

EnviroAtlas Use Case

EnviroAtlas is a collection of interactive tools and resources that allow users to explore the many benefits people receive from nature. This use case is an example of how EnviroAtlas data and tools can be used in a Health Impact Assessment (HIA) to address community health concerns and needs.

www.epa.gov/enviroatlas



Evaluating a Proposed Policy to Promote Physical Fitness in Public Parks

The use of EnviroAtlas in a Health Impact Assessment (HIA),
Town 'n' Country area of Tampa Bay, Florida

<http://amatampabay.org>



Hillsborough
County Florida



Objective of the Use Case

❖ Background

- To demonstrate how EnviroAtlas tools and data can contribute to an HIA¹ to assist decision-makers in a health context.
- The key decision assessed in this HIA is whether to adopt a policy permitting local businesses and organizations to provide free outdoor exercise classes in county parks.

❖ Screening

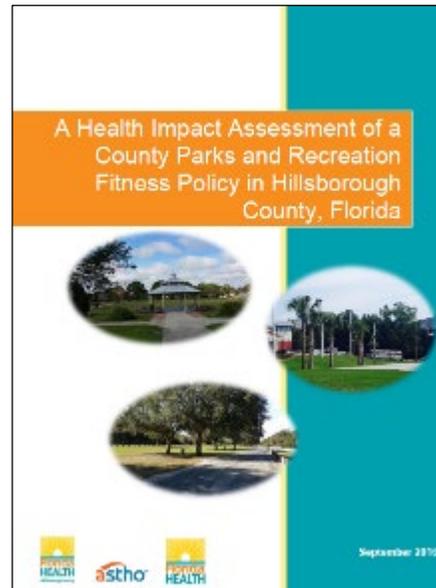
❖ Scoping

❖ Assessment

❖ Recommendations

❖ Reporting

❖ Conclusion



www.rehabcenter.org

¹ An HIA is “a systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects” (National Research Council of the National Academies).

HIA Location: Hillsborough County, Florida

❖ Background

❖ Screening

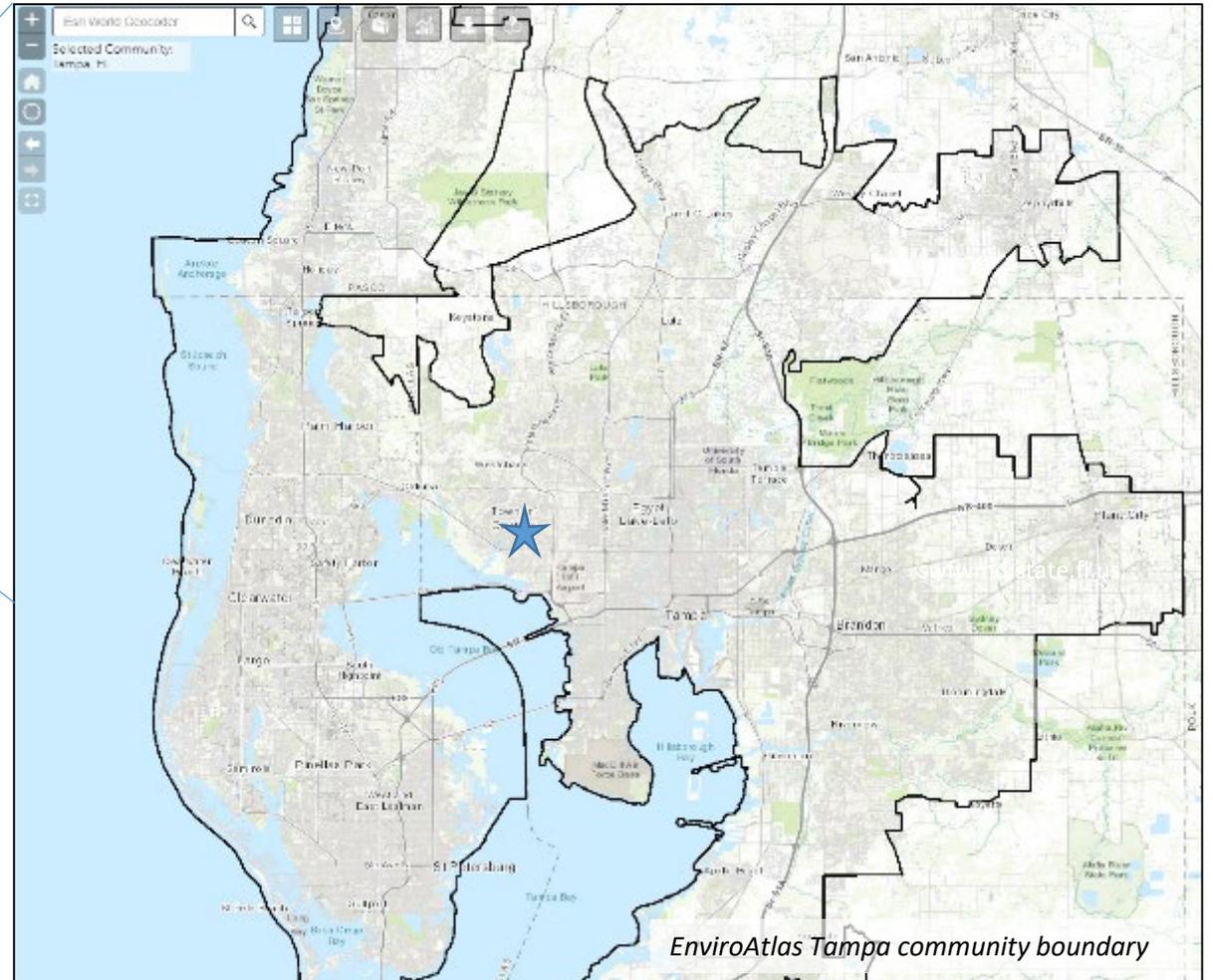
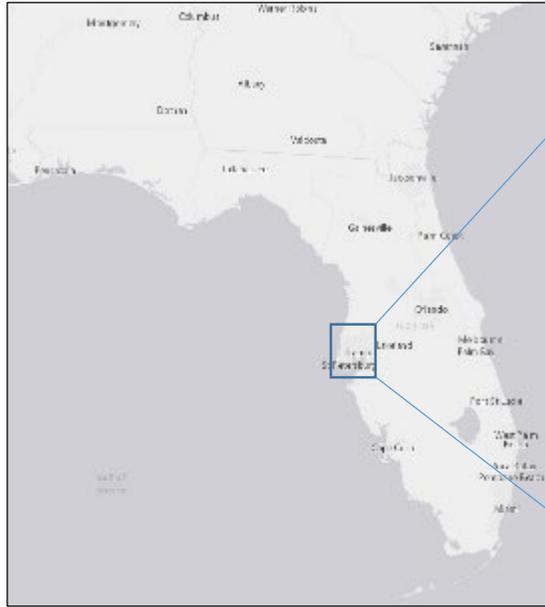
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EnviroAtlas includes fine-scale maps and resources for the urbanized area around **Tampa, FL** in Hillsborough, Hernando, Pasco, and Pinellas Counties.

The HIA focused on the ★ **Town 'n' Country** area in Hillsborough County, Florida.

EnviroAtlas and the HIA Process

❖ Background

○ A primary aim of EnviroAtlas is to assist stakeholders with decisions regarding nature’s benefits to families and communities.

❖ Screening

○ EnviroAtlas can inform the HIA process on current environmental status and how key decisions concerning the environment may affect different groups of people, including vulnerable populations.

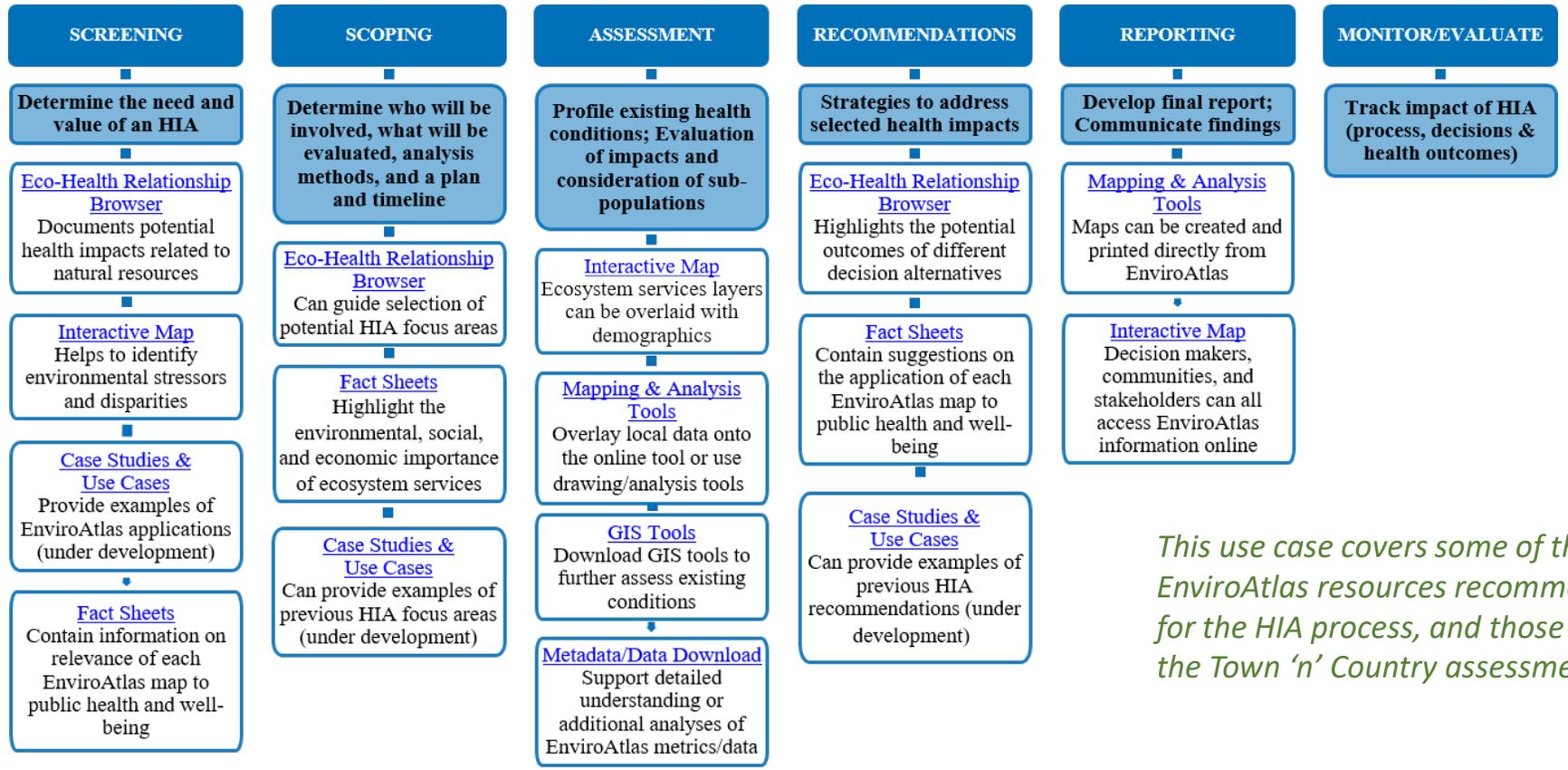
❖ Scoping

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This use case covers some of the EnviroAtlas resources recommended for the HIA process, and those used in the Town 'n' Country assessment.

HIA Approach Taken by The Florida Department of Health

❖ Background

❖ Screening

- Objective: Consider the potential public health benefit of permitting outdoor fitness classes in public parks.

❖ Scoping

- Target group: Adult (20-64 yrs.) residents in a predominantly Hispanic/Latino community

❖ Assessment

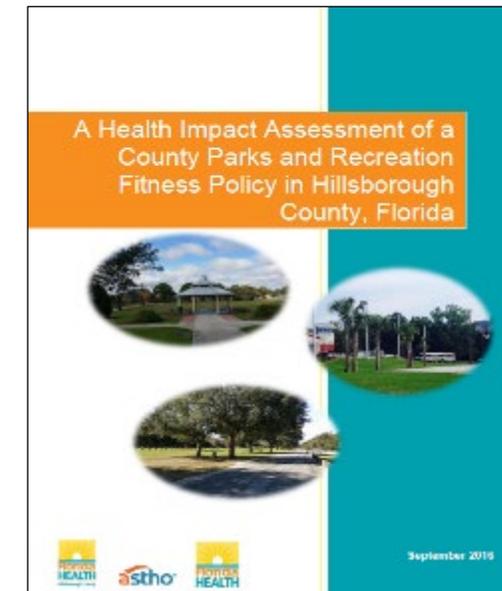
- Stakeholders: The Florida Dept. of Health—Hillsborough County (DoH-Hillsborough) partnered with the county's Dept. of Parks, Recreation, and Conservation in August, 2014.

❖ Recommendations

- Process: The HIA included input from the public, considered vulnerable populations and determinants of health, examined short and long-term health impacts, and provided results and recommendations.

❖ Reporting

❖ Conclusion



Why is Hillsborough County Considering Fitness Classes in Parks?

❖ Background

❖ **Screening**
Determine the need and value of an HIA

❖ Scoping

❖ Assessment

❖ Recommendations

❖ Reporting

❖ Conclusion

Issue	Total Mentions
Obesity	43.6%
Access to care/insurance/transportation	33.3%
Diabetes	23.1%
Dental Care	17.9%
Places to exercise/parks	15.4%
Heart disease/high blood pressure	12.8%
Mental health	10.3%
Cancer	10.3%
Emergency/services	10.3%
Neighborhood safety	10.3%

Top 10 Health Issues in Hillsborough County
Source: Healthy Hillsborough



- A sedentary lifestyle contributes to greater stress levels and increased risk of diabetes, obesity, and cardiovascular diseases.
- About 26% of adults in the State of Florida are sedentary in their lifestyles (CDC Behavioral Risk Factor Surveillance System, 2016).
- Data on adult exercise levels suggest that Hispanics/Latinos are the most sedentary (32%) of the racial/ethnic groups assessed in the county (Florida CHARTS, 2013).
- Despite numerous city, county, and state parks and recreation centers located in Hillsborough County, there are various barriers to their use for exercise such as not having an instructor/ facilitator or group activities offered.

Allowing free outdoor fitness programs in parks could increase opportunities for physical activity and promote park visitation.

How Can Parks Promote Public Health?

❖ Background

❖ **Screening**

Determine the need and value of an HIA

❖ Scoping

❖ Assessment

❖ Recommendations

❖ Reporting

❖ Conclusion

- Urban green spaces are linked to increased physical activity.
- Outdoor physical activity yields greater health benefits than indoor equivalents.
- Benefits include healthy weight, cognitive function and emotional well-being.
- Vulnerable populations such as low-income and minority groups are especially likely to benefit.



Determining Potential Health Outcomes

The EnviroAtlas Eco-Health Relationship Browser helped identify potential health effects associated with increased participation in physical activity.

❖ Background

❖ **Screening**

Determine the need and value of an HIA

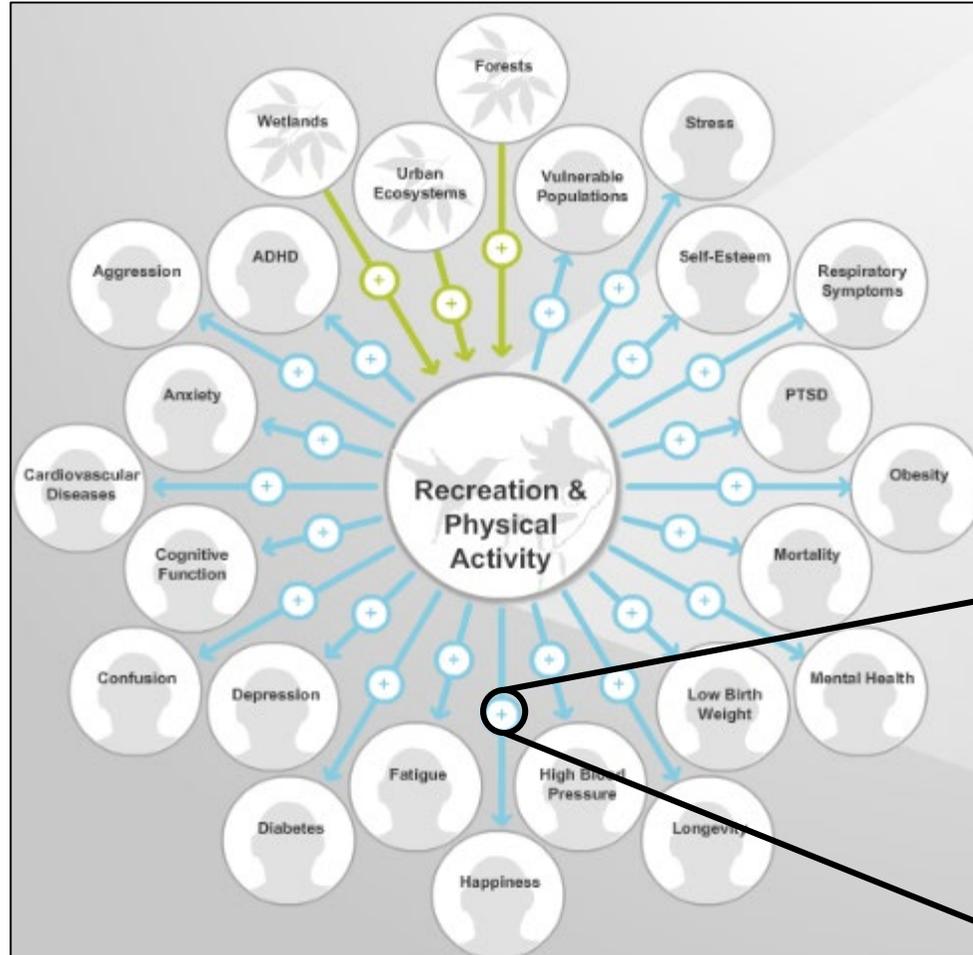
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This interactive tool shows linkages between health issues of concern and their relationships to the presence or absence of particular ecosystem services.

Recreation & Physical Activity

is one of six topics that demonstrates impacts on human health outcomes



HAPPINESS / RECREATION & PHYSICAL ACTIVITY

Walking and other exercise in nature can positively affect self-esteem, emotional well-being and mood.

- Evidence -

[1] In a multi-study analysis, researchers found that acute short-term exposures to green exercise

The Browser includes over 30 health outcomes, as indicated by 500 + published studies.

The Town n' Country HIA drew from the Eco-Health Relationship Browser to identify short- and long-term health benefits that could be addressed by the proposed policy.

❖ Background

❖ **Screening**

Determine the need and value of an HIA

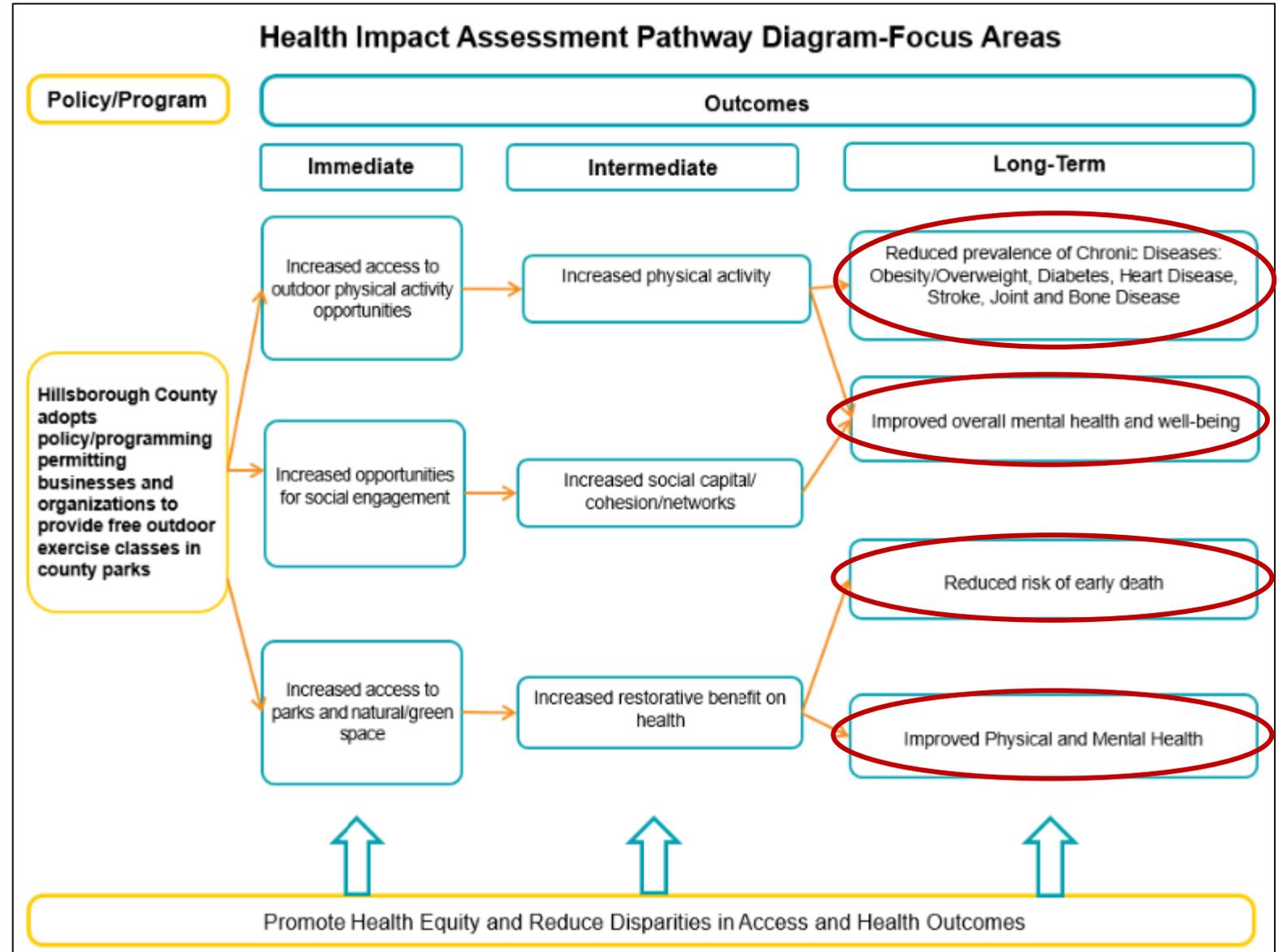
❖ Scoping

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Selecting the Study Area with Population Data

❖ Background

❖ Screening

❖ **Scoping**

Determine who will be involved, what will be evaluated, analysis methods, and a plan and timeline

❖ Assessment

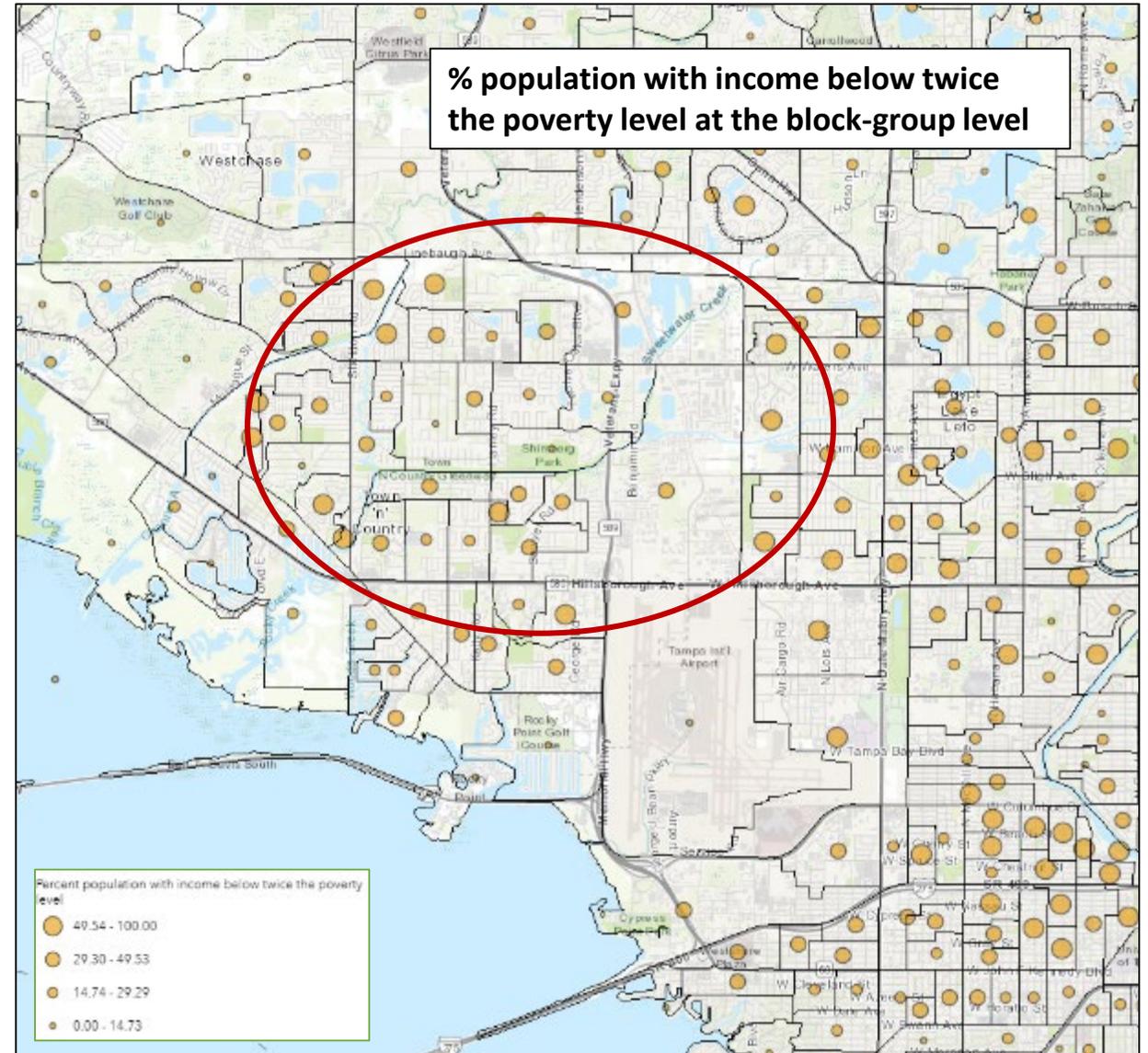
❖ Recommendations

❖ Reporting

❖ Conclusion

EnviroAtlas also includes U.S. Census socioeconomic data. These demographic maps supported the selection of the HIA study area to prioritize vulnerable populations when considering free outdoor fitness programs.

Town 'n' Country is circled in red. The graduated orange symbols show that a significant percentage of low-income residents live there.



What Additional Issues Should Be Considered?

❖ Background

❖ Screening

❖ Scoping

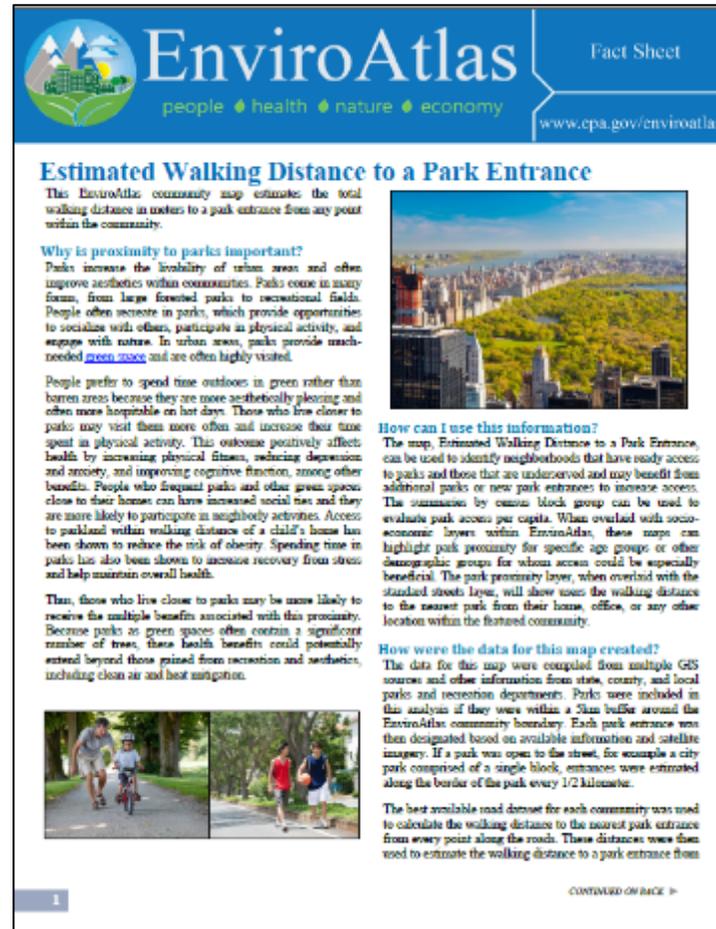
Determine who will be involved, what will be evaluated, analysis methods, and a plan and timeline

❖ Assessment

❖ Recommendations

❖ Reporting

❖ Conclusion



The EnviroAtlas community map estimates the total walking distance in meters to a park entrance from any point within the community.

Why is proximity to parks important?
Parks increase the livability of urban areas and often improve aesthetics within communities. Parks come in many forms, from large forested parks to recreational fields. People often recreate in parks, which provide opportunities to socialize with others, participate in physical activity, and engage with nature. In urban areas, parks provide much-needed green space and are often highly visited.

People prefer to spend time outdoors in green rather than barren areas because they are more aesthetically pleasing and often more hospitable on hot days. Those who live closer to parks may visit them more often and increase their time spent in physical activity. This outcome positively affects health by increasing physical fitness, reducing depression and anxiety, and improving cognitive function, among other benefits. People who frequent parks and other green spaces close to their homes can have increased social ties and they are more likely to participate in neighborhood activities. Access to parkland within walking distance of a child's home has been shown to reduce the risk of obesity. Spending time in parks has also been shown to increase recovery from stress and help maintain overall health.

Thus, those who live close to parks may be more likely to receive the multiple benefits associated with this proximity. Because parks as green spaces often contain a significant number of trees, these health benefits could potentially extend beyond those gained from recreation and aesthetics, including clean air and heat mitigation.

How can I use this information?
The map, Estimated Walking Distance to a Park Entrance, can be used to identify neighborhoods that have ready access to parks and those that are underserved and may benefit from additional parks or new park entrances to increase access. The summation by census block group can be used to evaluate park access per capita. When overlaid with socioeconomic layers within EnviroAtlas, these maps can highlight park proximity for specific age groups or other demographic groups for whom access could be especially beneficial. The park proximity layer, when overlaid with the standard streets layer, will show users the walking distance to the nearest park from their home, office, or any other location within the featured community.

How were the data for this map created?
The data for this map were compiled from multiple GIS sources and other information from state, county, and local parks and recreation departments. Parks were included in this analysis if they were within a 5km buffer around the EnviroAtlas community boundary. Each park entrance was then designated based on available information and satellite imagery. If a park was open to the street, for example a city park comprised of a single block, entrances were estimated along the border of the park every 1/2 kilometer.

The best available road dataset for each community was used to calculate the walking distance to the nearest park entrance from every point along the roads. These distances were then used to estimate the walking distance to a park entrance from

any point within the EnviroAtlas community area boundary. Areas with walking distances greater than 5km were omitted.

What are the limitations of these data?
All of the EnviroAtlas community maps that are based on land cover use remotely-sensed data. Remotely-sensed data in EnviroAtlas have been derived from imagery and have not been verified. These data are estimates and are inherently imperfect. Parks were included in this analysis if they were within 5km of the EnviroAtlas community area boundary. The locations of these parks were estimated using available data and some parks may inadvertently have been overlooked.

Walking distances were calculated using a national road dataset. Walking distances do not typically account for walking along greenways or other trails throughout a city, unless those trails were included in the road dataset. There may be a shorter route to a park if such trails are available. Areas with distances above 5km are displayed as "Insufficient Data" areas because there may be a park more than 5km beyond the EnviroAtlas community area boundary that was not analyzed during this study.

How can I access these data?
EnviroAtlas data can be viewed in the interactive map, accessed through web services, or downloaded. To find the EnviroAtlas 1-meter land cover grids created for each community, see land cover context in the interactive map search box.

Where can I get more information?
There are numerous resources on the relationships between parks and human health and well-being; a selection of these resources is listed below. For additional information on data creation, access the metadata found in the drop-down menu for each map layer listed in the EnviroAtlas table of contents and click again on metadata at the bottom of the metadata summary page for more details. To ask specific questions about these data, please contact the [EnviroAtlas Team](#).

Acknowledgments
The data for proximity to parks were generated by Alexandra Seaton, EPA Student Services Contractor. The fact sheet was created by Jessica Daziel, EPA Student Services Contractor and Laura Jackson, EPA.

Selected Publications
Cohen, D.A., J.S. Ashwood, M.M. Scott, A. Overton, K.R. Evenson, L.K. Staten, D. Porter, T.L. McKenzie, and D. Cokler. 2006. *Public parks and physical activity among adolescent girls.* *Pediatrics* 118(5): e1381–e1389.

Hartmann, R., S.-M. Hag, and K. Sealand. 2007. *Restoration and stress relief through physical activities in forest and parks.* *Urban Forestry & Urban Greening* 6(4): 213–225.

Mollic, C., M. Townsend, L. St. Leger, C. Henderson-Wilson, A. Pryor, L. Frouse, and M. Moore. 2008. *Healthy parks, healthy people: The health benefits of contact with nature in a park context.* School of Health and Social Development, Deakin University, Melbourne, Australia.

Mowen, A., E. Ortega-Smith, L.L. Payne, B. Ainsworth, and G. Godber. 2007. *The role of park proximity and social support in shaping park visitation, physical activity, and perceived health among older adults.* *Journal of Physical Activity Health* 4(2):167–179.

Payne, L.L., E. Ortega-Smith, M. Roy, and G.C. Godber. 2005. *Local park use and personal health among older adults: An observational study.* *Journal of Park and Recreation Administration* 23(2): 1–20.

Rodriguez, D. A., G.-H. Cho, K.R. Evenson, T.L. Cooney, D. Cohen, B. Ghosh-Dastidar, J.L. Pickrel, S. Veblen-Mortenson, and L.A. Lytle. 2012. *Dot and about: Association of the built environment with physical activity behaviors of adolescent females.* *Health & Place* 18(1): 55–67.

Sealand, K., S. Debonofre, and R. Hartmann. 2009. *Making friends in Zurich's urban forests and parks: The role of public green spaces for social inclusion of youths from different cultures.* *Forest Policy and Economics* 11(1): 10–17.

West, S.T., K.A. Shores, and L.M. Mink. 2012. *Association of available parkland, physical activity, and overweight in Australia's largest cities.* *Journal of Public Health Management and Practice* 18(5): 423–430.

Welch, J., M. Jarrett, K. Reynolds, R. McConnell, F. Chung, and N. Dahmann. 2011. *Childhood obesity and proximity to urban parks and recreational resources: A longitudinal cohort study.* *Health & Place* 17(1): 207–214.

EnviroAtlas: Led by the U.S. Environmental Protection Agency August 2013

Fact sheets for general audiences describe EnviroAtlas maps that are available for the study area, and help to identify key issues. They highlight the additive benefits of parks, green space, and tree cover—these include increased social ties and engagement with nature, as well as heat reduction and air pollutant filtration.

Target Parks in the Town 'n' Country Area

❖ Background

❖ Screening

❖ **Scoping**

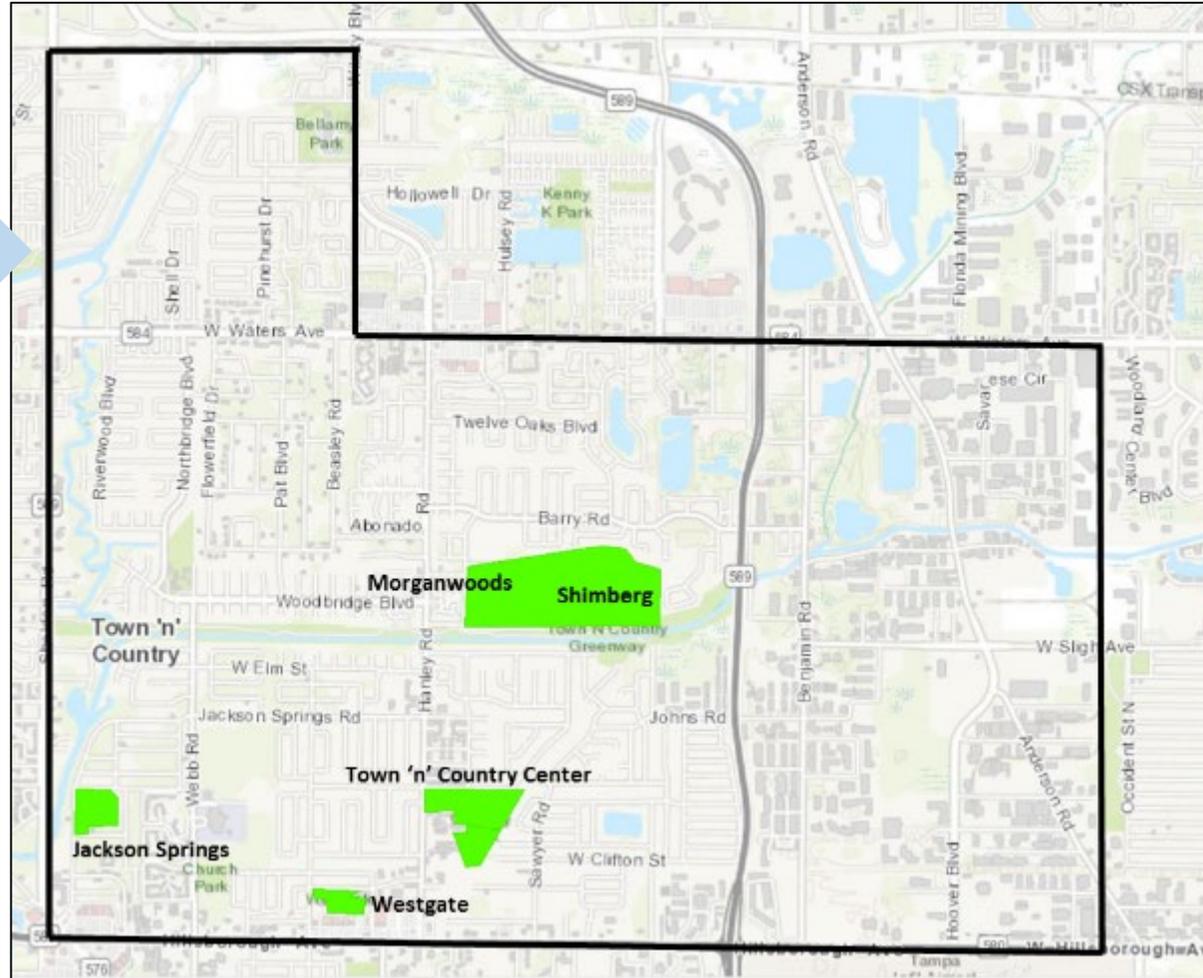
Determine who will be involved, what will be evaluated, analysis methods, and a plan and timeline

❖ Assessment

❖ Recommendations

❖ Reporting

❖ Conclusion



Study area (black lines) and target parks (green polygons) in the western part of the Town 'n' Country area of Hillsborough County, FL.

Town 'n' Country was chosen because it has:

- a large Hispanic/Latino population
- limited English language proficiency
- pockets of high poverty and low educational achievement

As a result of the assessment process, the HIA focused on a predominantly Hispanic/Latino community in the western part of the Town 'n' Country area. Target parks with nearby populations that might benefit from the proposed free outdoor fitness policy are shown in green.

Estimating Proximity to Target Parks in Target Area

❖ Background

❖ Screening

❖ Scoping

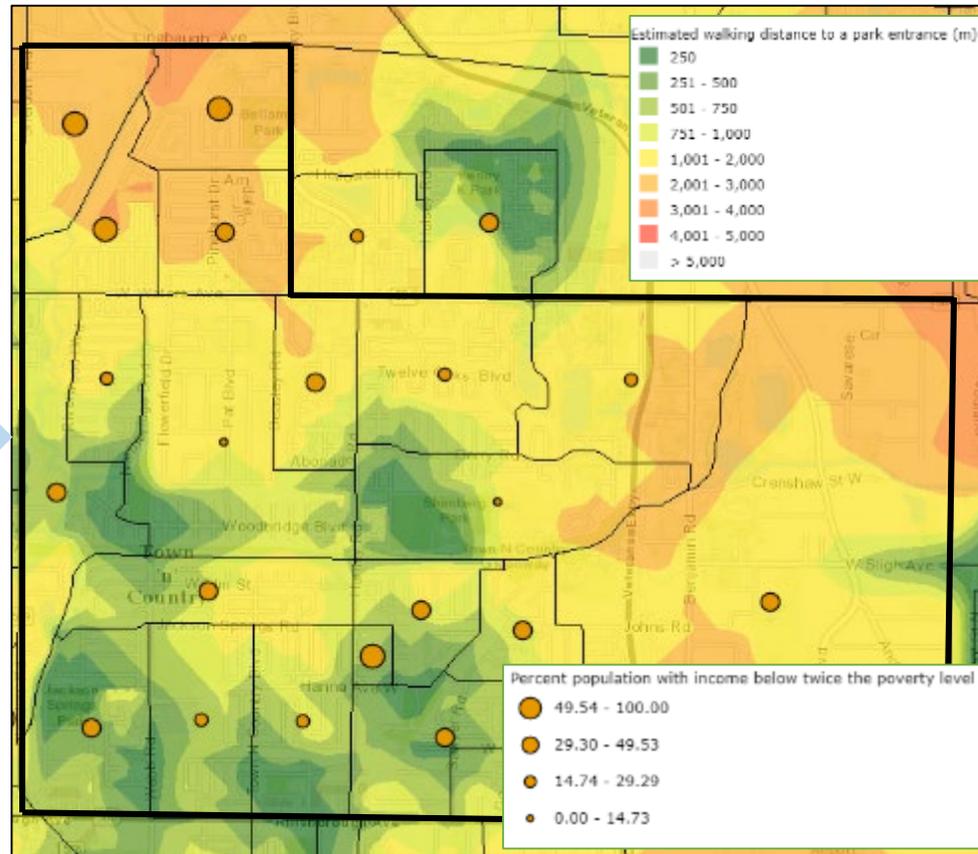
❖ **Assessment**

Profile existing health conditions, evaluate impacts and consider sub-populations

❖ Recommendations

❖ Reporting

❖ Conclusion



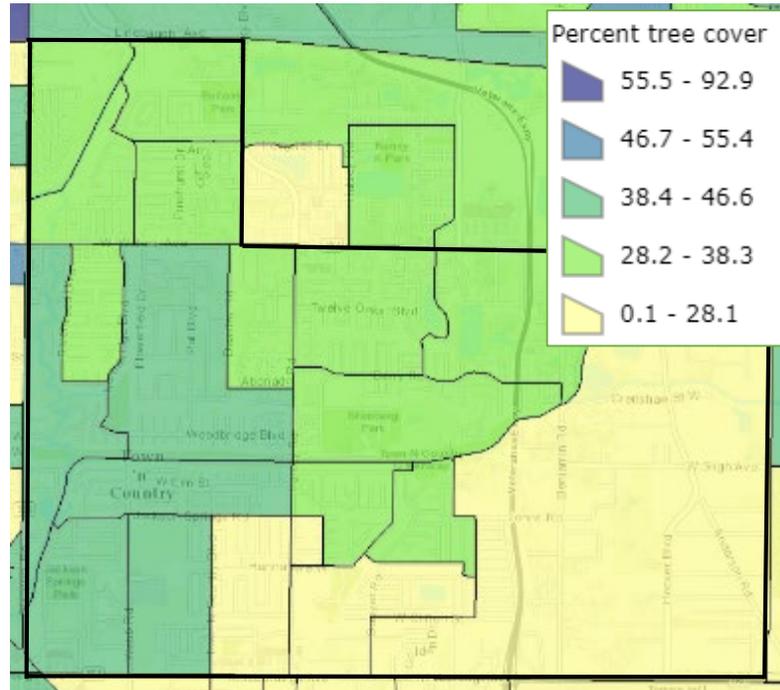
Estimated walking distance to a park entrance, overlaid with block-group census data on percent population with income below twice the poverty level.

Viewing EnviroAtlas' **proximity to parks** data in conjunction with **low-income population** data in the target area, can also be helpful for estimating access to the proposed physical activity classes among community members in greatest need.

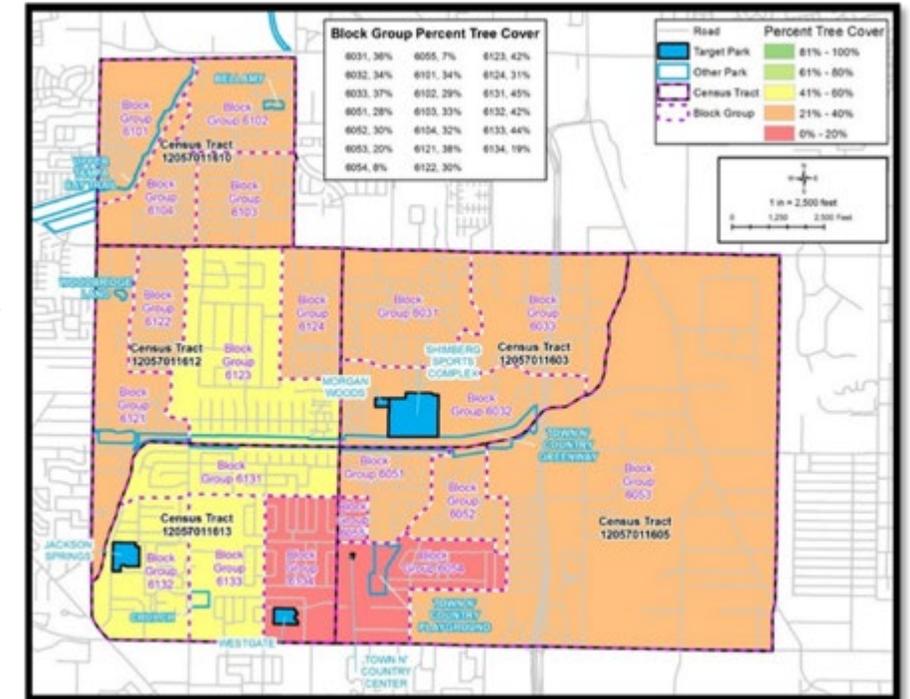
DoH-Hillsborough analysts calculated the population within 500 meters' walking distance from target parks and found that of the 28,086 estimated population in the target area, approximately 19 percent would have easy access to the proposed outdoor classes.

Estimating Tree Cover and Green Space in the Study Area

EnviroAtlas block-group level data were downloaded to create customized maps of percent tree cover and total green space.



EnviroAtlas Interactive Map of Percent Tree Cover



DOH-Hillsborough GIS Map of Percent Tree Cover

The HIA determined that significant parts of the study area have low tree cover and green space. Therefore, existing green infrastructure was considered unlikely to promote physical activity in the absence of the proposed incentive.

To download EnviroAtlas maps, go to [EnviroAtlas Data Download](#)

❖ Background

❖ Screening

❖ Scoping

❖ **Assessment**

Profile existing health conditions, evaluate impacts and consider sub-populations

❖ Recommendations

❖ Reporting

❖ Conclusion

Estimating Tree Cover along Walkable Roads in Study Area

❖ Background

❖ Screening

❖ Scoping

❖ **Assessment**

Profile existing health conditions, evaluate impacts and consider sub-populations

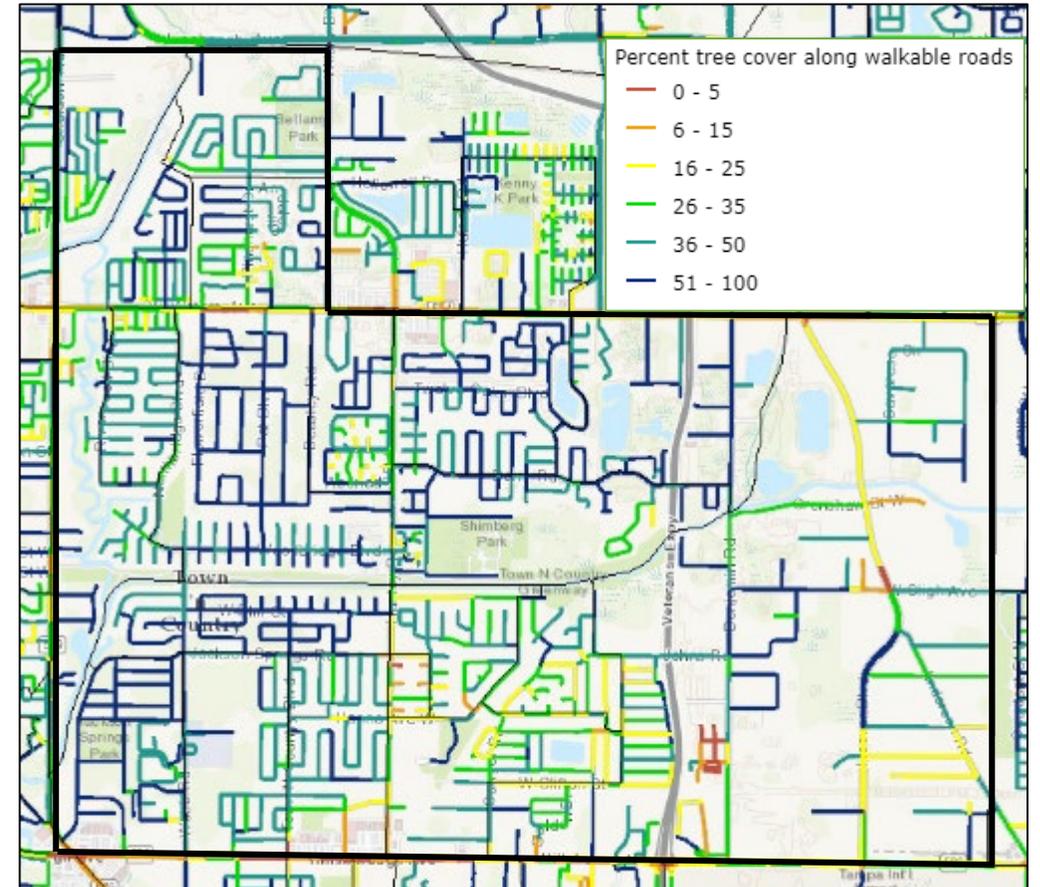
❖ Recommendations

❖ Reporting

❖ Conclusion

The EnviroAtlas map, **Tree Cover along Walkable Roads**, could also be valuable for estimating ease of access to parks and recreation centers in the study area.

Street trees provide aesthetic appeal while both walking to and participating in outdoor recreation. They also increase social contact and thermal comfort.



Percent tree cover along walkable roads at the block-group level in the target area.

Impact Predictions & Recommendations

Predictions

- The proposed policy would increase access to physical activity opportunities for the target population.
- There would be improvements in physical and mental well-being resulting from free or low-cost outdoor fitness classes in area parks.
- Engaging in physical activity in a natural setting (e.g., in parks) would improve physical and mental health because exercise improves fitness, but also because nature has a restorative benefit on health.

Recommendations

- Consider adopting a policy allowing outdoor fitness classes at County parks and recreational centers free of charge.
- Work with the citizens' advisory committee to perform a sidewalk/walkability audit within 500 meters of the target parks' entrances.
- Plant mature shade trees in and around areas where people congregate.

❖ Background

❖ Screening

❖ Scoping

❖ Assessment

❖ **Recommendations**

Strategies to address
projected health impacts

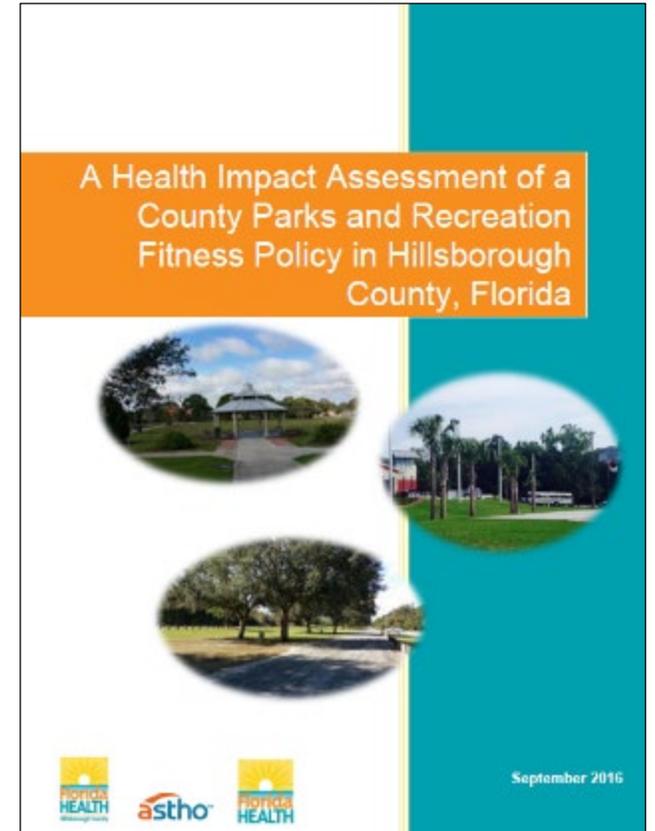
❖ Reporting

❖ Conclusion

Reporting

“...specific areas within the County were identified as being most vulnerable and this report will be shared with the Director of the Hillsborough County Department of Parks, Recreation, and Conservation. A meeting will also be scheduled in order to present the results and recommendations of the HIA, and to discuss the importance and utility of HIA for future use in the County. Abbreviated formats of the report will be developed (i.e. executive summary briefs, fact sheets, etc.) in both English and Spanish and shared via various platforms, such as websites, email, hard copy distribution, and social media.”

County Parks and Recreation Fitness Policy, HIA
Florida Department of Health in Hillsborough County

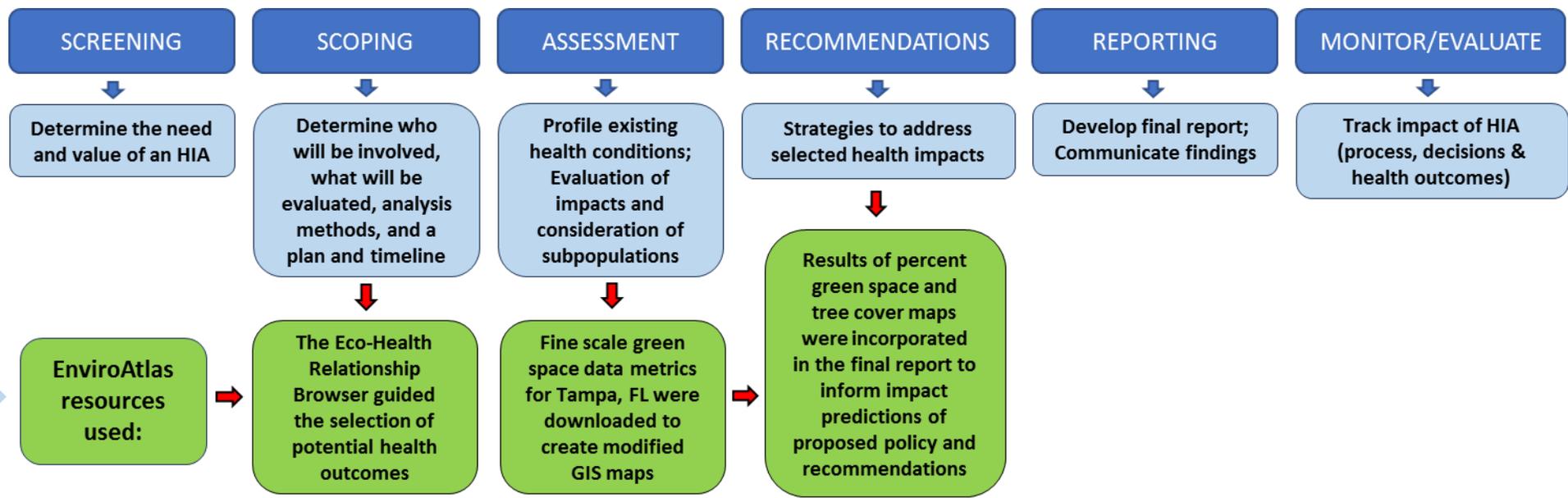


<http://www.pewtrusts.org/~media/assets/external-sites/health-impact-project/tnc-parks-and-rec-hia-final-report.pdf?la=en>

Conclusion

- ❖ Background
- ❖ Screening
- ❖ Scoping
- ❖ Assessment
- ❖ Recommendations
- ❖ Reporting
- ❖ Conclusion

- The Florida DoH in Hillsborough County conducted an HIA to evaluate a proposed policy to promote physical fitness in public parks free of charge.
- They were able to use EnviroAtlas tools and resources to aid in their assessment.
- Findings: Adopting the policy is likely to increase access to physical activity opportunities and improve mental health and physical well-being, especially among low-income and Hispanic residents living within a walking distance of target area parks and recreation centers.

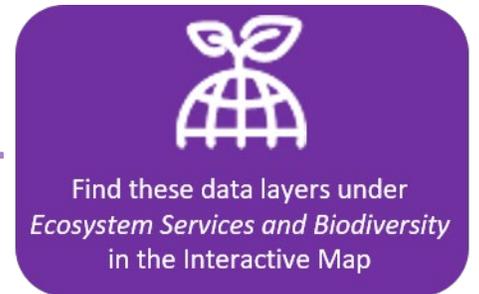


Two primary EnviroAtlas tools aided in HIA process:

1. [The Eco-Health Relationship Browser](#) guided the selection of potential health outcomes for inclusion in the “Pathway Diagram” (page 8) depicting short- to long-term health effects of the proposed policy.
2. [Interactive Map](#): Block-group maps of percent green space and tree cover were downloaded to guide the impact predictions and recommendations of the proposed policy.

Additional EnviroAtlas data layers that are relevant to community physical activity:

- Percent population within walking distance to the nearest park entrance
- Percent green space within ¼ square kilometer
- Percent green space along walkable roads
- Average reduction in ambient temperature due to tree cover
- Estimated intersection density of walkable roads
- Percent population over 70 years old
- Percent population under 13 years old



This use case has been reviewed and approved by the National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency. Contents do not necessarily reflect the views and policies of the Agency.