

Exploring the Social Determinants of Health In Wake County



Report Prepared for the John Rex Endowment
by the North Carolina Institute for Public Health, January 2018



UNC
GILLINGS SCHOOL OF
GLOBAL PUBLIC HEALTH

THE NORTH CAROLINA
Institute *for* Public Health

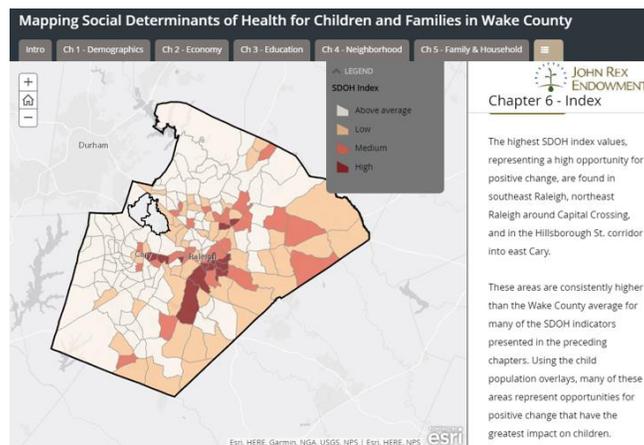
Executive Summary

Project Summary

The [John Rex Endowment](#) provides support and grantmaking to strengthen environments where children and families can live healthy lives in greater Wake County. The [John Rex Endowment](#) achieves impact through building organizational capacity, shaping community policies and environments and supporting system-level improvements. As part of an effort to inform their upcoming strategic planning process, the John Rex Endowment commissioned the North Carolina Institute for Public Health (NCIPH) to conduct an assessment of the current landscape in Wake County to inform how conditions in the places where children and families live, work and play affect their health and well-being, otherwise known as the social determinants of health (SDOH). The [John Rex Endowment](#) has a strong history of supporting efforts that address SDOH.

The assessment included several components and used an iterative approach, with each part of data collection and analysis informing the development and implementation of subsequent components. NCIPH first conducted a literature review examining various social determinant of health frameworks, followed by a review of data reliability with subject matter experts. The result was a compilation of 40 indicators that could be mapped at the neighborhood level. The Story Map uses census tracts to define neighborhoods because the data available through the American Community Survey 5-year average has the most validity and reliability at this small scale compared to other sources. The full report contains additional information to identify these tracts with landmarks and a main cross street.

Through consultation with staff at the John Rex Endowment and further discussions with subject matter experts, 12 key indicators were chosen to create a Story Map using geographic information system technology to visually identify vulnerabilities and assets at the neighborhood level. The Story Map provides an index of the SDOH, an average of all 12 indicators resulting in a map of the county indicating neighborhoods with highest opportunity for improvements in children's health and well-being. The image below shows the SDOH index chapter of the Story Map.



The Story Map can both be used to learn more information about indicators on the neighborhood level and to look at an indicator across the county. The Story Map can be accessed at: <http://arcg.is/2pDFuXr> and the accompanying user guide at: https://nciph.sph.unc.edu/simon-cha/UserGuide_SDOHmap_v2017.pdf. See Appendix A: Story Map Neighborhood Descriptions for more

information.

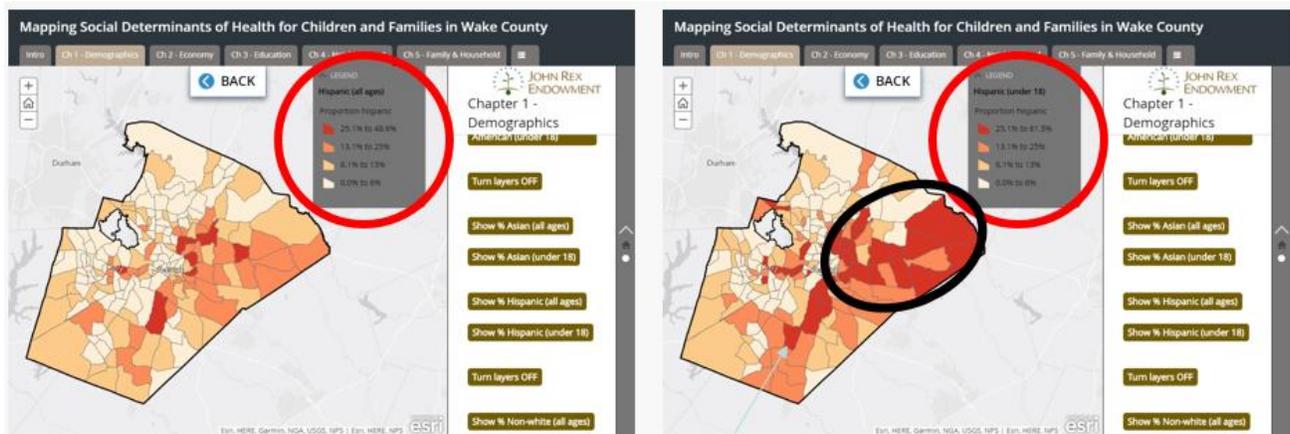
The next phase of the project engaged agencies and organizations working in various sectors through a series of 36 key informant interviews to gain a deeper understanding of the county's most pressing issues, resources, assets and challenges. A body of rich information emerged from these interviews, providing context to the indicators presented in the Story Map. The information from the collective interviews was analyzed, and priority themes emerged. Throughout this document, key informant quotes are highlighted. NCIPH also conducted a network analysis to visualize the connections between interviewed organizations and their partners, providing an additional perspective to understand how various agencies, organizations and coalitions are interrelated.

Additionally, NCIPH prepared a brief review of peer foundations across North Carolina and the United States who are focused on improving health outcomes through the SDOH, with the intention of providing tools, resources and potential leads for best practices from an endowment perspective that may benefit the John Rex Endowment's planning process.

Overview of Current Landscape

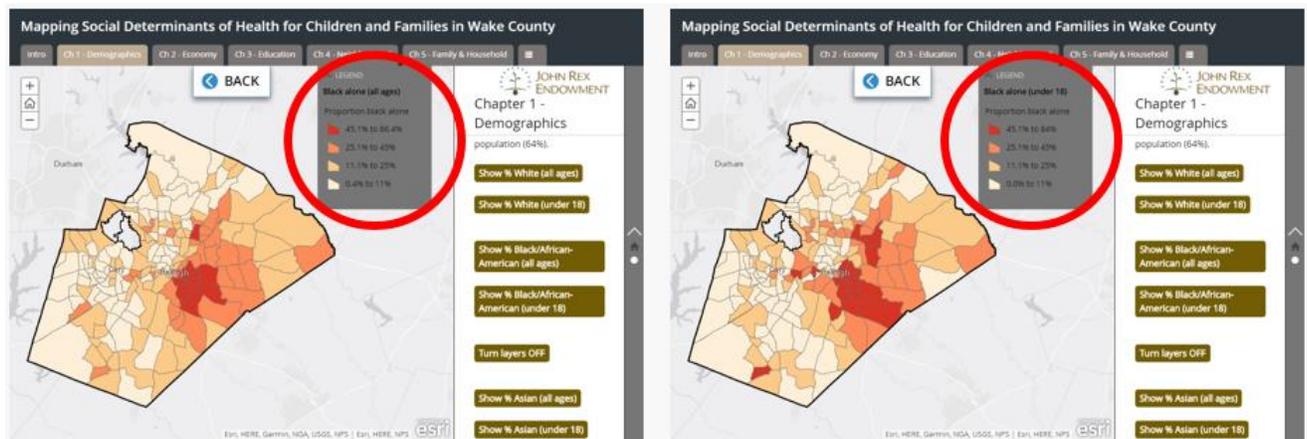
With a population of 976,019, Wake is the second most populous county in the state. The demographics of the county are consistent with those of North Carolina as a whole. A majority of Wake residents (61%) identify as non-Hispanic white, consistent with the state average of 64%. Children represent approximately one-quarter of the county's population. All population numbers presented in this report and in the Story Map are sourced from the latest U.S. Census estimates, primarily the American Community Survey five-year estimates (2011-2015).

Of the county's more than 245,000 children (under the age of 18), 53% identified as white alone (not Hispanic or Latino) in 2015, a percentage which has decreased every year since 2009 when it was 58%. In particular, the population of Hispanic youth is growing. In some neighborhoods, the Hispanic population under age 18 is as high as 62%, compared to 49% for all ages. Hispanic youth population has grown 1.6% over the past decade. The image below is from the Story Map and demonstrates how the youth Hispanic population on the right is both growing in additional neighborhoods compared to the adult Hispanic population presented on the left and growing at a faster rate than the adult population.



In the 2007-2011 census, the African-American youth population made up of 22.9% of the total youth population and this percent declined by 1.1% to 21.8% in the latest 2012-2016 census. The Story Map
January 2018

image below illustrates how the youth African American population on the right is growing in some neighborhoods not in exact parallel to the adult African American population.



Approximately 33% of Wake County families with children live in poverty (below 200% of the federal poverty level),¹ compared to 48% across North Carolina. Over 15,000 children live in the 14 neighborhoods highlighted in the SDOH Index as “high opportunity for positive change.” Eighty percent of the households with children in these neighborhoods live in poverty. On a related note, within these neighborhoods, 17% are headed by single mothers, 49% experience high housing costs and 32% have low access to food and transportation. Interestingly, despite high levels of poverty, only 25% of households are enrolled in the Supplemental Nutrition Assistance Program (SNAP).

Of note, for the 65,000 Wake County children under the age of 5, there are 311 high quality child care facilities rated four or five stars by the NC Division of Child Development. As presented in Chapter 3 of the Story Map, the total number of high quality child care facilities is highest in eastern and southeastern Raleigh, corresponding with a large child population. More information is needed to better understand accessibility barriers to high quality child care, particularly around the availability and distribution of child care vouchers. On a state level, leaders are working to advocate for additional child care subsidies to be made available.

Wake County has many high-income residents with plentiful resources, but with the rising cost of living, many families are feeling squeezed.

“There is a lack of protective factors: lots of insecurity and instability in basic needs for many families. Struggles around lack of education regarding developmentally appropriate behavior for kids, high stress levels in parents, unemployment, employment insecurity, over-employment (working multiple jobs to make ends meet), haphazard child care, no child supervision, mental health and substance abuse issues, lack of affordable, safe, appropriate child care.”

¹ The 2017 Federal Poverty Guideline for a family of four is \$24,600. However, since the cost of living in Wake County is higher than average, the 200% guideline was deemed more appropriate.

Summary of Primary Themes

The analysis of key informant interviews resulted in an array of information with complex layers. Below is an overview of the primary themes that emerged from key informants working at both the community and systemic levels and across multiple sectors. The information presented in the Story Map was also considered in the development of the priority themes. The 10 themes are presented in alphabetical order.

Connections within communities is of high value

Neighborhoods are becoming disenfranchised as development efforts purchase buildings that previously accepted housing vouchers, thereby displacing seniors, families and others. This impacts neighborhoods' abilities to organize and create sustainable support systems.

Community development was indicated to be central and necessary to elevate community voices and to build connections within neighborhoods; however, lack of sustained resources and staff turnover have negatively impacted such efforts. Community development efforts are seen as being key to building economic opportunity for local residents, building and regaining trust, reducing crime and other benefits.

"There is lots of work [being done] in civic engagement. There is more education about services, but at the same time, there is a lack of connectivity."

"Organizations are good at providing services. They are limited in their connections with the community. Community members should be mentors and feed into the program. (Develop community leaders to take on some of the provision work.) Let's use the community members to identify who is most in need. It's the resourceful people who are good at finding resources, but that doesn't necessarily mean services are reaching those most in need."

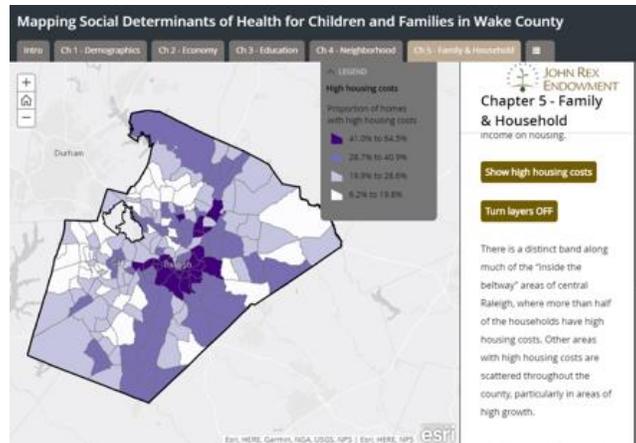
Housing affordability is at a tipping point for vulnerable families

The topic of housing affordability arose and was discussed in interviews across all sectors. It is widely understood that housing costs are rising as subsidized housing availability is rapidly decreasing. Vulnerable families previously residing in urban areas of Raleigh, where many of the services families need exist, are being forced to relocate. Families are relocating to more rural areas both inside the county and beyond.

"The housing situation in Wake County is changing dramatically. Old neighborhoods being torn down, families being displaced, affordable housing is a mess. There aren't enough Section 8 homes, and the situation is getting worse."

Across the county, 29% of families are spending more than 30% of their income on housing, and in certain neighborhoods, this is true for three out of five households.² The image below from the Story Map illustrates where families are experiencing high housing costs, primarily within the beltline.

² Housing is generally a family's greatest single expenditure, and housing is considered affordable when a family spends less than 30 percent of its income on rent or mortgage.



The number of families with children finding themselves homeless is growing. Obtaining an accurate account of the number of homeless children is challenging because children under age 5 are not counted in the public schools' reported numbers through the McKinney-Vento Homeless Assistance Act definition.³ Homeless families live in multiple scenarios, including living with family members, thereby "doubling up," living in hotels for extended periods of time, moving from church to church and utilizing shelters. Key informants report that policies are not in place to prioritize homeless families with children for housing subsidies, nor are there protections in place for families who have been displaced from subsidized housing to hotels.

"There is a significant increase in the number of children living in hotels this year. Hotels don't want this either. There are no protections for families — hotel managers can increase the rates, kick them out, even after they have paid for a week."

"Hotel living for children is living in a prison. Doubling up is not ideal either. It can also be dangerous. Mom is dependent on the individual who is hosting, which puts her in a vulnerable position. Family members may make her feel bad. Always a risk of being kicked out for the smallest infraction. Can't control how their children are treated. Higher risk of abuse."

Housing, food, transportation, employment, child care and health care access are intertwined

In interviews with key informants working in affordable housing, employment, transportation, child care, food access and health access, it became clear that progress in one sector would positively influence progress in the others. Vulnerable families are likely to face challenges across each of these areas, yet service provision is not holistic or well-coordinated across systems. Families' ability to access healthy and affordable food is greatly impacted by their ability to access safe, reliable and convenient transportation. Similarly, parents and especially mothers' ability to seek employment or participate in workforce development programs is impacted by access to high quality, affordable child care, often on short notice. These are all pressing issues for vulnerable families and children.

"Sustained living is only possible with stable employment, which depends on affordable child care and transportation."

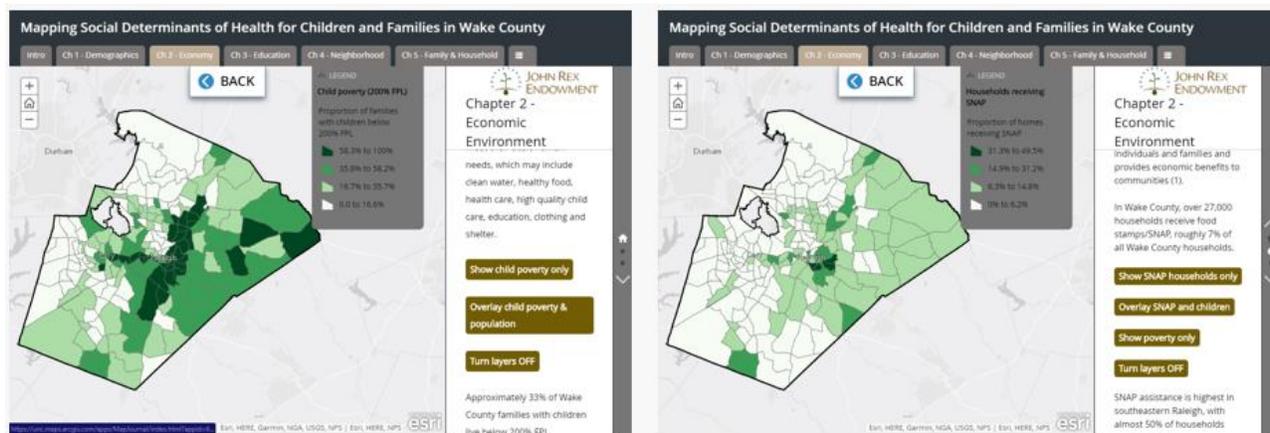
While the percentage of residents living without health insurance is 12%, compared to the state estimate

³ <https://hepnc.uncg.edu/mckinney-vento-rights-services-eligibility/>

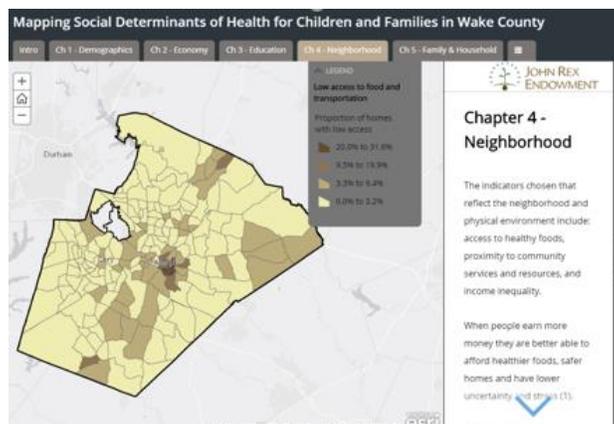
of 14%, in certain neighborhoods over 30% of residents are uninsured. Working families are often working multiple jobs and face competing financial priorities. Access to health care is a challenge for some families, especially around transportation. Foster parents sometimes struggle to access multiple needed services for the children in their care due to logistical challenges and work schedules. Encouragingly, public health clinics and safety net providers are starting to screen for issues such as living conditions, food security and more.

“[Clinics and safety net providers] are working to implement county-wide SDOH screening for all medical visits. The three things they’re most focused on with this are: housing, food security and personal safety.”

Over 27,000 households receive food stamps/SNAP, which is roughly 7% of households. In some neighborhoods, almost half of all households are receiving SNAP. That said, with 33% of families with children living in poverty, we would expect enrollment in SNAP to be higher. More information is needed to better understand barriers to receiving SNAP or other available assistance. The image below from the Story Map presents child poverty on the left and SNAP enrollment on the right.



Only 3% of residents live in food deserts, which are described as having challenges to securing nutritious, affordable and healthy food close to home that is easily accessible with transportation; however, this percentage is concentrated in certain urban and rural areas. The image below from the Story Map locates food deserts as indicated by the darker shaded neighborhoods.



There is currently considerable momentum to create better coordinated services to connect vulnerable families with food.

“I see a lot of traction around food access. It’s critical for health and for kids to be prepared for learning. You can’t move up Maslow’s Hierarchy without basic needs, such as housing and food, being met.”

“I predict we won’t see huge changes in the first year because food insecurity is deep, but there is potential to drive the percentage of food insecure people down in the next five years. If the plan works, there will be more organizations working together on the same end goals. Real potential to create long-term change through policies.”

As demonstrated in Chapter 3 of the Story Map, there are likely adequate numbers of high quality child care facilities serving neighborhoods where vulnerable families are living. As mentioned above, additional information is needed to better understand how well child care subsidies are serving families most in need. Additionally, as the child population grows in the outskirt areas of the county and as urban families are relocating due to housing affordability challenges, the need for high quality child care facilities will grow as well.

Key informants indicate that there is a child care gap for families, and especially single mothers, who are in need of workforce development program support to facilitate stable employment opportunities. They often need immediate, short-term, high quality child care that is nonexistent. Adding additional challenges such as transportation and/or homelessness creates too high of a burden.

“If we could have additional funds or relationships with [child care] providers where the cost was discounted. We often need immediate access for our parents. A job or work based learning opportunity becomes available and they need immediate child care or the opportunity is lost. It’s a timing issue (from a workforce perspective). Lack of child care (dependability) is a major issue.”

Wake County has complex transportation needs that cross over into neighboring municipalities outside the county. Efforts to increase the availability of complete streets, those that offer safe opportunities for vehicles, cyclists, public transportation and pedestrians are underway. From the planning perspective, there are strong partnerships between the transportation and education sectors to better meet the transportation needs of children and schools. Opportunities to elevate community perspectives representing the specific needs of vulnerable families would benefit children and their parents.

Immediate service needs take precedence over prevention

There is widespread understanding and acknowledgement that shifting towards preventative work is needed. There are very clear exceptions to this but overall efforts are focused on “meeting people where they are” and are not as concerned with the potential factors that may have contributed to their current needs. Key informants stressed the need for efforts to shift to focus more on prevention for all sectors and areas of work. In addition, there is agreement that investing in young children impacts long-term outcomes. The concept of focusing interventions for positive impact on children’s lives prior to the end of third grade is well known.

“There is not enough [emphasis] on prevention. From an academic perspective, we see the achievement gap is consistent after third grade no matter what we do. We must impact 3rd”

grade and well before to have impact. Factors may include things like affordable housing, food etc.”

Immigrant families face challenges in a changing context

Immigrant families, specifically Latino families, are struggling. Given the current political environment, Latino families are hesitant to use public services that they once utilized.

“In the past year, there’s been a dramatic decline in Hispanic families accessing social services as a whole, probably due to the political climate and uncertainty around immigration laws and enforcement.”

More information is needed to assess how well organizations providing support, services and resources to this population are integrated with public services available to the wider community. A lack of Spanish-speaking staff in public service agencies and organizations creates barriers to accessing services. Similarly, additional public transportation routes are needed that serve the neighborhoods where Latino families live, work and access services.

“Major issues facing the Hispanic community include immigration, law enforcement, transportation, language barriers.”

“Bus lines don’t necessarily go directly from Hispanic ‘pockets’ of the county to where lots of health care and other services are. Getting a driver’s license may not be possible, or if you have one, parking can be hard to find and/or expensive.”

Wake County is seeing an increase in other immigrant populations, including refugees, which brings additional challenges, including language barriers and mental health needs for those who have experienced traumatic events.

“Increase in refugees. Increase in trauma around Hispanic populations for fear of deportation. Families are scared to talk with us. Then third, trauma in general. I wonder if we are seeing an actual increase or if we are just more aware of trauma. We are now more sophisticated in understanding the links between brain development and trauma.”

Investment in organizational capacity building is appreciated

Particularly among community-based organizations, opportunities for organizational training and support are limited, and when offered they are greatly valued. Smaller community-based organizations lack basic technology and supply needs. Community-based organizations are focused on “staying alive” and “putting out fires.” Having access to short-term consultants who can do some capacity building would be helpful. Organizations welcome opportunities to learn how to work more strategically.

Leaders call for coordination and integration of services and referrals

“Wake is great” was a slogan often heard in our key informant conversations, as was “Wake is growing.” The size of the county as well as its assets have helped bring about a plethora of organizations working to improve the life and welfare of all Wake County residents and especially vulnerable populations. Agencies and organizations are asking for the design and creation of coordinated systems for tracking service provision and referrals.

“At the macro level, we are so siloed. We’re spending the same money on the same kids. We desperately need better coordination across agencies. I’ve seen it done well in other states.”

“We need to learn how to offer training on adversity and diversity. We need assistance to diversify our funding sources and to reach new emerging areas. There is a gap in the middle class. There are others struggling. We need increased capacity to create a centralized system to bring services in different groups together as a brokerage bridge. We need to collect all the resources for preschool, for senior citizens. There is an overall lack of coordination. Services change all the time.”

Key informants spoke of the dramatic differences between geographic areas of the county in terms of economics and a desire to better connect those in need of resources with those who have considerable resources.

Wraparound services or thoughtful ways to combine service areas in holistic ways are generally seen as a best practice. Combining services like early childhood education and access to healthy foods makes good sense, but it takes an intentional effort to bring them together. Similarly, helping parents recover from substance abuse and simultaneously find housing and employment involves multiple systems working together. Across interviews we heard a desire for more centralized locations for multiple services and more holistic approaches for care by improving the ability for systems to work together.

“We need a COMPREHENSIVE approach focused on health but also well-being. We (health care/public health) need to find ways to integrate with connecting/providing housing, nutritious food, transport to and from work, and medical care etc. We already support people in this, but we need to do it better, differently.”

The key informant interviews revealed a consistent request for services to be offered in more geographically centralized locations, commonly referred to as a “one-stop shop.” This seemed to be a higher need for families caring for children with special health care needs, including children in the foster care system.

“I know improvement is possible because I’ve seen it. Substance abuse requires long-standing treatment, and in the health care arena, there are limits on providers for how much time they can spend with patients. The conversation starts with, ‘What solution will work?’ instead of looking at all the factors in someone’s life.”

Several key informants commented on how they would like to have access to up-to-date, relevant and reliable data that could better inform their work. Similarly, they would like to contribute data into centralized, well-coordinated systems that could benefit others outside their organization. Specifically, organizations are requesting high quality, coordinated referral systems that would allow them to track the people they serve as they access other services.

“We need data sharing around children who are experiencing homelessness. We refer families to resources, but then we don’t know what happens. We would benefit from having something like Wake Connections.⁴ We would like to be able to track our families,

⁴ Wake Connections is a coordinated intake and referral system that connects families to high quality home-based programs.

especially since they are moving from place to place.”

Mental health service capacity is inadequate to children’s growing needs

As Wake County’s children’s population continues to grow, their mental health needs are growing too. There is a lack of providers and crisis beds serving children.

“There is a huge shortage of crisis beds. The judicial system handles thousands of involuntary commitments annually (both adult and juvenile), and there are terrible problems with finding a place to commit these individuals. Much of this started with the closing of Dorthea Dix; while services were supposed to be provided in community settings (replacing hospital setting), the community infrastructure wasn’t there. A new juvenile facility had been planned at one point, but that fell through. The shortage of juvenile crisis beds is a real problem.”

There is a similar lack of capacity within systems children interact with, such as schools. Mental health services are needed for very young children, including those that attend day care and early education. Additionally, mental health support is needed for their caregivers both at home and day care/school.

“There is also a real need to support the mental health of the providers themselves, especially teachers and child care workers who care for children with special mental health needs.”

Most, if not all, crises and/or residential programs are geared for adults, and few will accept adolescents. Scheduling assessment for students is challenging, and crisis placement is a major problem. There is an overall need to increase awareness of how trauma impacts children and families.

“The revolving door of going from family to family to shelter to car – psychologically [it] beats you up.”

“In the past, the biggest need was parenting classes, but now there’s a lot of mental health need. I would love mental health services to be universally integrated with medical care.”

Organizations would benefit from improved prioritization and alignment

There is a multitude of organizations in Wake County with competing priorities. Leadership development around prioritization and focus could be beneficial.

“People want to solve problems. Good leadership can help focus on a small number of things. Don’t pick new priorities every three years. We need to stick with a few priority areas longer.”

Key informants spoke of their desire for county-wide efforts to be more focused, to take on fewer priority areas at a time and to align efforts. The Community Health Assessment’s plan for how to address priority areas should be communicated with community-level organizations. On a related note, new priorities are chosen every three years or so, making traction challenging. Other informants talked about being thoughtful, particularly at the community level, to make investments where they will have the largest impact.

“Wake County has the right intention. The pieces and parts are in place, but how do we connect them? I’d like to see trying to change the organizations fundamentally and create an underlying structure.”

“There are so many resources in Wake County, and there is way too much vying for positions where they can be in charge of a ‘big table;’ and they never get anything done! Meanwhile, the systems that are supposed to be working to help vulnerable families keep those who lead and allocate the resources too far removed from those who serve. This feeds the problem of vying for position because, when the focus is on the organization’s position, it’s easy to overlook its mission. There’s a big need to intentionally align resources and efforts.”

“Population growth is happening in multiple ways, bringing more vulnerable families into the picture. For example, new babies are born into poverty, and families are moving into the area. We don’t have the capacity to serve all the families in need. We are not adding staff fast enough to keep up. We have it better than other counties. There is not a lot left [of funding] because of competing priorities. We have very good partners, but without a comprehensive plan, we do not have enough.”

Root causes go beyond poverty

Racial equity, inequity in general and intergenerational poverty are “upstream” factors that need addressing in order to affect poverty. Leaders who have worked in depth on these issues point to needed investments in connecting socially and [building] trust, work skills that prepare parents and young adults for employment opportunities that can sustain self and family, and preventive work to avoid adverse childhood events, as well as resiliency building.

“There is so much anxiety about immigration and racial tension: kids of color do not feel emotionally safe.”

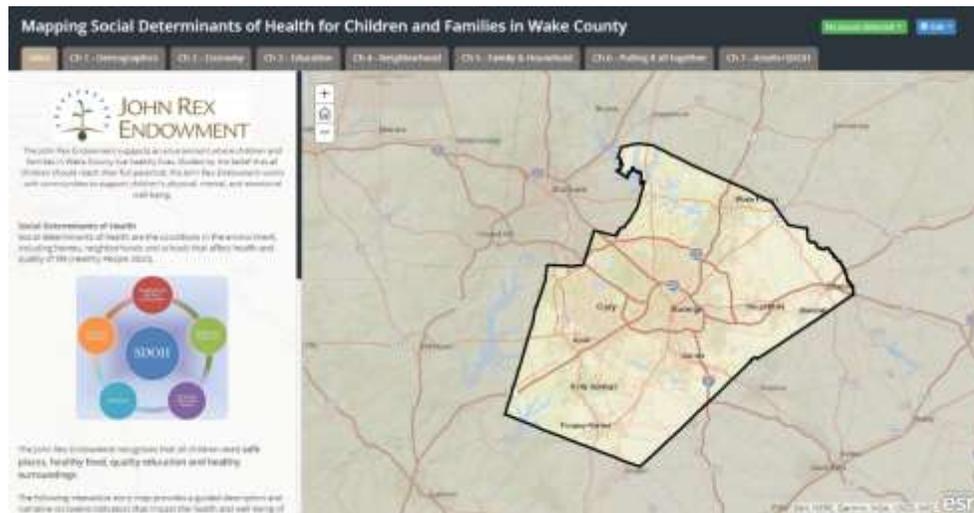
“Racial equity/inequity is the root of all issues, including intergenerational poverty. Upstream factors that would help include social connectivity — making space for people who have been marginalized to have a seat at the table. There is lots of thinking on this.”

Conclusion

The primary themes highlight that Wake County is both growing and dynamic. While families thrive in many parts of the county, there are specific neighborhoods and populations that struggle to live in ways that promote health and well-being. Mental health needs and affordable housing are the most pressing issues facing families. This assessment examined the contextual factors for these and other concerns with the intention that the priority themes highlighted above will help frame planning and discussions for the John Rex Endowment and their partners.

User Guide:

Mapping Social Determinants of Health and Assets for Children and Families in Wake County – A Story Map



Shareable link to <http://arcg.is/2pDFuXr>

-or-

<https://tinyurl.com/JRE-SDOHmap>

The story of Mapping Social Determinants of Health (SDOH) for Children and Families in Wake County examines the social, economic and environmental factors that influence health. Wake County organizations who work to create a healthier environment can use the story to narrow their focus on specific neighborhoods or they can view specific indicators across the county. For example, if a goal is to increase access to high quality child care facilities then the story map can be used to locate which neighborhoods do not have access to these resources. In addition, if interested in increasing SNAP enrollment, the story maps paints a clear picture of where the highest concentrations of children living in poverty are located and where SNAP enrollment is low.

Note that most of the data is sourced from the U.S. Census Bureau's American Community Survey (ACS) 5-year estimates from 2011-2015. The terms 'neighborhood' and 'census tracts' are interchangeable. The U.S. Census Bureau publishes ACS estimates at the block group and tract level. Census tracts were chosen as the estimates at this level because they are more stable and reliable compared to block groups which consistently have very low reliability estimates. There are a total 187 U.S. Census Tracts in Wake County, two of which are uninhabited (RDU and Umstead Park).

Story Map Navigation Tips

1. When first viewing the map tabs and layers they might take a few seconds to load. After being viewed the first time they will subsequently load more quickly as cached images will be stored in the browser.
2. **Navigation between the SDOH 'environments'** occurs by clicking on the chapter tabs at the top of the page. Specific indicators and other maps are included within each tab and can be accessed by scrolling through the text on the right pane.
3. **Navigation within maps:** There are two ways to zoom in and out on the maps. The mouse wheel can be used or the '+' or '-' in the upper left hand side of the map can be used (Figure 2). Once an image is zoomed in, clicking and dragging is possible on the map to pan and pinpoint desired location(s) of interest. As the maps are zoomed in on, additional details will be displayed such as city and town names and roads.
4. Once you are zoomed into your area of interest you can click on a neighborhood to access the SDOH data on that census tract in a **pop-up box**. Use the scroll bar to view all the info in the pop-up (Figure 1).
5. To return to the zoomed out view of Wake County, click the home icon in the upper left hand corner (Figure 2).

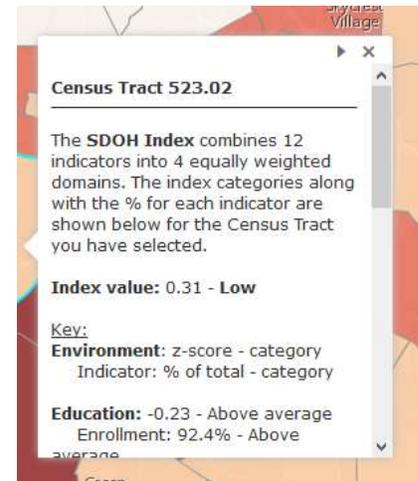


Figure 1. Example pop-up text box displaying SDOH data.

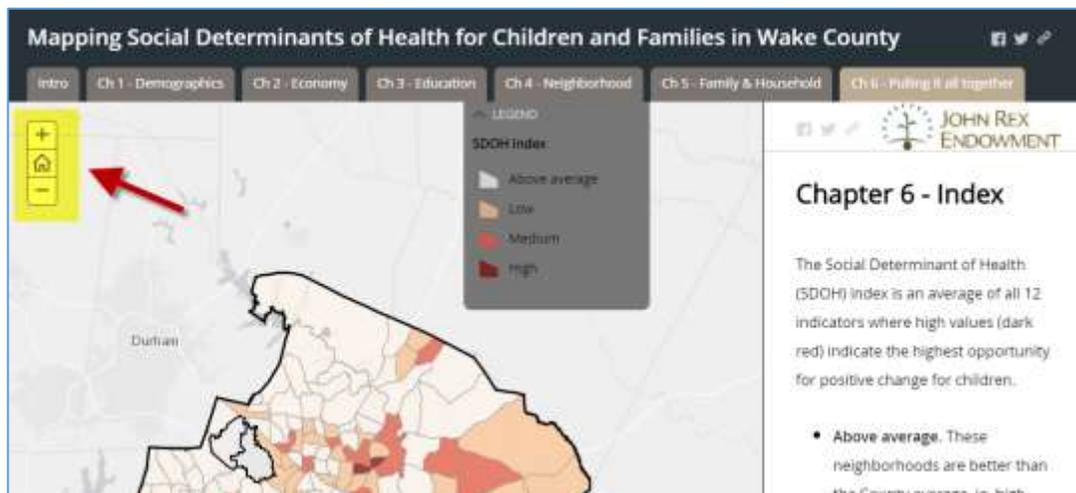


Figure 2. Zoom in with the + button, zoom out with the -, and return to the original extent with the home icon.

6. Brown buttons that say “Show INDICATOR” or “Turn layers OFF” (Figure 3) can be seen throughout the story. These buttons assist to explore the different indicators and help determine which particular census tract may be of interest. Turning all layers off while zoomed in will help identify road names and landmarks.

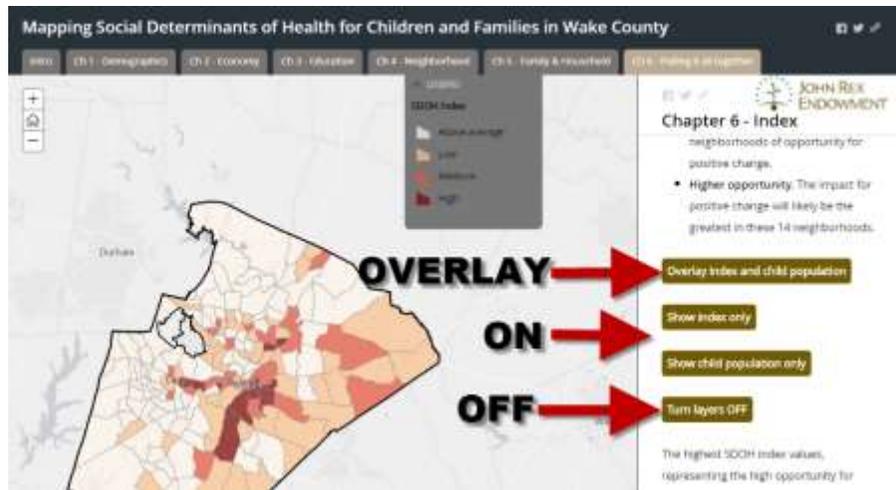


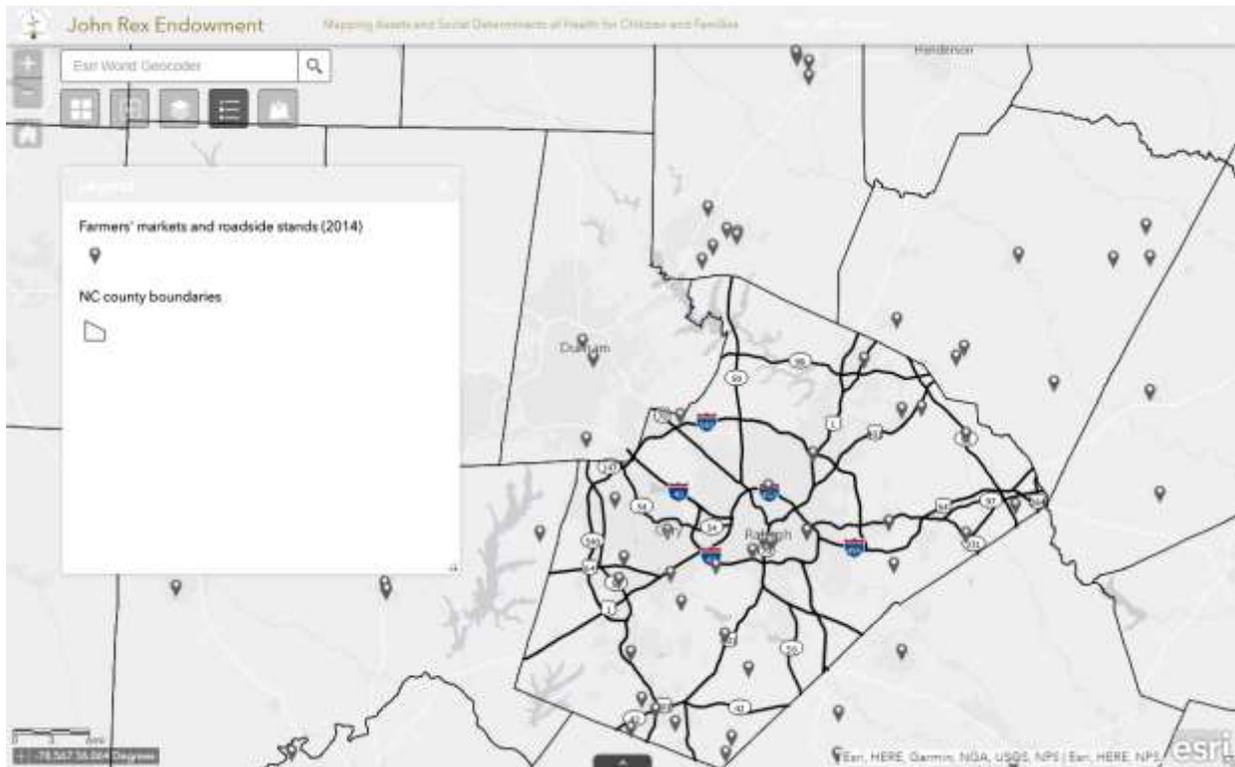
Figure 3. Overlay, On and Off buttons are found throughout the story map.

7. There is also the ability to ‘overlay’ multiple layers in several sections of the story. In Figure 3, ‘Overlay index and child population’ will show the index value in solid colors for each census tract and then place different size yellow dots on top of each census tract that represent how many children live there.

To embed the story in an existing webpage supply the following link to your web developers:

```
<iframe width="100%" height="800px"
src="https://unc.maps.arcgis.com/apps/MapSeries/index.html?appid=5eb9f9d962914ab19e5b454b30637104" frameborder="0"
scrolling="no"></iframe>
```

Chapter 7: Mapping Assets and Social Determinants of Health for Children and Families in Wake County



The Asset Chapter of the Social Determinants of Health Story Map is structured more like a mapping application and less like a guided story. In the place of a guided narrative there are a set of tools that allow you more power to manipulate each individual data layer. For example, you will be able to turn on and off all of the layers, change their transparency, swipe between layers or even add your own data.

Assets Map Tips:

1. **NAVIGATION.** Similar to the Story Map, there are two ways to zoom in and out on the maps. The mouse wheel can be utilized or the '+' or '-' in the upper left hand side of the map can be used. Panning is possible by clicking and holding the left mouse button, just as on Google Maps. As the maps are zoomed in, additional details will be displayed such as city and town names and roads.
2. **TOOLS.** A set of tools are located in the upper left hand corner to help manipulate the data (Figure 4). While hovering your mouse over the tool icons, text will appear with the names below. A brief description of each tool is outlined below.



Figure 4. Asset map tools.

- a. **ZOOM IN OR OUT.** The plus symbol zooms in closer while the minus symbol zooms out.
- b. **HOME.** This button will return to the zoomed out view of Wake County.
- c. **BASEMAPS.** Allows switching between a set of basemaps maintained by ESRI (Figure 5). By default the Light Gray Canvas is loaded as this allows for high contrast between map layers and the background.

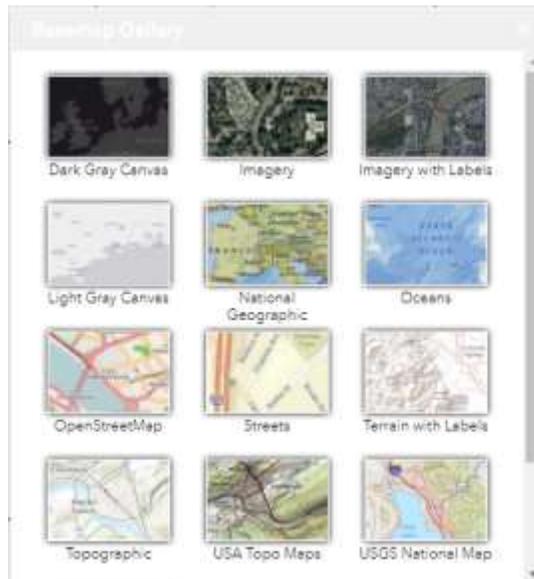


Figure 5. Basemap gallery.

- d. **SWIPE.** This tool allows swiping one layer on and off. This is an alternative to turn the layer on and off in the Layer List. A layer has to first be turned on in the Layer List before swiping on/off can occur. In the adjacent image, the SDOH index is the chosen swipe layer. To disable the swipe tool click on the icon again so that it is no longer dark gray.

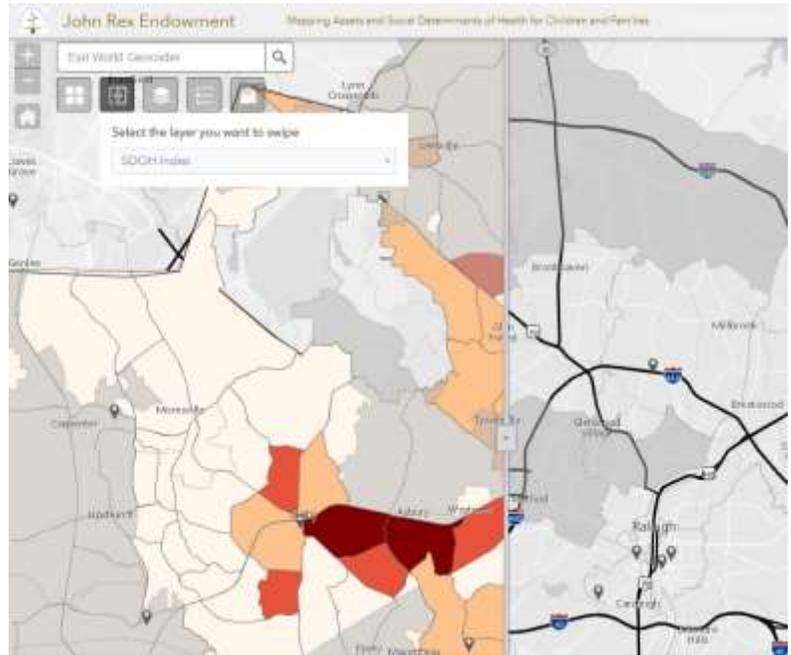


Figure 6. The swipe tool

- e. **LAYERS.** This tool will shows all of the available layers and this is how layers are turned on and off, transparency can be changed, drawing order can be adjusted, and the attribute table can be viewed. Checking the box next to the layer name turns the layer on or off. If a layer is 'grayed out' that means it is not viewable at the current map scale. For example, the bus stops can only be viewed when you zoom into a neighborhood since showing them at the full extent would obscure large portions of the map since there are so many stops. Clicking the small arrow to the left of the check box will show the legend for that particular layer. In the adjacent image, highways are shown, bus stops are turned on but not visible and the legend for total child population has been shown, but the layer is not turned on.

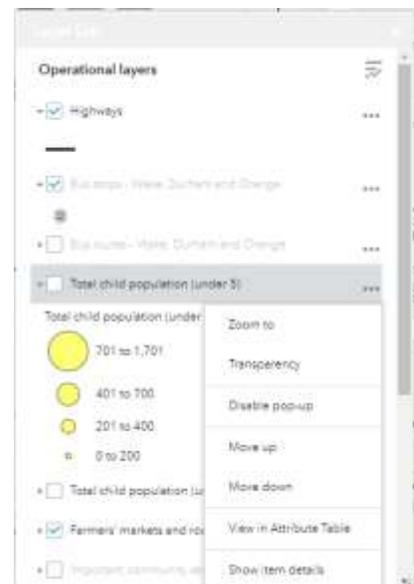


Figure 7. Layers tool or the table of contents.

Additionally the image above shows how to *zoom to* the layers extent, how the Transparency can be adjusted, how *pop-ups* can be disabled as well as how to move the layer above or below others and open the *Attribute Table*.

- f. **LEGEND.** By default the legend will be displayed but only one tool can be active at one time and if you open the layers tool, the legend will disappear. Clicking this button will bring the legend back (Figure 8).
- g. **ADD DATA.** The Add Data tool allows bringing in data from ArcGIS Online, another GIS server or from a local file. Shapefiles (in a zip file) or data from a spreadsheet can be added. Note that data uploaded during a session is temporarily added to the map and will not be stored there permanently. Take careful note of the steps taken to add data in order to reproduce this for subsequent visits to the site.

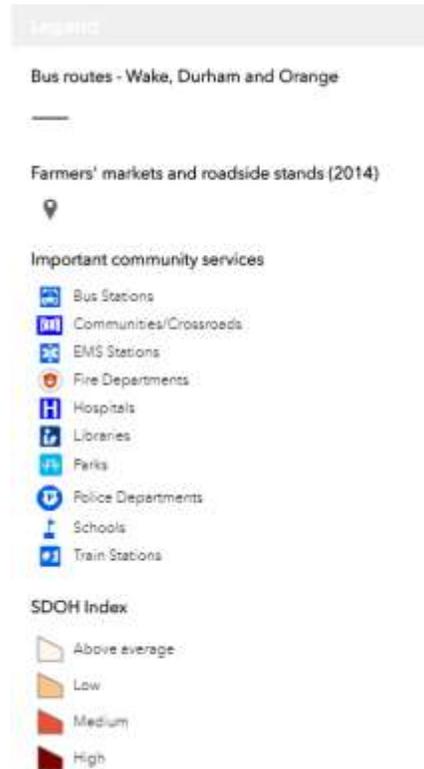


Figure 8. The Legend tool.

- h. **SEARCH BAR:** The text “ESRI WORLD GEOCODER” is in the search bar indicating that searching for any address in the world using this search bar is possible. Typing an address into this box allows locating points of interest on the map. Additionally, a placemaker may be added as seen below in Figure 9.

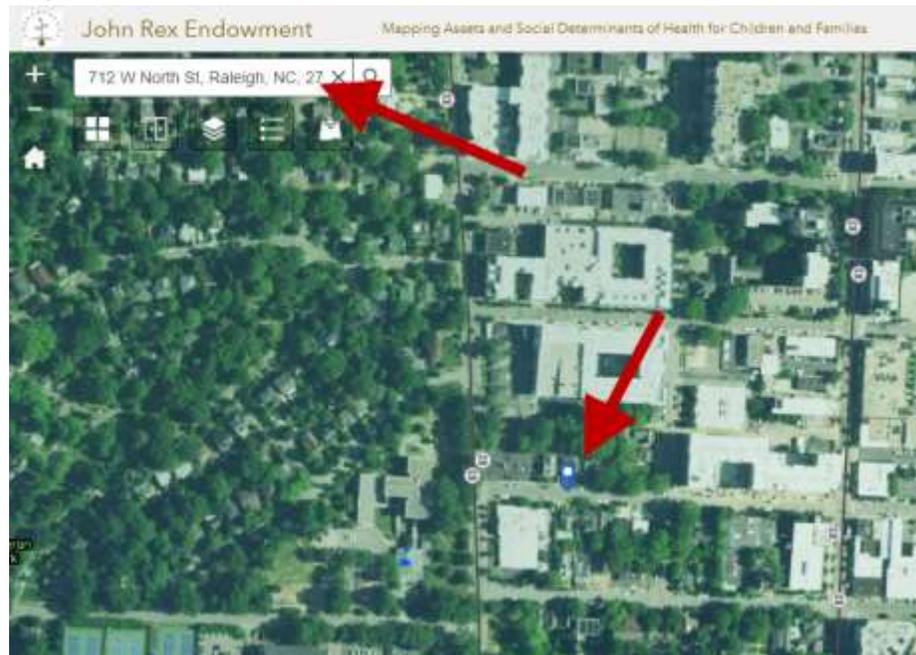
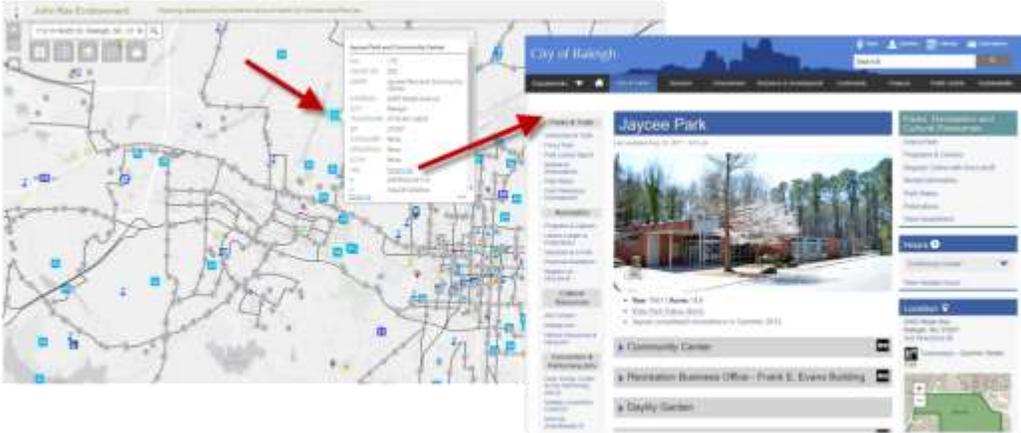


Figure 9. The search bar allows you to search for any address in the ESRI World Geocoder

Note that some of the pop-ups have hyperlinks that will relocate to a dedicated website for that particular resource. The image below displays the park location for Jaycee Park and Community Center and the “More info” link will bring a user to the Jaycee Park website.



One final powerful utility is the ability to view all of the attribute, or tabular data, behind the maps. From the Layers Tool the Attribute table of any layer can be opened. The image below displays the attribute table for the Important Community Services. The attribute tables for Bus Stops, Bus Routes, Farmers’ Markets and Points of Interest are also viewable by clicking on the tabs.

