

# Plan BTV South End Health Impact Assessment

Prepared by the Vermont Department of Health

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## Executive Summary

The goals of this HIA are to:

- Determine the potential health impacts of development decisions in the South End
- Recommend ways development decisions can support health and ways to best mitigate adverse health impacts
- Give community members a voice in the process

The South End of Burlington is rapidly growing and changing. Starting in July 2014, the City of Burlington has been engaging the community in a planning process to protect and preserve what is most loved about the South End while proactively preparing for the continued growth and change. This process is referred to as planBTV South End. The culmination of this engagement process was the release of draft planBTV South End on June 15, 2015. According to this plan, “PlanBTV South End is all about preserving what we love about this funky neighborhood and sparking improvements where they’re needed, as the South End continues to evolve.” The plan looks at the different interrelated components of land use, transportation, stormwater management, and recreational opportunities.

A Health Impact Assessment (HIA) is a collaborative and systematic approach used to consider the effects of a policy, plan, or project on the health of a population. HIA is a systematic, flexible approach that uses data, research, and stakeholder input to assess the potential health impacts of policies or projects. This assessment process included a mix of qualitative and quantitative data and literature review, both peer-reviewed and gray.

Strategies proposed in the plan include a combination policies and practices in the areas of: economic development, arts and affordability, mobility, parks and green spaces, brownfields, managing stormwater, and housing. There are specific also on-the-ground improvements organized by four sub-planning areas.

## Recommendations

This HIA makes the following recommendations:

- Use planning tools such as zoning to support mixed use development. Such zoning and subdivision regulations allow multiple uses and should address density and infrastructure requirements (sidewalks).
- Plan by subarea; designate a specific purpose and redevelopment goal for each subarea. Subareas could be devoted to different types of economic uses as well as residential spaces.
- Consider non-profit stewardship as a means of controlling costs of studio, retail, and residential space for artists.
- Include “health supporting language” in master plan (see the Vermont Healthy Community Design Resource Active Living and Healthy Eating section Sample Language for Town Plans).
- Establish and implement “Complete Streets” policies. Incorporate features such as protected bike lanes, clearly marked crosswalks, well maintained, contiguous sidewalks and traffic calming elements to promote safety for all users.
- Include language in Master Plan to support investment in sidewalks, bike lanes, traffic calming devices, safety features (street lights, cross walks), and regular transit to community services.

- Identify and take advantage of federal, state or local economic development incentives such as taxes, fees and subsidies.
- Locate recreational facilities near homes or schools, consider low or no costs options, and provide adequate hours of operation and accessibility by foot, bike and transit.
- Preserve open space within the barge canal area; improve or increase access points to the lake.
- Require developers to include green space with new or redeveloped industrial projects.
- Locate community services near homes or schools and consider low or no costs, adequate hours of operation and accessibility by foot, bike and transit.
- Include language in Master Plan to preserve and invest in community services that are accessible by sidewalk, bicycle and transit and in close proximity to residential areas.

Summary table: Land use changes, health indicators, relative health impact, strength of evidence

| Potential (planning/land us?) changes in South end     | Strength of Evidence Improve Physical Activity | Strength of Evidence Improve Mental Health |
|--|--|--|
| Add affordable housing                                 | *  | **   |
| Add businesses   | **   | *  |
| Increase street connectivity                           | ****   | ***  |
| Increase opportunity for recreation                    | ****   | ***  |
| Increase access and availability of community services | **   | **   |

The following are a list of criteria adapted from the Washington State Board of Health’s Draft Health Impact Review Strength-of-Evidence Criteria.

\*\*\*\* Very strong evidence: the literature review yielded a very large body of robust evidence supporting the association with few if any contradictory findings. The evidence indicates that the scientific community largely accepts the existence of the association.

\*\*\* Strong evidence: the literature review yielded a large body of evidence on the relationship (a vast majority of which supported the association) but the body of evidence did contain some contradictory findings or studies that did not incorporate the most robust study designs or execution or had a higher than average risk of bias; or there were too few studies to reach the rigor of ‘very strong evidence’; or some combination of these.

\*\* A fair amount of evidence: the literature review yielded several studies supporting the association, but a large body of evidence was not established; or the review yielded a large body of evidence but findings were inconsistent with only a slightly larger percent of the studies supporting the association; or the research did not incorporate the most robust study designs or execution or had a higher than average risk of bias.

\* Not well researched: the literature review yielded few if any studies or only yielded studies that were poorly designed or executed or had high risk of bias.

## Acknowledgements

The Vermont Department of Health would like to recognize the contribution of a cadre of community partners without whom completion of this Assessment would have been exceedingly difficult. Participation in this process came in many forms, from active involvement in the scoping process and data collection to proof reading the final draft. Many thanks to the City of Burlington, the Chittenden County Transportation Authority, the South End Arts and Business Association, the University of Vermont, the Chittenden County Regional Planning Commission, the Ward 5 Neighborhood Planning Association, AARP of Vermont, Local Motion and local residents who shared in this process.

## Background

### What is a Health Impact Assessment?

Since the 1950s, land has been developed with housing, business, community services, and schools located separately and outside of downtowns. This has resulted in lengthy trips by automobile and significant barriers for vulnerable populations. The more time spent commuting pulls people away from the social events and interactions of their community and car maintenance is costly. This, coupled with the economic and, often, ethnic

*The International Association of Impact Assessment defines HIA as: “a combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, program, or project on the health of a population and the distribution of those effects within the population. HIA identifies appropriate actions to manage those effects”. HIAs include six steps: screening, scoping, assessment, recommendations, reporting, and monitoring.*

*Vulnerable populations include the economically disadvantaged, racial and ethnic minorities, the uninsured, low-income, children, the elderly, the homeless and those with chronic health conditions, including severe mental illness.*

*- American Journal of Managed Care, Supplement, NOV 2006*

homogeneity of neighborhoods has shown to thwart social progress<sup>1</sup>, prompting people in health sectors to collaborate with those in transportation, land use planning, education, environment, and economic development to engage in a process called Health Impact Assessment, or HIA.

Factors such as access to safe, affordable, and reliable transportation, education, places to be physically active, housing, and healthy food have a greater impact on a person’s health than access to medical care. Vulnerable populations (e.g., low income, disabled, elderly, youth, ethnic and racial minorities) are more significantly impacted when access to these items is limited. Strategies to achieve public health goals and improve social equity are often aligned with land use and

economic development goals. Therefore, an HIA is helpful in refining the vision of the community and in outlining recommendations that would improve upon the positive health impacts and mitigate potential negative impacts on public health for all residents.

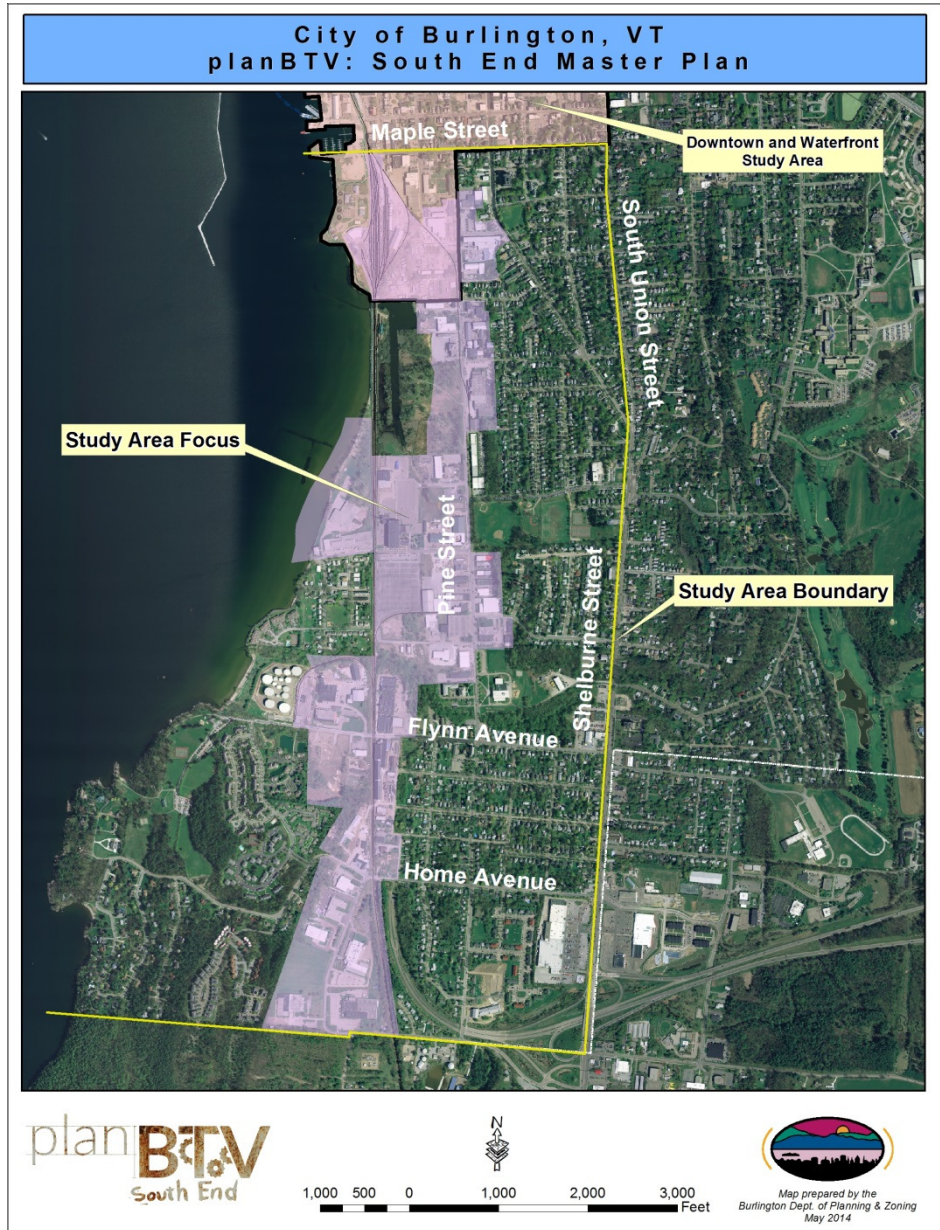
### What is planBTV South End?

In summer of 2014, the City of Burlington, Vermont initiated planning process for a section of the city referred to as the South End. “PlanBTV South End” is the term being used to refer to the overall planning efforts that includes community events, community engagement and input, assessments, reports, and meetings. The goal is to have a Master Plan by the summer of 2015 that “protects and preserves what is most loved about the South End while proactively preparing for the continued growth and change.”<sup>2</sup> Elements being considered include: ways to promote and improve economic development, quality

urban design, affordable and workforce housing, active transportation and parking management, as well as improving the quality and capacity of the public infrastructure.

The South End is a one square mile neighborhood of 6,500 people in the south end of the City of Burlington (Vermont’s largest city). It is located in between downtown Burlington and Shelburne Road, two areas with high levels of development and resources such as jobs, retail, food, schools, childcare, bus stations, and recreational opportunities. The

South End itself has new and well-established art studios, small restaurants (cafes, bakeries, and coffee shops), businesses, schools, churches as well as cultural and recreational opportunities.



## Screening

### Why do an HIA on this project?

Recognizing this is a pivotal time in the South End’s future, the City of Burlington sought a broad range of voices to include in the planning process for the area. The City’s Department for Planning and Zoning wanted health to be part of the conversation. Previous work with the Department of Health coupled with the city planners’ awareness of the impacts of community design on the wellbeing of the population helped to facilitate a focus on health.

Health Department staff met with the City to discuss the possibility of collaboration and determined that it was early enough in the planning process that an HIA would be a possible and worthwhile tool to inform the development of the final plan. The city was already organizing events to engage community members throughout the fall of 2014 and winter of 2015, with a planBTV South End Master Plan to be released in the summer of 2015. Therefore, recommendations from the HIA could be incorporated into the Master Plan.

Existing zoning regulations delimit an Enterprise District within the study area which allows only light manufacturing, prohibiting housing and other land uses along part of Pine Street, the major corridor traversing the South End of the City. Early conversations identified this to be of concern to residents and business owners. Whether this zoning regulation is maintained or not would have implications on both the type development that takes place and the health implications for current and future residents of the South End. Other issues of concern that were identified included: lack of housing, pedestrian and bicycle safety, limited transit availability, and the potential increased costs of real estate (housing, art studio, and business spaces), especially for disparate populations, as the area develops.

## Scoping

### HIA Goals

The overall goals of this HIA are to:

- Determine the potential health impacts of development decisions in the South End
- Recommend ways development decisions can support health and ways to best mitigate adverse health impacts
- Give community members a voice in the process

*The Enterprise District was established to preserve industrial space, while ensuring compatibility of that space with nearby residential uses.*

- Burlington South End Market Study, HR&A Advisors

### Scoping Process

On January 9, 2015, Health Department and City of Burlington staff convened a group of stakeholders including City staff from various departments, local artists and community members, area transportation officials, and bike and pedestrian advocates (See Appendix I for a list of attendees) to discuss planBTV South End in the context of health impacts. An overview of Health Impact Assessments and current health data for the area were presented.

Participants were then broken into groups to discuss the potential health impact on vulnerable population groups (aging, low income, racial and ethnic minorities, people with disabilities) under the “planning categories” of: land use, transportation, recreation and community services. Each group discussed the following question: “If changes are made to {land use, transportation facilities, recreation, community services in the south end}, how will that effect {population group}’s ability to {action}? How will this affect their health? (Please consider both the positive and negative health impacts.)”. “Changes



made” in the “planning categories” (land use, transportation, recreation, community services) were left up to each group to define.

Based on the small group discussions, the entire group generated a list of health determinants and outcomes which were then prioritized as follows:

- Physical Activity/Fitness
- Mental Health/Stress/Depression
- Respiratory Health/Asthma
- Unintentional Injury
- Healthcare Access
- Nutrition
- Early Childhood Development
- Community Identity

*How would potential changes in land use in the South End (adding housing, businesses, street connectivity, recreation, and community services) impact physical activity and mental health?*

The two top health concerns were:

1. Physical activity as it relates to obesity and chronic diseases, such as diabetes, cardiovascular disease, and arthritis, and
2. Mental health as it relates to depression due to social isolation and stress.

Research questions considered for this HIA are listed below. Each was examined with regard to the potential impact of the change (bold type) on the physical activity and mental health of residents and workers in the South End:

1. If we **add more affordable housing**, how will that affect vulnerable populations in the South End?
2. If we **add businesses** (what kinds of businesses?), how will that affect vulnerable populations in the South End?
3. If we **increase street connectivity** for all modes, how will that effect vulnerable populations in the South End?
4. If we **increase the opportunity for recreation**, how will that effect vulnerable populations in the South End?
5. If we increase **access and availability of community services**, how will that effect vulnerable populations in the South End?

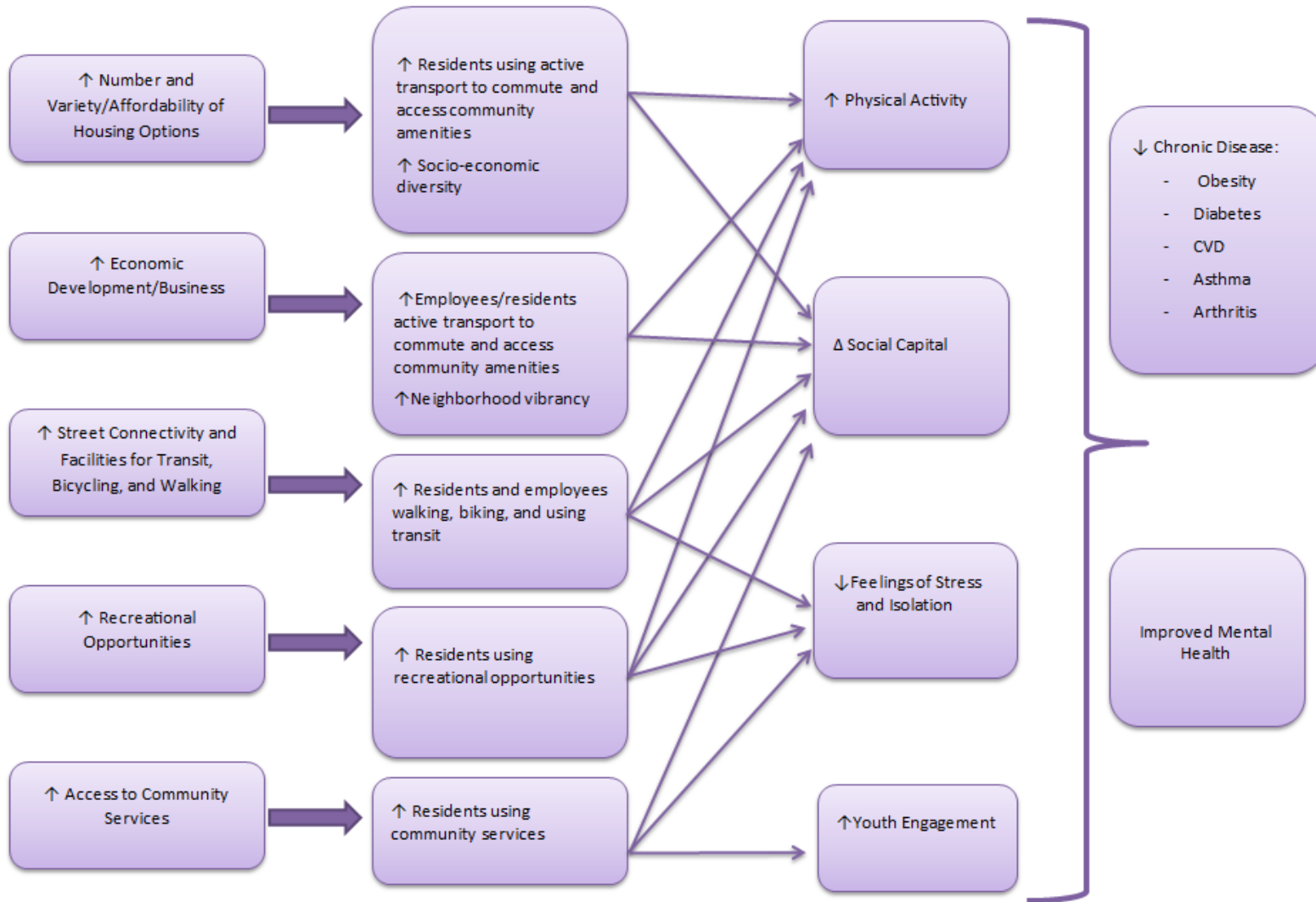
| <b>Potential changes</b>                           |
|--|
| Add more <i>affordable</i> housing                 |
| Add more businesses                                |
| Increase street connectivity                       |
| Increase recreation resources/opportunity          |
| Increase access/availability of community services |



**Physical Activity**  
**Mental Health**

The following pathway diagram depicts the links between the land use development elements that were discussed at the stakeholders meeting and the potential health impacts proposed for study.

## Pathway Diagram



### Vision Plan 1: Current Trends

Extended -Let the South End continue to evolve along its current trajectory

### Vision Plan 2: Creating an Enterprise Village & Destination Park

- Strengthen the Lakeside area as a walkable, mixed-use South End innovation hub

### Vision Plan 3: Pine Street Corridor Re-Imagined

- Transform Pine Street through new development, roundabouts, open space, and the arts

In addition to the January stakeholder scoping meeting, the City hosted a 4-day long community workshop – an engagement event where three different community visions were presented for public feedback and a number of facilitated, topical discussions were held. The visions and discussions were based on existing conditions analysis reports, initial community input, and professional opinion and were used to begin developing a framework for a refined, comprehensive vision. Health Department staff provided health data and resources for consideration (APPENDIX II –Fact Sheets and Infographic) and hundreds of individuals attended the guided discussions and/or provided feedback through interactive displays.

On June 15, 2015, the City released a draft plan for public review. The draft framework synthesized three vision plans and incorporated many new ideas suggested by Workshop participants. Some of the salient features of this draft framework include: Barge Canal Industrial Heritage Area (a new green space), Arts Hub Slow Zone, more beach access, South End Village Square, Arts Park Gateway, ECO District and infill development and affordable housing with constraints. The area should strive to be “green, growing and connected!”



## Assessment

Reports, input and data used for the Assessment included:

- Population health data
- A Market Study and Existing Conditions report commissioned by the city
- Community comments during a four day Community Workshop hosted by the City

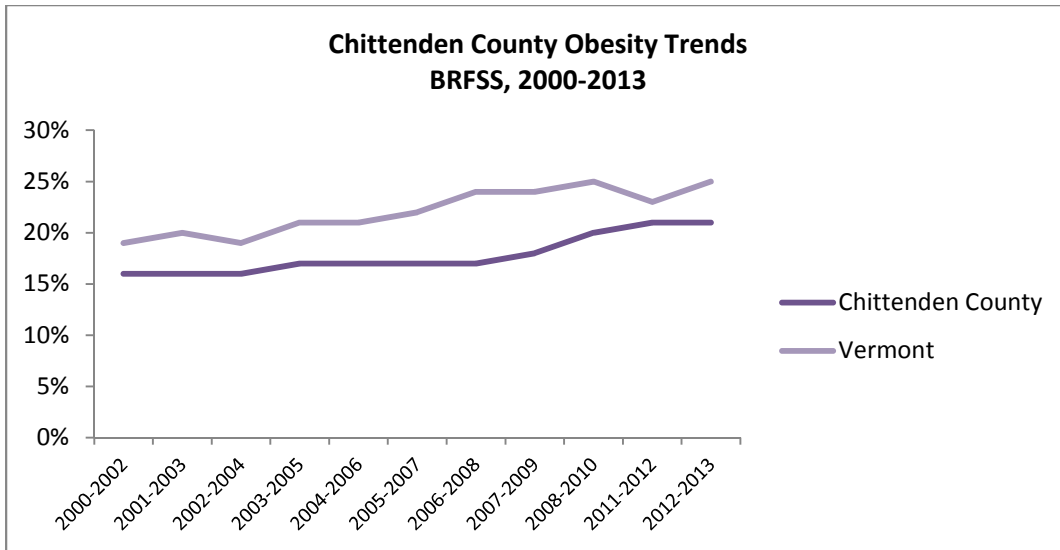
- Existing literature

## Population Health Profile

Before looking into the various components of the planBTV South End plan, it is important to understand the existing health conditions in the community, with a particular focus on physical activity as it relates to chronic disease and mental health as it relates to depression due to social isolation and stress. Due to small population size, adult health data is not available at the sub-county level. Data presented in this section at the Chittenden County level.

The City of Burlington has approximately 42,000 residents, with about 6,400 people residing in the South End study area. According to the South End Market Study completed by HR&A Advisors, the number of residents 55-74 years old has increased by 23% since 2000, and since 2010, residents 25-34 years old has increased by 6% outpacing both the rest of the city and the county. Both the city of Burlington as a whole and specifically also the South End have a lower median income than the county.<sup>3</sup> The median household income in the South End (\$40,772) and Burlington (\$39,450) are 36% and 38%, respectively, lower than in the median for the county overall (\$63,951). Households in both the South End and Burlington maintain similar distributions of income, with approximately 70% of households earning less than \$75,000 per year, compared to 56% of households in the county. According to the Massachusetts Institute of Technology Living Wage Calculator, for a sole provider of a family of four (two adults, two children) the liveable wage is an hourly rate \$19.90 (annual income of \$41,392).<sup>4</sup> Many residents struggle to find affordable housing. According to the Burlington Housing Strategy Report released in May of 2014, the median rent as a percentage of income in Burlington is 44%. The next highest percent for the same measure was found in Portland, OR at 34%.<sup>5</sup>

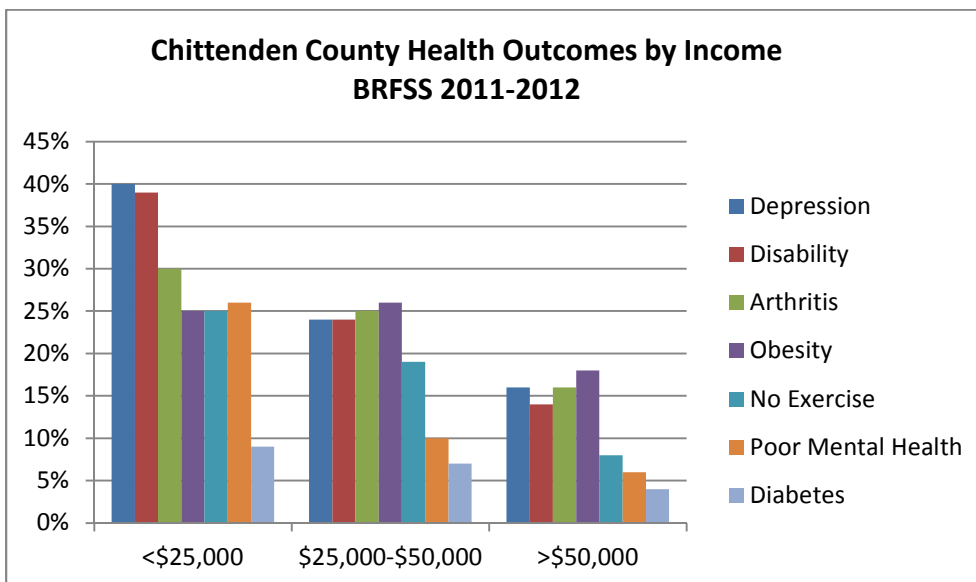
Income is important because lower income is associated with higher rates of chronic disease.<sup>6</sup> Vermont is often noted as one of the healthiest states in the nation, and Chittenden County specifically as the healthiest county.<sup>7</sup> This is likely due to the generally higher income and education levels found in this region of the state. However, in looking at trends over time, there are still chronic disease concerns. For example, obesity has been climbing in Chittenden County. In 2000-2002, the prevalence was 16% and in 2012-2013 it was 21% (Graph 1). Among lower income adults, those at less than 250% of the federal poverty level, the prevalence was 32%.<sup>8</sup> A median income of \$60,625 for a family of four is equal to 250% of the federal poverty level, according to the 2015 guidelines.<sup>9</sup>



**Graph 1**

Similar data, broken out by different income levels, can be found for many chronic diseases, such as arthritis, and diabetes. Lack of physical activity is a major risk factor for these chronic diseases.<sup>10</sup> As one might expect, we also see a statistically significant difference between people who make \$50,000 or more and those making less than that amount for getting no leisure time physical activity (Graph 2). Additionally, adults in homes making \$50,000 or more annually are significantly more likely to use community resources for physical activity (78%) than those in homes with less income.<sup>11</sup>

Depression is strikingly different based on income, with 40% of low income Chittenden County residents reporting a diagnosis of depression, while only 16% of those with incomes of \$50,000 or more reporting this diagnosis. Similar patterns are seen with residents who report poor mental health (Graph 2).<sup>11</sup>

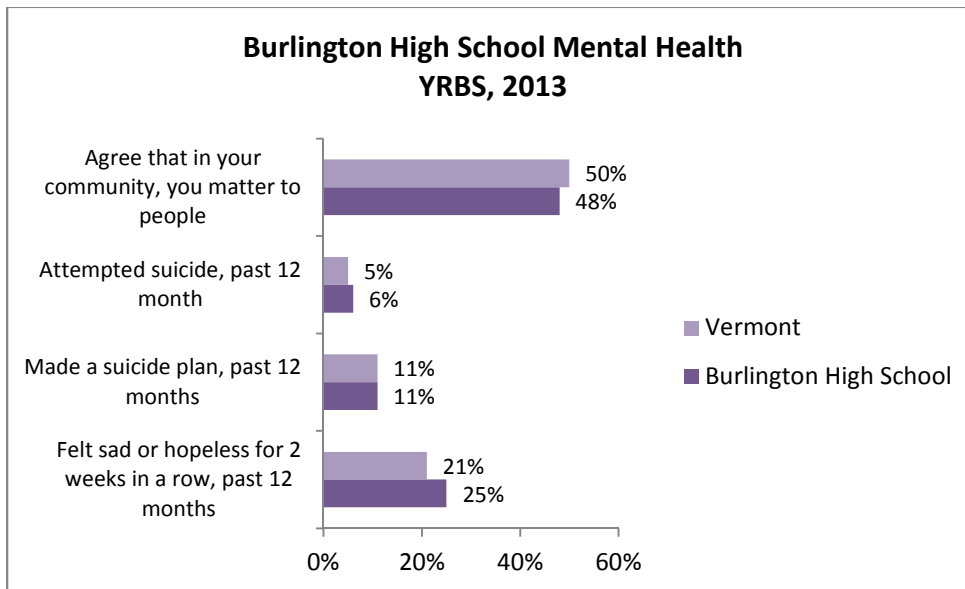


**Graph 2**

In looking at youth, we see similar trends. For example, in Chittenden County, 10% of youth are obese<sup>12</sup>, though for students whose mother graduated from college or higher, the prevalence is 7%. This is significantly lower than the prevalence for students whose mothers have a high school education or less, 18%. Maternal education is used as a proxy for income in youth data.

Looking closer at Burlington High School specific data, only about one-fifth (23%) of students are getting the recommended 60 minutes of physical activity per day, while 42% are getting three or more hours of non-school related screen time.<sup>12</sup>

In looking at mental health data for youth, there is concern on several indicators for students in Burlington High School. Only about half agree that in their community they matter to people, and a quarter felt sad or hopeless for 2 weeks in a row in the past 12 months. Six percent of Burlington high school students had attempted suicide in the last twelve months (Graph 3).<sup>12</sup>



**Graph 4**

With this understanding of current health conditions, connections can be made to how different elements on planBTV South End can impact the community’s physical and mental health.

## Land Use: Housing, Economic Development

### Existing Conditions and Community Comments

According to the South End Market Study, almost half (45.4%) of the study area is devoted to residential uses. There is also a considerable amount of commercial (19.9%) and industrial (13.7%) uses which are mostly segregated from the residential uses. This segregation is due to part of the South End being zoned for “light manufacturing” in the core of the study area. This area is known as the “Enterprise District” and was established to preserve industrial space, while ensuring compatibility of that space with nearby residential uses. Over the years, there has been a conversion of industrial uses to non-

industrial uses (offices, artist spaces, retail) primarily on the East side of Pine St. which is currently zoned for commercial uses, especially in the northern part of the study area.<sup>3</sup>

This area is home to 472 businesses employing 6,300 people. Average office rents in the South End are generally comparable to downtown Burlington, however the industrial rents are higher than elsewhere in the county since the South End is a very desirable area for businesses. This is because business owners can combine industrial with “consumer facing” operations (i.e. breweries with tap rooms) in the South End and therefore are willing to pay more for these types of spaces.<sup>3</sup>

Finally, because of zoning that prohibits residential use in the Enterprise District and adjacent, built-out residential areas, there are few housing vacancies (less than 5% in 2014), with a high demand. This area has seen a faster rate of growth among young professionals household (6% change) as compared to the City of Burlington (4% change) or Chittenden County (2%).<sup>3</sup> The South End is already beginning to gentrify. Managing that growth and transformation with a planned, cooperative approach between the City of Burlington, South End residents and businesses is the most effective way to guide the change.

From the four day community workshop, there was recognition of the need for a mix of businesses (big, small and in between) that provide a variety of jobs and the importance of nurturing existing businesses and creative enterprises, but differing opinions about the ingredients for economic development within the South End moving forward. Themes included: recognizing the importance of accommodating new and growing business in context where vacant space is increasingly scarce; concerns about potential conflicts between loud and noisy activities and other kinds of uses; the role of workforce housing in attracting/retaining businesses and employees and in reinforcing the South End as a mixed-use people place vs a driving/parking place. There was a sense that balance is important but an uncertainty about what the balance is for the South End.

## Literature Review

### Physical Activity

The way land is developed – location of businesses, residences, schools, parking and open spaces - impacts how physically active people can be and actually are. Design and land use policies and practices have the potential to change the physical environment in ways that support physical activity. Much research has been done, resulting in the Center for Disease Control and Prevention’s Guide to Community Preventive Services (a resource that uses a rigorous, scientific, and systematic review process), recommending use of urban design and land use policies to support people engaging in physical activity. Examples of design elements that the CDC has found to have “strong or sufficient evidence that the intervention is effective” to increase rates of physical activity include:

- Proximity of residential areas to stores, jobs, schools, and recreation areas
- Continuity and connectivity of sidewalks and streets
- Improved street lighting
- Infrastructure projects to increase safety of street crossing
- Use of traffic calming approaches (e.g., speed humps, traffic circles)
- Enhancing street landscaping

Results from the systematic review of twelve studies of *community-scale urban design* (defined as “changes in the physical environment of several square miles or more”), showed the overall median increase in some aspect of physical activity (e.g., number of walkers or bicyclists) to be 161%. Community-scale urban design strategies include: proximity of residential areas to stores, jobs, schools, and recreation areas, continuity and connectivity of sidewalks and streets, and aesthetic and safety aspects of the physical environment. Even making changes in a smaller geographic area – referred to as “street scale” urban design has proven to result in increased rates of physical activity. The median improvement in some aspect of physical activity (e.g., number of walkers or percent of active individuals) from *street scale* urban design was found by the Guide to Community Preventive Services, to be 35%. Street scale design strategies include: improved street lighting, infrastructure projects to increase safety of street crossing, use of traffic calming approaches (e.g., speed humps, traffic circles, and enhancing street landscaping. Additional benefits brought about by these interventions include:

- Improvements in green space
- Increased sense of community and decreased isolation
- Increased consumer choice for places to live
- Reduced crime and stress

The Guide to Preventative Services does note, however, that increased walking and bicycling on urban streets, although beneficial, also poses the risk of increased injury to pedestrian or cyclist, because of increased exposure to motor vehicles.<sup>13</sup>

In addition, studies have found neighborhoods where residents make high use of local amenities are associated with more walking, and walkable neighborhoods are associated with double the number of weekly walking trips.<sup>14</sup>

### **Mental Health**

There is a clear relationship between community design and the mental health of a population. The relationship, however, is complex and there is no one way to design a community that supports the mental health of all residents. The environment can contribute to an individual’s sense of isolation. While there may be many reasons people feel isolated, this can be exacerbated by a lack of social connection brought about by land-use and transportation systems designed around the automobile, where one has to drive, often alone, to work, school, services, and home. Additional effects on mental health can include increased stress and cognitive impairment, which in turn can have physical implications. A major cause of stress can be long, taxing daily commutes made necessary by development patterns separating work, school, and other service locations from homes.<sup>15</sup>

An additional, major impact of community design on mental health is *accessibility of recreation, retail, and community services*. In order for individuals to feel connected to their neighbors and develop a sense of belonging, there is an integral need for social and transportation connectivity. Therefore, ease of access to recreation, healthy food, community services is an indicator of the health and well-being of a community.<sup>16</sup>



## Real Estate Concerns

Public comment in the South End revealed a concern by some about new housing being considered a liability not an asset to a community. The primary cause for concern is the potential for housing costs to rise quickly out of reach for current residents and those drawn to be a part of the resident arts community. This could contribute to increased, negative mental health outcomes by existing residents who fear they can no longer afford to work or live in an area where they have been for many years. Unfortunately, at this time research concerning the impact of housing and retail space in mixed use developments is inconclusive. However, building housing does impact jobs, spending, and tax revenue. For housing, these impacts occur in two phases: when the housing is constructed and during occupancy. Jobs created include the construction workers who are building the structure as well as workers in their firms who support them. Ripple effects are comprised of building material suppliers and cabinet manufacturers as well as businesses providing services such as architectural firms and trucking companies. Induced impacts result when the workers involved in the construction project spend their income in the region by patronizing restaurants, retail stores, health care establishments and transportation services. Likewise, the household income of all housing residents contributes to economic activity when households spend their disposable income on items such as food, clothing, transportation, and health care.<sup>17</sup>

Changing market realities make it imperative that localities encourage and accommodate higher density, smaller, environmentally friendly, and affordable housing in their community that is readily accessible to urban amenities. Mixed use projects by their nature contribute to all of these elements. Successful neighborhoods are ones where pedestrians are numerous, destinations are clear and plentiful, and numerous eyes on the street create a safe zone for visitors. These, once again, are typical features of a mixed-use neighborhood. A significant predictor of successful neighborhood revitalization is the vibrancy and perceived security of the street scene. Housing provides for a 24 hour district with residents coming and going. Office space adds to the pedestrian population and supports retail, dining and entertainment. Retail and dining attract visitors, adding even greater activity. All of these contribute socially, culturally, and economically to the growth of the area.<sup>17</sup>

The South End Market Study completed by HR&A Advisors included case studies of six different neighborhoods or districts and select mixed use projects in other states. In researching the case studies, three research questions were explored: 1) How have other cities preserved affordability and flexibility for a wide range of commercial business? 2) How have other cities addressed increasing residential pressure on industrial corridors? 3) How have other cities balanced demand for commercial and residential development in transitioning areas? Neighborhoods and districts researched included: Brooklyn Navy Yard, Chicago Near North Side, Milwaukee 30<sup>th</sup> Street Corridor, Portland, OR, Central Eastside District and Pearl District, and Portland, ME, Waterfront. These cities have used

*The Brooklyn Navy Yard Development Corporation (BNYDC) is one such entity and offers both long and short term lease options. In, 2011, the Navy Yard generated 10,350 jobs, nearly \$2 billion in economic output, and \$139 million in business and individual income taxes. It has a 1% vacancy rate.*

different strategies to achieve balance of industrial and residential uses that might be considered for the South End. These strategies include:

*Nonprofit stewardship* - A new or existing nonprofit could potentially own, manage, and develop property to keep space affordable, particularly for artists in the community. An entity such as this can work with tenants who need lower rents or more flexible lease terms. Nonprofits are also well positioned to use creative financing mechanisms. One such nonprofit, ArtSpace, uses a variety of strategies such as low-income housing tax credits, grants, and philanthropic contributions, to provide affordable live-work spaces for artists.

*Planning by subarea*- Each subarea has a specific purpose and redevelopment goal. Subareas could be devoted to different types of economic uses as well as residential spaces. Milwaukee, WI has sought to balance an industrial corridor in the city using this strategy. Some subareas allow residential uses, others allow commercial or industrial uses, not with no attempt to integrate both uses. This has allowed for preservation of a range of commercial businesses while honoring residential uses.

*Leveraging publically owned property*- This is yet another strategy that can be used to preserve affordability and flexibility for different economic uses. Both the Brooklyn Navy Yard and the Milwaukee industrial corridor leverage publically owned property in attempts to achieve balance between residential and commercial or industrial uses. The BNYDC manages city-owned, tax exempt properties. In Milwaukee, publicly owned property has been sold at low cost to owners willing to guarantee affordable rents. Additionally, in the “community facility/residential zone” subarea, the city hopes to introduce residential development into former industrial areas.

## **Predictions**

Physical activity: Currently there are 6,400 residents in the South End. Research shows the overall median increase in some aspect of physical activity (e.g., number of walkers or bicyclists) is 161% if urban scale community design elements are used. We do not have rates of physical inactivity specifically for the South End but for Chittenden County, 13% of people report getting no leisure time physical activity and 25% of people considered in the lowest income get no leisure time physical activity. It is predicted with strong confidence that the rates of physical inactivity will decrease significantly over time by implementing urban scale community design elements, and will contribute to increased levels of physical activity for all residents of the South End.

For mental health, a specific percent increase in benefit is not clear but there is strong evidence throughout the literature that mental health improves for people who live in mixed use areas with housing located in close proximity to amenities such as employment, health services, transportation, and places to be active.

## **Recommendations**

Based on the information described in this section, it is recommended the following be included in the Master Plan:

- Use planning tools such as zoning to support mixed use development. Such zoning and subdivision regulations allow multiple uses and should address density and infrastructure requirements (sidewalks).
- Plan by subarea; designate a specific purpose and redevelopment goal for each subarea. Subareas could be devoted to different types of economic uses as well as residential spaces.
- Consider non-profit stewardship as a means of controlling costs of studio, retail, and residential space for artists.
- Include “health supporting language” in master plan (see the Vermont Healthy Community Design Resource Active Living and Healthy Eating section Sample Language for Town Plans).
- Identify and take advantage of federal, state or local economic development incentives such as taxes, fees and subsidies.

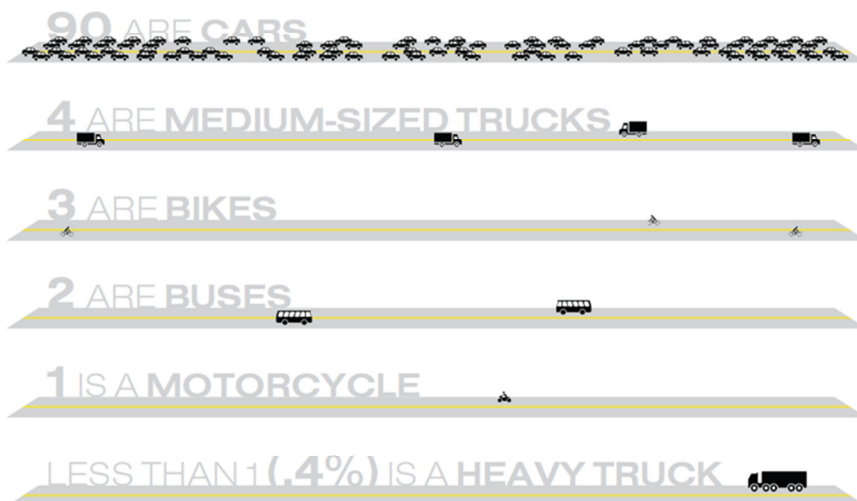
## Bicycle, Pedestrian, Transit Connectivity

### Existing Conditions and Community Comments

The South End transportation system serves neighborhoods, schools, businesses, colleges, and commercial uses. Sidewalks are present along both sides of Pine Street; however, there are gaps in certain locations. There are numerous crosswalks to accommodate pedestrians along the corridor; crossing signals can be improved at some locations. Bicycle accommodations are currently inconsistent as designated bike lanes are provided along some segments of the corridor while other segments operate under “Share the Road” signage.

Pine Street is supported by public bus service, with 70 bus stops, 7 bus shelters, and 8 bus routes; the busiest bus route on serves an average of 982 riders per week in 2013 (South End Phase 1 Current Conditions Report). Additionally, electric vehicle charging stations are available and a service called CarShare Vermont provides 4 vehicle parking spaces in the South End that can be used on an hourly or daily basis as needed in an effort to get people around with fewer vehicles. Parking is limited and in high demand in this diverse area.<sup>18</sup>

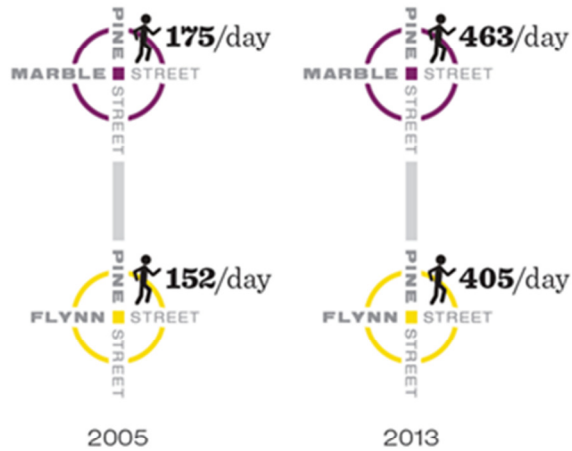
Out of 100 vehicles on Pine Street near Kilburn...



Source: CCRPC and DuBois & King (2014)

More people are walking on Pine Street: The number of pedestrians has more than doubled in the past 8 years.

(counts taken at intersections of Pine & Flynn and Pine & Marble)



Source: City of Burlington, DuBois & King

Number of crashes along Pine Street involving injuries to pedestrians or bicyclists has increased:



Source: City of Burlington, DuBois & King

The four day community workshops showed a desire for “a safely walkable, bikeable, well connected South End”, with desire for more robust transit service (more frequent service, more predictable service, service on nights and weekends, better cross-town service, trolley access). The importance of considering land use and transportation together – and the role of transportation choice in strengthening the South End as a “place” was another clear theme. There was desire expressed to see Pine Street become a slower, more people-friendly street with more of a barrier between sidewalk and traffic; concerns about the potential impacts of the future Champlain Parkway (traffic, walkability/crossability), with recognition that it isn’t the same project proposed 50 years ago; and an interest in future improvements that could further enhance walkability and connectivity. Finally a need for transportation improvements across modes at and around Champlain School was expressed.

## Literature Review

### Physical Activity

Research shows an association between bicycling and walking infrastructure (sidewalks, bike lanes) and frequency of bicycling and walking for both recreational and commuting purposes, thereby increasing physical activity levels. Bicycling and walking infrastructure that is attractive, safe, connected to necessary resources and services, and well maintained are important factors to reducing barriers. Planning that considers accessible roads, sidewalks, and public transit - ensuring all people within the community are able to move and travel about easily and safely - leads to increased “active transportation,” such as walking or biking.<sup>13</sup>

Complete Streets provide opportunities for increased physical activity by incorporating features that promote regular walking, cycling and transit use into just about every street. A report prepared by the

National Conference of State Legislators found that the most effective policy avenue for encouraging bicycling and walking is incorporating sidewalks and bike lanes into community design – essentially, creating Complete Streets. The continuous network of safe sidewalks and bikeways provided by a Complete Streets policy is important for encouraging active travel.

A recent comprehensive assessment by public health researchers of actions to encourage more physical activity recommended building more sidewalks, improving transit service, and shifting highway funds to create bike lanes.<sup>19</sup>

One study found that 43% of people with safe places to walk within 10 minutes of home met recommended activity levels; among those without safe places to walk just 27% met the recommendation. Residents are 65% more likely to walk in a neighborhood with sidewalks.<sup>19</sup>

Walkability has a direct and specific relation to the health of residents. A comprehensive study of walkability has found that people in walkable neighborhoods did about 35-45 more minutes of moderate intensity physical activity per week and were substantially less likely to be overweight or obese than similar people living in neighborhoods with low-walkability.<sup>19</sup>

Easy access to transit can also contribute to healthy physical activity. Nearly one third of transit users meet the Surgeon General's recommendations for minimum daily exercise through their daily travels.<sup>19</sup> In addition, increased access to public transportation has been shown to increase levels of physical activity, through people walking or biking to and from destinations and transit stops, and can increase access to places to be physically active (parks, community centers, playing fields).<sup>13</sup>

As noted previously, increased walking and bicycling, although beneficial, also poses the risk of increased injury to the pedestrian or cyclist, because of increased exposure to motor vehicles.

### **Mental Health**

Sidewalks, bike lanes, crosswalks, and other infrastructure that facilitates active transportation can increase social interaction within the community, decreasing feelings of isolation and depression, along with many other positive health benefits. Regularly available, safe, and affordable public transit can also allow low-income or disabled community members to reach various mental health and medical services previously inaccessible to them.<sup>20</sup>

Regular physical activity helps ameliorate risk for multiple chronic conditions and has a positive impact on rates of depression and perceptions of isolation.<sup>21</sup> Observational studies demonstrate that greater amounts of occupational and leisure time physical activity are generally associated with reduced symptoms of depression<sup>22</sup>.

Reduced incidence rates of depression and (some) anxiety disorders in exercising subjects raise the question whether exercise may be used as a form of treatment. In adults with major depression, the efficacy of exercise seems generally comparable to antidepressant medication. Evidence indicates the mechanisms responsible for exercise-related improvements in depression and anxiety disorders are not all known, and it is most likely to be a complex interaction of psychological and neurobiological mechanisms mediating these effects.<sup>23</sup>

According to studies cited in *MWIA: A Toolkit for Wellbeing*, reducing traffic levels and traffic speed can increase play, social interaction between residents and quality of life. Deterioration in the social life of streets occurs with heavy motor vehicle traffic. The average resident living on a busy street had less than one quarter of the number of local friends compared with those living on a similar street with little traffic. Levels of motor traffic on residential streets have been associated both with poor health and weakened social cohesion. In light traffic streets, the “home territory” i.e. the area over which people feel a sense of responsibility is far broader than in heavy traffic areas and included three times the number of “gathering spots”. The study controlled for personality differences, showing that the primary influence was the external effect of traffic, with a particular toll on children and the elderly. Another study from Ireland found that “persons living in walkable, mixed use neighborhoods were more likely to know their neighbors, participate politically, trust others and be socially engaged, compared with those living in car-oriented suburbs.”<sup>12</sup>

### **Predictions**

Using the Community Guide to Preventive Services estimate: that “overall, the median improvement in some aspect of physical activity (e.g., number of walkers or percent of active individuals) was 35%” as a result of street scale urban design improvements”, and, on a given day, 400-463 people were observed walking in the South End, there could potentially be 540-652 people walking with these types of improvements, not counting potential population growth in the area. We predict with high confidence that investing in opportunities for walking and biking (active transportation) and making street scale improvements to slow traffic, and will result in increased levels of physical activity and improved health outcomes among residents of the South End.

Expansion of bike/pedestrian infrastructure and increased connectivity will enable more residents and commuters to choose active transport options which, in turn, will help ameliorate chronic disease rates over time.

Mental health: There is a large and growing body of evidence that engaging in regular physical activity decreases symptoms of depression and anxiety. Given this, we predict a strong likelihood that mental health will improve for South End residents with safe and accessible opportunities for walking and biking.

### **Recommendations**

- Establish and implement “Complete Streets ” policies. Incorporate features such as protected bike lanes, clearly marked crosswalks, well maintained, contiguous sidewalks and traffic calming elements to promote safety for all users.
- Include language in Master Plan to support investment in sidewalks, bike lanes, traffic calming devices, safety features (street lights, cross walks), and regular transit to community services.

## Recreational Facilities

### Existing Conditions and Community Comments

An inventory of recreation areas in the South End includes Callahan, Smalley & Oakledge Lakeside and Baird Parks. Indoor spaces and programs include: King Street Youth Center, Bobbin Mill Community Room, Baird Center, City of Burlington Parks and Recreation programs (various locations). (SOURCE)

This area has several access points to Lake Champlain, a significant resource for recreation. People can swim and boat in the water as well as access an eight mile recreation path used for walking and biking that runs along the shore of the City of Burlington (and several public beaches), the town of Colchester, and north to the Champlain Islands.

The area also houses “the Barge Canal” – a superfund site that residents would like to see used, once safe, for quiet recreation – a place to enjoy nature and green space.

The four day community workshops recognized there is a lot already in the works: the City’s Department of Parks & Recreation has initiatives underway including wayfinding, bike path improvements, and an upcoming Parks and Recreation Master Plan. There was desire expressed to see more/better connections between Pine Street, the bike path, and the Lake, additional access points to the bike path and recognition of the ecological and environmental sensitivity of the Barge Canal. Desire for public access to the Barge Canal site was also expressed with suggestions such as a walking loop, trails, boardwalks, quiet places to sit, views into the site from above, and a way to tell its story via wayfinding, interpretation/education focused on history and ecology. Finally there was interest in having more community gardens and dog parks.

### Literature Review

#### Physical Activity

Recreation facilities provide space for community members to engage in physical activity and include places such as green space, outdoor sports fields and facilities, trails, playgrounds. Access to these amenities is affected by proximity to homes, schools, cost, hours of operation, and transportation.<sup>12</sup> Recreation resources provide opportunities for both structured and unstructured activity considered essential to meeting physical activity recommendations. It is important to note that actual and perceived level of safety is essential to whether people engage in outdoor physical activity or not, and if parents allow children to play outdoors.<sup>24</sup>

#### Mental Health

Access to recreation is another community attribute associated with mental health. The presence of parks and green/blue space in communities is linked to a greater sense of well-being and social interconnectedness of residents. Higher levels of neighborhood green spaces have been associated with significantly lower levels of symptomology for depression, anxiety and stress.<sup>25</sup> There is evidence, too, that access to bodies of water such as lakes, streams, and coastline (aka blue space) has positive effects on health and perception of health.<sup>26</sup>

A study in California concluded that mental health is significantly related to residential distance from parks. The highest scores for mental well-being were associated with residents living within a short walking distance from the park (400m) and decreased significantly over greater distance increments.<sup>27</sup> Providing access to green spaces such as parks and conservation areas supports the mental health of residents by enhancing opportunity for social interaction, strengthening the social fabric of the neighborhood and helping to reduce stress. Strong social ties and social integration are important predictors of well-being, and, for older adults, longevity.<sup>28</sup>

Land associated with industrial parks and businesses can also provide recreational opportunities such as community garden space and walking trails. Workplaces that incorporate a natural setting and promote wellness have higher productivity and reduced levels of job-related frustration and stress.

### Predictions

**Physical activity:** There is strong evidence that living in close proximity to safe and well maintained recreation facilities increases rates of physical activity. We predict with high confidence that preserving and investing in these amenities will improve rates of physical activity among residents in the South End, particularly for vulnerable populations who often have less access to recreation facilities that require costs or transportation, and improve health outcomes for the area.

**Mental Health:** There is strong evidence that living in close proximity to safe and well maintained recreation facilities improve mental health. We predict with strong confidence that preserving and investing in these amenities will improve the mental well-being of residents in the South End, particularly for vulnerable populations who often have less access to recreation facilities that require costs or transportation, and improve health outcomes.

**“Anything to help the connection to the lake.” – Workshop participant**

**“Transportation improvements for pedestrian lake access.” - Workshop participant**

An increased number and ease of access to recreational opportunities (such as the proposed Barge Canal greenspace) will improve the physical and mental health of South End residents and workers.

### Recommendations

- Locate recreational facilities near homes or schools, consider low or no costs options, and provide adequate hours of operation and accessibility by foot, bike and transit.
- Preserve open space within the barge canal area and improve or increase access points to the lake.
- Require developers to include green space with new or redeveloped industrial projects.

## Community Services

### Existing Conditions

The range of community services includes all businesses, agencies, retail outlets, public programs and human services. These services deliver opportunities for personal growth, social engagement, entertainment and support for individuals and families. Though community services did not emerge as a



strong theme, the inventory conducted during the scoping phase of our assessment identified gaps and assets. Gaps included the lack of a community center, lack of joint-use agreements opening schools for community use and the lack of a branch library. The area has ample health care providers (physical and mental), elementary schools (public and private) and some faith communities.

## Literature Review

### Physical Activity

Community services such as educational institutions, libraries, community centers, and medical offices can be resources for indoor activity space (gyms, tracks, halls to walk) and education (libraries for research, health professionals for advice) for residents to become physically active. As described in sections above, using mixed use development strategies to locate this in places that can be accessed safely by foot, bike or transit may also increase resident's physical activity levels.

### Mental Health

At their most basic community services address basic needs, promote social/civic engagement, optimize health and well-being and support independent living for seniors. Public facilities that are attractive, inviting, and accessible to all are essential for equitable delivery of community services.<sup>29</sup>

Accessibility to essential community services across the lifespan and across socioeconomic strata is supported by transit oriented development and mixed-use zoning. If the opportunity exists to engage their neighbors at libraries, community gardens, recreational programs, educational programs, and entertainment events then the likelihood of residents feeling isolated is reduced.

Communities that lack the interconnectedness afforded by contiguous sidewalks, frequent transit service, bike lanes and paths are missing an integral piece of community services even if the infrastructure and programs are in place.

## Predictions

**Physical activity:** There is evidence that living in close proximity to community services may increase rates of physical activity. We predict with confidence that preserving and investing in these amenities will improve rates of physical activity among residents in the South End and improve health outcomes for the area. Vulnerable populations, particularly, often have less access to community services that require transportation and fees.

**Mental Health:** There is evidence that living in close proximity to safe and well maintained recreation facilities improve mental health. We predict with confidence that preserving and investing in these amenities will improve the mental well-being of residents in the South End, particularly for vulnerable populations.

## Recommendations

- Locate community services near homes or schools and consider low or no costs, adequate hours of operation and accessibility by foot, bike and transit.
- Include language in Master Plan to preserve and invest in community services that are accessible by sidewalk, bicycle and transit and in close proximity to residential areas.

## Monitoring

Our interest in monitoring the influence of the recommendations made herein begins with the utility of this Health Impact Assessment for the Burlington City Council. Human Impact Partners, a national Health Impact Assessment organization, is currently evaluating the effectiveness of four HIA's completed by the Vermont Department of Health, including planBTV South End. This will help us gauge the format, readability and persuasiveness of the data and accompanying narrative and it will assist us in framing future efforts to encourage towns to adopt health in all policies approach.

To determine if implemented changes shift our three major indicators (physical activity as it related to obesity and chronic disease and mental health as it relates to depression due to social isolation and stress) a monitoring plan may involve the following:

- Pedestrian and bicyclist counts – Scoping studies should precede implementation of the major elements of the plan to determine baseline bicycle and pedestrian counts. This will allow clear analysis of the impact of the plan on the change in the number of individuals using active transportation options. Should scoping studies occur, the Chittenden County Regional Planning Commission would be responsible for pedestrian and bicyclist counts.
- Pedestrian and bicycle amenities – Monitor implementation of concepts in planBTV South End via the Burlington Bicycle and Pedestrian Master Plan process.
- Behavioral Health – The City of Burlington is currently developing a Community Health and Public Safety Dashboard with oversight from the Burlington Police Department Executive Services Committee. This dashboard of indicators will be used to monitor emerging issues related to behavioral health. Connecting to this existing effort long-term will be a way to monitor if land use changes are impacting mental health outcomes of residents. Additionally, Burlington Police Department currently monitor services calls, including those made for mental health issues. We recommend continuing to monitor these trends over time.

## Appendix I

### Community Scoping Meeting Attendees (January 9, 2015)

- Meredith Birkett, Director of Service Development, Chittenden County Transportation Authority
- Adam Brooks, Executive Director, South End Arts and Business Association
- Adrienne Cochrane, Marketing & Outreach Manager, Chittenden County Transportation Authority
- Heather Danis, District Director, Vermont Department of Health Burlington District Office
- Lisa Kingsbury, Planning Relations Manager, University of Vermont
- Lee Krohn, Senior Planner, Chittenden County Regional Planning Commission
- Nicole Losch, Transportation Planner, City of Burlington
- Abby Mattera, Ward 5 Neighborhood Planning Association Member
- Garreth Rogers, Assistant Recreation Superintendent, City of Burlington
- Kelly Stoddard-Poor, Associate State Director, AARP Vermont
- Sandrine Thibault, Comprehensive Planner, City of Burlington
- Jason Van Driesche, Director of Advocacy & Education, Local Motion
- David White, Director of Planning & Zoning, City of Burlington
- Terry Zigmund, Artist/Owner

### Facilitators

- Ed DeMott, Chronic Disease Designee, Vermont Department of Health Burlington District Office
- Katherine Hebert, Consultant, Creating Community Change
- Suzanne Kelley, Healthy Communities Coordinator, Vermont Department of Health
- Amy Malinowski, Public Health Supervisor, Vermont Department of Health Burlington District Office

## Appendix II

CREATING  
**HEALTHY COMMUNITIES**  
*Health Impact Assessment*



On January 9, 2015, community stakeholders met to discuss Plan BTV-South End in the context of health impacts. Two health concerns were prioritized: physical activity as it relates to obesity and chronic disease, and mental health as it relates to depression due to social isolation and stress. Community planning can impact these health concerns.

### **LAND USE IMPACTS HEALTH**

**Land use can impact physical activity by:**

- Creating mixed-use communities that include employment opportunities, schools, residences and essential services together to increase accessibility for walking, biking, transit use and reduce automobile commuting time.
- Increasing the ability for community members to be physically active in their everyday life can raise activity levels by as much as 25%.
- Making “active transportation” more desirable through mixed-use community planning which includes use of street lights, benches, street trees and aesthetic designs within the closer community.
- Increasing access to trails and sidewalks encourages people to maintain an active and healthy lifestyle, greatly increasing the number of residents reaching physical activity goals and decreasing risk for chronic disease.

**Land use can impact mental health by:**

- Ensuring a closer distribution of businesses, schools, and residences in order to decrease time spent commuting, thus allowing for increased social and family time.
- Encouraging zoning laws that allow mixed use communities can decrease stress, feelings of isolation and depression of local residents.
- Incorporating access to green space (parks, undeveloped land) which has been shown to improve illness and injuries, along with improving children’s ability to focus and concentrate.
- Moderating building heights has also been shown to decrease psychological stress in adults and improve behavior with children, especially if apartments and housing are located close to accessible parks and green space.

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### **FOR MORE INFORMATION**

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## **SOUTH END CURRENT CONDITIONS**

**Health:** According to the South End Market Study completed by HR&A Advisors, the number of residents 55-74 years old has increased since 2000, and since 2010, residents 25-34 years old has increased, with the median household incomes in the South End (\$40,772) and Burlington (\$39,450) being 36% and 38% lower than in the county overall (\$63,951). Households in both the South End and Burlington maintain similar distributions of income, with approximately 70% of households earning less than \$75,000 per year, compared to 56% of households in the county.

Income is important because lower income is associated with higher rates of chronic disease. For example, obesity has been climbing in Chittenden County. In 2000-2002, the prevalence was 16% and in 2012-2013 it was 21%. Among lower income adults, those at less than 250% of the federal poverty level, the prevalence was 32%. Similar data can be found for other chronic diseases, such as arthritis, cardiovascular disease, diabetes and depression, and for risk factors including smoking and meeting physical activity guidelines.

**Land Use:** Currently, according to the South End Market Study, almost half (45.4%) of the study area is devoted to residential uses. There is also a considerable amount of commercial (19.9%) and industrial (13.7%) uses which are mostly segregated from the residential uses. This segregation is due to part of the South End being zoned for “light manufacturing” in the core of the study area. This area is known as the “Enterprise District” and was established to preserve industrial space, while ensuring compatibility of that space with nearby residential uses. Over the years, there has been a conversion of industrial uses to non-industrial uses, especially in the northern part of the study area.

## **PUTTING IT ALL TOGETHER FOR THE SOUTH END**

Community stakeholders discussed options and potential health impacts for various populations such as low-income, people of color, older adults, and people with disabilities. If we add:

- Manufacturing space or office use, the impact could be changes in:
  - Job availability
  - Income levels for residents
  - Commuter traffic and physical activity levels
- Housing, the impact could be changes in:
  - Affordable housing
  - Availability of office or studio space
  - Physical activity levels (for employees living close to jobs sites)
  - Social cohesion and community interaction
- Retail services (i.e. grocery store), the impact could be changes in:
  - Physical activity for those who live/work nearby
  - Traffic/parking needs
  - Job availability
  - Social cohesion and community interaction
- Consistent or increased artist space, the impact could be changes in:
  - Physical activity for artists who can live and play where they work
  - Social identity, cohesion, and community interaction

**WHAT DO YOU THINK?**

**LET US KNOW!**

CREATING

# HEALTHY COMMUNITIES

*Health Impact Assessment*



On January 9, 2015, community stakeholders met to discuss plan BTV-South End in the context of health impacts. Two health concerns were prioritized: physical activity as it relates to obesity and chronic disease, and mental health as it relates to depression due to social isolation and stress. Community planning can impact these health concerns.

## TRANSPORTATION IMPACTS HEALTH

Transportation planning can impact physical activity by improving (or hindering) opportunities to be physically active.

- Planning that considers accessible roads, sidewalks, and public transit - ensuring all people within the community are able to move and travel about easily and safely - leads to increased “active transportation”, such as walking or biking.
- Implementing “complete roads” which include sidewalks, adequate bike lanes, and signs to educate motorists to share the roads.
- Increased access to public transportation increases physical activity, through people walking or biking to and from destinations and transit stops and can increase access to places to be physically active.
- Promoting active transportation and reducing motorist travel can reduce incidents of injury and death, along with enhancing the quality of life of local residents.

Mental health status can also be impacted by transportation planning.

- Access to parks, green space, or other areas to be physically active has been shown to reduce stress levels, and improve the moods of individuals.
- Active transportation facilitates increase social interaction within the community, decreasing feelings of isolation and depression, along with many other positive health benefits.
- Public transit can also allow low-income or disabled community members to reach various mental health and medical services they may have previously been unable to receive.

## SOUTH END CURRENT CONDITIONS

**Health:** According to the South End Market Study completed by HR&A Advisors, the number of residents 55-74 years old has increased since 2000, and since 2010, residents 25-34 years old has increased, with the median household incomes in the South End (\$40,772) and Burlington (\$39,450) being 36% and 38% lower than in the county overall (\$63,951). Households in both the South End and Burlington maintain similar distributions of income, with approximately 70% of households earning less than \$75,000 per year, compared to 56% of households in the county.

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Income is important because lower income is associated with higher rates of chronic disease. For example, obesity has been climbing in Chittenden County. In 2000-2002, the prevalence was 16% and in 2012-2013 it was 21%. Among lower income adults, those at less than 250% of the federal poverty level, the prevalence was 32%. Similar data can be found for other chronic diseases, such as arthritis, cardiovascular disease, diabetes and depression, and for risk factors including smoking and meeting physical activity guidelines.

**Transportation:** The South End transportation system serves neighborhoods, schools, businesses, Colleges, and commercial uses. Sidewalks are present along both sides of Pine Street; however, there are gaps in certain locations. There are numerous crosswalks to accommodate pedestrians along the corridor; crossing signals can be improved at some locations. Bicycle accommodations are currently inconsistent as designated bike lanes are provided along some segments of the corridor while other segments operate under “Share the Road” signage. Pine Street is currently well supported by public bus service, with numerous bus stops and regularly scheduled local and regional service provided by the CCTA. Additionally, CarShare Vermont provides vehicle parking in the South End, that can be used on an hourly or daily basis as needed in an effort to get people around with fewer vehicles. Finally, parking is limited and in high demand in this diverse area.

### **PUTTING IT ALL TOGETHER FOR THE SOUTH END**

Community stakeholders discussed options and potential health impacts for various populations such as low-income, people of color, older adults, and people with disabilities. All of these will impact physical activity levels and if we add:

- Pedestrian connectivity, the impact could be changes in:
  - Commuter traffic
  - Accidents
  - Engagement in, or with, community businesses and events
  - Social cohesion and community interaction
- Continuous bicycle facilities on both sides of corridor, the impact could be changes in:
  - Accidents
  - Commuter traffic
  - Engagement in or with community businesses and events
- Extended bus service hours and stops, the impact could be changes in:
  - Commuter traffic
  - Access to needed and desired services and events
  - Feelings of isolation or stress

**WHAT DO YOU THINK? LET US KNOW!**



CREATING

# HEALTHY COMMUNITIES

*Health Impact Assessment*



On January 9, 2015, community stakeholders met to discuss Plan BTV-South End in the context of health impacts. Two health concerns were prioritized: physical activity as it relates to obesity and chronic disease, and mental health as it relates to depression due to social isolation and stress. Community planning can impact these health concerns.

## RECREATION IMPACTS HEALTH

Living in a community that builds **physical activity** into the daily structure of life, helps make physical activity an easy choice.

### Recreation resources can impact physical activity by:

- Providing opportunities for the structured and unstructured activity considered essential to meeting physical activity recommendations, which, in turn, helps reduce or ameliorate chronic diseases such as cardiovascular disease, diabetes and obesity.
- Being accessible. Communities with adequate recreational areas that connect via multi-purpose trails, transport loops, sidewalks, housing and employment, increase the opportunity for physical activity and promote use by individuals without access to an automobile.
- Increasing exposure to the natural environment which supports physical activity as well as a heightened sense of well-being, fewer symptoms of depression and lower rates of smoking and substance abuse.

A community can positively impact the **mental health** of residents through design features and infrastructure that support residents' social connectivity and opportunity to make healthy lifestyle choices.

### Recreation resources can impact mental health by:

- Providing access to green spaces such as parks and conservation areas which support the mental health of residents by enhancing opportunity for social interaction and helping to reduce stress.
- Attracting people to be "out and about", increasing the likelihood of casual social encounters and strengthening the social fabric of neighborhoods. Strong social ties and social integration are important predictors of well-being, and, for older adults, longevity.
- Being supported across sectors. Land associated with industrial parks and businesses can also provide recreational opportunities such as community garden space and walking trails.

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Workplaces that incorporate a natural setting and promote wellness have higher productivity and reduced levels of job-related frustration and stress.

### **SOUTH END CURRENT CONDITIONS**

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Income is important because lower income is associated with higher rates of chronic disease. For example, obesity has been climbing in Chittenden County. In 2000-2002, the prevalence was 16% and in 2012-2013 it was 21%. Among lower income adults, those at less than 250% of the federal poverty level, the prevalence was 32%. Similar data can be found for other chronic diseases, such as arthritis, cardiovascular disease, diabetes and depression, and for risk factors including smoking and meeting physical activity guidelines.

**Recreation:** An inventory of recreation areas in the South End includes Callahan, Smalley & Oakledge Parks. Indoor spaces and programs include: King Street Youth Center, Bobbin Mill Community Room, Baird Center, City of Burlington Parks and Recreation programs (various locations).

### **PUTTING IT ALL TOGETHER FOR THE SOUTH END**

Community stakeholders discussed options and potential health impacts for various populations such as low-income, people of color, older adults, and people with disabilities. If we add:

- Economic access to recreation; reduce barriers to affordability. This might impact:
  - Usage of recreation facilities across incomes
  - Physical activity levels
  - Sense of well-being
  
- Physical access to recreation, such as improved connectivity of parks with adjoining neighborhoods through sidewalks, multi-purpose trails and transit loops. This might impact:
  - Usage of recreation facilities across incomes
  - Physical activity levels
  - Neighborhood identity and social capital
  - Exposure to green space
  
- Expand community gardens. This might impact:
  - Access to local food and nutrition
  - Physical activity levels
  - Sense of well-being
  - Neighborhood identity and social capital

**WHAT DO YOU THINK?**

**LET US KNOW!**

CREATING  
**HEALTHY COMMUNITIES**  
*Health Impact Assessment*



On January 9, 2015, community stakeholders met to discuss Plan BTV-South End in the context of health impacts. Two health concerns were prioritized: physical activity as it relates to obesity and chronic disease, and mental health as it relates to depression due to social isolation and stress. Community planning can impact these health concerns.

### **COMMUNITY SERVICES IMPACT HEALTH**

Community services can impact physical activity by:

- Providing outlets for residents to become physically active such as physical activity classes offered by health clubs and community centers, or city department (Parks and Rec) events.
- Supporting residents in their efforts to be physically active and promoting healthy, happy lifestyles.
- Providing health and medical resources, allowing residents to stay healthy, and stay active.

Community services can impact mental health by:

- Providing various outlets for community members - libraries, schools, and parks can provide activities, and allow residents to gather and interact, promoting social interactions and support.
- Creating a stronger sense of community, all while decreasing feelings of isolation and rates of depression among residents.
- Co-locating medical and mental health clinics to provide treatment locally, ensuring community members have access to the help they need.
- Including family services, such as community and day care centers, to provide opportunities for families to experience a diverse set of activities.

### **SOUTH END CURRENT CONDITIONS**

**Health:** According to the South End Market Study completed by HR&A Advisors, the number of residents 55-74 years old has increased since 2000, and since 2010, residents 25-34 years old has increased, with the median household income in the South End (\$40,772) and Burlington (\$39,450) being 36% and 38% lower than in the county overall (\$63,951). Households in both the South End and Burlington maintain similar distributions of income, with approximately 70% of households earning less than \$75,000 per year, compared to 56% of households in the county.

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#### **FOR MORE INFORMATION**

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Income is important because lower income is associated with higher rates of chronic disease. For example, obesity has been climbing in Chittenden County. In 2000-2002, the prevalence was 16% and in 2012-2013 it was 21%. Among lower income adults, those at less than 250% of the federal poverty level, the prevalence was 32%. Similar data can be found for other chronic diseases, such as arthritis, cardiovascular disease, diabetes and depression, and for risk factors including smoking and meeting physical activity guidelines.

### **Community Services:**

The South End lacks a library branch, community center & indoor recreational opportunities but does have health care providers (physical & mental), elementary schools (public and private) and some faith communities.

### **PUTTING IT ALL TOGETHER FOR THE SOUTH END**

Community stakeholders discussed options and potential health impacts for various populations such as low-income, people of color, older adults, and people with disabilities.

- Designate / construct a South End Community Center; a flexible, multi-purpose space which allows for an array of activity options to serve all populations. This might impact:
  - Social capital
  - Physical activity levels
  - Access to healthy food
  - Community cohesion
  - Perception of safety
  - Shifts in social norms
  
- Use of schools as a community resource for library services, physical activity, adult learning, life skills (cooking, etc.), and expanded community gardens on school grounds. This might impact:
  - Social capital
  - Physical activity levels
  - Access to local food and nutrition
  - Rate of depression and feelings of isolation
  - Shifts in social norms; substance abuse rates
  - Educational opportunities
  
- Establish a branch library with youth and senior programs and computer access. This might impact:
  - Social capital
  - Maintenance and development of life skills

**WHAT DO YOU THINK? LET US KNOW!**

CREATING

# HEALTHY COMMUNITIES

*Championing development that integrates physical activity, mental health and a strong sense of community.*

## LAND USE



30

People living in walkable communities are more than twice as likely to get 30 minutes or more of daily exercise.

MIXED USE, WALKABLE COMMUNITIES

## RECREATION



MORE AFFORDABLE MUNICIPAL RECREATION

People are 50% more likely to meet physical activity guidelines if they live near trails.

50%

## COMMUNITY SERVICES



The number of children who are physically active is higher when school playgrounds are open to the public.

84%

IMPROVED CONNECTIVITY OF NEIGHBORHOODS AND REC AREAS

## TRANSPORTATION



TRAFFIC CALMING AND PEDESTRIAN AMENITIES

People who use public transportation are less likely to be sedentary or obese.

Biking and walking increased by 37% in states that invested in sidewalk and crosswalk improvements.

37%

**FOR MORE INFORMATION**

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