SECOND STREET CORRIDOR

HEALTH IMPACT ASSESSMENT

2013

Second Street Corridor Project

October 2013

Prepared by the Southern New Hampshire Planning Commission

This Health Impact Assessment was made possible with support from the New Hampshire Planners Association and funding from HNHfoundation, working to improve the health and wellness of New Hampshire's population, with a focus on its most vulnerable children.

Table of Contents

Tables

Figures

Maps

Second Street Corridor Project Health Impact Assessment

SECOND STREET CORRIDOR PROJECT

EXECUTIVE SUMMARY

This health impact assessment (HIA) examined the potential health impacts of the Second Street Corridor Project in Manchester, New Hampshire. The Second Street Corridor Access and Mixed Use Overlay Zoning Project is funded by a grant provided to the City of Manchester through the New Hampshire Community Planning Grant Program from the New Hampshire Housing Finance Authority (NHHFA). The purpose of this project is to develop access management strategies and a mixed-use overlay zoning district for Second Street between the Manchester-Bedford town line and Granite Street at Exit 5. The overall goal of the Second Street Corridor Project is to improve the use, mobility and safety of the corridor for all modes of travel (pedestrian, bicycle, vehicle, transit) as well as to promote economic growth and infill development to revitalize and improve the corridor for all users. The HIA project also aims to create a model for multi-sector collaboration on specific projects that could influence health.

> **"Hopefully, we are able to make some broad systems changes to support a healthier community." - Timothy Soucy, Manchester Public Health Director**

Zoning and land use planning is legally rooted in the protection of "public health, safety and welfare." Since the legal establishment of this discipline, the importance of the interconnection between zoning, land use planning and public health has faded to the background in lieu of economic considerations. Health is seldom discussed or considered in policy debates or land use / zoning decisions anymore. A health impact assessment can serve to emphasize this interconnection and to help shape recommendations and policies that will have a positive impact on health.

For this HIA, the priority impacts of interest include physical activity, traffic safety, and access to healthy food. Public input, community background information and a broad literature review guided the conclusions and recommendations formed from the HIA. It is hoped the Second Street Corridor Project HIA will encourage policies and actions that create an economic, physical and social environment that enables residents and visitors of this community to lead healthy lives.

BACKGROUND

The Southern New Hampshire Planning Commission (SNHPC) in partnership with the City of Manchester, and with funding provided by HNHfoundation through the New Hampshire Planners Association (NHPA), conducted a Health Impact Assessment (HIA) of the Second Street Corridor Project in the City of Manchester. The purpose of this HIA is to examine existing conditions relevant for the planning process and challenges facing residents of the Second Street neighborhood, assess opportunities for improvement, and recommend feasible options that can be incorporated into the Second Street Corridor planning process to promote healthy living, including increased physical activity; traffic safety; and access to healthy goods and services. The project also aims to create a model for multi-sector collaboration on specific projects that could influence health.

The Second Street Corridor Project was selected for an HIA in January 2013 with a required deadline of September 2013. Although the intermediate HIA timeframe did not allow for an extensive review and modeling of health impacts, the assessment provides important baseline information and recommendations that should be considered during the Second Street Corridor Project development. Data was collected at the study area level wherever possible; however, city and county level data is used where it is the best available data.

The Second Street Corridor Access and Mixed Use Overlay Zoning Project is funded by a grant provided to the City of Manchester through the New Hampshire Community Planning Grant Program from the New Hampshire Housing Finance Authority. The purpose of this project is to develop access management strategies and a mixed-use overlay zoning district for Second Street between the Manchester/Bedford town line and Granite Street at Exit 5. The overall goal of the Second Street Corridor Project is to improve the use, mobility and safety of the corridor for all modes of travel (pedestrian, bicycle, vehicle, transit) as well as to promote economic growth and infill development to revitalize and improve the corridor for all users.

The Second Street Corridor

Dating back to August 1891, Second Street is one of Manchester's oldest commercial retail corridors. Located on Manchester's west side adjacent to I-293, the Second Street corridor is a densely developed business district containing a mix of mostly small commercial centers, stand-alone auto-related businesses, fast food and full-service restaurants. Residences are also located along the corridor and in two separate and distinct residential neighborhoods – a multi-family R-3 zoned neighborhood located at the northern end of the corridor, and a two-family R-2 zoned neighborhood located adjacent to the Bedford town line. The residential areas of the corridor are characterized by a diverse population, low-moderate income households, high levels of poverty in some areas and a high percentage of rental housing (please see map 1 for geographic scope).

Designated as a principle arterial under the Federal Highway Functional Classification System, Second Street is a two-lane, undivided collector street. The street carries anywhere from 15,000 to 19,000 average vehicles per day, and this traffic is projected to increase to 24,000 to 28,000 vehicles per day by 2035. In addition, there are anywhere from 45 to 50 individual curb cuts located along the street with few restrictions on left-turn movements. These conditions, in conjunction with increasing traffic volumes, have the potential to create many conflict points that could result in unsafe conditions for not only motorists, but for pedestrians and cyclists also. With only 30 to 40 feet of pavement, most of the street is inhospitable to these users due to narrow shoulders and discontinuous sidewalks located at or behind the curb.

These roadway and traffic safety problems are compounded by the corridor's conventional B-2 General Business District zoning. The City of Manchester's existing B-2 zoning provides limited incentives and opportunities to upgrade and improve the corridor. Established in 1965, the B-2 district was put into place as a means to accommodate local and general highway business development through tightly controlled lot and building setbacks and use standards designed to manage and react to development rather than to encourage or provide for a mixing of uses. Today the B-2 District does not accommodate or permit important urban design and corridor planning principles related to setbacks, building and parking placement. As a result, the B-2 District is unresponsive to changes in market conditions offering little or no incentives to accommodate mixed use, infill and compact, walkable development. This has hindered this type of business growth and the overall economic vitality of the corridor.

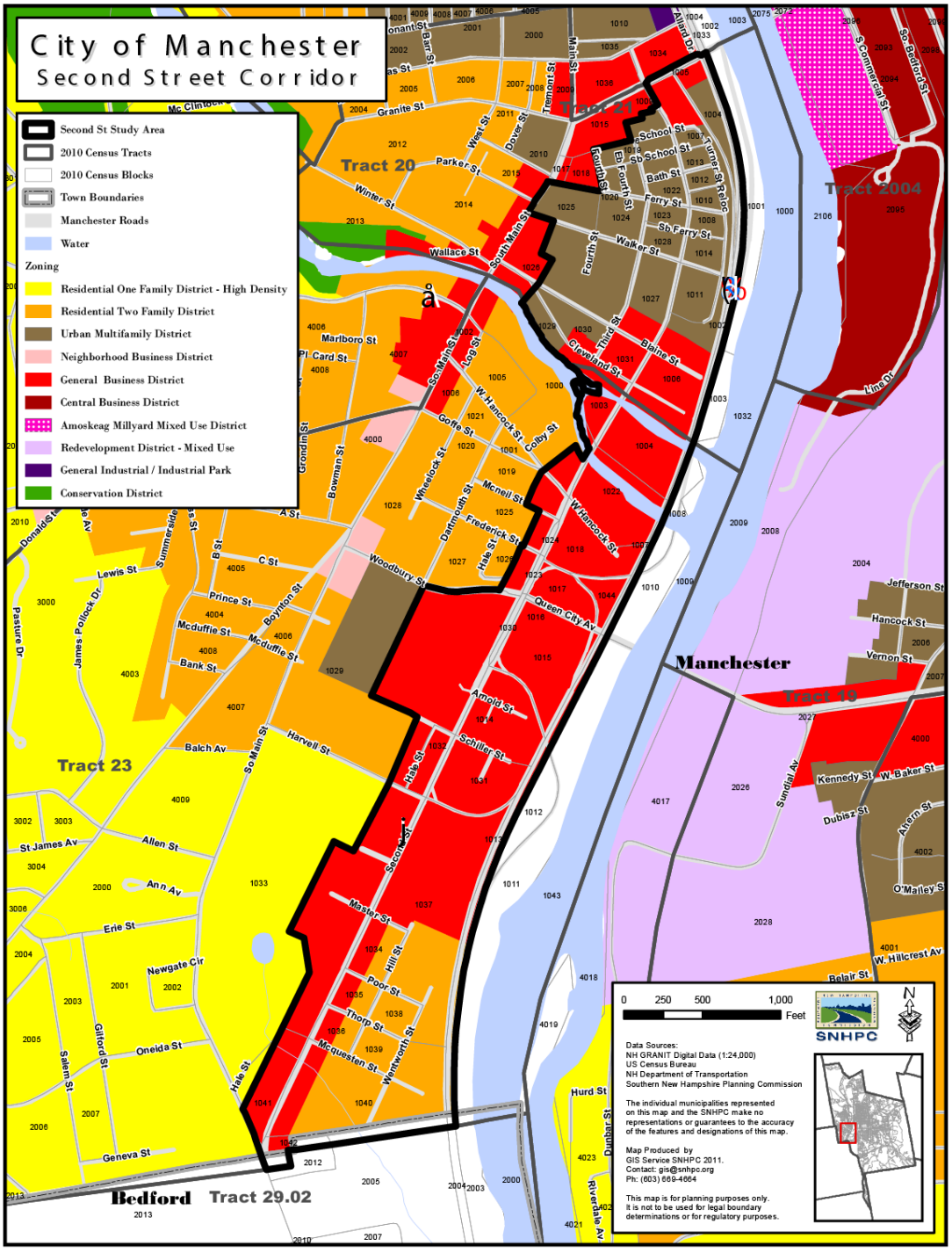
HIA is a process that helps evaluate the potential health effects of a plan, project or policy before it is built or implemented. An HIA can provide recommendations to increase positive health outcomes and minimize adverse health outcomes. HIA brings potential public health impacts and considerations to the decision-making process for plans, projects, and policies that fall outside the traditional public health arenas, such as transportation and land use.[1]

HIA can also contribute to health equity by identifying the different groups within the population who will experience health gains and losses under each proposal so decision makers can see how the proposals affect health inequality and choose the most equitable strategies.

These two projects - the HIA and the 2nd Street Corridor planning process - present an opportunity to transform the corridor into an important destination in the City, to increase the economic vitality, attractiveness and livability, and to have a positive impact on health by using the HIA to inform the strategies that are considered.

FIGURE 1 - SECOND AND WOODBURY STREET INTERSECTION

MAP 1 - STUDY AREA



Screening

Screening for a project or policy assesses the value, feasibility and utility of the HIA in the decision-making process. Screening for the Second Street Corridor HIA began in September 2012 as the Second Street Corridor Project was about to begin with the City of Manchester. Timing for the Second Street Corridor Project, scheduled for completion in 2014, did not line up perfectly with timing of the HIA project, which was scheduled for completion in September 2013. Nevertheless, it was determined that an HIA on the proposed goals and policies outlined in the scope of work for the Second Street Corridor Project would be beneficial for incorporating an explicit focus on health into the planning and design process, which has not typically been a specific consideration in past planning efforts in the City. The Second Street Corridor Project grant application proposal states the following in regard to goals for the project:

This Project seeks to develop and adopt a new mixed use overlay zoning district and associated access management strategies for the Second Street corridor. The Project provides an opportunity for the Manchester Planning Board to work directly with the existing businesses and residents living and working along the corridor in identifying and adopting new zoning goals, standards and incentives to bring about sustainable and compact mixed use, infill development and redevelopment opportunities. The overall goal of the Project is to improve the "safety", "livability" and "attractiveness" of Second Street through this new overlay mixed use zone and associated access strategies. It is the desire of the City that these new zoning tools promote sustainable and resilient community development that improves the quality of life of the residents and businesses within the corridor; promotes new housing and retail opportunities; and improves traffic flow and access. Some of the innovative and new zoning aspects to be considered as part of this Project include:

- *addition of expedited development review processes (focusing on modifying the standards such that waivers and special exemptions can all be handled at one time);*
- *clarification regarding major and minor additions and site plan review either by the planning board or planning department;*
- *modifications in permitted land uses allowed in the underlying zones (the new mixed use district will be placed over the existing B-2 district thus adding or removing certain land uses);*
- *attracting new housing opportunities through mixed use infill standards (through greater density through site plan review processes thus avoiding creation/expansion of nonconforming uses);*
- *identifying new urban design guidelines and providing incentives to place buildings closer to the street and parking at side or rear;*
- *linking highway improvements with land use improvements (such as consolidating curb cuts and providing shared driveways, sidewalks/pedestrian and bicycle improvements);*
- *providing flexible building and redevelopment provisions to adjust for and enable new and future development as determined by market demand (size and locate uses according to area needs);*
- *attracting new development by regulating the form and type of development as opposed to lot/setback restrictions (considering some aspects of both form-based and smart growth provisions); and*
- *exempting existing businesses from the overlay district standards until the property redevelops.*

The following City departments committed to participate in the HIA process during the screening process, recognizing that health considerations need to be a part of the planning process in order to reduce the negative impacts on health that can be realized after a decision has been made and put into place.

- Planning and Community Development
- Parks and Recreation
- Health
- Public Works
  Economic Development

Scope

The HIA scoping process was initiated in March 2013 with the Second Street Corridor HIA Advisory Committee formed February-March 2013. This committee consisted of representatives from each of the City departments listed as participants in the process, along with a representative from Neighborworks Southern New Hampshire, an organization involved in this neighborhood and the City of Manchester working to address the need for affordable housing and improved communities. The objective of the scoping process is to determine potential health effects of the decision, prioritize research questions with stakeholder and decision-maker input, identify evidence and research methods, and further, to establish roles and a timeline for the process. Scoping pathways and worksheets can be found in Appendix A.

At the beginning of the scoping process, a public workshop was conducted in conjunction with the Second Street Corridor Project team to educate corridor residents, business owners, stakeholders and decision-makers about the HIA process and to receive input on community issues, concerns, assets and opportunities in the corridor.

Approximately 27 participants, representing residents and businesses, gave input at the first public workshop in February 2013. Comments regarding health centered on barriers to physical activity, traffic safety and impediments to accessing healthy food/grocery stores. These issues became the focus of the HIA work, as it was apparent they were the biggest concerns of residents and stakeholders in the corridor. The scoping worksheets developed by the HIA committee included a number of other health determinants considered for possible impacts from this project, but ultimately the major issues raised at the public workshop became the focus due to time and resource constraints for the HIA work.

In April 2013 a Complete Streets Public Workshop was conducted with GP RED, a national non-profit organization, and T.Y. Lin International, a global, multi-disciplinary engineering services firm, to assess the Second Street Corridor for strategies that could improve mobility for all users in the corridor. The workshop included a screening of the Weight of the Nation film, "Challenges," which introduces viewers to the concept of how public policies and our built environment have contributed to escalating obesity rates. Following the film screening was a presentation introducing Complete Streets and then a guided walking tour of the Second Street corridor, and a strategic visioning session on the second day with SNHPC staff and attendees.

This workshop gave participants a first-hand look at the experience of a pedestrian in the Second Street corridor. At the strategic visioning session participants developed design considerations and recommendations that were then shared with the Second Street Corridor Project team and decision-makers to consider in the development of access

management and zoning strategies for the Second Street Corridor Project. A presentation of these design considerations and recommendations was made at the June 10, 2013 Second Street Corridor Project public workshop in order to receive feedback from residents, business-owners/employees, stakeholders and decision-makers who were not able to attend the April workshop. Proposed design considerations and recommendations can be found in Appendix B.

FIGURE 2 - APRIL 2013 COMPLETE STREETS WORKSHOP

- SECOND AND SCHOOL STREET INTERSECTION

COMMUNITY PROFILE

Demographics and Neighborhood Characteristics

Using the 2007-2011 ACS Census Data, SNHPC compiled baseline data for the City of Manchester and Hillsborough County census tracts 20 and 23. These tracts cover the study area, while tract 23 extends beyond the western border of the study area to include portions of South Main Street and surrounding side streets. The inclusion of these areas outside of the designated study area may affect the demographic data collected; however, the majority of the tracts are located within the study area. Those portions that are not may share similar characteristics with the study area, while some portions of tract 23 continue along main arterials into the Town of Bedford, New Hampshire. The data collected is presented in the following figures and throughout the document.

The State of New Hampshire has one of the lowest population densities in the nation, however, the City of Manchester contains the largest population of any municipality within the state, while the HIA study area has more than double the population density of Manchester (see table one). In the U.S., dense neighborhoods are often thought of as urban and walkable when compared with more suburban areas. However, density does not always equate walkability in an urban setting. Auto-oriented corridors present numerous obstacles to pedestrians and often offer retail outlets geared toward auto-centric uses, limiting the purchasing choices of those residents without consistent access to an automobile.

Table 1 depicts economic characteristics of the study area compared with the City of Manchester and the State of New Hampshire. In 2011 the Second Street study area had a median household income over $8,000 lower than Manchester and almost $20,000 lower than New Hampshire. The median household income for tract 20 during the same period was $28,707—approximately $25,000 and $35,000 below the city and state median household income, respectively—while the same figure for tract 20 in the year 2000 was $35,482 when adjusted to 2011 dollars.

TABLE 1 - GENERAL DEMOGRAPHIC INFORMATION

	Study Area	Manchester	New Hampshire
Total Population	6,570	109,763	1,315,911
Total Households	2,598	45,130	514,869
Median Age	34.9	36.1	40.7
Median Household Income 2011	$45,266	$53,278	$64,664
Median Household Income 2000*	$46,387	$53,262	$64,617
Total Employment	3,171	57,226	695,066
Unemployment Rate	7.6%	5.2%	6.3%
Poverty Rate	18.0%	13.8%	8.0%
Population Density (mi^2)	6,865	3,326	147
Foreign Born Population	14%	11.8%	5.2%

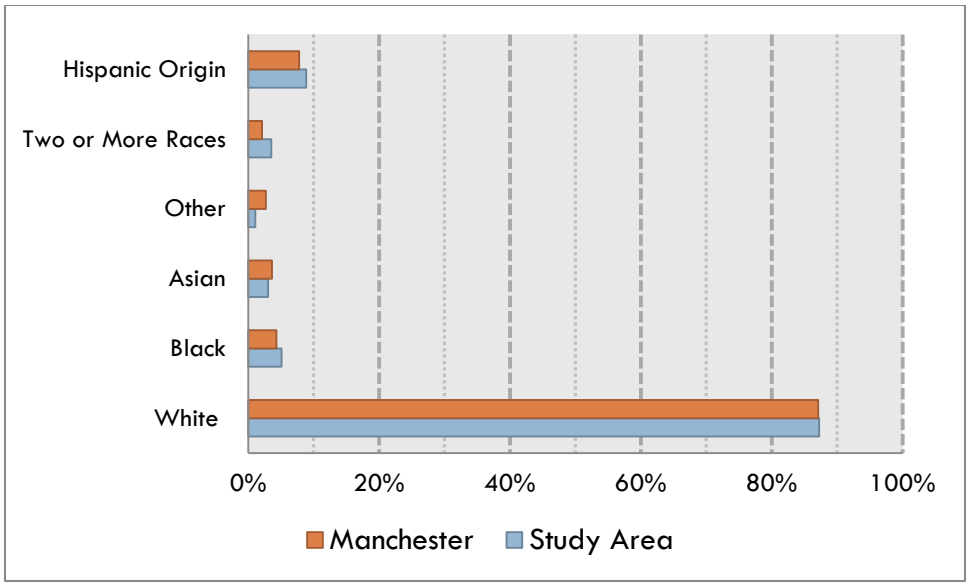
Source: American Community Survey 2007-2011; *Figures adjusted to CPI of 224.939 for 2011

Beyond economic variables, figures one and two display general demographic information of the study area compared with the City of Manchester. As shown in figure one, the white population of both Manchester and the study area were roughly the same at 87 percent in 2011. However, the study area had a higher percentage of census respondents identifying as Hispanic or black, at 8.8 percent and 5.1 percent, respectively, when compared with the city, at 7.8 percent and 4.3 percent, respectively. Drilling down further, census tract 20 contained 10 percent

and 12 percent of individuals identifying as Hispanic or black. This tract also contained 8.6 percent of individuals identifying as having West Indian ancestry and 14.4 percent of the population was under the age of 10.

The Second Street neighborhood (consisting mostly of census tracts 20 and portions of 23) represents one of the most socially and economically disadvantaged neighborhoods within Manchester. According to the 2007-2011 American Community Survey, 18 percent of individuals were living below the poverty line with the largest cohort in this group being children between the ages of 6 and 11, more than double the amount compared to the city as a whole. Women living below the poverty line in the study area outnumbered men almost two to one. Furthermore, the poverty level for census tract 20 was 36.5 percent over the same period. This figure includes all individuals; the same figure for individuals under the age of 18 was 58.6 percent.

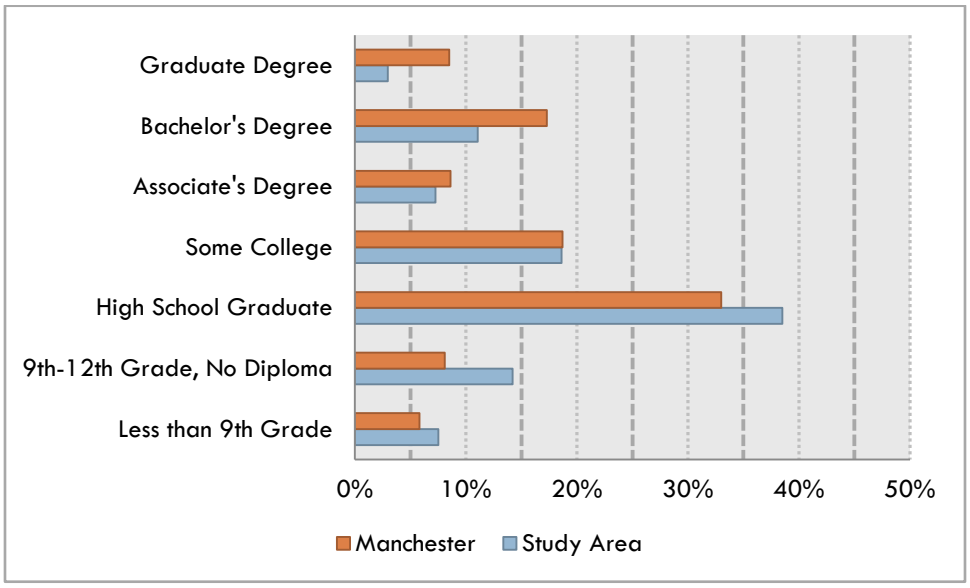
FIGURE 3 - POPULATION BY RACE/ETHNICITY



Source: American Community Survey 2007-2011

Figure 3 shows the study area actually had a higher level of individuals that have graduated from high school than the City of Manchester as a whole. However, when considering higher education individuals having a bachelor's degree or higher, the figure was much greater at the city level (25.8 percent) than in the study area (16.9 percent). Employed individuals living in the study area were often likely to have a bachelor's degree or higher at 22 percent. This figure is roughly the same for Manchester at 23 percent.

FIGURE 4 - EDUCATIONAL ATTAINMENT

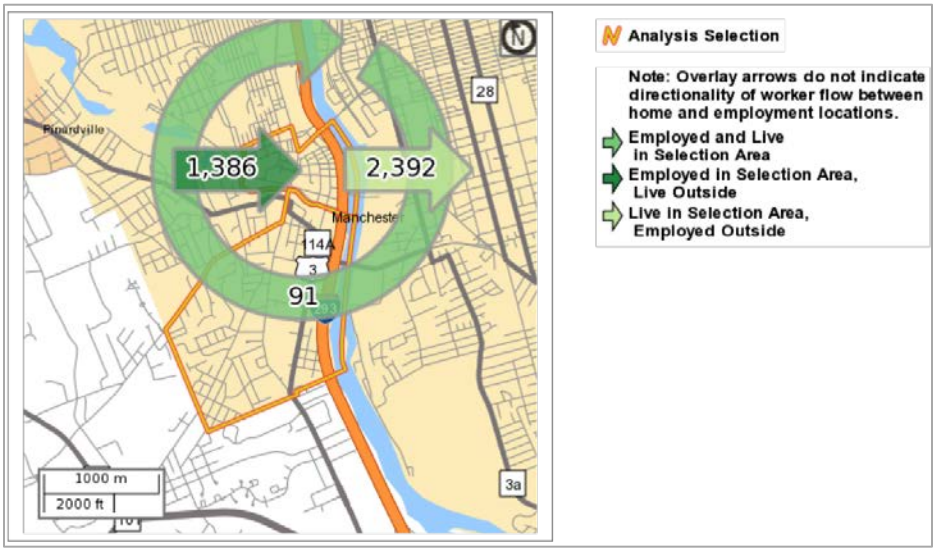


Source: American Community Survey 2007-2011

The City of Manchester contains approximately 3,300 businesses and over 63,000 jobs.[2] The city's economy is primarily dependent on healthcare and manufacturing with the highest percentage of jobs in healthcare (19.6 percent); retail (11.7 percent); and manufacturing (9.7 percent). The city's residents fill roughly 20,000 jobs, or 31.3 percent, in Manchester with the remaining jobs most likely filled by commuters from the surrounding region.[3]

The following inflow/outflow analysis (Figure 4) shows that of the 1,477 jobs located in census tracts 20 and 23, 1,386 are filled by individuals commuting into the area, while only 91 jobs are filled by residents living within the study area. The results show that most employed individuals travel outside of the study area for employment. Of the individuals employed within the study area 42.2 percent receive monthly compensation of $1,250 or less with roughly 34 percent of employment in accommodation and food services.[4] The same figures for Manchester were 22.7 percent and 7.8 percent. Other notable employment sectors in the study area include healthcare and social assistance (18.5 percent); Retail trade (10.5 percent); Professional, scientific, and technical services (7.3 percent). Map 2 illustrates the employment sites by number of jobs within the study area. A majority of the jobs are located in the southern commercial area.

FIGURE 5 - INFLOW/OUTFLOW ANALYSIS, CENSUS TRACTS 20, 23, HILLSBOROUGH COUNTY



Source: U.S. Census, Longitudinal Employer-Household Dynamics

MAP 2 - LOCAL EMPLOYMENT WITHIN THE HIA STUDY AREA

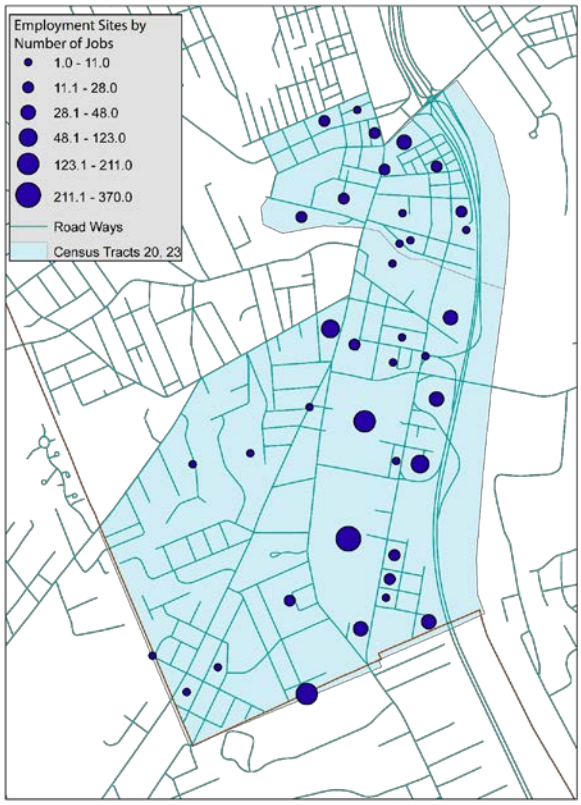


Table 2 shows general commuting characteristics for employed individuals living in the study area and Manchester as a whole. The largest difference between commuting patterns citywide and the study area is the amount of employees who carpool, with the study area having 5.4 percent more commuters carpooling when compared to Manchester.

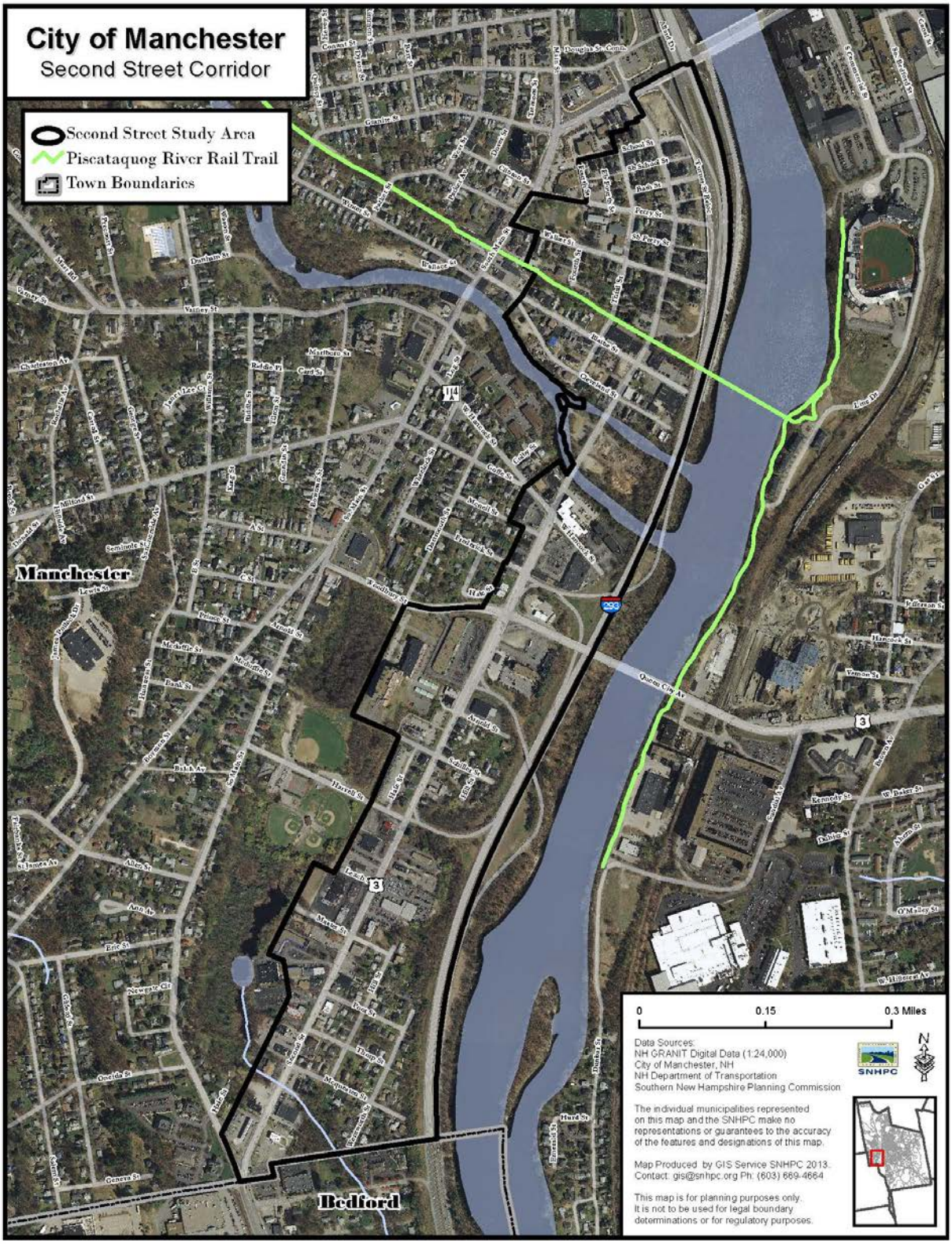
TABLE 2 - COMMUTING CHARACTERISTICS

	Study Area	Manchester
Total Commuters	3,020	55,874
Drove Alone	78.5%	82.5%
Carpooled	15.4%	10%
Public Transportation	0.3%	0.9%
Walked	4.2%	2.5%
Bicycled	0%	0.4%
Worked at home	1.4%	2.8%
Households with 1+ Vehicle(s)	32.3%	32.4%
Households with No Vehicle	3%	2.7%

Source: American Community Survey 2007-2011

The Piscataquog Trail, a 2.1 mile recreational cycling and pedestrian trail that connects Manchester's West Side with downtown Manchester, runs through the center of the study area (see figure 5). Due to the close proximity of this trail to the HIA study area, it could be possible for employees living in the study area to cycle or walk to employment locations adjacent to or located in downtown.

FIGURE 6 – PISCATAQUOG TRAIL CONNECTION TO THE SECOND STREET CORRIDOR



RISK ASSESSMENT

The purpose of the risk assessment is to characterize the potential health effects of alternative decisions based on available evidence. The scoping process led to a focus on the following main issues surrounding health in the corridor:

- Transportation infrastructure and the built environment as it relates to physical activity and traffic safety
- Access to healthy food

The pathway diagrams and scoping worksheets developed during the scoping process (Appendix A) include a number of other health determinants that could be impacted by the Second Street Corridor Project, but due to limited time and resources the HIA committee decided to focus on these main issues raised at the public workshops for the project.

The risk assessment presents background and existing conditions information for each of these main issues, along with an impacts assessment.

Transportation Infrastructure

Physical Activity

BACKGROUND

There is growing evidence suggesting there is a strong relationship between health, physical activity and the built environment or the way we plan and design our communities. "Recognizing this link between health and the built environment, local governments are increasingly promoting active living—**a way of life that incorporates physical activity into daily routines**—as a way of addressing these challenges. Unfortunately, many communities currently lack the design and land use features that enable active living, making active and healthy lifestyles more difficult for residents. In these places, community design generally favors the automobile and other technologies over people. Essential services, healthy food options, workplaces, and other destinations are frequently not located within easy walking or bicycling distance from where people live. Moreover, other factors—a lack of quality sidewalks and open space, unsafe bicycle routes and street crossings, poor transit, fears of crime or personal safety, a lack of time or motivation, locked stairwells in offices and public buildings—further preclude healthy lifestyles."[5]

EXISTING CONDITIONS

According to the 2013 Greater Manchester Community Health Needs Assessment (Manchester HNA) overweight or obese people are at higher risk of developing serious health problems, including: heart disease, high blood pressure, type two diabetes, gallstones, breathing problems, and certain cancers. The City of Manchester has a higher percentage of 18-64 year old individuals classified as obese when compared to the State of New Hampshire (31.4 percent and 26.6 percent, respectively). In this instance the definition of obesity is taken from the National Institutes of Health (NIH) and is defined as those individuals having a body mass index (BMI) of 30 or greater, which indicates that an individual is roughly 30 pounds overweight for their given height, gender, and other physical characteristics. These figures are up from 25.5 percent for both the city and the state in 2008. When correlated with income, 34.9 percent of Manchester residents earning $25,000 or less per year can be classified as obese.

The rate of individuals not exercising, a risk factor for obesity and its related health consequences, is higher in the City of Manchester compared with the rest of the state. Table 3 shows the percentage of individuals not exercising and earning less than $25,000 per year living in the City of Manchester is close to 30 percent.

TABLE 3 - PHYSICAL ACTIVITY COMPARISON, 2013

	City of Manchester	Rest of New Hampshire	Manchester Residents Earning <$25,000 per Annum
Adults that did not engage in Physical Activity or Exercise in Past 30 Days	26%	22.40%	29.60%

Source: Greater Manchester Community Health Needs Assessment

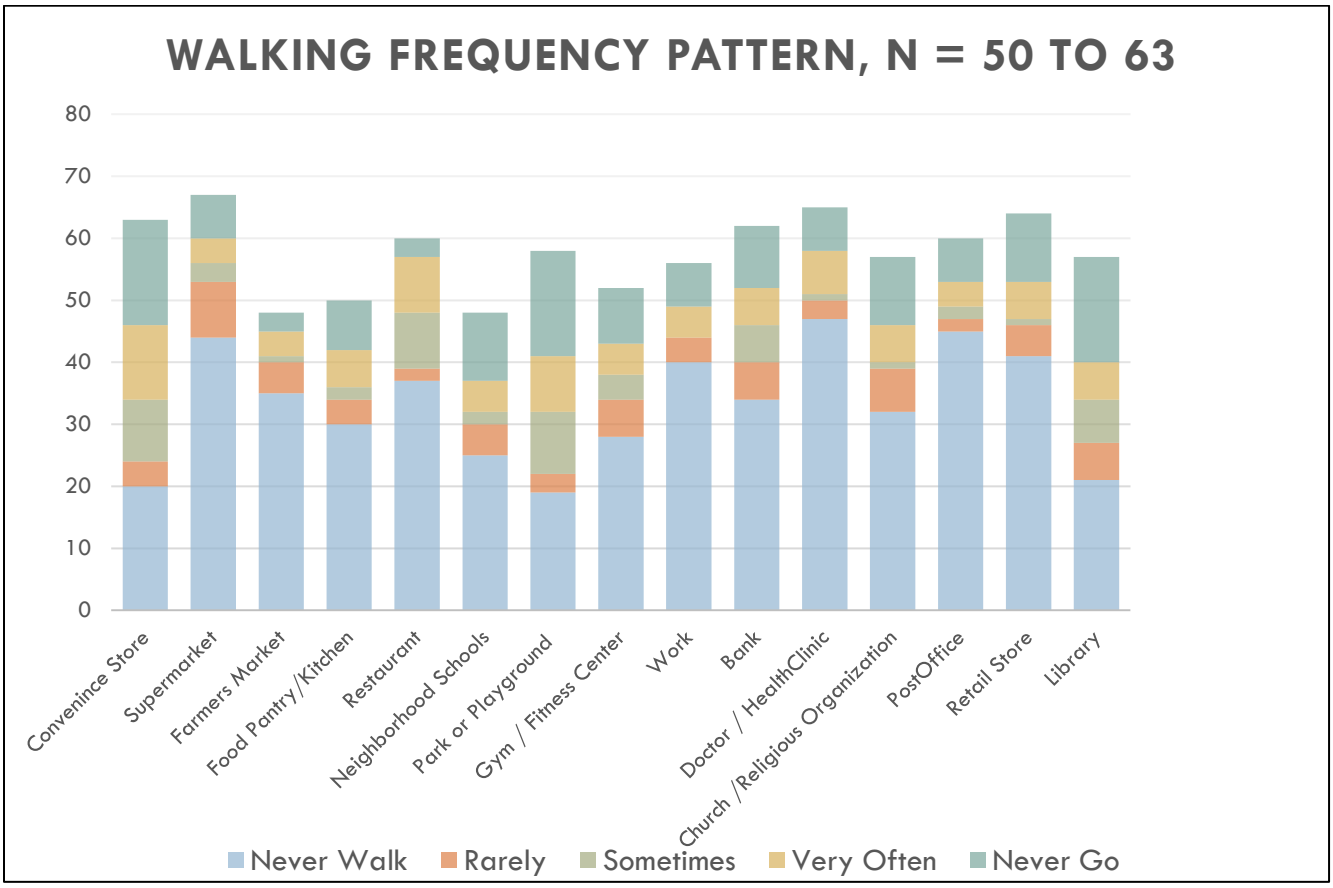
Walking or cycling as a means of transportation to work, or other daily needs, is one way to increase physical activity. Figure three (page 9) illustrates that 3.7 percent (91 individuals) of those who are employed in the corridor also live in the corridor. When correlated with commuting modes it seems as though most, if not all, of those who live and work in the corridor walk to work, with 4.2 percent of employed individuals in the study area reporting walking as their commuting mode. The study area has a greater percentage of residents commuting by walking compared to Manchester overall, although this is still a relatively small proportion of the population.

A recent survey conducted in the West Granite neighborhood by the Manchester Health Department (MHD) showed that a high percentage of respondents noted they walk to local convenient stores, restaurants and food pantries "very often". In addition, there was a high percentage of individuals who reported they "never" walk to a supermarket or doctor's office/clinic. These results are in keeping with the character of the study area. There are numerous convenient stores, shops adjacent to gas stations, and fast food establishments. However, the area lacks a grocery store that is easily accessible on foot. An exception is the recently established Ali Baba Supermarket (scheduled to open in the fall of 2013). Located on Second Street in Manchester, this full service grocery store specializes in Middle Eastern items and accepts SNAP benefits.

FIGURE 7 - ALI BABA SUPERMARKET

While the MHD survey was undertaken for different purposes, it could be seen as representative of the HIA study area. The West Granite neighborhood consists mainly of census tract 20 and includes a sizable portion of the HIA study area.

FIGURE 8 - WALKING FREQUENCY IN THE WEST GRANITE NEIGHBORHOOD



Source: Manchester Health Department West Granite Neighborhood Survey

Table 2 (page 12) shows there are no individuals reporting that they bicycle to work in the study area, compared to 0.4 percent of the total commuters who bicycle to work in the City as a whole. Observational and existing conditions analysis reveals that those who are trying to bicycle in the corridor run into many obstacles and hazards in order to do so. Existing Conditions maps (Appendix C) illustrate the current sidewalk and bicycling infrastructure in the Second Street Corridor. In most of the represented corridor sections, there are areas of missing sidewalk or areas of sidewalk with problems that create hazards for pedestrians, wheelchairs or other users. There are no bike lanes in the corridor and potential hazards for bicyclists exist in a majority of the corridor sections. Existing Conditions maps also illustrate where curb-cuts and problem poles or signs exist within the current pedestrian infrastructure network. It is important to note these conditions as they create barriers for wheelchairs, strollers, bicyclists and other users of the corridor.

Residents in the Second Street Corridor voiced numerous concerns at public workshops held during the 2013 project period. Many of those concerns centered on transportation infrastructure, lack of quality sidewalks, unsafe bicycle routes, street crossings and traffic safety issues. Comments from the February 2013 workshop included:

- Sidewalks are not continuous and are a public hazard
- None of the side streets have sidewalks; there is no place for pedestrians to walk; [it is] difficult to get to the grocery store from residential areas

- There is no wheelchair accessibility
- [We need to] improve sidewalks, street lighting and landscaping
- McQuesten Brook/Pond is an untapped resource; [we should] make it a park and add a trail to encourage walking
- Improvements for bicycling and walking would improve safety
- Not everyone owns a car
- Access to healthy transportation and healthy eating is a good idea but [we] need to have bicycle and pedestrian-friendly roads

Traffic Safety

Traffic congestion and safety issues were raised as the two most important issues to address in the Second Street corridor by many residents. There are many conflict points for pedestrians, bicyclists and motorists. Hazard areas can be seen on the existing conditions maps in Appendix C. There are few crosswalks available in this busy corridor, which increases safety issues, as data from the National Highway Traffic Safety Administration's Fatality Reporting System indicates that more than 40 percent of pedestrian deaths occur where no crosswalk is available. From 2004 to 2008 pedestrian fatalities averaged 9.8 per year in New Hampshire.[i]

There are many curb cuts along the corridor that create conflicts between corridor users. A number of these curb cuts are due to the proliferation of drive-through businesses such as fast food restaurants in the corridor. From 2010 to 2012 there were approximately 83 traffic accidents in the Second Street corridor.[i] According to a recent study by the National Highway Traffic Safety Administration (NHTSA), drinking or eating while driving contributes to nearly 4 out of 5 of ALL auto crashes. This same study found that almost two-thirds (65) of near misses are related to eating while operating a motor vehicle.

IMPACTS ASSESSMENT

The Second Street Project focus on transportation and impediments to movement within the corridor led to a workshop, conducted in April 2013 that focused on these issues. A Complete Streets Assessment was undertaken for the Second Street Corridor to assess the current transportation infrastructure conditions and to develop preliminary policy and design considerations that would make the Second Street Corridor accessible for users of all ages and abilities, including pedestrians, bicyclists, those with wheelchairs and other users in addition to motorists. There is no singular design prescription for implementing complete streets, as it will depend upon the geography and community context, but a complete street may include sidewalks, bike lanes (or wide paved shoulders), frequent and safe crossing opportunities, accessible pedestrian signals, roundabouts and more. A complete street in a rural area will look quite different from a complete street in an urban area, but both are designed to balance safety & convenience for everyone using the road.

Recommendations and design considerations that came out of the April 2013 assessment workshop are outlined on pages 4-7 of the Complete Streets Workshop Technical Memorandum, dated May 2013 (Appendix D). These include the following:

[i] Source: Manchester Police Department

- Develop a process for planning and implementing Complete Streets[ii]
- Fill gaps in sidewalk infrastructure and remove barriers to handicap accessibility; implement a road diet where feasible (road or lane narrowing that reduces speeds and increases safety for corridor users)
- Evaluate crosswalks at Granite, Schiller Streets; consider not allowing on street parking where feasible to accommodate bicycle lane or cycle track
- Adopt City Resolution directing Complete Streets implementation through multi-agency oversight
- Complete an Active Transportation Master Plan

Developing and implementing a policy for Complete Streets in the corridor and undertaking the recommendations outlined would improve the pedestrian and bicycle infrastructure in the corridor overtime, making it easier and safer for residents to build physical activity into their daily routines and also making it easier to access goods, services and recreational areas in the corridor without having to use an automobile.

In a joint report from the Transportation Research Board (TRB) and the Institute of Medicine of the National Academies regarding the intersection of the built environment and rates of physical activity, it was found that the built environment can facilitate or constrain physical activity.[6] This report noted that "sidewalks and mixed-use development are likely to be more important to encourage walking for local shopping and other utilitarian purposes."[6] Indeed, this correlates with the reported high levels of walking for utilitarian purposes noted in the West Granite study. However, deteriorated physical conditions or barriers, such as narrow sidewalks, obstructions and lack of bicycle infrastructure can discourage non-essential trips or discretionary physical activity. The TRB document goes on to indicate that the built environment can be changed in ways that increase opportunities for and reduce barriers to physical activity.

"Built environments that facilitate more active lifestyles and reduce barriers to physical activity are desirable because of the positive relationship between physical activity and health. Achieving this goal is challenging in a highly technological society with a built environment that is already in place and often expensive to change. Nevertheless, even small increases in physical activity levels can have important health and economic benefits. Moreover, the built environment is constantly being renovated and rebuilt and new developments are being constructed; these changes provide opportunities to incorporate more activity-conducive environments. In the committee's judgment, such changes would be desirable even in the absence of the goal of increasing physical activity because of their positive social effects on neighborhood safety, sense of community, and quality of life. Continuing modifications to the built environment provide opportunities, over time, to institute policies and practices that support the provision of more activity-conducive environments."[6] In addition to the TRB report, environmental studies have also reported positive associations between walking and access to open space and high neighborhood walkability, whereas increased cycling was associated with absence of busy streets and the presence of green and recreational space [7,8]

A neighborhood-scale analysis done on Manchester and Portsmouth, New Hampshire investigated which features of the built environment at the neighborhood scale correlate with destination walking and public health, as measured by self-reported health status and self-reported body mass index (BMI) in these smaller cities.[9] This study found the built environment, in particular sidewalks, road connectivity, and proximity of local destinations, correlates with destination walking, and similarly destination walking correlates with physical health.

[ii] The National Complete Streets Coalition states that **"Complete Streets are for everyone.** They are designed and operated to **enable safe access for all users…** [so that] pedestrians, bicyclists, motorists, and public transportation users of all ages and ability are able to safely move along and across [the street]"

Based on the literature linking the built environment and community design to rates of physical activity, a positive impact is predicted for residents of the Second Street Corridor with increased pedestrian and bicycle infrastructure and complete streets design and planning. This positive impact is predicted through increased access, safety and ease of incorporating physical activity into daily routines. Increases in physical activity by incorporation into daily routines is predicted to modestly alleviate negative health outcomes associated with inactivity and obesity, which contribute to chronic diseases such as diabetes, heart disease and high blood pressure.

Access to Healthy Food

BACKGROUND

Access to healthy food refers to the combination of the availability and affordability of high quality, healthy food in different settings. Availability means that healthy food is physically present on store shelves, in vending machines, on restaurant menus, in farmers' markets, and in school and organizational food facilities. Affordability means that healthy food is priced low enough to be purchased and consumed on a regular basis. The quality of available food means that the food, particularly fresh produce, is fresh, in a good condition and free of contamination, spoilage, blemishes, or damage. Low affordability of healthy food can result in food insecurity, a situation in which individuals' ability to acquire healthy food is limited or uncertain.[10] Low affordability can also lead to increased consumption of energy dense fast food, as it is perceived as a more affordable option for some.

"Often referred to as an "obesity epidemic," the increased prevalence of obesity in the past three decades has affected health outcomes, quality of life, and health costs in the United States; and is becoming one of the most pressing public health issues in the United States today. According to the U.S. Centers for Disease Control and Prevention ("CDC"), more than two-thirds of American adults and one-third of American youth are now obese or overweight. High rates of obesity are largely responsible for the United States' declining health outcomes and rapidly rising healthcare costs. If trends continue, some experts predict that 75 percent of Americans will be overweight or obese by 2018."[11] As shown in Table 4 the City of Manchester has fewer individuals characterized as overweight when compared with the rest of New Hampshire, however, obesity rates are much higher in Manchester, particularly for residents earning less than $25,000 annually.

TABLE 4 - OBESITY IN NEW HAMPSHIRE

	City of Manchester	Rest of NH	Manchester Residents Earning <$25,000 per Annum
Overweight (BMI >=25)*	30.0%	34.9%	21.6%
Obese (BMI>=30)	31.4%	26.6%	34.9%
*BMI stands for Body Mass Index, which is a measurement of body fatness calculated from a person's weight and height and is an indicator used for health screening purposes.			

Source: 2013 Greater Manchester Community Health Needs Assessment

Lack of access to healthy food is believed to be a key factor contributing to the obesity epidemic. In many cases, market forces can limit the viability of constructing large supermarkets with diverse products, in favor of neighborhood convenience stores that often have higher prices, fewer food choices and a lack of healthy fresh fruits and vegetables. The USDA defines areas where a significant number or share of low-income residents is "far" from a supermarket as food deserts. A food desert is further defined as a census tract that is ½ mile to 1 mile from a supermarket in an urban setting and either 10 or 20 miles from a supermarket in a rural setting. These issues are particularly relevant

in low-income and minority communities, such as the Second Street corridor[12,13,14] Fast-food restaurants also are often disproportionately located in these neighborhoods.[15]

A lack of access to healthy food may contribute to poor nutrition, but too much access to unhealthy food may also play a role. The Public Health Law Center has gathered research on food access that has found the following to be associated with less healthy diets and/or a higher risk of obesity:

- Eating food away from home, particularly fast food;[16]
- Living in a community with a higher density of fast food restaurants;[17]
- Living in a community with fewer supermarkets, more convenience stores, and/or lower availability of affordable healthy food in nearby stores;[18]
- Attending a school near a fast food restaurant[19] or convenience store;[20] and
- Attending a school with access to a la carte food and snack vending machines.[21]

In contrast to a food desert, a "food swamp" is defined as a geographic area where the overabundance of high-energy food (for example, caloric snacks sold at convenience stores) predominates healthy food options.[22] Some believe the prevalence of unhealthy food at low prices can impede efforts to promote the consumption of available healthy food, if it is accessible and affordable.[23]

Commonly accepted definitions of "fast food" include the following[iii]:

1. Of, relating to, or specializing in food that can be prepared and served quickly
2. Designed for ready availability, use, or consumption and with little consideration given to quality or significance

EXISTING CONDITIONS

Residents voiced very little concern at public workshops during the 2013 project period about their ability to access healthy food. It's possible those in attendance did not have food access issues and it's also possible that attendees did not feel comfortable speaking in public about food access issues. In addition, only a small percentage of corridor residents were represented at the public workshops and there was limited time to capture feedback on this topic. A survey done in 2009 by the UNH Survey Center revealed that one in ten (13 percent) New Hampshire households is food insecure or challenged to provide adequate food for family members. Analysis of survey data by county illustrates that Hillsborough County is in line with the statewide average of 13 percent. Income was found to have a significant correlation with food insecurity; households earning less than $45,000 per year were 2-4 times more likely to be experiencing food insecurity than those earning more. For the northern section of the Second Street Corridor this is significant, as the 2011 median household income in this census tract was $28,707 and for the corridor as a whole this is of concern as the median household income was $45,266 (Table 1).

In the City of Manchester zoning ordinance restaurants are defined and permitted within the B-2 zone by right. Fast food restaurants are not defined separately, nor are any restrictions placed on density within the B-2 zone for fast food or standard restaurants. Restaurants with drive-through service are regulated separately from those without and permitted by right in the B-2 zone.

[iii] Source: Merriam-Webster Dictionary. 2013.

The population in the study area is 6,570. There are 13 fast-food restaurants in the area, making the fast-food restaurant (FFR) density approximately 1.98 FFR per 1,000 population. This is more than double the FFR density for the County, (0.74 FFR/1,000 population), the Manchester-Nashua Metropolitan Statistical Area (0.74 FFR/1,000 population) and the State (0.78 FFR/1,000 population) in 2009[iv].

In addition to the overall density of fast food restaurants in the corridor, there is a proliferation of signs advertising these establishments and the items they sell. Residents voiced concern for signage at the public workshops, but directed more at appearance and unattractiveness than in regard to marketing of unhealthy food choices. Studies suggest an increased likelihood of obesity in neighborhoods with the most outdoor fast-food ads.[24] The following pictures illustrate the current signage conditions in the southern portion of the corridor, which falls in the B-2 zone in the City of Manchester.

FIGURE 9 - SECOND AND HARVELL STREET INTERSECTION, LOOKING SOUTH

[iv] USDA Food Environment Atlas. November 2012. Restaurant data are from the U.S. Census Bureau, County Business Patterns, http://www.census.gov/econ/cbp/index.html.

FIGURE 10 - SECOND AND POOR STREET INTERSECTION, LOOKING SOUTH

In the B-2 zone one free-standing sign per lot is permitted, not to exceed an area of 200 square feet and a maximum height of 40 feet. For a building sign, it cannot exceed 10% of the wall of the building or 500 square feet. The setback for free-standing signs is 5 feet and cannot interfere with sight distances for access to the site. A second free-standing sign is allowed, up to one-half of the area of the first free-standing sign for a lot that is four times larger than the minimum lot size or has the minimum lot frontage on two streets. No free-standing sign shall be located within 150 feet of another freestanding sign on the same lot or on an adjacent lot.

IMPACTS ASSESSMENT

Strategies to improve access to healthy food will need to address both availability and affordability. Education for eating healthy on a budget will also need to be incorporated into the strategies that are developed. The Second Street Corridor is not considered a food desert or limited access area as there are currently two large supermarkets within a mile of the corridor. This does not mean that there are not residents with food access insecurities, as an automobile is still required for most families to transport groceries to their home and 3 percent of the households in the study area do not have a vehicle. For the purposes of this assessment though, availability is not considered to be a major issue. The major issue for the Second Street Corridor in regard to food access is there is relatively easier access to less nutritious food that is perceived as a more affordable option in some instances. The ease of access and perceptions of affordability could impede efforts to promote the consumption of available healthy food. Strategies to reduce the "food swamp effect" are considered in this assessment and include:

- Zoning to reduce the density of drive-through fast food establishments, which promote frequent consumption of unhealthy food and create traffic safety, congestion and pollution issues, along with discouraging physical activity and potential opportunities for social cohesion.
- Changes to the sign ordinance to reduce marketing and advertising of fast food establishments

Examples of zoning ordinances which regulate the density of drive-throughs and fast food establishments include Warner, New Hampshire and Newport, Rhode Island. The Town of Warner, NH has the following in Article XI, Commercial District C-1:

"No fast-food or drive-in restaurant shall be located on a site, lot or parcel within two thousand (2,000) feet of any other site, lot or parcel occupied by another fast-food or drive-in restaurant, with such distance measured along and/or across one (1) or more public highway rights-of-way. [*Approved March 2001.]*"

Newport, RI has a more complicated scheme in regard to regulating types of restaurants. Restaurants are divided into four groups: carry-out, drive-in, fast-food, and standard.[25] While standard restaurants are permitted "by right" in all five commercial districts and fast-food restaurants are permitted with a special use permit in four of the five commercial districts, both drive-in and carry-out restaurants are specifically prohibited in any district in the city.[26] The definition of "drive-in" is as follows: "Drive-in restaurant" means any establishment whose principal business is the sale of foods, frozen desserts or beverages to the customer in a ready-to-consume state and whose design, method of operation or any portion of whose business is such that foods, frozen desserts or beverages are served directly to the customer in a motor vehicle, either by a car-hop or by other means which eliminate the need for the customer to exit the motor vehicle, or where the consumption of food, frozen desserts or beverages within a motor vehicle parked on the premises is allowed, encouraged or permitted."

In the Westwood Village area of Los Angeles "Fast food establishments" are permitted: provided the total number of fast food establishments along any public street does not exceed one for every 400 feet of lot frontage along that street, except that on Broxton Avenue one fast food establishment shall be permitted for every 200 feet of lot frontage. Fast food establishments need not be spaced at said intervals, provided that the total number along any public street does not exceed the above ratios.[27] The purposes listed behind the Specific Plan seek, among other things, to preserve the unique character of the area and to ensure that the area continues primarily to serve the retail needs of the surrounding community.[28]

Bans on drive-throughs are based on concerns over traffic, air pollution, healthy food choices and the types of businesses that cities want to attract. The City of Baldwin Park, CA, the "birthplace of the drive-through" banned construction of new drive-throughs in 2010. City officials behind the ban said it was borne of their desire to cut away at "in-car dining" culture, which contributes to congested roads and clogged arteries. Planners also cited the fight on obesity and the notion that drive-through establishments are not consistent with the City's pursuits of creating and becoming a walkable and physically active, healthy community.[29]

Zoning strategies which aim to reduce the density of fast food establishments, along with reducing the number and size of freestanding signs in the corridor are two considerations for possible zoning changes that could have a positive impact on health in the Second Street Corridor.

In addition to zoning strategies to reduce the density of drive-throughs, changes to the sign ordinance to reduce allowed freestanding signs in the corridor was considered as a possible strategy. This would serve to promote the purposes of the sign regulations by maintaining and enhancing the aesthetic environment in the corridor, while also improving pedestrian and traffic safety by reducing visual pollution resulting from excessive signs. Restrictions on the number of freestanding signs might also serve to promote health by reducing subconscious advertising and marketing of fast food, which has been found to be higher in fat, sugar and salt. Studies show that frequent consumption of fast food may contribute to the risk of obesity and associated chronic disease rates.[30, 31,32]

Based on the literature linking less healthy diets and/or a higher risk of obesity with eating food away from home, particularly fast food;[33]living in a community with a higher density of fast food restaurants[34] and in neighborhoods with the most outdoor fast-food signs,[35] it is predicted that zoning restrictions which aim to reduce the number of fast food establishments and freestanding signs marketing these establishments will have a positive impact on health for the residents of the Second Street Corridor. This positive impact is predicted through a reduction in subconscious marketing and promotion of unhealthy food and a reduction in ease of access to unhealthy food, which impedes promotion of the availability of healthy food. Education on healthy food sources in combination with promotion of healthy food will positively affect health outcomes and reduce obesity, which contributes to chronic diseases such as diabetes, heart disease and high blood pressure.

CONCLUSIONS

It is expected that both a complete streets policy along with zoning strategies that aim to reduce the density of drive-throughs and unhealthy food outlets will have a positive impact on the health of the Second Street Corridor residents. Incorporating these policies into the recommendations for the Second Street Corridor Project and subsequently implementing them is expected to increase physical activity opportunities, safer conditions to walk, bike and access the corridor and reduce marketing and access to unhealthy food outlets.

- Improving and increasing pedestrian and bicycle infrastructure through a complete streets policy and engineering plan for the corridor would increase opportunities for residents to be physically active, which in turn helps to prevent obesity and reduces the risk of many chronic diseases. It also increases the likelihood of positive health outcomes such as increased social opportunities and cohesion.
- Zoning strategies aimed at reducing the density and marketing of unhealthy food outlets in the corridor would likely have a positive impact on health by reducing the "food swamp" effect and impediments to the promotion of available healthy food outlets in and near the corridor.
- Zoning strategies aimed at reducing the number of drive-throughs and access management strategies aimed at reducing the number of curb-cuts would likely have a positive impact on health by reducing points of conflict between motorists, pedestrians, bicyclists and wheelchairs and creating a safer built environment.

RECOMMENDATIONS

Transportation Infrastructure

- ***Develop a policy and adopt a City resolution for encouraging complete streets***
    - Coordinated effort to integrate Complete Streets improvements and clear internal process. Consider the following as part of this effort:
        - Consider specific complete streets design recommendations from the April 2013 Complete Streets Workshop Technical Memorandum (Appendix X)
        - Identify city agency and supporting organizations roles and responsibilities
        - Publicly promote progress on complete streets and other transportation initiatives and institute a bike and pedestrian safety campaign

- ***Develop a Transportation Master Plan that encourages planning for all modes of travel and necessary infrastructure***
    - Establish priorities and provide direction and warrant, engage policy makers and funders
        - Consider a city-wide Transportation Master Plan that includes connections to and from the Second Street Corridor project area to encompass a broader range of design considerations for implementing complete streets

- ***Fill gaps in sidewalk, improve the quality of existing infrastructure and remove barriers to handicap accessibility***
    - Improved accommodation for wheelchair, bicycle, and pedestrian travel
        - Work within city budget, seek grant-funding opportunities and work with redevelopment for opportunities to close gaps and improve the quality of existing sidewalks and infrastructure to implement complete streets in the Second Street corridor area

- ***Establish and strengthen partnerships with local, regional and state bicycle/pedestrian advocacy organizations and actively engage the community in related transportation initiatives***
    - Create a comprehensive network of support for policy and infrastructure improvements
        - Consider an active transportation coalition model for the city

Access to Healthy Food

- ***Consider a drive-through density restriction in the Second Street Corridor area***
    - Drive-throughs conflict with health in terms of safety / pedestrian hazards, traffic congestion and increased pollution. In addition, policies aimed at reducing the density of unhealthy food outlets in the corridor would likely have a positive impact on health by reducing the "food swamp" effect and impediments to the promotion of available healthy food outlets in and near the corridor

- ***Consider standardized sign restrictions in the corridor to reduce the number and size of freestanding signs***
    - Policies aimed at reducing the marketing of unhealthy food outlets in the corridor would likely have a positive impact on health by reducing the "food swamp" effect and impediments to the promotion of available healthy food outlets in and near the corridor. Policies might include some of the following examples:

        - Encourage combining adjacent freestanding signs into directory monuments where access from one property to another is permitted
        - Encourage building signage versus freestanding signs
        - Encourage landscaping around freestanding signs
        - Reduce freestanding sign area and height restrictions

- ***Consider zoning incentives within the zoning overlay that is developed to encourage a mix of business and retail that will provide essential services, healthy food outlets and jobs***.
    - Zoning incentives that aim to strengthen and diversify the mix of business and retail types in the corridor would likely lead to positive health outcomes by, not only reducing the density of unhealthy food outlets in the corridor, but increasing access to healthy food outlets, jobs and services that lead to better nutrition, healthcare and social cohesion. Incentives to consider include:
        - Expedited review process
        - Fee waivers
        - Density bonus
        - Reduced parking requirements
        - Increased height restrictions
        - Reduced setback requirements

- ***Implement an education and outreach program on healthy food and access to healthy food in the City***
    - Education on healthy food sources in combination with promotion of healthy food will positively affect health outcomes for corridor residents. Consider the following activities as part of the education and outreach program:
        - Conduct a survey in the corridor to determine food access needs and concerns
        - Implement the healthy corner stores initiative in the Second Street corridor area and surrounding neighborhoods
        - Establish regular inter-departmental coordination meetings with the Manchester Transit Authority (MTA) on public transportation routes and schedules to best meet resident needs regarding food access and other essential services

MONITORING

The purpose of monitoring is to track the implementation of the policy decision, the incorporation of the HIA recommendations and the impacts of the decision on health determinants. To monitor the effectiveness of this HIA, the HIA committee and the City of Manchester staff should:

- Participate in project meetings and public workshops for the Second Street Corridor Project and discuss the incorporation of HIA recommendations
- Coordinate and discuss implementation of the HIA recommendations within individual city departments and organizations
- Participate in public hearings and public adoption meetings for the Second Street Corridor Project policies that are developed
- Begin implementation of a public outreach campaign and advocate for the recommendations of the HIA

ENDNOTES

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