Testing the Health in Transportation Corridor Planning Framework in Akron, Ohio

Bus Stop Consolidation Plan for the South Arlington Corridor

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Acknowledgments

Akron Metropolitan Housing Authority
East Akron Neighborhood Development Corporation
Summit County Public Health

Notice

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Background

In 2015, Akron METRO Regional Transit Authority (METRO) initiated the South Arlington Corridor Project, which included a public health assessment. The project area is a 3.5-mile segment of a high-frequency transit corridor in the City of Akron, served by the most productive ridership route in the 39-route system, METRO's Route 2. The Corridor's residents include higher than average minority, low-income, and elderly concentrations that warrant special consideration.

Metro Route 2 – South Arlington

METRO's project has its origins in prior work, which established that 45 percent of riders walk one block or less to their bus stop and that METRO's bus stops are too closely spaced systemwide. This arrangement results in long customer travel times and schedule adherence problems, making attracting and retaining customers difficult. METRO selected the Arlington Corridor as a test case to establish planning methods and outreach strategies that will be followed for bus stop consolidation to improve service quality across all 39 fixed routes over 5 years.

The South Arlington Corridor study began as a project with dual objectives:

1. To provide faster and more efficient line-service bus transportation in the corridor by reducing the number of bus stops in the corridor, and
2. To shift door-to-door paratransit riders with the ability to use line-service buses onto the bus service.

Both objectives have public health implications. First, bus stop consolidation will result in additional walking distance to bus stops. Although consolidation should have a positive influence on health by increasing the active component of transportation, the opposite could occur for certain populations. For groups such as seniors, the disabled, and children, longer walk distances could cause a hardship, resulting in unmade trips rather than more walking.

Bus stop consolidation efforts often rely heavily on statistical analysis of bus stop activity but can have unintended results for such special populations. The *Health in Transportation Corridor Planning Framework* (Framework)[1] will be used to apply public health information to the bus stop consolidation process, ensuring better outcomes for all populations in the corridor. The second objective, shifting paratransit riders to scheduled line-service, involves identifying customers who can travel independently *and* have no major barriers preventing their access to a nearby bus stop.

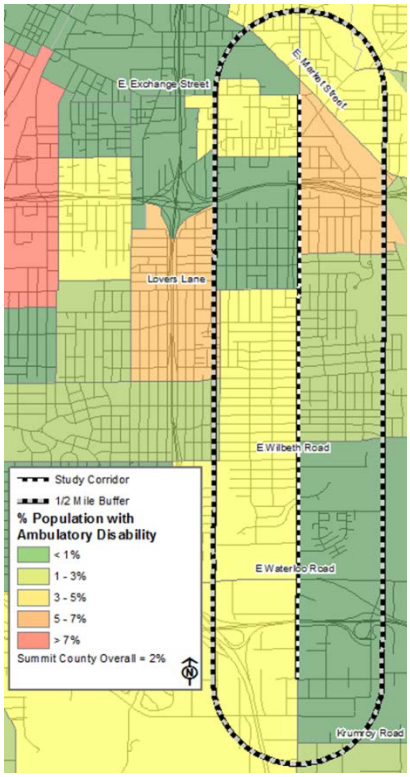
Framework Steps Completed

METRO initially hoped to move through all six steps of the Framework during the study period. Selecting a final alternative, however, was more difficult than anticipated. The agency was able to complete five of the steps during the 9-month beta test period.

Partnerships and Stakeholders

[1] Health in Transportation Corridor Planning Framework: FHWA 2016
http://www.fhwa.dot.gov/planning/health_in_transportation/planning_framework/the_framework/index.cfm

Several important partnerships were developed and enhanced through the beta test process that otherwise likely would not have been as strong. Input and support received from the Summit County Public Health Department (SCPH) makes this agency an important partner. In the early phases of the project, SCPH provided geospatial health data that highlighted the health priorities in the corridor. Later in the project, SCPH shared information on the location of health care providers and grocery stores in the corridor. SCPH emphasized the importance of two facilities located in the heart of the corridor at South Arlington Plaza: the Women with Infants and Children (WIC) office and AxessPointe Clinic (federally qualified health center). Further, SCPH helped administer a survey to WIC participants.



Geospatial data provided by SCPH

Four major public housing complexes are located along the South Arlington Corridor. Therefore, engagement with Akron Metropolitan Housing Authority (AMHA) was essential. AMHA helped METRO administer a survey to its residents about how they use METRO and how they travel in general. Although the response rate to this survey was low, METRO learned some important lessons about survey design and working with the public housing agency. In particular, privacy was a big concern. AMHA was unable to release individual addresses to METRO and had to be selective about asking health-related questions. Coordination and interagency review was necessary to develop an acceptable survey instrument.

The East Akron Neighborhood Development Corporation (EANDC) is a community development organization covering most of the South Arlington Corridor. During the project, EANDC experienced a staffing change that temporarily limited planning staff. Fortunately, METRO had an existing relationship with the incoming planner and was able to maintain close ties with the organization. EANDC invited METRO to attend one of its public engagement meetings, where neighborhood residents and influencers heard a presentation on METRO's projects in the corridor and provided feedback on METRO's operations and infrastructure.

Detailed View of Activities

METRO's primary objective for the corridor study was to improve efficiency and reliability on Route 2 by reducing the total number of bus stops. When deciding which stops to consolidate or remove, potential health impacts were considered to ensure that access to bus stops, especially for special populations, were maintained. Transit operations data were the primary input to this decision. Potential health impacts were informed by Census data, local health data, surveys of special populations, and input from stakeholders and citizens.

Protecting public health was a key interest within this project. Consolidating bus stops to improve efficiency is, reasonably, a transit decision. However, by considering and incorporating public health information about the potential effects of these decisions, both the approach and the potential outcomes differed, as described below.

Step 1: Define Transportation Problems and Public Health Issues

Transportation issues to be addressed in the course of this project were the efficiency and schedule adherence of Route 2, which could be improved by consolidating or eliminating redundant bus stops. Additionally, shifting paratransit riders to line-service buses had the potential to increase METRO's line-service ridership, be more cost effective, and provide added travel options and personal freedom to those customers. METRO's October 2014 cost per passenger for these two types of service was four times greater for door-to-door paratransit as compared to regularly scheduled line-service.

In 2013, the Summit County Child and Family Health Services Consortium published *Summit County Maternal and Child Health Indicators*. This report analyzed a wealth of census and public health data, grouping major indicators into geographic clusters. The Southeast Akron cluster is roughly equivalent to the South Arlington Corridor. This report was compiled to guide the Summit County Collaborative for Better Birth Outcomes in improving infant mortality rates and other early childhood health indicators throughout Summit County.

Southeast Akron has the second-highest percentage of female-headed households with children in the county. Southeast Akron also has the second-highest birth rate in the county. According to METRO's 2013 On-Board Survey, 58 percent of Route 2 riders and 56 percent of METRO riders system wide are female. Therefore, improvements made to Route 2 in the Arlington Corridor could improve access to healthy food, employment opportunity, and quality medical care for all residents, and especially for young mothers. Improvements to Route 2 in the Arlington Corridor could positively influence public health determinants, including poverty and access to health care.

Step 2: Identify Needs, Resources, and Public Health Priorities

Quantitative stop-level boarding and alighting data were produced by METRO's Automatic Vehicle Location/Automatic Passenger Counter (AVL/APC) system. Qualitative stop-level health inputs were developed through stakeholder input, customer and neighborhood surveys, and Census research. For example, the locations of concentrations of subsidized housing (645 units in 4 complexes) were identified, and an attempt was made to survey residents. A survey also was conducted of METRO's existing customers on its SCAT paratransit service that reside within the corridor. It revealed that nearly all have disabilities that prevent them from using a regularly scheduled bus route.

Framework Resources

Useful information for transit planning

- Robert Wood Johnson Foundation "Active Living Research Center"
- Victoria Transport Policy Institute "Transit Benefits Calculator"
- National Center for Smart Growth "PEDS Audit Protocol"
- American Public Transportation Association resources
- Centers for Disease Control and Prevention "Recommendations for Improving Health through Transportation Policy"

The 2013 On-Board Survey showed that METRO's regular-route bus riders primarily depend on public transit for transportation (90 percent do not have regular access to a vehicle); they are primarily from low-income households (90 percent earn less than $20,000 per year); and most are employed full or part time (52 percent). These data indicate that transit is a critical part of daily existence for most METRO customers. Transit is likely a key to obtaining and maintaining a job that affords them the means to seek healthy food, health treatment, medications, social activity, and other life necessities.

Local public health efforts in this corridor are largely centered on the high concentration of young mothers and on the health effects of poverty. Providing safe access to quality public transportation is a key component of improving public health outcomes for both these groups.

Step 3: Develop Goals and Objectives that Protect and Promote Public Health

The primary goal of the project was to improve transit service frequency and efficiency in the Arlington Corridor by consolidating stops *without* depriving special populations' access to transit. As a legal obligation under Title VI of the Civil Rights Act with which METRO must comply, extending this obligation to consider public health effects is natural. By surveying special populations about how they use transit and how they move throughout the neighborhood, METRO developed a picture of how each stop is used, beyond the boarding and alighting numbers.

The eventual outcome of this project is that the walk distance to a bus stop will increase for many METRO patrons, which promotes public health. Although an additional 300 feet of walking alone is not likely to have major health impacts, the increase in active transportation is tangible. Additionally, by concentrating activity at the remaining bus stops, the perception of safety in the neighborhood could increase, which could result in a greater willingness to walk for other trip purposes. Also by concentrating bus stop activity at the remaining stops, METRO will be able to focus limited stop amenity resources. METRO plans to place six more bus shelters at locations in the South Arlington Corridor in the next year. Bus stop amenities attract additional rides and can spur public investment in sidewalks, paths, and other means to reach new shelters. The potential for positive transportation and health outcomes is notable.

Step 4: Establish Evaluation Criteria and Public Health Impacts

In some cases, bus stop consolidation is simply eliminating relatively unused stops. Elimination of stops could be positive from a maintenance and inventory perspective, but it rarely results in operational gains because buses do not physically stop where there are no passengers to serve. In a stop consolidation effort like METRO's, the goal is to identify bus stops that are close to one another *and* experience comparable rider activity. If one stop is eliminated, riders from that stop will migrate to the next nearest stop, where greater activity will concentrate. Operational data from the automatic vehicle location (AVL) and automatic passenger counter (APC) system was used to identify rider activity on a stop-by-stop basis. Health impacts and other qualitative inputs were used essentially as "tie-breakers." If two (or more) adjacent stops were equally good consolidation candidates from a statistical perspective, health considerations were used to make the recommendation.

The project overall is intended to increase active transportation throughout the corridor by requiring slightly longer walks to bus stops for many users. More importantly was a "do the least harm" approach to stop consolidation. Stops adjacent to health facilities, grocery stores, parks, and other beneficial uses were much less likely to be eliminated than other stops.

Step 5: Develop and Evaluate Alternatives and their Public Health Features

Perhaps the most extreme way to achieve the goal of bus stop consolidation would be to replace all existing stops with stop pairs at a fixed interval (for example, 1000 feet, which is an often-cited preferred distance). The map below shows how such an approach might look in a portion of the study corridor. In one sense, this scenario is the most "fair" because *any* person on Arlington Road would be, at most, 500 feet from a bus stop. This scenario, however, ignores not only potential health impacts, but also basic safety. By placing stops on a fixed interval, METRO would ignore safe crosswalks and waiting environments and grocery stores, clinics, schools, and all other health-positive destinations desirable to emphasize.

The scenarios METRO evaluated are arrangements of existing bus stops. Each scenario incorporated health and public safety inputs revealed by the Framework. Three alternatives were developed starting with a Safety Screen. This initial step eliminated six bus stops consistent with recommendations of a 2014 safety audit that identified locations causing traffic or pedestrian safety concerns. Two additional alternatives included a conservative scenario that would eliminate 18 stops and an aggressive scenario that would eliminate 32 stops. METRO's intent is to recommend the aggressive scenario for public review, except to preserve selected stops that serve identified priority health-positive destinations or housing concentrations of sensitive populations.

1000-foot' Stop Intervals (Blue) vs. Current Stops (Green)

Step 6: Identify Preferred Alternatives and Optimize Public Health

This step was ongoing at the completion of the beta test. METRO is developing a stop consolidation scenario that stakeholder organizations and the public will vet during METRO's routine cycle for public engagement meetings. Health impacts, the topics of these presentations, will factor into the final implementation, scheduled for spring or summer 2016.

Decision Maker Support

From the outset of the project, METRO leadership understood that for stop consolidation to be successful, the agency would have to minimize negative impacts to the populations least able to walk. In the past, stop consolidation projects have been difficult for transit agencies that focused too narrowly on statistical analysis or completed too little *prior* public outreach and engagement. Although decreasing trip times is essential to METRO's operation, this goal clearly cannot be met at the expense of accessibility for vulnerable populations. Further, loss of line-service accessibility could increase paratransit rides in the corridor, which are four times more expensive on a per-passenger basis. Therefore, considering health impacts is both a moral and a legal obligation for METRO and, further, a successful project might benefit the agency with improved public relations and financial savings.

Health partners were difficult to identify initially because responsible parties or staff members with an interest in health planning were not immediately apparent to transit planners. METRO reached out directly to epidemiologists with Summit County Public Health to obtain geographic information about health, which was helpful at the initial stages of the Framework. Later, prompted by the Framework and the support team, METRO sought a referral from Summit County Executive Russ Pry's Office, which led to the SCPH Assistant Director for Community Health, James Hardy. Mr. Hardy was hired into a recently created position to conduct projects related to the social determinants of health. In short, he was exactly the person that METRO needed on its project team, and without prompting, this meaningful connection would not have been made.

METRO intends to continue working with organizations such as Summit County Public Health, AMHA, and local community development corporations in implementing bus stop consolidations and other service changes in corridors throughout the Summit County service area. Although the Framework was

not a centerpiece of these relationships, the Framework steps helped organize and legitimize many of the issues and approaches discussed with the team's health partners.

Outcomes

The most important public health priority addressed in the corridor study was access to health facilities and healthy foods by bus riders. In particular, METRO was concerned with preserving access to these destinations while reducing the number of bus stops. The alternatives developed considered these health inputs, which will be discussed in the final public vetting process prior to implementation. Involving health-based partners did extend the timeline of the project because of coordination time, but the interagency cooperation resulted in a more well-informed final recommendation.

METRO used the Framework as an organizing document to some extent, but mostly as a list of resources. The Framework contains a wealth of links to many types of health data, studies, and potential partners. By following the suggestions in the Framework, Metro developed several strong relationships with local agencies interested in the same questions. If METRO had the time and resources to conduct pedestrian studies and sidewalk audits, the Framework could have been even more valuable. The Framework provides direction and a wealth of resources on research and best practices that offered considerable time savings from not having to "reinvent the wheel."

Case Study Synopsis

The goal of the Arlington Street Corridor Study was to improve transit service quality for existing and future METRO customers by consolidating bus stops consistent with METRO's Transit Development Plan. The public health assessment was conducted to ensure that transit decision making considers the needs of protected populations and engages them in the decision making process. The Corridor's residents include higher than average minority, low income, and elderly concentrations that warrant special consideration. Study findings enabled METRO to develop a stop consolidation scenario that protects access to medical/health facilities and purveyors of healthy food while improving travel time and schedule adherence for transit customers.

For More Information

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