



EXECUTIVE SUMMARY

EXPANDING PUBLIC TRANSIT IN COLUMBIA, MISSOURI A HEALTH IMPACT ASSESSMENT



PREPARED BY THE **HIA PARTNER TEAM**



WHAT IS HIA?

Policies and programs from domains such as transportation, planning, and education influence health and well-being. Health Impact Assessment (HIA) is an evidence-based research tool used to inform decision makers about the potential health risks and benefits of policies, programs, and projects outside the health sector. HIA first identifies potential health effects and their likely distribution within the population. HIA then makes recommendations for how a proposed program or policy might be altered to increase positive and decrease negative health outcomes.

Increased student ridership, budget cuts, and rising fuel costs have stressed the current Columbia Transit system. In response to these challenges, several potential mechanisms have been proposed to increase funding and allow for expansion of bus services in Columbia. In light of these policy discussions, the Columbia/Boone County Department of Public Health and Human Services partnered with the PedNet Coalition and Central Missouri Community Action in late 2011 to perform an HIA on the health effects of expanding and improving



bus service in Columbia. The study introduces consideration of health effects and their distribution within the population to the ongoing conversation on the benefits of public transit to our community.

PROJECT GOALS

The core goals of the HIA project were to:

- Assess potential health effects of expanding public transit in Columbia.
- Determine the likelihood of these health effects, based on evidence.
- Provide recommendations for how public transit expansion could maximize positive and minimize negative health outcomes.
- Increase awareness among decision-makers and within the community about how different policies and programs influence health.
- Promote the use of HIA as a decision-making tool among policymakers and other stakeholders.

PROJECT METHODS

The specific research question addressed by this HIA is:

“How will expansion of Columbia Transit services impact community health?”

The HIA Partner Team met in Spring 2012 to define the scope of the project and identify four indicators found to influence health that were also determined most likely to be affected by expansion of public transit. These four health indicators are:

- 1 Physical activity
- 2 Exposure to the outdoors
- 3 Access to health care, employment, education, and healthy food
- 4 Creation of a livable and sustainable community

The assessment used a variety of data sources. We performed literature reviews, held meetings with community members and stakeholders, and gathered our own data to determine how these health indicators might be altered by expanding public transit. Health data sources also consulted were the Behavioral Risk Factor Surveillance System and County Health Rankings. We gathered our own data through community meetings held by PedNet, titled Community Conversations about Transit. These meetings took place in four of six city wards during the Spring of 2012. We also partnered with Central Missouri Community Action to conduct a community-based survey about transportation difficulties and access to health care and employment among low-income central city residents, bus users, and clients of local health and social service agencies.

KEY FINDINGS AND RECOMMENDATIONS

Our review of the literature found solid evidence to suggest that those who use public transit accrue more physical activity throughout the day, by walking or biking to and from bus stops. Therefore, expanding bus services while concurrently improving infrastructure that allows for active transportation has potential positive impacts for local health.

- Other positive health impacts from expanding public transit include improving access to health care; improving access to employment, which could improve access to health care benefits and also reduce stress.
- Improving access to healthy foods, particularly in areas designated as food deserts.

- Expanding public transit could also increase community cohesion and social capital by providing more opportunities for social interaction. Better social capital, defined as the resources accrued through social interaction, is linked with improved health.
- Although analysis is limited to the four health indicators identified in the Project Methods section, we found no evidence to suggest that expanding bus services in Columbia would negatively impact community health.

In addition, it is important to note that the potential health effects of public transit expansion fundamentally depend on:

- The degree to which bus services are expanded
- The impact on bus ridership due to transit expansion

In other words, it is impossible to quantify the health effects of transit expansion without first knowing the amount of funding available for transit expansion and how that funding will be dispersed to improve transit services. Therefore, the findings and recommendations from our HIA focus on how transit might best be altered or expanded to maximize impacts on community health and increase ridership, which would consequently impact health through increased physical activity, improved access to the outdoors, or accrual of social capital. In addition, primary survey data and key informant interviews found that most bus riders lack alternate transportation options, such as a reliable car. Any expansion or alteration of transit services should therefore carefully consider impacts on the population currently dependent on the bus for access to education, health care, employment, or retail.

The first set of tables presents the key HIA findings and provides recommendations to maximize benefits to community health. The second table is the quality of evidence legend. The third set of tables assesses the quality of the evidence and the likelihood of impact.

| 1. Physical Activity | |
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| Expanding bus services in Columbia could increase physical activity levels among those who ride the bus. | |
| Findings | Recommendations |
| <p>Transit riders often walk for greater periods of time than do car drivers, nearly attaining daily recommendations for physical activity. Residents of transit-oriented developments consistently have higher levels of active transportation use and physical activity. Complete streets ordinances can potentially complement public transportation systems, allowing for more opportunities for physical activity as well as expanded range of travel for users.</p> | <ol style="list-style-type: none"> 1. Review current bus routes to include more opportunities for ridership in densely populated areas of Columbia. 2. Promote collaboration between Columbia Transit and the Health Department on production of social marketing materials describing the physical activity benefits of bus use, and disseminate materials through local media and on buses. 3. Ensure there are bike racks at major Columbia Transit hubs. |
| 2. Exposure to the Outdoors | |
| Expanding bus services in Columbia could increase exposure to outdoor recreational areas, such as parks and trails, among those who ride the bus. | |
| Findings | Recommendations |
| <p>Living in close proximity of parks and recreational areas is associated with greater usage, increased opportunities for physical activity, and decreased stress. Park users are more likely to meet physical activity recommendations. A Columbia Parks & Rec survey found that 99% of those surveyed visited at least one city park in the past year and indicated primary use of these areas for adult and youth sports. However, only 24% respondents indicated that park facilities were close enough to their residence, while 29% indicated there were no parks within walking distance from their residence.</p> | <ol style="list-style-type: none"> 1. When new bus routes are designed, access from neighborhoods to parks should be maximized, while considering other goals of transit system design. 2. Post bus routes and timetables at parks already serviced by existing bus routes. |

3. Access to health care, employment, education, and healthy food options

Expanding bus services in Columbia could increase access to health care facilities, employment, education, and retail outlets that provide healthy food options.

| Findings | Recommendations |
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| <p>Public transportation is considered one of the most important social determinants of health. Results of local surveys found that the strongest predictor of missing health care appointments was a transportation problem, followed by the frequency of current bus service.</p> | <ol style="list-style-type: none"> 1. When new bus routes are designed, access from neighborhoods to health care facilities, including hospitals and clinics, should be maximized, while considering other goals of transit system design. |
| <p>Availability of transportation can put limits on where residents search for employment. Results of local surveys found that those who currently use the bus, they often searched for employment opportunities that were in proximity to current bus routes. Respondents who did not own a car reported missing work more frequently than those with cars.</p> | <ol style="list-style-type: none"> 1. Create a “Transit Access To Employment” group consisting of representatives from the business community and populations using Columbia Transit to address barriers to accessing employment. 2. Appoint a member to the Public Transportation Advisory Commission who is a representative of the business community. |
| <p>Lack of transportation can be a barrier to accessing education. In Columbia, limited evening hours make it difficult or impossible for transportation disadvantaged students to take the bus to locations, such as the Career Center, that provide job training and GED classes. In interviews, local Head Start administrators also identified transportation as a major barrier to consistent attendance, a requirement for Head Start students.</p> | <ol style="list-style-type: none"> 1. Assess the need for transportation among potential students of GED or job training classes and determine areas of Columbia where clusters of these students reside. 2. Coordinate bus routes and add evening hours to locations that provide GED classes or job training, and that enroll a large percentage of students who lack transportation. |
| <p>Consumers, especially those who are low-income, experience transportation barriers to accessing healthy food options. Recent food asset mapping of Columbia found that many low-income residents use public transportation to travel to stores that provide healthy food options, especially if the store was greater than one mile from their location.</p> | <ol style="list-style-type: none"> 1. Continue the farmer’s market bus route and collaborate with the health department to promote the route to residents within areas classified as food deserts. 2. When new routes are designed, maximize access from neighborhoods to stores that provide healthy food options, while considering other goals of transit system design. |

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| <p>Lack of safe, reliable transportation is one of the most significant barriers to participation in after-school programs. Participation in after-school programs is linked with improved educational outcomes.</p> | <ol style="list-style-type: none"> 1. Coordinate with Columbia Public Schools to provide transportation to students participating in after-school activities, particularly secondary school students. |
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4. Creation of a Livable and Sustainable Community

Expanding bus services in Columbia could promote walkable communities or transit-oriented development and increase opportunities for social interaction and accrual of social capital.

| Findings | Recommendations |
|---|--|
| <p>The design and layout of the built environment can influence crime via allowing access for perpetrators, ease of entry and exit, and surveillability. Variables associated with higher crime rates include bus stops at undesirable locations (such as liquor stores), vacant buildings, and the level of litter. Variables associated with lower crime rates around bus stops include large commercial buildings, areas with high visibility, bus shelters, and the presence of street traffic and pedestrians.</p> | <ol style="list-style-type: none"> 1. Audit current bus stops to determine if they are near undesirable locations. |
| <p>Bus stop characteristics such as layout, visibility, and lighting can influence the perception of safety. In Columbia, more than a quarter of those surveyed also identified “safer buses” as a preferred improvement. Perception of safety was also a barrier to bus ridership among participants at the Community Conversations about Transit.</p> | <ol style="list-style-type: none"> 1. Create an “adopt-a-bus stop” program with volunteers to address conditions surrounding identified stops, such as lack of shelter from the elements, litter, and other aesthetic considerations. 2. Solicit feedback about perceived safety from transit user focus groups and incorporate into training for bus drivers, such as strategies on addressing noisy or disruptive youth. |
| <p>Residents of mixed used developments report higher levels of social capital due to their design, which encourages walking and active transportation. Identified health benefits of social capital include prolonged life, better overall health, and improved mental health.</p> | <ol style="list-style-type: none"> 1. Partner with the Department of Community Development to review zoning procedures that would promote transit-oriented developments along transit corridors. 2. Create a taskforce to research possible regulations to promote active transportation in central Columbia, including one-way streets, streets blocked to vehicles, or park-and-ride locations on the outskirts of the District. |

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| Expected Change Based on Literature | <ul style="list-style-type: none"> • No change – The literature achieves consensus that this indicator will likely remain unchanged. • Mixed – The literature lacks consensus about this indicator’s potential impact. • Increase – The literature achieves consensus that this indicator will likely increase. • Decrease – The literature achieves consensus that this indicator will likely decrease. • N/A – There is no available literature on this indicator |
| Stakeholder Projections | <ul style="list-style-type: none"> • No change – Stakeholders did not anticipate any changes. • Mixed – Stakeholders were divided on their opinions. • Increase – Stakeholders anticipated an increase. • Decrease – Stakeholders anticipated a decrease. • N/A/ - Stakeholders did not express their opinions. |
| Expected Health Impact | <ul style="list-style-type: none"> • Positive – Changes that may improve health. • Negative – Changes that may impair health. • Mixed – Changes can be both positive as well as negative. • Uncertain – Unknown how health will be impacted. • No effect – No identified impact on health. |
| Magnitude of Impact | <ul style="list-style-type: none"> • Low – Affects very few people • Medium – Affects large groups of people. • High – Affects many people. |
| Likelihood of Impact | <ul style="list-style-type: none"> • Likely – Likely that impacts will occur as a result of the proposal. • Possible – Possible that impacts will occur as a result of the proposal. • Unlikely – Unlikely that impacts will occur as a result of the proposal. • Uncertain – Uncertain that impacts will occur as a result of the proposal. |
| Distribution Within the Population | <p>The population most likely to be affected by the changes in health factors or outcomes.</p> |
| Quality of Evidence | <p>**** More than five strong studies. *** Five or more moderate studies. ** Five weak studies. * Fewer than five studies.</p> |



| | | | Based Primarily on Evidence From Literature | | | | |
|--|-------------------------------------|-------------------------|---|--|----------------------|---|---------------------|
| Health Factor or Outcome | Expected Change Based on Literature | Stakeholder Projections | Expected Health Impact | Magnitude of Impact | Likelihood of Impact | Distribution | Quality of Evidence |
| 1. Physical Activity | | | | | | | |
| More walking to bus stops | Increase | Increase | Positive | Correlated with magnitude of transit expansion | Likely | Current and anticipated riders | **** |
| Transit-oriented development | Increase | N/A | Positive | Low | Likely | Those who live, work, or visit transit-oriented development | **** |
| More complete streets and multi-modal design | Increase | Increase | Positive | High | Likely | Potentially entire population of Columbia | *** |

| | | | Based Primarily on Evidence From Literature | | | | |
|--------------------------------|-------------------------------------|-------------------------|---|---------------------|----------------------|--|---------------------|
| Health Factor or Outcome | Expected Change Based on Literature | Stakeholder Projections | Expected Health Impact | Magnitude of Impact | Likelihood of Impact | Distribution Within the Population | Quality of Evidence |
| 2. Access to Outdoors | | | | | | | |
| Access to parks and recreation | Increase | Increase | Positive | High | Likely | Correlated with magnitude of transit expansion | ** |

| | | | Based Primarily on Evidence From Literature | | | | |
|--|-------------------------------------|-------------------------|---|---------------------|----------------------|------------------------------------|---------------------|
| Health Factor or Outcome | Expected Change Based on Literature | Stakeholder Projections | Expected Health Impact | Magnitude of Impact | Likelihood of Impact | Distribution Within the Population | Quality of Evidence |
| 3. Improved accessibility to health care, employment, education, healthy food options | | | | | | | |
| Access to health care | Increase | Increase | Positive | Low | Uncertain | Transportation disadvantaged | ** |
| Access to employment | Increase | Increase | Positive | Low | Uncertain | Transportation disadvantaged | ** |
| Access to education | Increase | Increase | Positive | Medium | Possible | Transportation disadvantaged | ** |
| Access to healthy food options | Increase | Increase | Positive | Low | Possible | Transportation disadvantaged | ** |
| Access to after school activities | Increase | Increase | Uncertain | Low | Uncertain | Transportation disadvantaged | * |

| | | | Based Primarily on Evidence From Literature | | | | |
|---|-------------------------------------|-------------------------|---|---------------------|----------------------|--|---------------------|
| Health Factor or Outcome | Expected Change Based on Literature | Stakeholder Projections | Expected Health Impact | Magnitude of Impact | Likelihood of Impact | Distribution Within the Population | Quality of Evidence |
| 4. Livable and Sustainable Community | | | | | | | |
| Crime (or perception of crime) | Decrease | Mixed | Uncertain | N/A | Uncertain | Entire community | * |
| Social capital | Increase | Increase | Positive | Low | Possible | Bus riders and neighborhoods on bus routes | *** |

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