

# Planning4Health Solutions Creating Healthy Environments

## Health and Equity Analysis Of City of Dover and Kent County Regional Bicycle and Pedestrian Plans

November 2016

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## Executive Summary

Through funding from the American Planning Association's (APA) Plan4Health program, The Delaware Chapter of the APA, the Delaware Public Health Association and Delaware Coalition for Healthy Eating and Active Living (DE HEAL) sought to create an approach to integrate health and equity in planning. Using feedback from the community, the Delaware Plan4Health team has examined opportunities to integrate health and equity in the update of the Kent County Bicycle Plan

### The Problem

Delaware has a high obesity rate and associated high rates of chronic disease, with some of the state's highest rates in Kent County and the City of Dover. In an effort to address these health issues, Delaware Plan4Health reviewed existing city and county bicycle and pedestrian plans and provided suggestions to introduce health and equity into the plans' updates.

### Our Solution

The following plans were reviewed and analyzed to determine strategies that promote equity (i.e. prioritizing areas with largely low-income, minority populations) and support active transportation for residents to access community assets, like schools, libraries, parks, and food retail.

- City of Dover Pedestrian Plan (2015)
- City of Dover Bicycle Plan (2015)
- Dover/Kent County MPO Regional Bicycle Plan (2011)

With findings from health and equity analyses and information gathered from the charrettes held in Dover and Kent County, the team identified several improvements to the pedestrian and bicycle networks that will enhance connectivity to retail, grocery, public spaces, and other community assets.

## **Introduction**

### *Purpose*

The purpose of reviewing the existing bicycle and pedestrian plans for the City of Dover and Kent County is to determine how health is incorporated during their implementation. The City of Dover Bicycle Plan (2015), the City of Dover Pedestrian Plan (2015) and the Dover/Kent County MPO Regional Bicycle Plan (2011) were reviewed for language and details that identify active transportation as a healthy behavior and an approach to improving health outcomes and reducing risk for chronic diseases (including obesity). In addition, the plans were analyzed to determine strategies that would suggest equitable solutions (i.e. prioritizing areas with large low-income, minority populations) and support active transportation for residents to access destinations of interest, including schools, libraries, parks, healthcare facilities, and food retail.

### *Importance of Addressing Health and Equity in Plans*

The World Health Organization (WHO) defines health as *“a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.”* Health is key to good quality of life and well-being, as well as an important contributor to economic progress since healthy populations are more productive, live longer, and save more.

According to the Centers for Disease Control and Prevention (CDC), *“Health equity is achieved when every person has the opportunity to ‘attain his or her full health potential’ and no one is ‘disadvantaged from achieving this potential because of social position or other socially determined circumstances’.”* Health inequities are reflected in differences in length of life; quality of life; rates of disease, disability, and death; severity of disease; and access to care. Equity is important because an individual’s socioeconomic status is directly correlated to his or her quality of life.

To address both health and equity, we must consider social determinants of health and the environments where people grow, live, learn, work, and age. There are many social determinants of health, or non-health factors, that influence health outcomes. Common determinants include age, income, and race/ethnicity. When health outcomes differ by income, race/ethnicity or other determinants, we see health disparities. For example, we see health disparities in terms of race with African-Americans having a higher risk for developing Type 2 Diabetes. We also see health disparities by income with low-income families less likely to have access to healthy, affordable foods, thus increasing their risk for chronic conditions, such as obesity, diabetes, and hypertension. By identifying equity priority areas, planners and policy-makers can focus efforts in these areas to improve health outcomes.

### *Benefits of Active Transportation*

Active transportation refers to walking, cycling and other human-powered forms of transportation. Active transportation provides communities with more options and opportunities for physical activity which can lead to better fitness, lower rates of obesity and diabetes, and reduced risk of cardiovascular disease and other chronic diseases (Kretman et al., 2013). In 2001, CDC labeled obesity a national health epidemic and linked obesity to insufficient physical activity. According to the 2014 Delaware Behavior Risk Factor Survey and the Kent General Community Health Needs Assessment, 30% of adult Delawareans were obese and 34% of Kent County adults were obese. Data from the 2014 Delaware Survey of Children’s Health show that 36% of Delaware children ages 2-17 are overweight or obese. The CDC recommends getting at least 150 minutes of physical activity weekly to reduce the risk of obesity, heart disease, Type 2 Diabetes, and some cancers. A safe and effective bicycle and pedestrian system

can help residents achieve the 30 minutes of daily physical activity the CDC recommends. Active transportation systems can also reduce healthcare spending related to treatment of chronic diseases. Active Living Research reports for every \$1 spent on trails, there was almost \$3 in direct medical cost savings (Wang et al., 2005)

According to a recent study, active commuting (walking and biking to work or school) provides health benefits such as preventing weight gain and supporting weight loss. Bicycling, specifically, was associated with lower body mass index (BMI) (Mytton et al., 2016). Increased bicycle parking and storage options encourages active commuting and use of bicycles and bike paths.

#### *Health benefits of linking bicycle and pedestrian networks to neighborhoods*

The amount of physical activity a person gets is associated with their risk for obesity, diabetes and other chronic diseases, which disproportionately impact low-income communities and communities of color. Although there are many ways to be physically active, studies show walking and cycling to be the most practical and effective means, particularly for inactive and overweight people (Sevick, et al. 2000; Pucher et al. 2010; Bassett, et al. 2011). Costs are often a barrier to physical activity opportunities, such as membership fees to fitness centers and recreation program fees. Low costs associated with walking and biking make walking and biking affordable means of physical activity for all residents. Increasing and enhancing bike and pedestrian trails benefit communities by providing options for residents to incorporate more activity into daily routines.

Several studies show that creating bicycle and pedestrian networks throughout neighborhoods produces health benefits and increases physical activity, especially when those networks link to retail, schools, and parks. Residents of more walkable or bikable communities exercise more and are less likely to be overweight than those living in automobile-oriented areas (Ewing et al., 2003; Frank 2004). Results from a study of 11,041 high-school students in 154 U.S. communities showed that those living in more walkable communities had lower odds of being overweight or obese (Slater, et al. (2013). A 10-year study performed by Giles-Corti, et al. (2013) found that the overall health of residents in new housing developments improved when their daily walking increased because of better access to parks, public transport, shops, and services. Well-connected active transportation networks can especially benefit people with mobility constraints. Networks that are well-connected to destinations can enable more independence and community participation by those with mobility constraints which can reduce social isolation and improve quality of life.

#### **Summary of Bicycle and Pedestrian Plans Health and Equity Analyses**

Local governments increasingly use equity frameworks to develop, implement and assess programs, plans and policies, with the goal to produce equitable outcomes. We adapted the Tasmanian Department of Health and Human Services' checklist to review the City of Dover and Kent County's bicycle and pedestrian plan through an equity lens. Table 1 summarizes our review of the City of Dover and Kent County's plans, with the equity checklist as a framework.

Although health and equity were not emerging planning issues at the time of writing City of Dover Bicycle Plan (2015), City of Dover Pedestrian Plan (2015) and the Dover/Kent County MPO Regional Bicycle Plan (2011) plans, the plans include language about health benefits and is found in the benefits sections of the plans. Beyond the benefits sections, the plans contain no additional content specifically related to health. The plans do not identify specific or vulnerable population groups, identify barriers or

ways to address barriers for specific populations. Although both plans included community involvement processes in order to receive feedback and work to address concerns, there are no specific strategies about outreach efforts to population groups most affected by inequities.

Following our review of these plans, recommendations were made to ensure health and equity are considered in future revisions to the City of Dover Bicycle Plan (2015), City of Dover Pedestrian Plan (2015) and the Dover/Kent County MPO Regional Bicycle Plan (2011). The City and County can support positive community health outcomes associated with bicycle and pedestrian network improvements by evaluating their implementation. Evaluation and planning recommendations within the bicycle plans can be used to measure increased bicycle and pedestrian network usage.

Table 1 Equity checklist applied to the City of Dover and Kent County's Bicycle Plans

Equity Checklist	City of Dover Bicycle Plan	Dover/Kent County MPO Regional Bicycle Plan
Does our health promoting service, program or activity seek to reduce inequities in health? How will this be achieved?	There is no mention of reducing inequities in the bicycle plan.	There is no mention of reducing inequities in the bicycle plan.
Is our health promoting service, program or activity accessible to those with the highest need? Have we engaged those with the highest need in the planning, delivery and evaluation stages of the service, program or activity?	This plan does not address which areas have the greatest need for bike paths. It addresses providing bike paths for people of all incomes and ages.	This plan does not address which areas have the greatest need for bike paths. It addresses providing bike paths for people of all incomes and ages.
Do our health promotion strategies increase inequities? (For example, if wealthy people adopt healthier lifestyles faster than the less well off, the net result of individually targeted interventions is a bigger gap in health outcomes between rich and poor.)	The bike plan could increase inequities if unresponsive to differential needs of those most affected by inequities.	The bike plan could increase inequities if unresponsive to differential needs of those most affected by inequities.
Are certain priority population groups (such as children, culturally and linguistically diverse communities, people with low English fluency, recently arrived communities, older people or Aboriginal and Torres Strait Islander groups) at special risk? Are their needs being neglected? How will we involve these particular population groups in the development of our service, program or activity?	Plan does address priority population groups by expanding and enhancing bike lanes within their communities.	Plan does not address priority population groups by expanding and enhancing bike lanes within their communities.
Are we seeking to address the social determinants of health?	There is no mention of addressing social determinants of health within the plan.	There is no mention of addressing social determinants of health within the plan.
Do we work in partnership with others to address the social determinants of health? Who can we work with? How can we identify the right people?	Partnerships are mentioned for the bicycle plan but not in terms of addressing social determinants of health.	Partnerships are mentioned for the bicycle plan but not in terms of addressing social determinants of health.
Are we employing community development and community building strategies into our health promotion practice? Can we help community members advocate for such issues?	The plan worked with the community and held public workshops to identify needs for and concerns about existing facilities.	The plan worked with the community and held public workshops to identify needs for and concerns about existing facilities.
Are there opportunities to advocate for or reduce social inequities and injustice?	Opportunities are available to advocate for reduction of social inequities and injustices.	Opportunities are available to advocate for reduction of social inequities s. For example, the plan discusses creating a Bicycle committee to provide advice to the MPO. This committee can be tasked with addressing inequity.
Do we need further skill development in quality health promotion practice and issues such as equity in health?	Skill development can be used to ensure health equity is added to future plans.	Skill development can be used to ensure health equity is added to future plans.

### *Network/Areas Selection Process*

Through the American Planning Association’s Plan4Health grant, the Delaware Plan4Health team conducted a community survey and health and equity analyses. These resulted in maps that identified areas of equity priority and demand for healthy food access and amenities for active living. These maps enabled the Plan4Health team to further narrow down specific focus areas in the City of Dover and Kent County.

#### City of Dover Network

The area in downtown Dover was identified as an equity priority area for healthy food access and physical activity need, including parks. This same area has been identified for revitalization by the Restoring Central Dover Initiative. The boundaries of this area include Route 13 to the east, Wyoming Avenue to the south, Saulsbury Road to the west, and Walker Road to the north. Based on the maps, the team conducted multi-day charrette, or stakeholder and public-involved workshops, to gather input on how to support physical activity and healthy eating among residents.

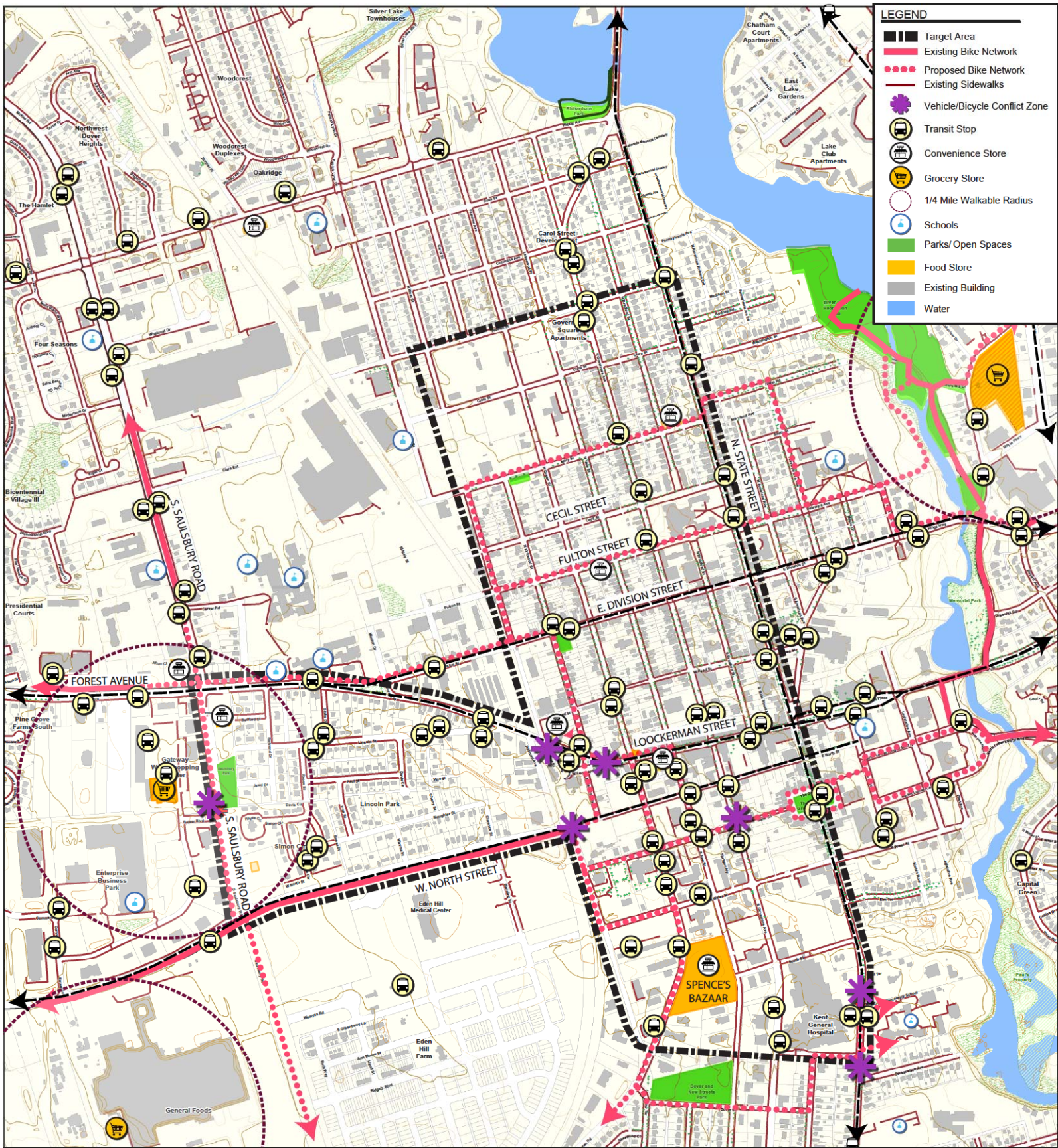
The Dover charrette highlighted specific disparities facing low-income and minority groups related to access to healthy eating and amenities to support physical activity. While downtown Dover has a good sidewalk network, with sidewalks along almost every street and a multi-use trail along the St. Jones’ River and at Silver Lake Park, the city lacks a comprehensive pedestrian and bicycle network with intentional connectivity of residential areas, parks, grocery, transit and other public spaces.

As a result of the preliminary health and equity analyses, Delaware Plan4Health team members discussed an approach for a pedestrian and bicycle network that incorporates connectivity to retail, grocery, public spaces, parks and other destinations. The approach overlays healthy eating and active recreation opportunities with the prioritized pedestrian and bike paths in mapped equity priority areas. A conceptual Pedestrian and Bicycle Network Plan was created during the charrette with the aim to expand and define a pedestrian and bicycle system for the City of Dover. This includes connecting neighborhoods to parks, historic sites, schools, and commercial areas, especially locations with healthy foods. The City currently has portions of a bicycle and pedestrian system in place; however, this recommended network added to that effort by ensuring the system connected to healthy food places and other destinations residents visit often. This recommended network utilized the health and equity data to make sure that places where pedestrian infrastructure was added addressed areas of equity priority. Through this process, it was determined that there are “park deserts” in the City and possible new park locations were added along the new Pedestrian/Bicycle network. Figure 1 demonstrates the revised Downtown Dover Bicycle and Pedestrian Network connecting residential areas of equity priority to various destinations, including grocery and healthy food retail.

Many of the routes identified on Figure 1 are local streets in a downtown, urban environment. Most have on-street parking and sidewalks on both sides of the street. The routes selected tended to be lower traffic streets that connected neighborhoods to important destinations, as described above. At the Dover Plan4Health Charrette, the team discussed the following potential upgrades to these routes to make them a part of an identifiable “network” for bicycles and pedestrians:

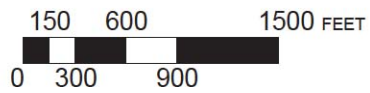
- Many of these streets need enhanced bicycle infrastructure appropriate to their context, i.e. bike lanes in some areas, sharrows in others, and possibly off road trails in certain locations.
- These routes should be marked so that people know to use them as the safest routes to walk or bicycle between their destinations.





# Dover, Delaware- Proposed Bicycle Network

1"=300'





### *Kent County Network*

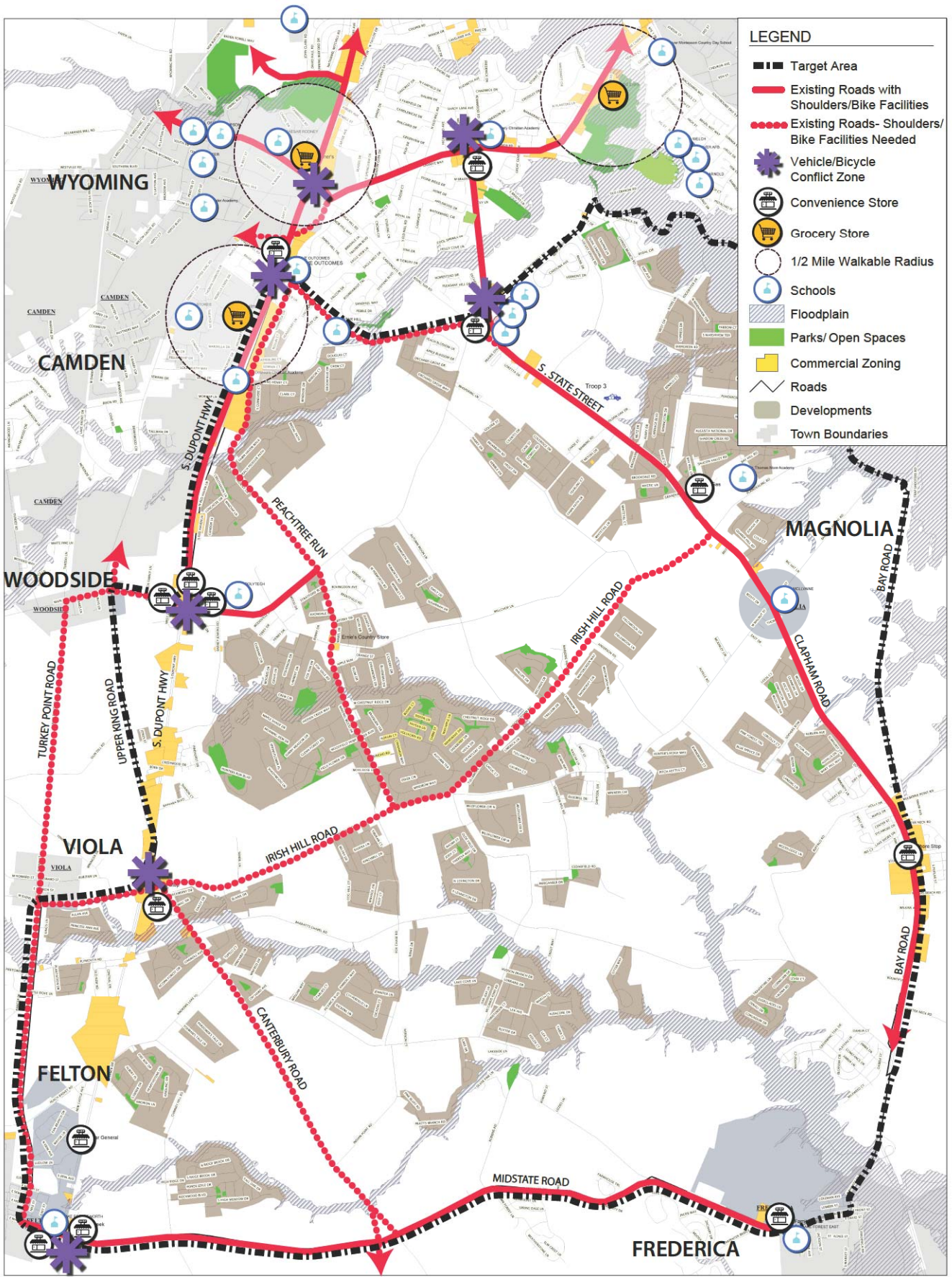
Concurrent with the health and equity analysis in Dover, Delaware Plan4Health identified areas of equity priority and demand for healthy food access and amenities for active living in the areas outside Dover. The multi-day charrette was in one of the equity priority areas identified specifically by the Kent County Department of Planning Services for its potential to grow and included areas of equity priority and demand for healthy food access and amenities for active living. The Kent County study area is a suburbanizing portion of Kent County's "Growth Zone." As such, opportunities for active transportation such as walking are limited. Similarly, there are no specific bike routes linking destinations such as food stores, schools, parks, etc., and the area has no active recreation amenities for the public, such as a community park. The study area was identified in the suburban area south of Dover including the town of Magnolia and parts of Camden, Felton and Frederica. The study area boundaries were at Voshells Mill Star Hill Road and Sorghum Mill Road to the north, Delaware Route 1 to the east, Midstate Road (DE Route 12) to the south, and South DuPont Highway to the west.

In addition to the Dover's pedestrian/bicycle network, the charrette findings in greater Kent County contributed to the design of the pedestrian and bicycle network, named by those at the charrette, the "Heart of Delaware Trail." This trail forms a loop of some of Kent County's small towns, and some of the local farmer's markets or produce stands, across Kent County. Since many of the roads along the proposed trail have very wide shoulders, hopefully it would be cost effective and technically feasible to convert these shoulders to multi-modal lanes. By coordinating with the local Tourism and Economic Development agencies, the Heart of Delaware Trail can be an attraction for residents and visitors to explore small Delaware towns, as well as Amish and farming communities. In addition, the proposed Heart of Delaware Trail fills a gap, identified through the community survey and health and equity maps, by bringing more active transportation opportunities to the area, while also connecting residents to various destinations in neighboring communities, such as grocery stores, schools, and other commercial and retail uses.

The "Heart of Delaware Trail" shown in Figure 2 includes Lebanon Road, Midstate/Johnny Cake Landing, Turkey Point Road, Main Street (Woodside)/Walnut Shade, Peachtree Run, and South State Street.

Unlike the Dover network, the routes identified on Figure 2 are along rural roads in a suburbanizing area. The routes selected were intended to form a network to link the many residents living in this suburban area to important destinations as described above. At the Kent County Plan4Health Charrette, the team discussed the following potential upgrades to these routes to make them a part of an identifiable "network" for bicycles and pedestrians:

- Many of these roads need enhanced bicycle infrastructure appropriate to their context:
  - Many of these roads have existing shoulders which it is hoped can be easily and cost effectively repurposed as multi-modal lanes.
  - New shoulders and multi-modal lanes would be needed on other roads for the network to be completed, and connect neighborhoods to important destinations.
- These routes should be marked so that people know to use them as the safest routes to bicycle between their destinations.



Heart of Delaware Trail- Proposed Bicycle Network  
 Plan 4 Health Kent County, DE



*Anticipated Impact on health and equity in the City of Dover and Kent County Bicycle Plans.*

The conditions for good health, and quality of life are not well distributed in the City of Dover and greater Kent County, which can result in health and social inequities. Addressing these inequities requires dealing with their root causes: substandard housing; lack of economic opportunities; poor social support; lack of transportation options; scarcity of recreational amenities; obstacles to accessing health and social services; and others. Bicycle and pedestrian plans present an opportunity to address some of these root causes of inequities by focusing in areas of greatest need. Expanding and enhancing bike lanes and pedestrian paths enables social inclusion where low-income residents, elderly residents, and the disadvantaged have easier access to resources such as healthcare, employment opportunities, parks and recreation, and schools, while also providing opportunities for active living for everyone.

These findings from the community charrettes and equity analysis can be integrated into current planning efforts to optimize potential health impacts as it relates to a pedestrian and bicycle networks. While the City of Dover recently adopted their Bicycle Plan in March 2015, these findings can be incorporated into any future revisions of this plan. Whereas, the Dover/Kent Metropolitan Planning Organization (MPO) is currently working to update the Kent County Bicycle Plan and these findings can be incorporated into this current planning effort.

## REFERENCES

- Wang, G., Macera, C. A., Scudder-Soucie, B., Schmid, T., Pratt, M., & Buchner, D. (2005). A cost-benefit analysis of physical activity using bike/pedestrian trails. *Health Promotion Practice, 6*(2), 174–179. <https://doi.org/10.1177/1524839903260687>
- Mytton, O. T., Panter, J., & Ogilvie, D. (2016). Longitudinal associations of active commuting with body mass index. *Preventive Medicine, 90*, 1–7. <https://doi.org/10.1016/j.ypmed.2016.06.014>
- Kretman Stewart, S., Johnson, D. C., & Smith, W. P. (2013). Bringing Bike Share to a Low-Income Community: Lessons Learned Through Community Engagement, Minneapolis, Minnesota, 2011. *Preventing Chronic Disease, 10*. <https://doi.org/10.5888/pcd10.120274>
- Active Living Research. The Power of Trails for Promoting Physical Activity in Communities [http://activelivingresearch.org/files/ALR\\_Brief\\_PowerofTrails\\_0.pdf](http://activelivingresearch.org/files/ALR_Brief_PowerofTrails_0.pdf)
- Sevick, M. A., Dunn, A. L., Morrow, M. S., Marcus, B. H., Chen, G. J., & Blair, S. N. (2000). Cost-effectiveness of lifestyle and structured exercise interventions in sedentary adults<sup>1</sup>. *American Journal of Preventive Medicine, 19*(1), 1–8. [https://doi.org/10.1016/S0749-3797\(00\)00154-9](https://doi.org/10.1016/S0749-3797(00)00154-9)
- Pucher, J., & Buehler, R. (2010). Walking and Cycling for Healthy Cities. *Built Environment, 36*(4), 391–414. <https://doi.org/10.2148/benv.36.4.391>
- Bassett, D. R., Wyatt, H. R., Thompson, H., Peters, J. C., & Hill, J. O. (2010). Pedometer-measured physical activity and health behaviors in U.S. adults. *Medicine and Science in Sports and Exercise, 42*(10), 1819–1825. <https://doi.org/10.1249/MSS.0b013e3181dc2e54>
- Frank, L. D., Andresen, M. A., & Schmid, T. L. (2004). Obesity relationships with community design, physical activity, and time spent in cars. *American Journal of Preventive Medicine, 27*(2), 87–96. <https://doi.org/10.1016/j.amepre.2004.04.011>
- Ewing, R., Schieber, R. A., & Zegeer, C. V. (2003). Urban sprawl as a risk factor in motor vehicle occupant and pedestrian fatalities. *American Journal of Public Health, 93*(9), 1541–1545.
- Slater, S. J., Nicholson, L., Chiqui, J., Barker, D., Chaloupka, F. J., & Johnston, L. D. (2013). Walkable Communities and Adolescent Weight. *American Journal of Preventive Medicine, 44*(2), 164–168. <https://doi.org/10.1016/j.amepre.2012.10.015>
- Giles-Corti, B., Bull, F., Knuiaman, M., McCormack, G., Van Niel, K., Timperio, A., ... Boruff, B. (2013). The influence of urban design on neighbourhood walking following residential relocation: longitudinal results from the RESIDE study. *Social Science & Medicine (1982), 77*, 20–30. <https://doi.org/10.1016/j.socscimed.2012.10.016>
- Littman, T. (2016). Evaluating NMT Benefits and Costs. *Victoria Transport Policy Institute*. Retrieved from <http://www.vtpi.org/nmt-tdm.pdf>
- Keleher, H., & Murphy, B. (2004). *Understanding health : a determinants approach*. Oxford University Press. Retrieved from <http://dro.deakin.edu.au/view/DU:30010288>

Nutbeam, D. (1999). The challenge to provide “evidence” in health promotion. *Health Promotion International*, 14(2), 99–101. <https://doi.org/10.1093/heapro/14.2.99>

Nutley, S., Davies, H. T. O., & Walter, I. (2003). From knowing to doing: a framework for understanding the evidence-into-practice agenda. *Evaluation*, 9. Retrieved from [http://www.research.ed.ac.uk/portal/en/publications/from-knowing-to-doing-a-framework-for-understanding-the-evidenceintopractice-agenda\(eb163e4f-84de-4503-a43b-8e5d7b65bd7f\)/export.html](http://www.research.ed.ac.uk/portal/en/publications/from-knowing-to-doing-a-framework-for-understanding-the-evidenceintopractice-agenda(eb163e4f-84de-4503-a43b-8e5d7b65bd7f)/export.html)