



Examining Geographic Proximity as a Means to Increase Access to Free Condoms among Teenagers 15-19 Years Old in Areas with High Rates of STDs

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INTRODUCTION:

In 2014, Rhode Island experienced a ten-year peak in the number of cases of STDs reported to the Rhode Island Department of Health (RIDOH), the majority occurring in young people ages 15-24. Through a grant-funded program which aims to reduce STD/HIV burden, RIDOH distributes condoms to high-risk populations and currently distributes over 250,000 condoms annually in over 50 different locations (including universities, substance abuse facilities, homeless shelters, MSM bars/clubs, non-profits, social service agencies, and counseling, treatment, and referral centers). RIDOH seeks to understand how the current condom dispenser locations align with the burden of chlamydia so that this data can be used to improve condom access among 15-19 year olds.

METHODS:

Eleven different layers were constructed using ArcMap 10.4.1 and strategically combined in order to highlight different aspects of the program as it relates to the burden of adolescent chlamydia. Condom dispenser locations, high schools, and provider locations were geocoded manually. Pre-existing layers for zip codes, municipalities, and urban areas were utilized. Data on race and ethnicity from the 2010 US Census, teen birth rates, chlamydia case counts, and adolescent chlamydia were mapped.

CONCLUSIONS:

In 2015, the majority of chlamydia cases were reported by providers in Providence. As an STD prevention strategy, the RIDOH has maintained a condom distribution program since 2012 and has positioned condom dispensers throughout the state. GIS analysis reveals that there are few condom dispensers located in geographic areas with a high burden of chlamydia in 15-19 year olds. Based on this analysis, it is recommended that the RIDOH consider adding additional condom dispensers in some of the identified areas of high chlamydia burden that can be accessed by 15-19 year olds. This may require additional research to understand the underlying social and behavioral stigmas and barriers surrounding teenage condom use, as these likely have a role in determining adolescent condom use that may be as important as geographic access.

Figure 1: Locations of Free Condom Dispensers, Rhode Island, 2016

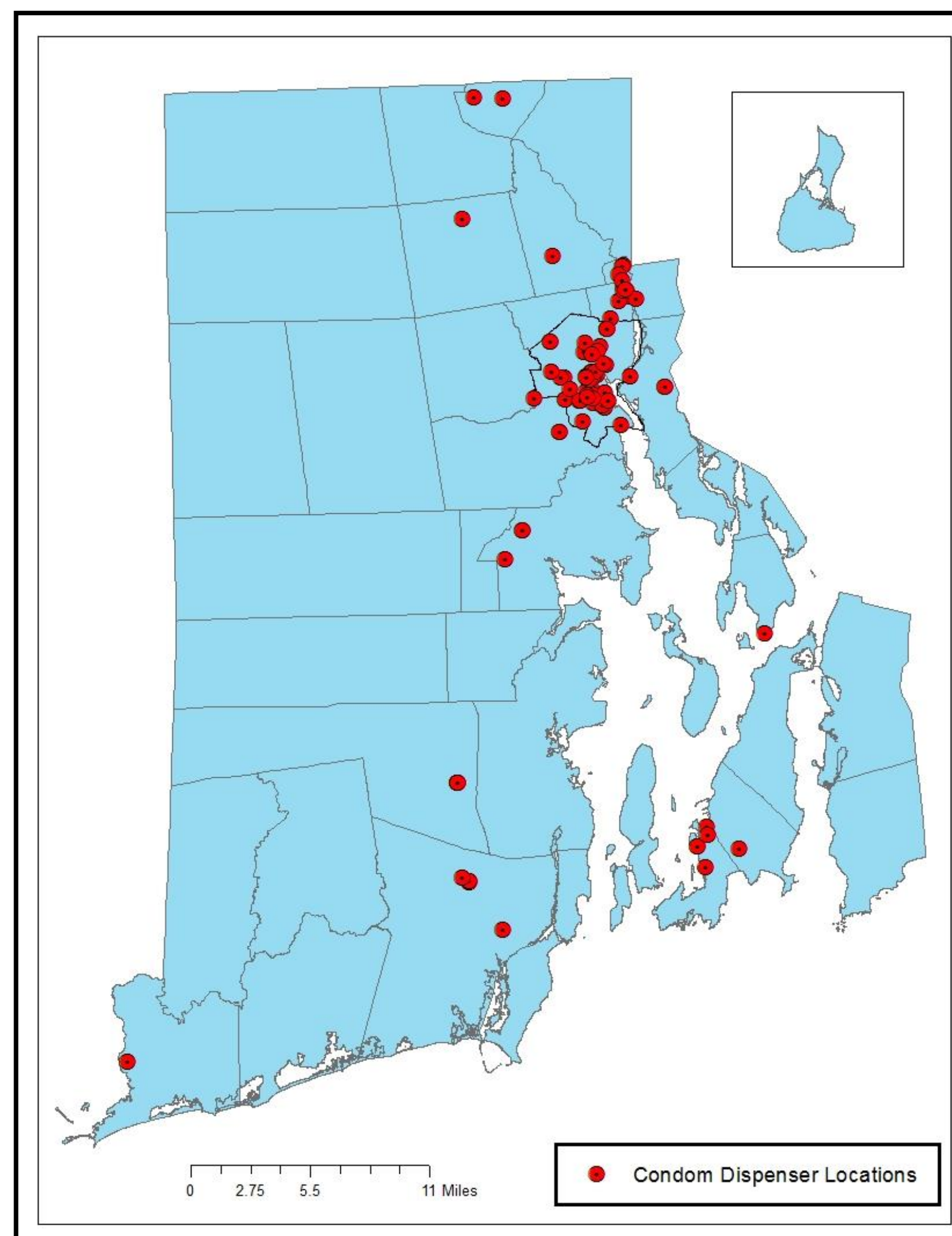


Figure 2: Adolescent Chlamydia, Rhode Island, 2012-2015

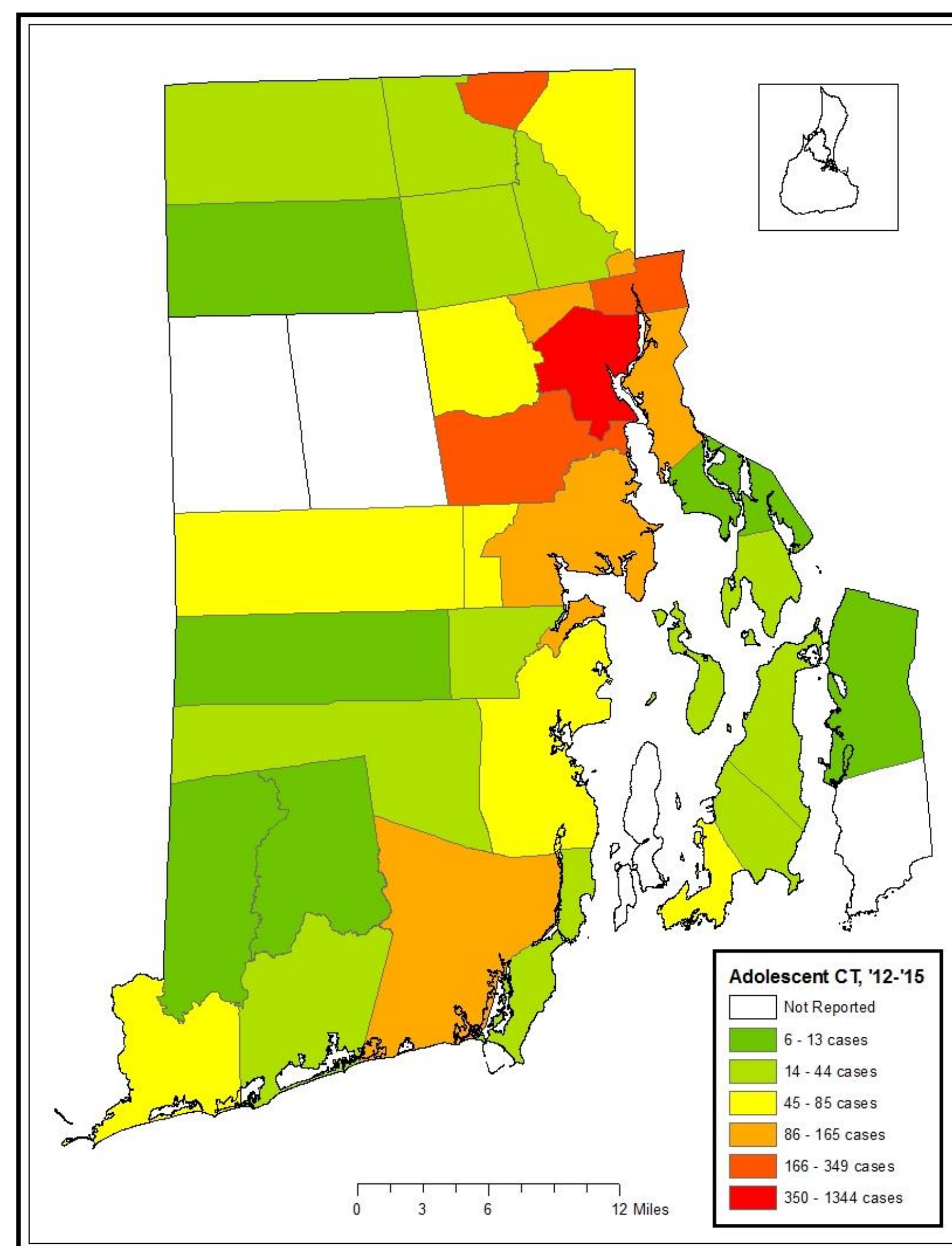


Figure 3: Adolescent Chlamydia (2012-2015) and Free Condom Dispenser Locations (2016), Providence, Rhode Island

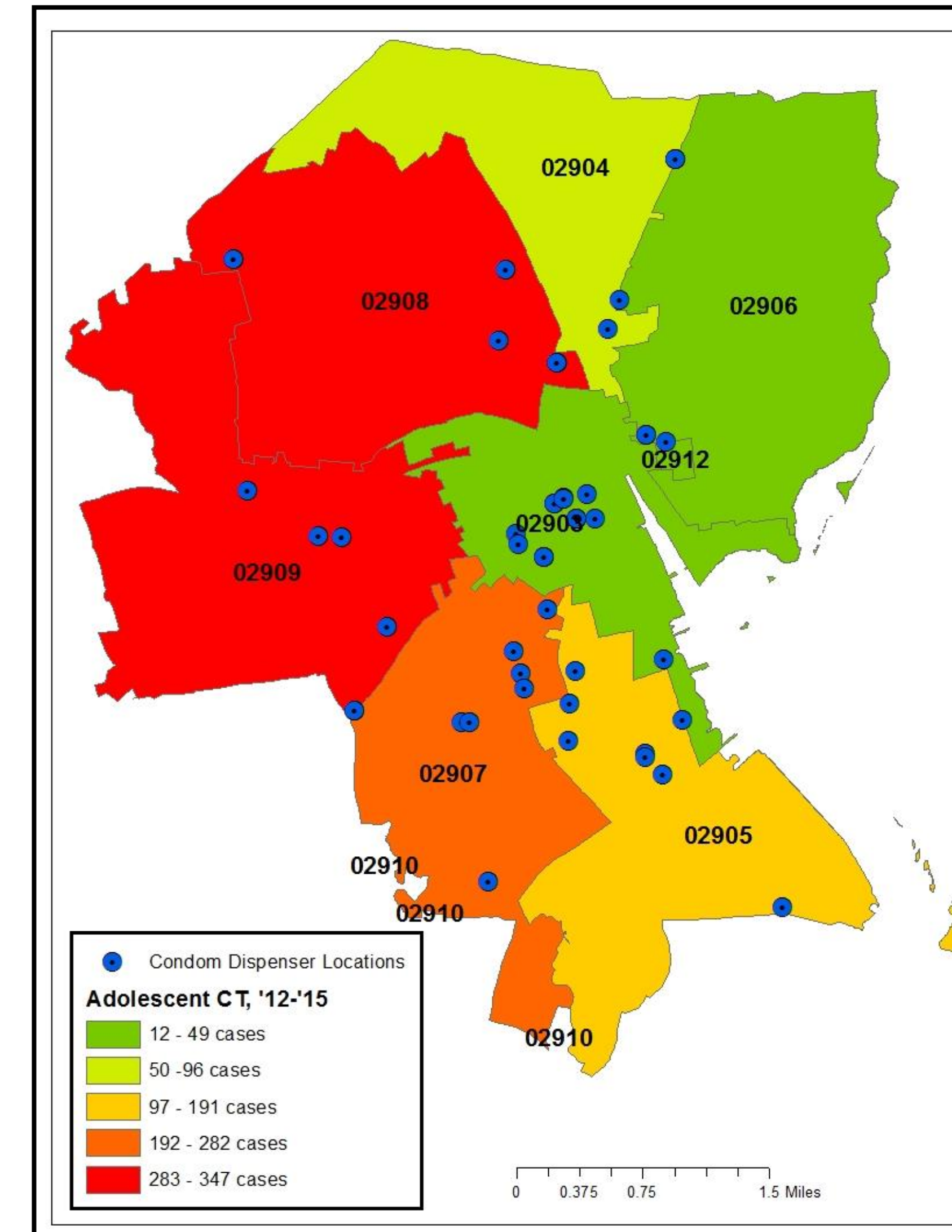


Figure 4: Adolescent Chlamydia (2012-2015) and Reporting Provider Locations (2015), Providence, Rhode Island

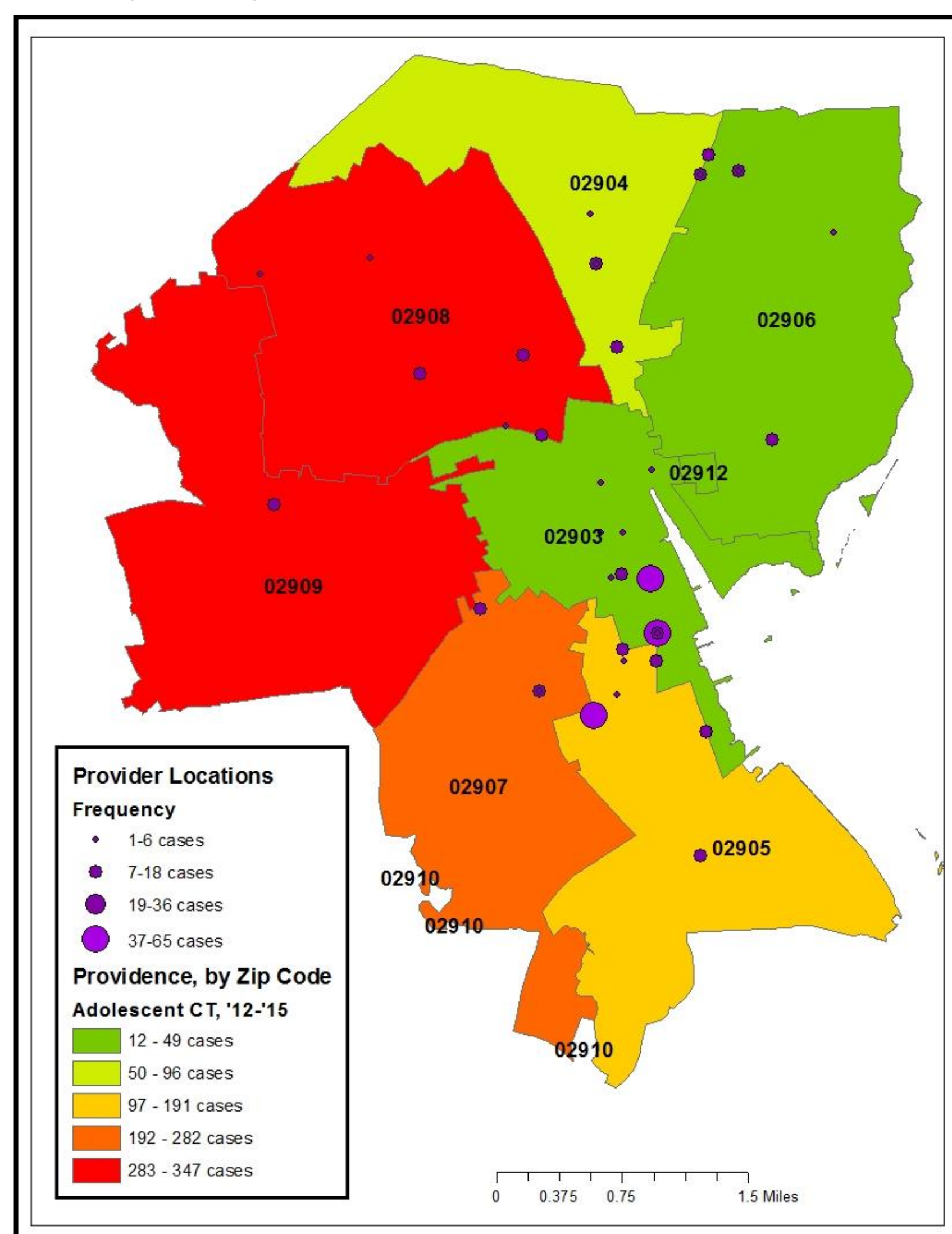


Figure 5: Adolescent Chlamydia (2012-2015) and Free Condom Dispenser Locations (2016), Rhode Island

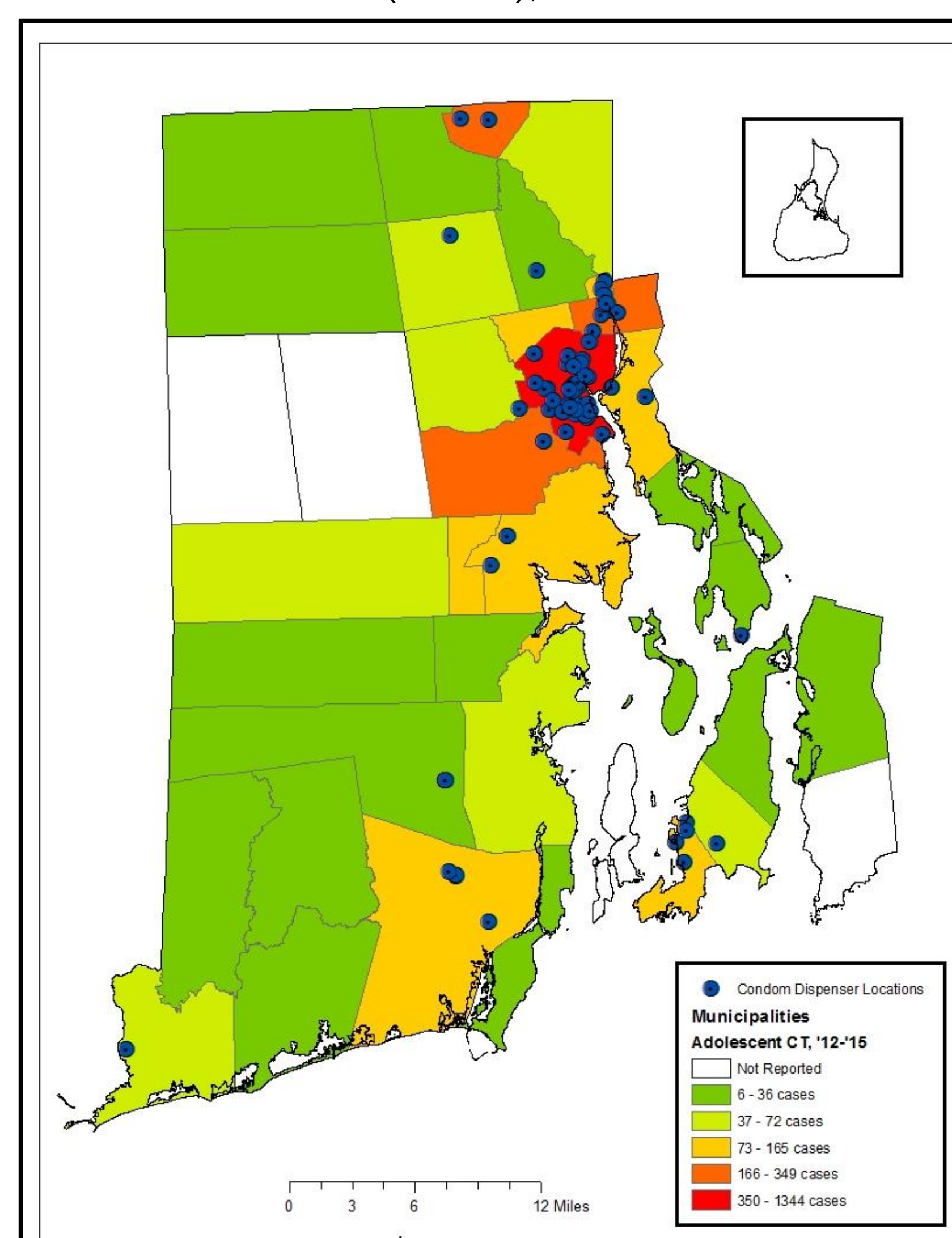
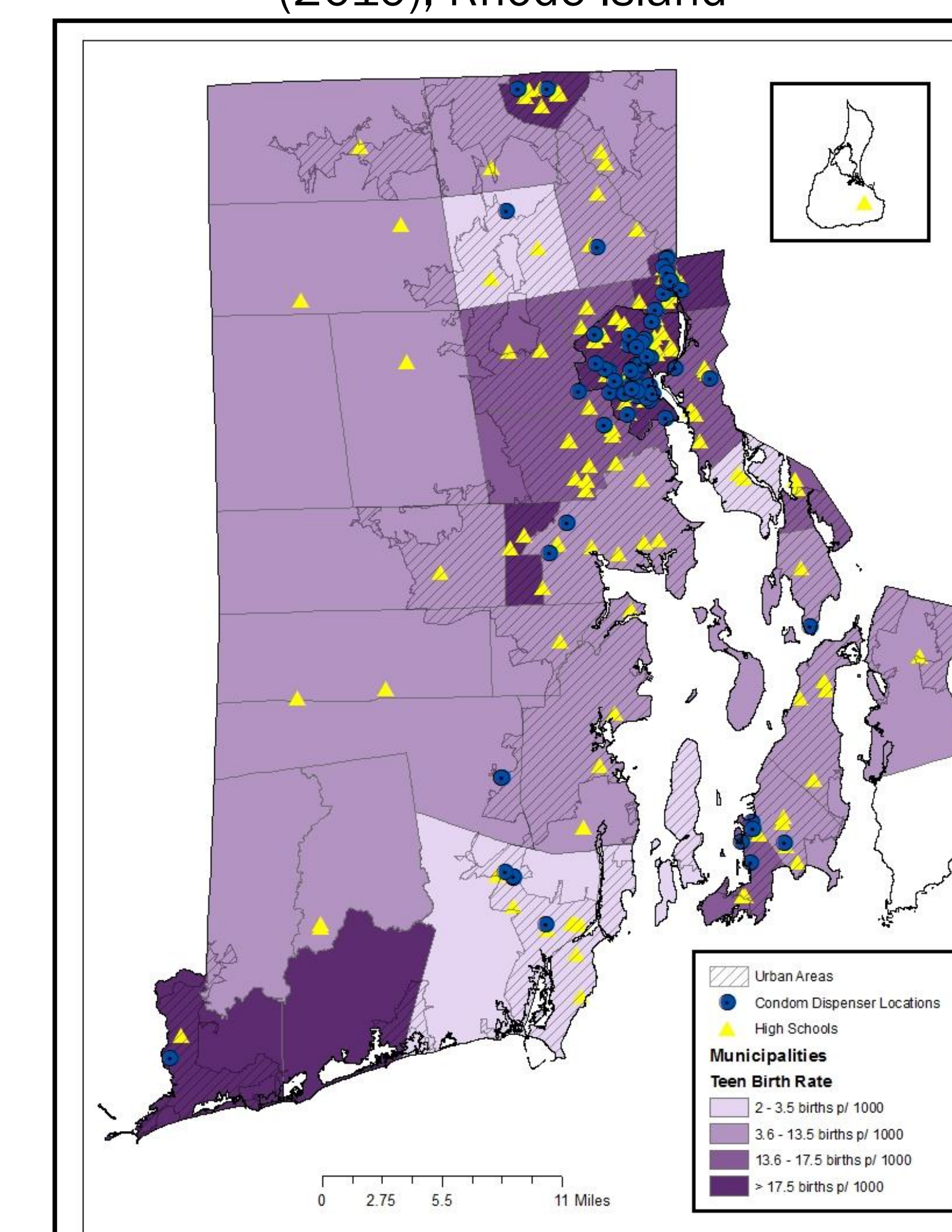


Figure 6: Teen Birth Rate (2009-2013), Free Condom Dispenser Locations (2016), High Schools (2016), and Urban Areas (2010), Rhode Island



RESULTS:

ADOLESCENT CHLAMYDIA

- In Rhode Island, Providence accounted for greater than one-third of adolescent chlamydia cases in the state from 2012-2015. (Fig. 2, 5)
- Pawtucket, Cranston, Woonsocket, Central Falls, and Warwick accounted for another one-third of adolescent chlamydia cases. (Fig. 2, 5)
- In Providence, zip codes 02908 and 02909 account for the majority of adolescent chlamydia cases. (Fig. 3, 4)

PROVIDER LOCATIONS

- In Providence, most providers who reported cases of adolescent chlamydia are located in zip codes 02903 and 02905, yet most chlamydia cases live in 02908 and 02909. (Fig. 4)

DISPENSER LOCATIONS

- Condom dispensers are spread over the eastern part of Rhode Island, and are largely concentrated in the Providence area. (Fig. 1, 5, 6)
- In Providence, dispensers are largely found downtown. (Fig. 3)
- The majority of Providence's dispenser locations are found in the 02903 and 02905 zip codes. (Fig. 3)
- In Providence, the zip codes with the most chlamydia cases have less condom dispensers compared to areas with lower counts. (Fig. 3)

SCHOOLS

- In Rhode Island, many high schools are not geographically close to a condom dispenser location. (Fig. 6)
- In Providence, Pawtucket, Central Falls, and Pawtucket, most students are within walking distance of a dispenser even though these locations may not be accessible to high schoolers. (Fig. 6)

TEEN BIRTH RATES

- Teen birth rates were highest in the urban centers and Newport, the areas with the most condom dispensers. However, birth rates were also high in places such as West Warwick and Westerly, which lack dispensers almost entirely. (Fig. 6)