Erie County Chemical Dependency Treatment Gaps and Barriers Analysis

[2023]

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Gaps and Barriers Analysis Overview

The Gaps and Barriers Analysis for Treatment Services in Erie County compares the provision of treatment services within each ZIP code area to selected risk indicators. Gaps are identified where there is a mismatch between the treatment services and risk level (e.g. no/low treatment provision & high risk). First, the distribution of treatment services was evaluated by compiling information about all certified NYS Office of Alcoholism and Substance Abuse Services (OASAS) treatment programs and their locations through the OASAS website. These data were tallied by ZIP code for each program type.

Maps were developed from these data to evaluate the spatial distribution of programs in Erie County and then to examine existing gaps in service provision against the areas of highest risk. The maps of treatment programs are broken down into five categories that correspond to none, one, a few (2 or 3), some (4 or 5) and many (more than 5). The gaps and barriers analysis for treatment programs compares the highest level of aggregated risk for ZIP codes in Erie County with the number of treatment programs. Risk Indicators Database (RIDB) measures were summed and then re-quartiled for this aggregated risk measure; the locations with the highest level of risk are those with aggregated measures that fall in the fourth quartiles of either ZIP codes in Erie County excluding City of Buffalo and ZIP codes in the City of Buffalo only.

Accessibility was measured using definitions instituted by the U.S. Department of Agriculture Economic Research Service through research on food access. In urban areas, accessibility is defined as being within 1 mile; and in rural areas, within 10 miles. Maps showing ZIP codes of highest risk were derived by creating straight line distance buffers around the geocoded locations of OASAS treatment program locations for both Erie County excluding Buffalo and the City of Buffalo only. These locations included programs from neighboring counties if they were within 10 miles of the Erie County border.

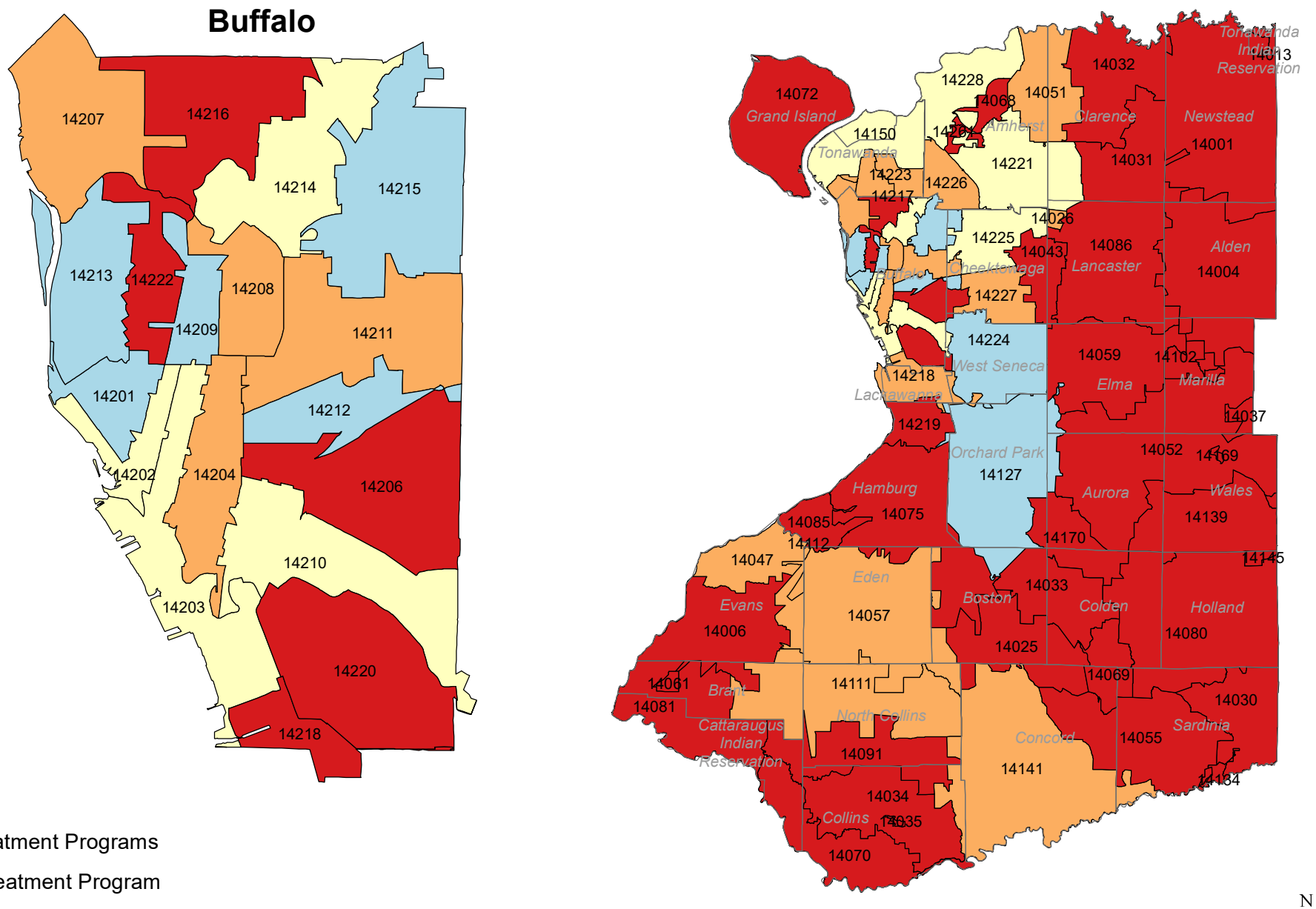
Gaps and Barriers Analysis Results

- Descriptive Maps of Treatment Program Locations
    - Many ZIP codes in Erie County do not contain any type of treatment program, particularly in the rural eastern and southwestern portions of the county. However, the City of Buffalo and first ring suburbs have a substantial allocation of programming, with a majority having at least one program.
    - Crisis and inpatient programs are found primarily within the City of Buffalo while opioid programs are within the City of Buffalo and two suburban locations (Orchard Park and Amherst).
    - Outpatient programs are the most prevalent type of program in the county, though coverage is still lacking in the eastern and southwestern portions of the county. There is intermittent coverage in the city, with programs primarily available in the West Side, parts of the East Side and South Buffalo. Overall, first ring suburbs have alignment of programs, but there are notable locations that lack any programs including Lancaster and Hamburg.
    - Residential programs are generally concentrated in the city, but programs are also available in West Seneca and Eden.
- Maps of Highest Risk Locations with Treatment Programs
    - Erie County Excluding City of Buffalo

        - There has been improvement in alignment of outpatient treatment programs to the highest risk areas. Most of the current highest risk areas have some type of treatment program available except for 14219 and 14075 in the Hamburg area, 14068 in Amherst and 14043 in Depew.
        - Few of the highest risk ZIP codes in Erie County, excluding the City of Buffalo have crisis, inpatient, methadone, or residential programs, though the majority have access to outpatient programs.
    - City of Buffalo Only
        - Overall, some ZIP codes with highest levels of aggregate risk have alignment with all program types with 14203, 14211 and 14215 having at least one program. However, ZIP code 14206 on the East Side has no programs within its boundaries.
        - The availability of crisis, inpatient and opioid treatment programs are limited within the highest risk ZIP codes in the City. Opioid programs are notably not aligned to any of the identified highest risk ZIP codes within the City of Buffalo.
- Accessibility Maps
    - Erie County Excluding City of Buffalo
        - Overall accessibility in Erie County based on all treatment programs and types is well aligned to areas of highest risk.
        - Outpatient treatment programs are well aligned to the highest risk ZIP codes as well as nearly all areas of the county.
        - Access to opioid, inpatient, and crisis program types are concentrated around the City of Buffalo and the surrounding Northtowns. Opioid programs exhibit better alignment to the highest risk areas when compared to inpatient and crisis programs, with better access in ZIP codes 14075 and 14127 in Hamburg and Orchard Park.
    - City of Buffalo Only
        - Overall accessibility in Buffalo for all program types is well aligned to areas of highest risk. Only limited portions of ZIP code 14203, 14206, 14211, and 14215 are lacking access within one mile.
        - The most prevalent program type in Buffalo is outpatient, with areas lacking access within one mile being similar to accessibility for all program types.
        - Inpatient, crisis and opioid program access is limited for nearly all areas of the highest risk ZIP codes.
        - Residential programs are aligned to portions of highest risk ZIP codes on the East Side, however substantial portions of ZIP codes 14203, 14206, 14211 and 14215 lack access within one mile.
- Change in Accessibility Maps (2021 to 2023)
    - Erie County Excluding City of Buffalo
        - Overall accessibility in Erie County has stayed very similar between these time periods, covering nearly all of the county area outside of the City of Buffalo.
        - Similarly, nearly all of Erie County has accessibility to outpatient treatment with limited change since 2021.
        - Crisis program access has stayed the same in the county since 2021.

        - Inpatient program access has increased slightly on Grand Island since 2021. However, program access for this type has decreased in two areas of highest risk: Hamburg (14075) and Orchard Park (14217). Additionally, this decrease in access has impacted areas of Elma, Aurora, Lancaster, Marilla, Alden and Clarence.
        - Opioid program access has stayed the same in the county since 2021.
        - Most of the county continues to have access to residential treatment programs with limited change in the coverage since 2021.
    - City of Buffalo Only
        - Overall accessibility in the City of Buffalo has seen areas of increase since 2021, notably in 14207 and 14213 as well as 14211. However, small areas of 14216, 14210, and 14206 have lost access.
        - Outpatient programs show similar coverage in 2023 as they had in 2021 with similar changes to the overall accessibility.
        - Inpatient programs increased access since 2021, with added access for the West Side.
        - Access to crisis and opioid program remains the same as in 2021.
        - Residential program access remains the same as in 2021.

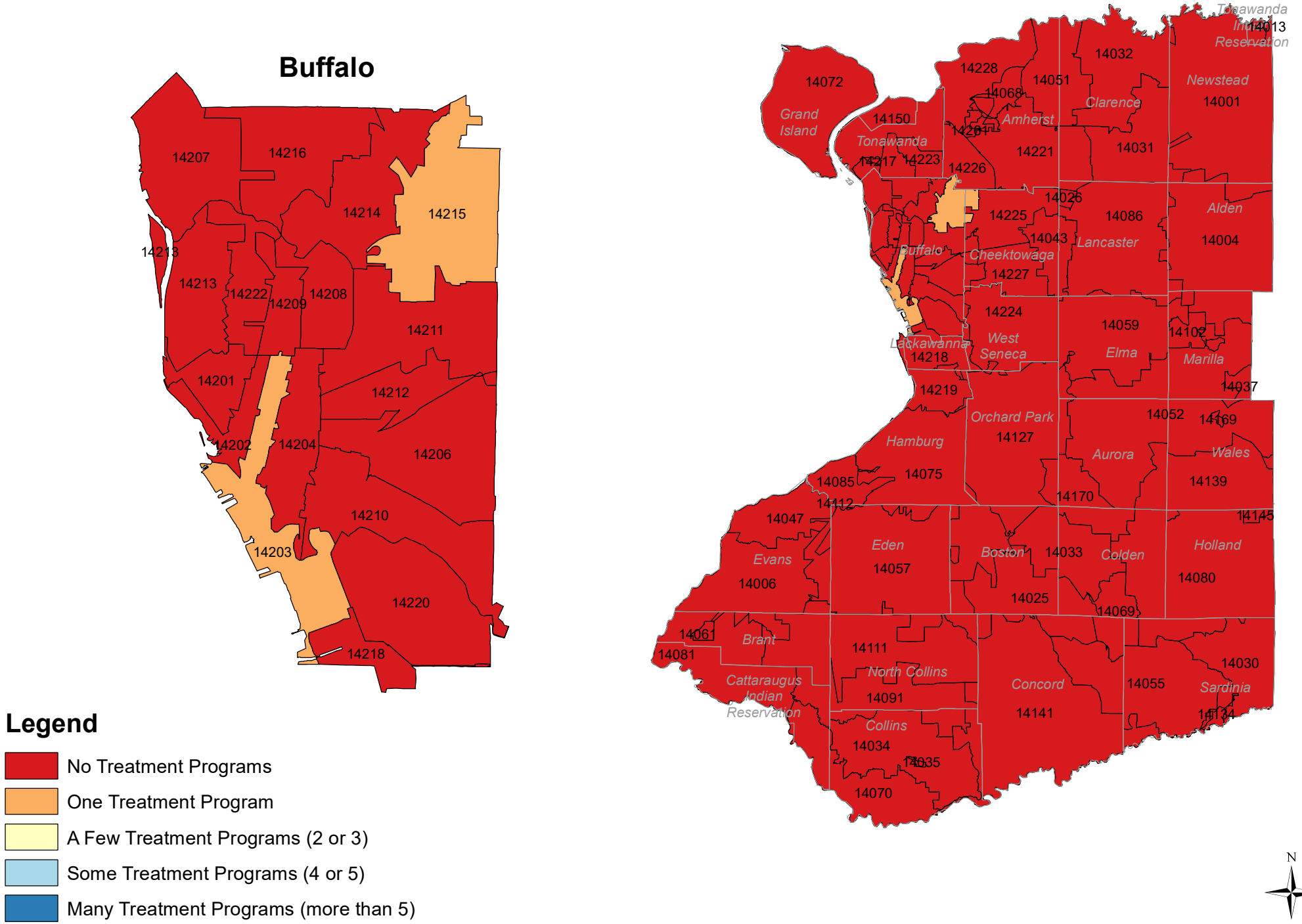
Erie County Chemical Dependency Treatment Programs: All Programs and Types



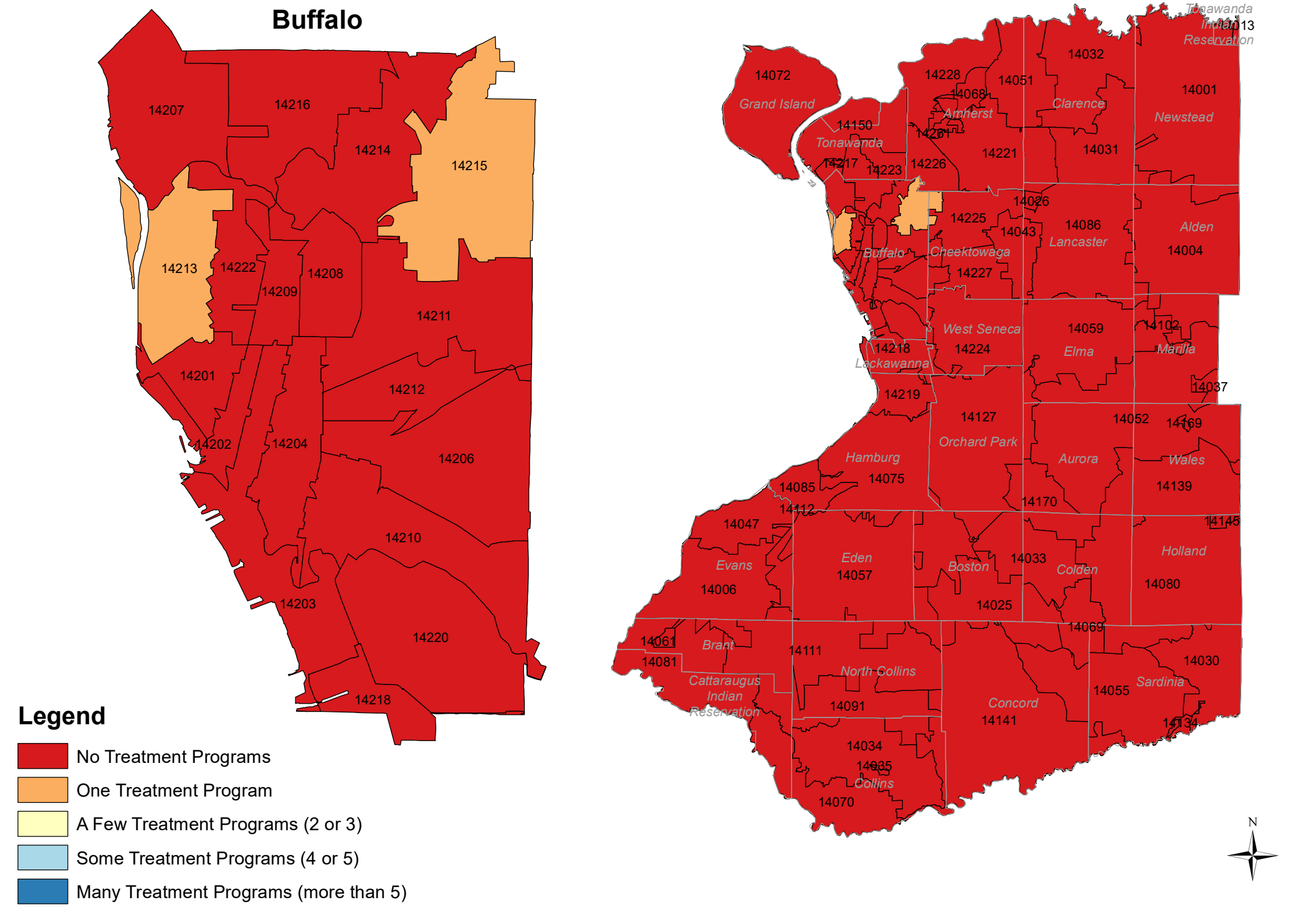
Legend

- No Treatment Programs
- One Treatment Program
- A Few Treatment Programs (2 or 3)
- Some Treatment Programs (4 or 5)
- Many Treatment Programs (more than 5)

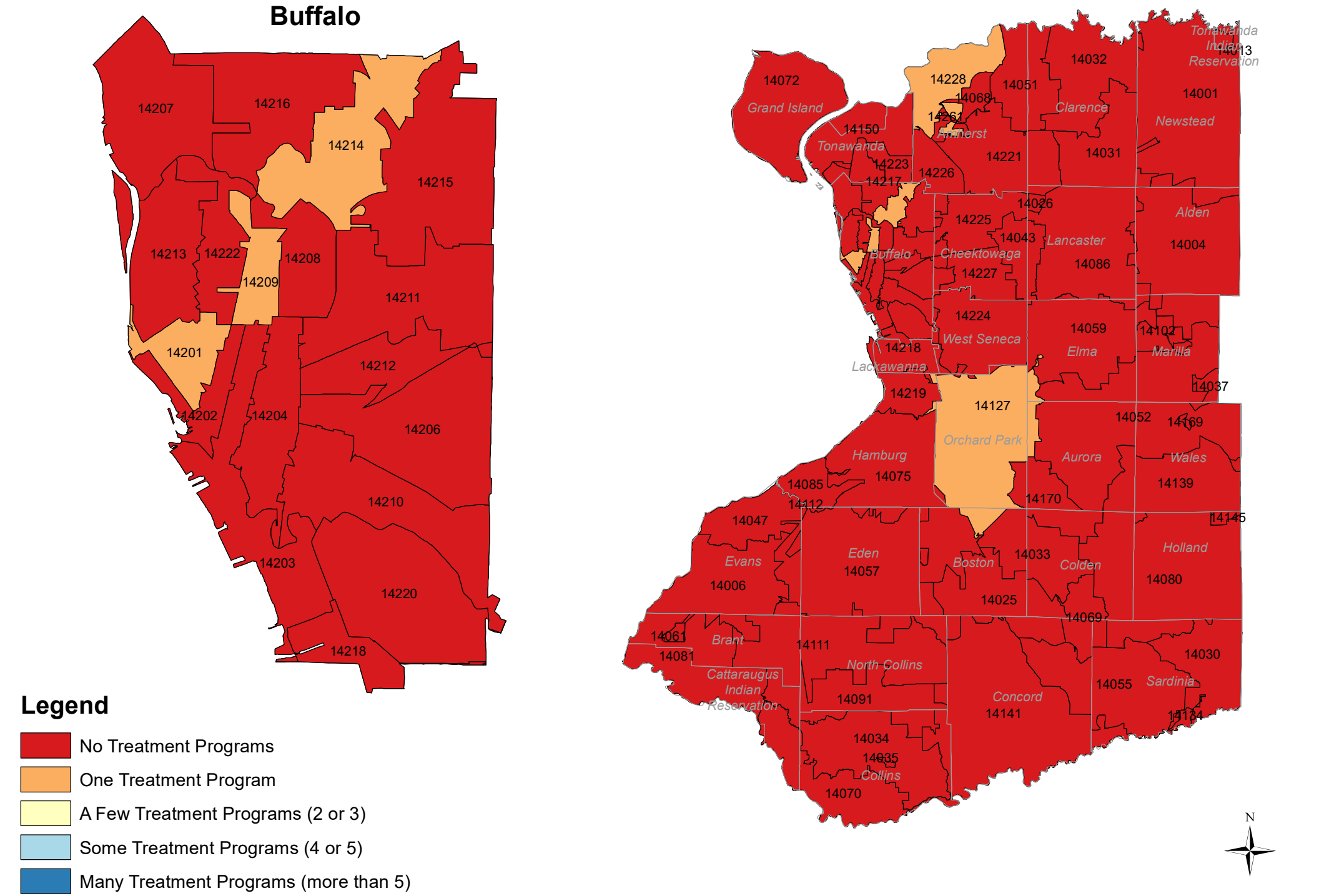
Erie County Chemical Dependency Treatment Programs: Crisis Programs



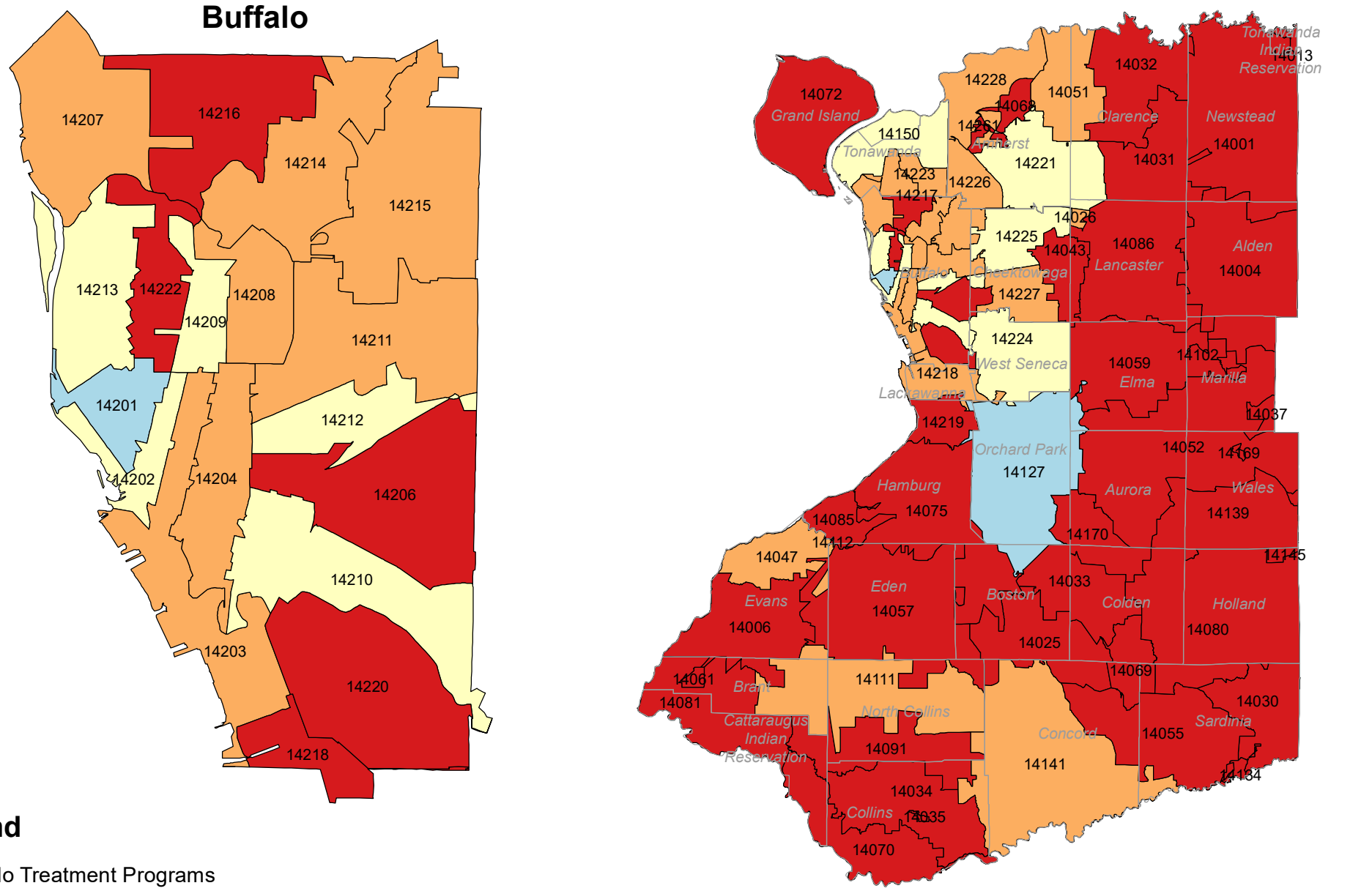
Erie County Chemical Dependency Treatment Programs: Inpatient Programs



Erie County Chemical Dependency Treatment Programs: Opioid Programs



Erie County Chemical Dependency Treatment Programs: Outpatient Programs

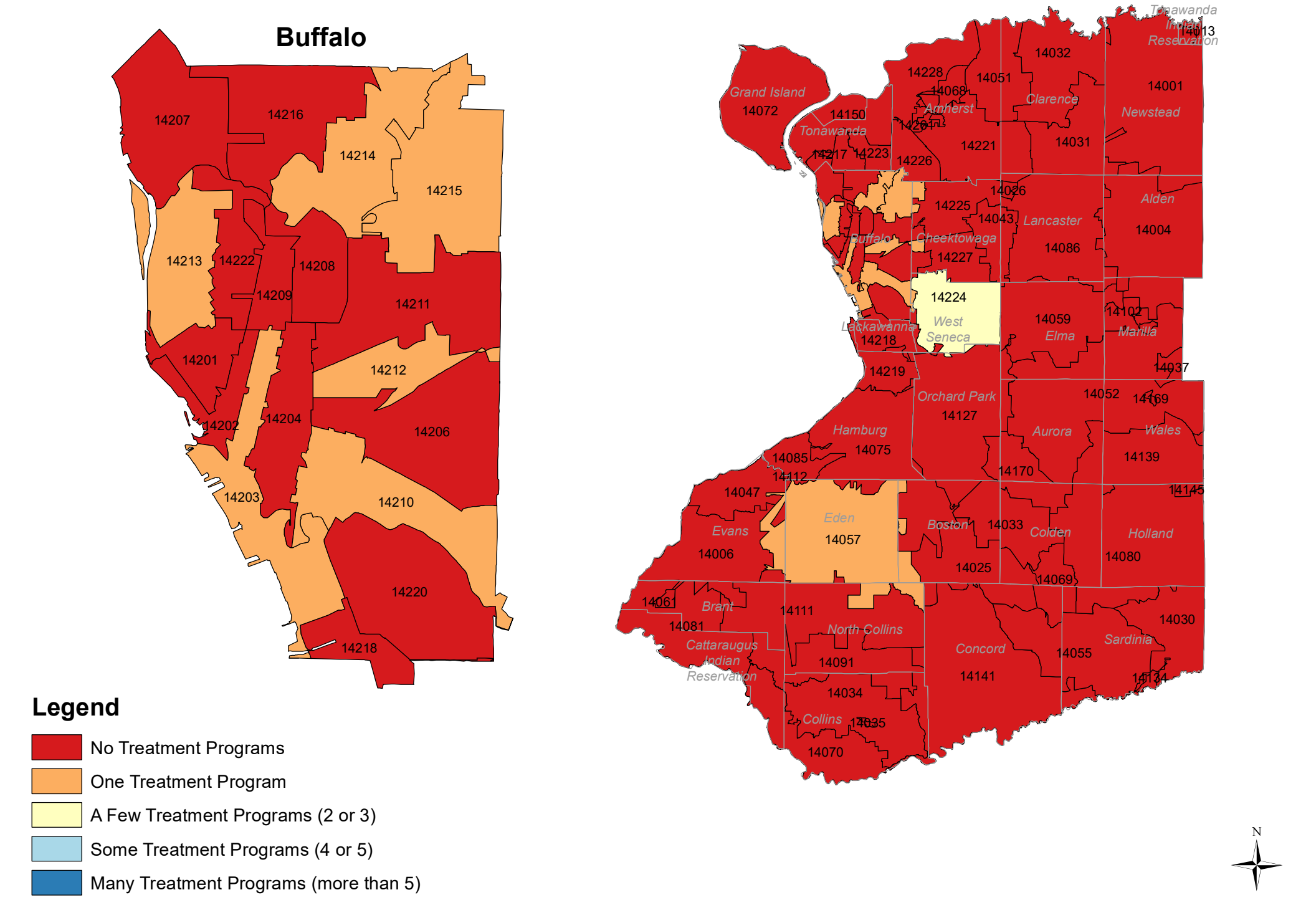


Legend

- No Treatment Programs
- One Treatment Program
- A Few Treatment Programs (2 or 3)
- Some Treatment Programs (4 or 5)
- Many Treatment Programs (more than 5)

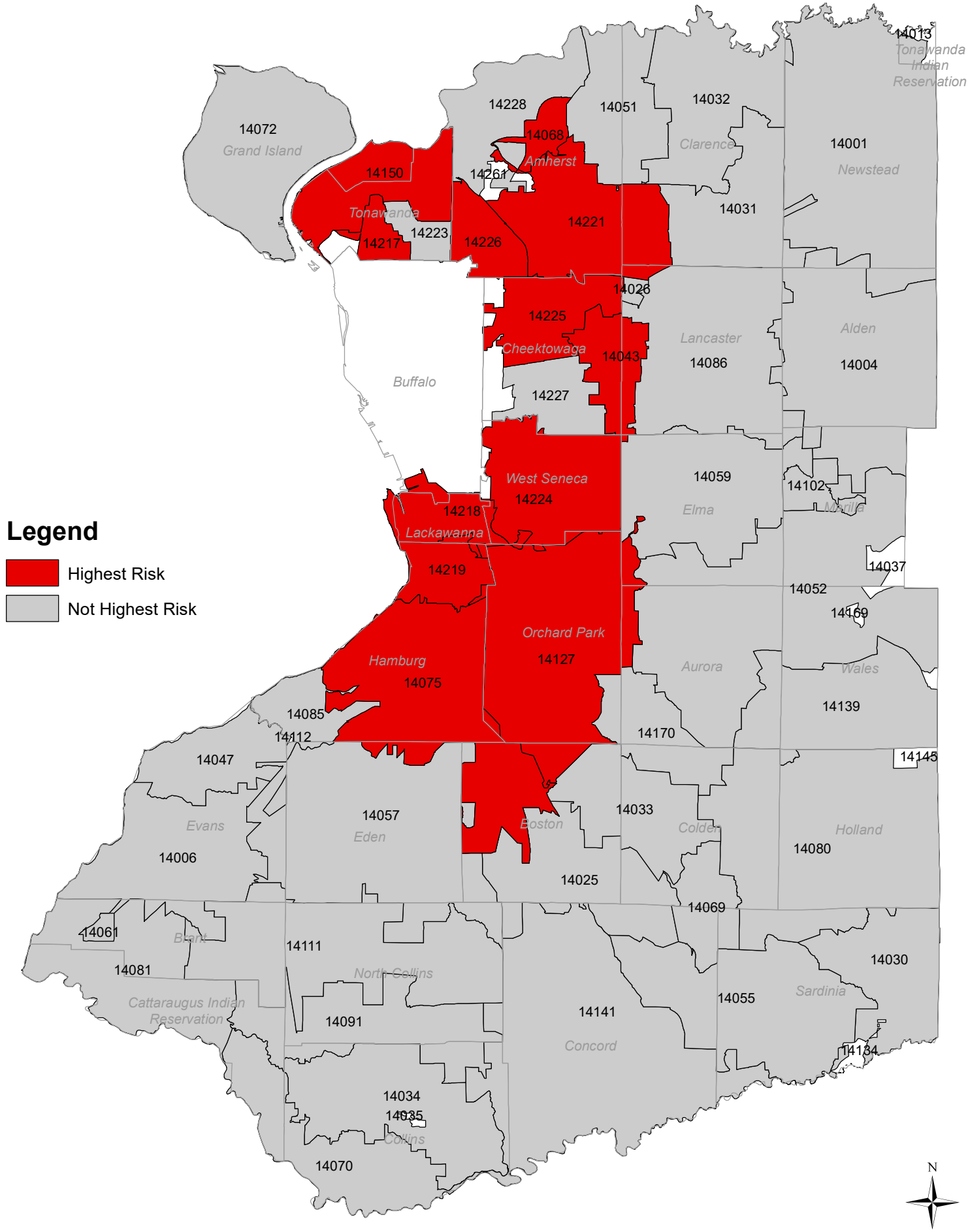
N

Erie County Chemical Dependency Treatment Programs: Residential Programs



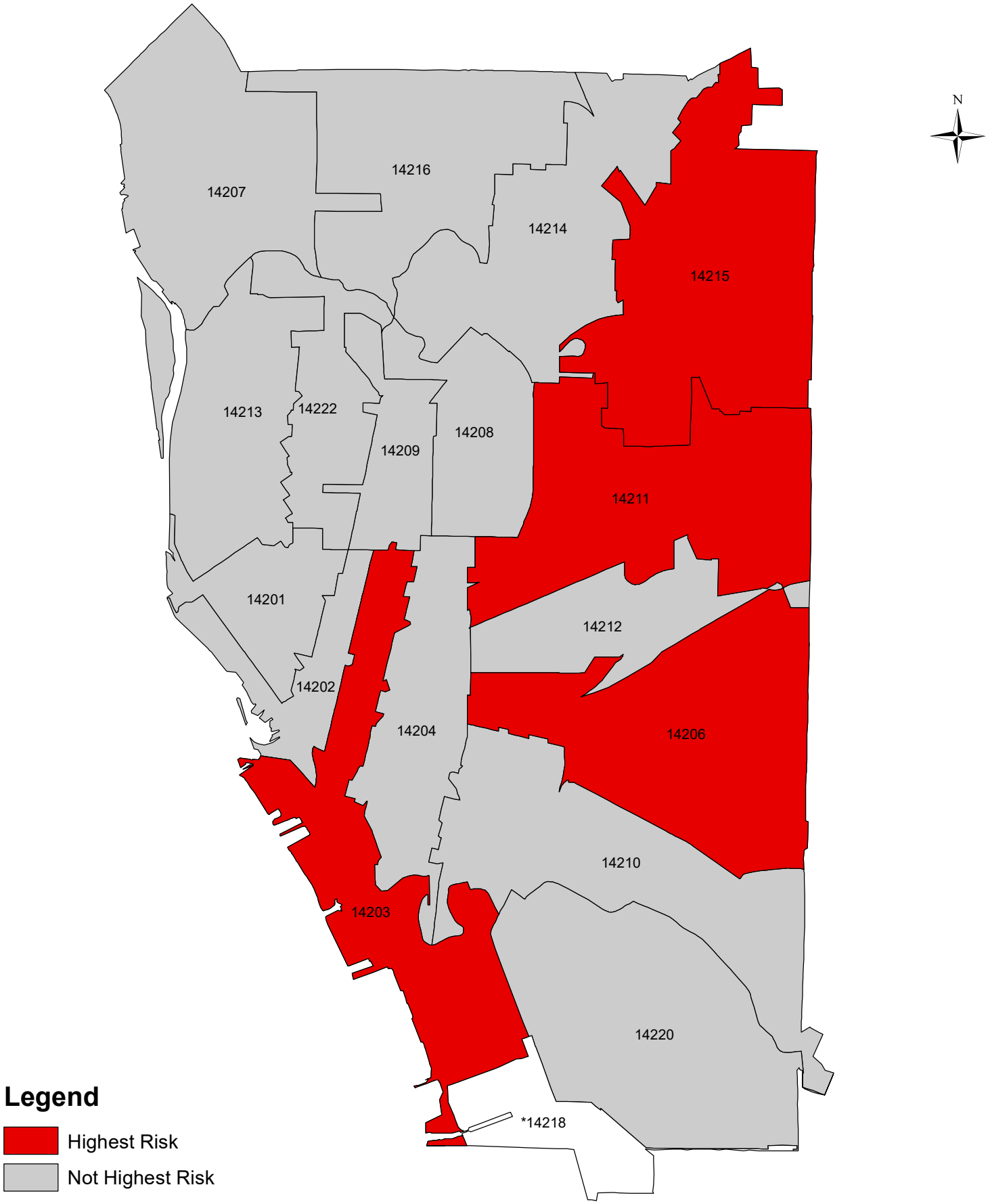
ZIP Codes with Highest Level of Aggregated Risk

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



ZIP Codes with Highest Level of Aggregated Risk

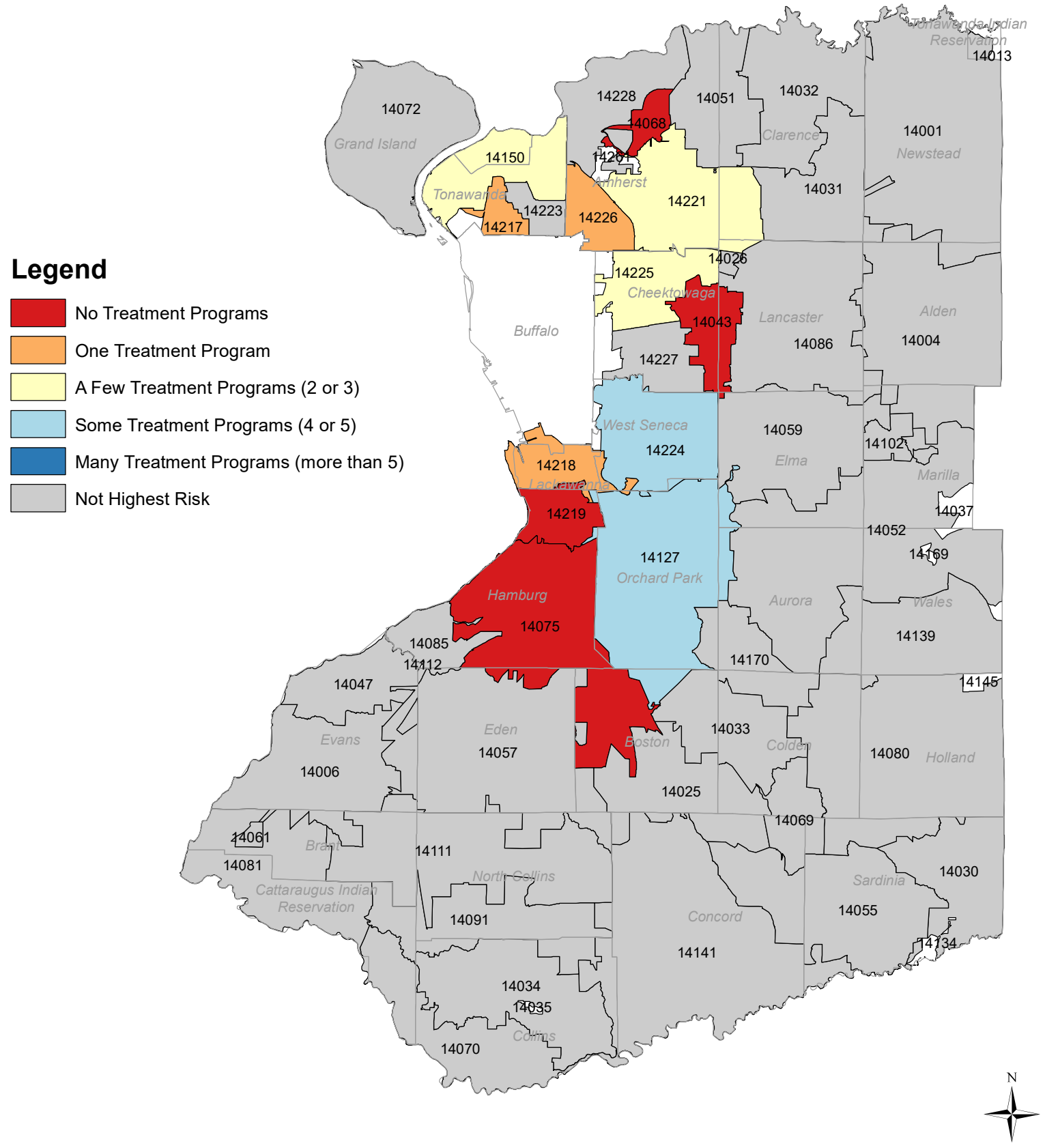
[City of Buffalo Only]



*The majority of Zip Code 14218 is outside the City of Buffalo

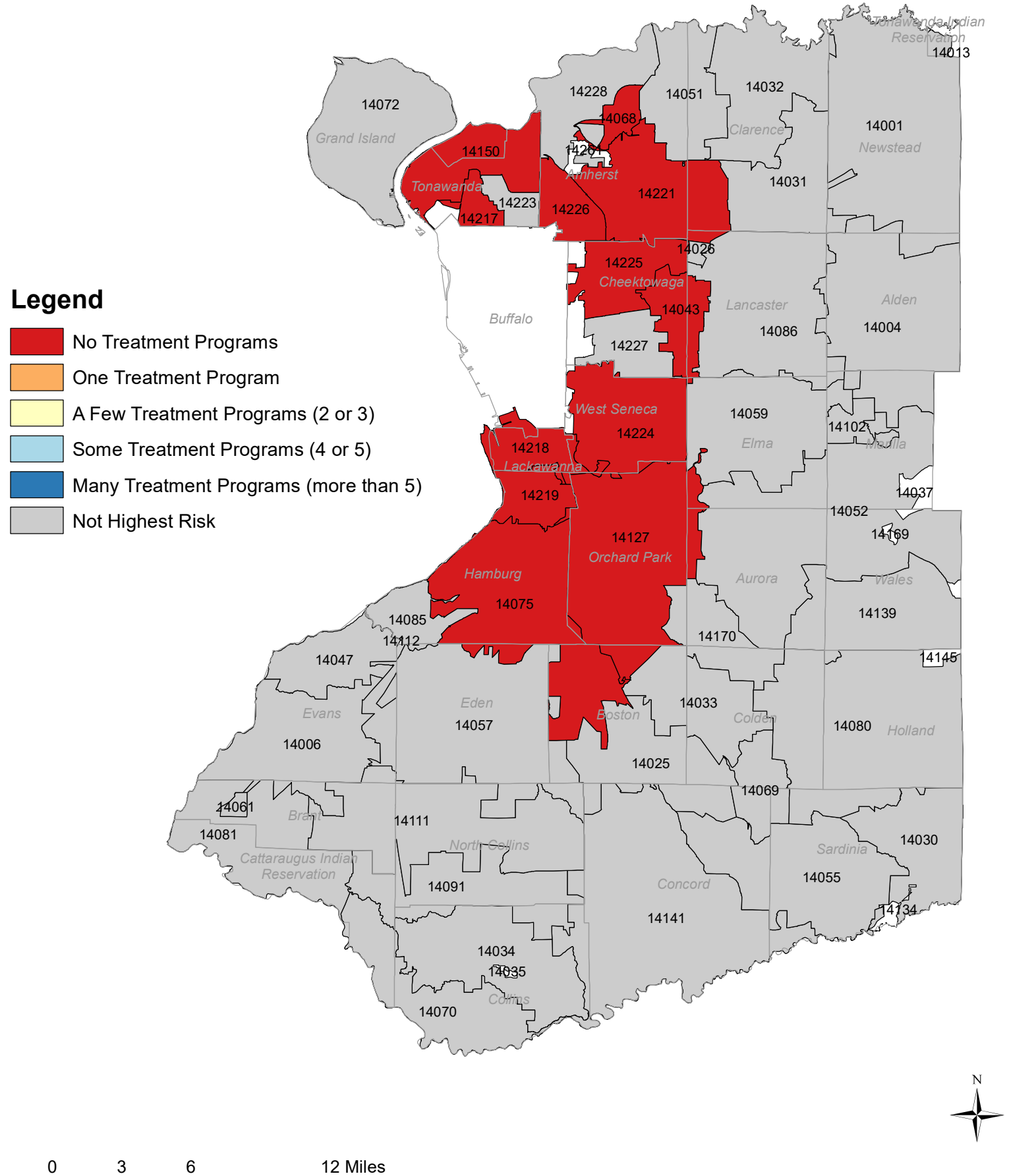
ZIP Codes with Highest Level of Aggregated Risk by Number of Chemical Dependency Programs

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



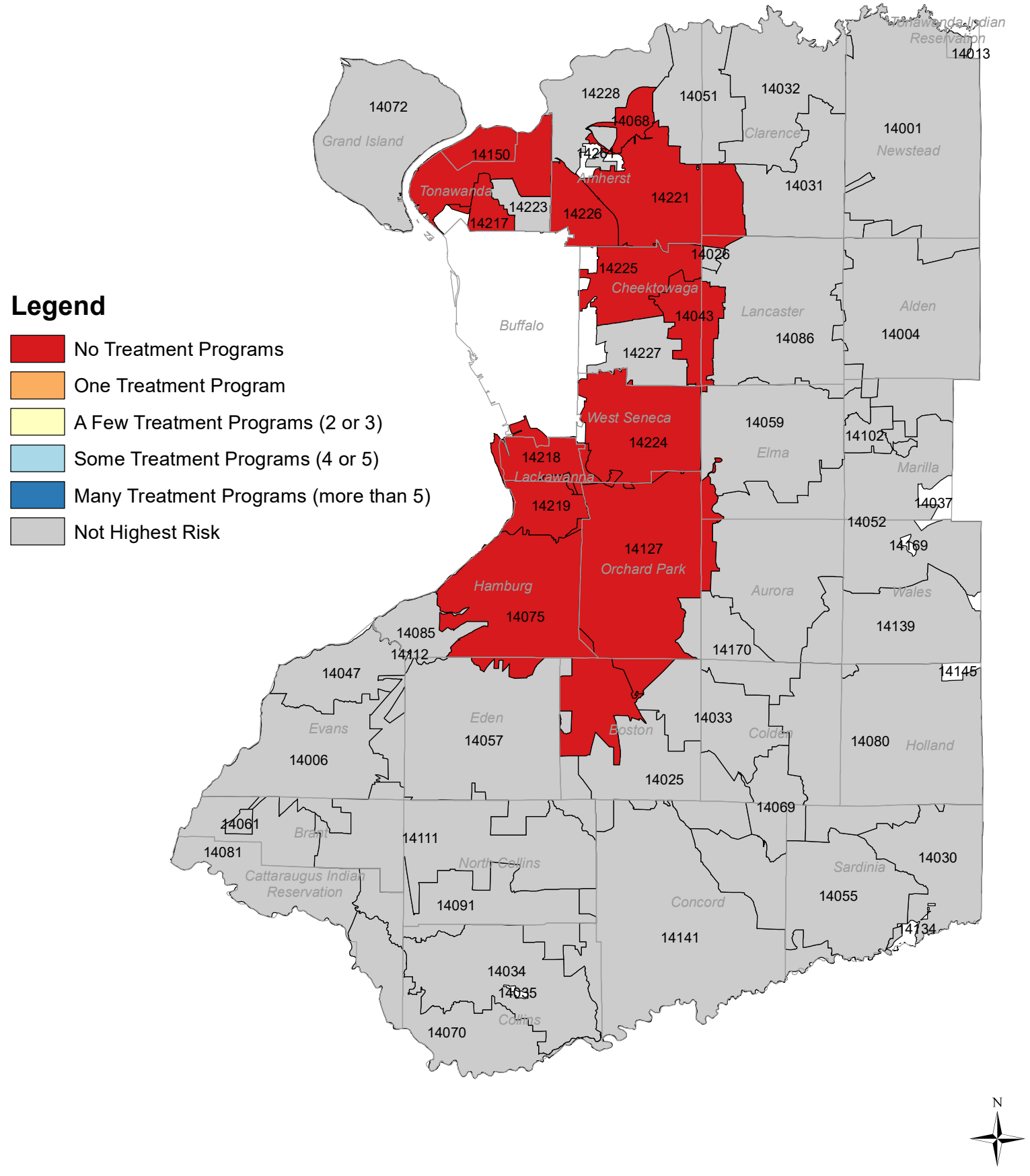
ZIP Codes with Highest Level of Aggregated Risk by Number of Crisis Programs

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



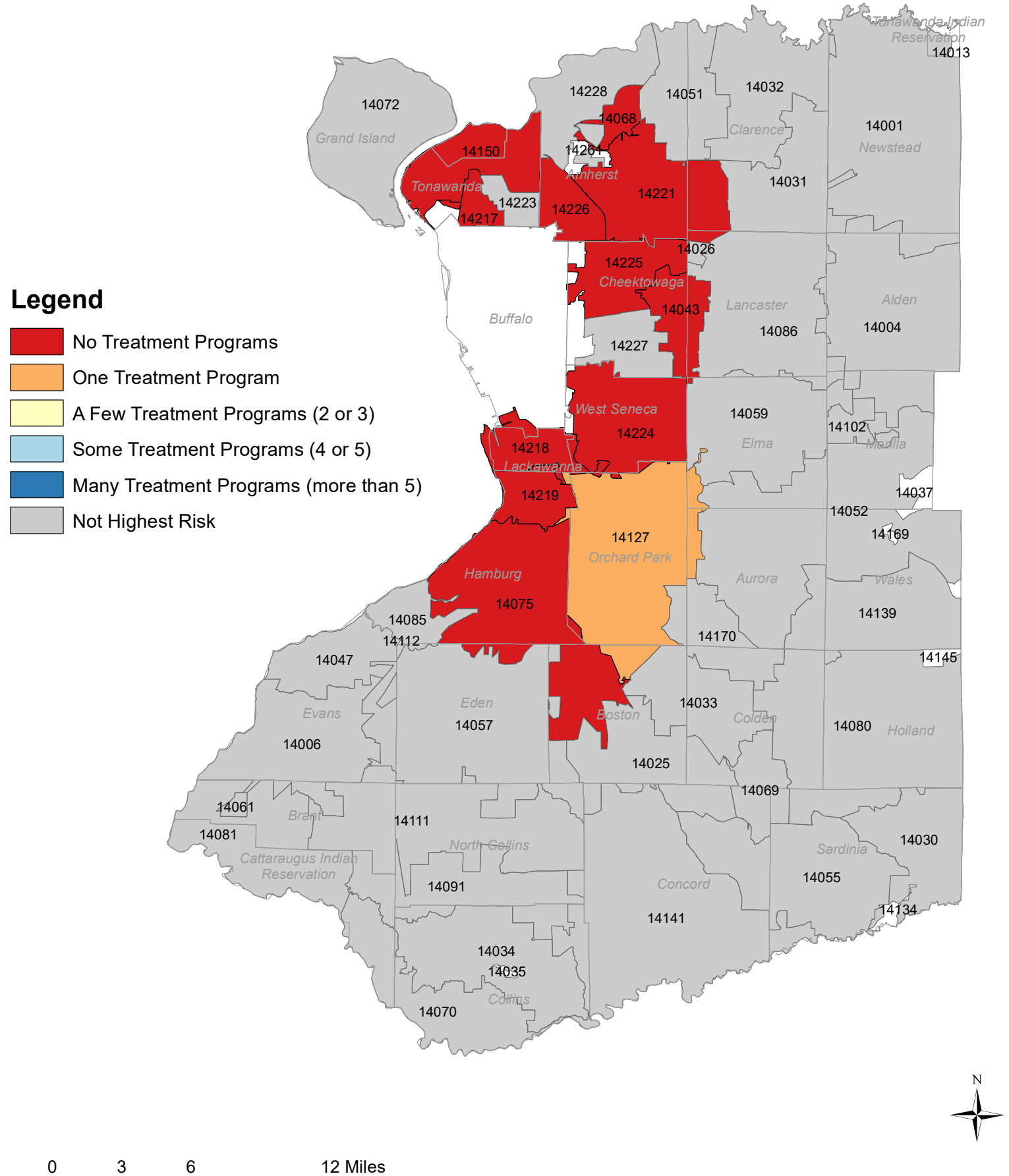
ZIP Codes with Highest Level of Aggregated Risk by Number of Inpatient Programs

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



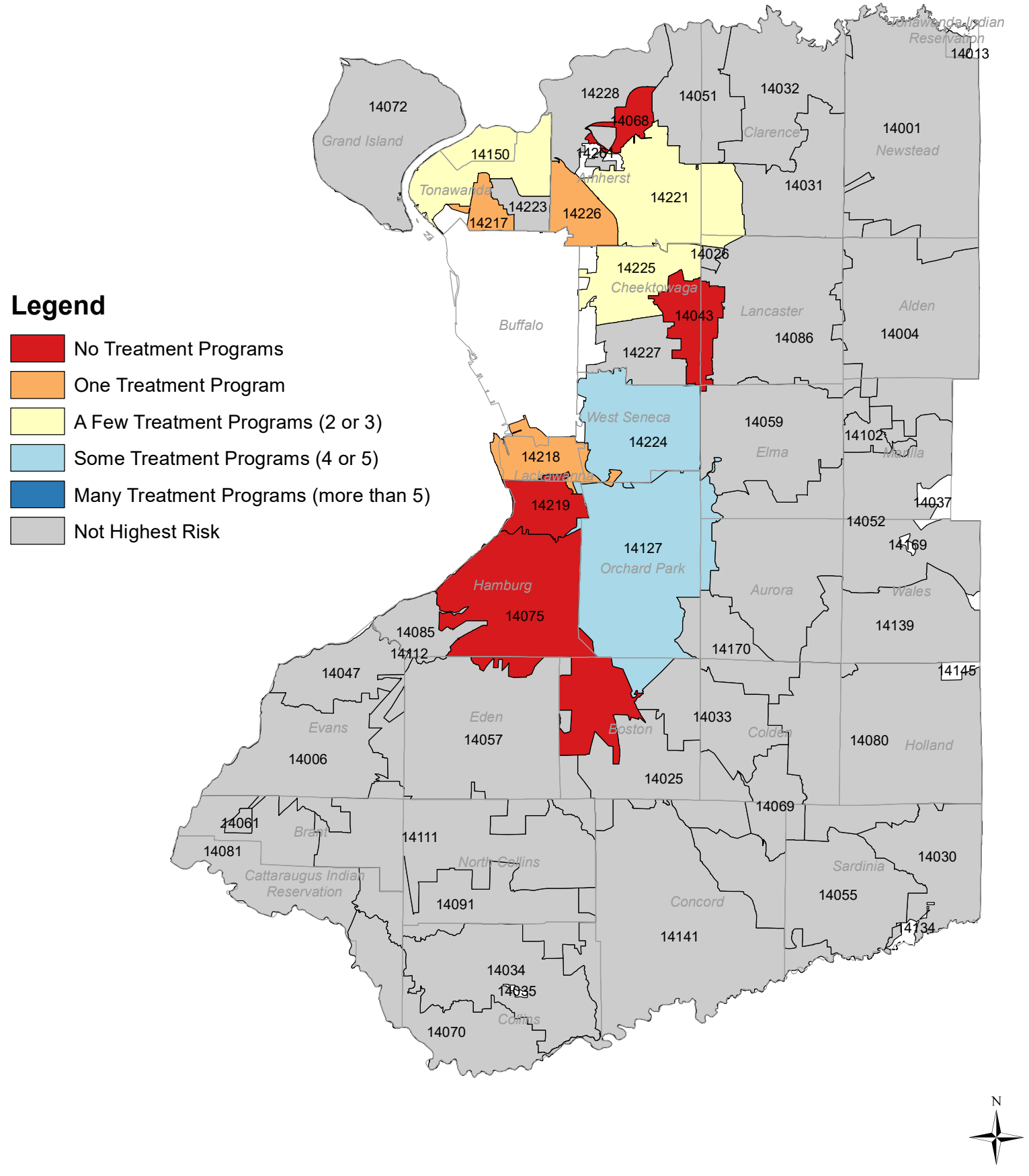
ZIP Codes with Highest Level of Aggregated Risk by Number of Opioid Programs

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



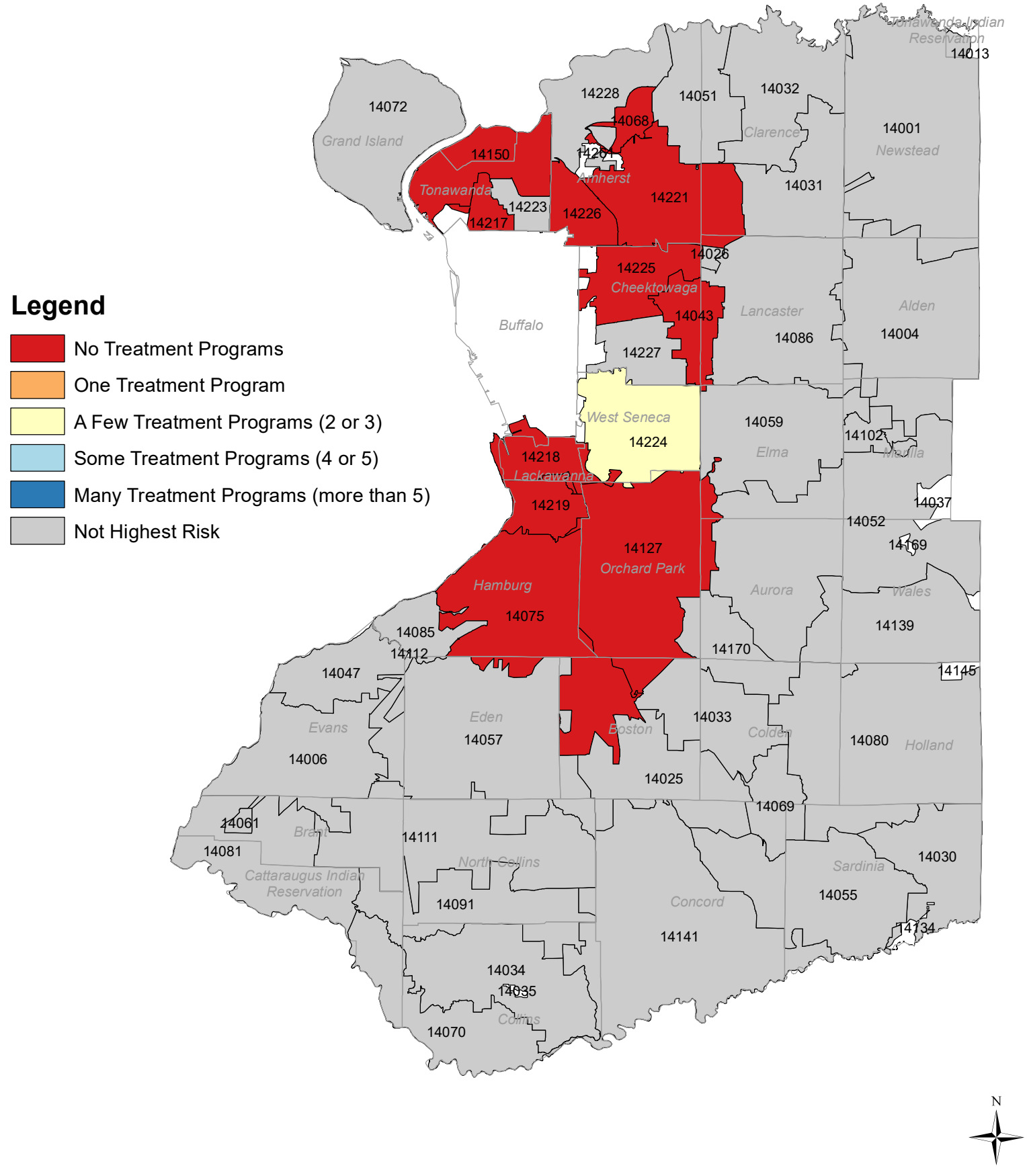
ZIP Codes with Highest Level of Aggregated Risk by Number of Outpatient Programs

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



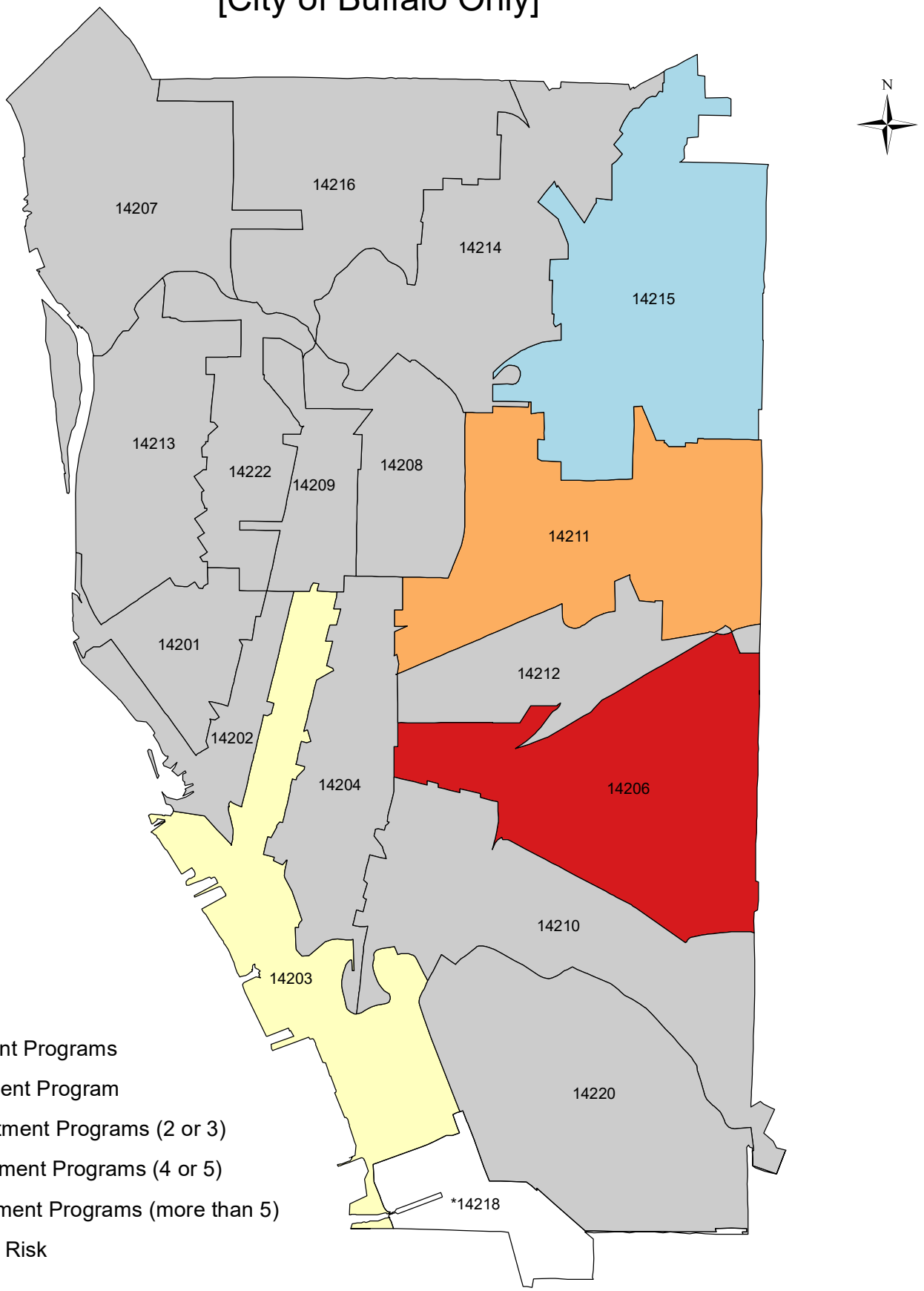
ZIP Codes with Highest Level of Aggregated Risk by Number of Residential Programs

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



ZIP Codes with Highest Level of Aggregated Risk by Number of Chemical Dependency Programs

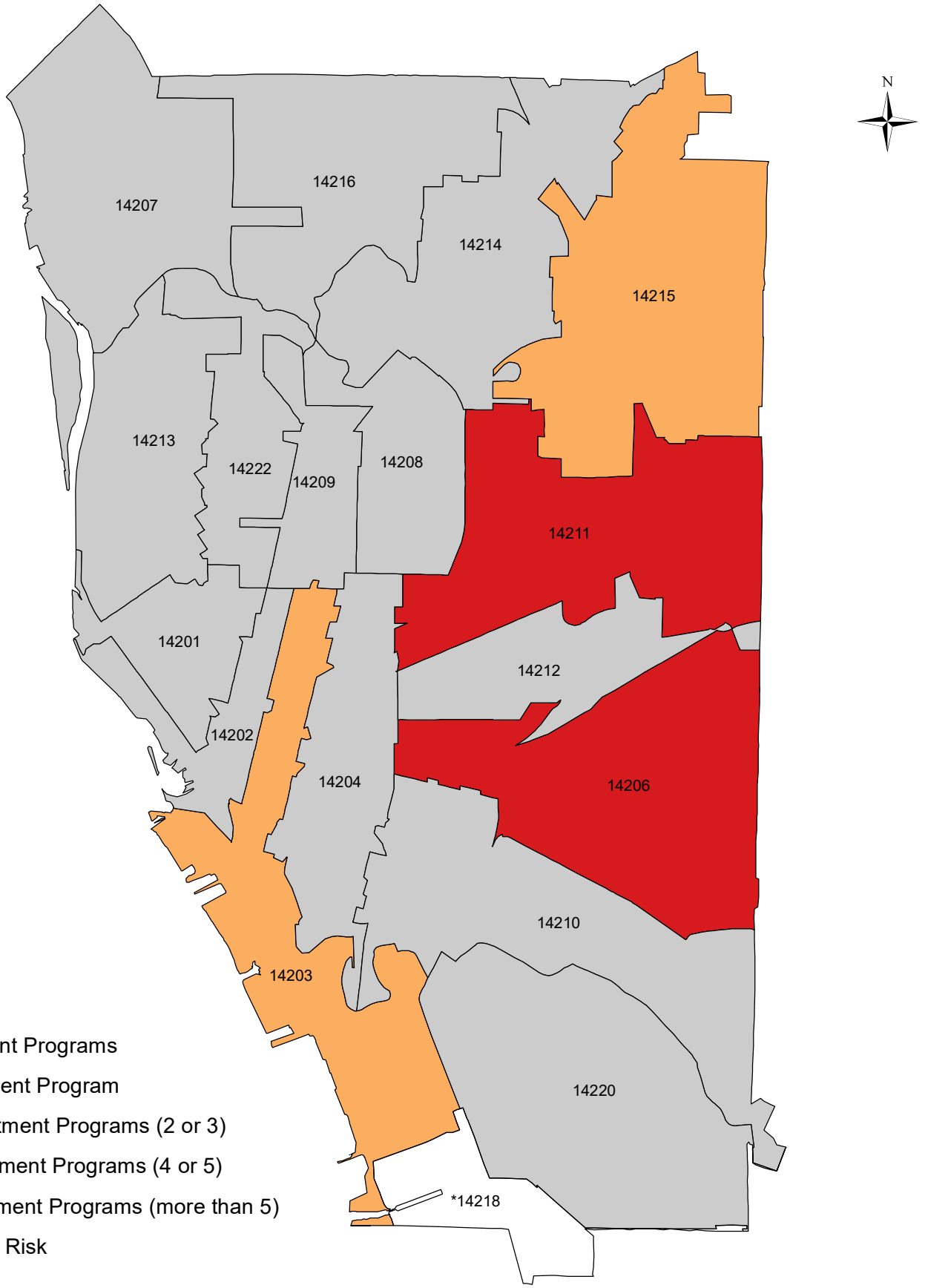
[City of Buffalo Only]



*The majority of ZIP Code 14218 is outside the City of Buffalo

ZIP Codes with Highest Level of Aggregated Risk by Number of Crisis Programs

[City of Buffalo Only]



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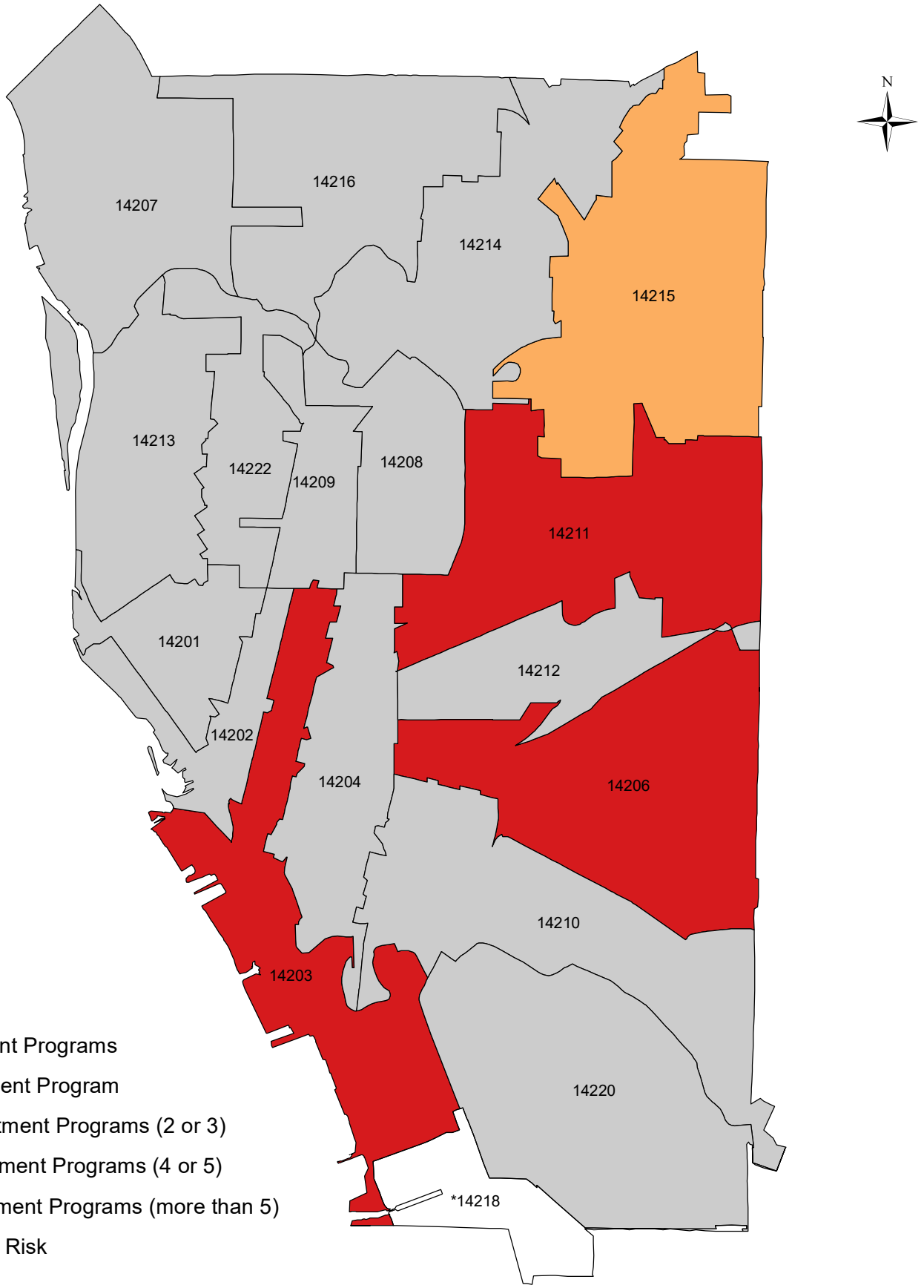
ZIP Codes with Highest Level of Aggregated Risk by Number of Inpatient Programs

[City of Buffalo Only]



Legend

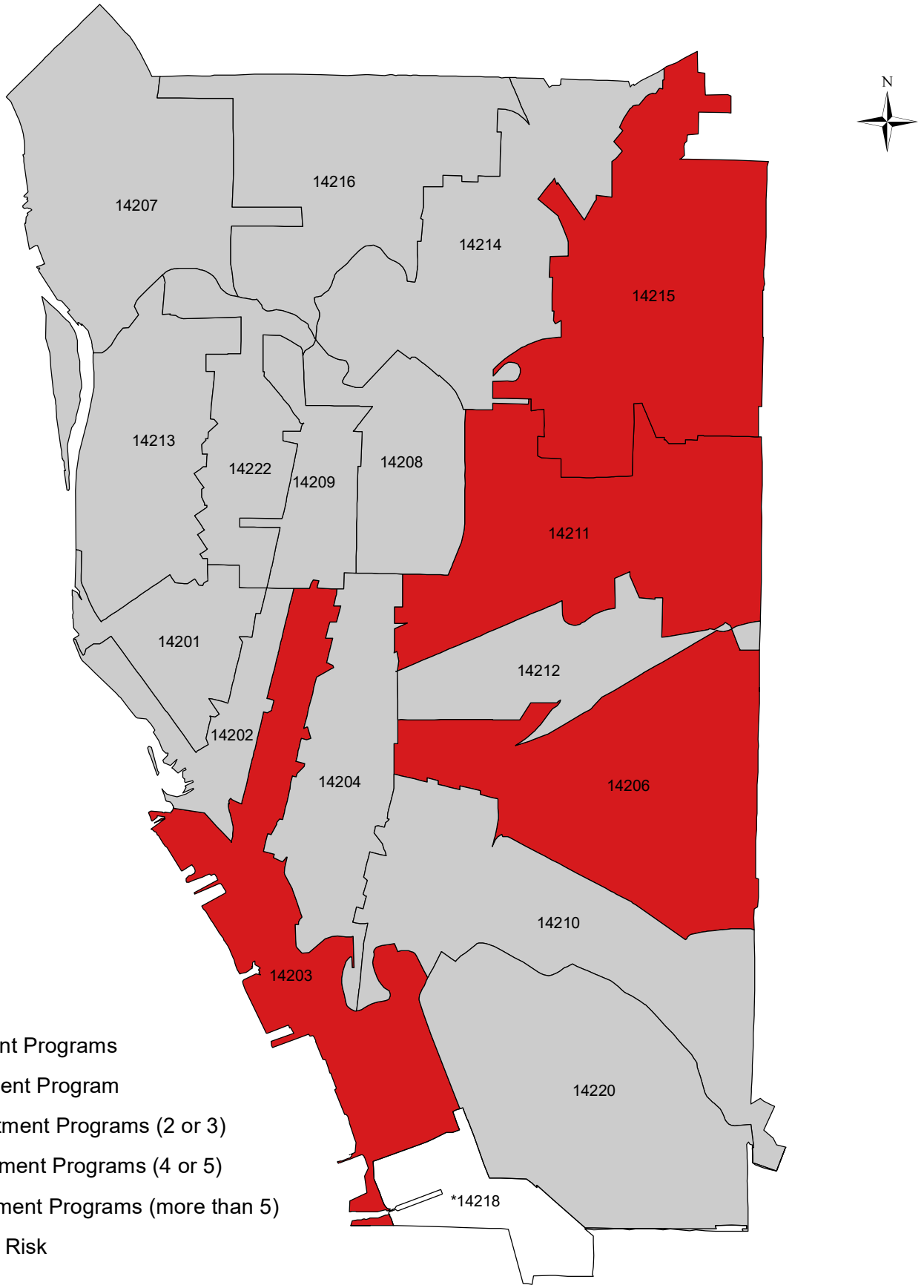
- No Treatment Programs
- One Treatment Program
- A Few Treatment Programs (2 or 3)
- Some Treatment Programs (4 or 5)
- Many Treatment Programs (more than 5)
- Not Highest Risk

0 0.5 1 2 Miles

*The majority of ZIP Code 14218 is outside the City of Buffalo

ZIP Codes with Highest Level of Aggregated Risk by Number of Opioid Programs

[City of Buffalo Only]



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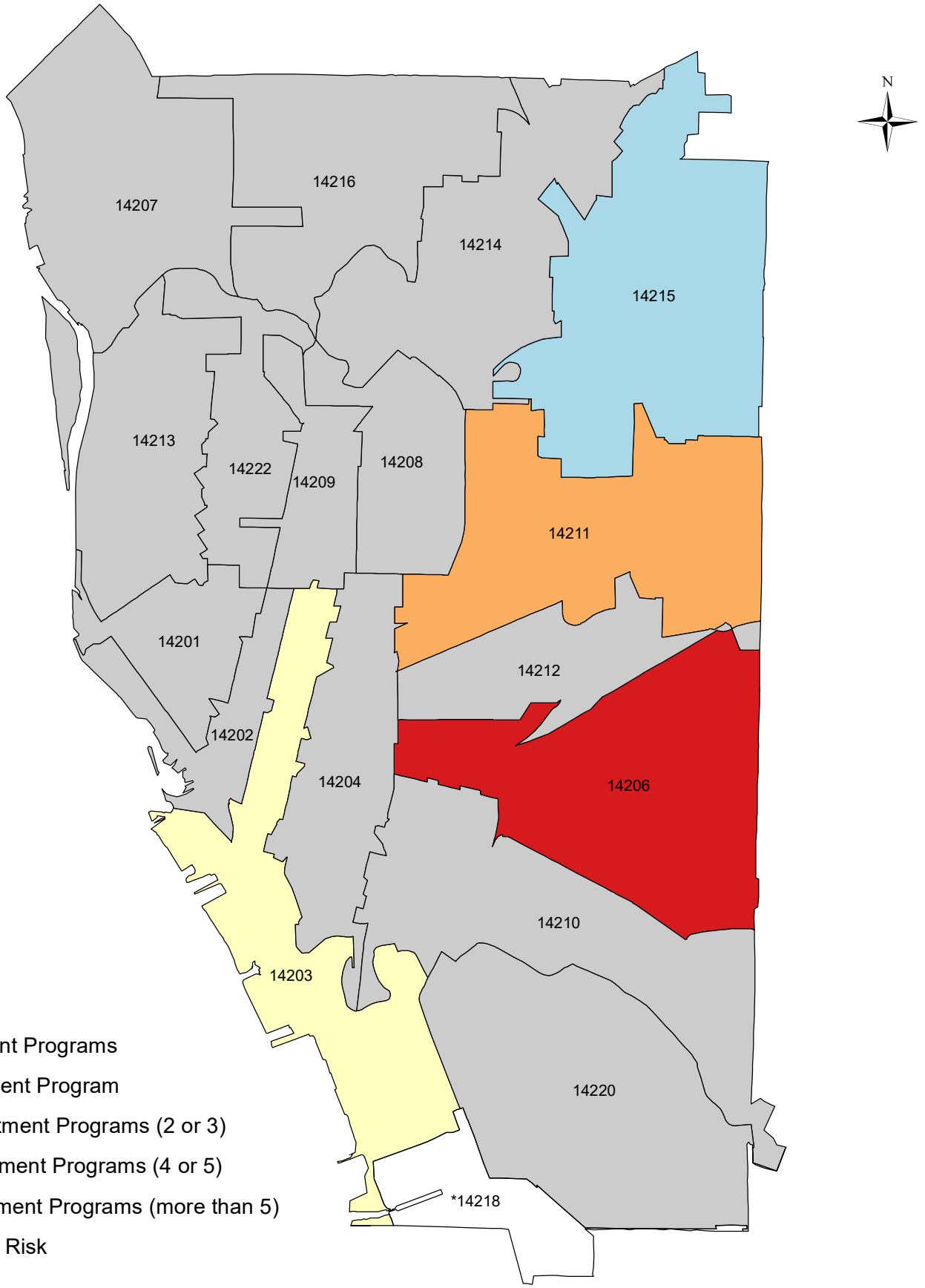
ZIP Codes with Highest Level of Aggregated Risk by Number of Outpatient Programs

[City of Buffalo Only]



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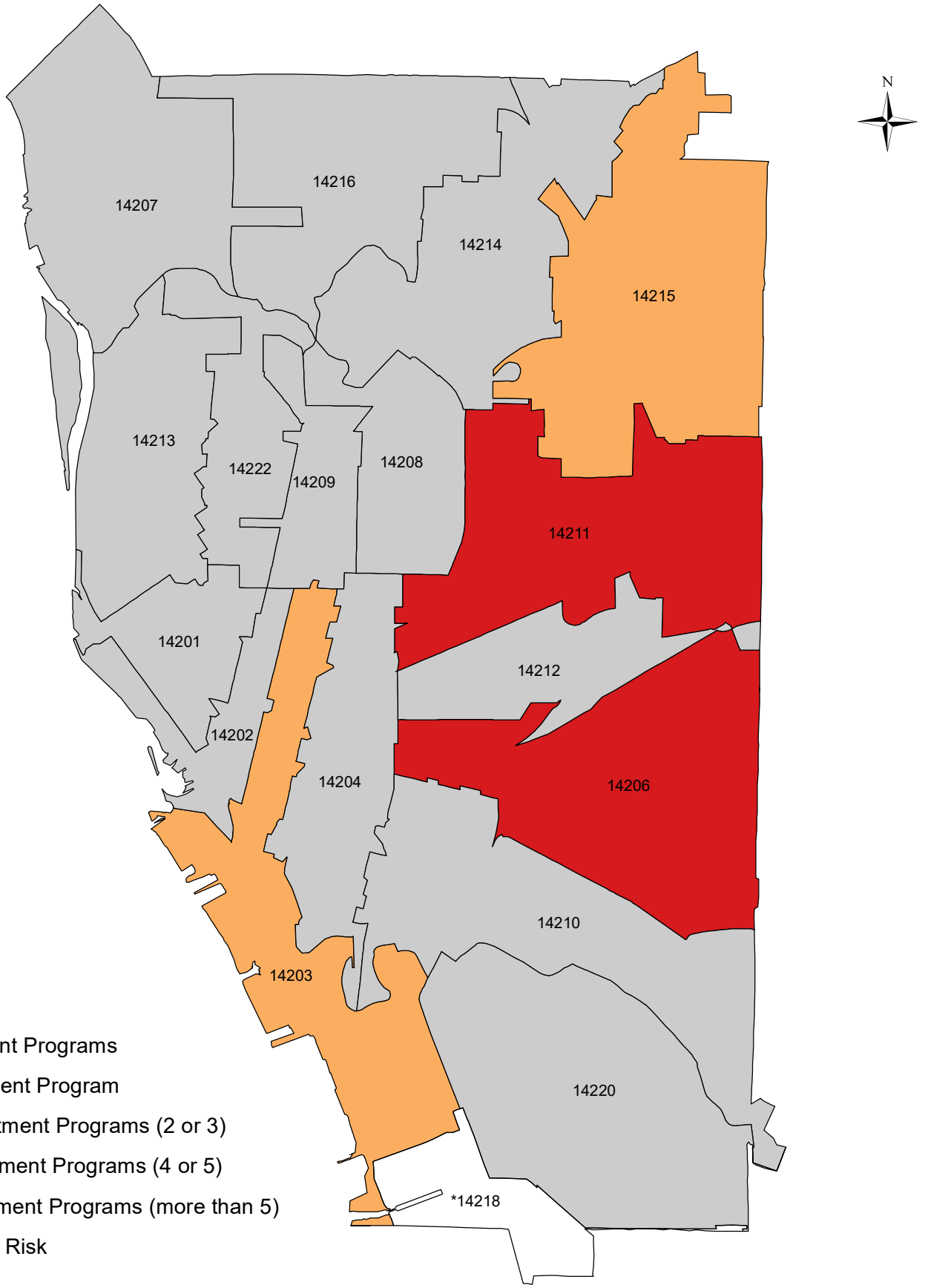
ZIP Codes with Highest Level of Aggregated Risk by Number of Residential Programs

[City of Buffalo Only]



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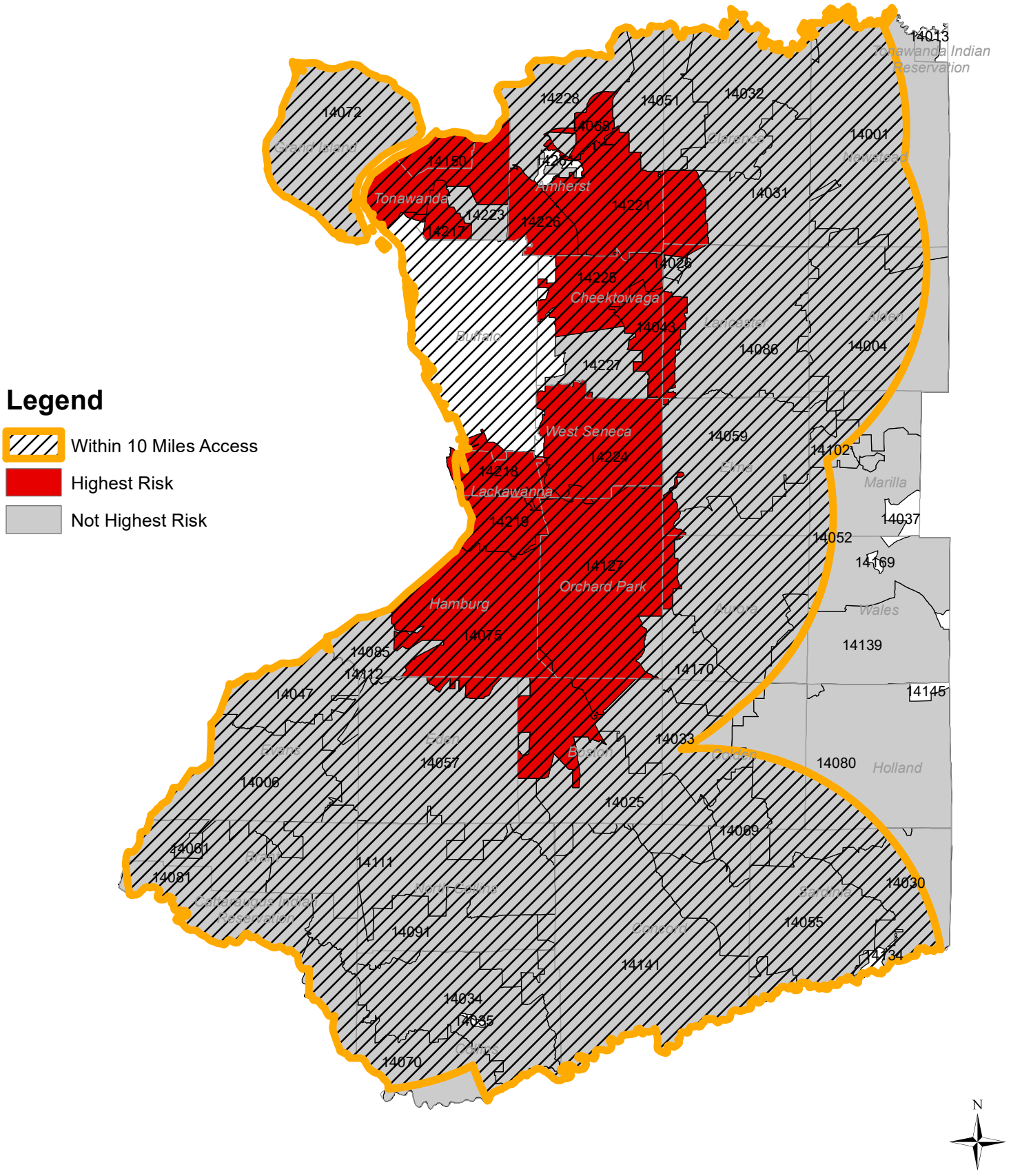
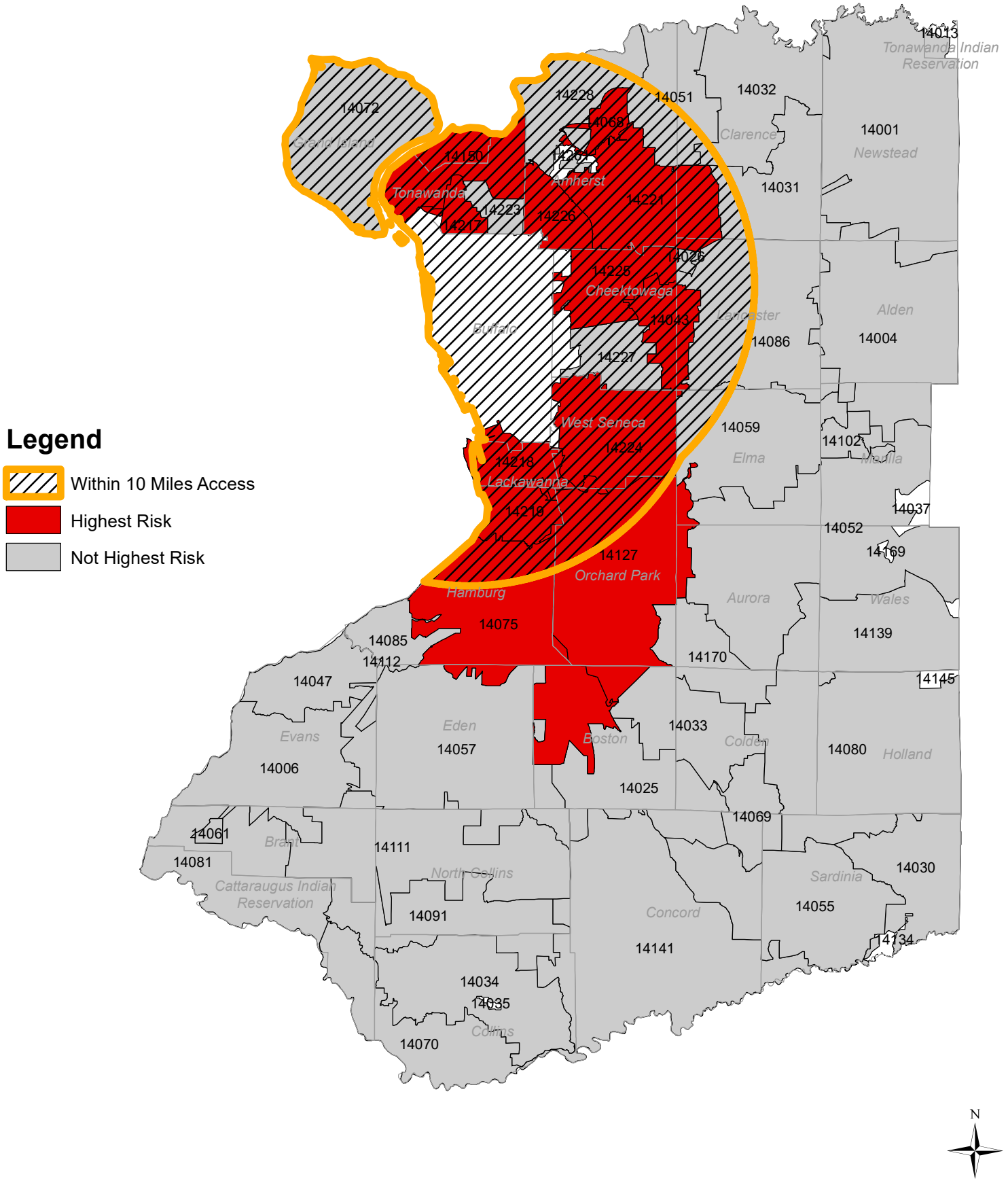
Accessibility to Chemical Dependency Programs (Within 10 Miles Access, Includes Out of County Programs)

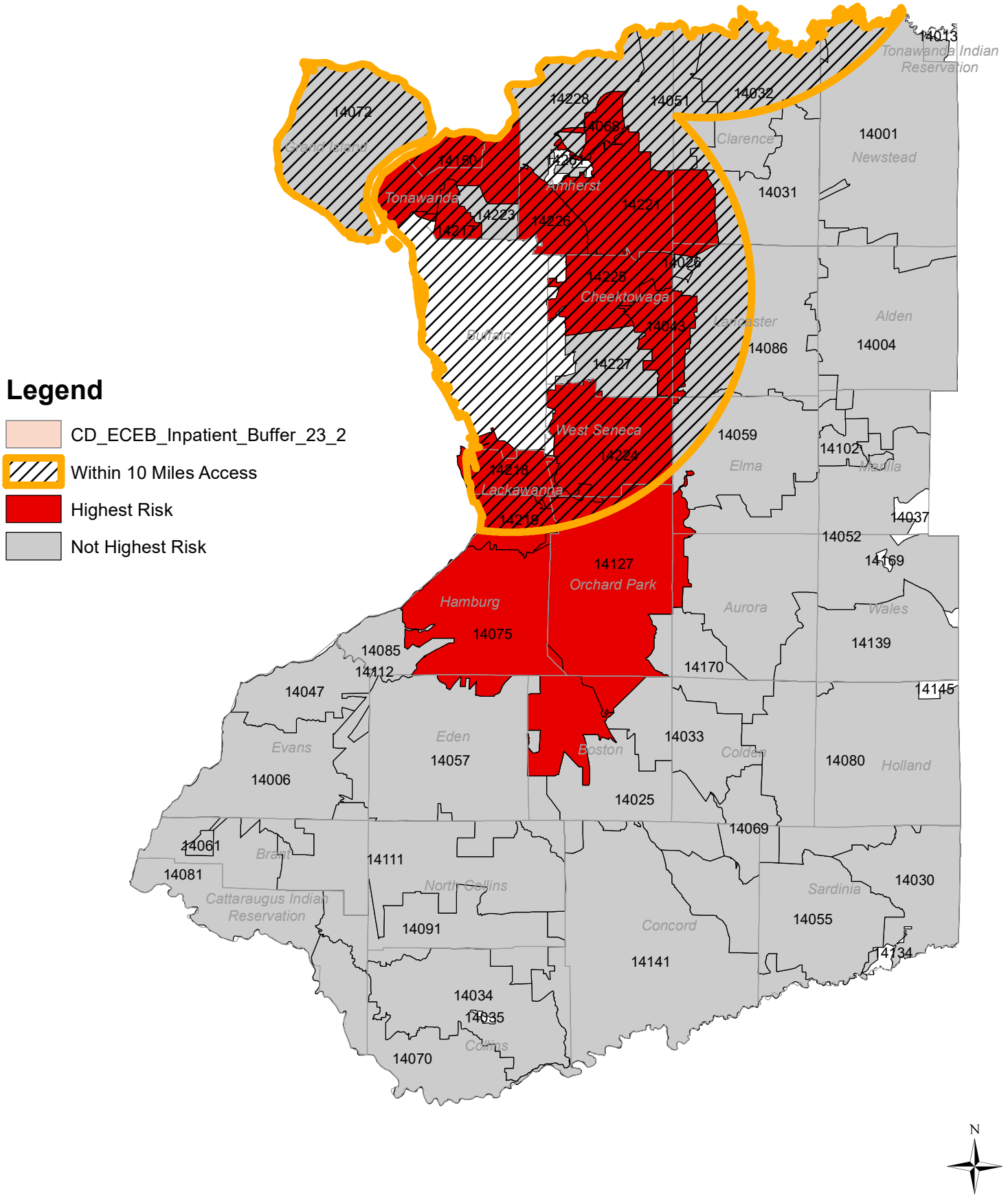
[Erie County Excluding City of Buffalo, with Municipal Boundaries]



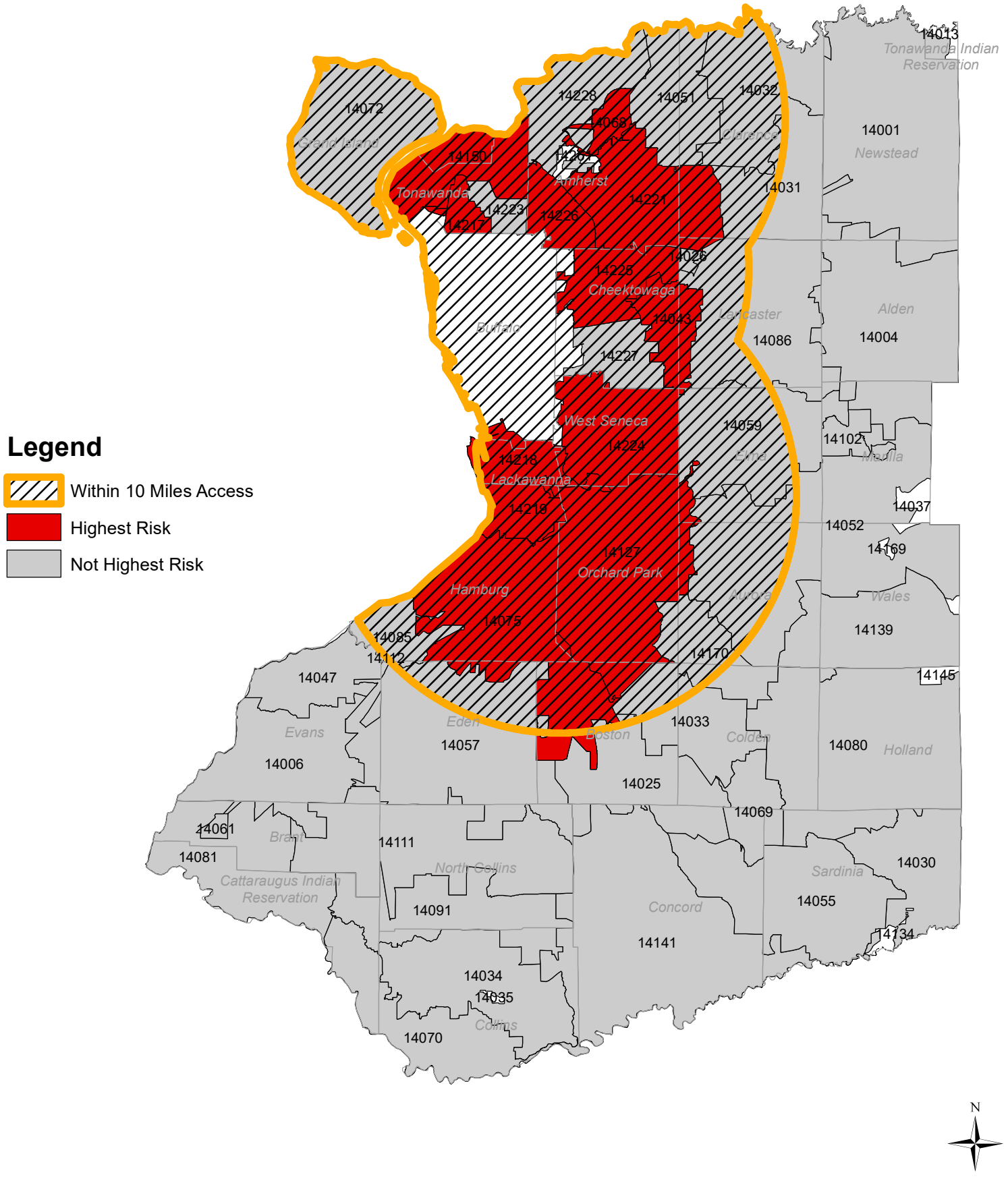
Accessibility to Crisis Programs
(Within 10 Miles Access, Includes Out of County Programs)
[Erie County Excluding City of Buffalo, with Municipal Boundaries]



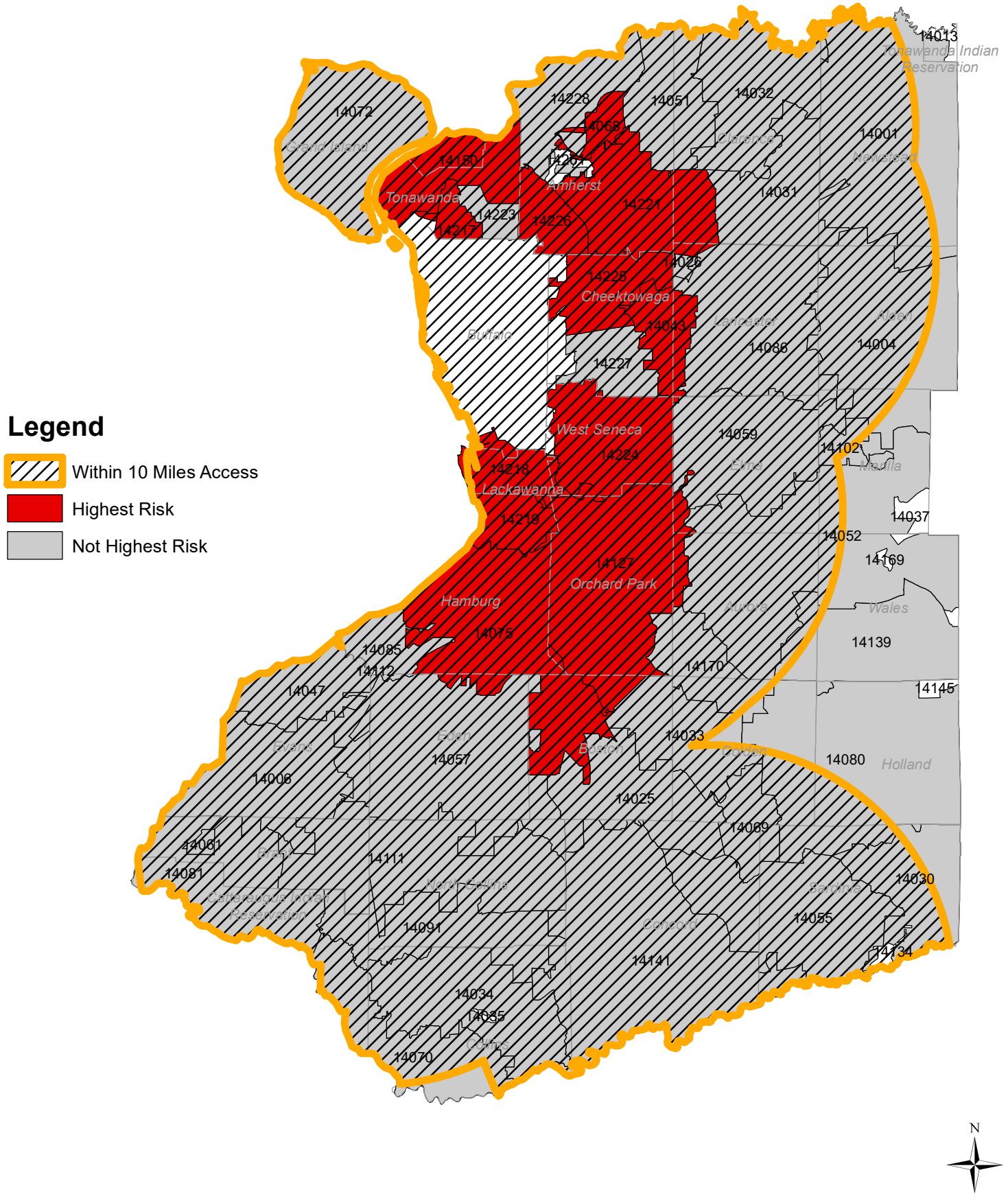
Accessibility to Inpatient Programs
(Within 10 Miles Access, Includes Out of County Programs)
[Erie County Excluding City of Buffalo, with Municipal Boundaries]



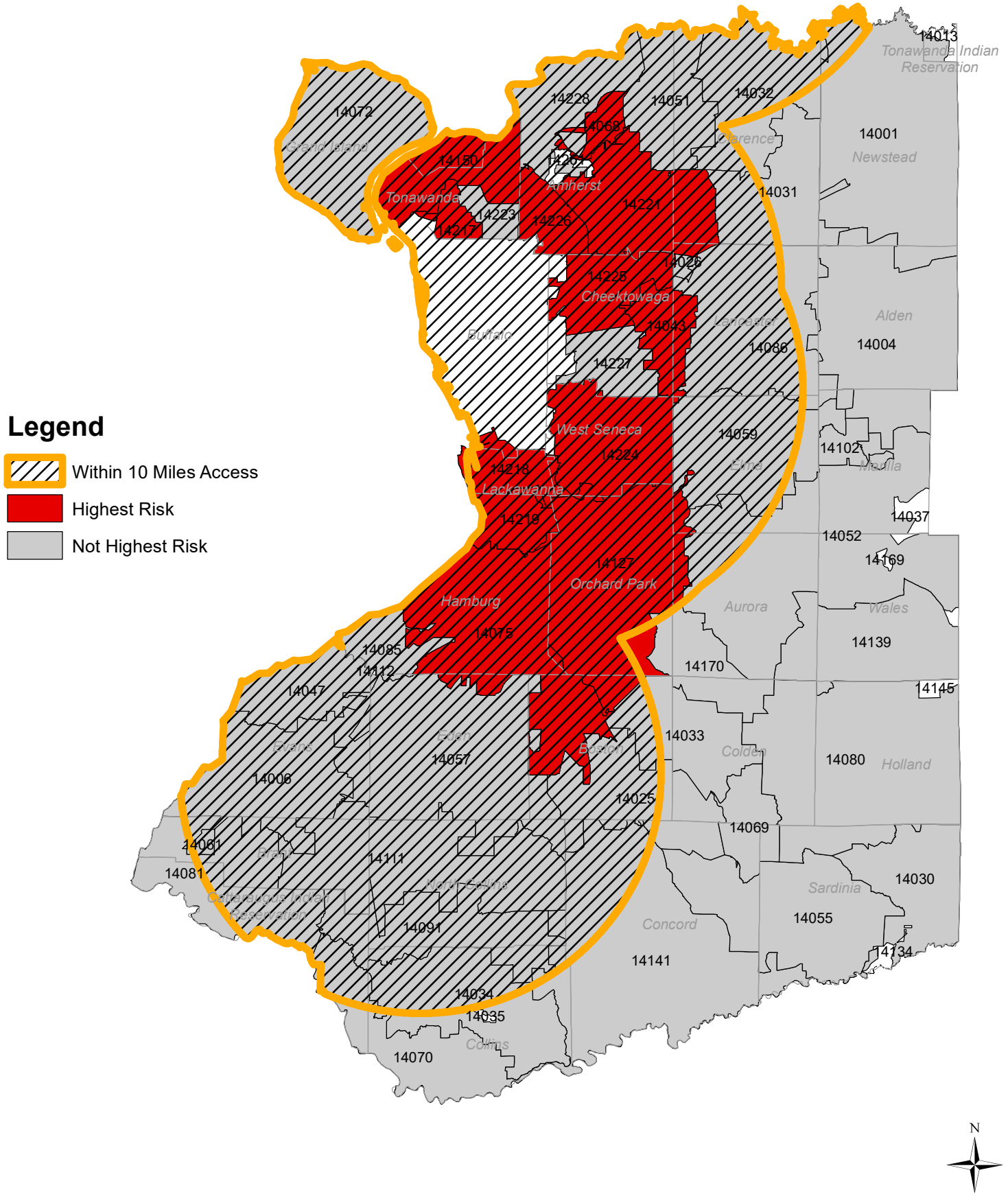
Accessibility to Opioid Programs
(Within 10 Miles Access, Includes Out of County Programs)
[Erie County Excluding City of Buffalo, with Municipal Boundaries]



Accessibility to Outpatient Programs
(Within 10 Miles Access, Includes Out of County Programs)
[Erie County Excluding City of Buffalo, with Municipal Boundaries]

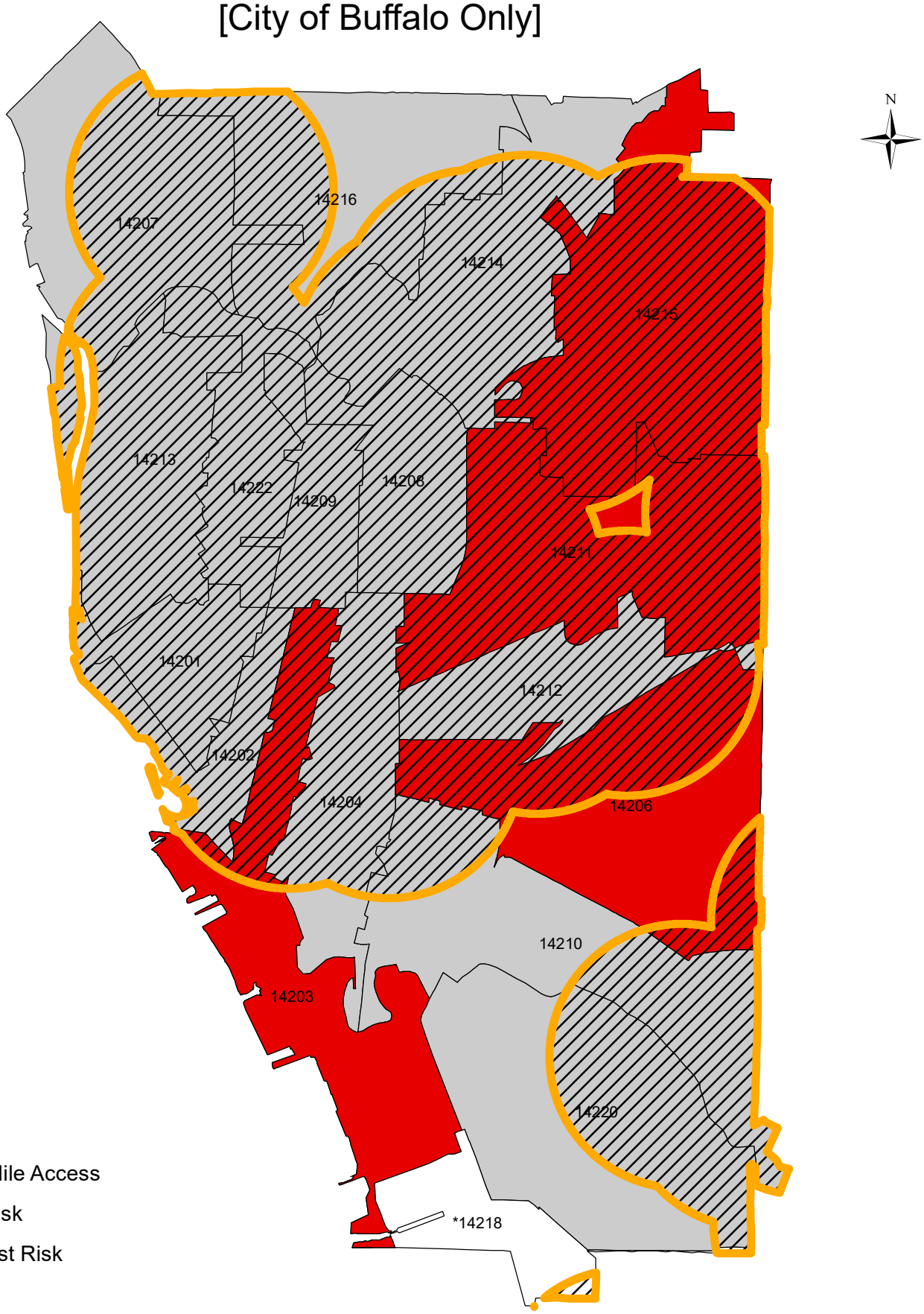


Accessibility to Residential Programs
(Within 10 Miles Access, Includes Out of County Programs)
[Erie County Excluding City of Buffalo, with Municipal Boundaries]



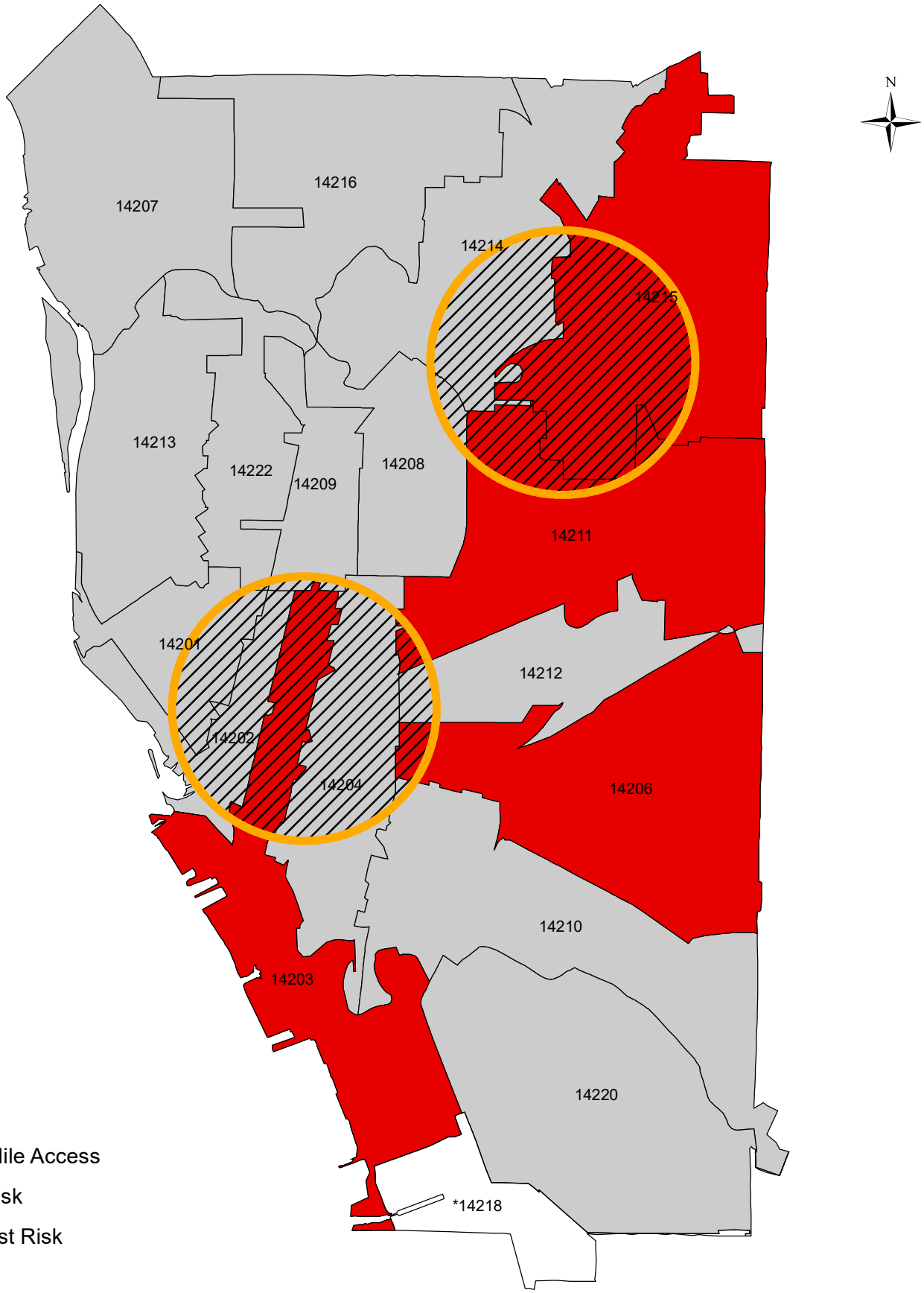
Accessibility to Chemical Dependency Treatment Programs (Within 1 Mile Access)

[City of Buffalo Only]



*The majority of ZIP Code 14218 is outside the City of Buffalo

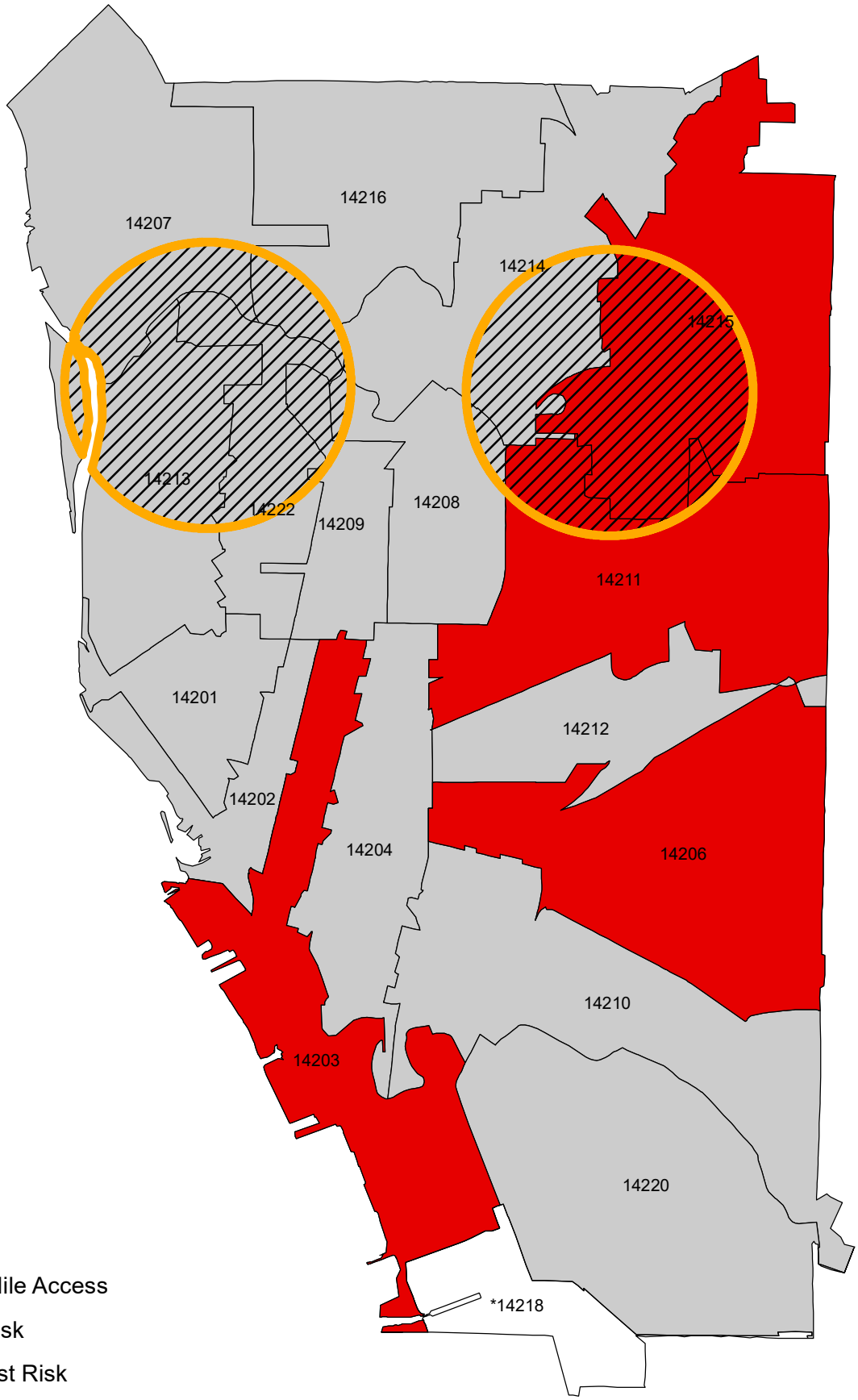
Accessibility to Crisis Programs
(Within 1 Mile Access)
[City of Buffalo Only]



*The majority of ZIP Code 14218 is outside the City of Buffalo

Accessibility to Inpatient Programs (Within 1 Mile Access)

[City of Buffalo Only]



Legend

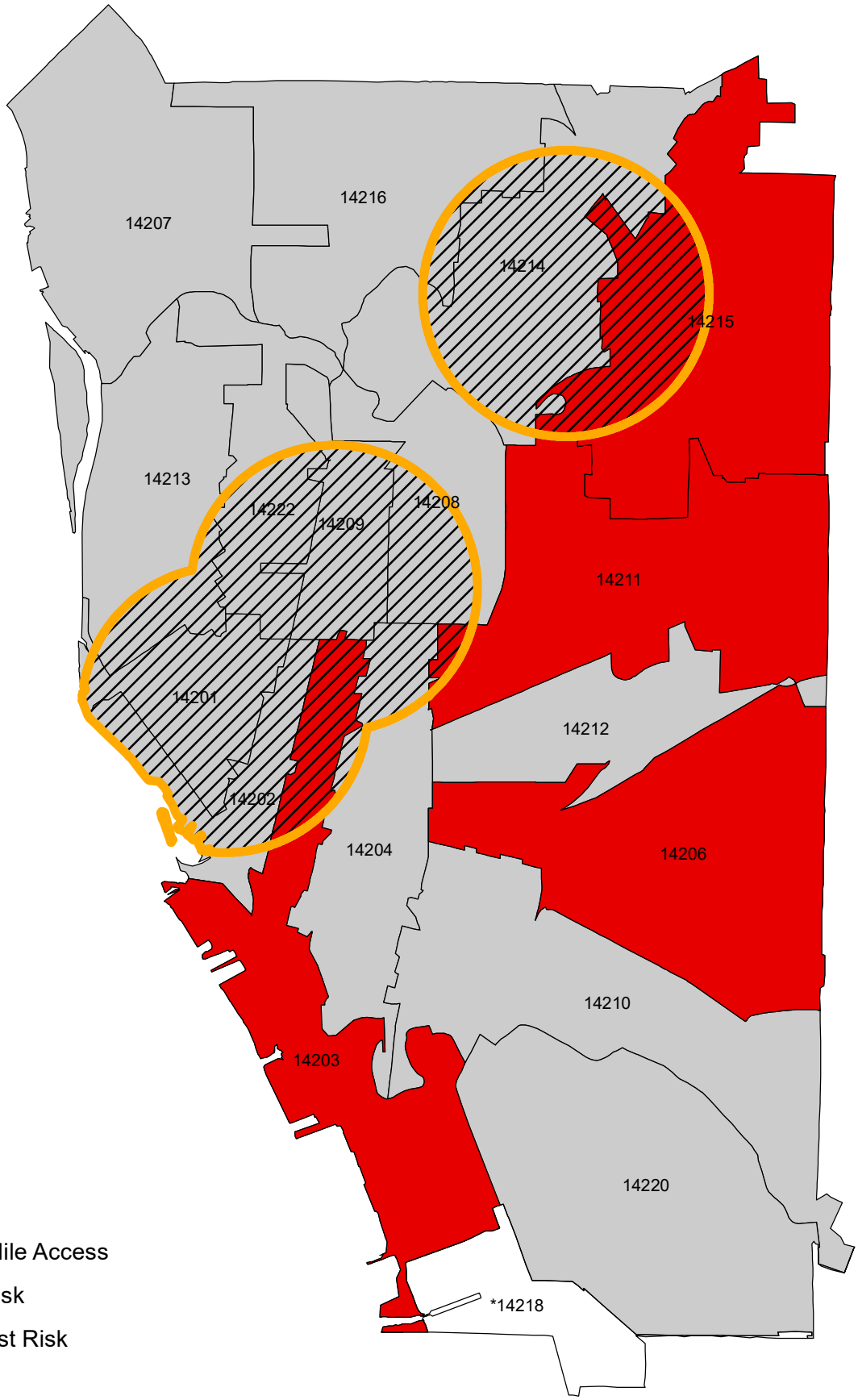
- Within 1 Mile Access
- Highest Risk
- Not Highest Risk

0 0.5 1 2 Miles

*The majority of ZIP Code 14218 is outside the City of Buffalo

Accessibility to Opioid Programs (Within 1 Mile Access)

[City of Buffalo Only]



Legend

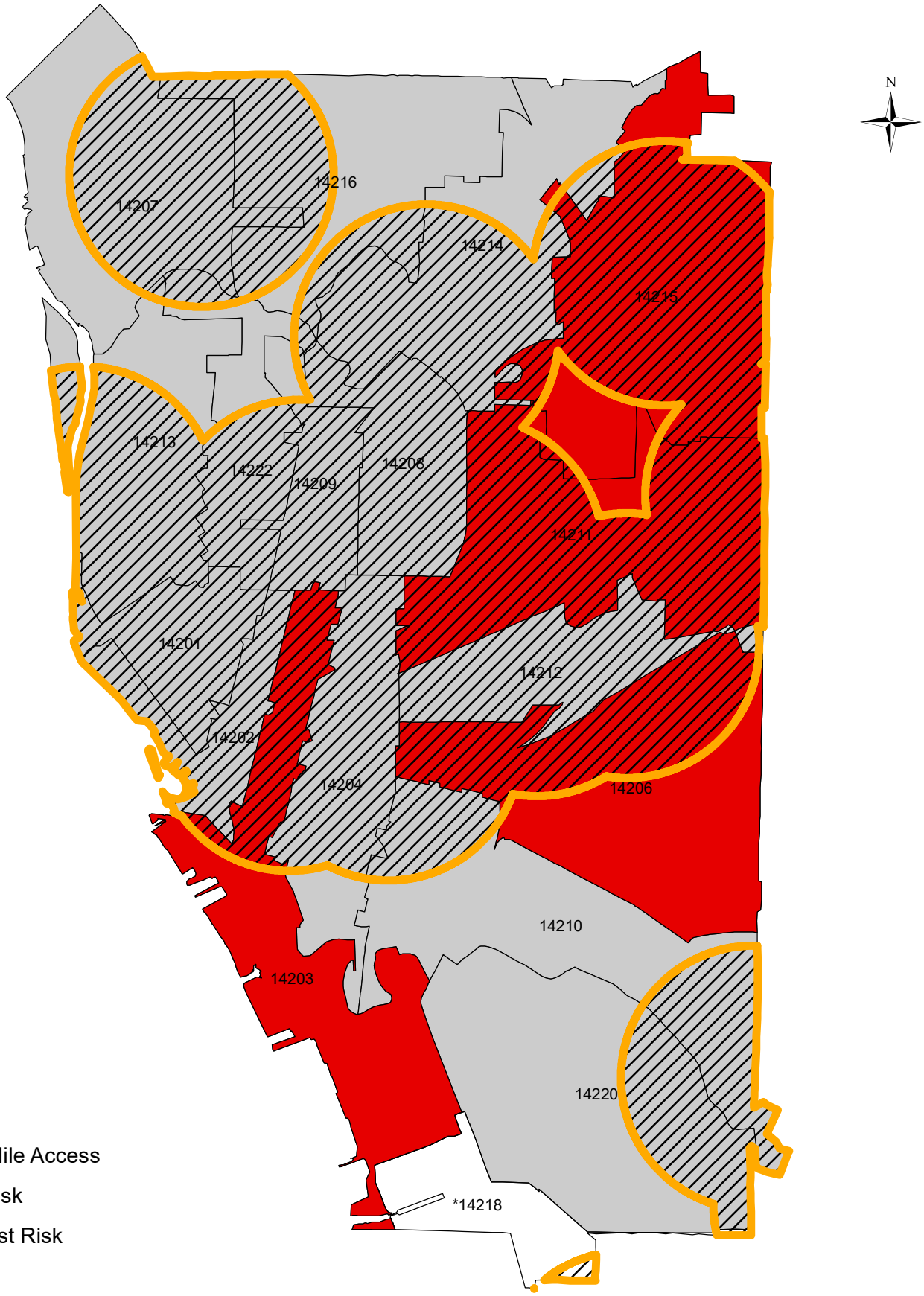
- Within 1 Mile Access
- Highest Risk
- Not Highest Risk

0 0.5 1 2 Miles

*The majority of ZIP Code 14218 is outside the City of Buffalo

Accessibility to Outpatient Programs (Within 1 Mile Access)

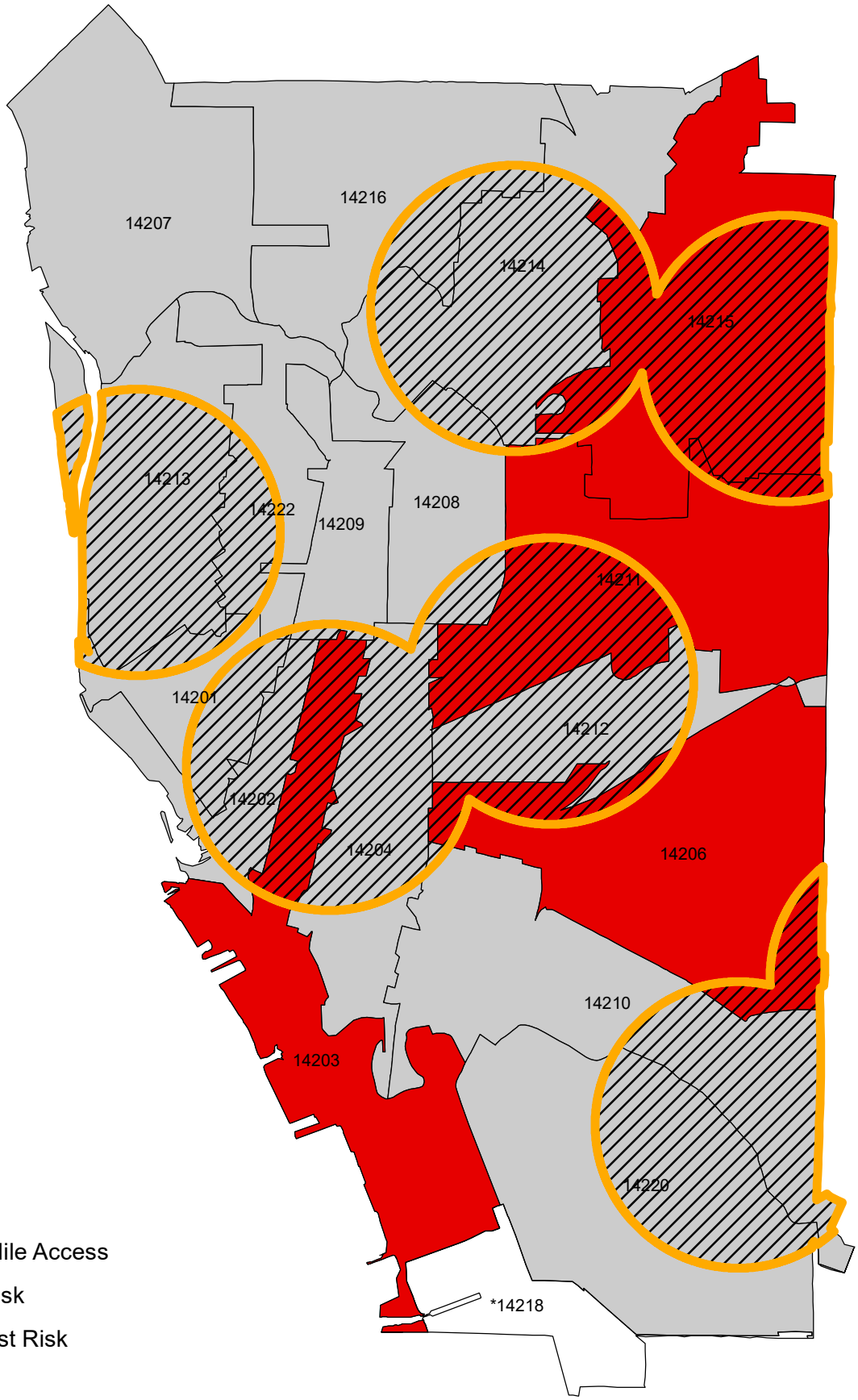
[City of Buffalo Only]



*The majority of ZIP Code 14218 is outside the City of Buffalo

Accessibility to Residential Programs (Within 1 Mile Access)

[City of Buffalo Only]



Legend

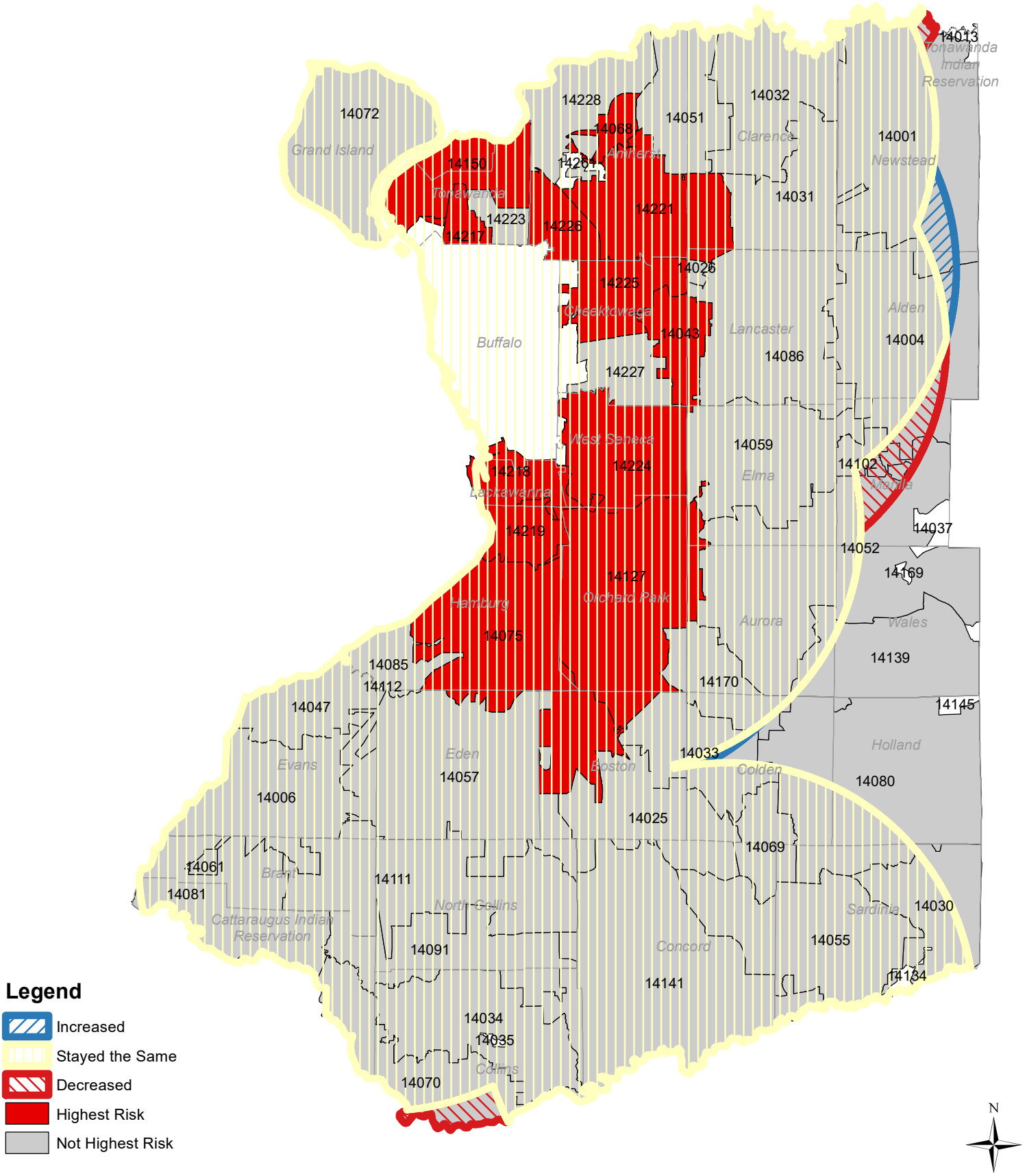
- Within 1 Mile Access
- Highest Risk
- Not Highest Risk

0 0.5 1 2 Miles

*The majority of ZIP Code 14218 is outside the City of Buffalo

Comparison of Accessibility to Chemical Dependency Programs between 2021 & 2023
(Within 10 Miles Access, Includes Out of County Programs)

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



Legend

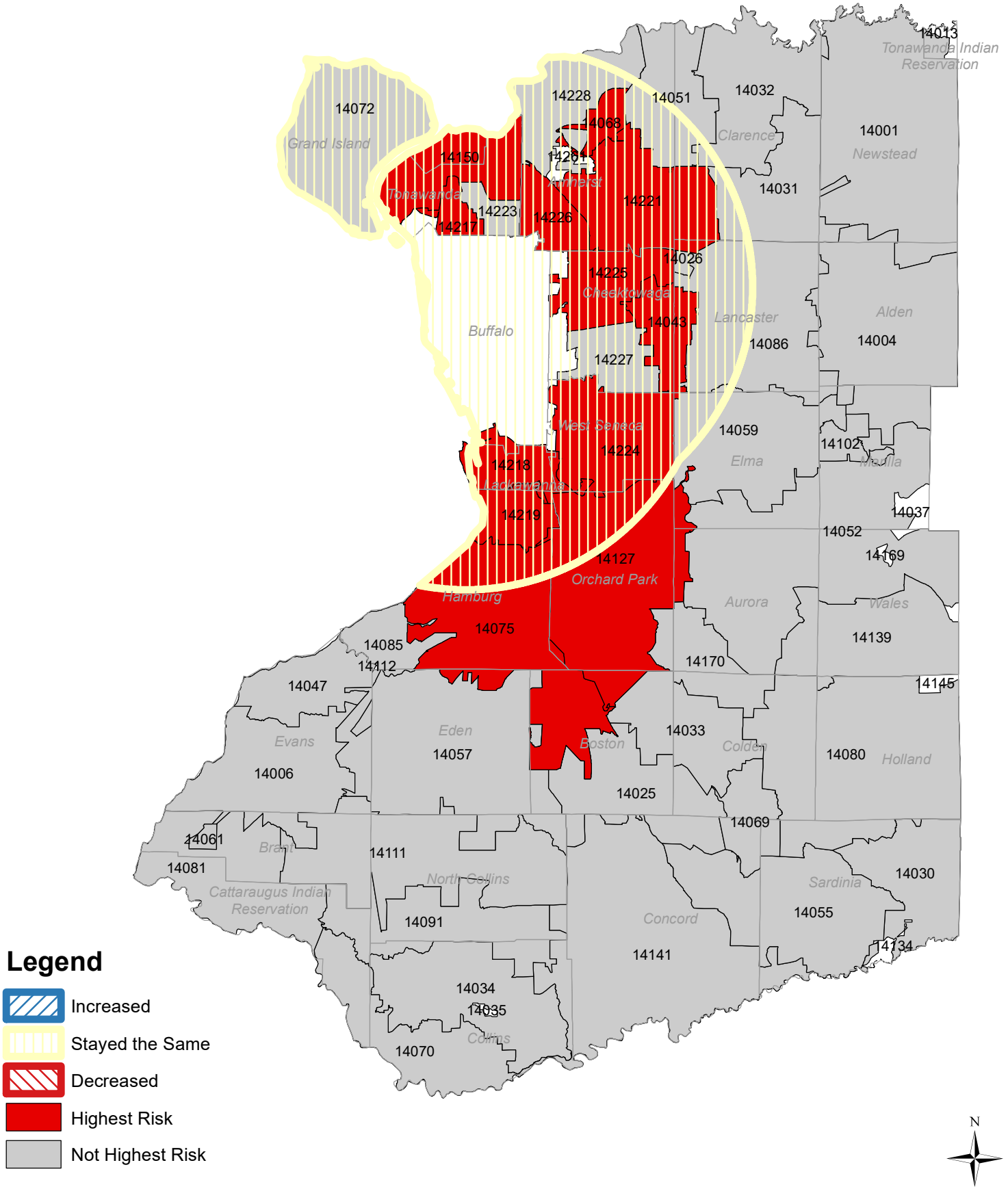
- Increased
- Stayed the Same
- Decreased
- Highest Risk
- Not Highest Risk

0 3 6 12 Miles

N

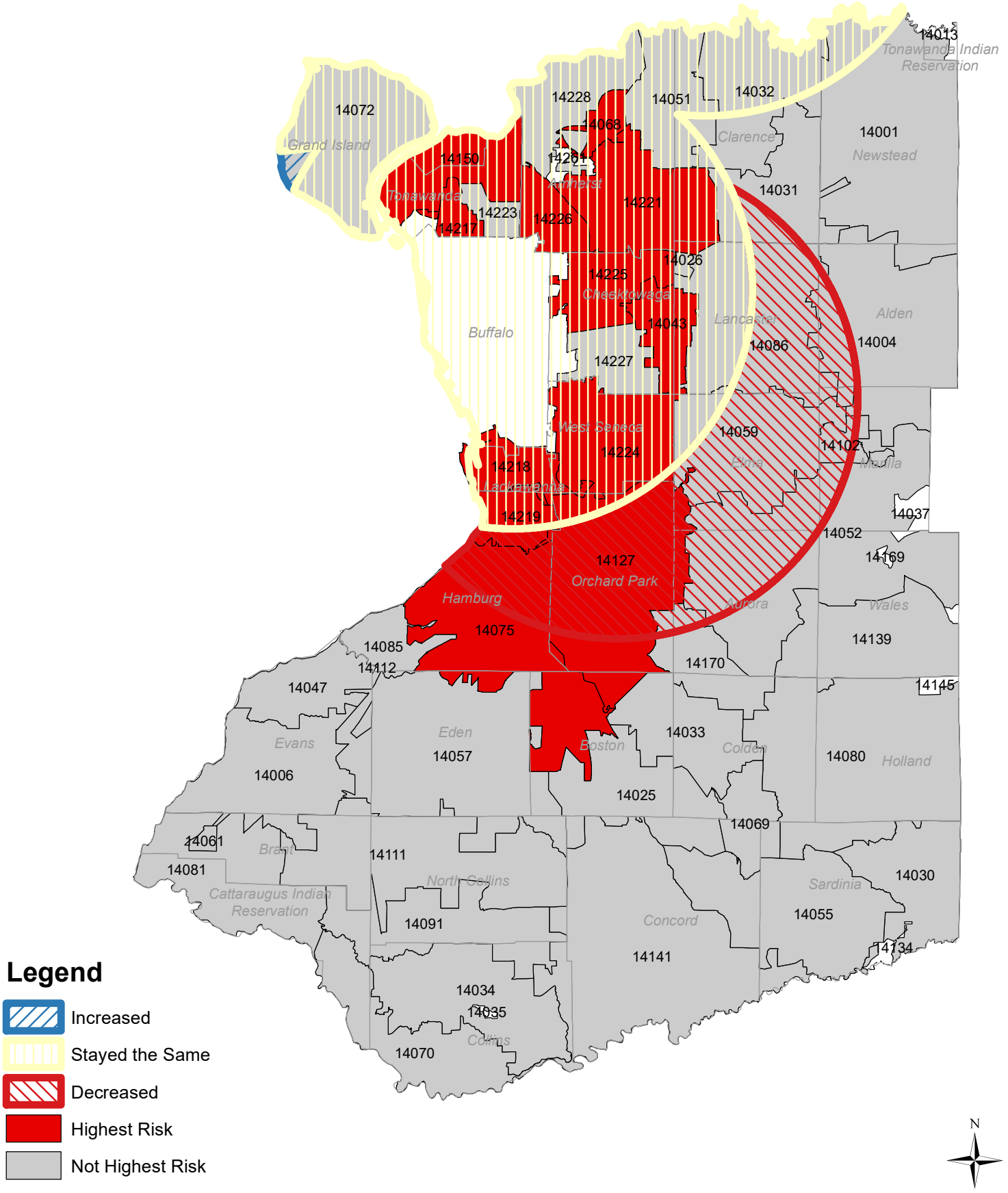
Comparison of Accessibility to Crisis Programs between 2021 & 2023 (Within 10 Miles Access, Includes Out of County Programs)

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



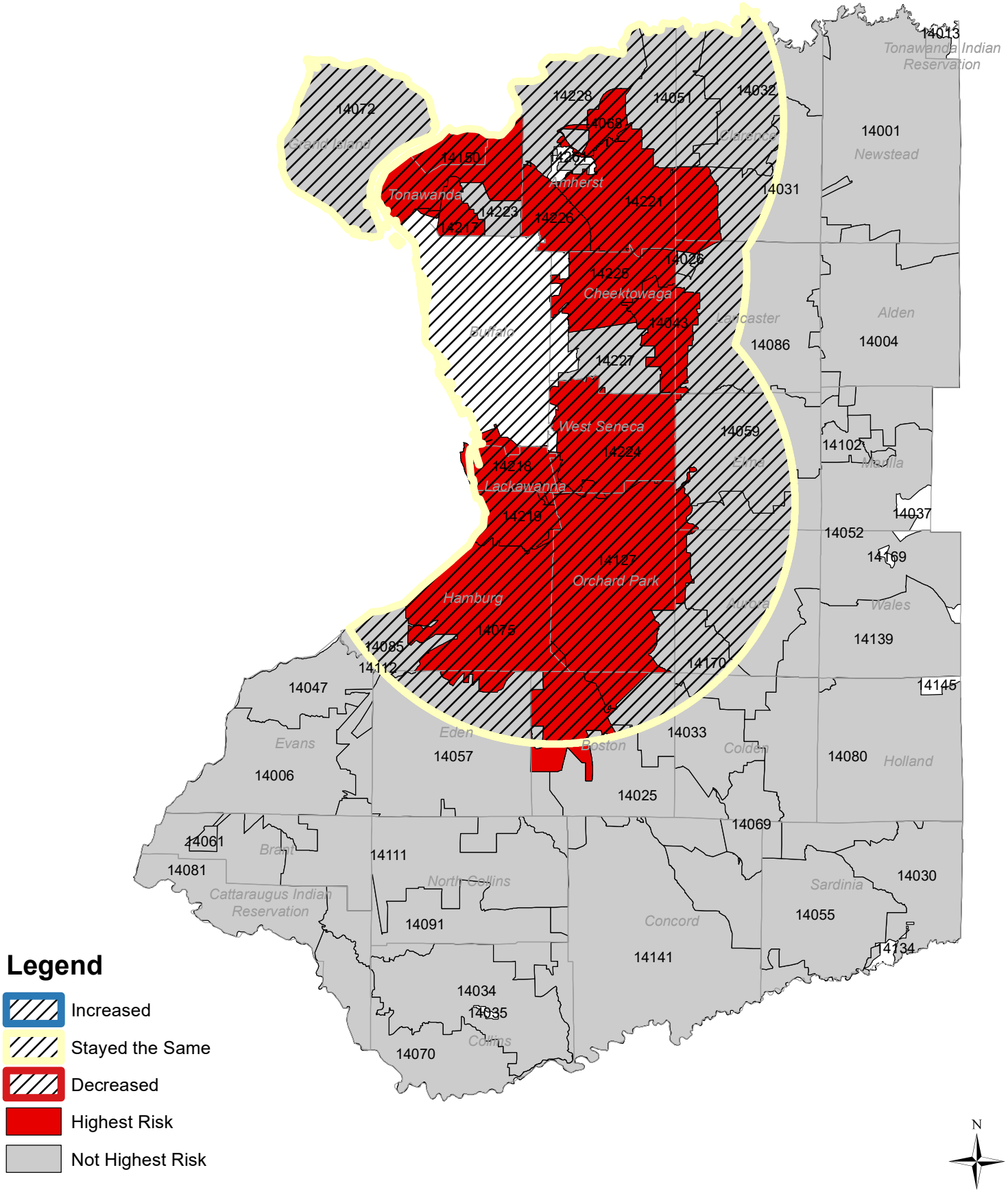
Comparison of Accessibility to Inpatient Programs between 2021 & 2023 (Within 10 Miles Access, Includes Out of County Programs)

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



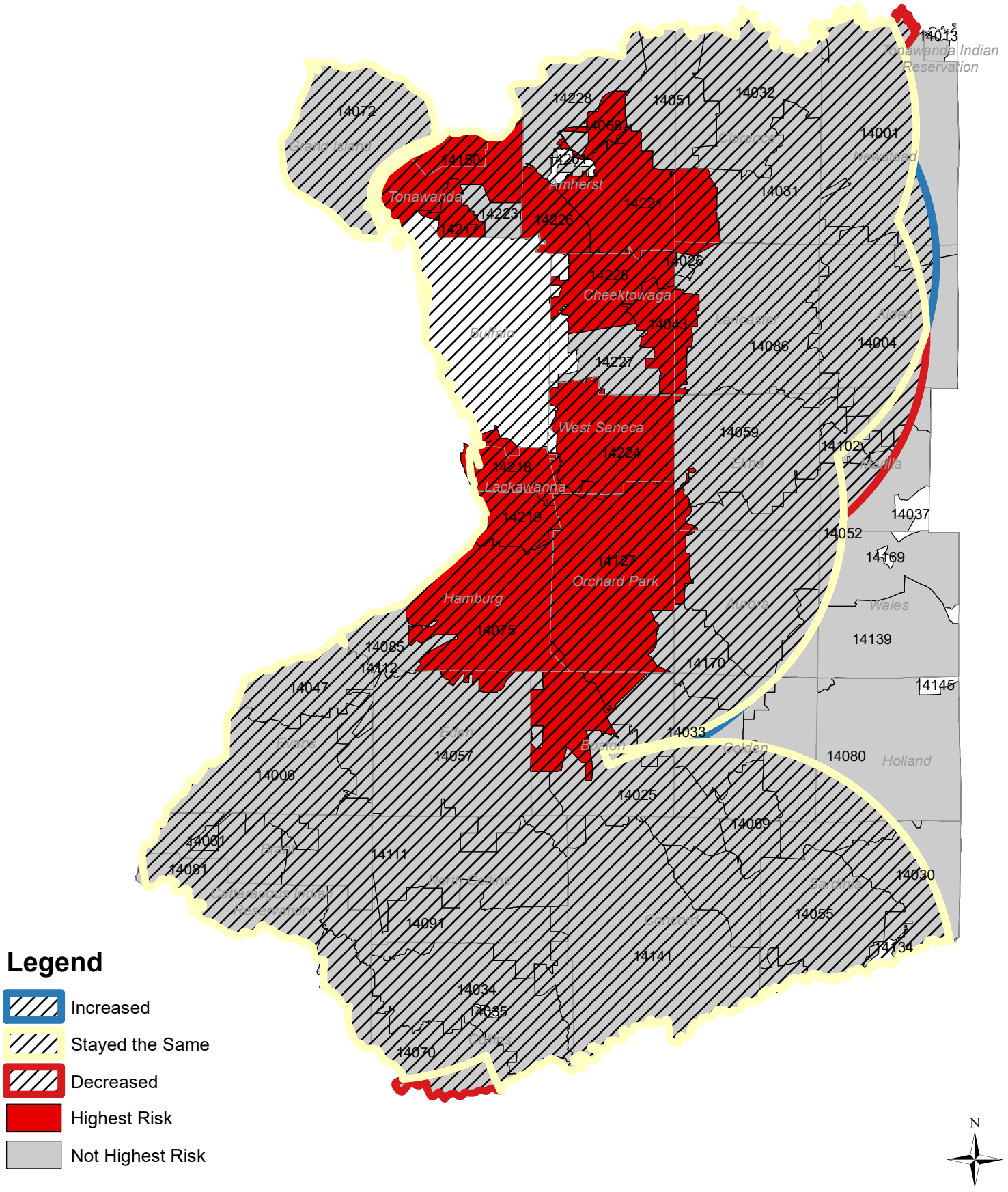
Comparison of Accessibility to Opioid Programs between 2021 & 2023 (Within 10 Miles Access, Includes Out of County Programs)

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



Comparison of Accessibility to Outpatient Programs between 2021 & 2023 (Within 10 Miles Access, Includes Out of County Programs)

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



Legend

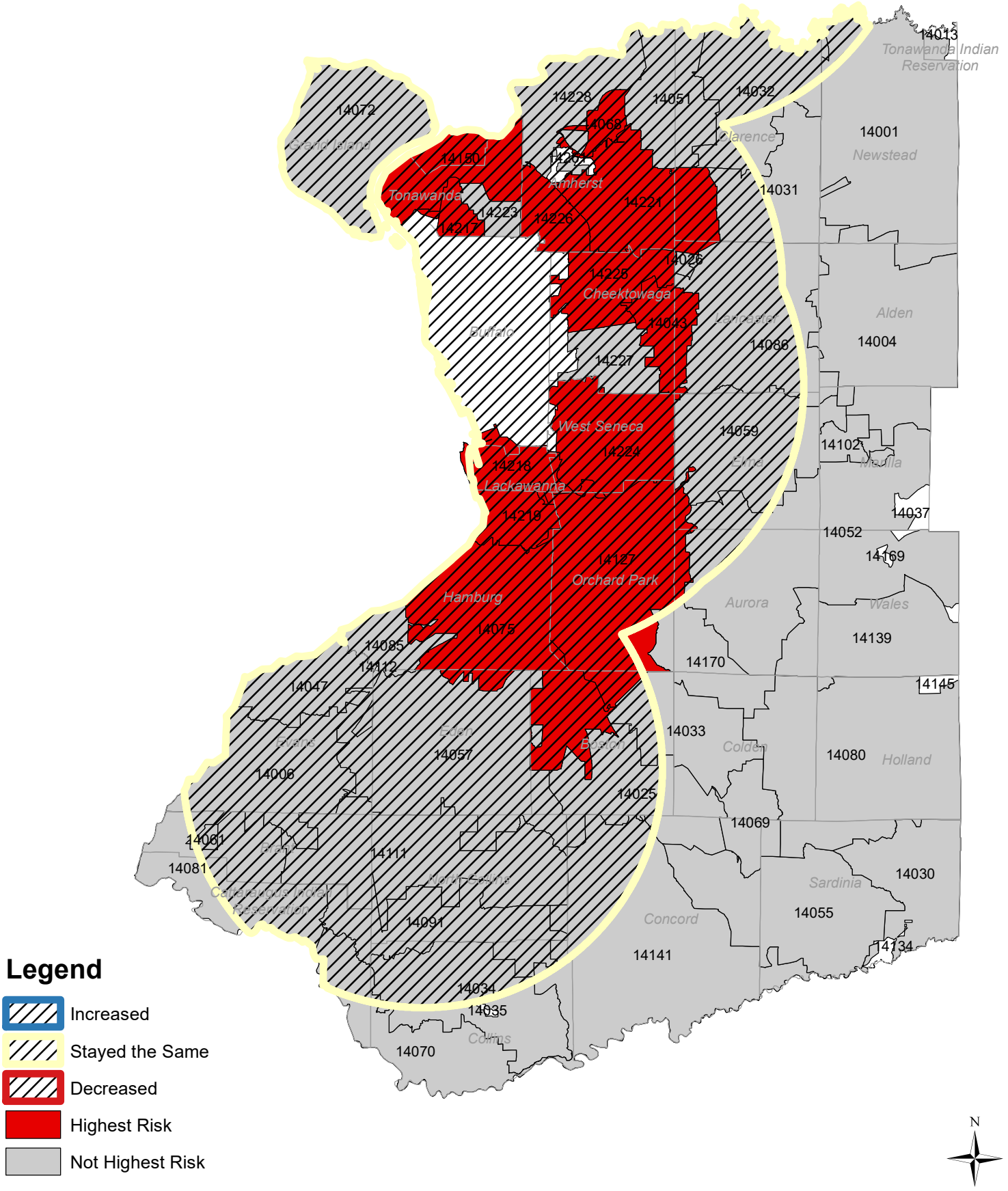
- Increased
- Stayed the Same
- Decreased
- Highest Risk
- Not Highest Risk

0 3 6 12 Miles

N

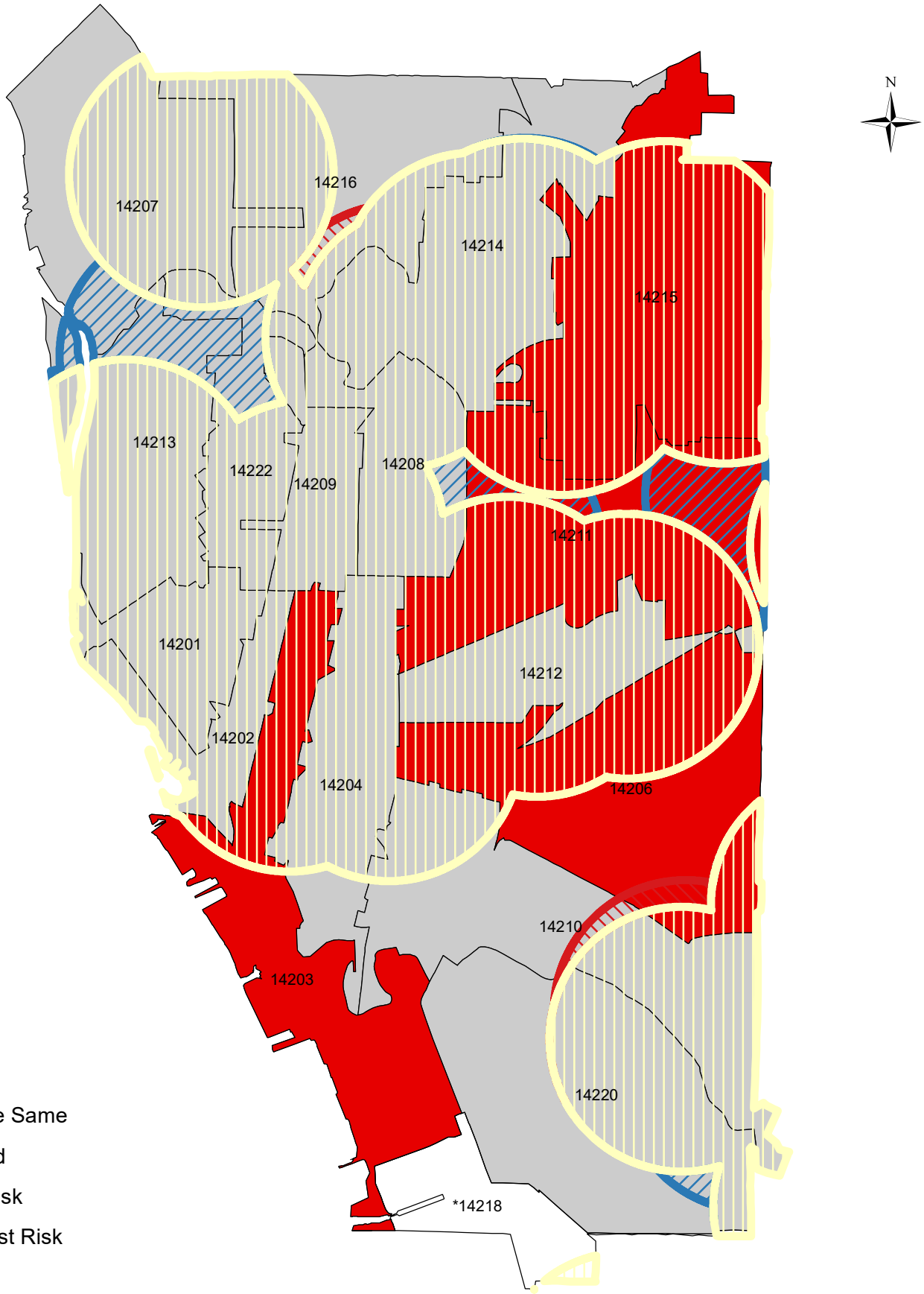
Comparison of Accessibility to Residential Programs between 2021 & 2023 (Within 10 Miles Access, Includes Out of County Programs)

[Erie County Excluding City of Buffalo, with Municipal Boundaries]



Comparison of Accessibility to Chemical Dependency Programs between 2021 & 2023 (Within 1 Mile Access)

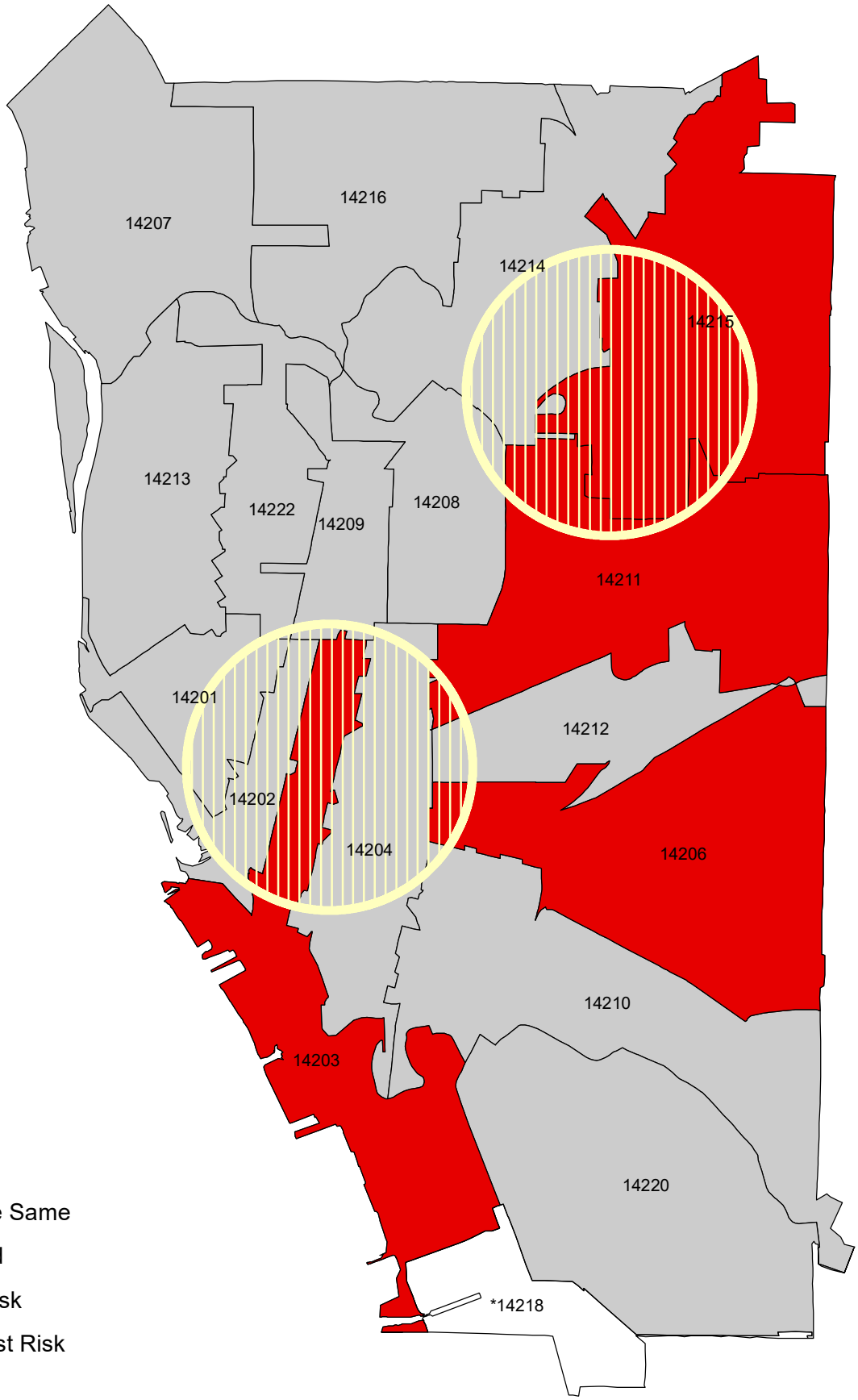
[City of Buffalo Only]



*The majority of ZIP Code 14218 is outside the City of Buffalo

Comparison of Accessibility to Crisis Programs between 2021 & 2023 (Within 1 Mile Access)

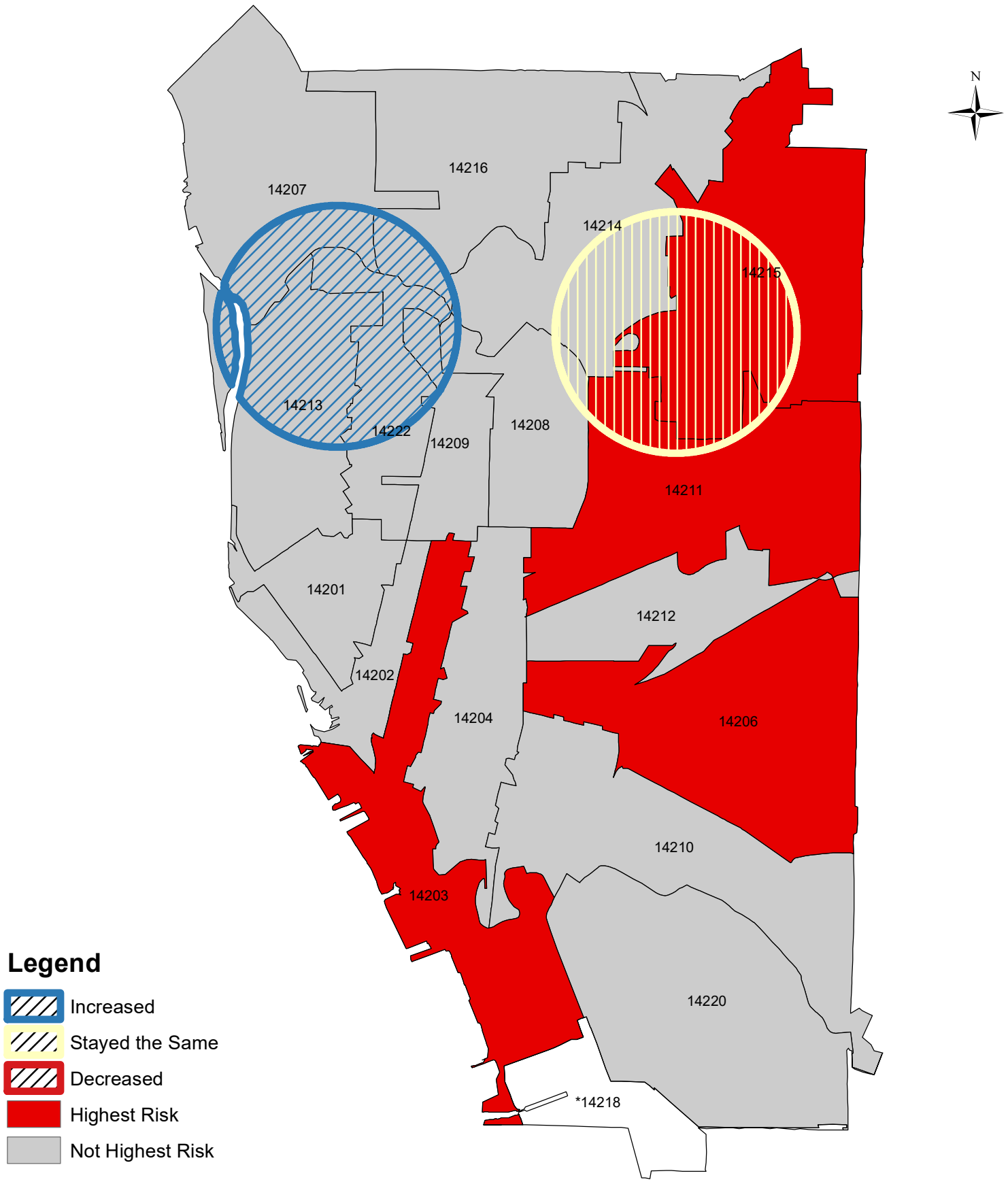
[City of Buffalo Only]



*The majority of ZIP Code 14218 is outside the City of Buffalo

Comparison of Accessibility to Inpatient Programs between 2021 & 2023 (Within 1 Mile Access)

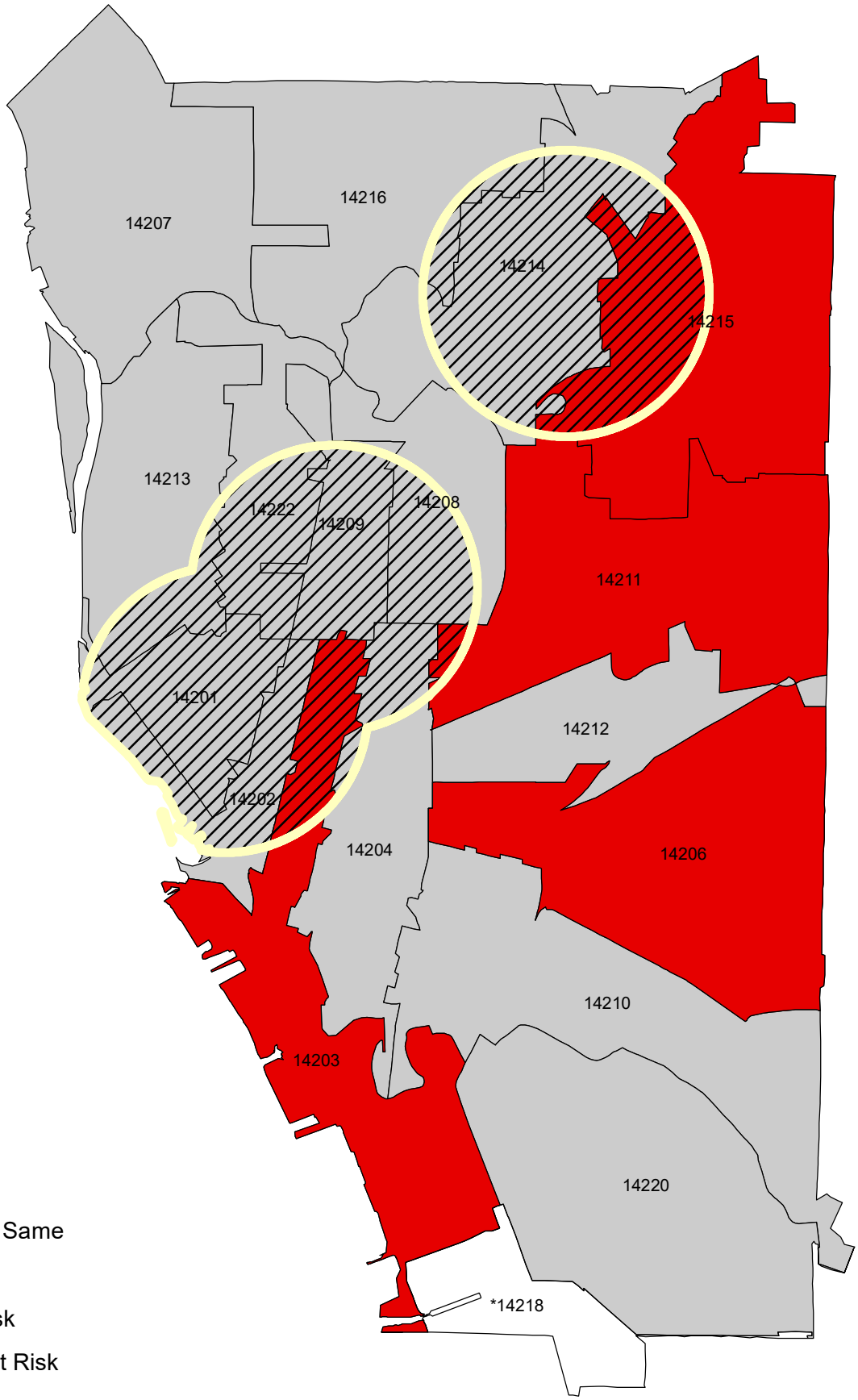
[City of Buffalo Only]



*The majority of ZIP Code 14218 is outside the City of Buffalo

Comparison of Accessibility to Opioid Programs between 2021 & 2023 (Within 1 Mile Access)

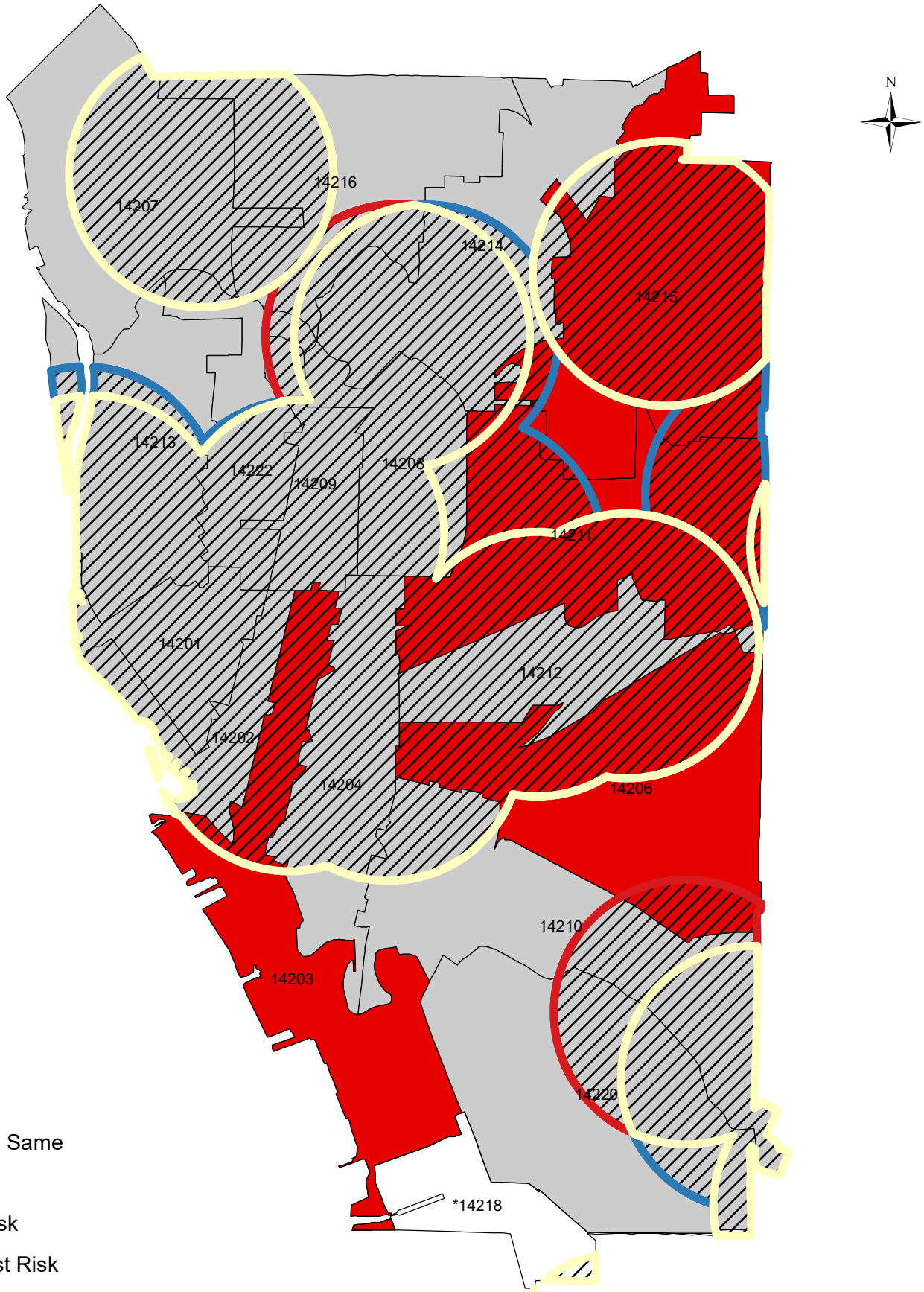
[City of Buffalo Only]



*The majority of ZIP Code 14218 is outside the City of Buffalo

Comparison of Accessibility to Outpatient Programs between 2021 & 2023 (Within 1 Mile Access)

[City of Buffalo Only]



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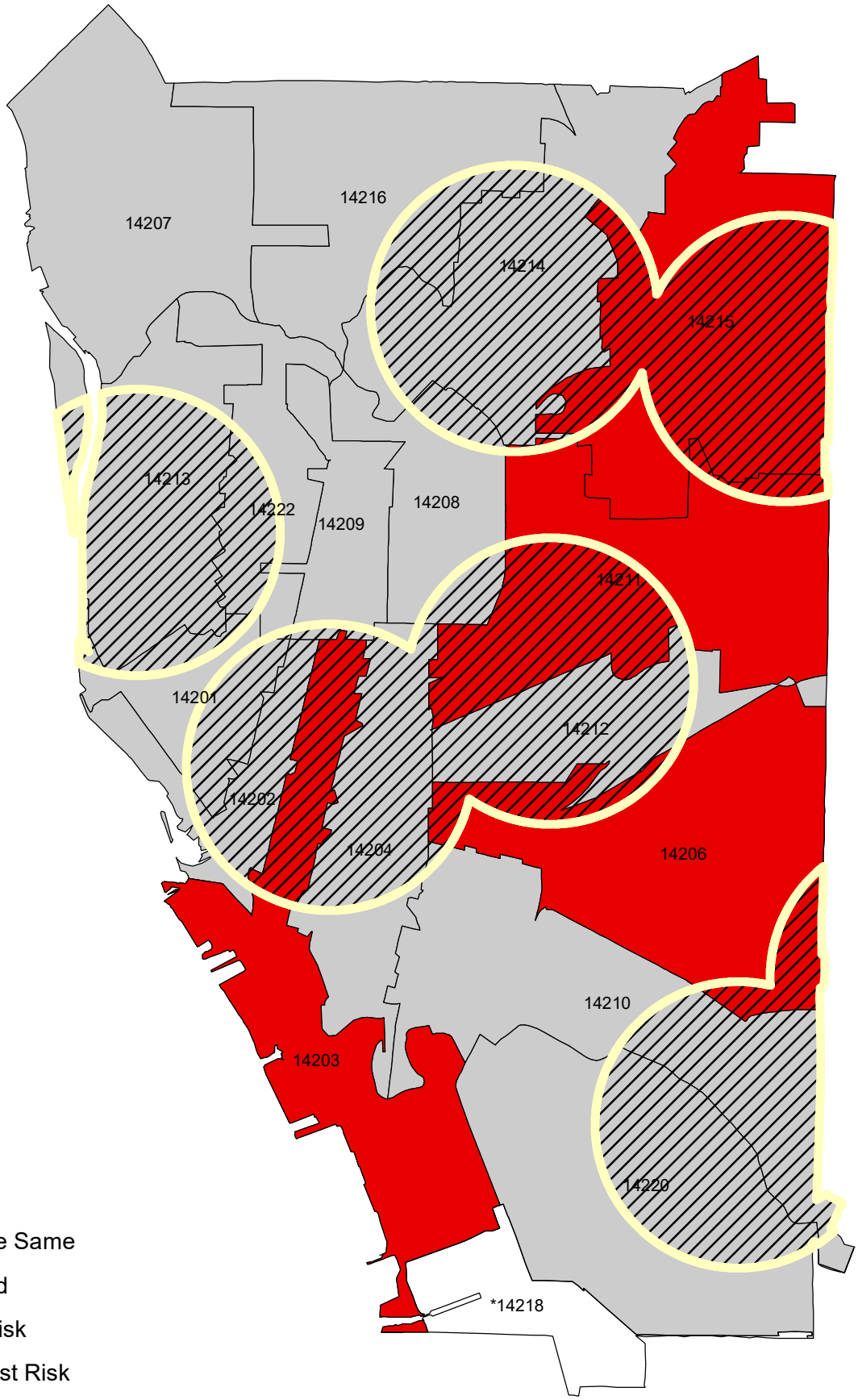
Comparison of Accessibility to Residential Programs between 2021 & 2023 (Within 1 Mile Access)

[City of Buffalo Only]



*The majority of ZIP Code 14218 is outside the City of Buffalo

Appendix

Planning for Prevention:
The Erie County Risk Indicator Database (RIDB): Key Indicators

Version 13.2
November 8th, 2022

Introduction

This documentation describes Version 13.2 of the Erie County Risk Indicator Database Key Indicators Subset developed by the Center for Health and Social Research in cooperation with Erie County Department of Mental Health and the CD Prevention and Treatment Providers. The validation analysis of the full Risk Indicator Database found almost every indicator to be valid, i.e. significantly related to relevant data that was gathered independent of the risk indicators. The data were gathered from a large (n=3,700), general population survey focused on alcohol, drugs, and related issues (Erie County Health Outcomes Survey conducted by the Center for Health and Social Research (2000)). A list of suggested indicators (or "Key" Indicators) was compiled based on the validation analysis, and these selected indicators have been revised with updated data.

The selected risk indicators contained in this database encompass many of the categories defined in the Hawkins and Catalano risk and protective factor program "Communities That Care". The selected risk indicator database subset provides detailed population, social, economic, crime, health, and school information.

The indicator database has three main purposes: (1) to assist in needs assessment for the planning and geographic targeting of services, (2) to provide detailed information to service providers, which allows programs to be tailored to local needs, and (3) to serve as a resource for the development of funding applications.

Database Geography

The risk indicators are compiled at a level of geography suitable for analysis at the community scale: 5-digit ZIP Code tabulation areas (ZCTA). The ZIP Code tabulation areas are defined as in Census 2010 maps. This dataset is computed at three spatial scales, Erie County (including Buffalo) [ECIB], Erie County (excluding Buffalo) [ECEB], and City of Buffalo Only [COBO].

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Center for Health and Social Research (2022). Erie County Risk Indicator Database, Version 13.2. Retrieved on [Date of retrieval], from http://www.erieridb.org.

Risk

The table below documents the risk indicators that were compiled for this project. These notes explain how to use the table.

- The Risk Indicators Description column lists descriptions of particular indicators variables (e.g., *Off premise alcohol sales establishments, per road mile*).

- Most indicator variables are essentially rates. The majority of them are expressed as percent, e.g., percent of renter occupied housing units. When it is clear, the [Universe: ...] clause is omitted. In some cases, it may be not clear what denominator (i.e. population in question) is used to calculate the rate. In these instances, the exact denominator is provided, i.e. [Universe: ...]. For some indicators, such as those of disease and crime, the rate is per 10,000 population, rather than percent, while others, such as those for alcohol availability, the rate is per 100 road miles. Unless otherwise noted, the population used to calculate these rate indicators is from the 2010-2014 American Community Survey.

The [Source/Native Geography] tag on the right side of Risk Indicators column identifies the data source (see "Technical Notes", "Data sources" on page 3 for the list of data sources) and the original geography level of the source data ("Z" for ZIP Code area, "O" for other – see footnotes in this case). For example, for *IV.A. Population Instability (Migration)* the tag is [CEN/Z] meaning that these data come from the Census and was originally available at 5-digit ZIP Code area geography levels.

Risk Indicator Description [Source/Native Geography]	*Variable Name*
Alcohol Sales Establishments [SLA/O] 2021 Off premise alcohol sales establishments, per 100 road miles [Universe: aggregate road miles per areal unit] 2021 Off premise alcohol sales establishments, per 10,000 population [Universe: total population]	alc_off_pr_rd alc_off_pr_pop
Population Instability (Migration) [CEN/Z] Percent of population 5 years and over that moved into current residence from another house in Erie County, 2017 - 2021 American Community Survey [Universe: population 5 years and over]	mov_county
Rental Residential Properties [CEN/Z] Percent population in renter occupied housing units, 2017 - 2021 American Community Survey [Universe: population in occupied housing units]	rent_pop
Extreme Economic Deprivation [CEN/Z] Composite Poverty Index (summation of standard deviation units of the following indicators, all data from 2017-2021 American Community Survey): • Percent families with income below poverty level [Universe: all families] • Percent families with female householder and no husband present, with income below poverty level and with related children under 18 years [Universe: all families] • Percent children under 18 years living below poverty level [Universe: population under age 18] • Percent aggregate income that is coming from assistance sources: social security, supplemental security income, public assistance [Universe: aggregate income from all sources] • Median household income	z_pov
Gini Coefficient [CEN/Z] Index of income inequality, 2017-2021 American Community Survey [Universe: total population]	Gini
Chronic Liver Disease and Cirrhosis Deaths [DH/Z] 2016-2018 average annual deaths from cirrhosis, per 10,000 population [Universe: total population]	de_cirrhos
Trauma Related Mortality Rates [DH/Z] 2016-2018 average annual deaths from accidents, homicide, and suicide, per 10,000 population [Universe: total population]	de_trauma

Divorce and Separation [CEN/Z] Percent of population 15 years and over who have never been married, 2017-2021 American Community Survey [Universe: population age 15 and over]	nv_married
Grade 8 English (ELA) performance [NYSED/O] 2019-2021 average rate of poor (levels 1-2) English performance [Universe: all students tested]	g8_eng_l12
Juvenile Arrests [DCJS,BPD/Z,O] 2019-2021 average annual arrests for violent offenses (aggravated assault, forcible rape, murder, robbery) among juveniles, per 10,000 population [Universe: population under age 18]	jar_viol
Reported Gonorrhea [DH/Z] 2016-2018 average annual reported gonorrhea cases, per 10,000 population [Universe: total population]	gono_all
OASAS Alcohol and Substance Abuse Admissions [DMH/Z] 2017-2019 average annual admissions of persons under 18 to treatment at the Office of Alcoholism and Substance Abuse (OASAS), per 10,000 population [Universe: population under age 18]	oasas_u18
Reported Crimes [DCJS,BPD/O] Index of criminal activity taken as the summation of standard deviation units of: • 2019-2021 average annual reported criminal mischief (vandalism, etc.) offenses, per 10,000 population [Universe: total population] • 2019-2021 average annual reported violent offenses (aggravated assault, forcible rape, murder, robbery), per 10,000 population [Universe: total population]	crm_crmis crm_viol crime_index
Adolescent Pregnancies [DH/Z] 2016-2018 average annual pregnancies (births + abortions + spontaneous fetal deaths) by mother's age, per 1,000 population for the middle year of the three-year time period [Universe: female population ages 15-19]	preg_15_19
Neighborhood Index [CEN/Z] Composite neighborhood instability score taken as the summation of standard deviation units of the following indicators: • Percent of population 5 years and over that moved into current residence from another house in Erie County, 2017-2021 American Community Survey [Universe: population in occupied housing units] • Percent of population 15 years and over who have never been married, 2017-2021 American Community Survey data [Universe: population age 15 and over] • Percent population in renter occupied housing units, 2017-2021 American Community Survey [Universe: population in occupied housing units]	ngh_index
Youth Index [DCJS,BPD/O] Taken as the summation of standard deviation units of the following indicators: • 2019-2021 average annual arrests for violent offenses (aggravated assault, forcible rape, murder, robbery) among juveniles, per 10,000 population [Universe: population under age 18] • 2016-2018 average annual pregnancies (births + abortions + spontaneous fetal deaths) by mother's age, per 1,000 population for the middle year of the three-year time period [Universe: female population ages 15-19] • 2018-2021 average rate of poor (levels 1-2) English performance [Universe: all students tested]	youth_index
Aggregated Risk Index Taken as the summation of standard deviation units of all risk indicators.	agg_risk

Selected Indicators Matched with Hawkins and Catalano Categories

Hawkins and Catalano Category		*Matching Indicators*
I.	**Availability of Drugs**	alc_off_pr_rd alc_off_pr pop
II.	**Availability of Firearms**	N/A
III.	**Community Laws and Norms Favorable to Drug Use, Firearms and Crime**	alc_off_pr_rd alc_off_pr_po p ngh_index
IV.	**Transition and Mobility**	mov_count y rent_pop ngh_index
V.	**Low Neighborhood Attachment and Community Disorganization**	mov_count y rent_pop crm_crmis ngh_index
VI.	**Extreme Economic Deprivation**	z_pov Gini ngh_inde
VII.	**Family History of Problem Behavior**	de_cirrhos de_trauma
VIII.	**Family Management Problems**	youth_index
IX.	**Family Conflict**	nv_married ngh_index
X.	**Early and Persistent Antisocial Behavior**	youth_index
XI.	**Lack of Commitment to School**	g8_eng_l12 youth_index
XII.	**Alienation and Rebelliousness**	oasas_u18 youth_index
XIII.	**Academic Failure Beginning in Late Elementary School**	g8_eng_l12 youth_index
XIV.	**Early Initiation of Problem Behavior**	jar_viol preg_15_1 9 oasas_u18
XV.	**Friends Who Engage in Problem Behavior**	de_trauma gono_all preg_15_1 9 oasas_u18
XVI.	**Substance Abuse**	oasas_u18 crime_index
XVII.	**Delinquency**	de_trauma jar_viol crime_inde
XVIII.	**Favorable Paternal Attitudes and Involvement in Problem Behavior**	de_trauma crm_crmis crime_index
XIX.	**Teen Pregnancy**	preg_15_19 youth_index

INTERPRETING RISK

1. The small table at the top details the population characteristics of the selected zip
    - The raw values for "Population" and "Population under 18" are given
    - The proportion of the total zip code population under age 18 is listed in parentheses, after the raw value of "Population under 18"
2. The primary output table contains columns for the Hawkins and Catalano Categories and
    - The value column shows the raw value for the indicator as outlined by its
        - Note that the Composite Crime, Neighborhood, and Youth Problem Behavior Indices only show quartile values and do not show raw values. (See the Technical Documentation for more details.)
    - The Quartile column identifies where the value for this indicator for the inputted zip
        - 1 = the bottom 25% of values for the indicator - the lowest level of risk
        - 2 = 25% - 50% of values for the indicator - lower than average risk
        - 3 = 50% - 75% of values for the indicator - higher than average risk
        - 4 = the top 25% of values for the indicator - the highest level of risk
    - Indicators that have quartile values of 3 or 4 show an elevated level of risk for the specified zip code, and are recommended for use in Needs Assessments
    - Indicators in the 4th quartile are specifically identified by an asterisk
3. Once you have generated a report, you can simply copy and paste it into a word processing program
4. The Maps of Indicators documents available for download from this website contains quartile-based maps of these key indicators for use as supporting documentation in Needs
    - The Maps of Indicators supplement the Risk Analysis by providing a visual display for each indicator showing how the selected zip code compares to the rest of the county

Technical

1. Data sources. Risk indicators were compiled using data from several sources. Below is the list of data sources and abbreviations identifying them in the table of risk indicators:

   (a) Federal and state sources:

U.S. Census Bureau American Community Survey	CEN
New York State Education Department	NYSED
New York State Department of Criminal Justice Services	DCJS
New York State Liquor Authority	SLA

   (b) Erie County and local sources:

City of Buffalo Police Department	BPD
Erie County Department of Health	DH
Erie County Department of Mental	DMH

2. Missing data values. Even when an indicator is available, not every ZIP Code record will have an associated value; for some the value will be missing. Common reasons for missing data are data availability and small populations (see below).

3. Small populations. Since all indicators are essentially ratios of the form cases/population (expressed as percent or per 10,000), it is important to avoid unreliable indicator values due to small populations. For this reason, an arbitrary threshold of population greater than 100 was set. If the total population for a particular ZIP Code area is less than 100, then most population-based (i.e. with population in denominator) indicators will be missing for this record.

   - ❖ Some data are suppressed by the data source due to small numbers and the potential to violate confidentiality. If the subset of the population used to calculate a particular indicator (e.g. population under 18 for OASAS alcohol and substance abuse admissions) is less than 100, this data has also been suppressed.

4. Imputation of indicators. Sometimes the source data for calculation of the indicators were available at a spatial level other than ZIP Code area. In these cases, risk indicators were first calculated at the available level, and then imputed (transferred) to the ZIP Code level.

   Four imputation schemes were utilized in calculating the riskindicators:

   (a) From school districts to ZIP Code areas. This scheme was used to transfer data collected for school districts (e.g. performance on English tests) to ZIP Code areas and calculate corresponding risk indicators.

   (b) From police departments' areas of responsibility to ZIP Code areas. Crime statistics obtained from New York State Department of Criminal Justice Services (DCJS) are tabulated by law enforcement agencies in Erie County. Areas served by each law enforcement agency (usually a town or an incorporated place) were delineated and data were interpolated to ZIP Code areas for ease of use and for compatibility with crime data from Buffalo Police Department (see below).

(c) Data from the Buffalo PD for 2004 and beyond are incident-based (inclusive of all known crimes) and do not use the UCR coding system. Address-level records for crimes reported to DCJS by the Buffalo PD were geocoded and aggregated to compute their proportional shares per ZIP Code for each crime category. These proportions were in turn used to interpolate the 2010-2013 DCJS crime counts to provide better spatial detail of crime within Buffalo; this method is more appropriate and reflective of actual crime patterns when compared to simple population or areal interpolation.

As an example of how this spatial interpolation works, consider interpolating school data from school districts to ZIP Code areas. Specifically, let's calculate the risk variable g8_eng_l12 (low grade 8 English exam scores as percentage of tested students) for ZIP Code area 14001.

- We start by allocating low score counts (e.g. numbers of cases of students with low scores) from each school district to ZIP Code areas, proportionately to the percent of population of each school district which lives in a specific ZIP Code area (as determined by spatial overlay operation in a GIS). For example, the population living inside the boundaries of Akron Central School District is distributed in the following way: 90.0% of the population lives in ZIP Code area 14001, 4.6% in 14004, 3.5% in 14032, and 1.9% in 14013. Hence, the total number of low-scoring students for the Akron district, 80, is split up between these ZIP Code areas as follows: 72.00 for ZIP Code area 14001, 3.68 for 14004, 2.80 for 14032, and 1.52 for 14013.

- Next, we sum up allocated counts for each ZIP Code area. ZIP Code 14001 receives counts from three school districts: Akron (90.0% of Akron's total count of suspensions), Alden (5.0% of its count), and Clarence (14.9% of its count). The total suspension count for ZIP Code area 14001 is then:

$$g8\_eng\_l12_{14001} = g8\_eng\_l12_{Akron} * 0.900 + g8\_eng\_l12_{Alden} * 0.050 + g8\_eng\_l12_{Clarence} * 0.149$$

- Repeating the above procedure for the total students tested in ZIP Code area 14001, we can now compute the risk indicator variable suspension (low grade 8 English performance as % of tested students) for this ZIP Code area.

Note: Due to the lack of community-based schools in the City of Buffalo, the risk variable g8_eng_l12 (low grade 8 English exam scores as percentage of tested students) has been omitted from City of Buffalo only quartile rankings.

5. Decimal places. Values of risk indicators were rounded to two decimal

6. New York State Liquor Authority data. Data provided by the SLA was initially edited to remove locations that are not reflective of typical alcohol consumption patterns (e.g. concessions at the First Niagara Center where patrons must first gain entrance to the arena) as well as additional liquor licenses for singular locations (e.g. Soho Bar at 64 Chippewa Street in Buffalo has three on-premise licenses to accommodate the three separate bars located on the two levels of the single location). These data were then geocoded and aggregated to determine the counts of locations per ZIP Code which were then standardized by dividing by both 100 road miles and 10,000 population to reflect road network and population densities.

7. Adolescent Pregnancy Rate. Due to changes in policies at the Department of Health, disclosure of the adolescent pregnancy rates is limited to ages 15-19, rather than ages 10-19 as used in some previous versions of the database.

8. Gini Coefficient. A measure of statistical dispersion capturing inequality in a frequency distribution, in this case of household income. In this measure, 0 represents perfect equality, while 100 represents perfect inequality. Income inequality as measured by the Gini Coefficient is a risk indicator for mental health problems, particularly among adolescents.

9. The database includes five index variables: Composite Poverty, Youth, Neighborhood, Crime, and Aggregated Risk. To capture the information contained in several of the indicators, composite indices were constructed by converting indicators (detailed above in the Risk Indicator Description Table) into standard deviation units (z scores) and then summing their scores.

10. For the 2016 ACS 5-Year Estimates, Aggregate Supplemental Security Income and Aggregate Public Assistance Income data were missing for several ZIP Codes in Erie County. In the cases of missing data, data from the 2014 ACS 5-Year Estimates were substituted, as this data set was the last one to have complete listings of all Erie County ZIP Codes.