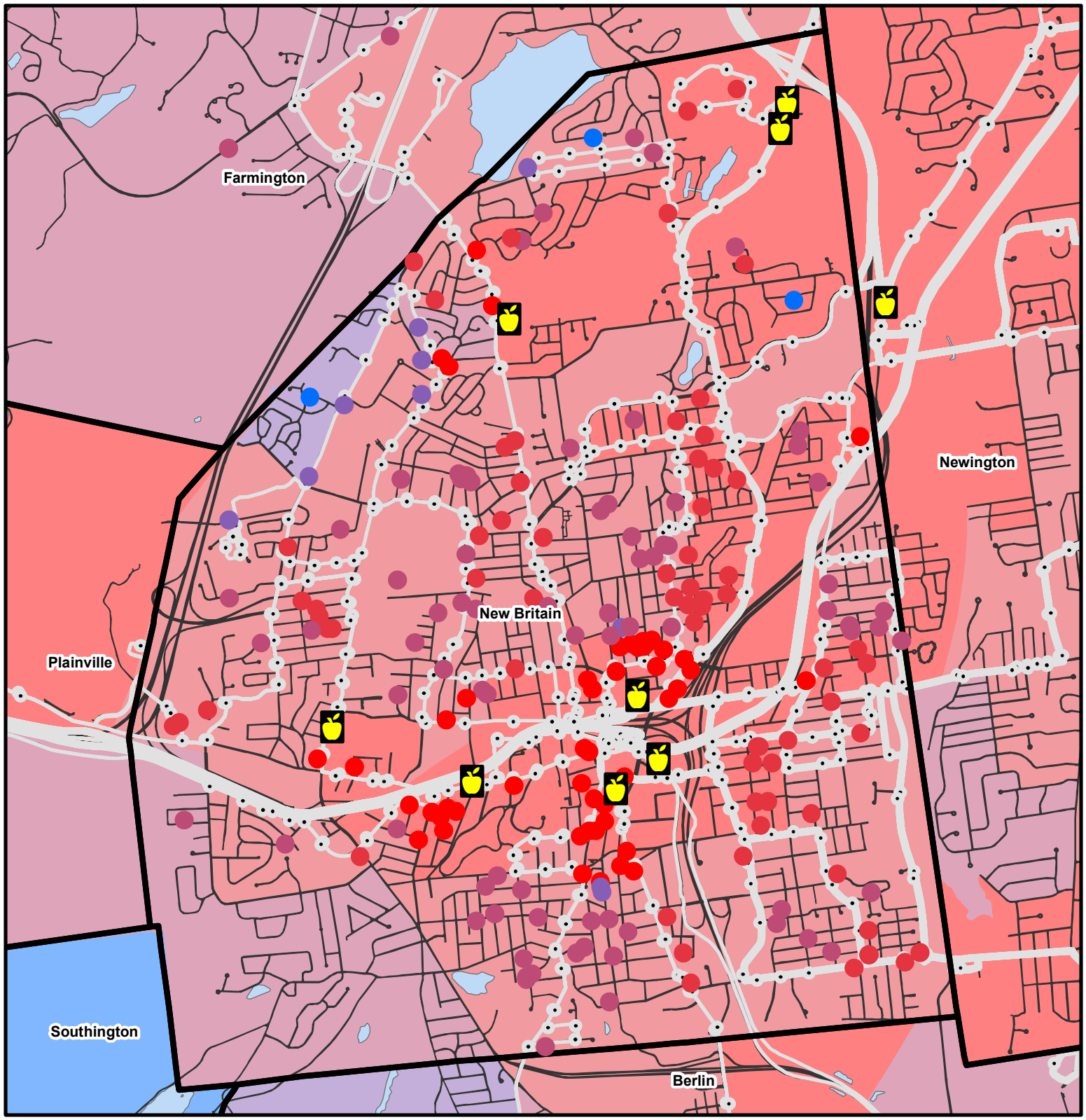
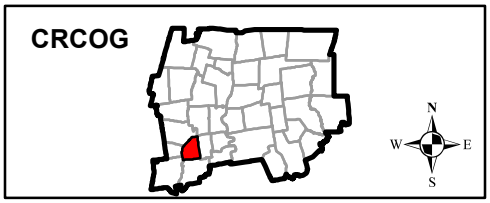


New Britain

Grocery Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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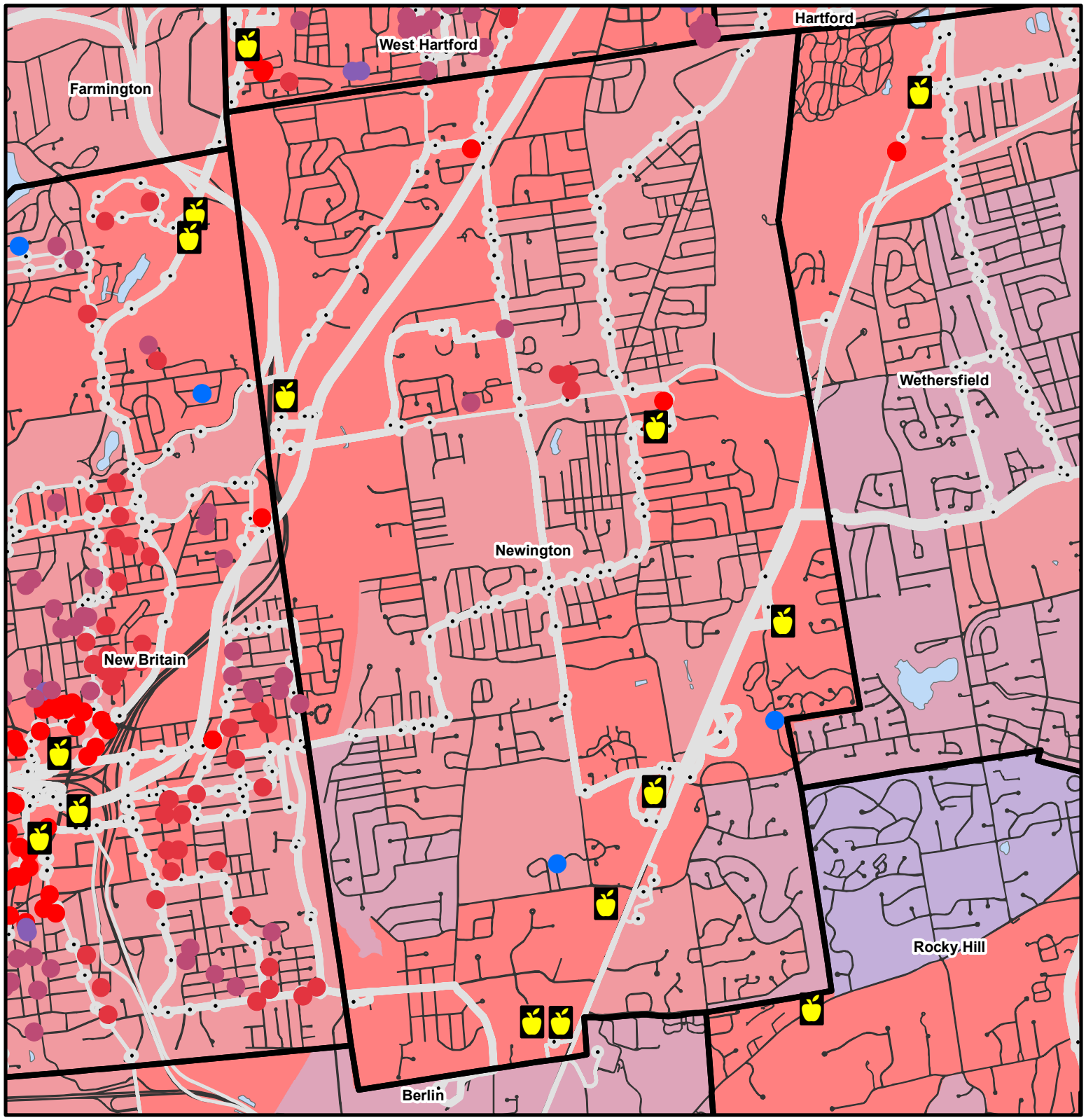
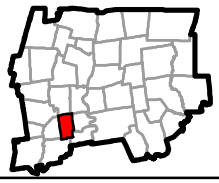


Newington

Grocery Facility

CRCOG



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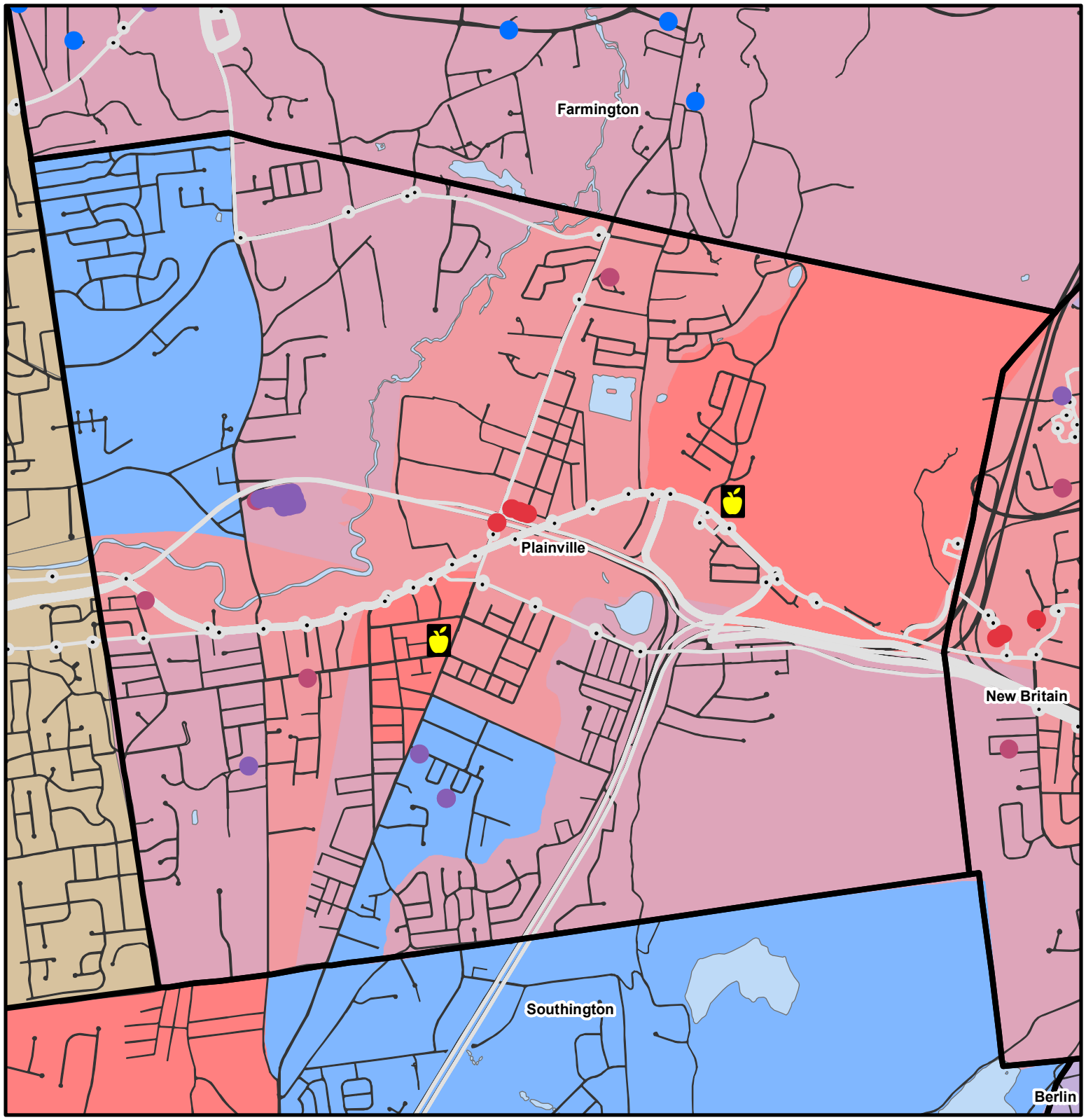
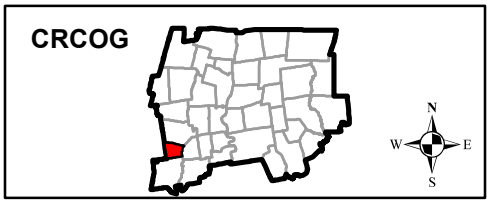


Plainville

Grocery Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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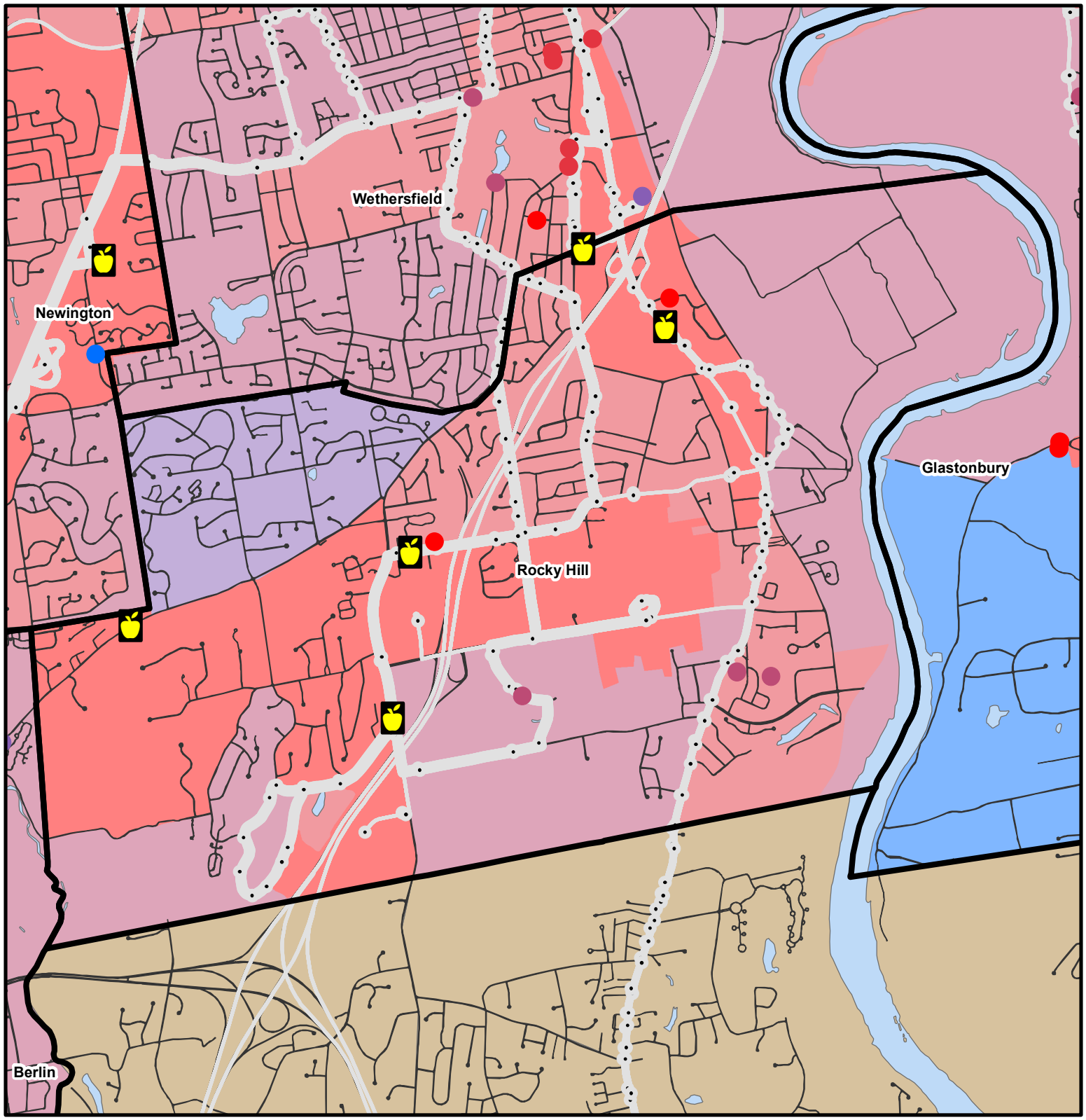
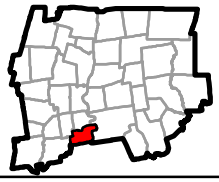
- 50 - 130 Trips
- 130 - 223 Trips



Rocky Hill

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

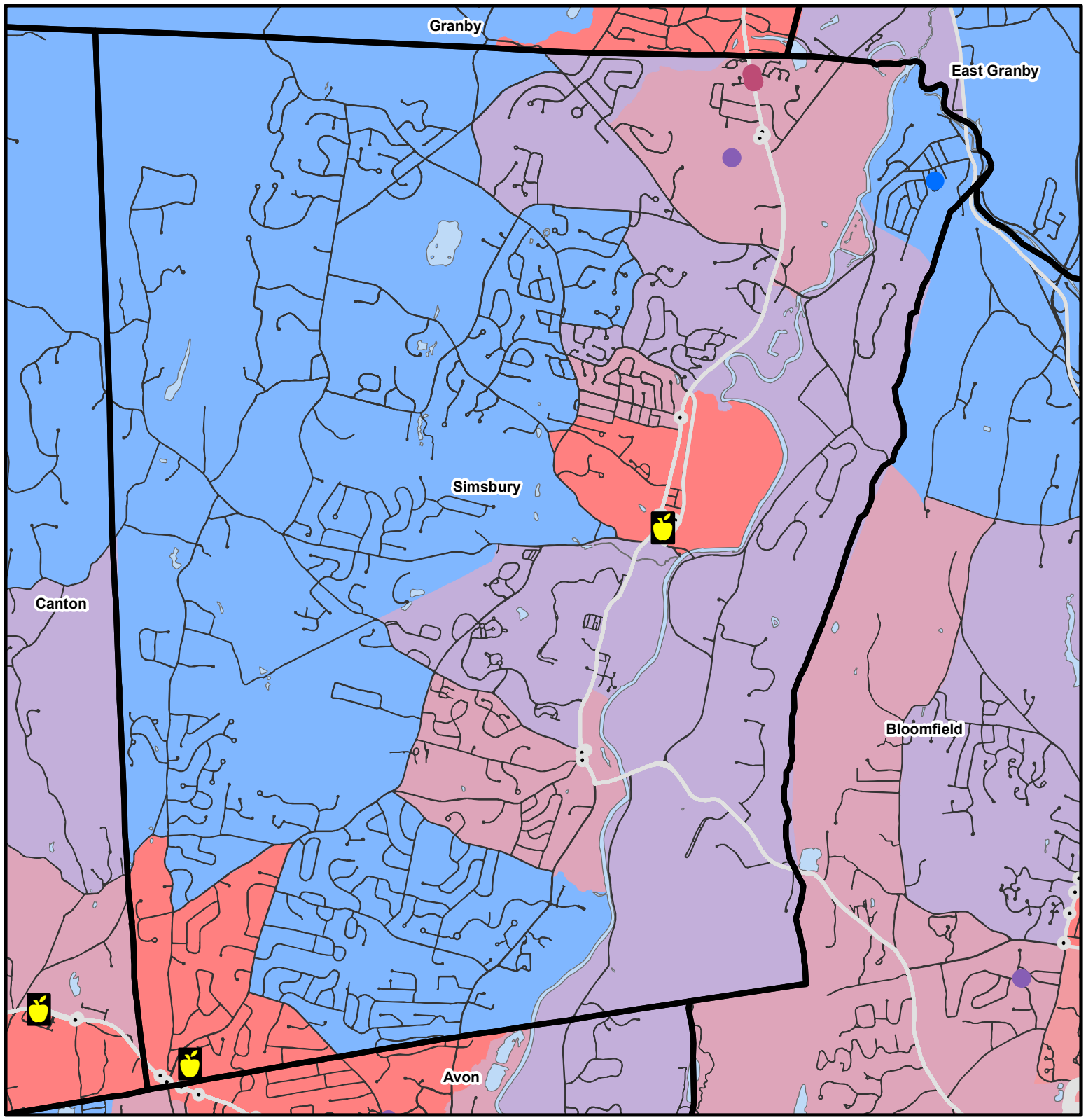
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

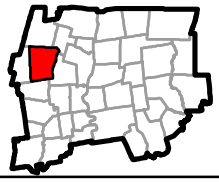
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Simsbury

Grocery Facility

CRCOG



TOI Point Grade

- A
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- D
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TOI Zone Grade

- A
- B
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- F

0 0.5 1 Miles

Town Line

Transit Stops

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- 1 - 50 Trips
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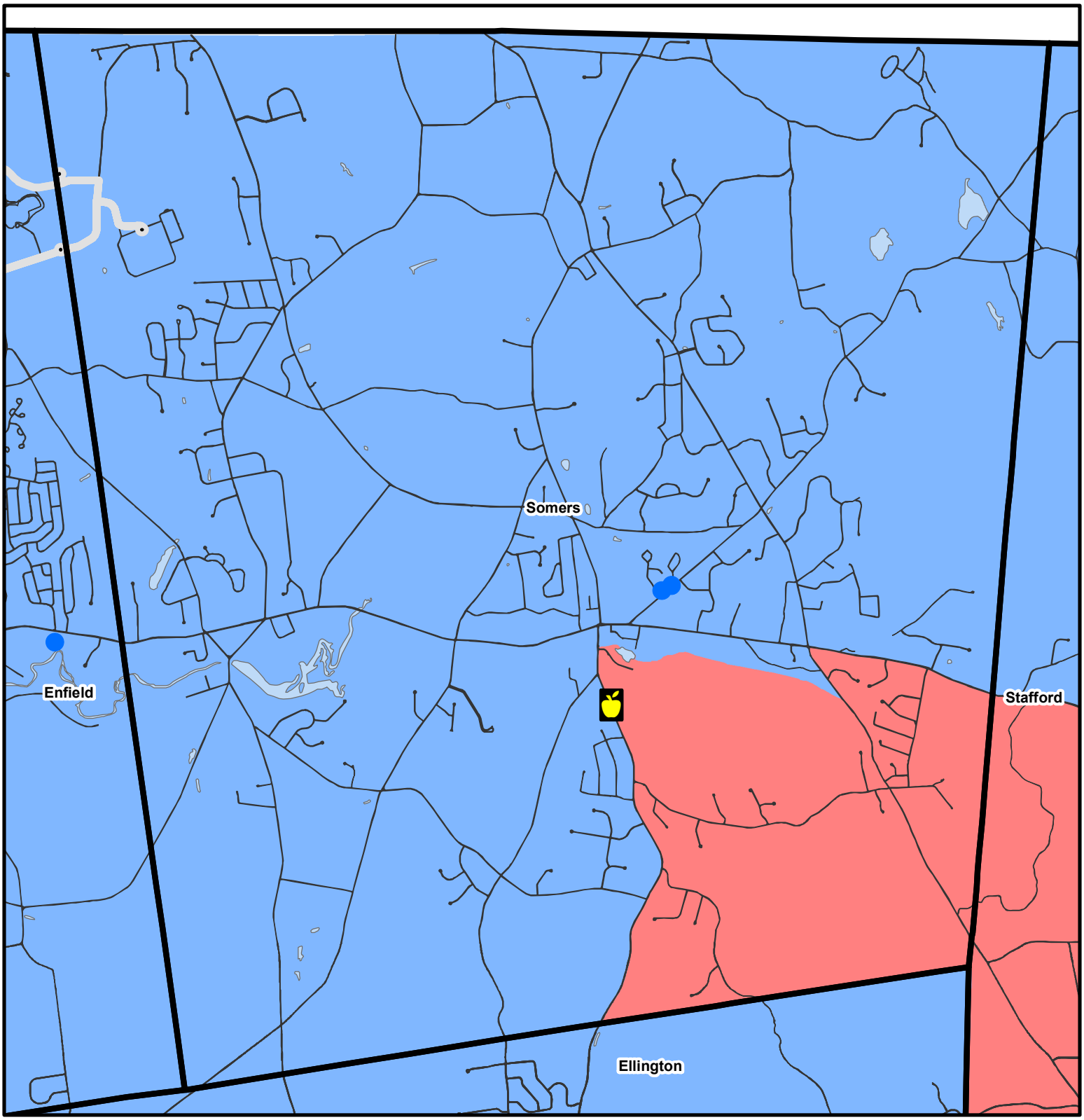
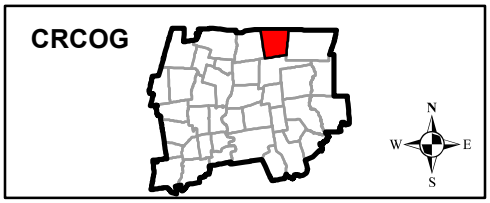


Somers

Grocery Facility

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

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0 0.5 1 Miles

Town Line

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Transit Routes by Daily Trips

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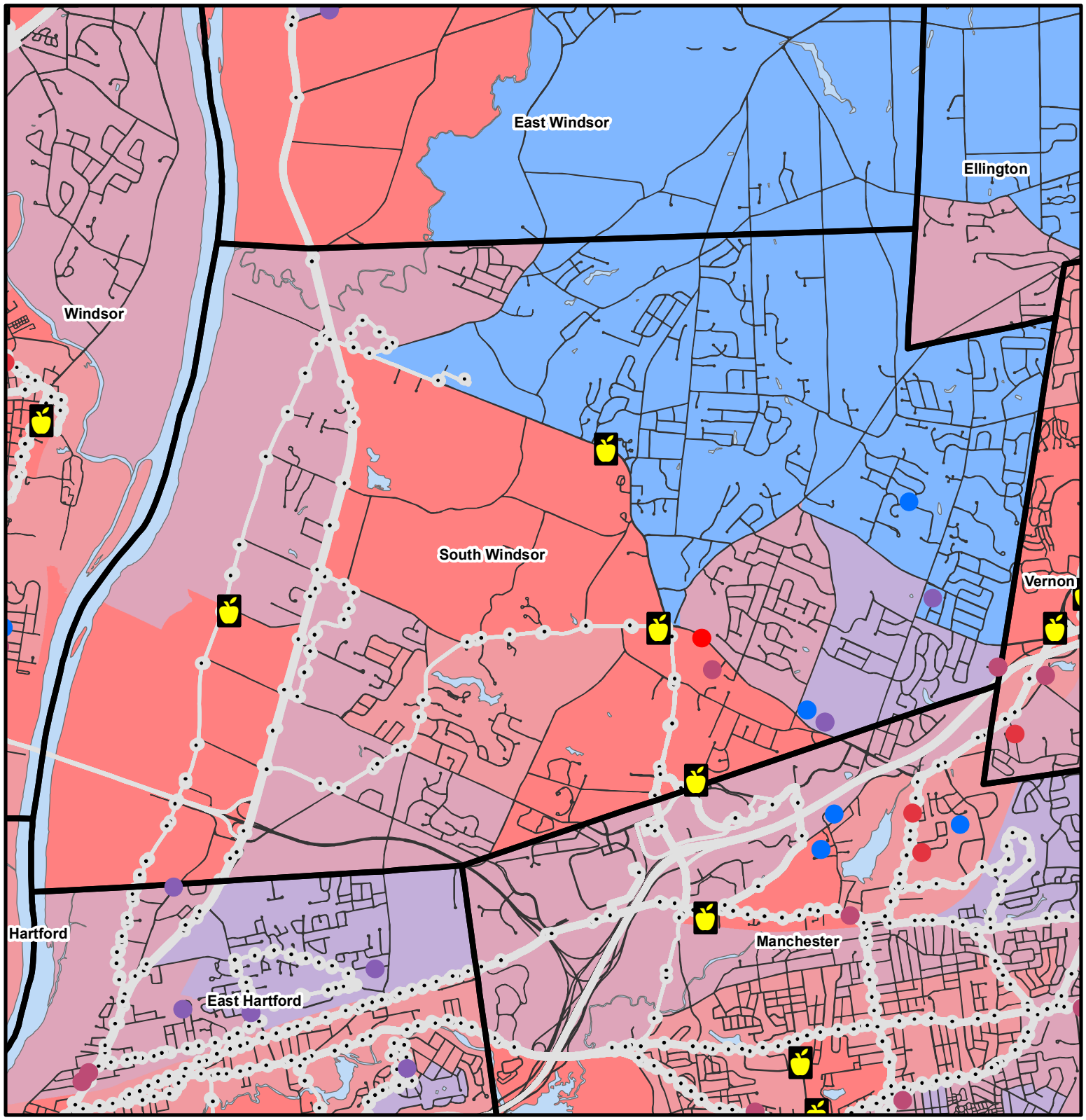
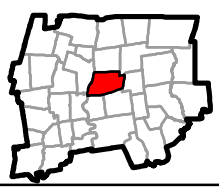


South Windsor

Grocery Facility

CRCOG



TOI Point Grade

- A
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- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
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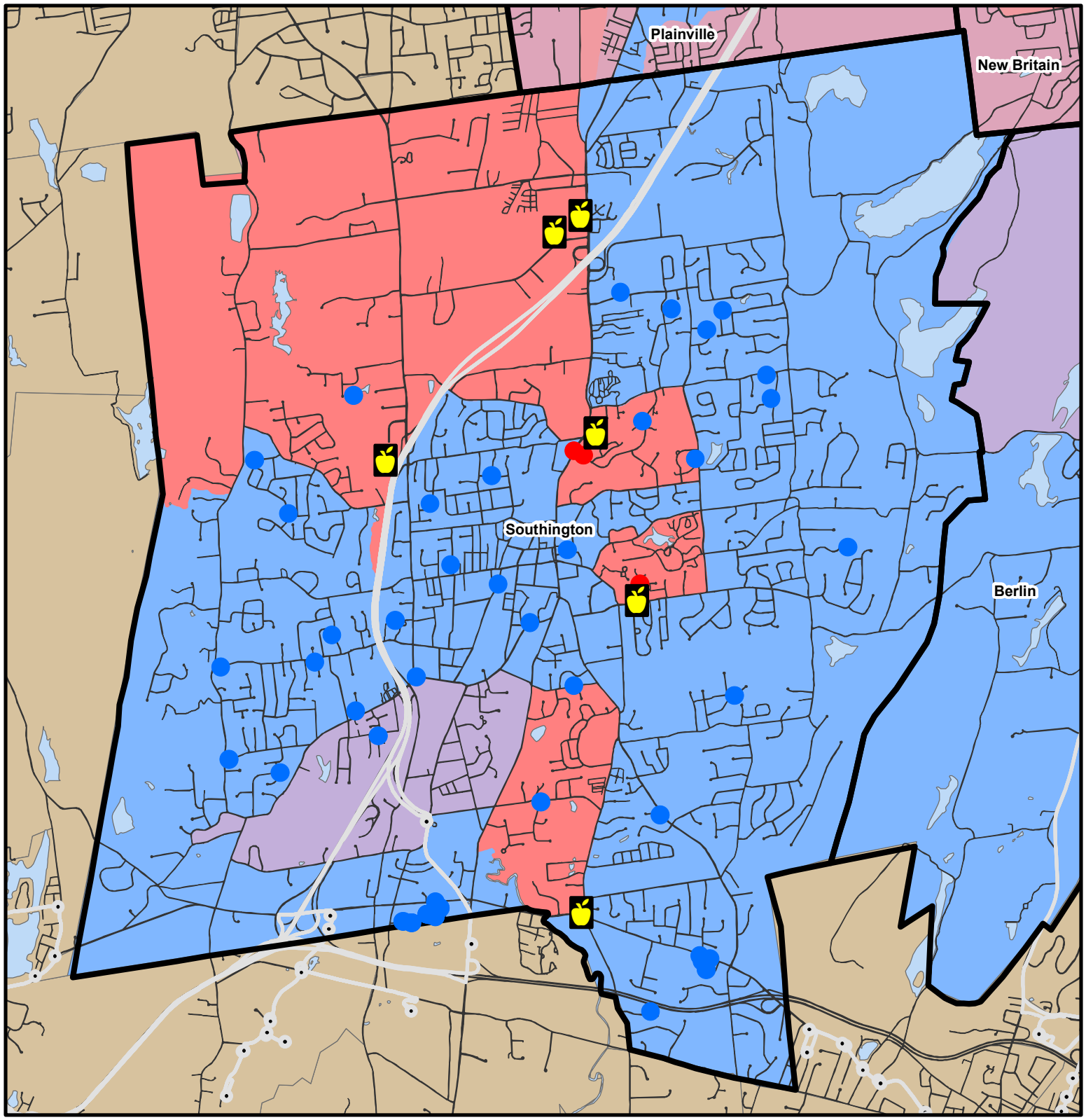
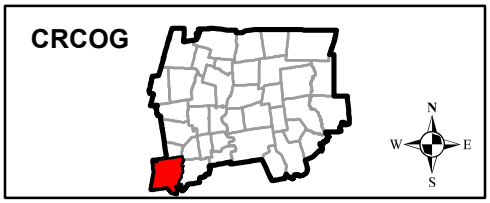
- 130 - 223 Trips



Southington

Grocery Facility

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

- A
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0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
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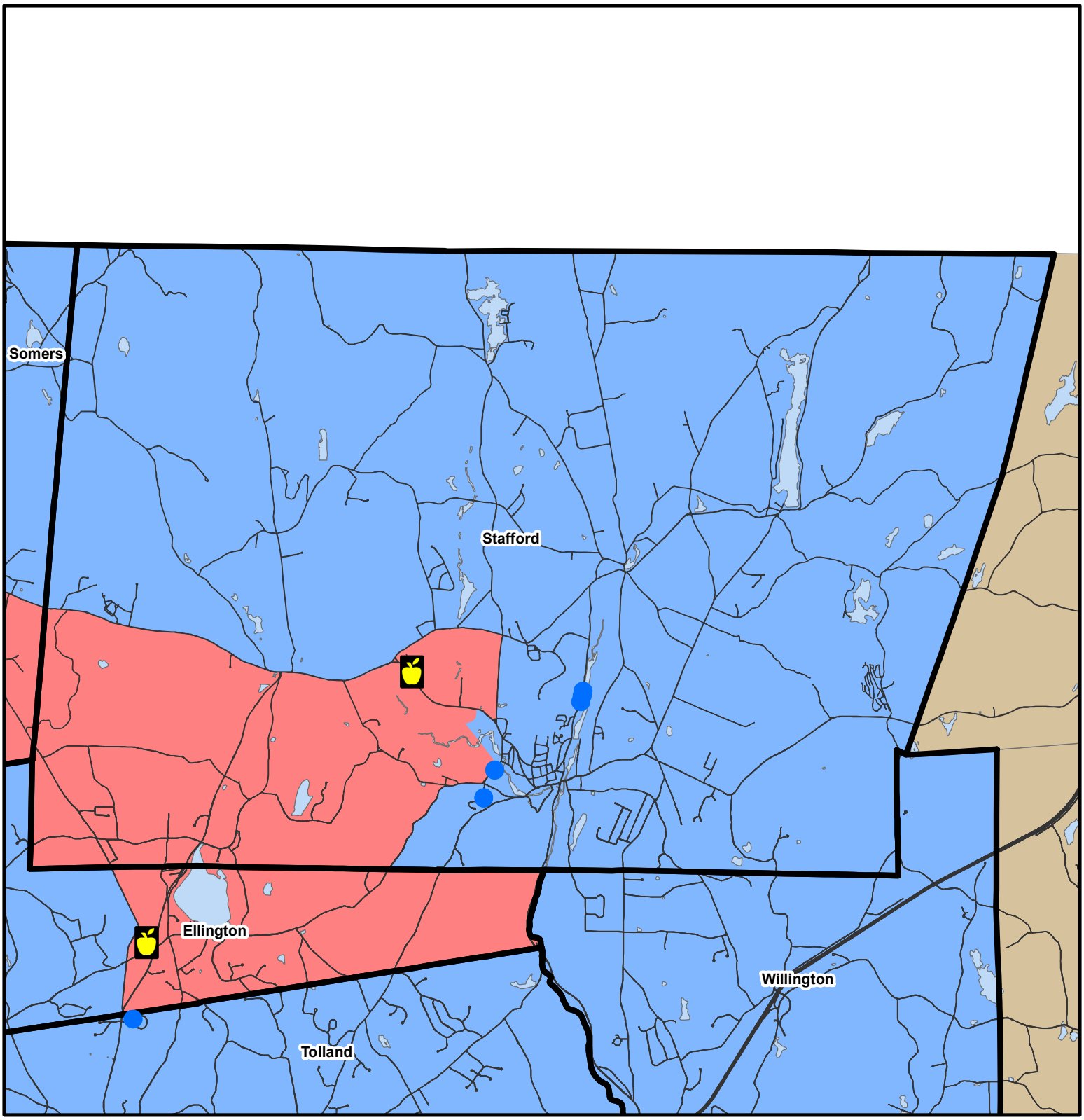
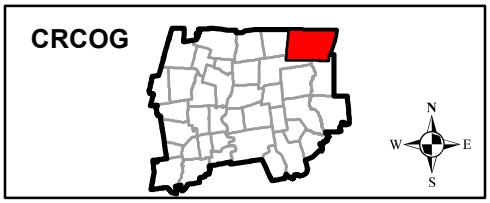


Stafford

Grocery Facility

CRCOG



TOI Point Grade

- A
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- D
- F

TOI Zone Grade

- A
- B
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- D
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0 0.5 1 Miles

Town Line

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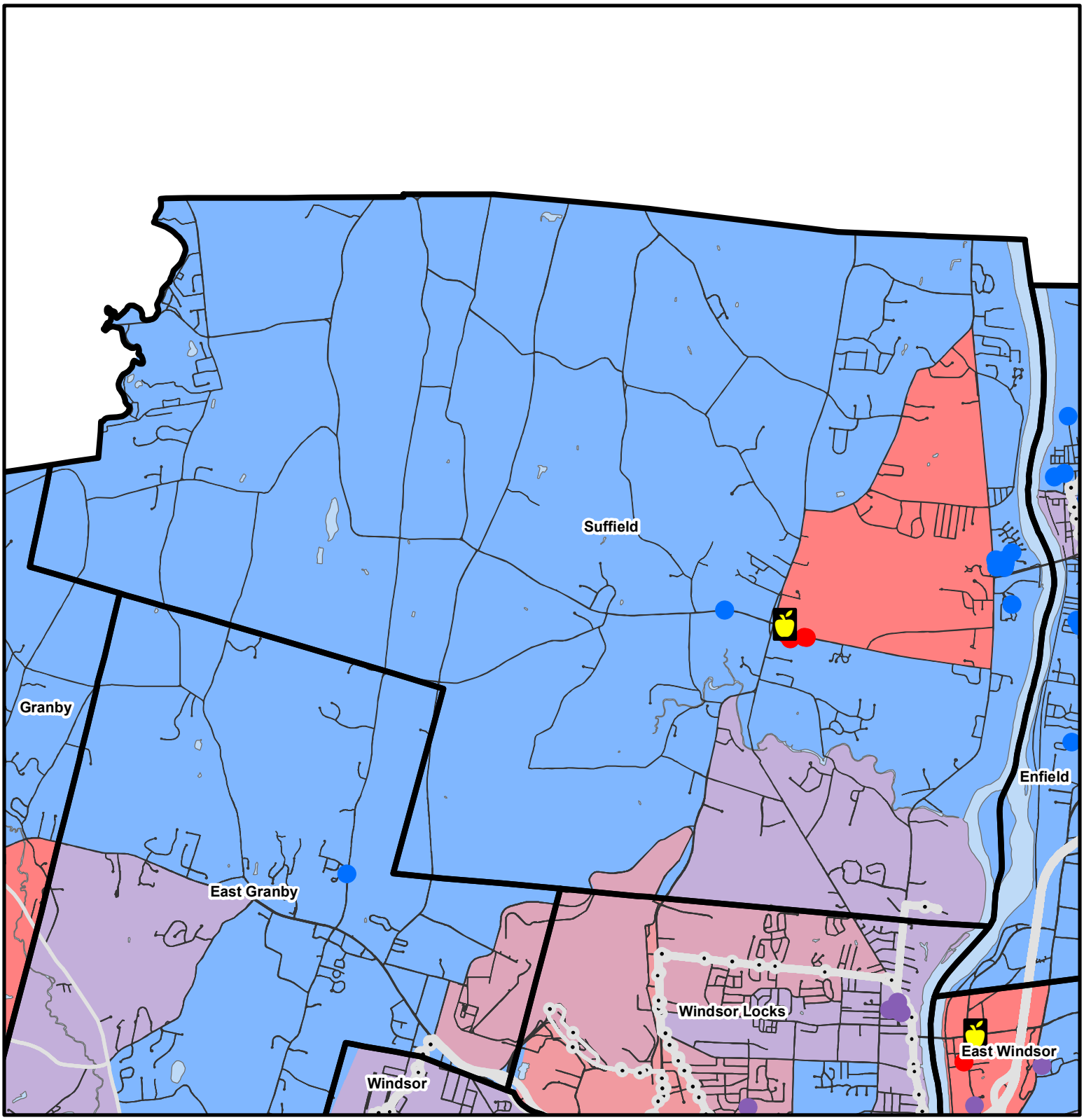
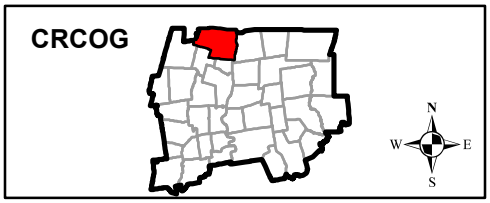


Suffield

Grocery Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

- A
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0 0.5 1 Miles

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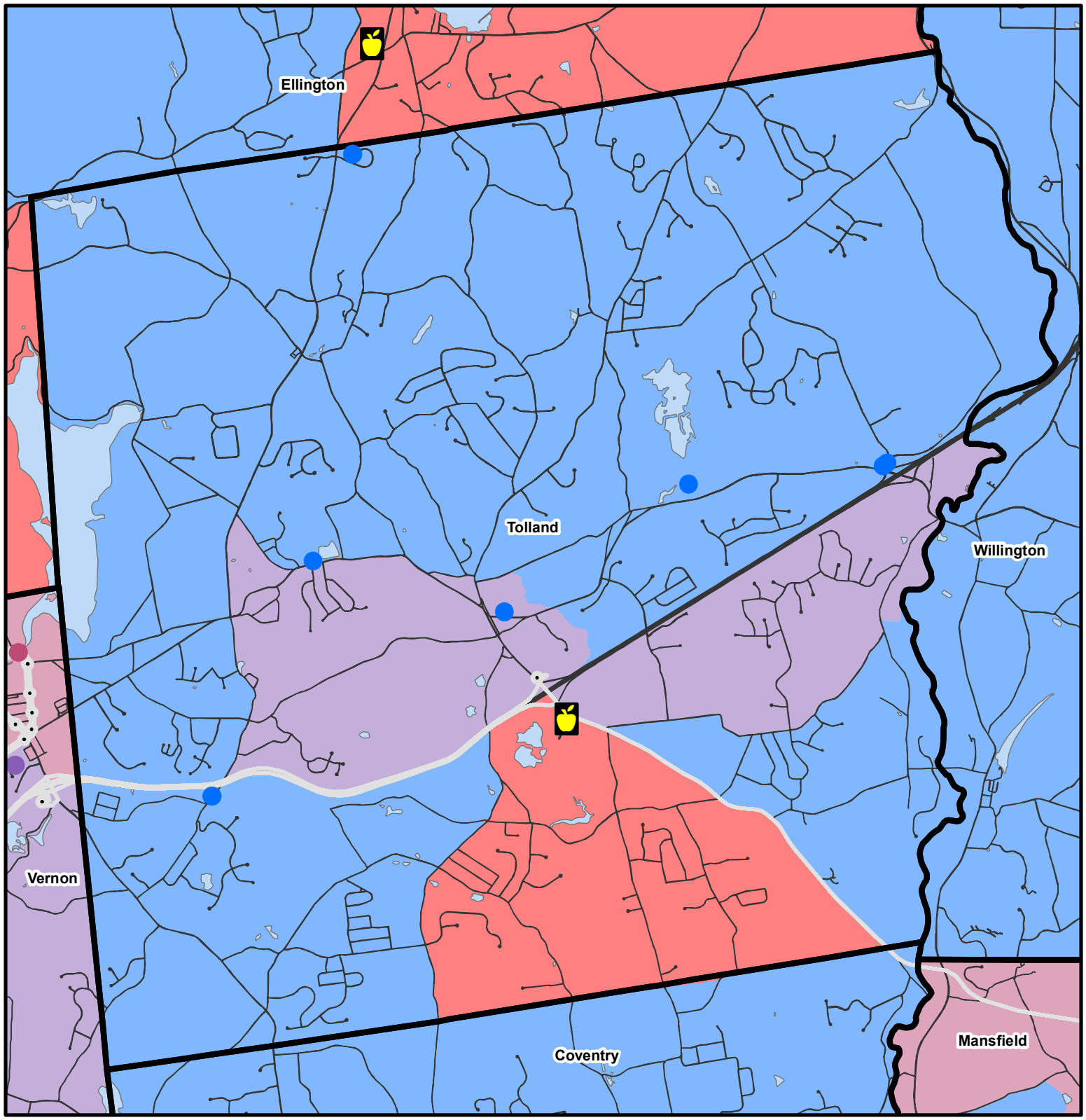
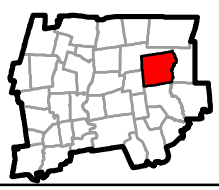


Tolland

Grocery Facility

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

- A
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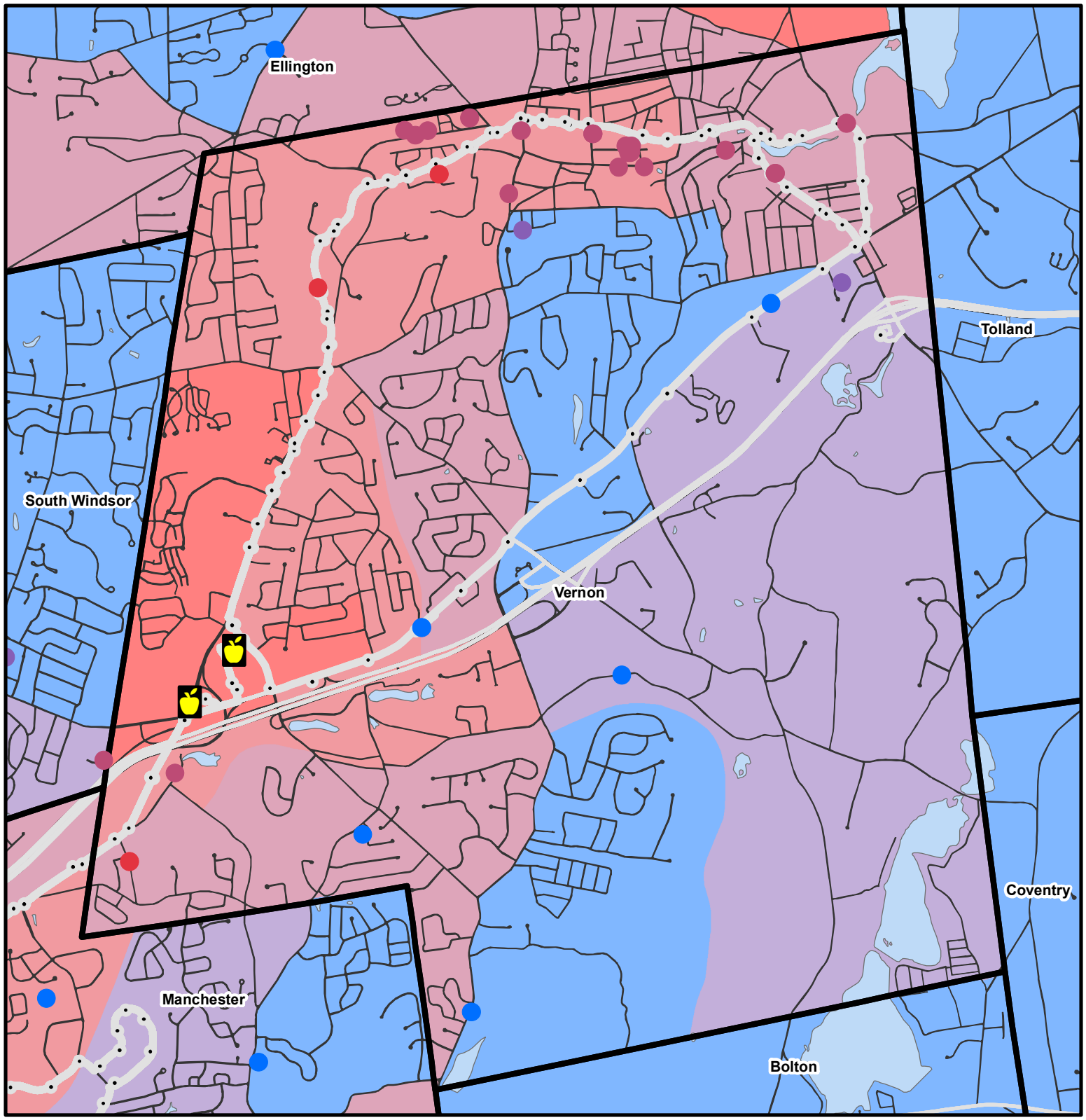
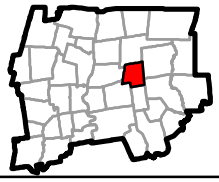


Vernon

Grocery Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

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Transit Routes by Daily Trips

- 1 - 50 Trips
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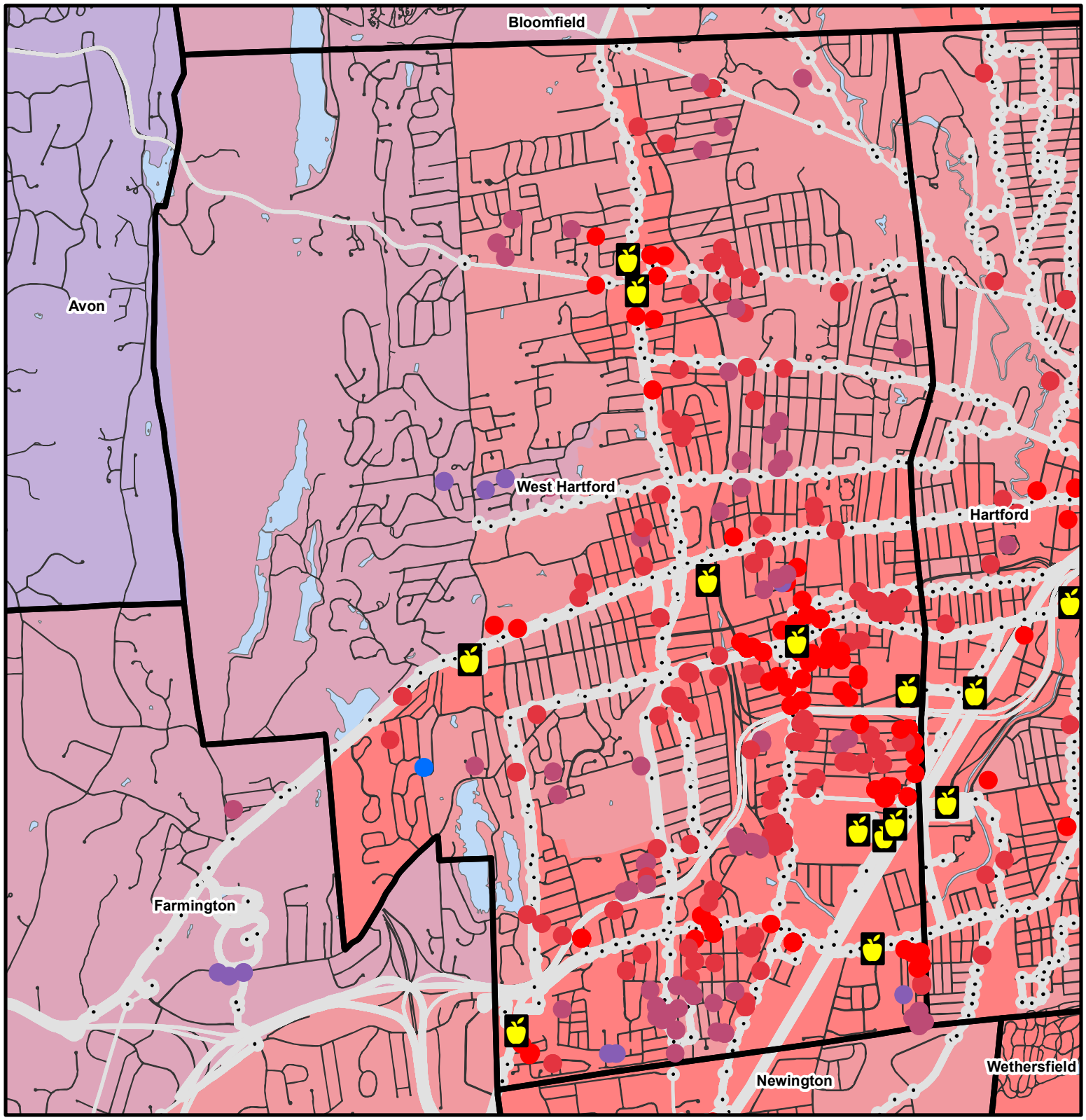
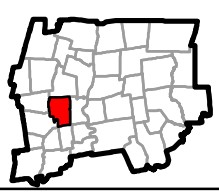


West Hartford

Grocery Facility

CRCOG



TOI Point Grade

- A
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- C
- D
- F

TOI Zone Grade

- A
- B
- C
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- F

0 0.5 1 Miles

Town Line

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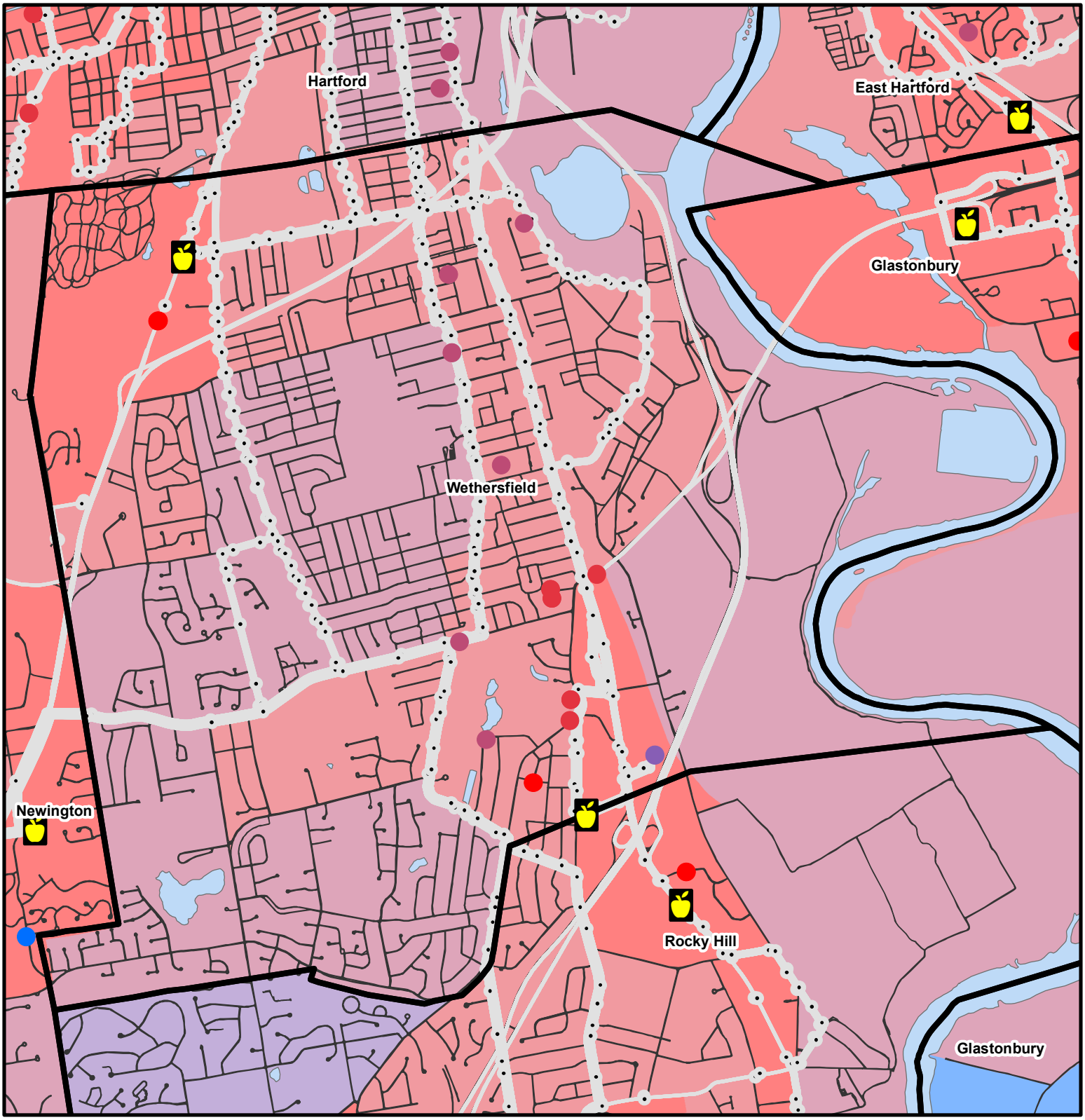

Wethersfield

Grocery Facility

CRCOG

TOI Point Grade
A
B
C
D
F

TOI Zone Grade
A
B
C
D
F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips
1 - 50 Trips
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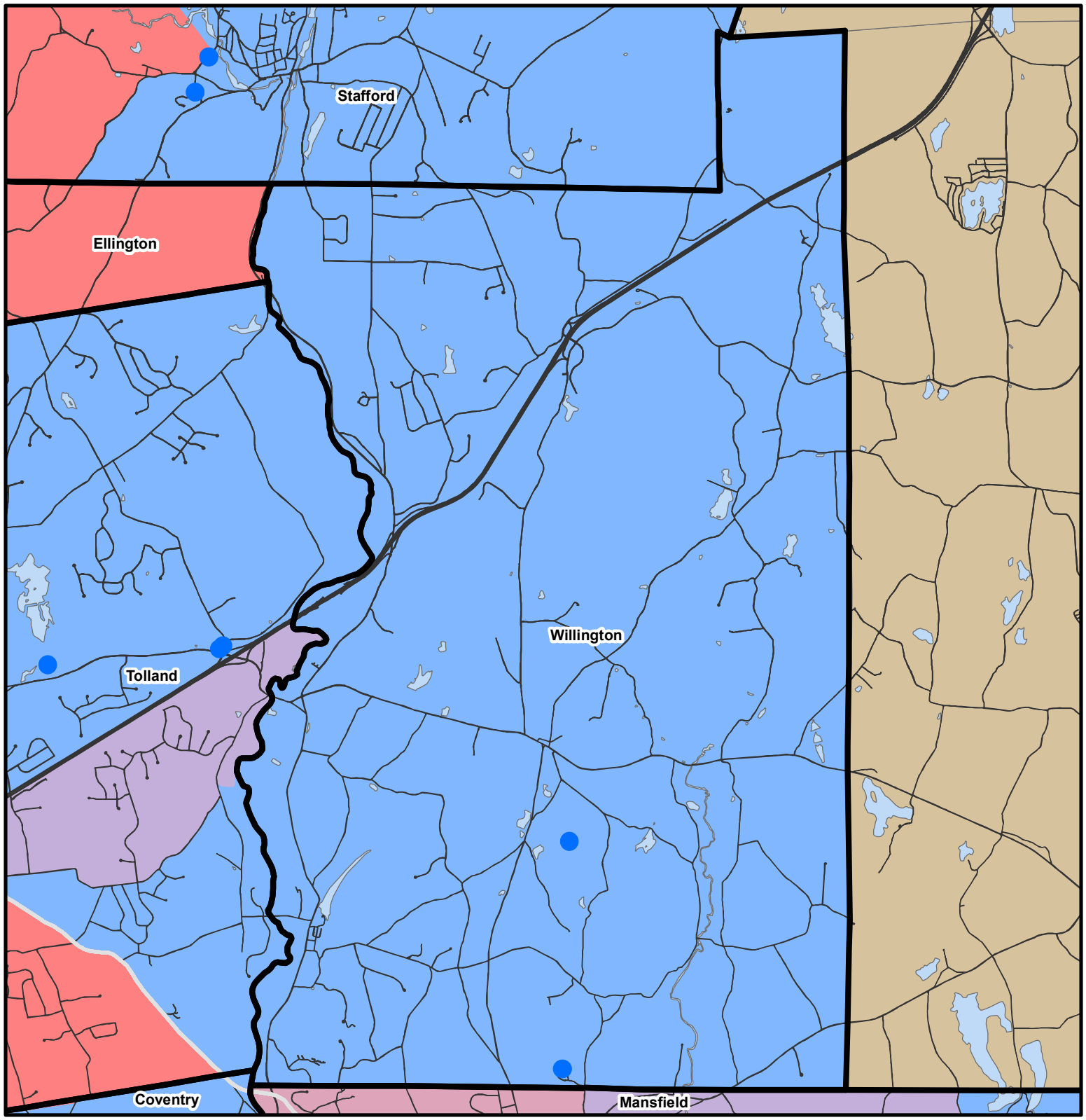
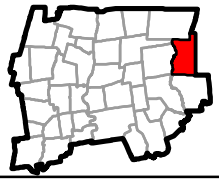


Willington

Grocery Facility

CRCOG



TOI Point Grade

- A
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- C
- D
- F

TOI Zone Grade

- A
- B
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0 0.5 1 Miles

Town Line

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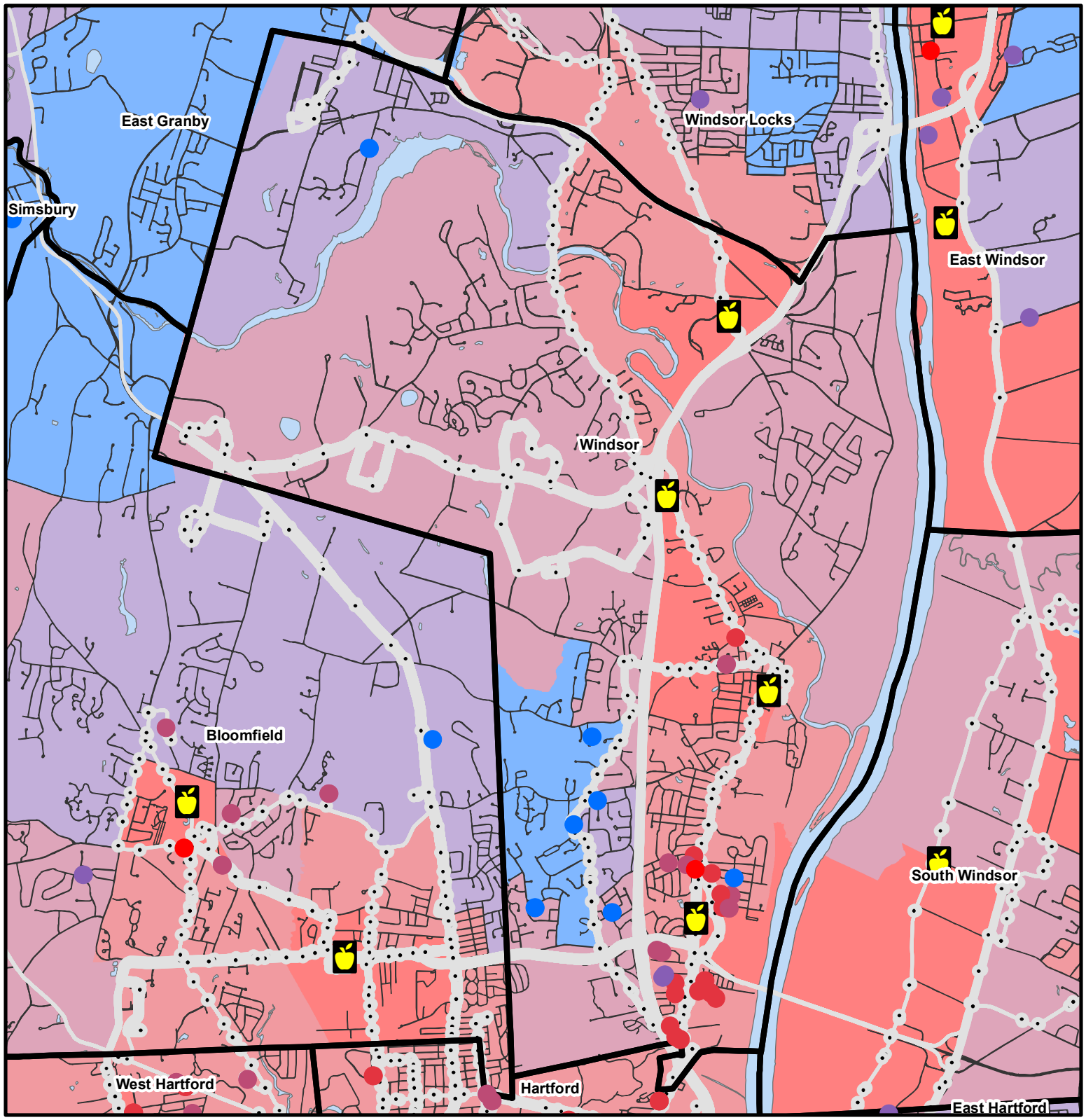
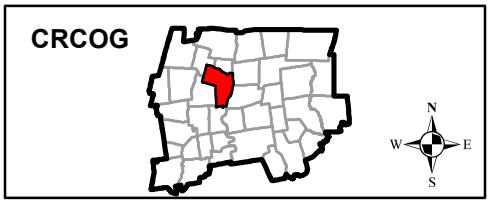


Windsor

Grocery Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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0 0.5 1 Miles

Town Line

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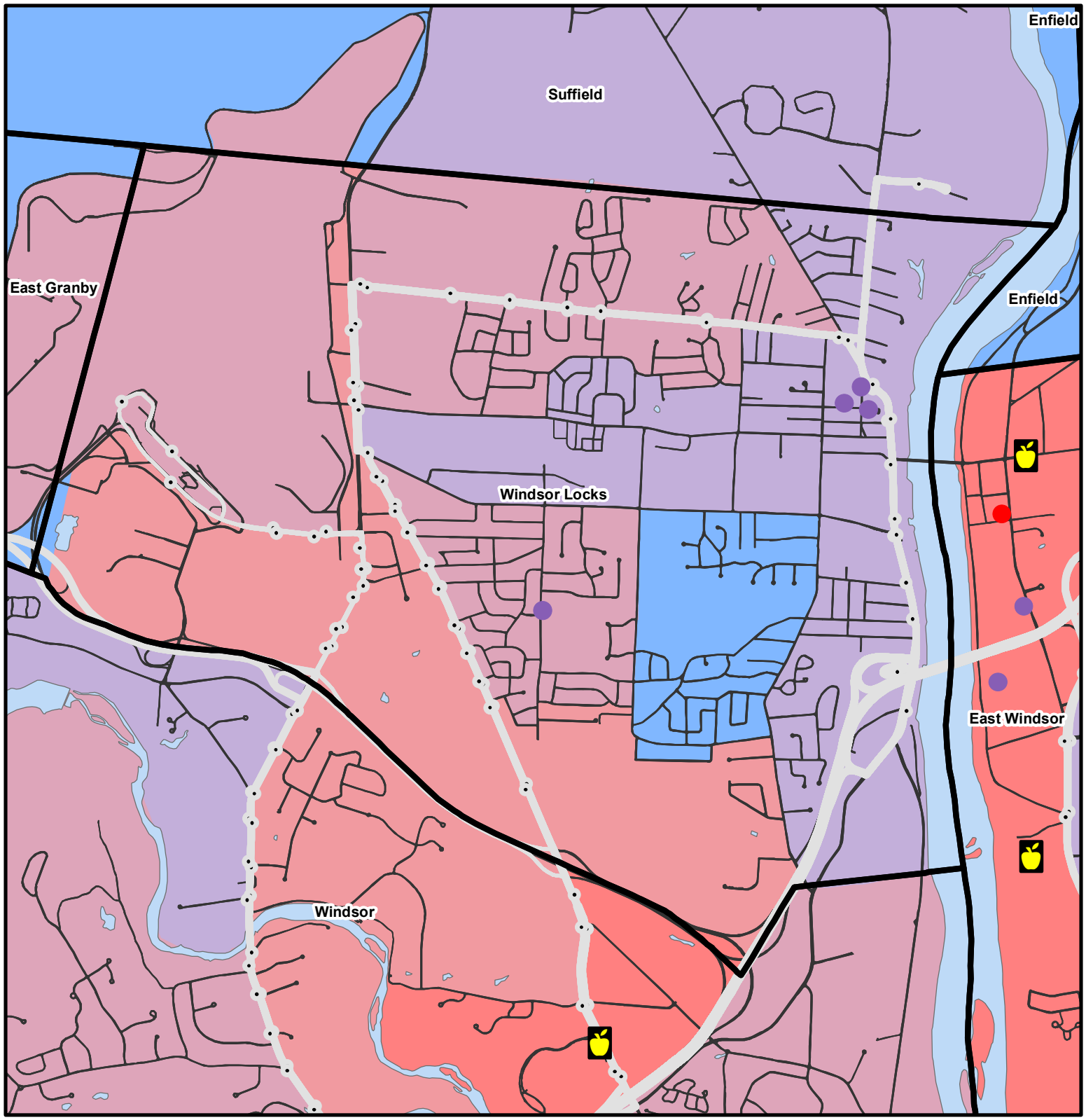
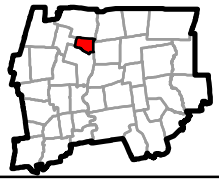


Windsor Locks

Grocery Facility

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

- A
- B
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0 0.5 1 Miles

Town Line

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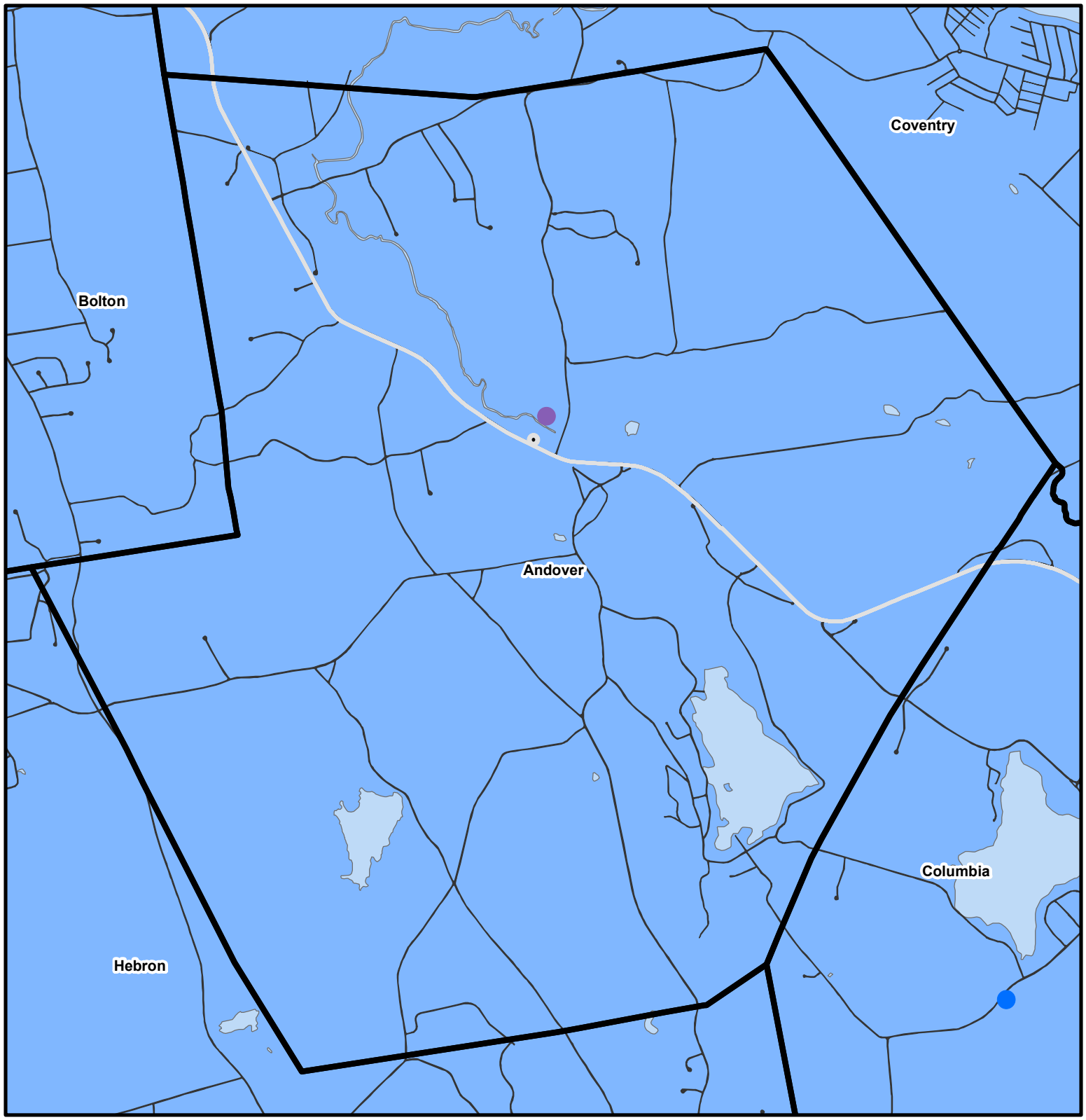
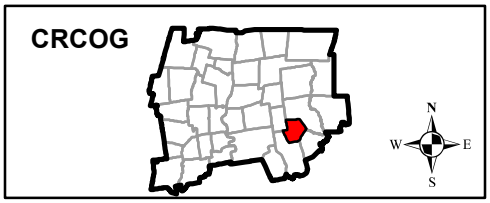
B.5 Maps of Point and Zone Transit Access Scores for Healthcare Facilities



Andover

Healthcare Facility

CRCOG



TOI Point Grade

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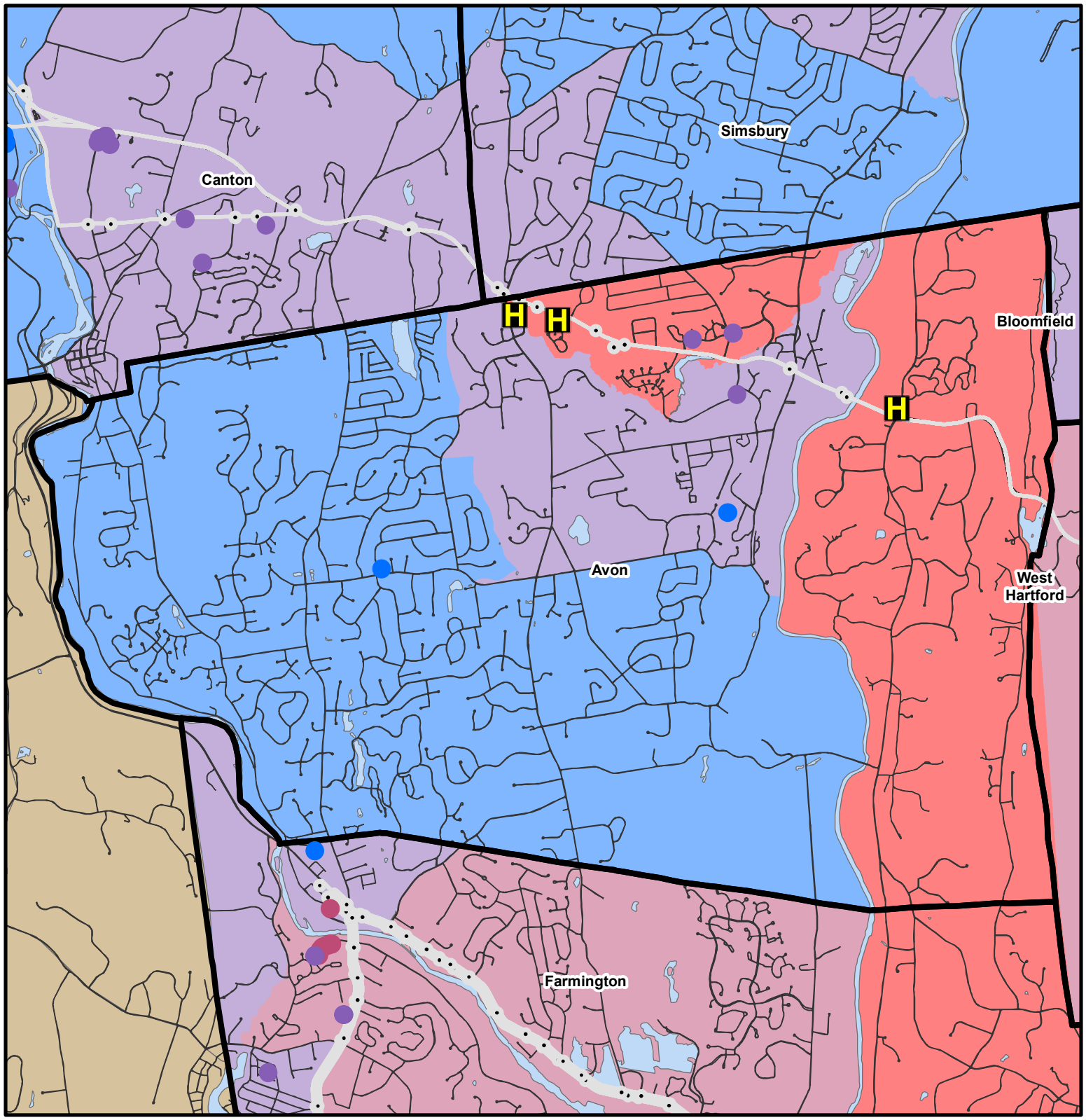
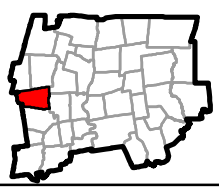


Avon

H Healthcare Facility

CRCOG



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0 0.5 1 Miles

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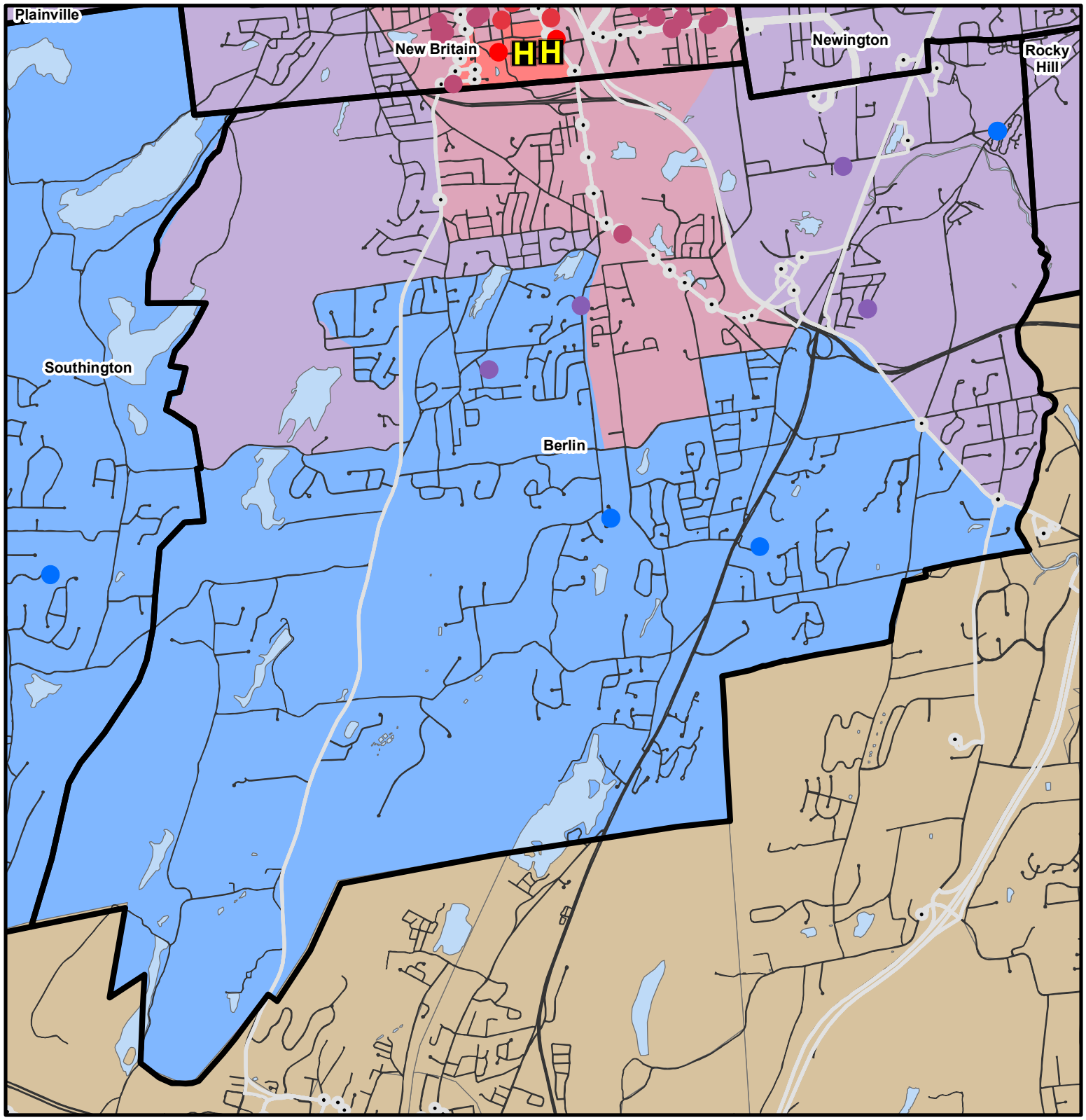
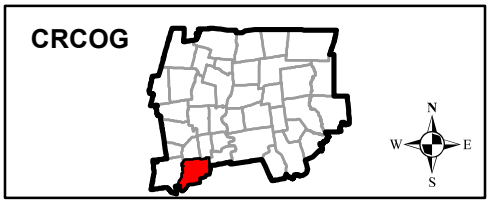


Berlin

H Healthcare Facility

CRCOG



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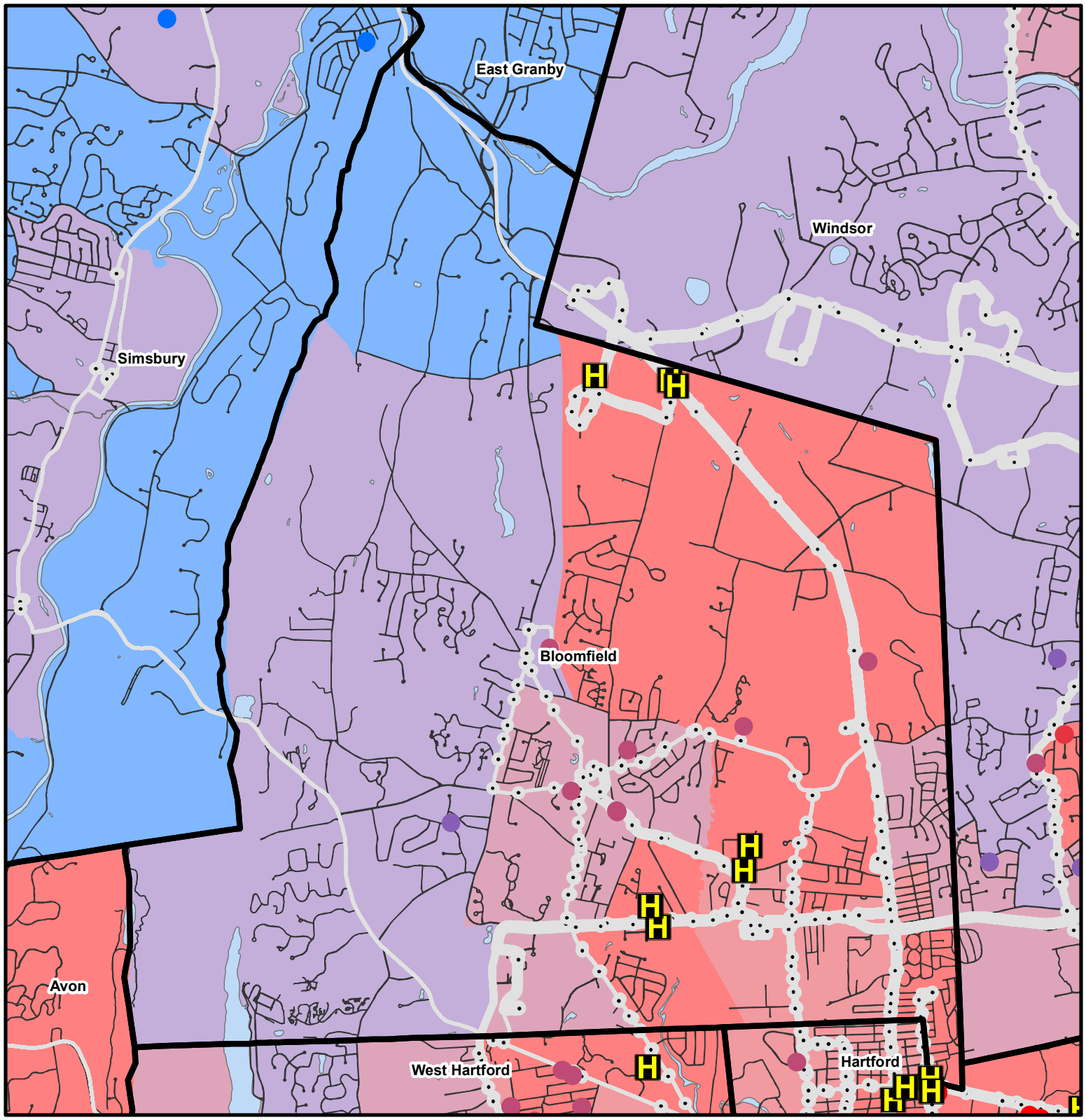
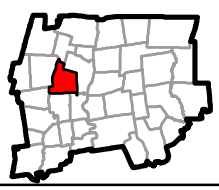


Bloomfield

H Healthcare Facility

CRCOG



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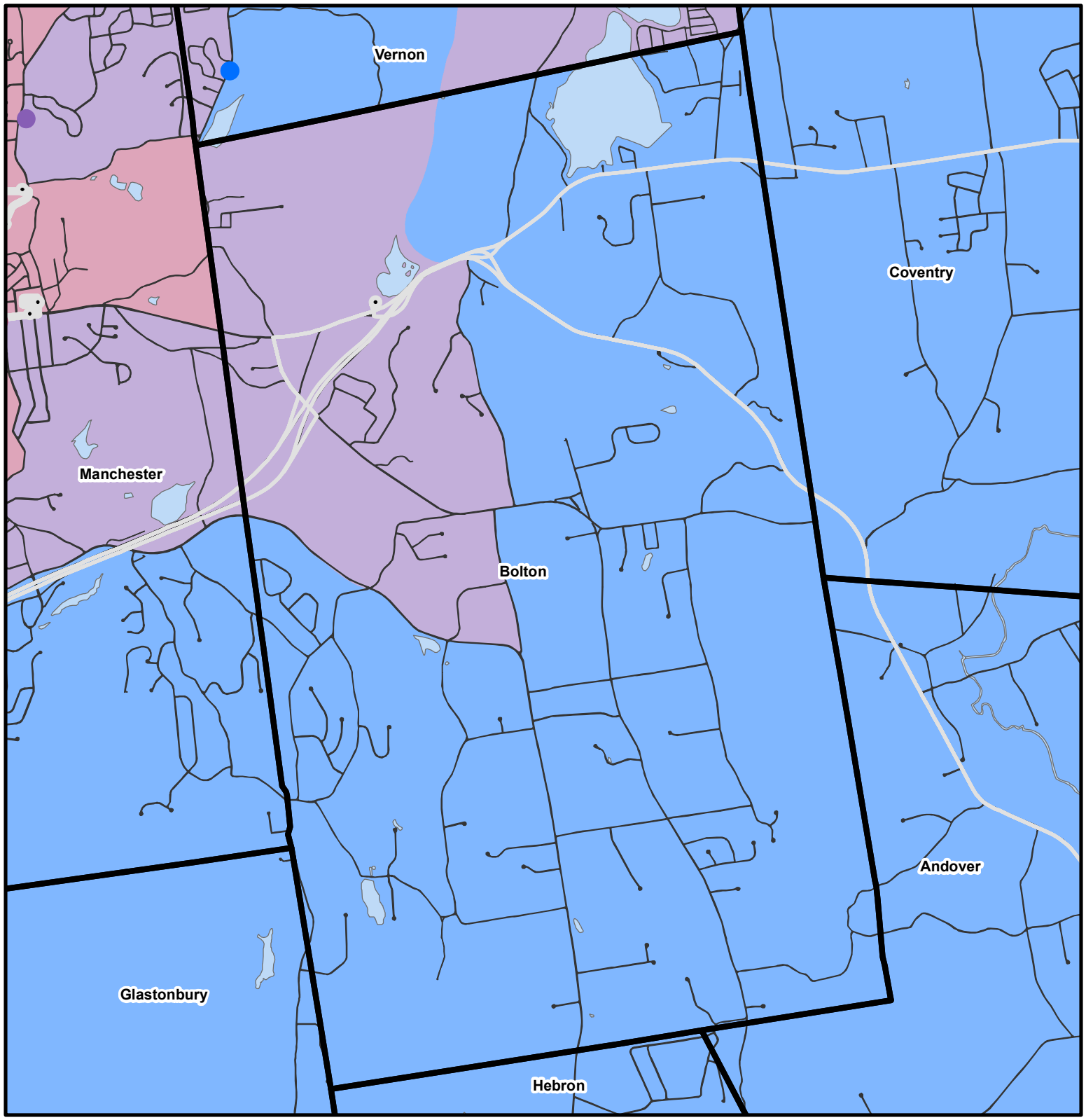
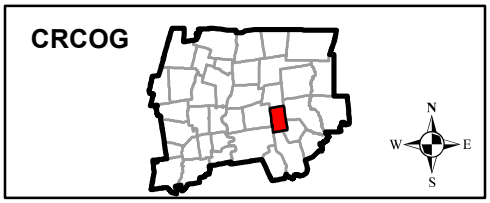


Bolton

Healthcare Facility

CRCOG



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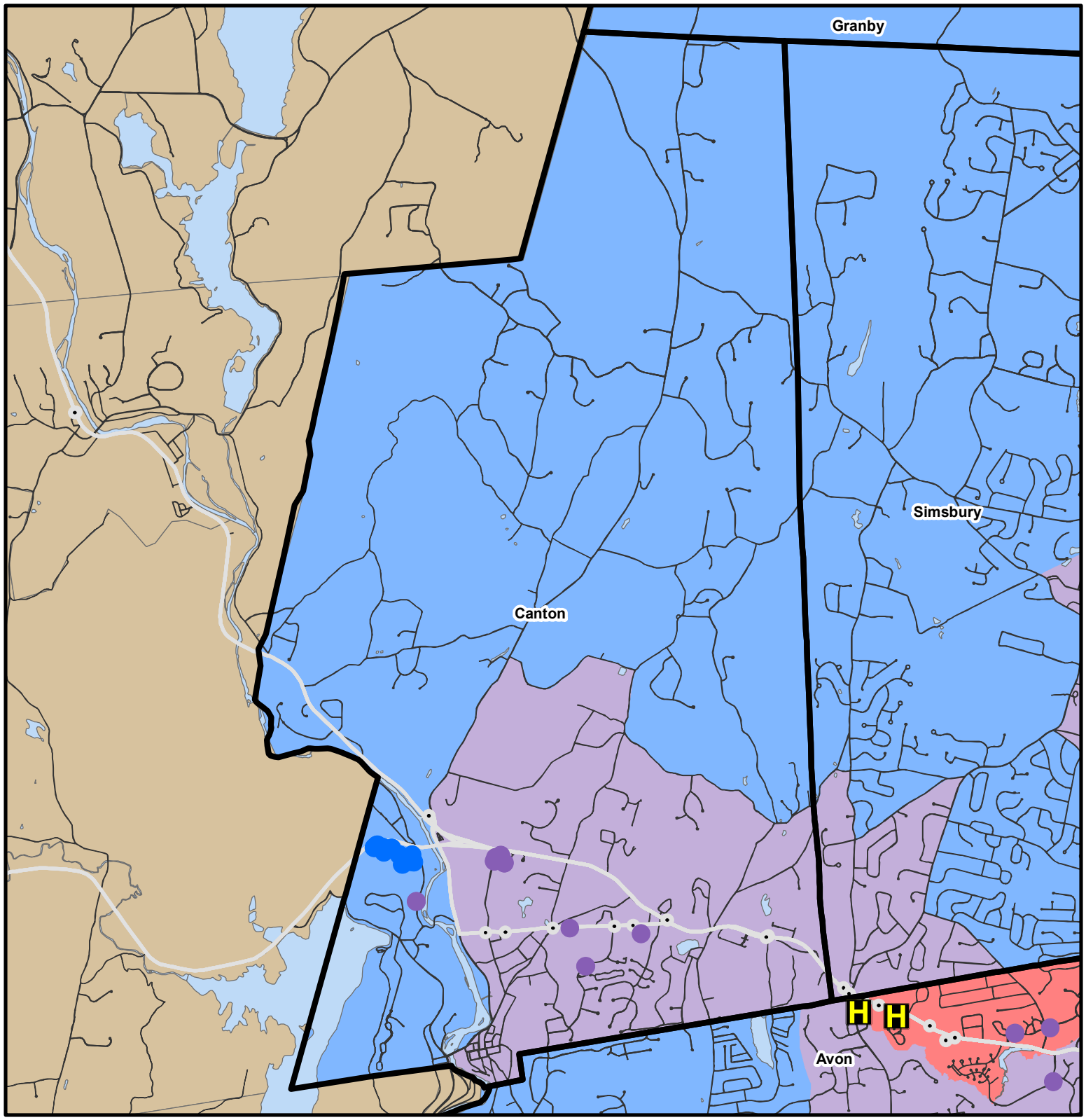
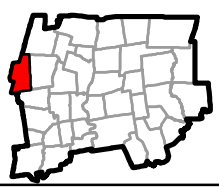


Canton

H Healthcare Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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0 0.5 1 Miles

- Town Line
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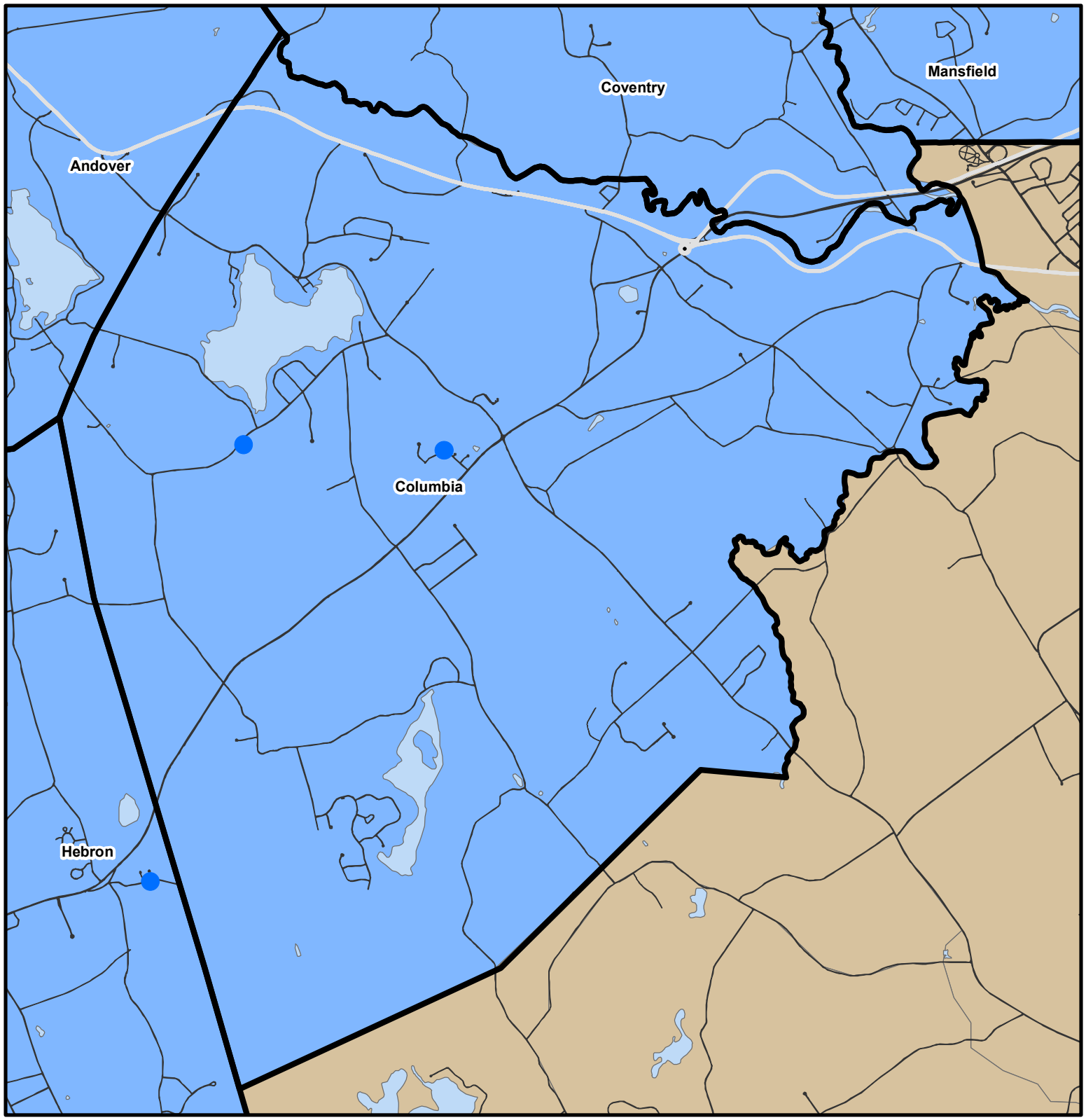
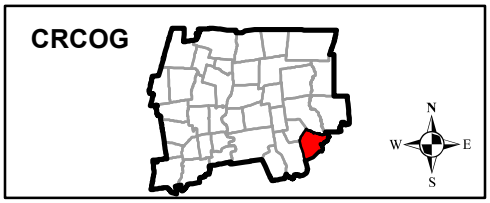


Columbia

Healthcare Facility

CRCOG



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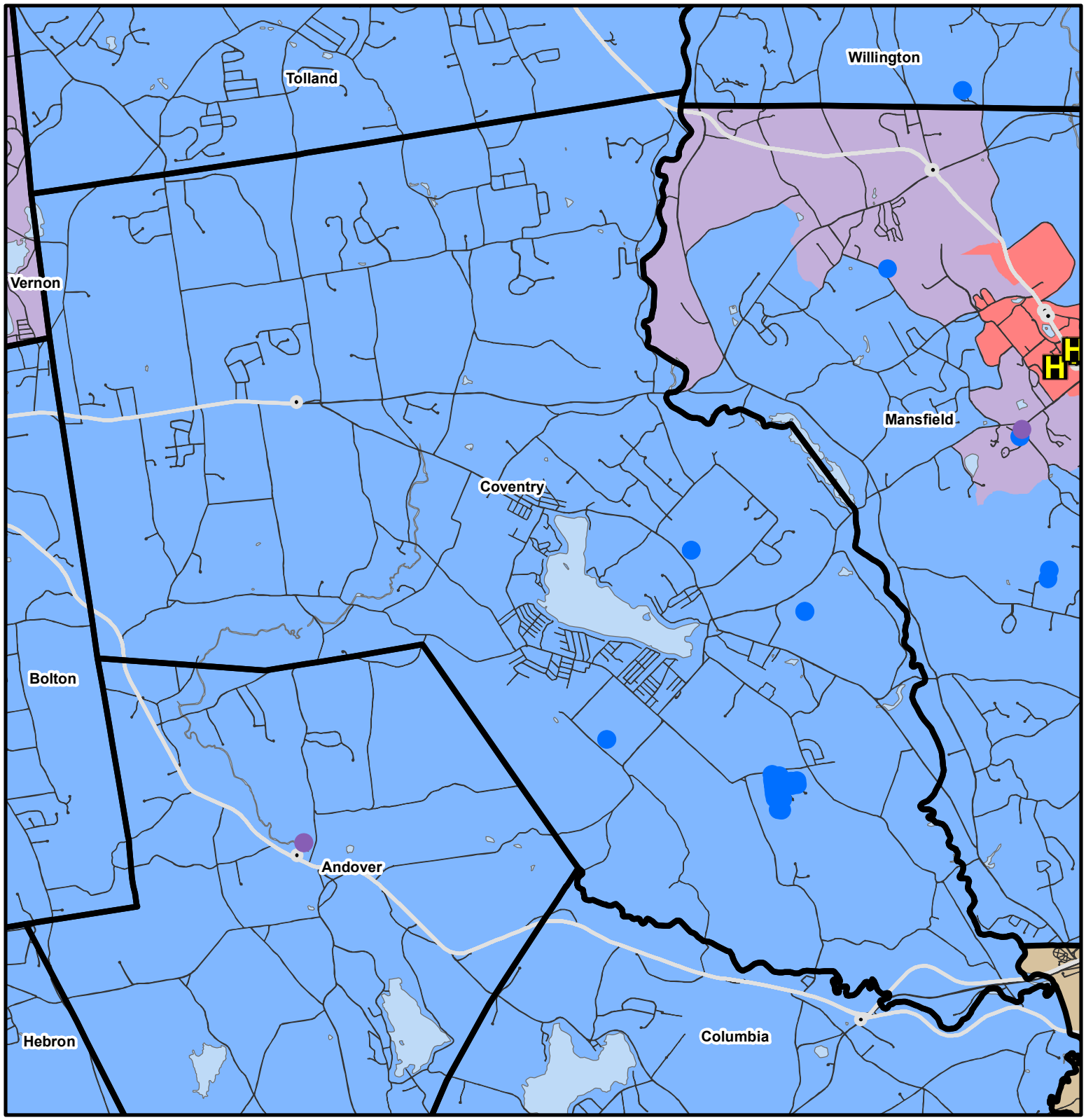
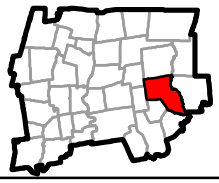


Coventry

Healthcare Facility

CRCOG



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- 50 - 130 Trips
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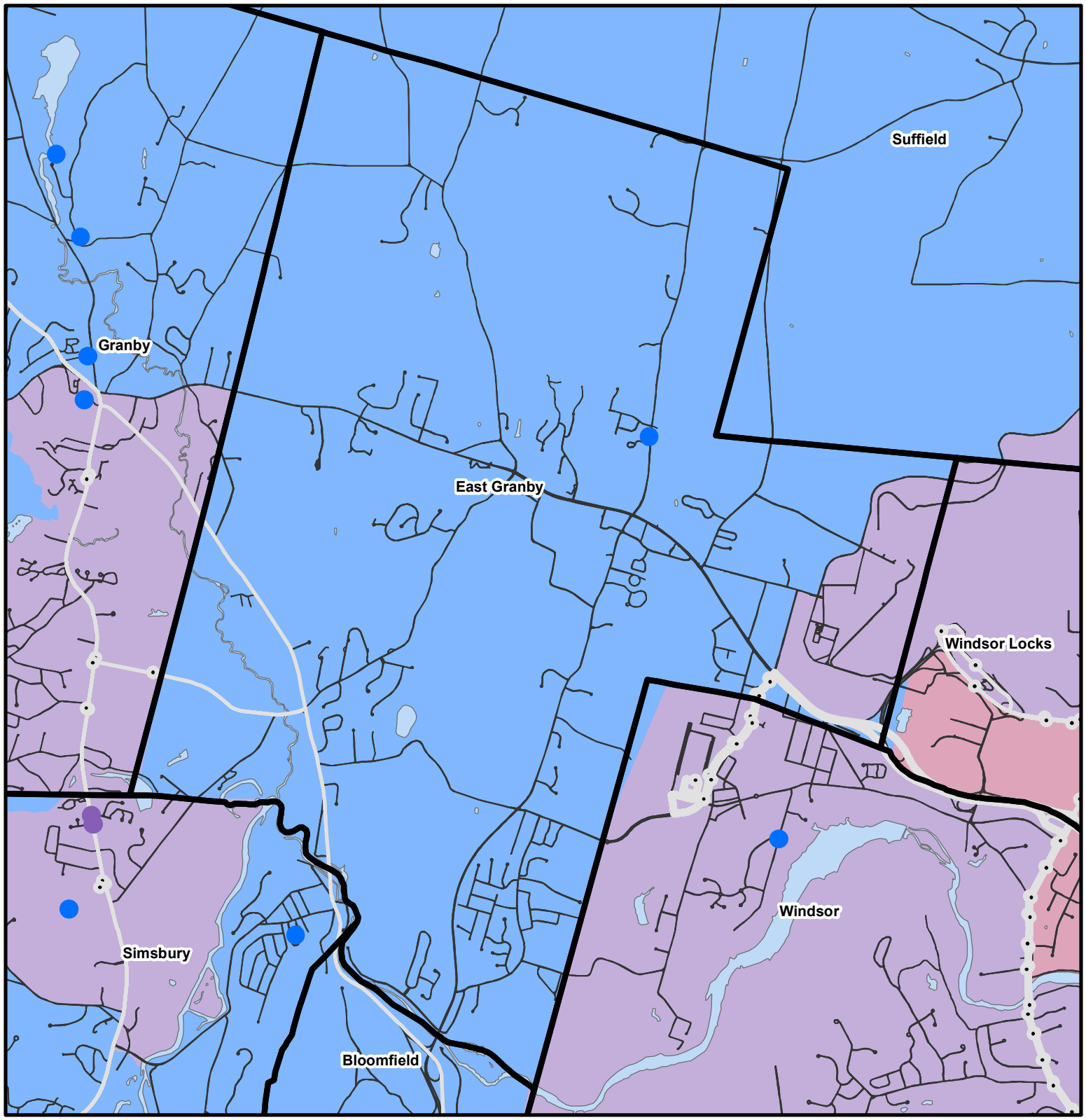
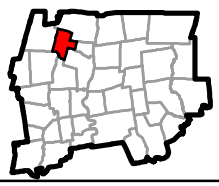


East Granby

Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

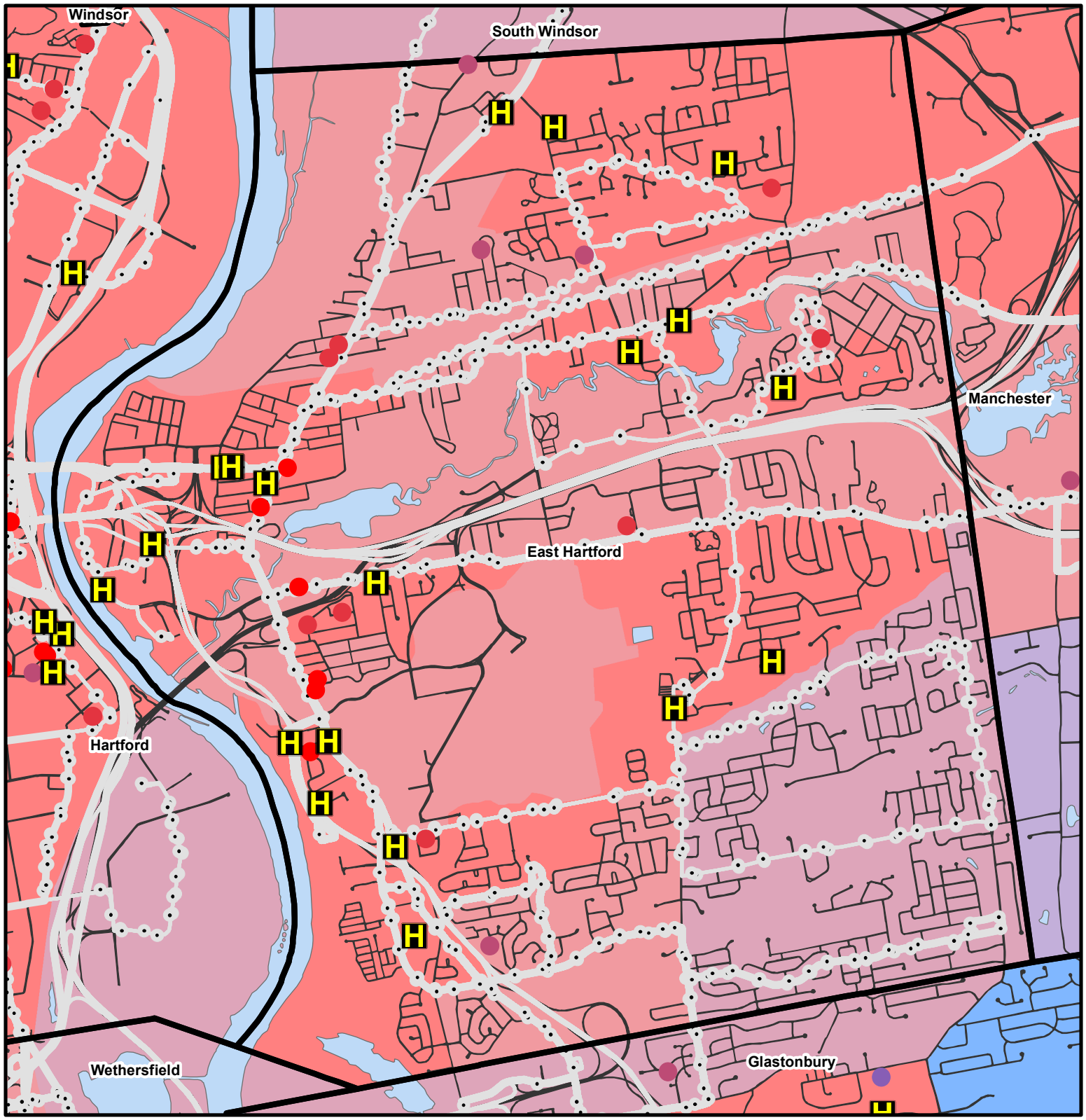
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

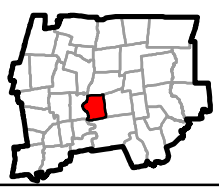
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



East Hartford

H Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

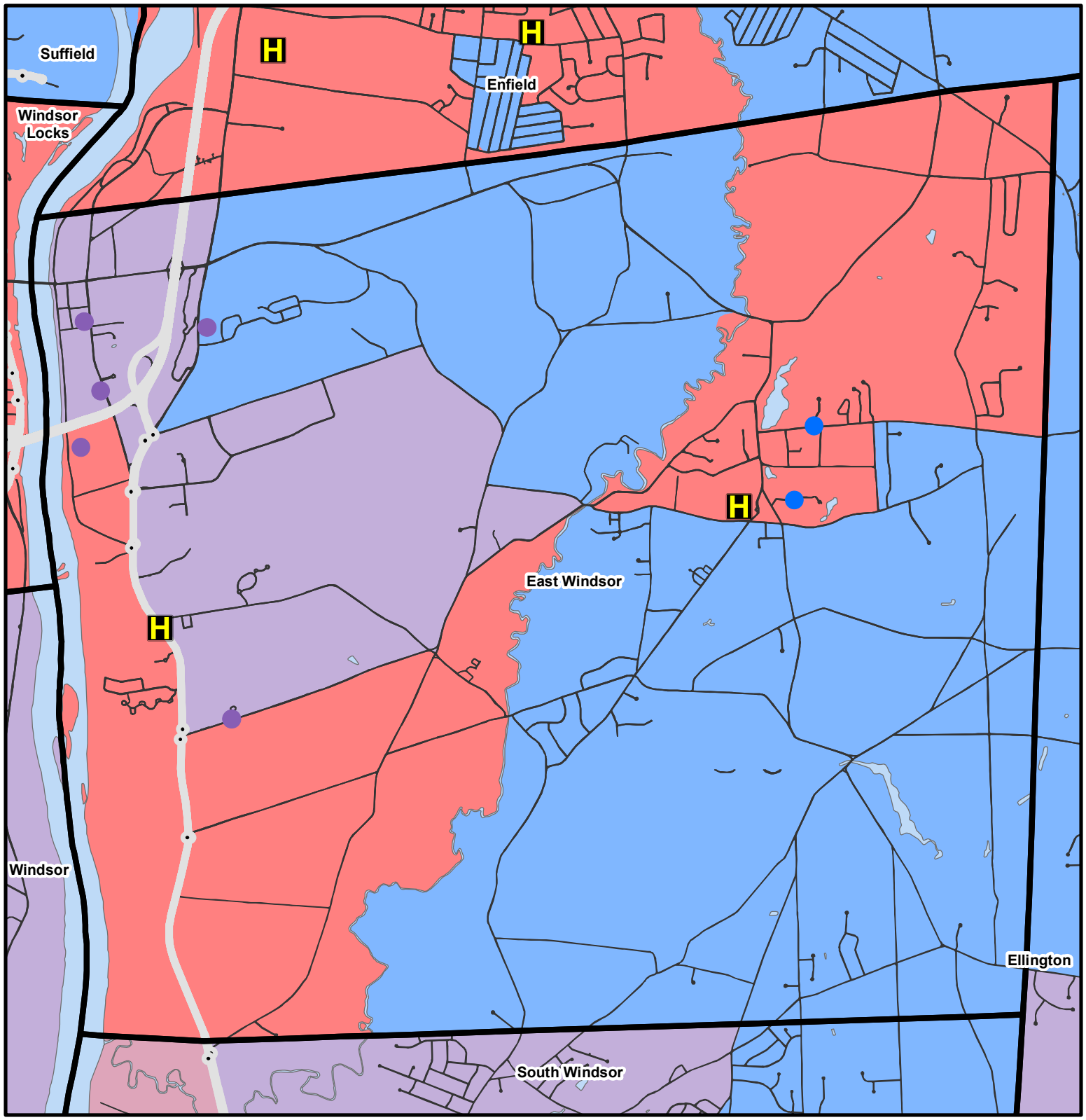
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

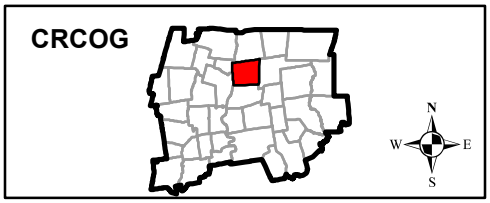
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



East Windsor

H Healthcare Facility

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

- A
- B
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- F

0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
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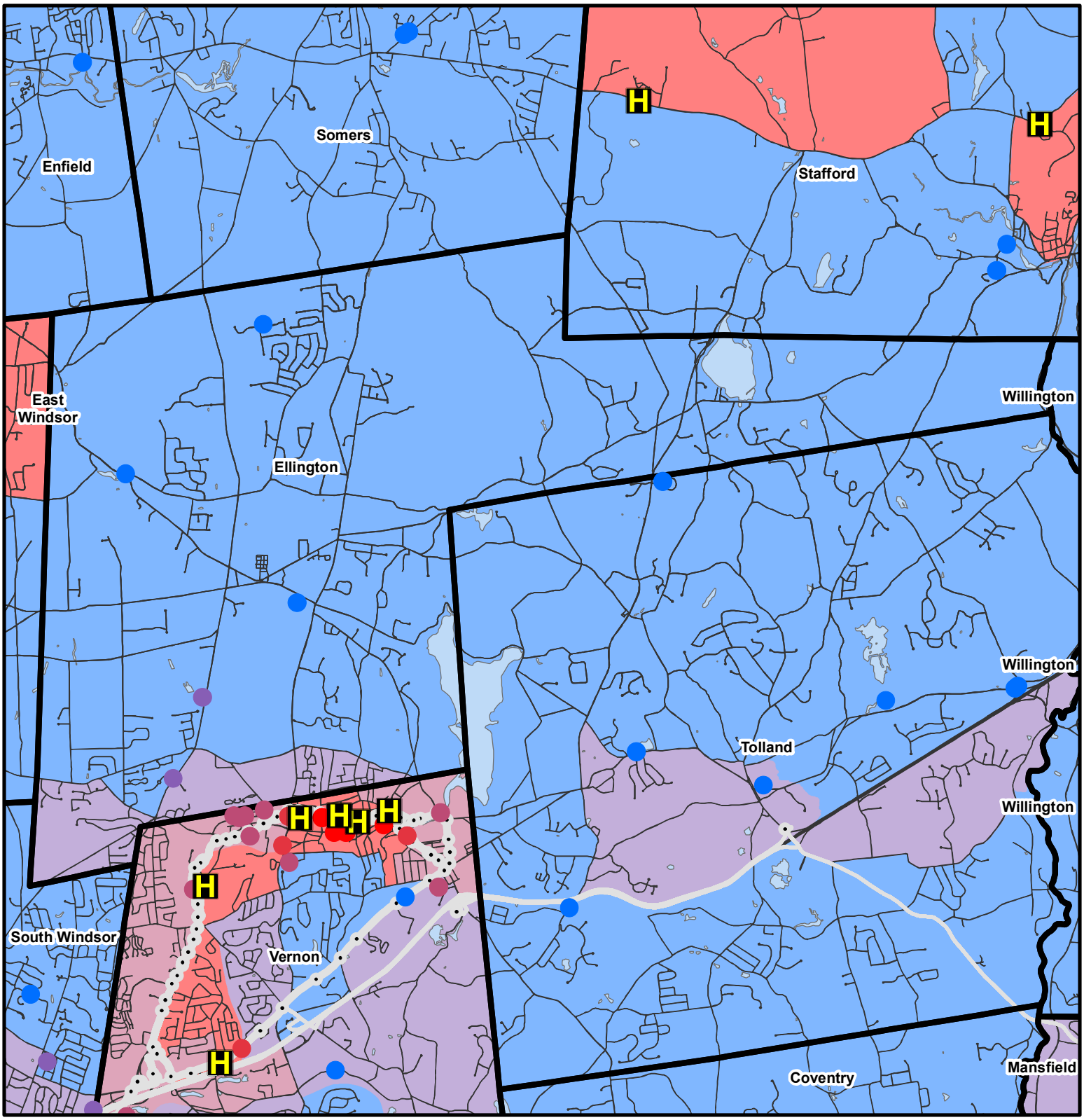
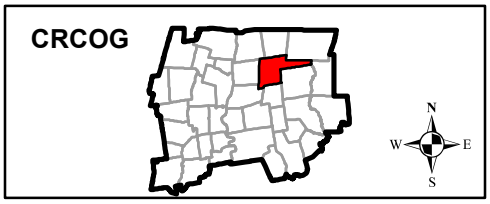


Ellington

H Healthcare Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

- A
- B
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- F

0 0.5 1 Miles

Town Line

Transit Stops

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- 1 - 50 Trips
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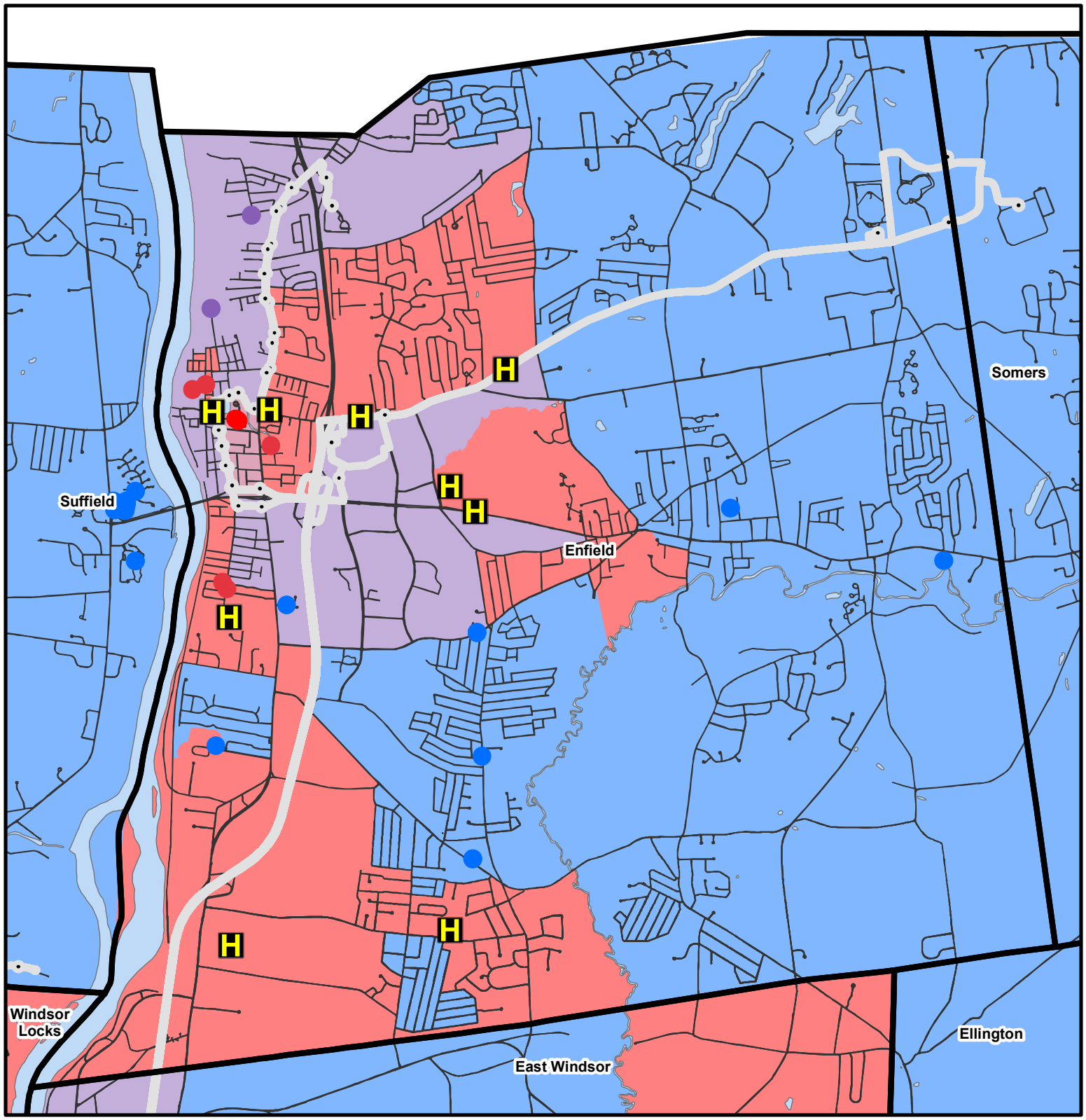
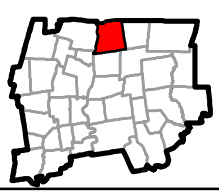


Enfield

H Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

- Town Line
- Transit Stops

Transit Routes by Daily Trips

- 1 - 50 Trips
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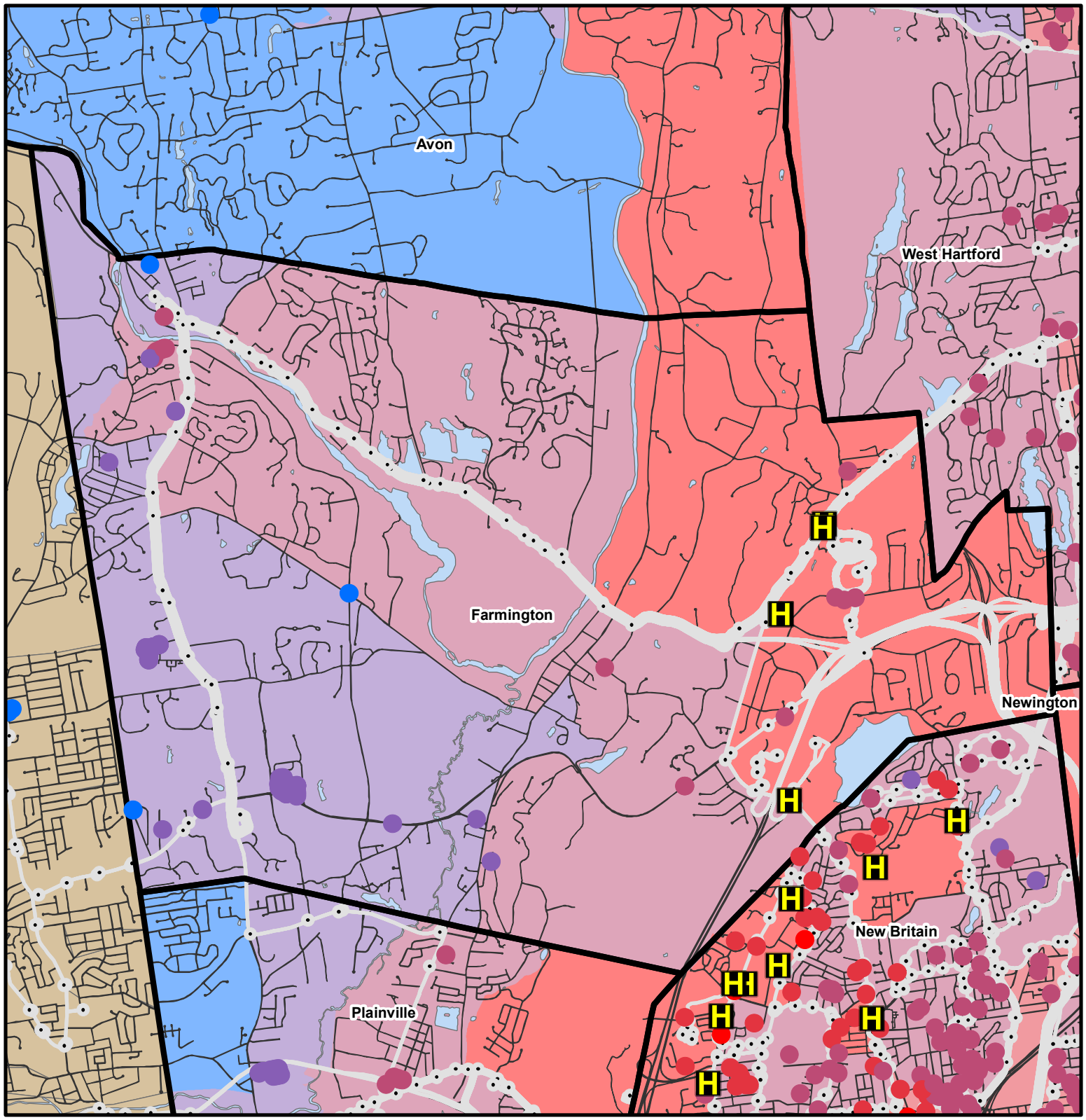
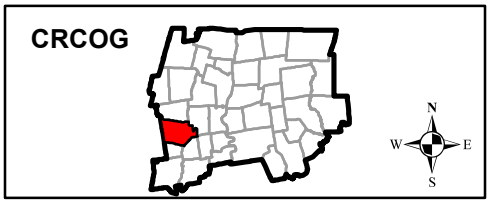


Farmington

H Healthcare Facility

CRCOG



TOI Point Grade

- A
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- C
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TOI Zone Grade

- A
- B
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0 0.5 1 Miles

Town Line

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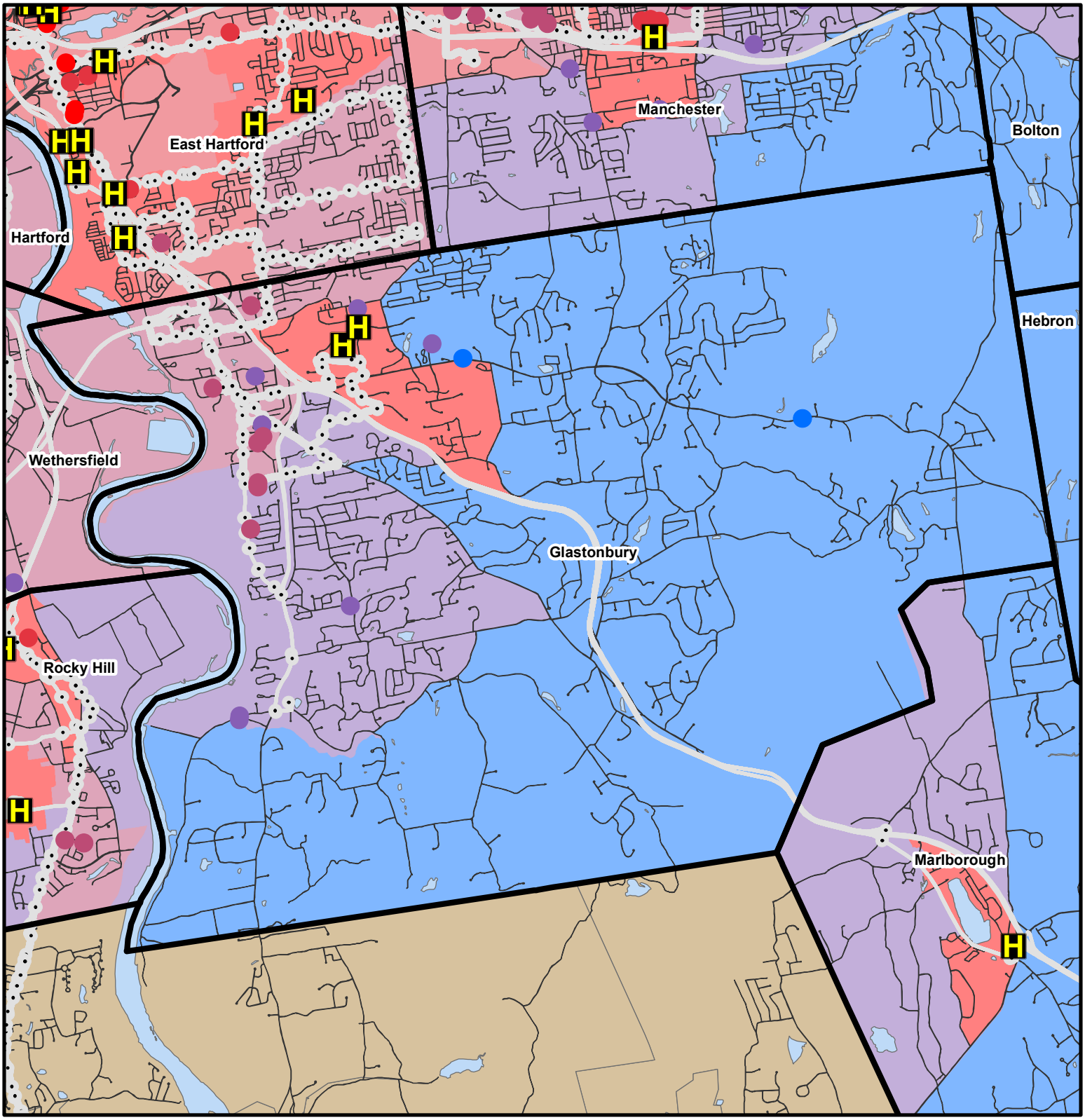
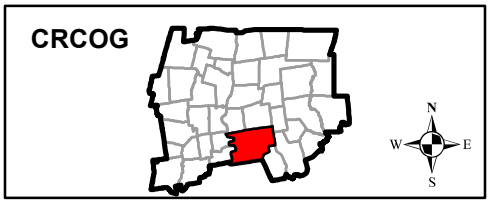


Glastonbury

H Healthcare Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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0 0.5 1 Miles

Town Line

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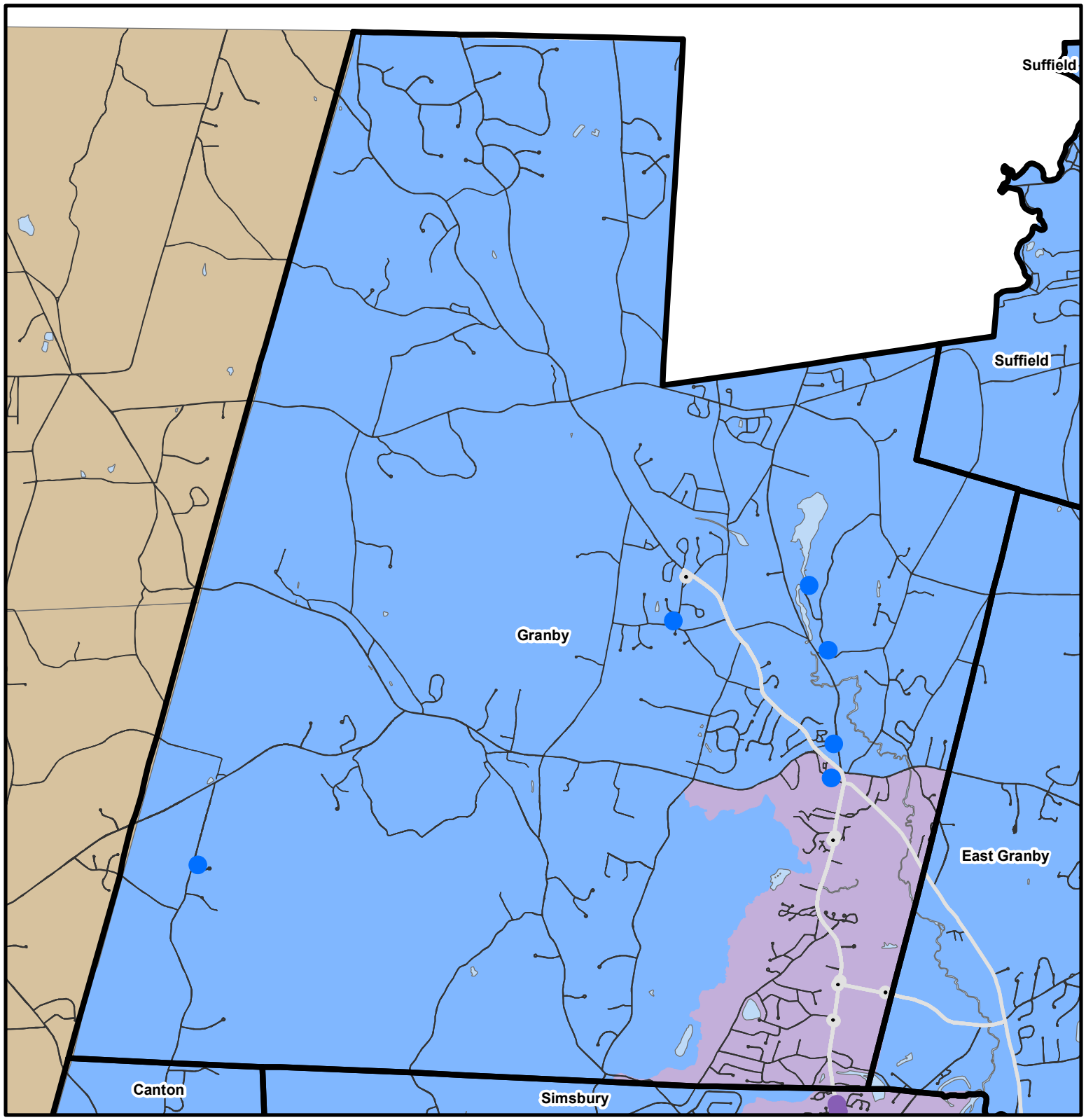
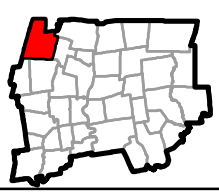


Granby

Healthcare Facility

CRCOG



TOI Point Grade

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0 0.5 1 Miles

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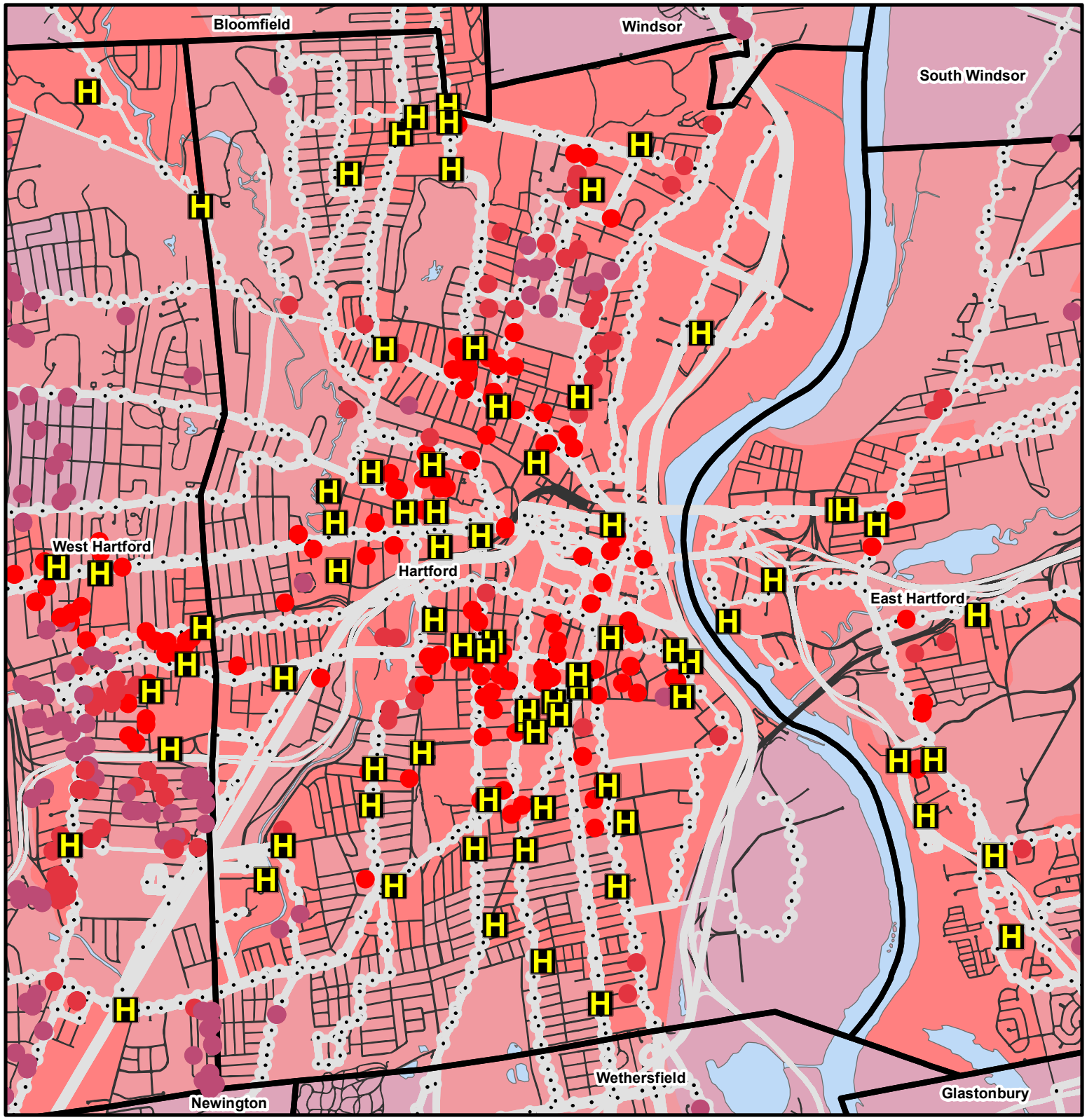
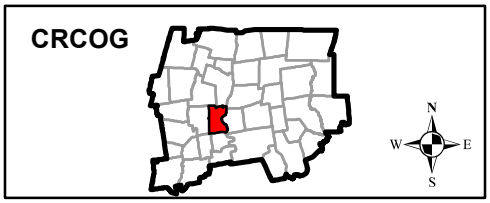


Hartford

H Healthcare Facility

CRCOG



TOI Point Grade

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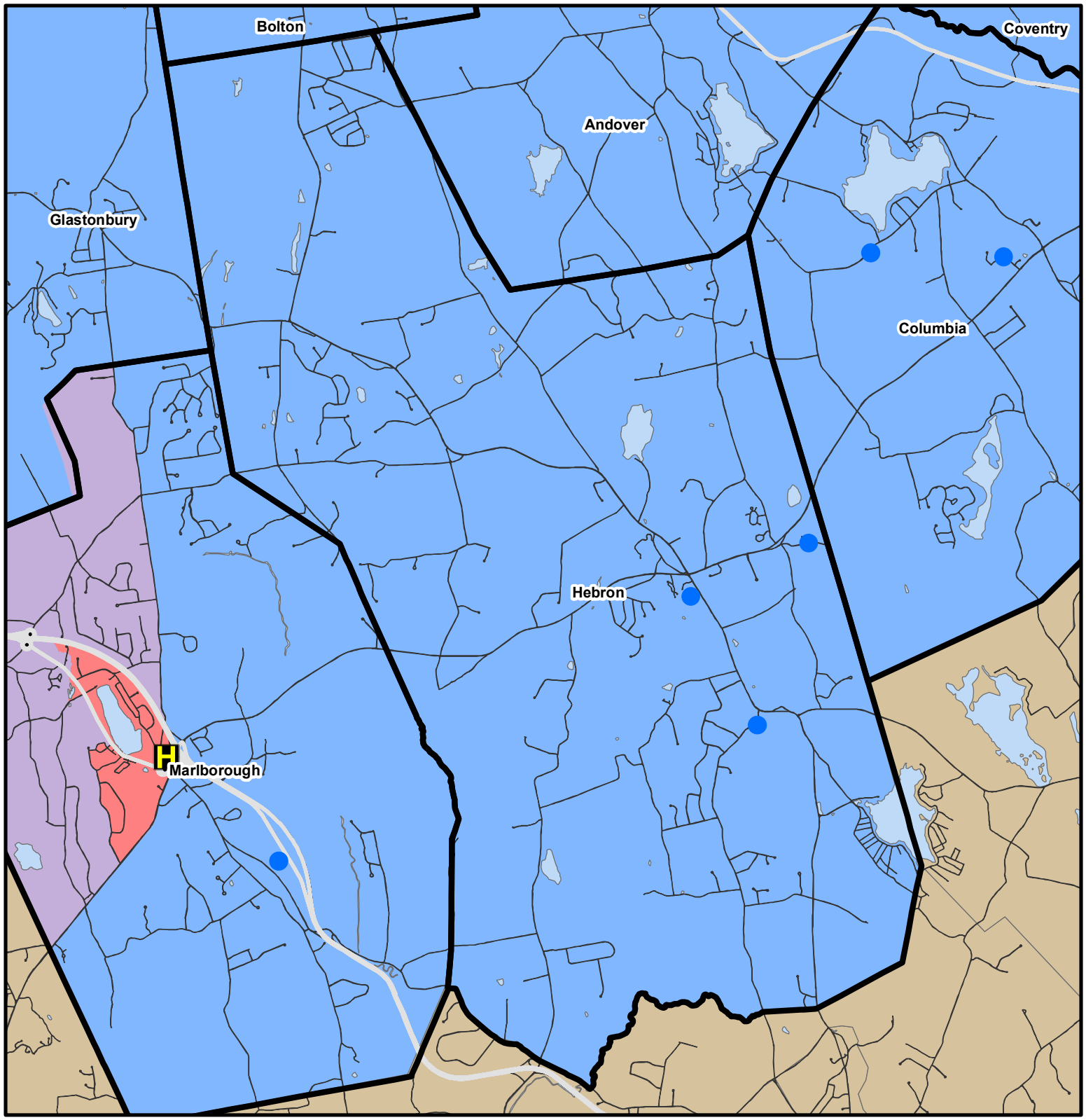
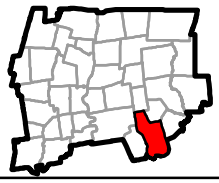


Hebron

Healthcare Facility

CRCOG



TOI Point Grade

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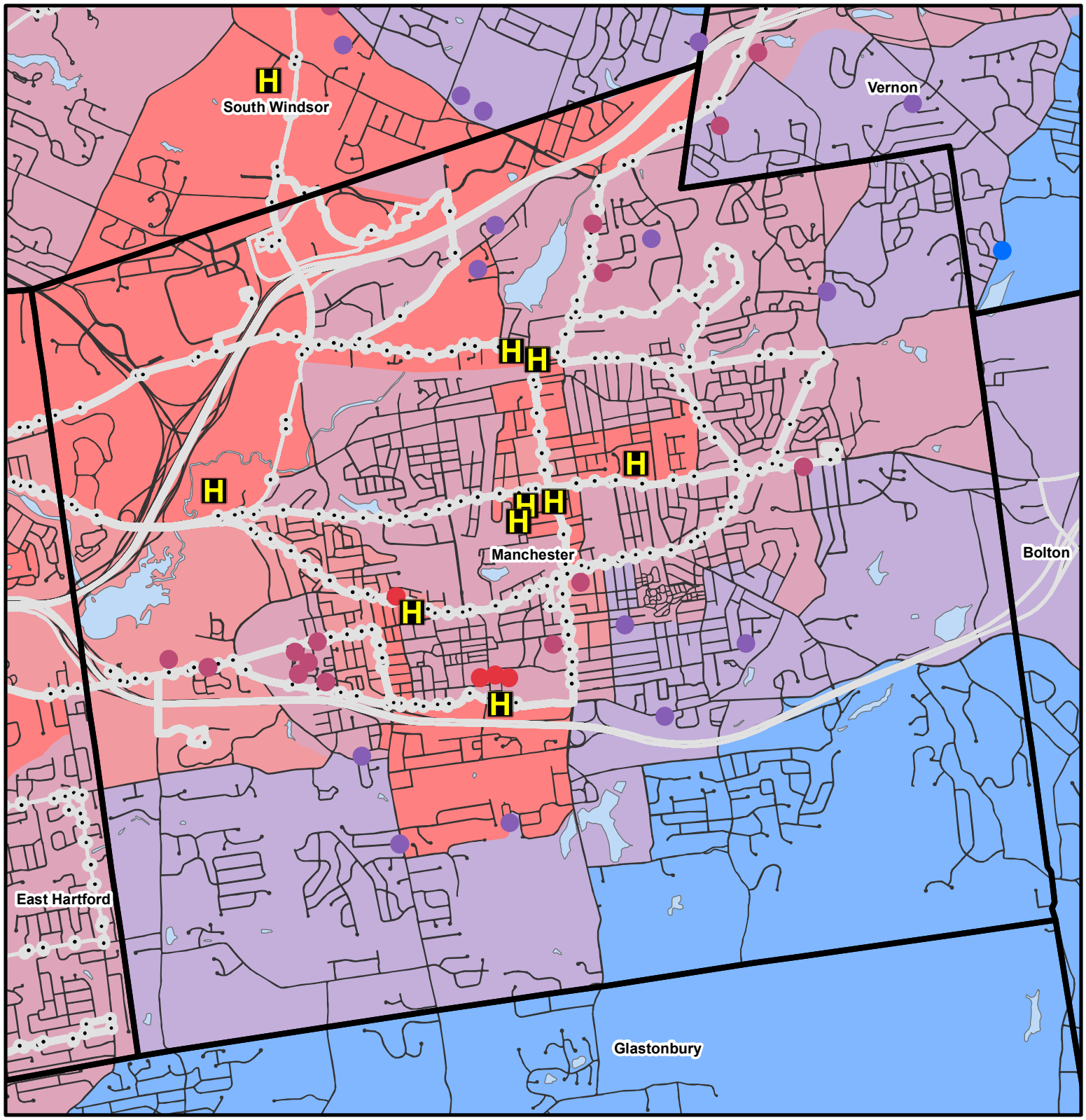
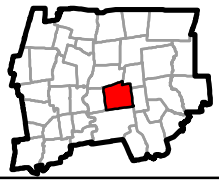


Manchester

H Healthcare Facility

CRCOG



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0 0.5 1 Miles

Town Line

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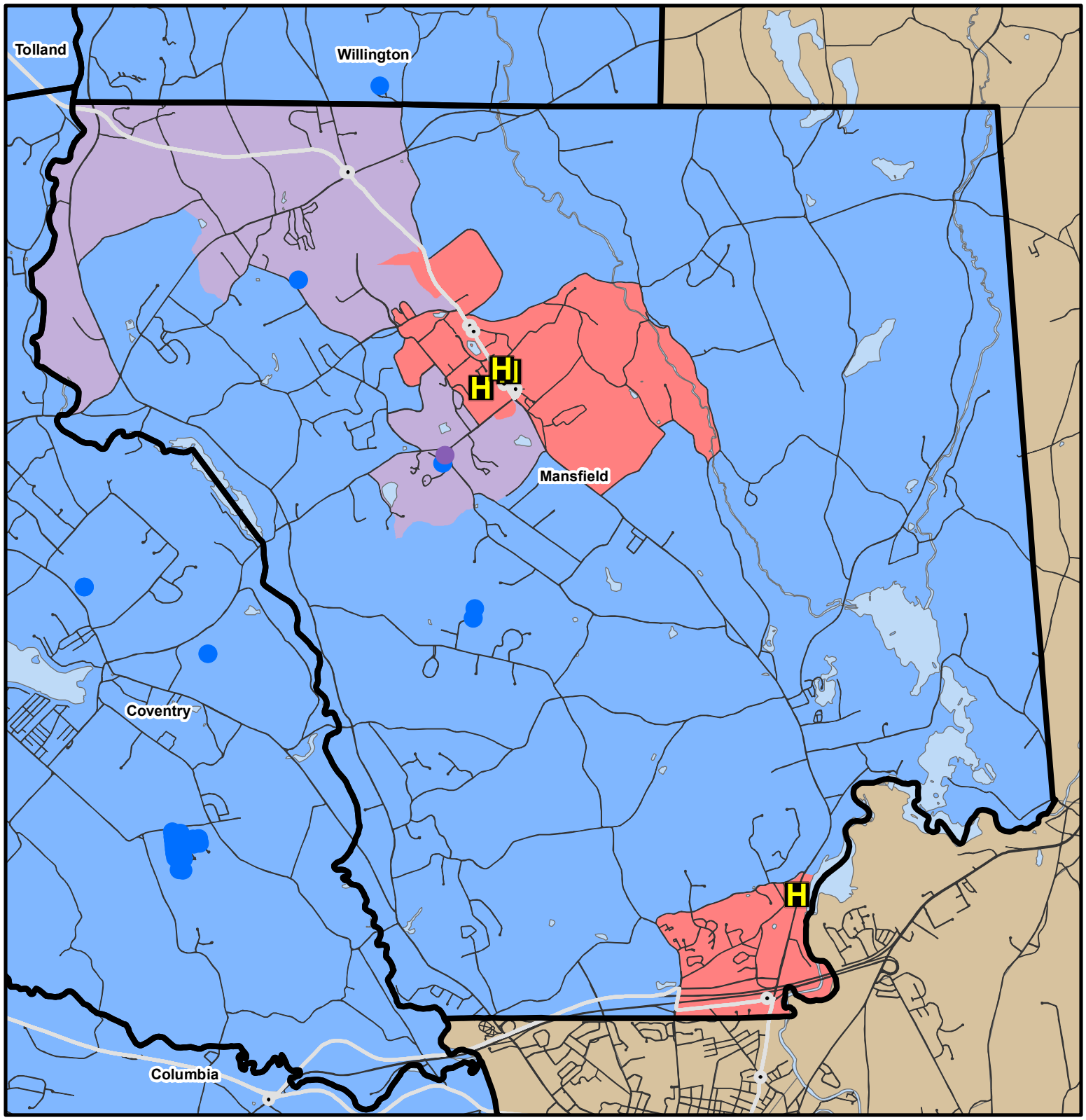
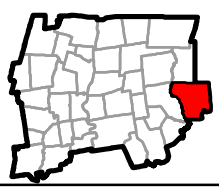


Mansfield

H Healthcare Facility

CRCOG



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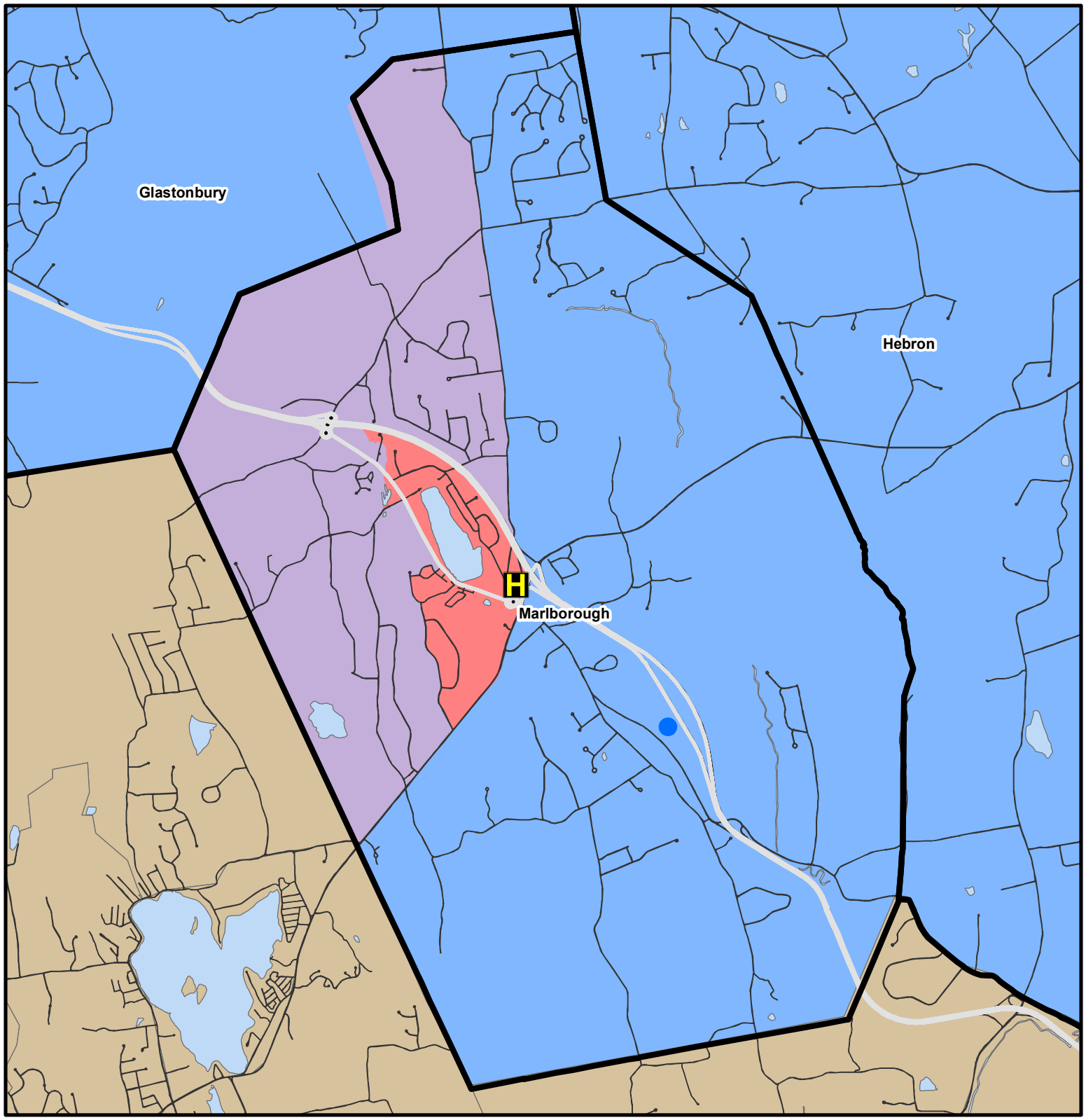
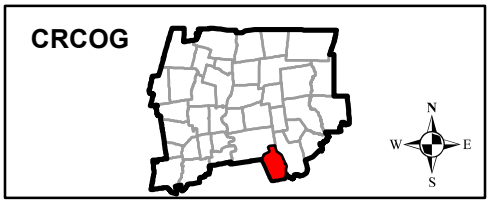


Marlborough

Healthcare Facility

CRCOG



TOI Point Grade

- A
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TOI Zone Grade

- A
- B
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0 0.5 1 Miles

- Town Line
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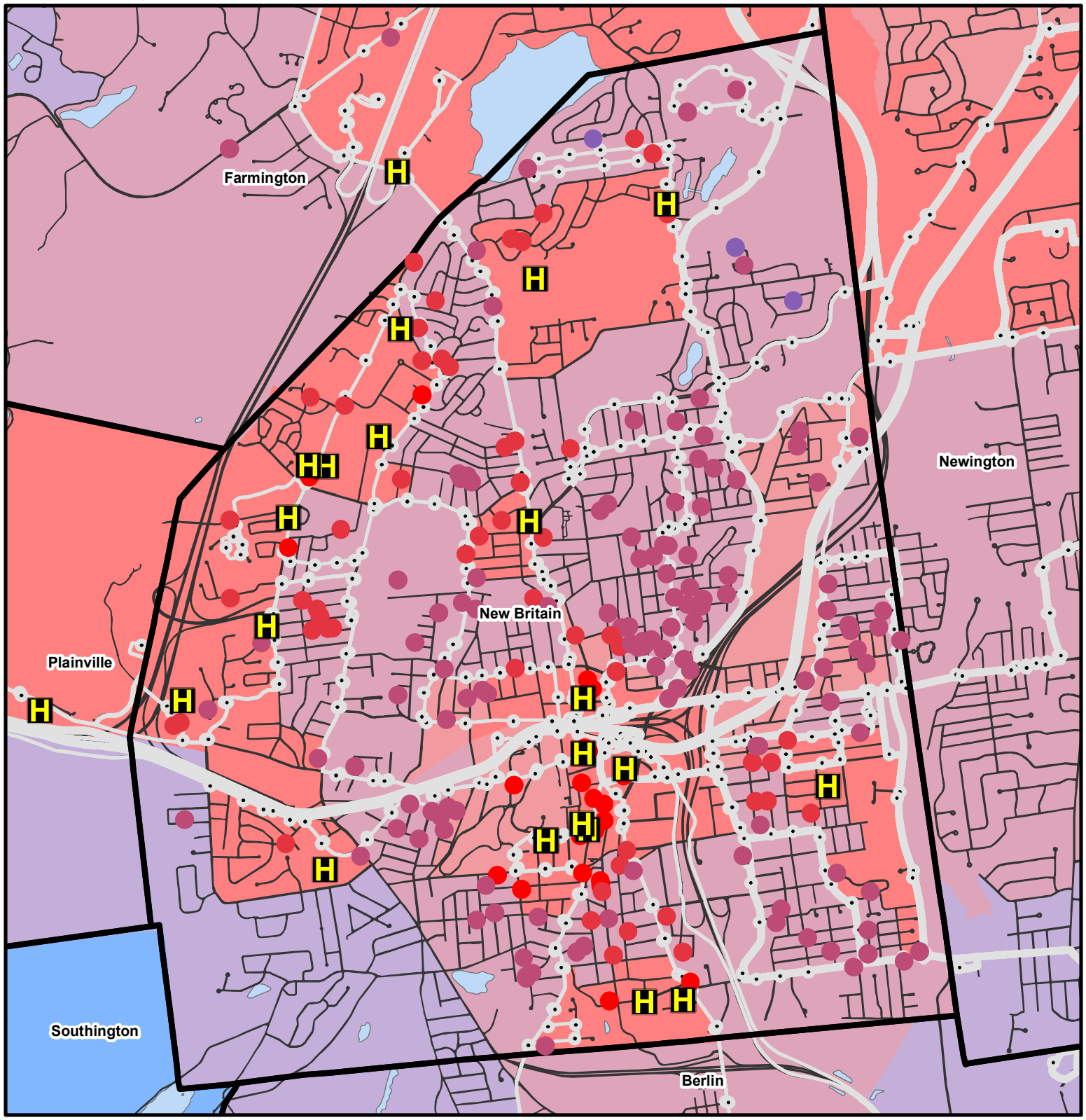
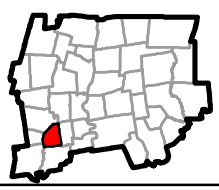


New Britain

H Healthcare Facility

CRCOG



TOI Point Grade

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TOI Zone Grade

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0 0.5 1 Miles

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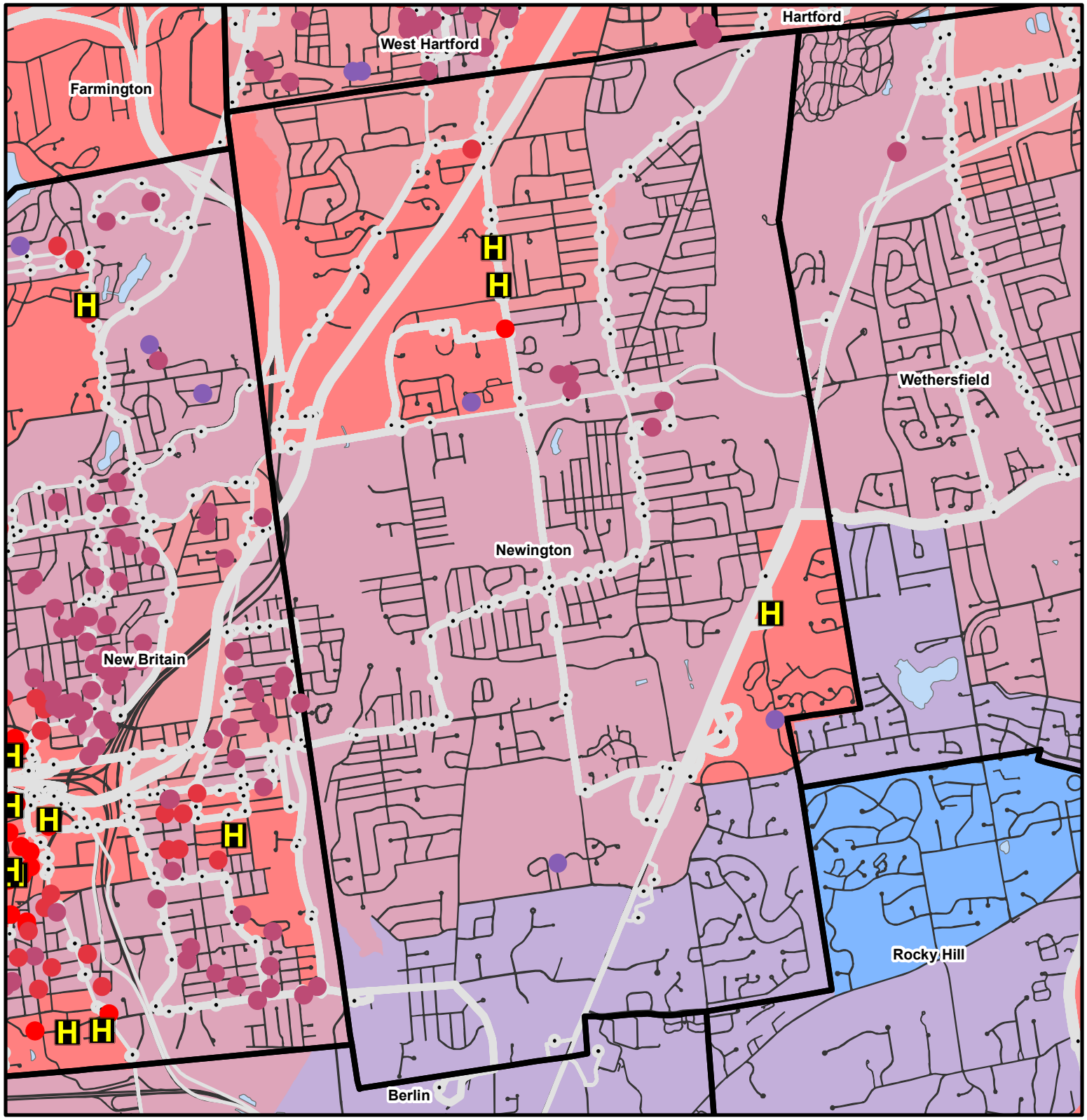
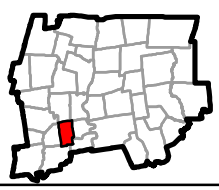


Newington

H Healthcare Facility

CRCOG



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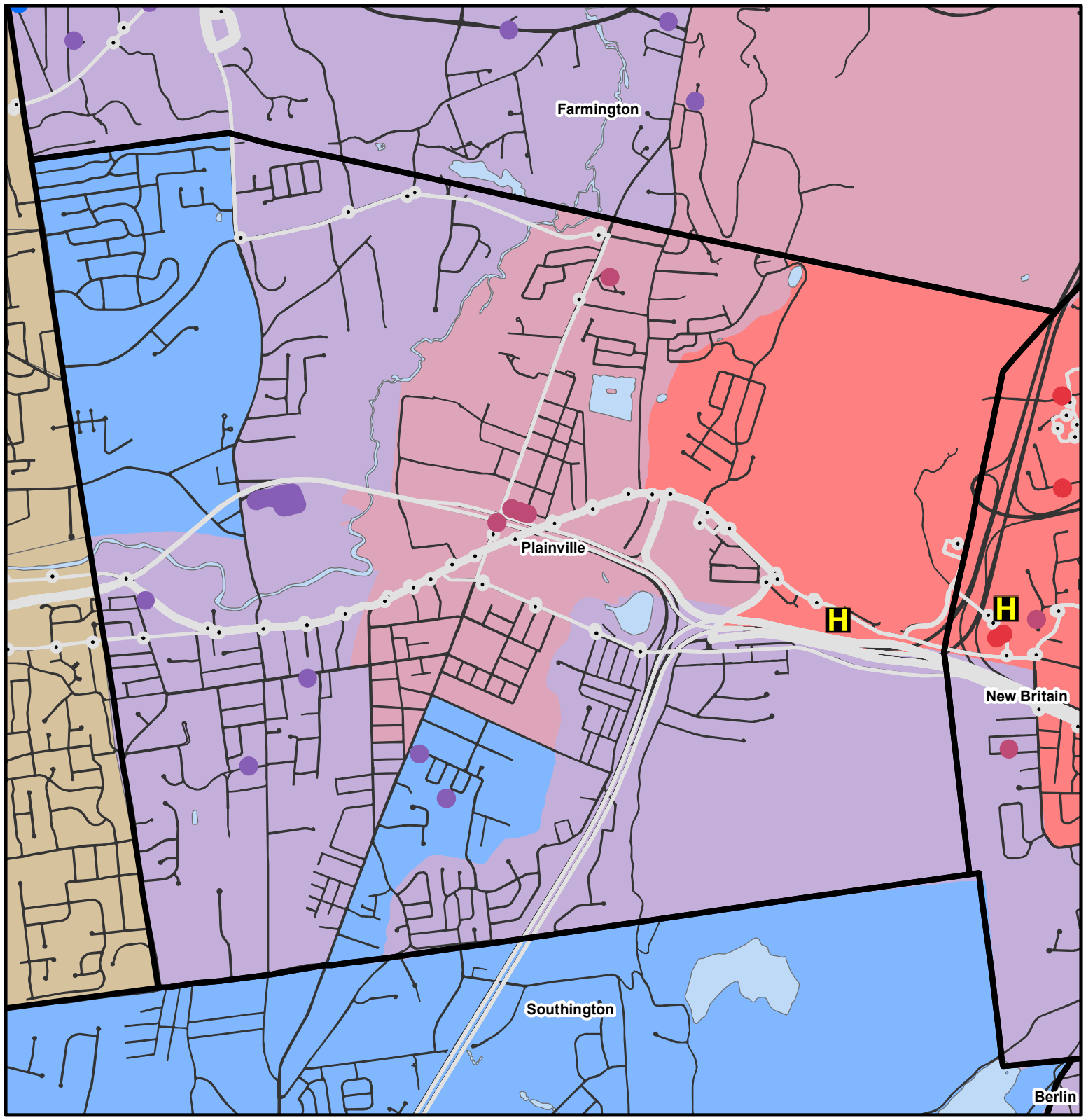
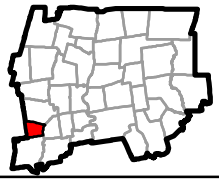


Plainville

H Healthcare Facility

CRCOG



TOI Point Grade

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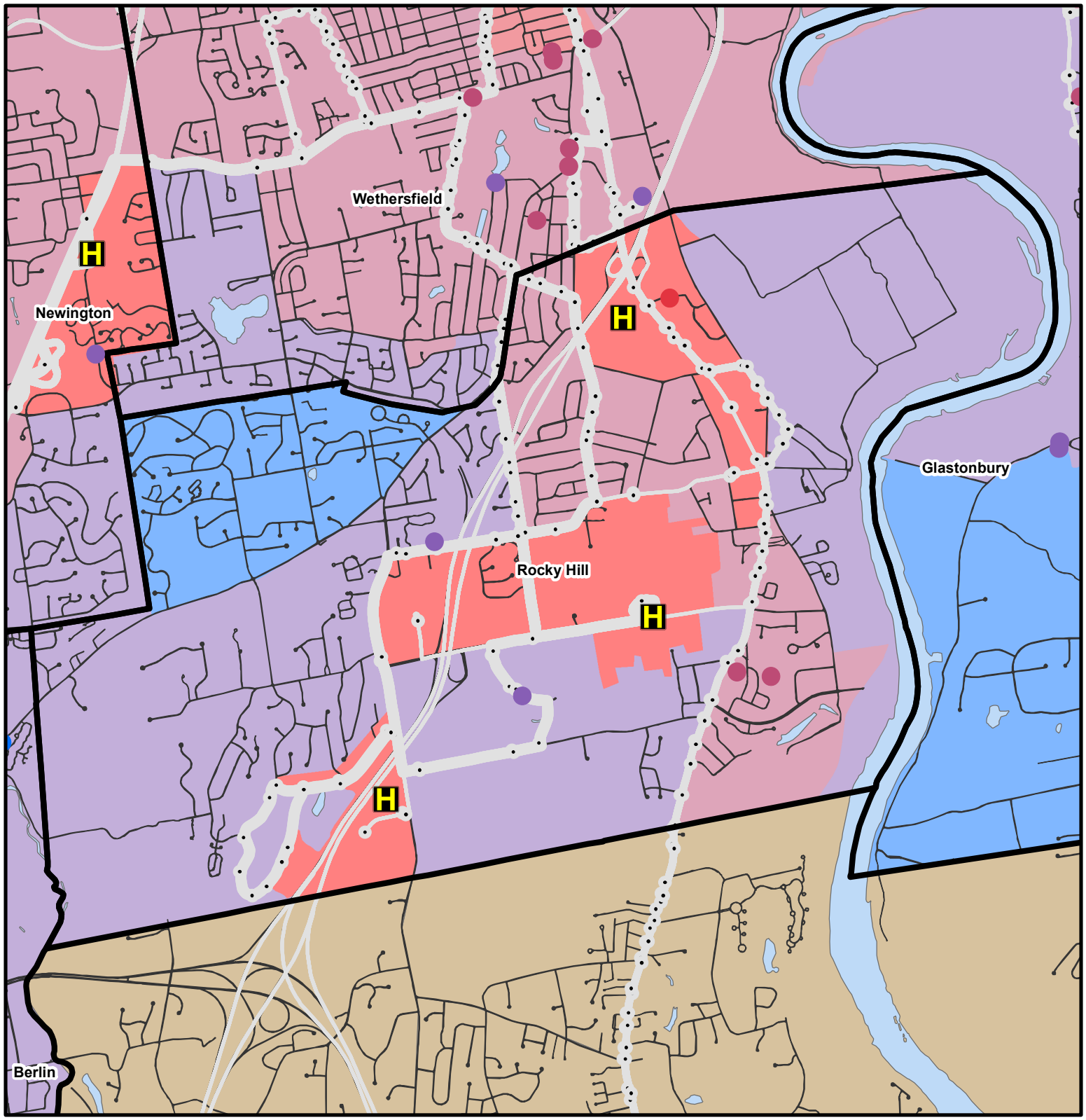
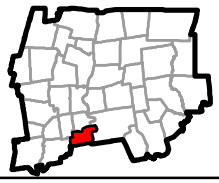


Rocky Hill

H Healthcare Facility

CRCOG



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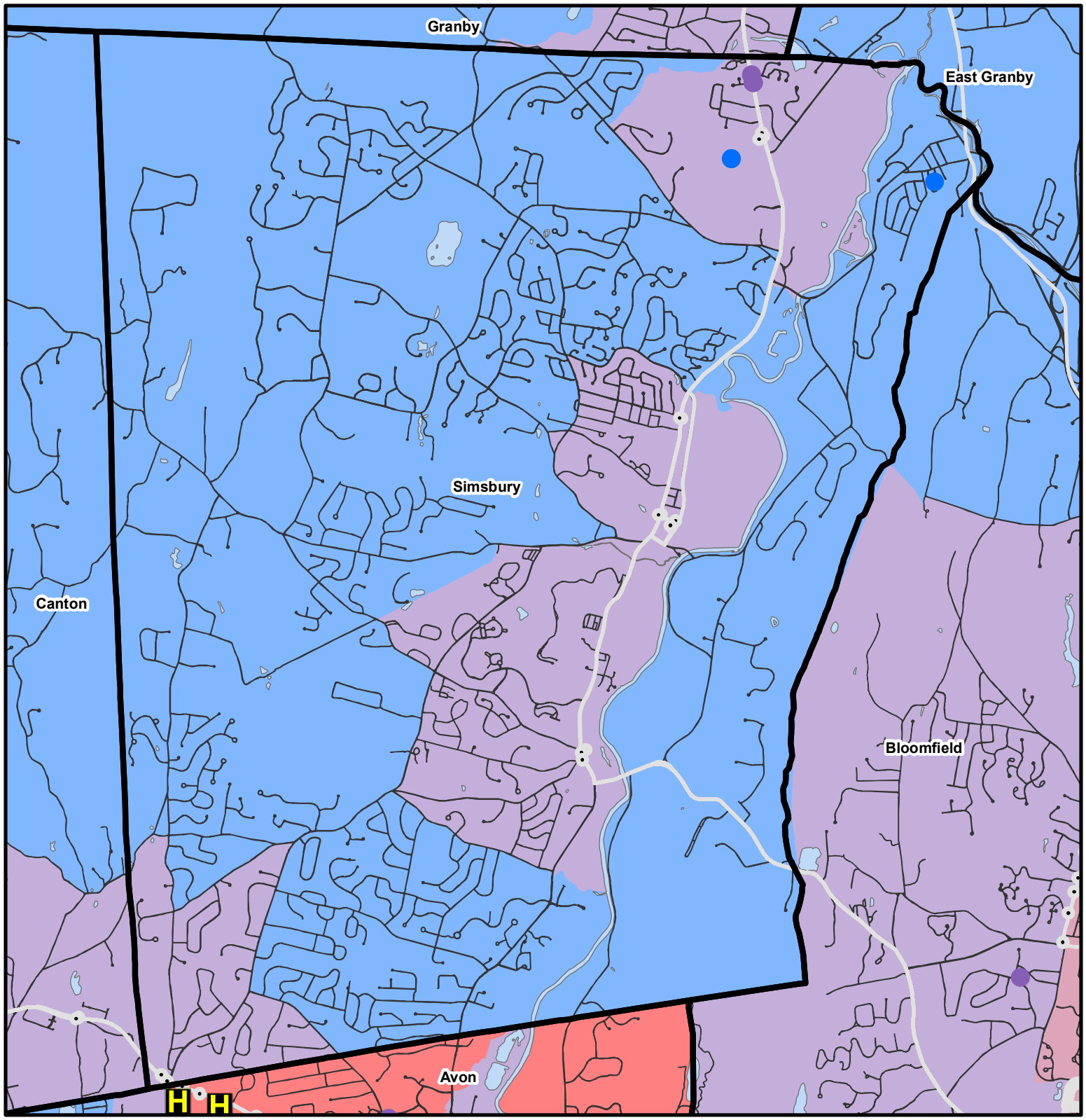
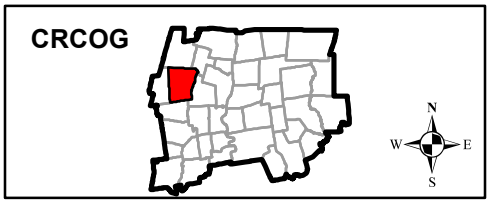


Simsbury

H Healthcare Facility

CRCOG



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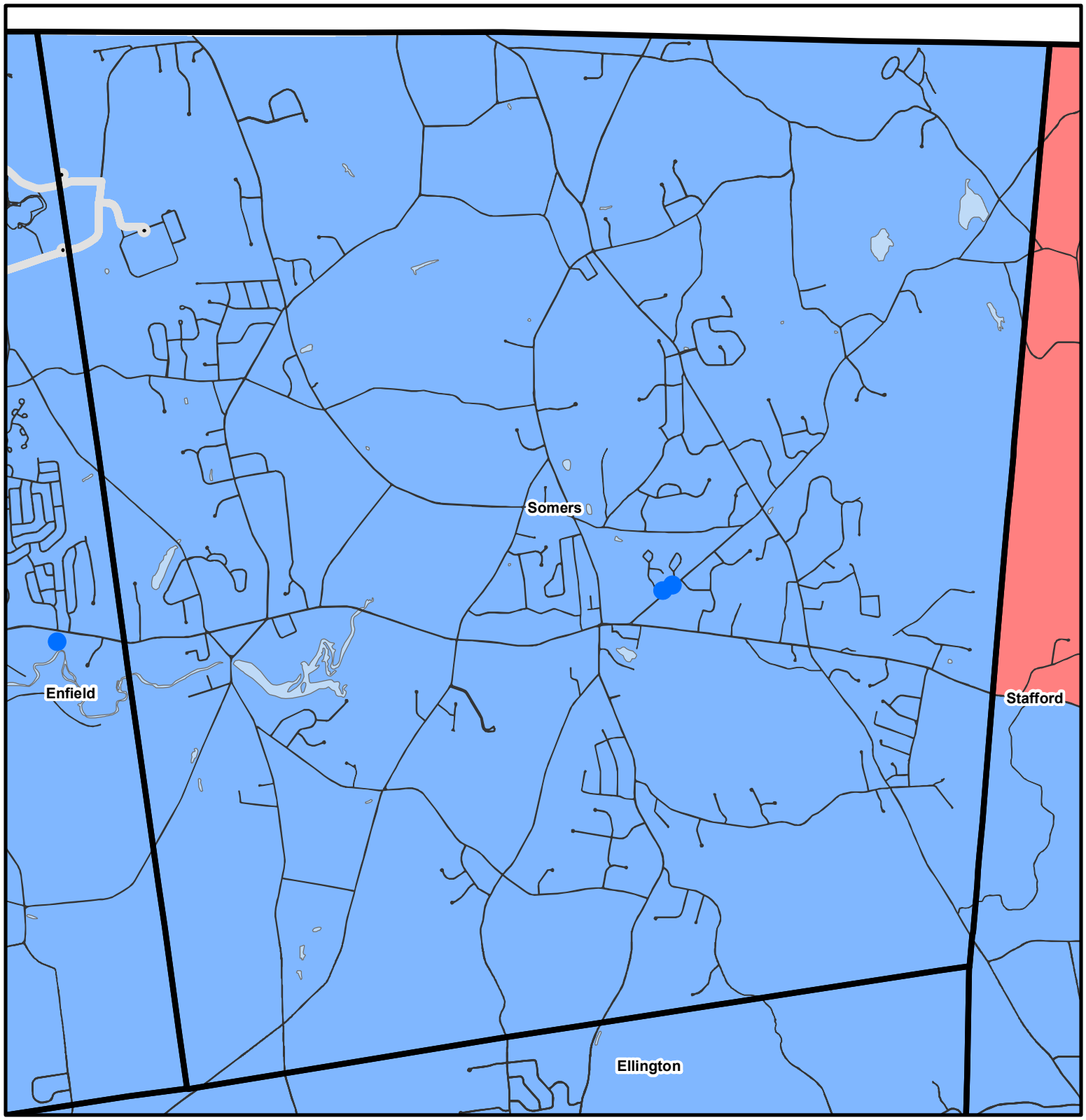
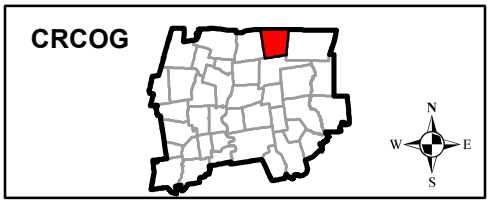


Somers

Healthcare Facility

CRCOG



TOI Point Grade

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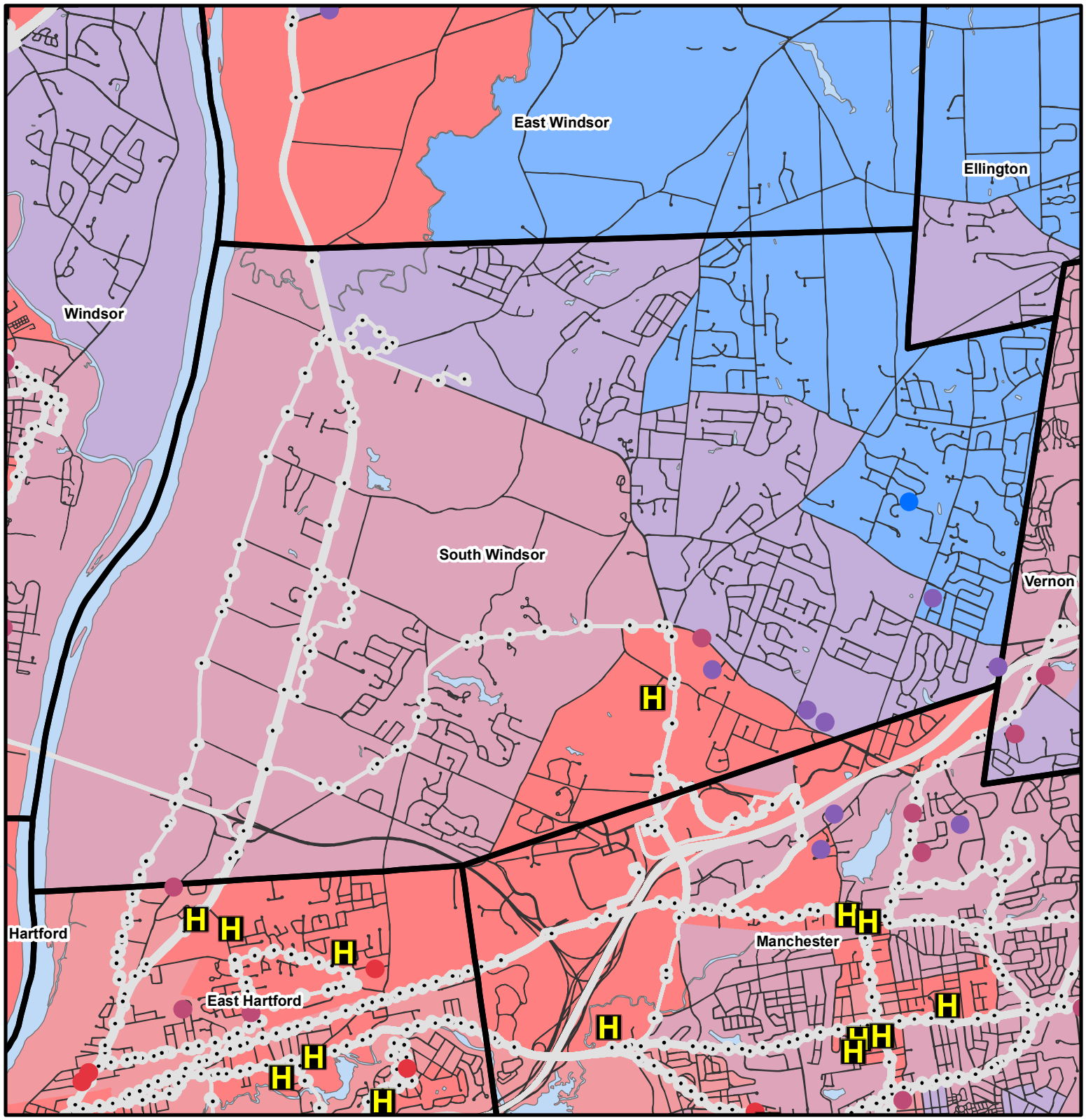
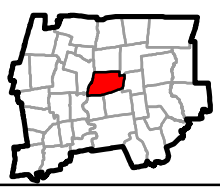


South Windsor

H Healthcare Facility

CRCOG



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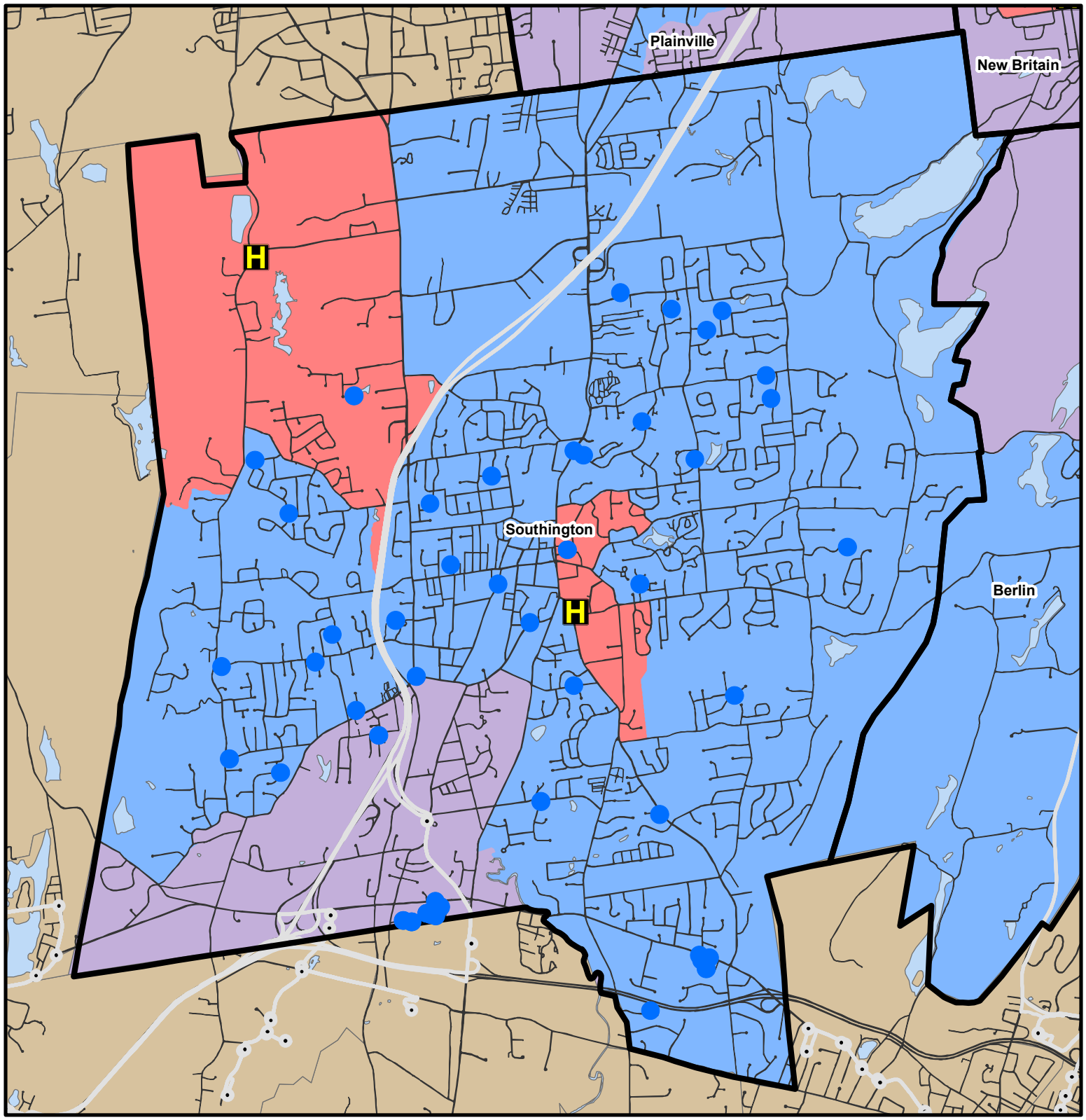
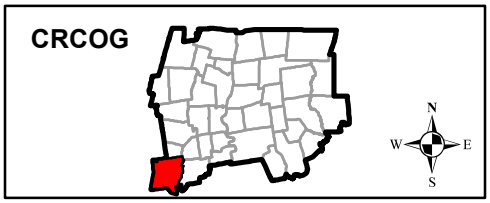


Southington

H Healthcare Facility

CRCOG



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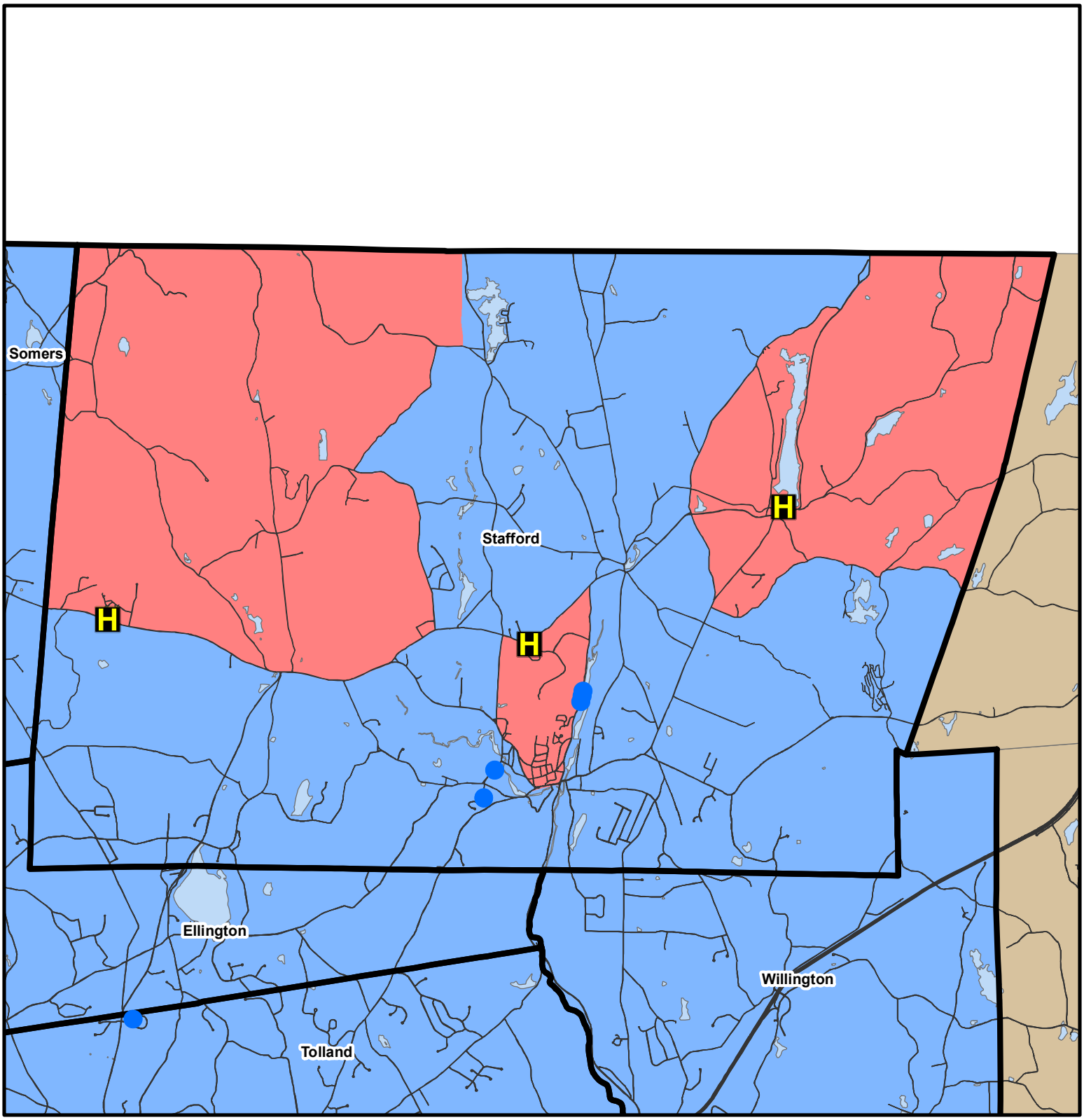
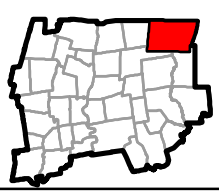


Stafford

H Healthcare Facility

CRCOG



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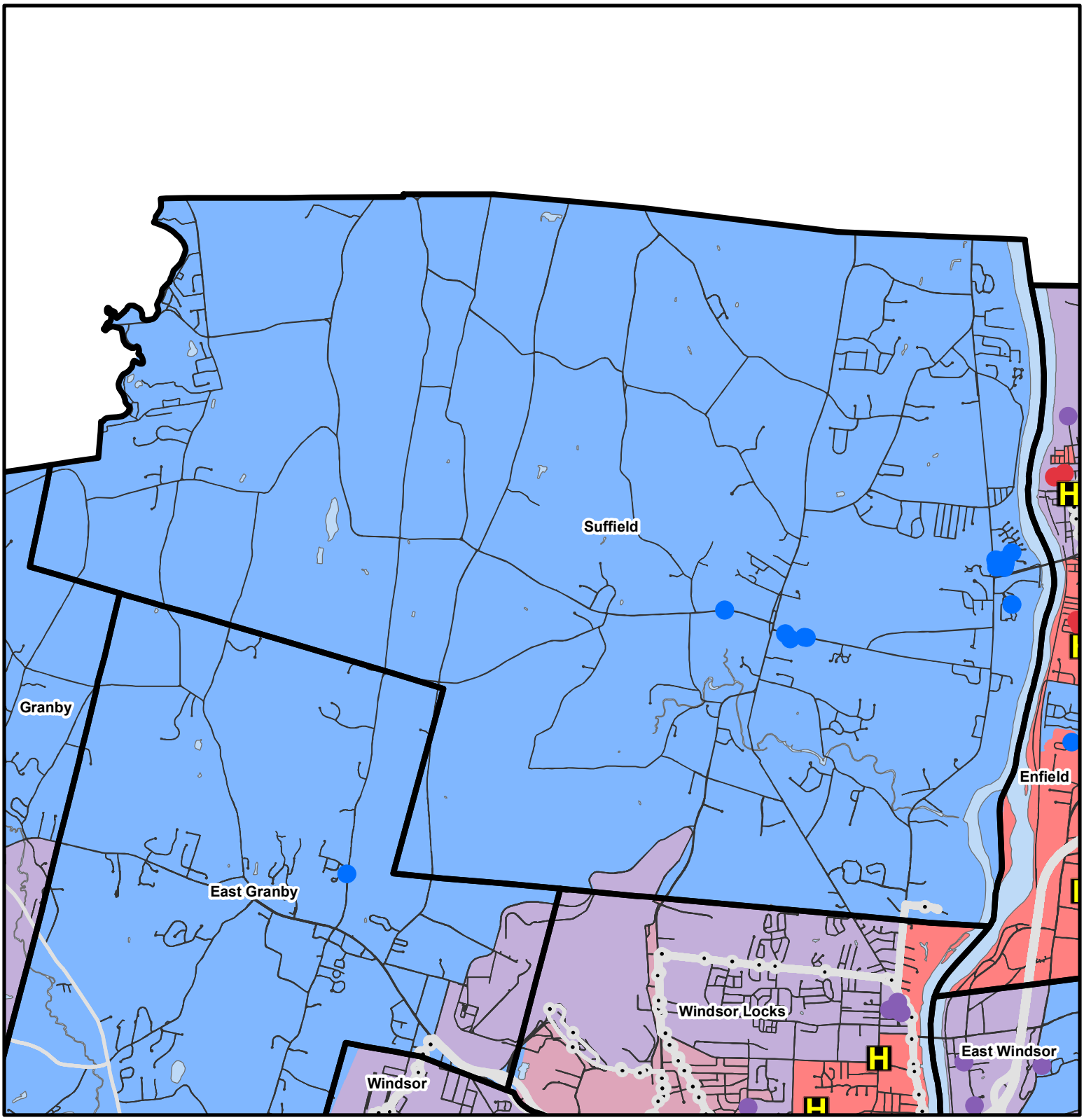
Transit Routes by Daily Trips

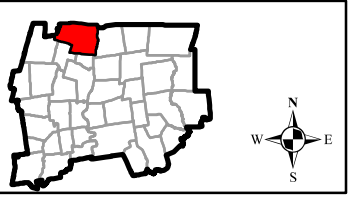
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Suffield

H Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

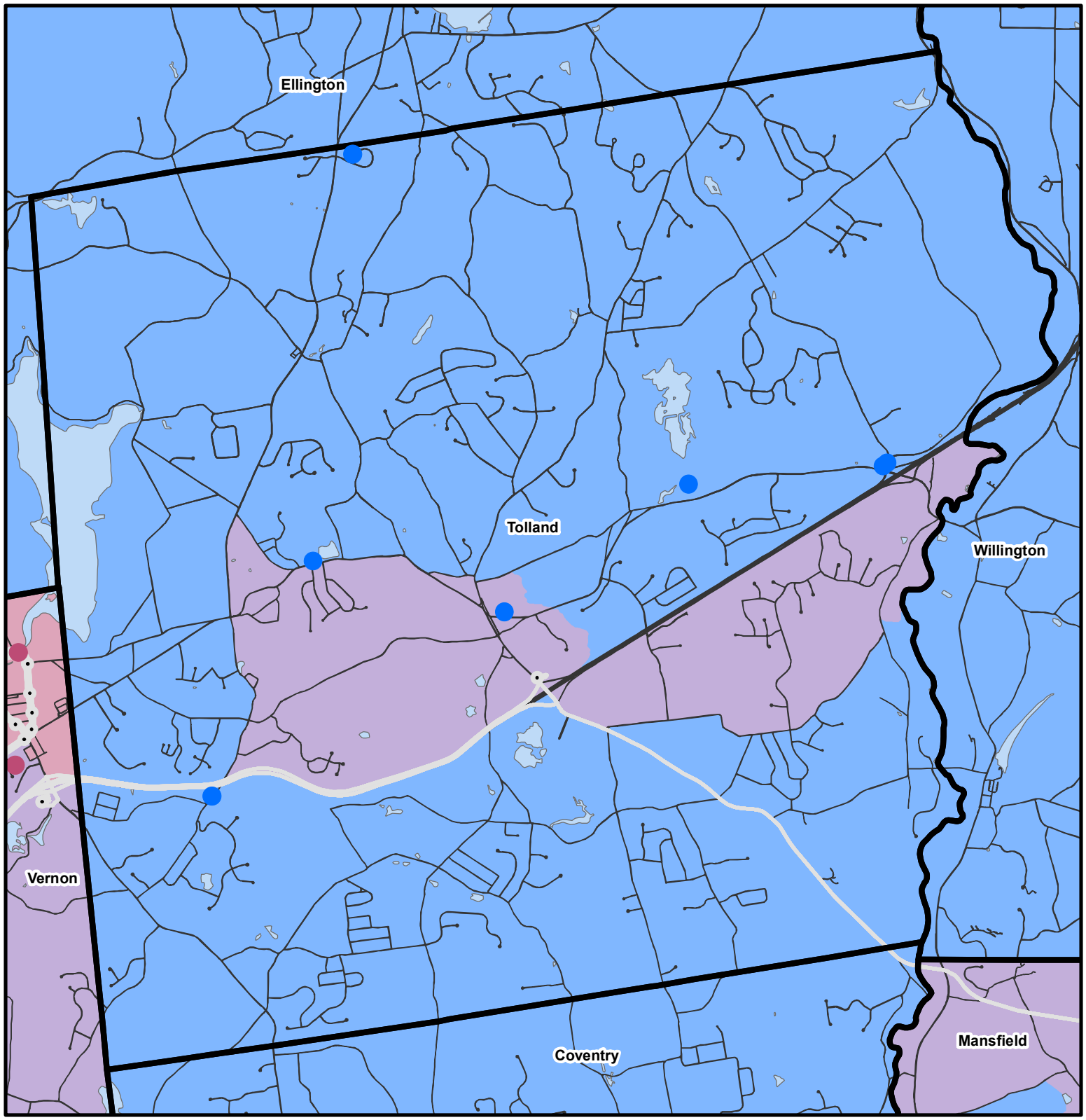
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

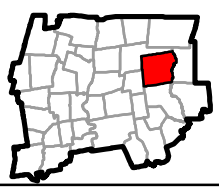
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Tolland

Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

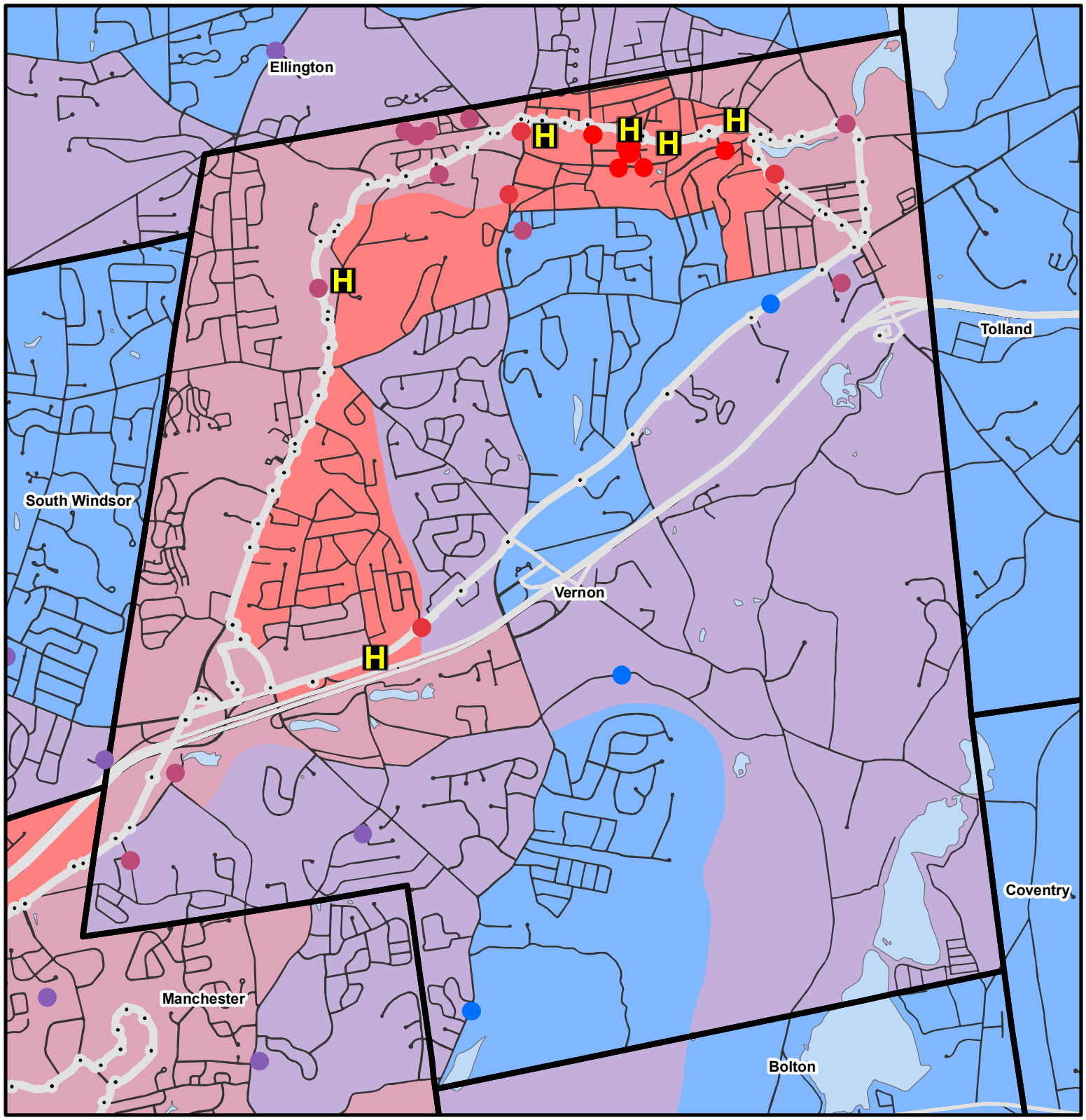
- A
- B
- C
- D
- F

0 0.5 1 Miles

- Town Line
- Transit Stops

Transit Routes by Daily Trips

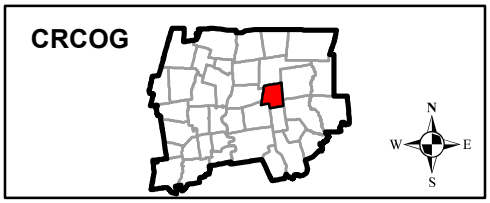
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Vernon

H Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

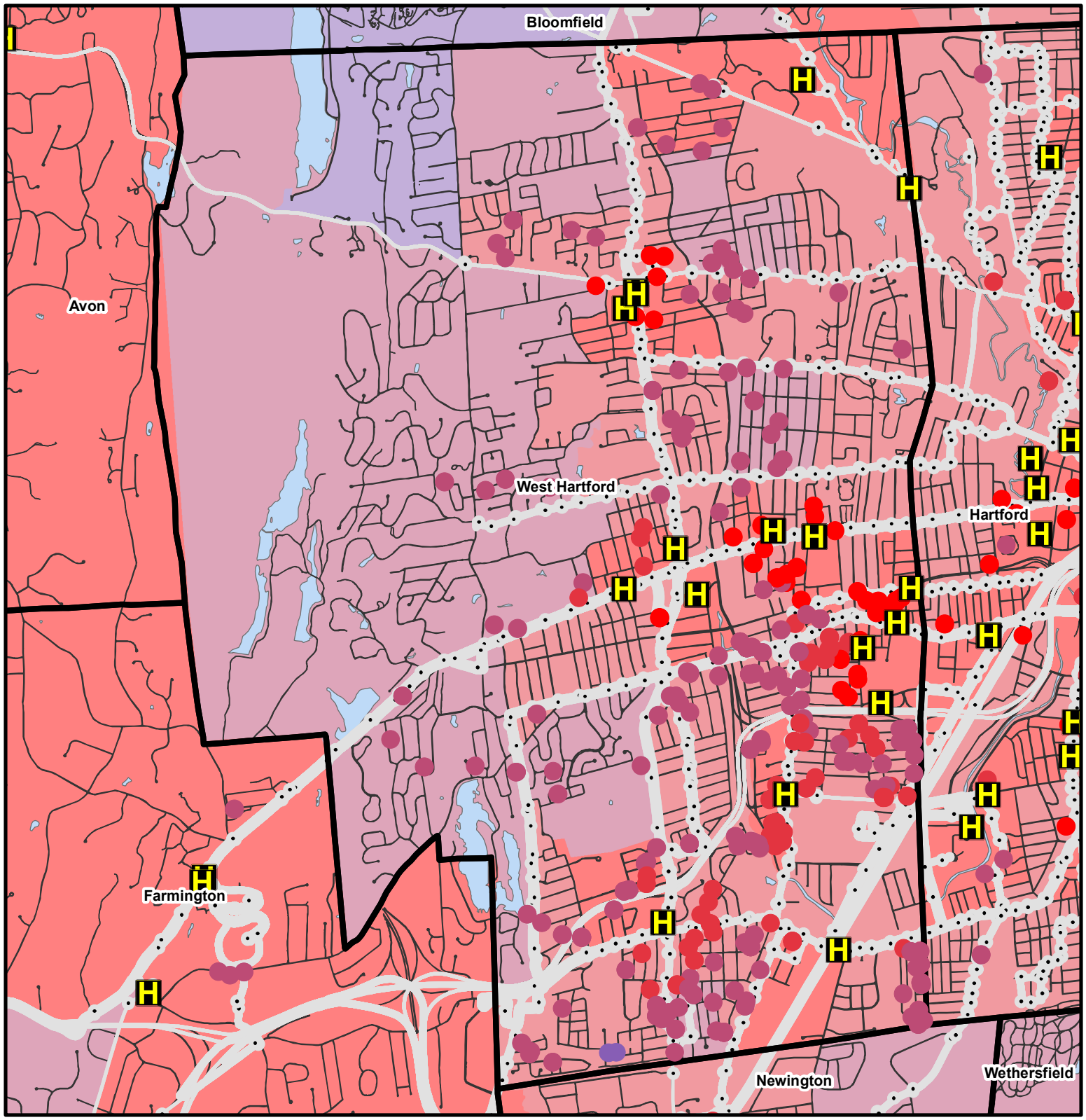
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

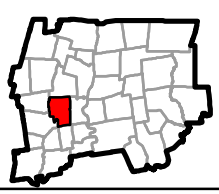
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



West Hartford

H Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

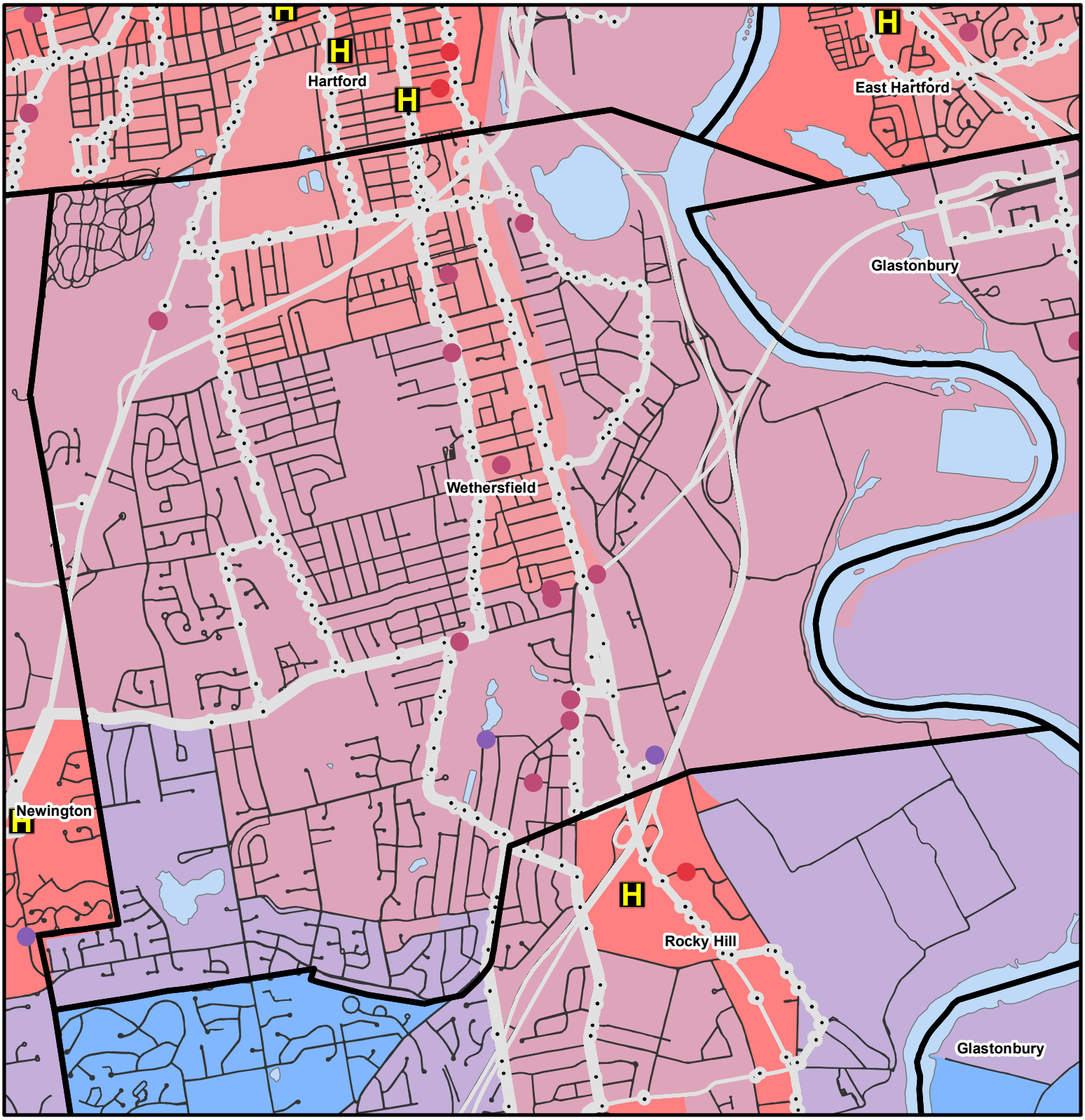
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

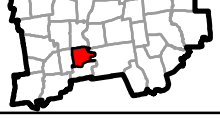
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Wethersfield

Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

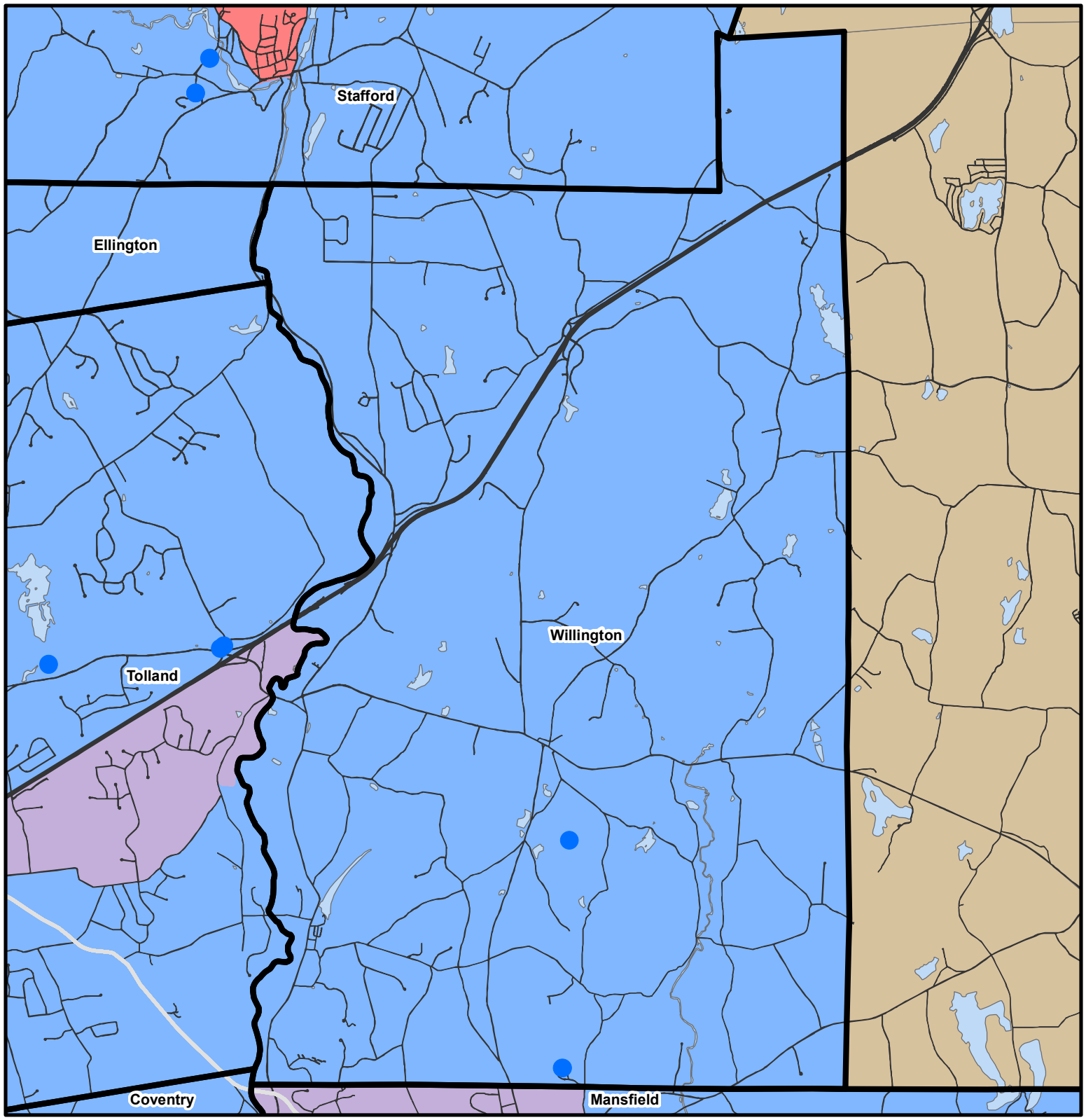
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

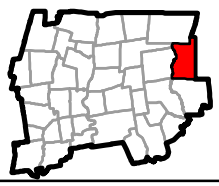
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Willington

Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

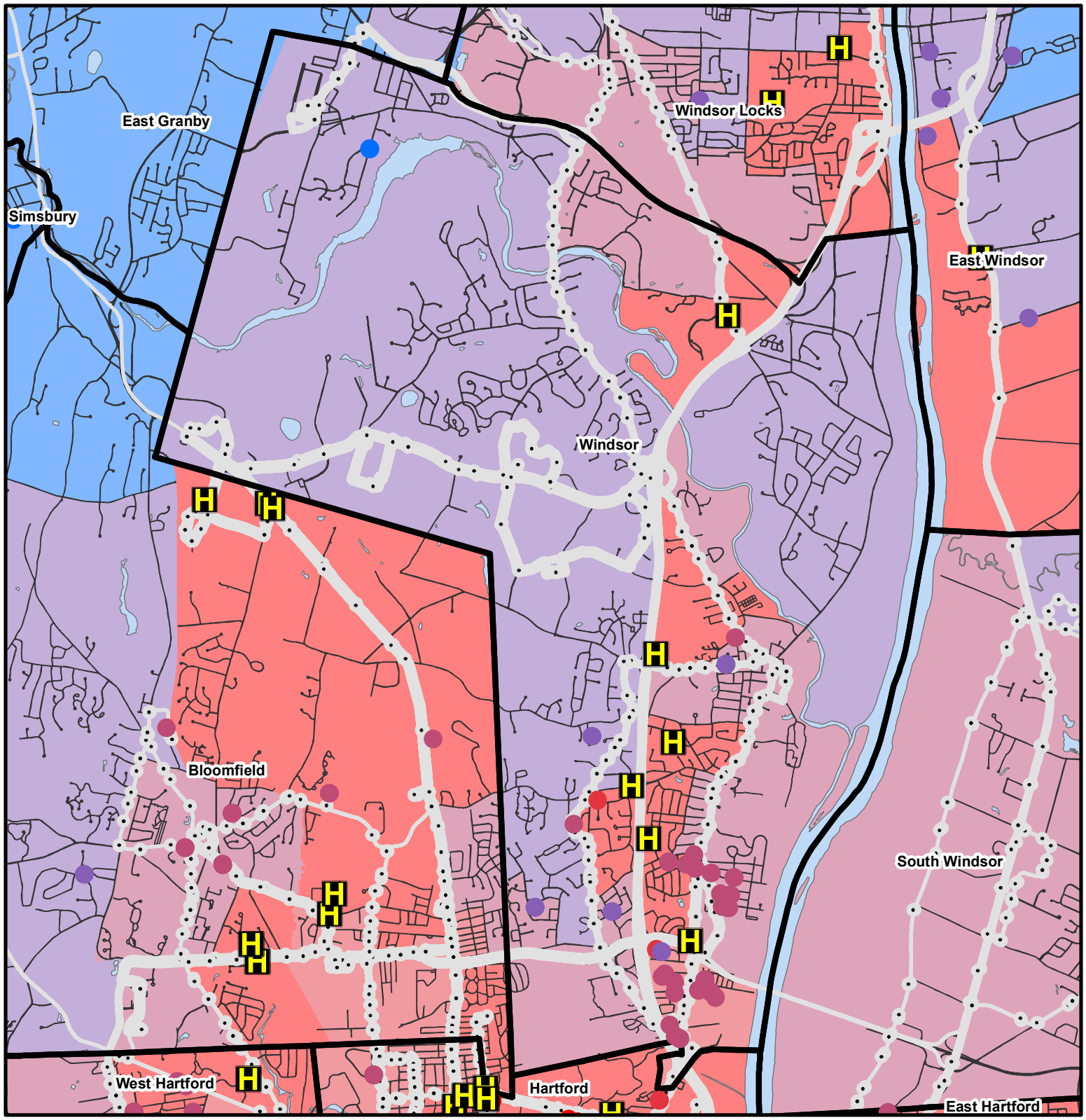
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

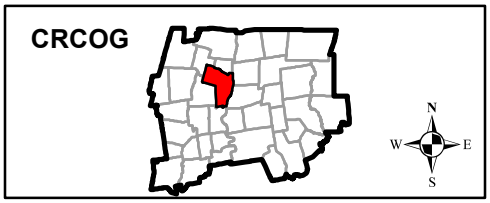
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Windsor

H Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

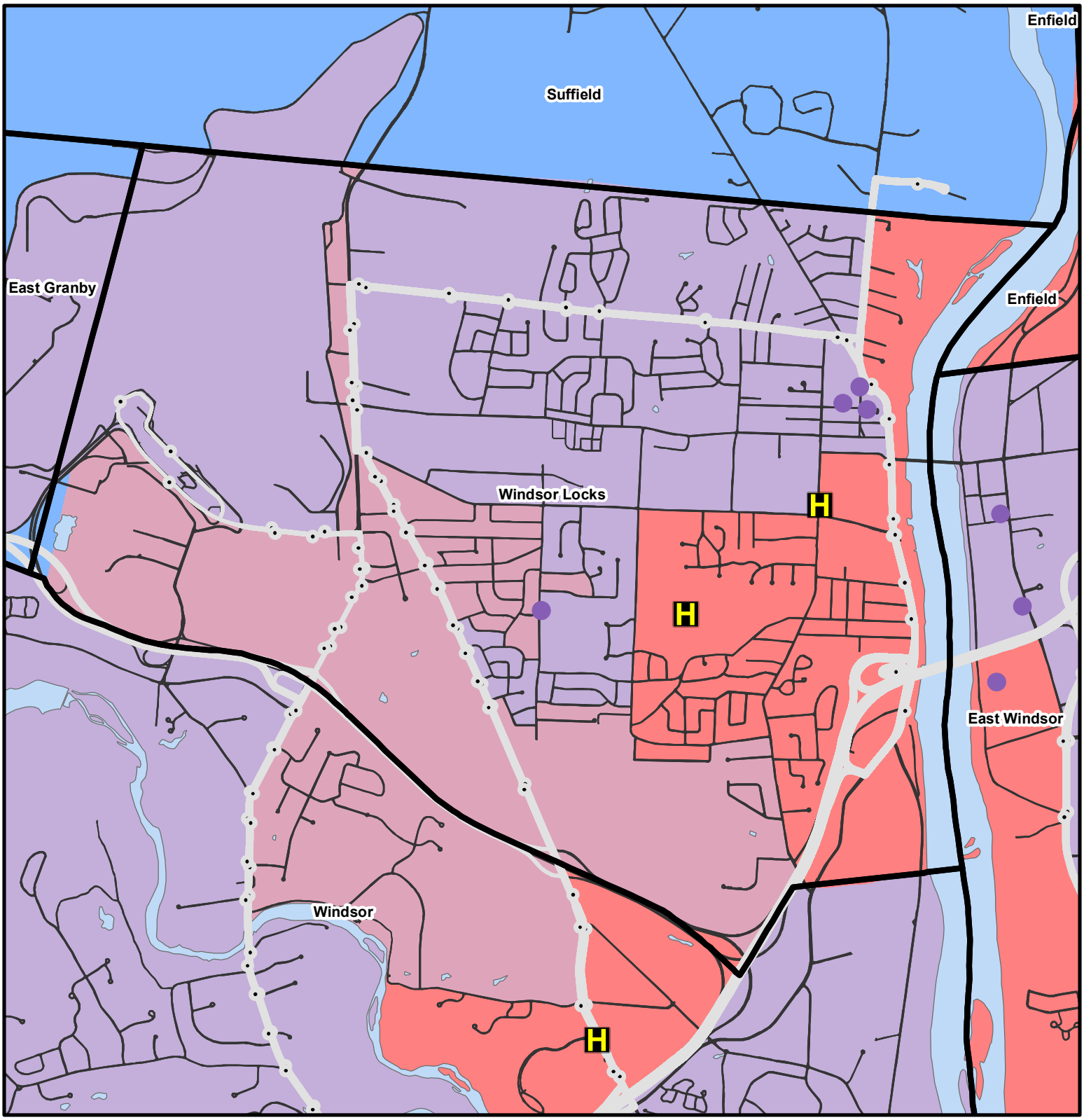
0 0.5 1 Miles

Town Line

Transit Stops

Transit Routes by Daily Trips

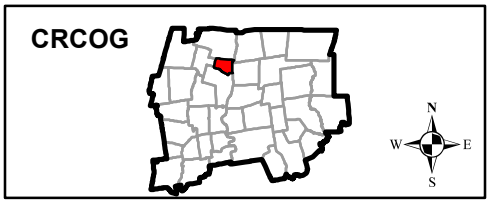
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips



Windsor Locks

H Healthcare Facility

CRCOG



TOI Point Grade

- A
- B
- C
- D
- F

TOI Zone Grade

- A
- B
- C
- D
- F

0 0.5 1 Miles

Town Line

Transit Stops

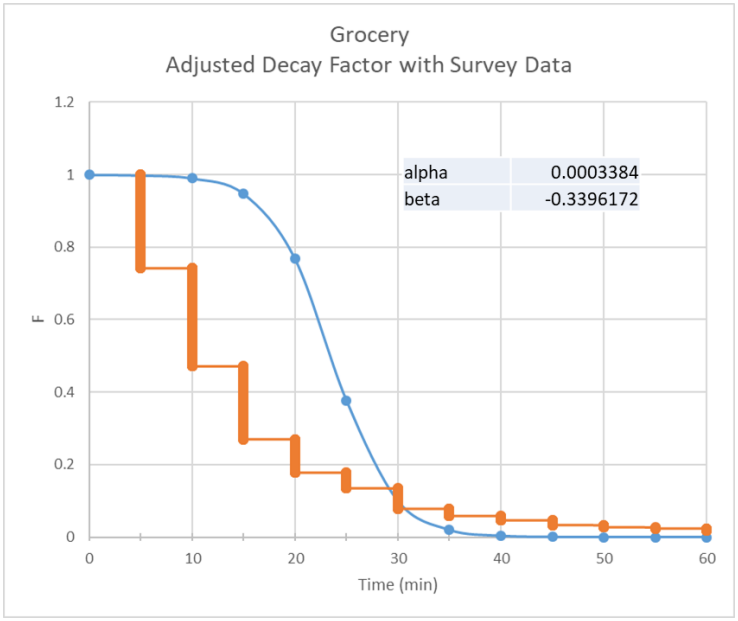
Transit Routes by Daily Trips

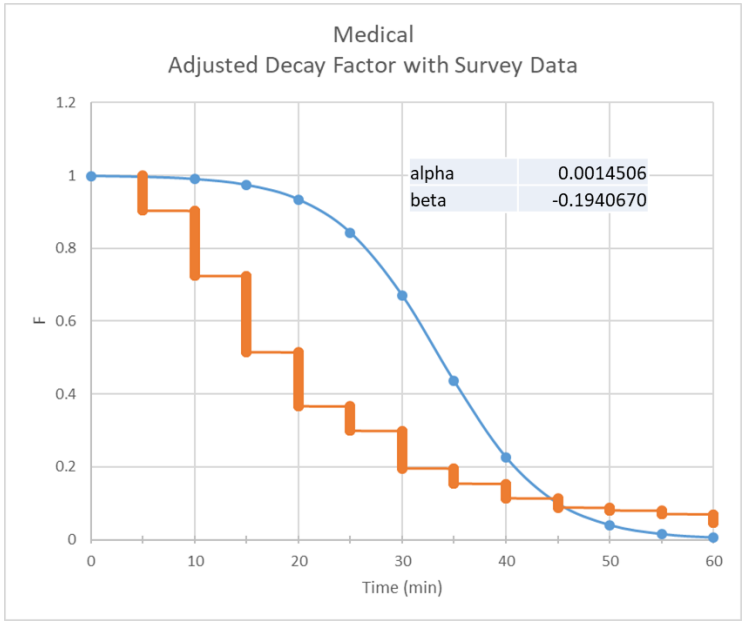
- 1 - 50 Trips
- 50 - 130 Trips
- 130 - 223 Trips

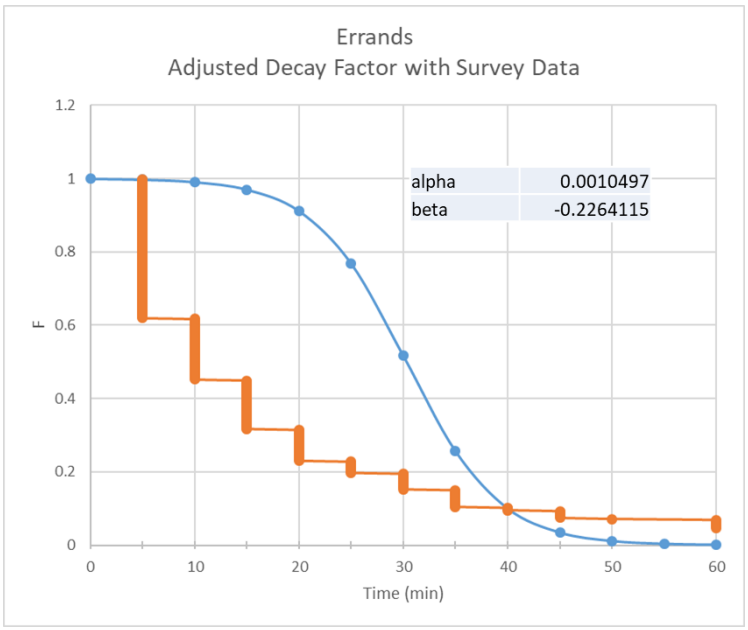
Appendix C: Time Decay Curves by Trip Purpose

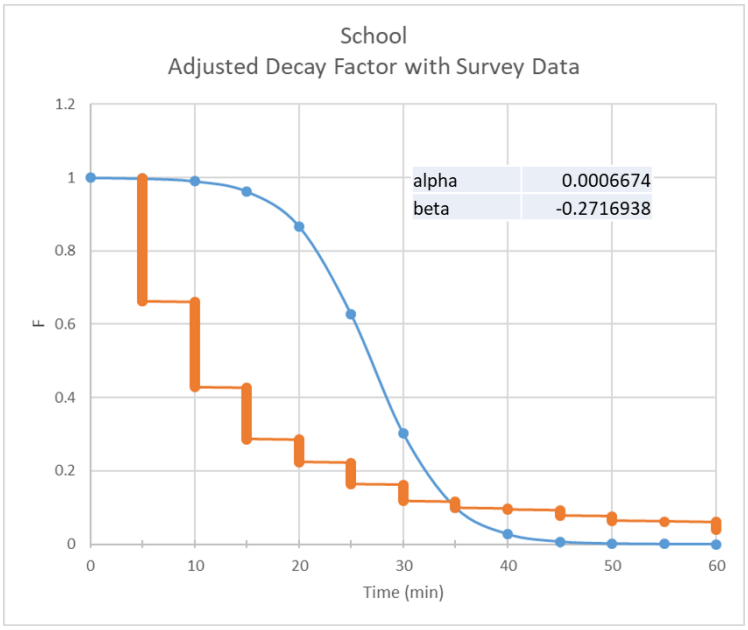
C.1 Decay Curve Figures

The figures below show the time decay curves in blue for each type of trip purpose that resulted from the calibration performed in Section 3.4. The calculated α and β values are shown on the plots. For reference, survey data showing the percent of trips above a particular travel time are represented in orange.






Errands
Adjusted Decay Factor with Survey Data
alpha 0.0010497
beta -0.2264115
F
Time (min)
0
0.2
0.4
0.6
0.8
1
1.2
0
10
20
30
40
50
60


School
Adjusted Decay Factor with Survey Data
alpha 0.0006674
beta -0.2716938
F
Time (min)
0
0.2
0.4
0.6
0.8
1
1.2
0
10
20
30
40
50
60