

Vermont Broadband Equity

Analysis of broadband deployment and income

Developed by the Vermont Public Service Department

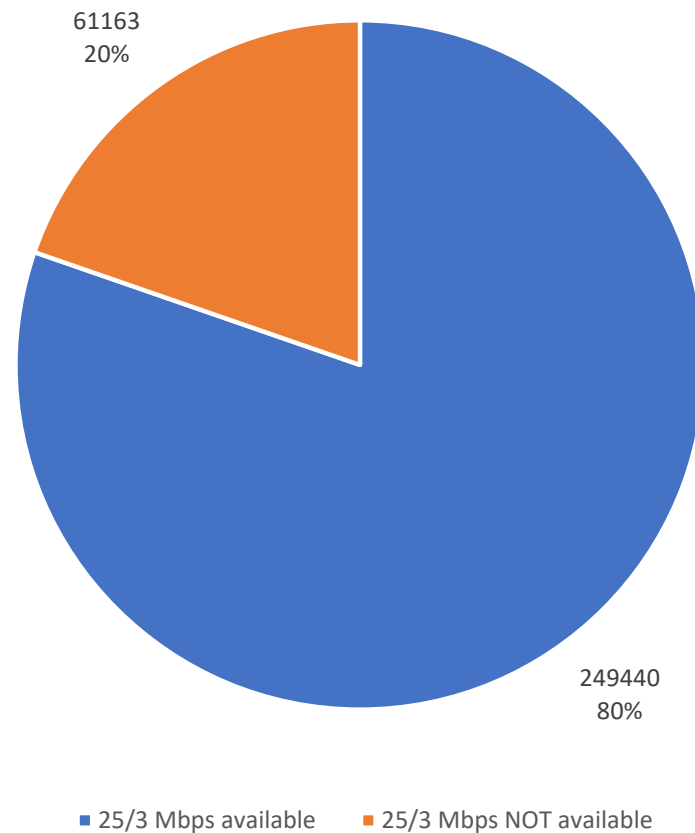
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Key Findings

- A majority of low-income households have existing access to 25/3 Mbps broadband service
 - 68% of households earning less than \$25K/yr are in areas where more than 90% have access to 25/3 Mbps
- A significant portion of those that lack access to 25/3 broadband service are low and moderate income households
 - 41% of households in CBGs where less than 75% have access to 25/3 Mbps earn less than \$50K/Yr
 - These households will struggle to afford \$100/mo broadband services, a challenge to FTTH business model

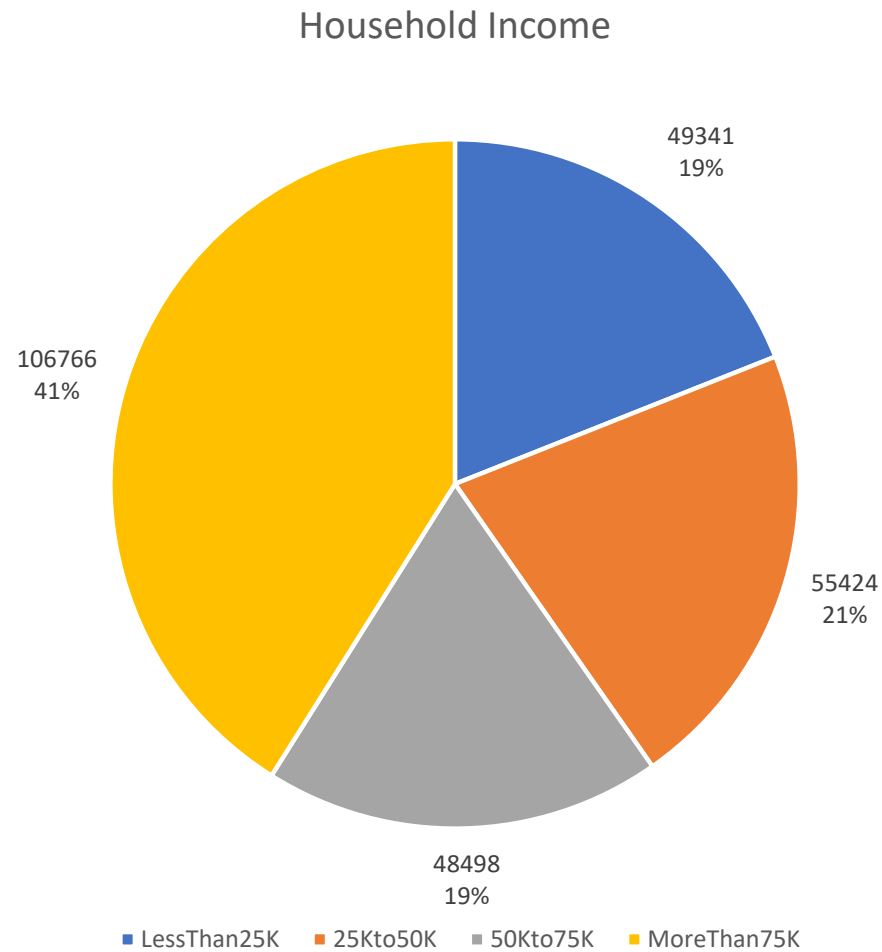
Broadband Deployment

E-911 locations with access to 25/3 Mbps broadband



20% of Vermont E-911 locations (61K) lack access at 25/3 Mbps

Income Distribution



19% of households earn less than \$25K/year (blue)

Different Geographies

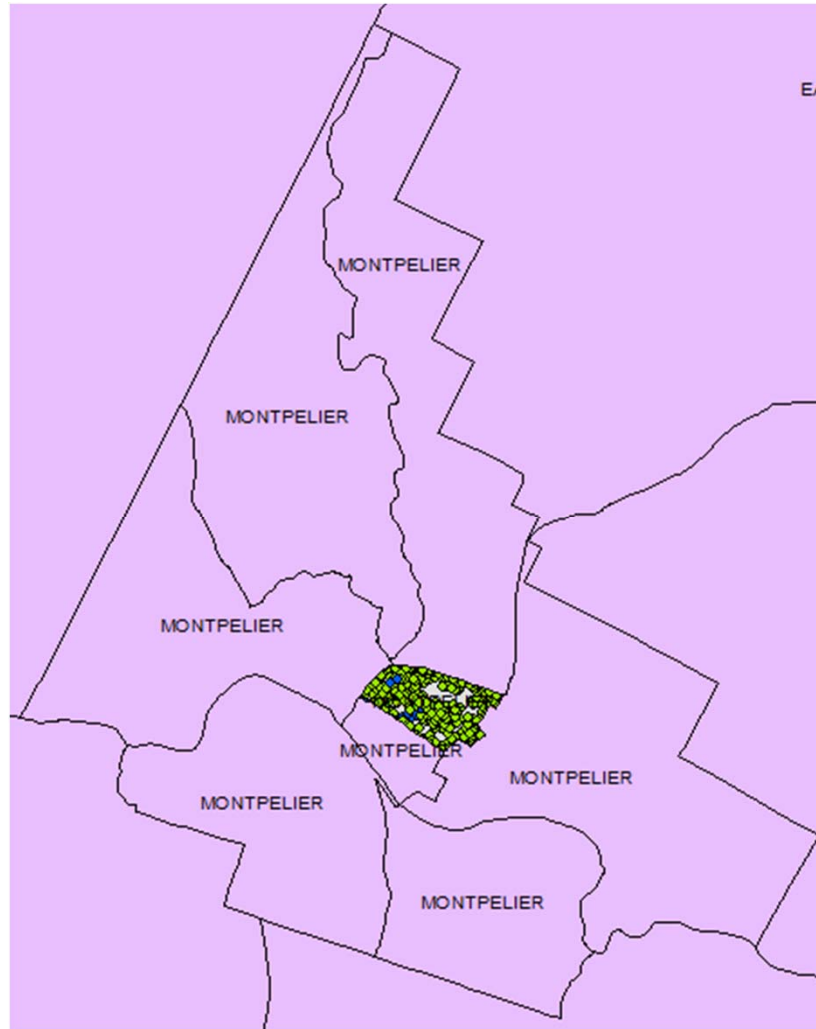
- Broadband deployment data is reported by speed tier for each E-911 location
 - Percentages calculated for four speed tiers for each CGG
- Household income data is reported on a census block group (CBG) basis
 - Percentages calculated for four income tiers for each CBG
- Small, urban CBGs have high percentage of 25/3 deployment, making conclusions easier
- Large, rural CBGs have a lower percentage of 25/3 deployment, making conclusions complicated
- Data for Montpelier and Middlesex illustrate the effects of different geographies for reporting data

Montpelier: 1 of 8 CBGs

Broadband By E911 location

- Lack 4/1: 0
- 4/1: 0
- 25/3: 12
- 100/100: 295
- Total: 307

>25/3: 100%



Income By Household

- <\$25K: 120
- \$50K: 70
- \$75K: 122
- >\$75K: 208
- Total: 520

< \$25K: 23%

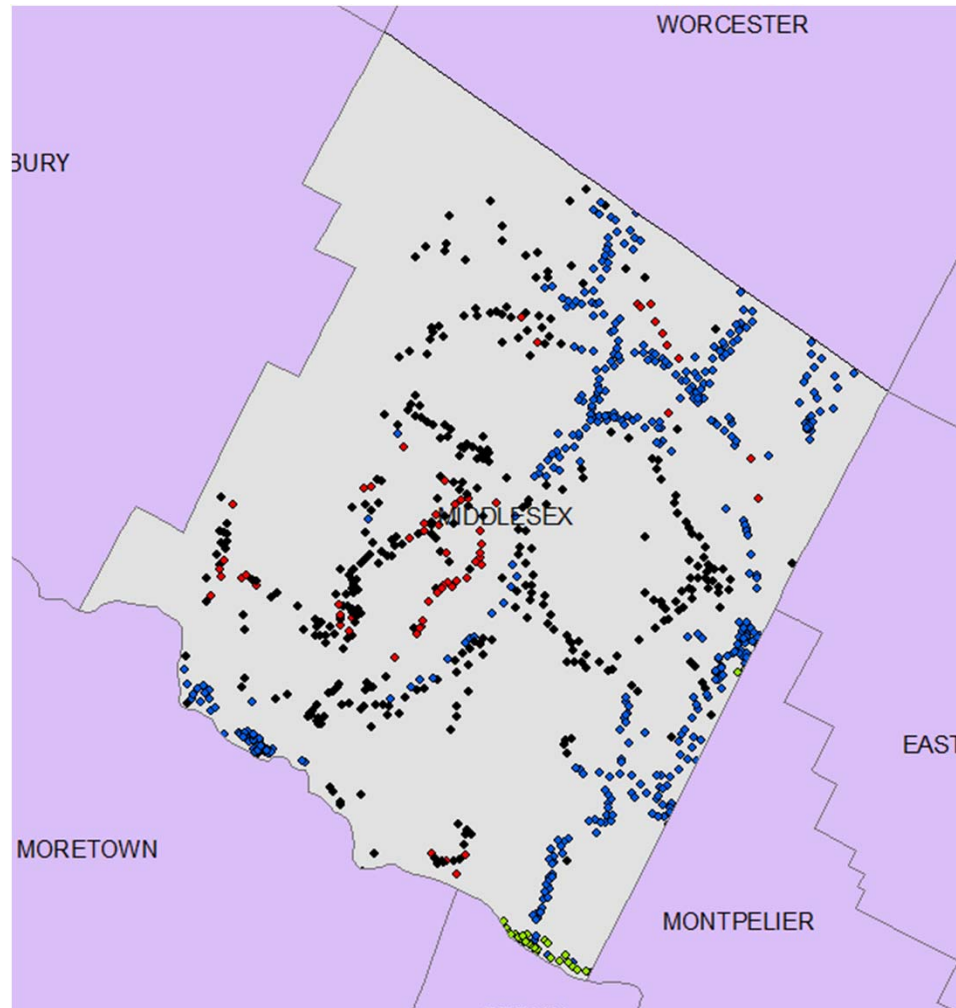
120 households earn less than \$25K, all have access to 25/3

Middlesex: just one CBG

Broadband E911 locations

- Lack 4/1: 63
- 4/1: 347
- 25/3: 414
- 100/100: 31
- Total: 855

>25/3: 52%



Income Households

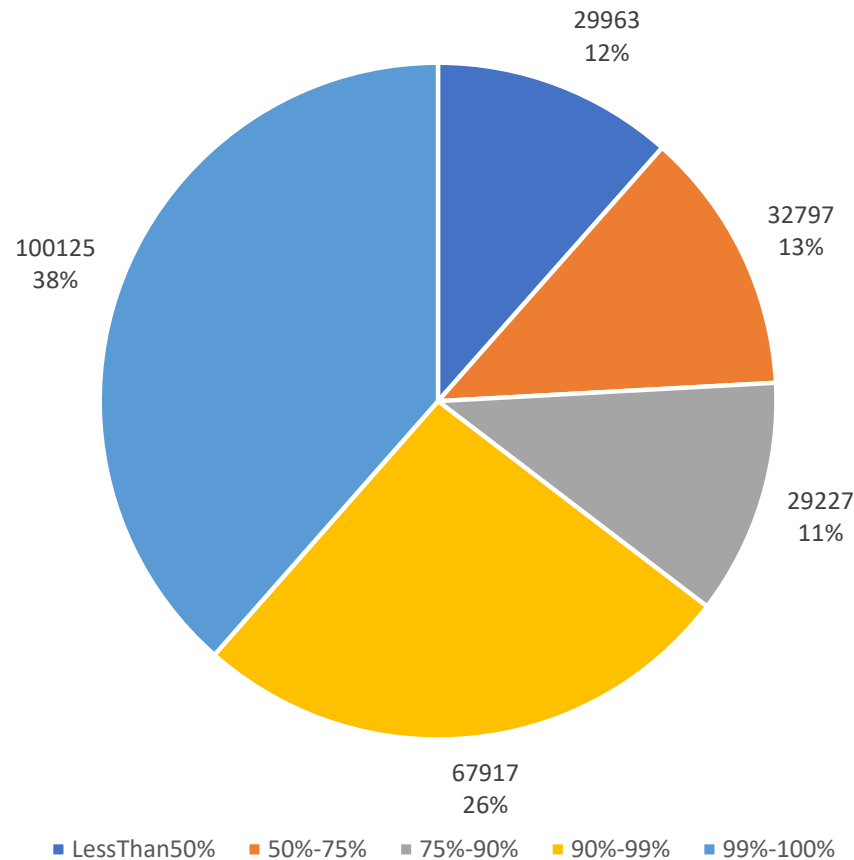
- <\$25K: 103
- \$50K: 84
- \$75K: 122
- >\$75K: 380
- Total: 689

< \$25K: 15%

103 households earn less than \$25K, but we cannot tell which locations, so we cannot determine exact broadband deployment by household income

Income & Broadband statewide

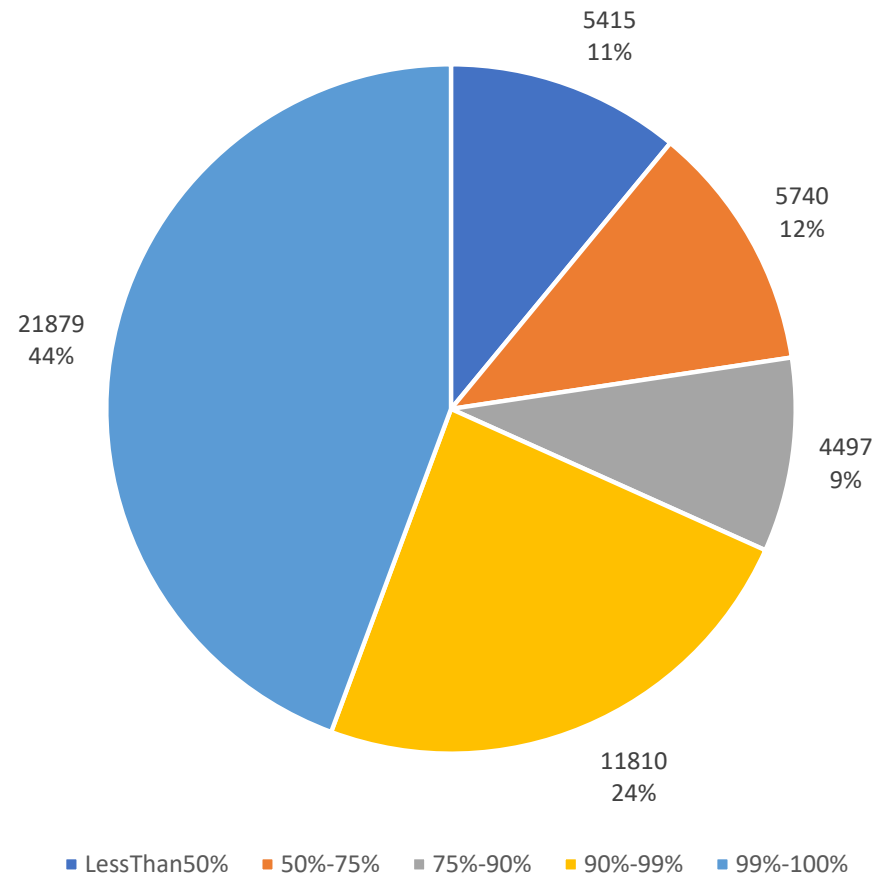
Quantity of households by broadband deployment tier



38% of households are in CBGs where more than 99% of locations have access to broadband at 25/3 Mbps (light blue)

Broadband for low income

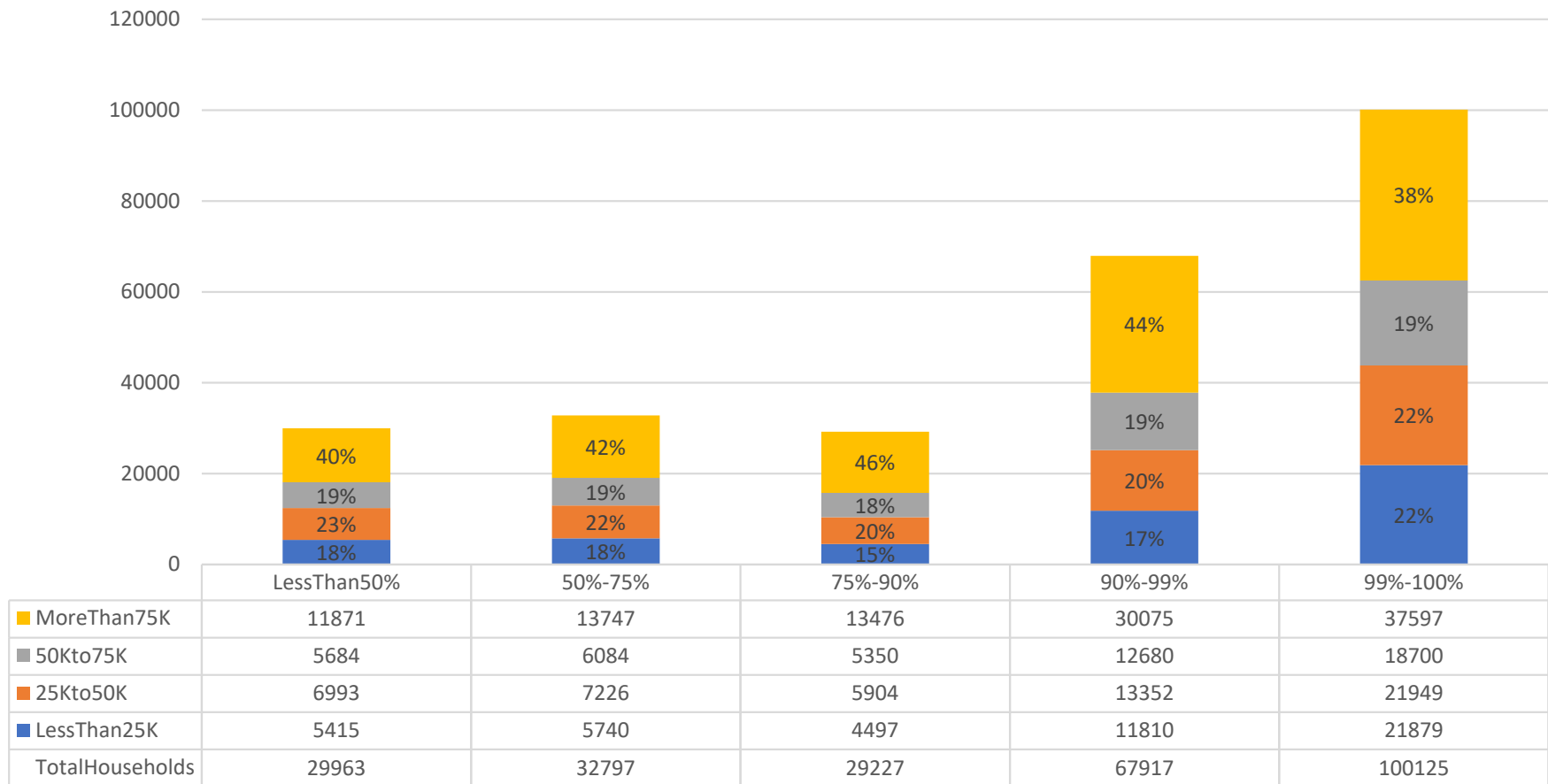
Broadband for households with income less than \$25k/yr



68% of households with less than \$25K/yr are in CBGs where more than 90% have access to 25/3 Mbps

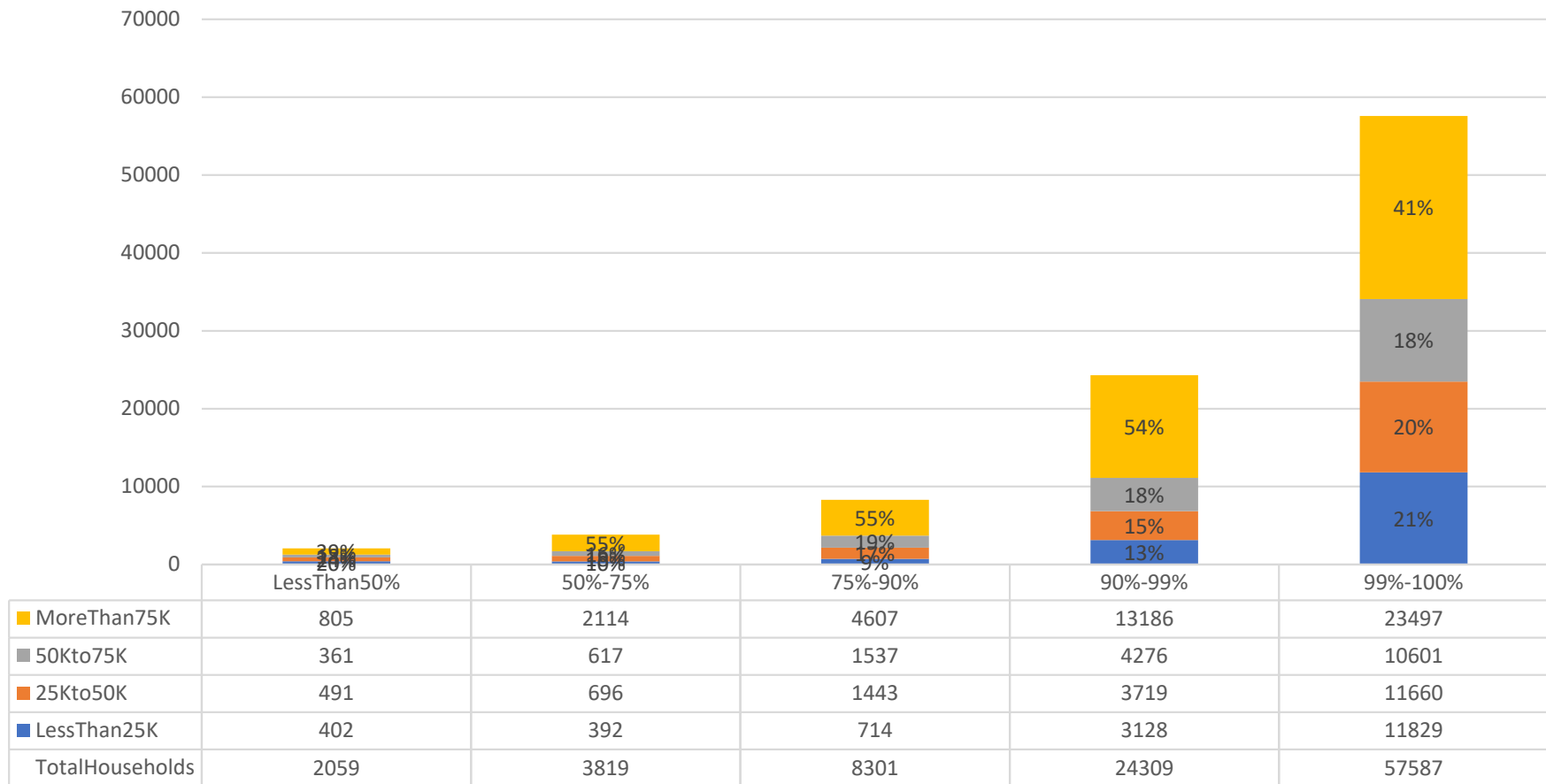
Broadband vs Income

Percent with 25/3 Broadband by income tier



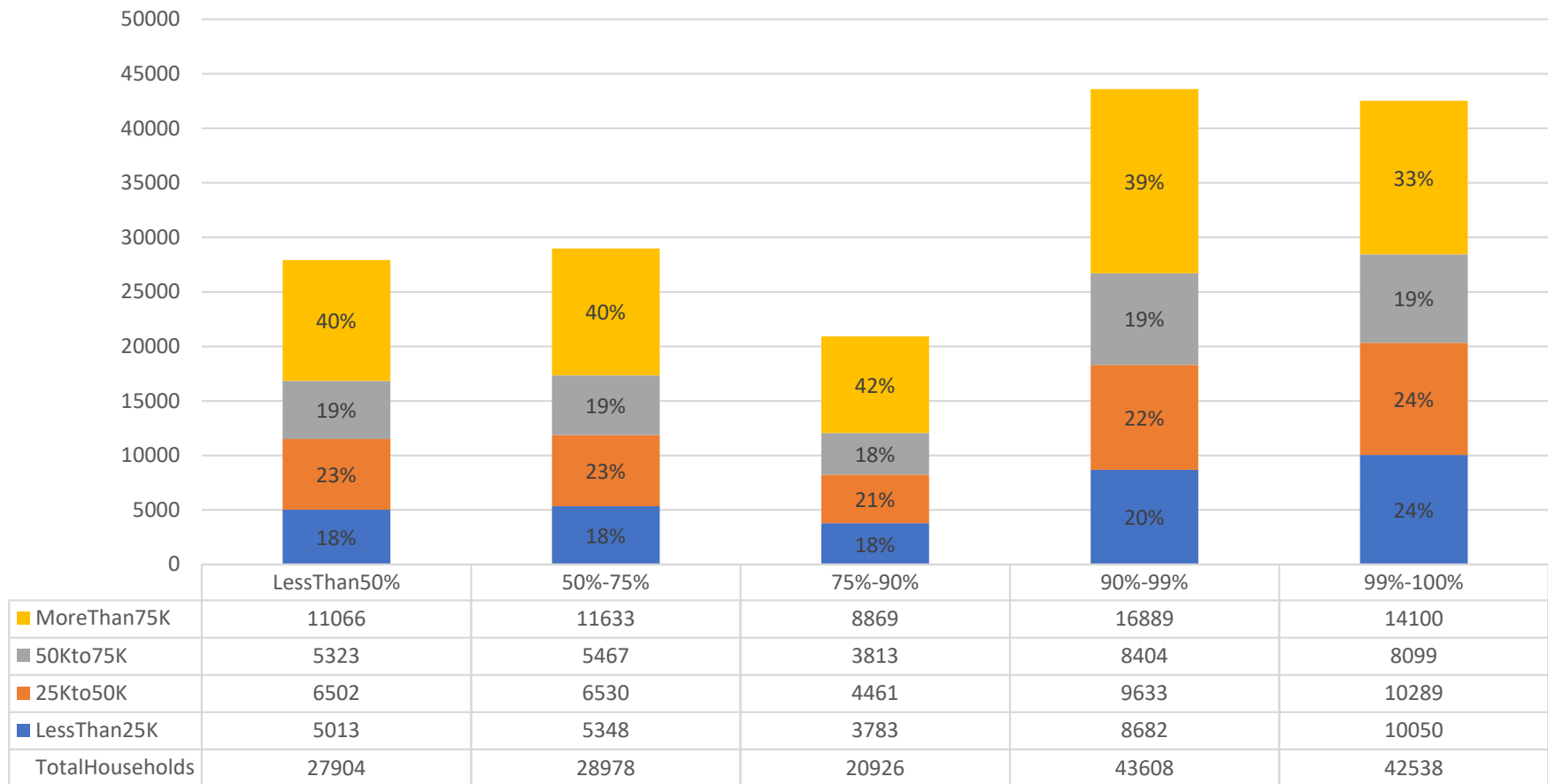
Broadband vs Income: NO CUD

Percent with 25/3 Broadband by income tier



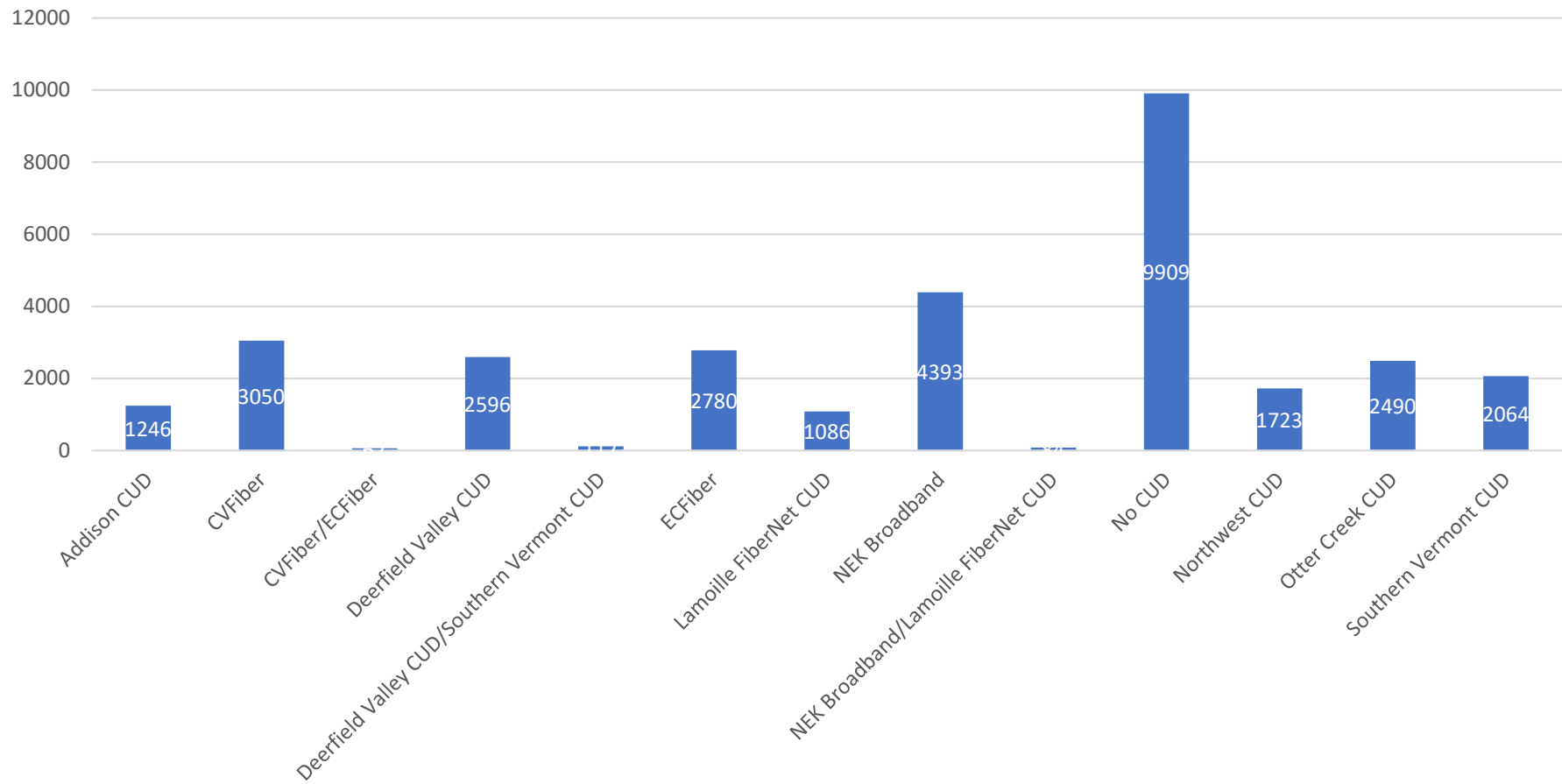
Broadband vs Income: YES CUD

Percent with 25/3 Broadband by income tier



Public Assistance

Households with Public Assistance by CUD



Data Sources

- Vermont state broadband data
 - Lists broadband status at each Vermont E-911 location
- The US Census issues data on three levels of aggregation (2010 geography):
 - 32,580 census blocks
 - 522 census block groups (CBG)
 - 255 County Subdivisions (Vermont Towns)
- Census estimated annual household income on CBG and Town basis from 2019

Methodology

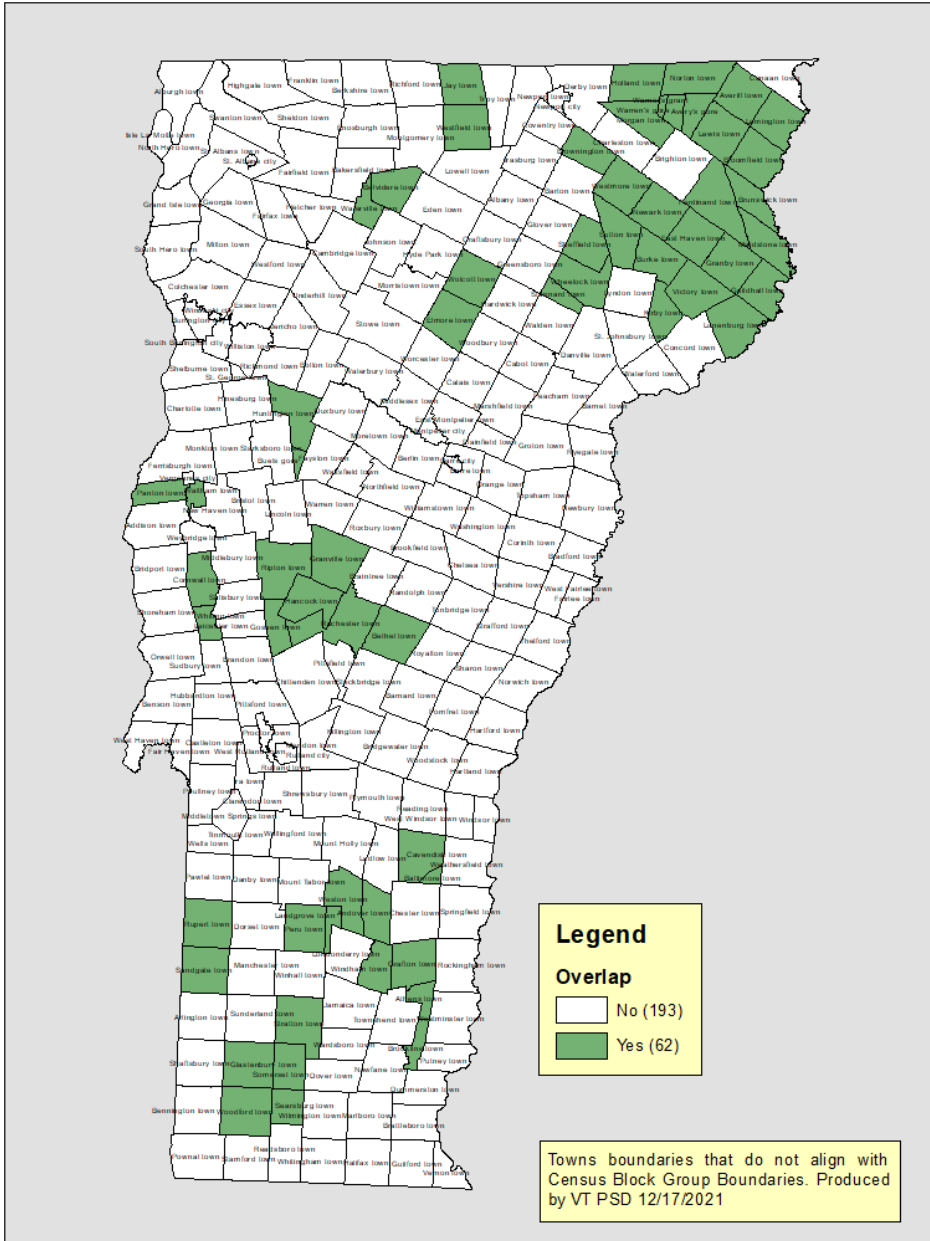
- Census Block Group and Town boundaries
 - 29 of 522 CBG do not align with town boundaries
 - These CBGs contain 62 towns
 - Total 555 non-overlapping areas ($522 - 29 + 62$)
- For each area:
 - Aggregate Census household income data into 4 tiers
 - Calculate percentage of locations with access to 25/3 broadband
 - Summarize broadband access percentage in five tiers

Assumptions

- Analysis assumes uniform distribution of both household income and broadband deployment throughout each of 555 areas
- Vermont E-911 locations data is not directly correlated to estimated Census household quantities
 - E-911 data includes business and residential locations
 - E-911 data treats multi-unit dwellings as one location

Overlapping territories of Town Boundaries and Census Block Groups

Town Boundaries vs CBG boundaries



Town Boundaries vs CBG boundaries

