

Feasibility Study

for the Implementation of
On-Site Medical Services
at MetroLink Stations



BI-STATE DEVELOPMENT
RESEARCH
INSTITUTE

 A Bi-State Development Enterprise

Feasibility Study

for the Implementation of
On-Site Medical Services
at MetroLink Stations

John L. Wagner, Ph.D.

BI-STATE DEVELOPMENT
RESEARCH
INSTITUTE

 A Bi-State Development Enterprise

ACKNOWLEDGMENTS

This feasibility study would not have been possible without the generous support and funding from the Missouri Foundation for Health. I would like to express my sincere gratitude to the Foundation and the many wonderful people there helping to make a difference in the health of all Missourians.

I also would like to thank Ascendent Healthcare Advisors for their research and consulting services for the project.

In addition, many of my colleagues at Bi-State Development helped make this research and the resulting report possible, particularly Bernadette Marion, Director of Research and Development for Metro, John Langa, Vice-President for Economic Development, as well as members of the Bi-State Marketing and Communications team.

John L. Wagner, Ph.D.
Director, Bi-State Development Research Institute.

CONTENTS

| | |
|--|----|
| Introduction..... | 1 |
| St. Louis Public Transit | 3 |
| Existing Conditions..... | 5 |
| Area Hospitals and FQHCs | 7 |
| North St. Louis County Emergency Department Utilization..... | 14 |
| Medical Clinic Cost Models | 19 |
| Mobile Clinics | 21 |
| Healthcare Provider Interviews..... | 25 |
| Conclusion: Going Forward..... | 27 |
| Appendix I: Assumptions for Pro-forma | 29 |
| Appendix II: MetroLink On-Site Medical Services | |
| Assessment Interview Questions | 31 |

ILLUSTRATIONS

FIGURES

| | | |
|----|---|----|
| 1 | MetroLink facilities in St. Louis City and St. Louis County, Missouri. | 4 |
| 2 | North St. Louis County, Missouri | 6 |
| 3 | Percent minority population, St. Louis City and St. Louis County, Missouri.. . . . | 8 |
| 4 | Per capita income, St. Louis City and St. Louis County, Missouri. | 9 |
| 5 | Median household income, St. Louis City and St. Louis County, Missouri.. . . . | 10 |
| 6 | Income below poverty level, St. Louis City and St. Louis County, Missouri.. . . . | 11 |
| 7 | Zero vehicle households, St. Louis City and St. Louis County, Missouri. | 12 |
| 8 | Major hospitals, Federally-qualified health centers and St. Louis County Health Centers in St. Louis City and St. Louis County, Missouri, 2016.. . . . | 13 |
| 9 | Emergency Department visits per 1,000 persons: St. Louis and U.S. | 14 |
| 10 | Emergency Department visits per 1,000 persons: St. Louis City, St. Louis County, Missouri. | 15 |
| 11 | Emergency Department Utilization by zip code per 1,000 residents, St. Louis City and St. Louis County, Missouri. (2010 to 2013 average) | 16 |
| 12 | Types of services provided by Mobile Medical Clinics in the U.S. in 2015. | 23 |
| 13 | Source of insurance for Mobile Medical Clinic patients in the U.S. in 2015.. . . . | 23 |

TABLES

| | | |
|---|--|----|
| 1 | Tier 1 and Tier 2 zip codes: Insurance coverage and race. | 18 |
| 2 | Top 10 diagnoses reported in Tier 1 zip codes. | 18 |
| 3 | Pro-forma cost estimates for permanent, modular and mobile medical clinics . . | 19 |

INTRODUCTION

THIS FEASIBILITY STUDY EXAMINES THE POSSIBILITY OF ESTABLISHING MEDICAL CLINICS ON OR NEAR THE PARKING LOTS OF CERTAIN METROLINK STATIONS IN NORTH ST. LOUIS COUNTY, MISSOURI, testing the theory that the use of existing infrastructure – the transit stations themselves – will facilitate development and improve access to routine, non-emergency healthcare services for residents, particularly those who are transit-dependent or living in close proximity to MetroLink stations, MetroBus or Metro Call-A-Ride routes. The study focuses only on those areas served by MetroLink in North St. Louis County, Missouri with some mention of St. Louis City. Because St. Louis City stations are located in predominantly commercial areas, the more residential North St. Louis County locations are assumed to be more fitting locations for medical clinics, particularly given the demographics as described later in the report. This study also explores the options related to different facility types as well as the corresponding costs of each.

1

An analysis of nationally representative healthcare datasets by the Transportation Research Board revealed that approximately 3.6 million Americans miss or delay non-emergent medical care each year because of transportation issues.¹ This population was found to have a higher prevalence of chronic disease and a higher rate of co-morbid conditions. A study commissioned by the Children's Health Fund² found that nine (9) percent of children in families with incomes less than \$50,000 per year miss essential medical appointments due to a lack of transportation, regardless of their insurance status. The health of individuals who fail to obtain medical care in a timely manner due to transportation barriers is negatively impacted. With regard to preventive care, lack of transportation can lead to under-immunization, difficulties in administering screening programs, failure to attend pediatric check-ups, and lack of prenatal care. Specific to chronic medical conditions, numerous studies have documented inadequate care due to lack of transportation. For example:

- Diabetic patients who missed more than 30 percent of scheduled appointments had increased incidence of co-morbid conditions than those who kept their appointments; and

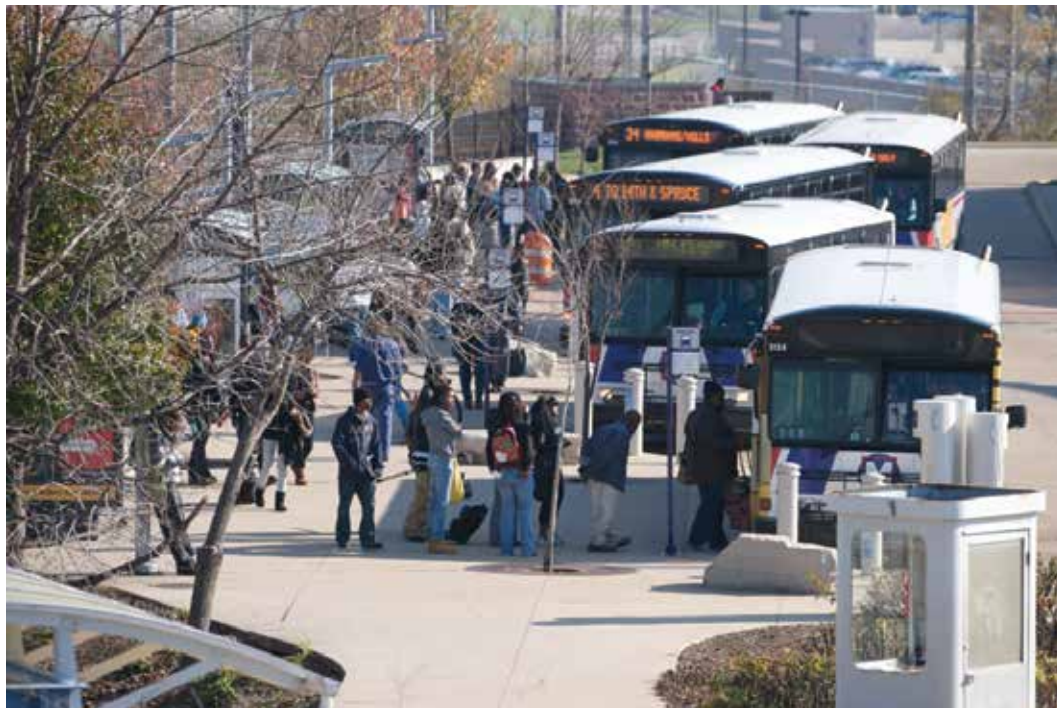
¹ Cost Benefit Analysis of Providing Non-Emergency Medical Transportation, Transit Cooperative Research Program (TCRP) Web-Only Document 29, October, 2005.

² Children's Health Care and Transportation Access. 2001. Zogby International.

- Asthmatic patients entering the emergency room for necessary care are much less likely to obtain follow-up care when they do not have access to transportation.

While the lack of adequate access to healthcare for transit-dependent populations is a recognized problem in most communities, the existing approaches to address this issue typically bring transit-dependent populations to hospitals or emergency rooms, often through the engagement of free taxi services or similar offerings. Our project proposes to bring healthcare to the transit-dependent communities in the form of a clinic or other type of facility co-located at MetroLink or MetroBus Transit stations.

It is noteworthy that healthcare providers across the nation, from hospitals to full health systems, have already validated the efficacy of bringing healthcare to target populations. These organizations routinely send mammography vans, heart-screening vans and other mobile services to various locations within their service region. Locally, organizations including BJC Health System, Mercy Health System, and SSM Health Care all provide mobile units to serve the St. Louis Metropolitan region and other communities within their service areas. Our research, however, has not identified other communities that have brought healthcare to these communities via public transit stations.



North Hanley MetroLink Station

ST. LOUIS PUBLIC TRANSIT

BI-STATE DEVELOPMENT (BSD) OPERATES THE METRO PUBLIC TRANSPORTATION SYSTEM FOR THE ST. LOUIS REGION. The 46-mile MetroLink light rail system stretches from Scott Air Force Base in Illinois to St. Louis Lambert International Airport in North St. Louis County (the “Red Line”), with an extension running from Clayton to Shrewsbury in South St. Louis County (the “Blue Line”). There are 37 stops on the MetroLink system, with an additional stop planned for the Cortex Innovation Community in St. Louis City set to open in 2018. Figure 1 shows the MetroLink light rail system in St. Louis City and St. Louis County, Missouri.

The MetroBus system consists of a fleet of approximately 400 vehicles operating on 80 routes in Missouri and Illinois with nearly 9,000 bus stops. It is important to note that nearly 25 percent of MetroBus ridership originates in North St. Louis County. The system operates through 14 transit centers throughout the region, some of which are co-located at MetroLink stations. The North County Transit Center in Ferguson, Missouri opened in March 2016 to facilitate ridership in this area. The Metro Call-A-Ride service, a paratransit fleet of 120 vans, provides on-demand curb-to-curb service for Americans with Disabilities Act (ADA) eligibility. This service benefits individuals with physical or cognitive disabilities who are unable to independently use available bus or light rail service.³

³ Bi-State Development Agency: Metro.

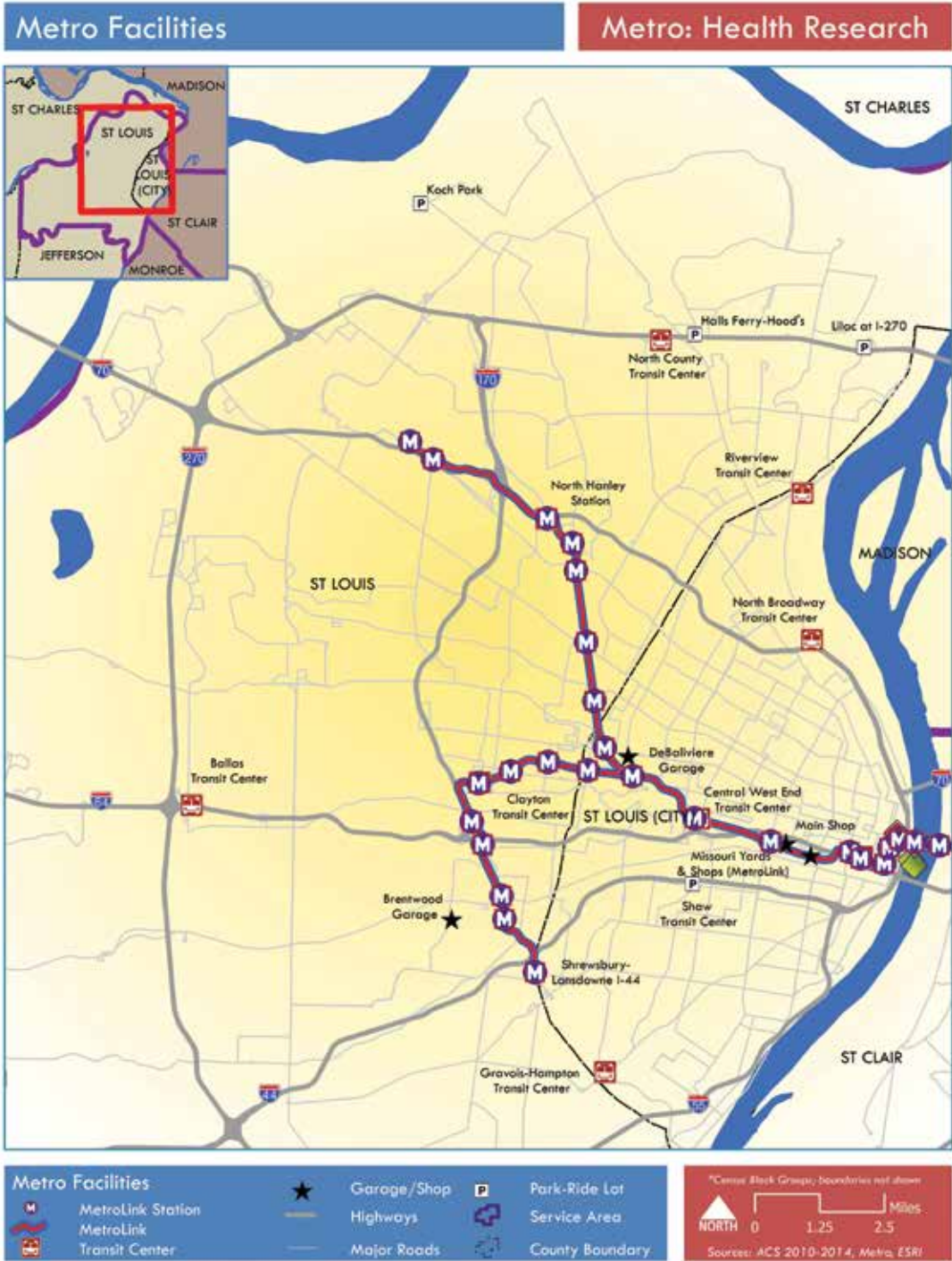


Figure 1. Metro facilities in St. Louis City and St. Louis County, Missouri.

EXISTING CONDITIONS

Socioeconomic

AS THIS STUDY EXAMINES THE POSSIBILITY OF LOCATING MEDICAL CLINICS AT METROLINK STATIONS, THE FOCUS WILL BE ON LOCATIONS IN NORTH ST. LOUIS COUNTY, as that is where the stations are located that could benefit most from having medical clinics nearby, as discussed later in the report. Many of the health care disparities that exist in North St. Louis County are also prevalent in the northern sections of St. Louis City; indeed, some disparities are even more severe. Some of the research in this investigation combines St. Louis County and St. Louis City data. Where applicable, though, data for these jurisdictions is separated.

The population of St. Louis County, Missouri is slightly more than one million⁴ (1,003,362) with approximately one-third of residents located in the 200 square-miles of what is considered to be “North County,” as illustrated in Figure 2.⁵ There are 46 municipalities in North County, in addition to unincorporated areas governed by St. Louis County. The median age of residents in this area is 18 years, well under the national average of 36 years, while the overwhelming majority of the population is under 60 years of age. There are two peaks in the age distribution: one at 50 to 54 years and another at 15 to 19 years⁶.

North County is served by three major interstate highways connecting the area to the rest of the St. Louis metropolitan region: Interstate 70 (I-70) is a transcontinental route that links the area to Downtown, St. Louis and St. Charles County. Interstate 270 (I-270) traverses the entire St. Louis region and passes through the heart of North County. Interstate 170 (I-170) connects North County to central St. Louis County. The average travel time to work for North County residents matches the average commute of 24 minutes for the entire St. Louis region. Like most people in all of St. Louis County, the vast majority

⁴ United States Census Bureau.

⁵ North County Incorporated: Economic Development profile of North St. Louis County, September, 2013.

⁶ Ibid.

of North County residents (82.5 percent) drive to work alone; nearly nine percent (8.6 percent) carpool with others, while only 3.9 percent use public transit.⁷

Figures 3 through 7 graphically show the socioeconomic status of North County residents. According to the 2010 Census, just over half (51.8 percent) of North County residents are African American, with 42.8 percent Caucasian.⁸ As shown in Figure 3, North County is included in a larger area of North St. Louis City and County, Missouri where minorities comprise the majority of the population. Residents of North County typically earn less than their counterparts in the rest of St. Louis County. Figure 4 shows the per capita income for St. Louis City and St. Louis County. Again, the similarities with North St. Louis City are striking, with per capita income ranging from \$20,000 to \$40,000 per year or less in this area. Figure 5 tells a similar story, with median household income through this area below \$20,000 to \$40,000 per year, with a few pockets where annual household income is below \$60,000.

Consequently, many residents and households in North County are living in poverty. As noted in Figure 6, there are many areas where 30 percent to 45 percent of the individuals live at or below the federal poverty level of \$24,300 annually for a family of four, with some pockets where 60 percent to 80 percent of the individuals are living in poverty. This is particularly noteworthy in the cities of

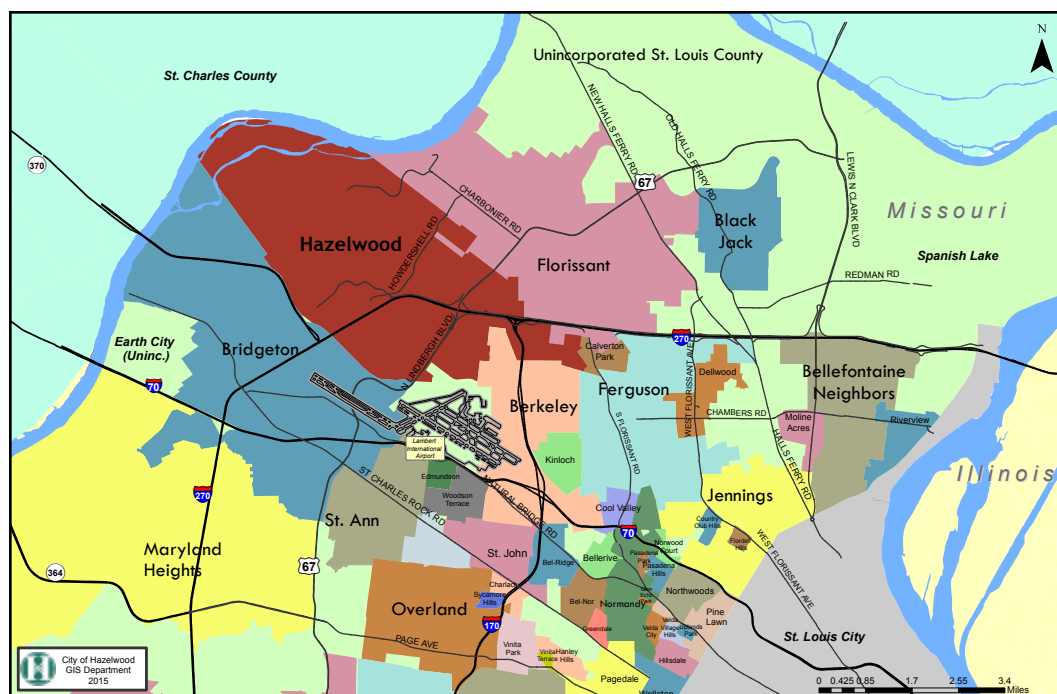


Figure 2. North St. Louis County, Missouri. (Source: City of Hazelwood, Missouri, GIS Department, 2015)

⁷ North County Incorporated: Economic Development Profile of North St. Louis County, September, 2013.

⁸ Ibid.

Wellston and Pagedale, adjacent to the City of St. Louis city limit, along the MetroLink system. Perhaps more important from a public transit perspective are the number of zero-vehicle households in North County, as shown in Figure 7. There are many areas where 15 percent to 45 percent of the households do not have access to a vehicle, with a few areas showing a staggering 70 percent of households without a vehicle.

AREA HOSPITALS AND FQHCs

A RECURRING THEME IN FIGURES 3 THROUGH 7 IS THE CLOSE PROXIMITY OF METROLINK AND ITS STATIONS TO MANY OF THESE COMMUNITIES. Indeed, this will be a critical factor in the viability of co-locating medical clinics at some of these stations. Another important consideration is the location of existing hospitals and Federally-Qualified Health Clinics* (FQHCs) in these communities. Figure 8 shows the location of these facilities in St. Louis City and St. Louis County. The circles around these locations show a half-mile radius around the health center, with those in pink indicating the presence of a Metro Transit Center within that half-mile radius.** Note the lack of healthcare facilities along MetroLink in North St. Louis County, particularly the absence of facilities within a half-mile of a station.

7

* FQHCs are federally funded nonprofit health centers or clinics that serve medically underserved areas and populations. These clinics provide primary care services regardless of a patient's ability to pay. Services are provided on a sliding scale fee based on ability to pay. (Source: HealthCare.gov.)

** The half-mile marker originates with transit-oriented development (TOD), where development around transit stations is encouraged, while taking advantage of the presence of the stations. One-half mile is the distance typically assumed that people would walk to a station to use transit.

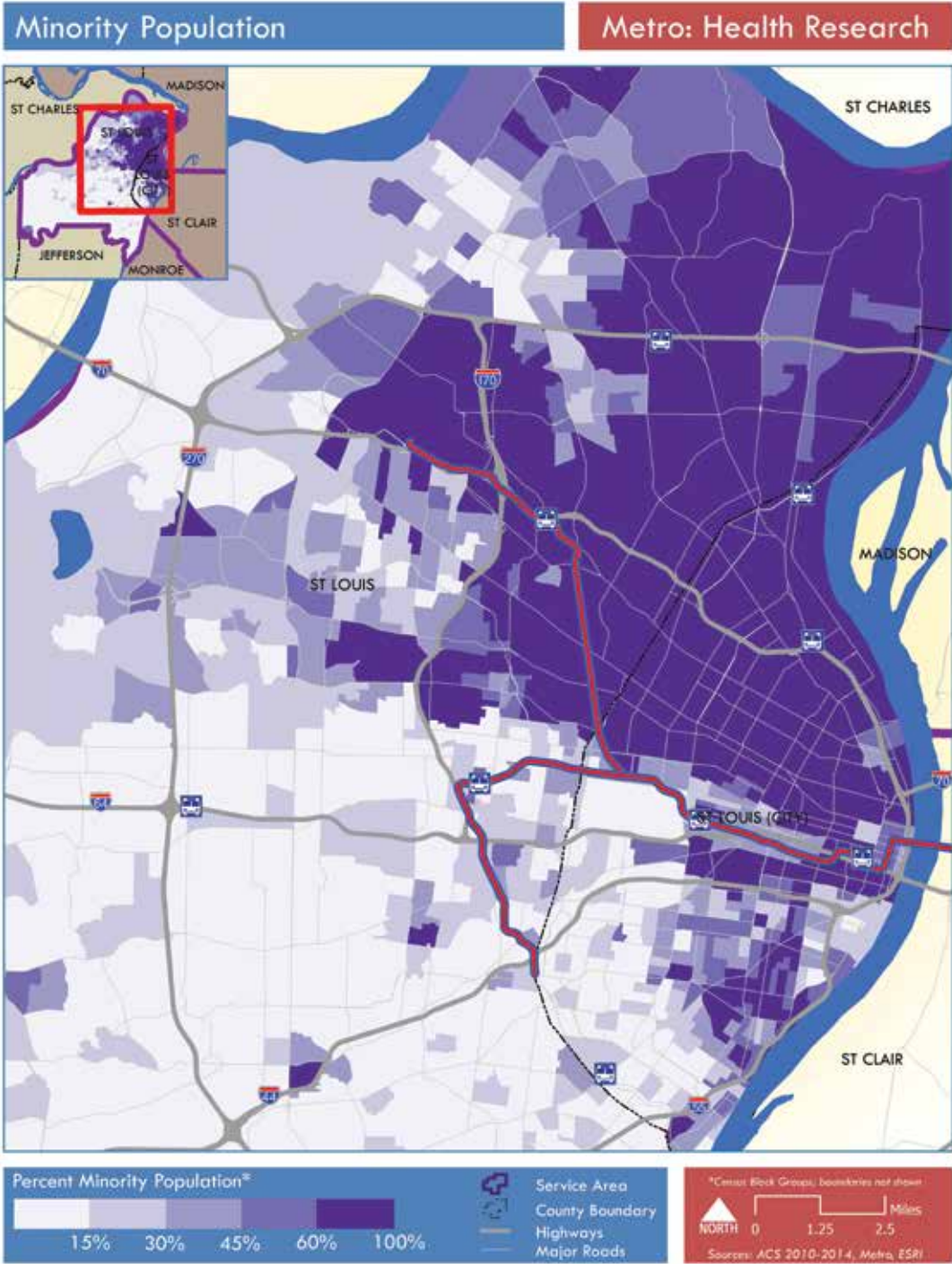


Figure 3. Percent minority population, St. Louis City and St. Louis County, Missouri.

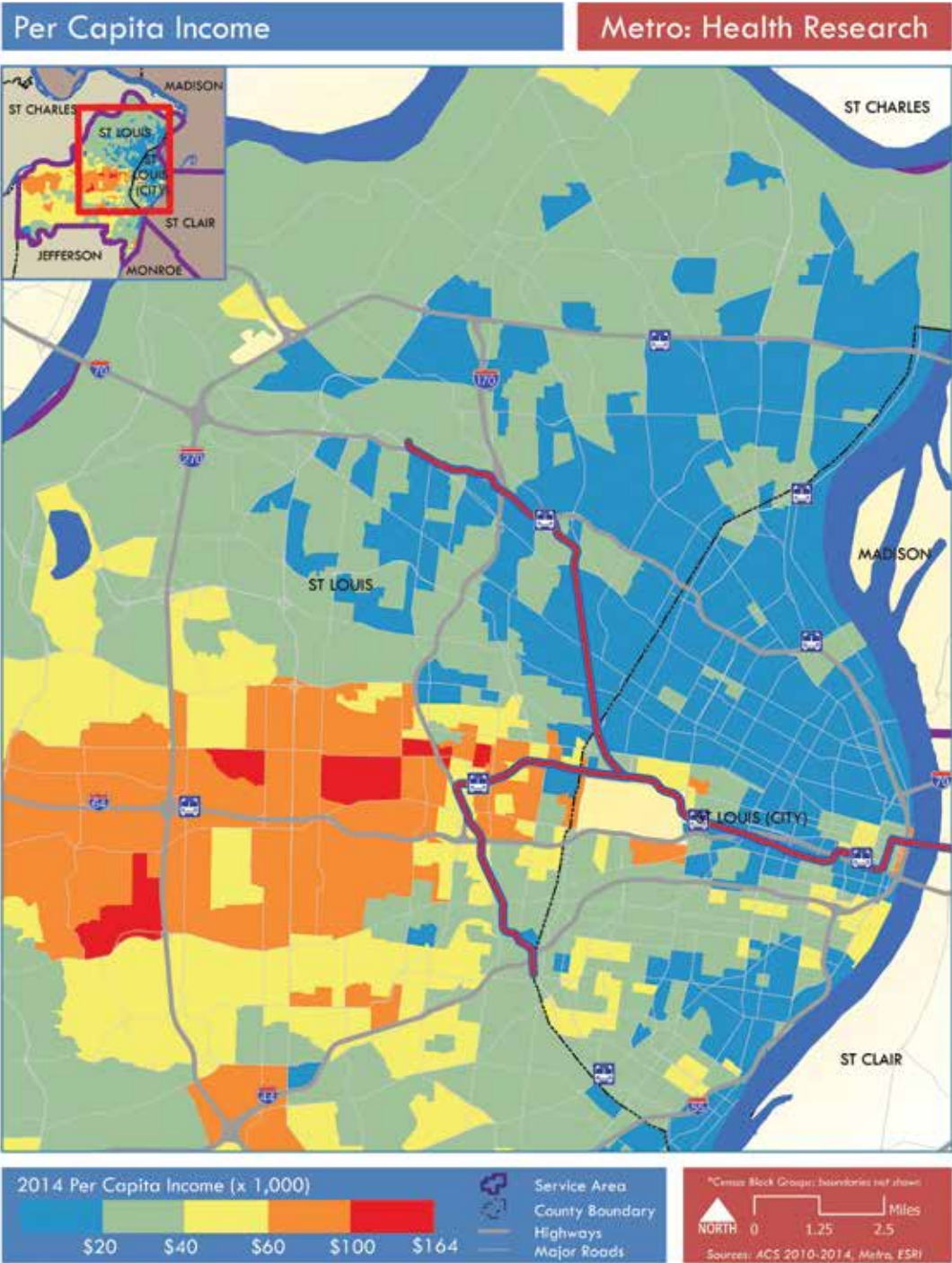


Figure 4. Per capita income, St. Louis City and St. Louis County, Missouri

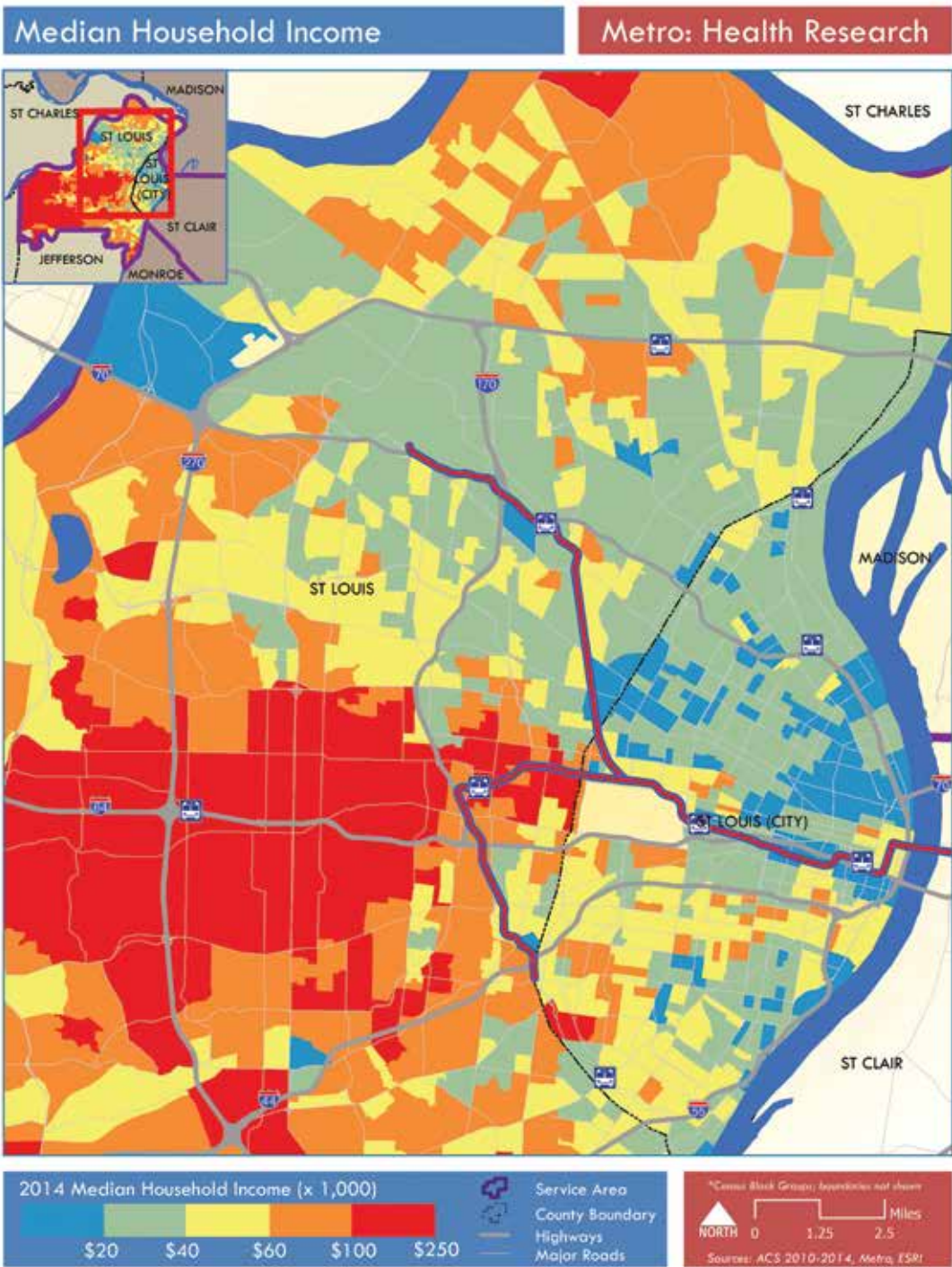
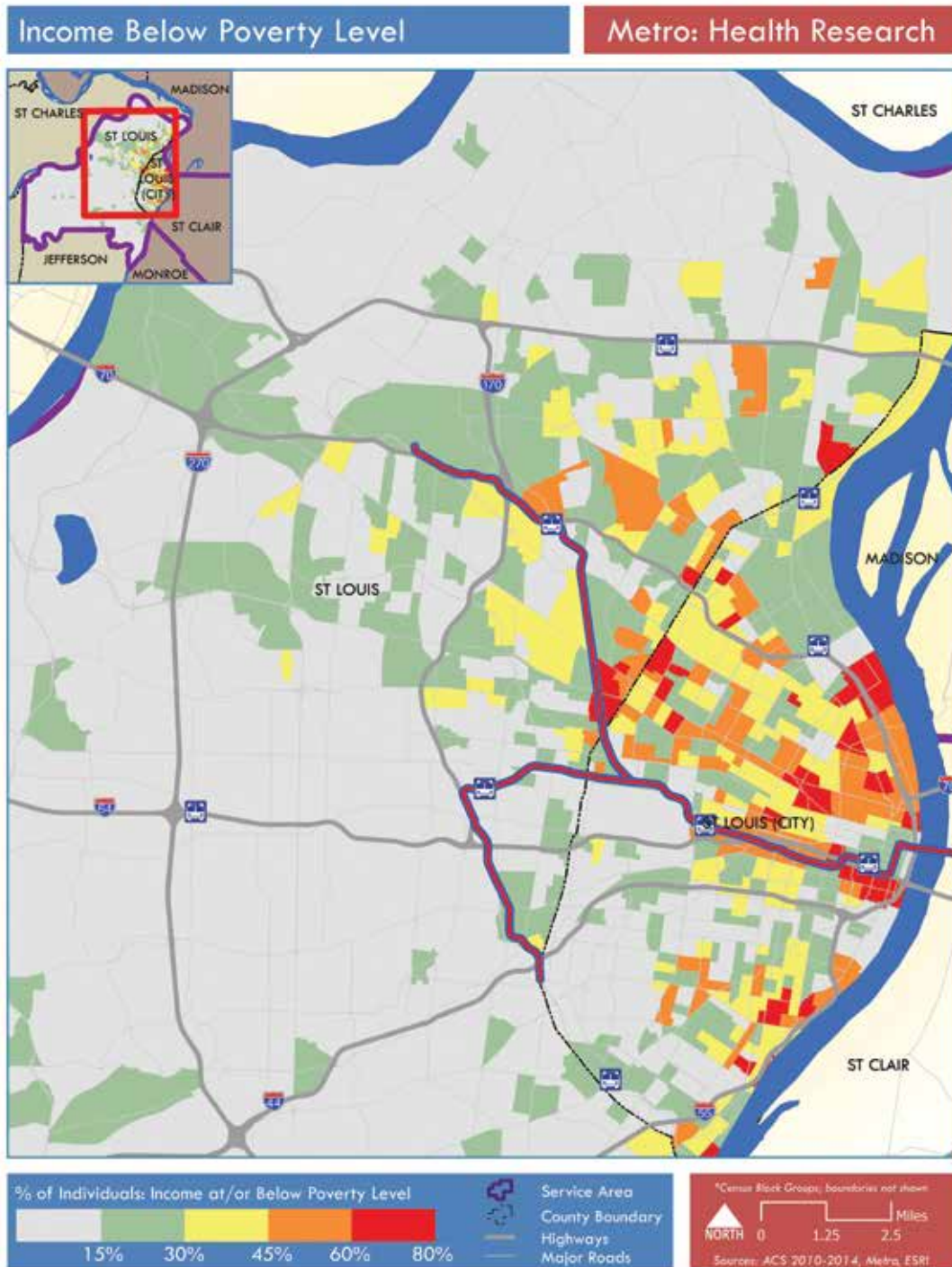


Figure 5. Median household income, St. Louis City and St. Louis County, Missouri.



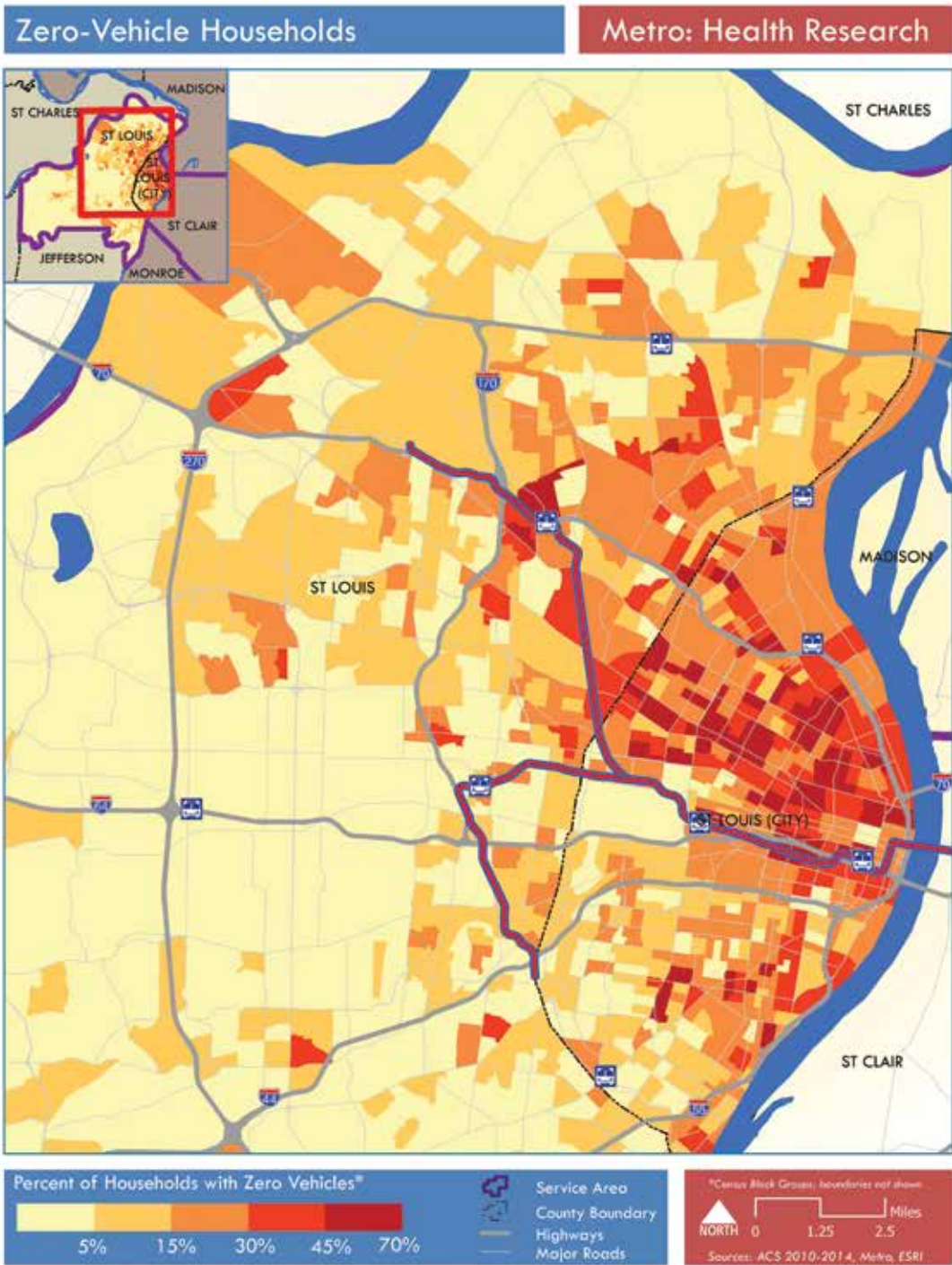


Figure 7. Zero vehicle households, St. Louis City and St. Louis County, Missouri.

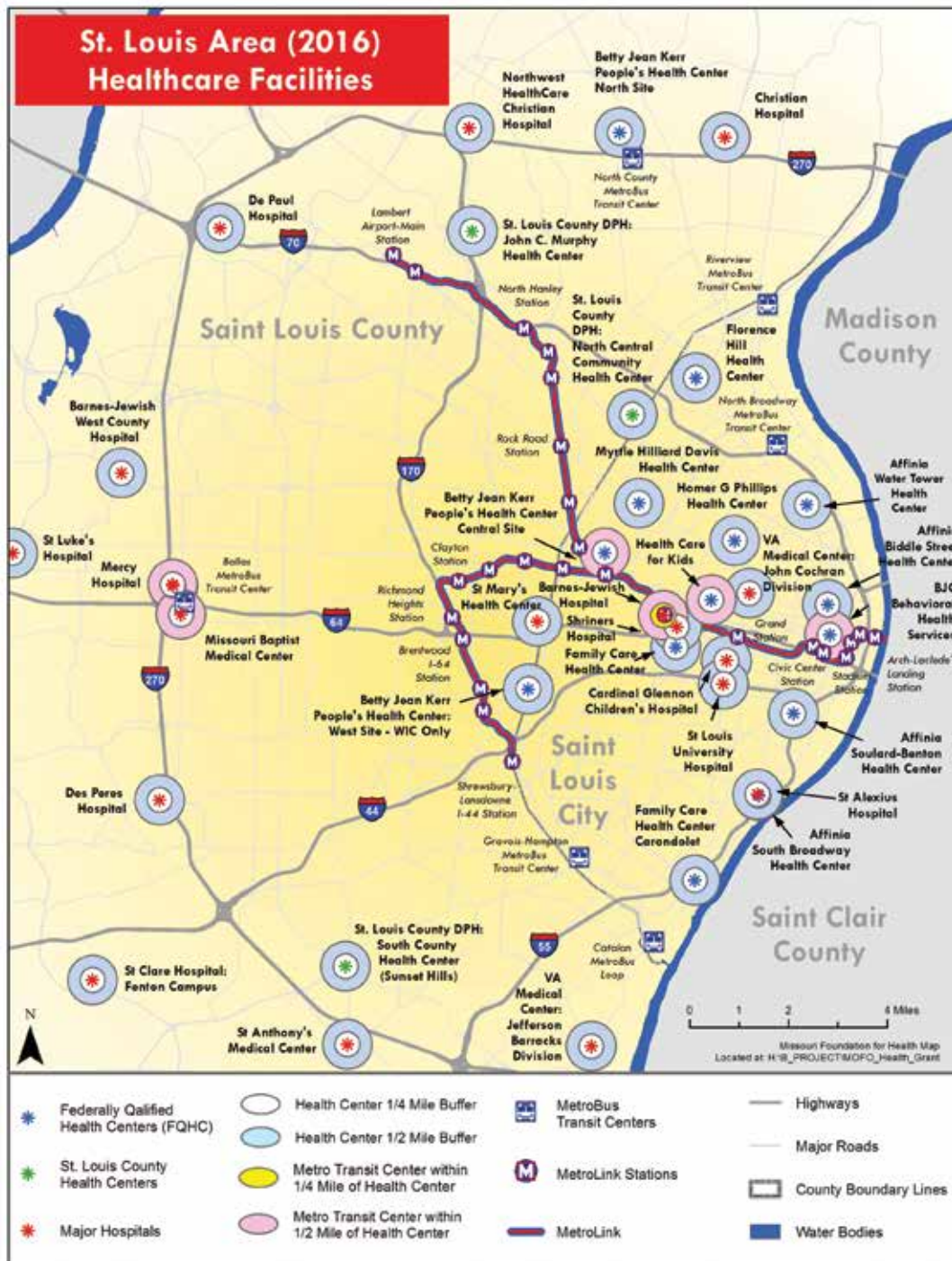


Figure 8. Major hospitals, Federally-qualified health centers and St. Louis County Health Centers in St. Louis City and St. Louis County, Missouri, 2016.

NORTH ST. LOUIS COUNTY EMERGENCY DEPARTMENT UTILIZATION

LACK OF ACCESS AND SERVICE GAPS IN HEALTHCARE HAVE LED TO HIGH LEVELS OF UNDIAGNOSED CONDITIONS AND DIAGNOSED CONDITIONS WITHOUT REGULAR MEDICAL ATTENTION OR MONITORING. With no source of proximate healthcare, or faced with conditions that make attending primary care appointments inconvenient, many residents in these areas use the emergency department for primary care needs. The failure to use primary care services for themselves and their children results in excessive emergency department use and a high level of hospital admissions for preventable medical conditions.

Nationwide, emergency department (ED) utilization has, for several years, significantly outpaced population growth, having far-reaching implications on healthcare spending in the U.S. As shown in Figure 9, although the combined St. Louis County/City ED use rate is lower than the U.S. national average, it has continued to grow over the past decade and contributes to overcrowding of emergency departments, increased wait times and higher healthcare costs.

14

Emergency Department Visits per 1,000 persons

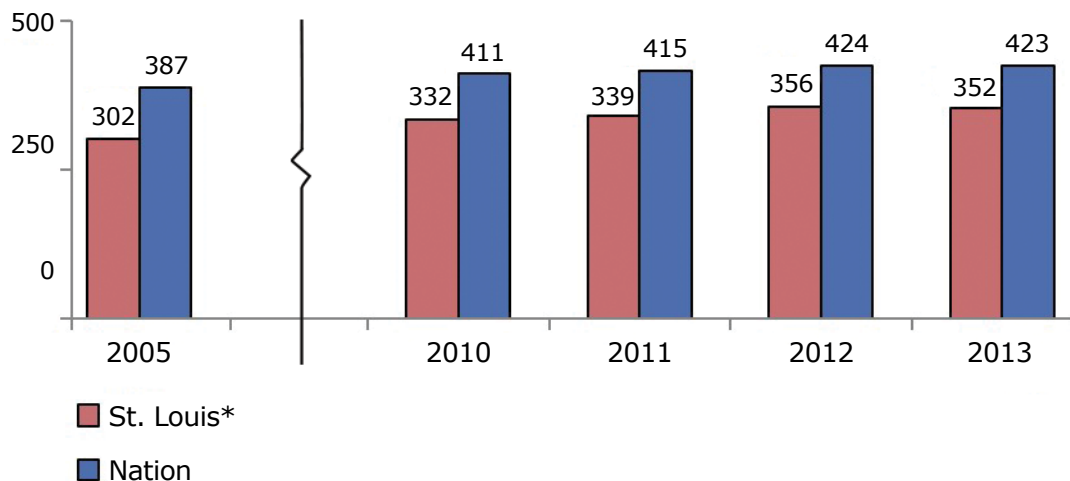


Figure 9. Emergency Department visits per 1,000 persons: St. Louis and nation. (Source: Missouri Department of Health and Senior Services.)

* Included residents of both St. Louis City and St. Louis County, Missouri.

Similar to most U.S. markets, emergency department utilization levels among those living in larger cities are higher, and St. Louis City confirms this trend. The average emergency department utilization rates are significantly higher in St. Louis City than both the state of Missouri and St. Louis County averages, as illustrated in Figure 10.

The St. Louis County average can be misleading, however. Within the county, there is a great deal of variation in emergency department utilization. The 2011 St. Louis County Department of Public Health Community Health Needs Assessment found that North St. Louis County residents, in particular, have lower access to care, experience greater barriers associated with the cost of care, and are more likely to use the emergency department as a source of primary care.⁹ The County's assessment reported that emergency department utilization in St. Louis County overall was found to be 28,444 emergency department visits per 100,000 residents, while emergency department utilization and hospitalization in North County—for both insured and uninsured residents—was 56.7 percent higher, 50,963 visits per 100,000 residents. This trend reflects the predisposition of people who lack access to routine health-care and who depend upon the emergency department when any care is needed. This trend is also evident in Figure 11, showing a map of emergency department utilization rates for St. Louis City and St. Louis County. In essence, relative to ED utilization, much of the contiguous North St. Louis County and North St. Louis City experience the same problems.

15

Emergency Department Visits per 1,000 persons

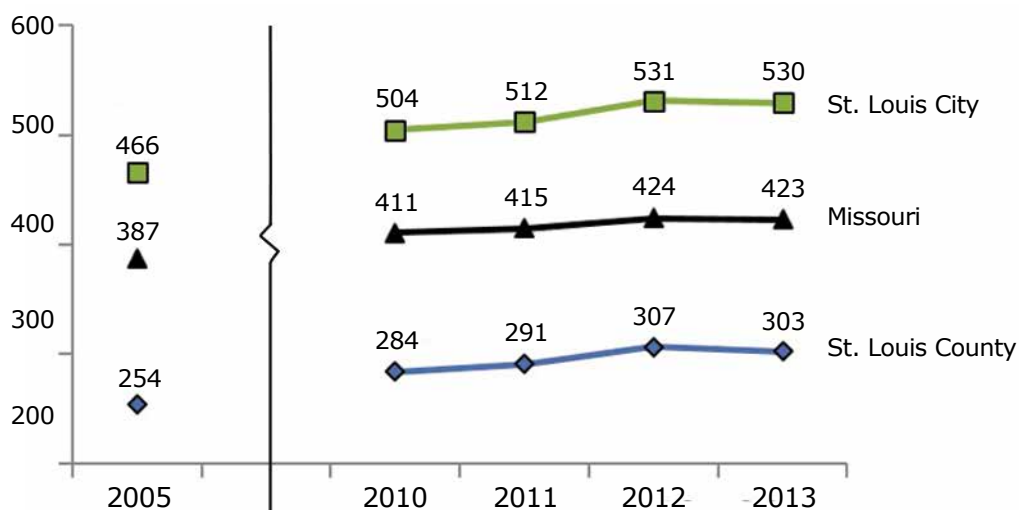


Figure 10. Emergency department visits per 1,000 persons: St. Louis City, St. Louis County, Missouri. (Source: Missouri Department of Health and Senior Services.)

⁹ 2011 Community Health Needs Assessment, 2011. Saint Louis County (MO) Department of Health.

Emergency Department Utilization by Zip Code per 1,000 Residents
 St. Louis City and County (2010 to 2013 Average)

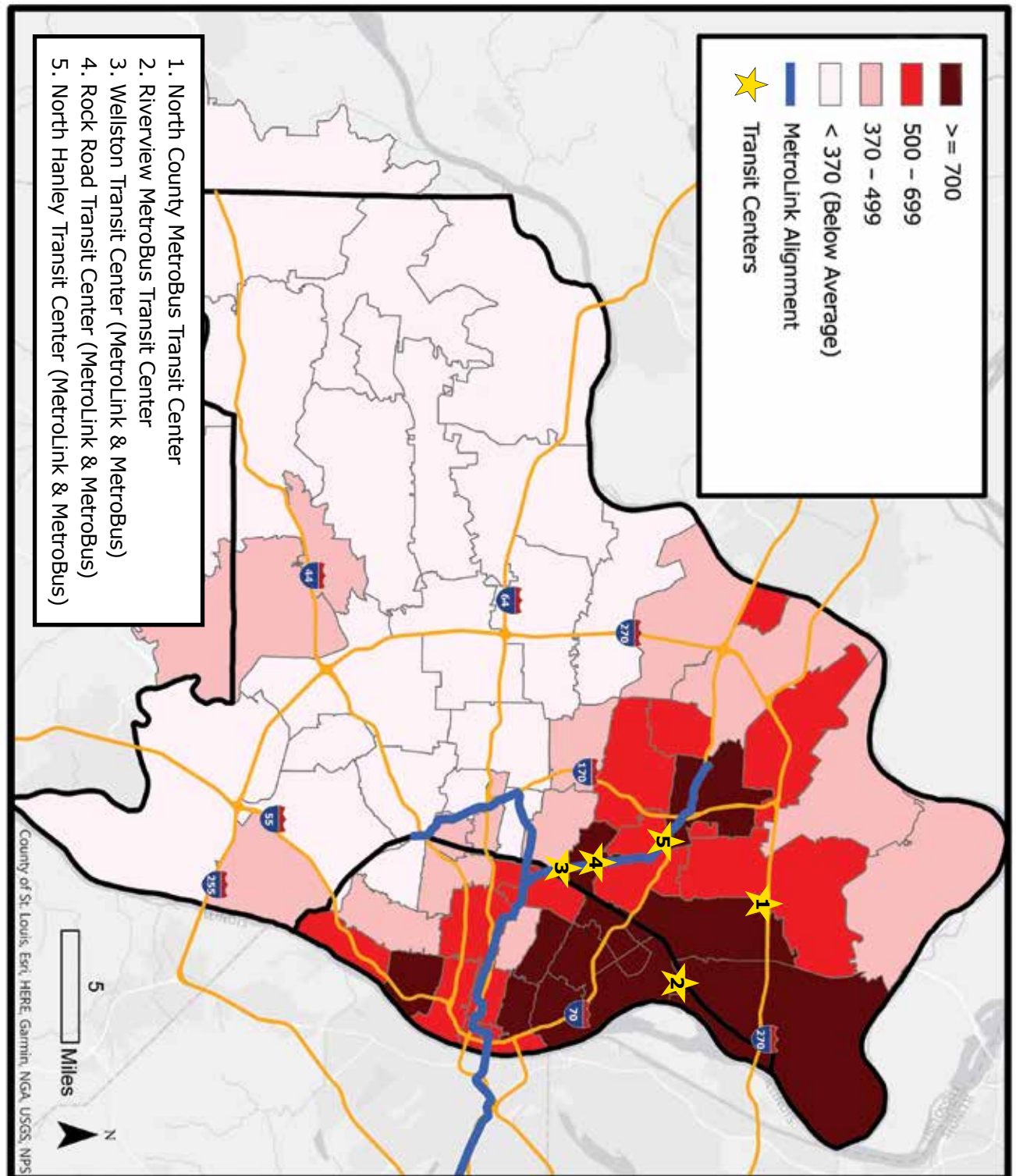


Figure 11. Emergency Department Utilization by zip code per 1,000 residents, St. Louis City and St. Louis County, Missouri. (2010 to 2013 average)

Figure 11 clearly illustrates “hot zones” of emergency department utilization in North St. Louis City and North St. Louis County. These zones can be divided in two groups: Tier 1 and Tier 2 zip codes. Residents in Tier 1 zip codes use the emergency department at an astounding rate of more than 700 per 1,000 individuals. Those living in Tier 2 zip codes use the emergency room at a rate of 500 to 699 per 1,000 people. Relative to the entire St. Louis region, utilization among these two top tiers is composed of a greater percentage of Medicaid and self-pay patients, as well as a higher proportion of African-American patients, as shown in Table 1.

Tier 1 and Tier 2 zip codes, most of which are located in North St. Louis County and North St. Louis City, are as follows:

Tier 1 zip codes (Use rate of 700+):

- St. Louis City: 63106, 63107, 63113, 63115, and 63120;
- St. Louis County: 63133, 63134, 63136, and 63137;
- These four County zip codes account for 11% of the County’s population, but 25% of total St. Louis County emergency department utilization.

Tier 2 zip codes (Use rate of 500-699):

- St. Louis City: 63102, 63103, 63104, 63111, 63112, 63118, and 63147;
- St. Louis County: 63121, 63135, 63138, and 63140;
- These four County zip codes account for 13% of the County’s population, but 23% of total St. Louis County emergency department utilization.

Approximately 115,000 emergency department visits originated from Tier 1 zip code residents, distributed across more than 100 diagnoses. The top 10 diagnoses, listed in Table 2, accounted for 40 percent of the total visits, with most relating to conditions more appropriately served in a lower acuity setting or avoided with appropriate preventative care. Given the high levels of inappropriate emergency department utilization, improved access to low or no cost primary care and preventative services could prove beneficial, particularly within these high-risk areas.

Table 1. Tier 1 and Tier 2 zip codes: Insurance coverage and race.
(Source: Missouri Department of Health and Senior Services.)

| | Tier 1 Zip Codes | Tier 2 Zip Codes | Total St. Louis |
|---------------------------|------------------|------------------|-----------------|
| Insurance Coverage | | | |
| Medicaid & Self-Pay | 69% | 66% | 53% |
| Medicare | 11% | 11% | 15% |
| Commercial | 18% | 21% | 29% |
| Other | 2% | 2% | 3% |
| Race | | | |
| White/Caucasian | 6% | 17% | 36% |
| Black/African-American | 93% | 80% | 59% |

Table 2. Top 10 diagnoses reported in Tier 1 zip codes.
(Source: Missouri Department of Health and Senior Services.)

| Top 10 Diagnoses | 2013 Visits |
|--|-------------|
| Other upper respiratory infections | 7,214 |
| Sprains and strains | 5,166 |
| Abdominal pain | 5,166 |
| Superficial injury – contusion | 4,813 |
| Other injuries and conditions due to external causes | 4,131 |
| Ear conditions | 4,044 |
| Skin and subcutaneous tissue infections | 3,704 |
| Open wounds | 3,613 |
| Disorders of teeth and jaw | 3,557 |
| Asthma | 3,544 |

MEDICAL CLINIC COST MODELS

A MEDICAL CLINIC AT ANY METROLINK STATION COULD GENERALLY BE PRESENTED IN ONE OF THREE FORMS: A PERMANENT “BRICKS AND MORTAR” BUILDING, A “MODULAR-STYLE” STRUCTURE THAT IS NOT PERMANENT, YET IS NOT MOBILE, AND A MOBILE CLINIC SIMILAR TO MANY THAT ARE CURRENTLY DEPLOYED IN THE COMMUNITY. A typical pro-forma analysis for real estate development includes a set of calculations that projects the financial costs and return likely to result from the investment. A pro-forma of the costs for the three possible forms of a medical clinic at a transit station is displayed in Table 3. Any pro-forma has a given set of assumptions that are essential to the estimates, and the assumptions for our proposal’s pro-forma are listed in Appendix I. Please note that the cost for medical personnel and supplies, which are assumed to be the same for all three (3) scenarios, are not included in those estimates.

Table 3. Pro-forma cost estimates for permanent, modular and mobile medical clinics

| Capital Cost | Permanent (\$) | Modular Building (\$) | Mobile Clinic (\$) |
|---------------------------|------------------|-----------------------|--------------------|
| Land | \$30,000 | \$30,000 | N/A |
| Site Work | \$25,000 | \$25,000 | N/A |
| Facility | \$450,000 | \$225,000 | \$230,000 |
| Parking | \$5,000 | \$5,000 | \$5,000 |
| Project Soft Costs | \$76,500 | \$42,750 | \$42,750 |
| Construction Financing | \$35,190 | \$19,665 | N/A |
| Impact Fees | \$0 | \$0 | \$0 |
| Total Project Costs | \$621,690 | \$347,415 | \$277,750 |
| Annualized Project Costs | \$37,301 | \$20,845 | \$16,650 |
| Operating Costs | | | |
| Operating Expenses | \$20,000 | \$20,000 | \$20,000 |
| Security | \$152,700 | \$152,700 | \$26,250 |
| Driver for Mobile Clinic | N/A | N/A | \$20,000 |
| Total Operating Expenses | \$172,700 | \$172,700 | \$66,250 |
| Total Annual Costs | \$210,001 | \$193,545 | \$82,900 |

Not surprisingly, as noted in Table 3, considering total annual cost, which includes capital and operating costs, the mobile version of the medical clinic is substantially less expensive than the bricks and mortar building and the modular structure: \$82,900 annually for the mobile unit versus \$193,545 and \$210,001 annually for the modular and permanent buildings, respectively. The modular version is 80 percent more expensive to establish than the mobile unit, while the permanent building would cost 87 percent more. A major difference in the operating expense for each version can be accounted for in the provision of security. The mobile clinic needs security only for those hours in which it is on site while the non-mobile clinics would require around-the-clock security.

Each version of the clinic has advantages and disadvantages. A mobile clinic, in addition to being less expensive to purchase and operate, can be deployed to several locations. However, depending on the specific service model, a mobile clinic may not offer the level of amenities that a permanent clinic could offer. It may not be equipped to dispense prescriptions, or it may not offer x-rays when needed. Mobile clinics may best serve the community by providing health screens, general check-ups and similar services.

A bricks and mortar building would be in a position to offer a wider array of medical services because the building would likely be larger and better equipped than a mobile clinic. It may be in a position to fill prescriptions if the healthcare organization partners with a pharmacy provider on the project. These would be valuable services in particular for the transit-dependent community. A permanent building, and the services housed within, would also become part of the community, as reflected by its investment in the area. It is always there and visible, even if it may not be open at a specific time.

The primary strength of the modular version of the clinic is its ability to also be part of the community similar to the permanent building, yet the structure itself can be moved to a different location if needed.

In addition to working with Bi-State Development and the Federal Transit Administration (FTA) when proposing a development on or adjacent to a MetroLink station parking lot—assuming the land is owned by Bi-State Development—zoning approval from relevant municipalities would also be required. The North St. Louis County stations most likely to be considered for this development include the Rock Road MetroLink Station in the City of Pagedale, the Wellston station located in the City of Wellston, and the North Hanley MetroLink Station in unincorporated St. Louis County.

The hours of operation for a clinic at a MetroLink station would depend on the healthcare organization operating the facility. It would be logical to take advantage of the

busiest times at the station, when the greatest number of people are present, generally during rush hour when commuters pass through—particularly at the North Hanley MetroLink Station.

It should be noted that, while the University of Missouri St. Louis (UMSL) has two stations on the Red Line going through North St. Louis County (UMSL South and UMSL North), neither are viable candidates for development of a clinic. The University, through its School of Optometry, built a medical office building near the UMSL South Station. The Optometry clinic will have the capability of addressing the community's vision care. The university is also evaluating the possibility of leasing space in the same building to a healthcare provider.

Based on the data, while a “brick and mortar” facility might eventually be considered at a MetroLink station, at this time it is not likely to be the preferred option given associated capital and operating costs. However, with the distribution of significant need areas across the North County area in relation to MetroLink stations, health and public transportation officials should consider the use of a mobile clinic to impact multiple need areas. As the mobile version of the clinic was determined to be the most feasible approach, and given the more versatile nature of a mobile clinic, the next section explores mobile clinics in detail.

MOBILE CLINICS

MOBILE MEDICAL CLINICS ARE PARTICULARLY SUCCESSFUL IN REACHING VULNERABLE POPULATIONS THAT HAVE POORER HEALTH AND LESS-THAN-OPTIMAL ACCESS TO HEALTHCARE. By traveling to these communities and offering affordable or free services, mobile clinics remove logistical barriers and challenges such as transportation issues, difficulties making appointments, long wait times, complex administrative processes, and financial obstacles such as health insurance requirements and co-payments.¹⁰ Several

¹⁰ Caterina F. Hill, et.al. Mobile Health Clinics in an Era of Reform. *The American Journal of Managed Care*. 2013, Volume 20(3).

studies have found that mobile clinics are successful at improving screening and identifying high rates of chronic and infectious disease among underserved populations. Improved screening allows mobile clinics to deploy interventions that improve treatment and prognosis.¹¹ Many mobile clinics provide ongoing support for chronic disease management to vulnerable populations, in addition to providing access to primary care appointments. Mobile clinics are able to leverage their ability to overcome barriers to access and build trusting relationships to reduce disparities, improve health, and reduce costs. These clinics-on-wheels travel into the heart of at-risk communities, often delivering preventative care and health education, filling critical gaps in care, and in many cases, addressing social determinants of health, such as food insecurity, legal needs, and housing.¹²

There are an estimated 2,000 mobile health clinics in the United States serving approximately five (5) to six (6) million people annually,¹³ offering a wide variety of services. Figure 12 shows the services provided by Mobile Medical Clinics in the U.S. in 2015. Not surprisingly, prevention, primary care and dental services were the most widely-offered services. As noted in Figure 13, just over half of these patients (51.1 percent) did not have insurance when they entered the clinic, while just over a third (36.6 percent) had public health insurance, such as Medicaid. The remaining 11.8 percent had private insurance.¹⁴

The average mobile clinic in the U.S. serves less than 2,000 visitors a year, although a small percentage see as many as 5,000 patients annually. Just over half of those visitors are under the age of 40.



Wellston MetroLink Station

¹¹ Caterina F. Hill, et.al. Mobile Health Clinics in an Era of Reform. *The American Journal of Managed Care*. 2013, Volume 20(3).

¹² Jennifer Bennet, et.al. The Emerging Business Models and Value Proposition of Mobile Health Clinics. *The American Journal of Accountable Care*. 2015.

¹³ Ibid.

¹⁴ Mobile Medical Map.

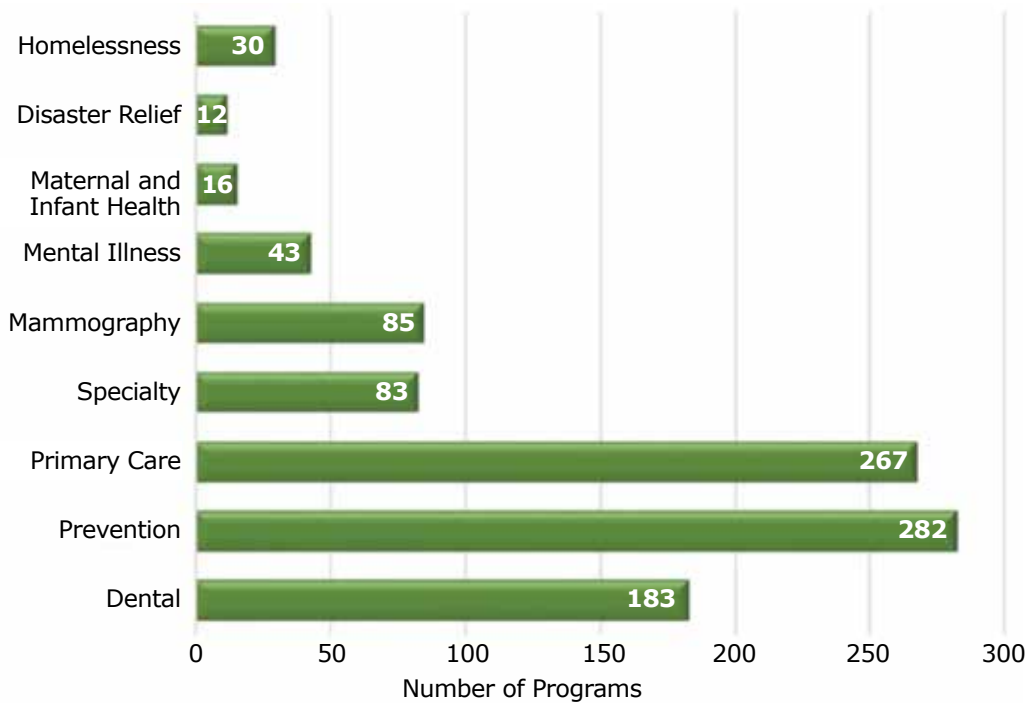
Types of Services Provided by Mobile Medical Clinics in U.S. (2015)

Figure 12. Types of services provided by Mobile Medical Clinics in the U.S. in 2015.
(Source: Mobile Health Map)

23

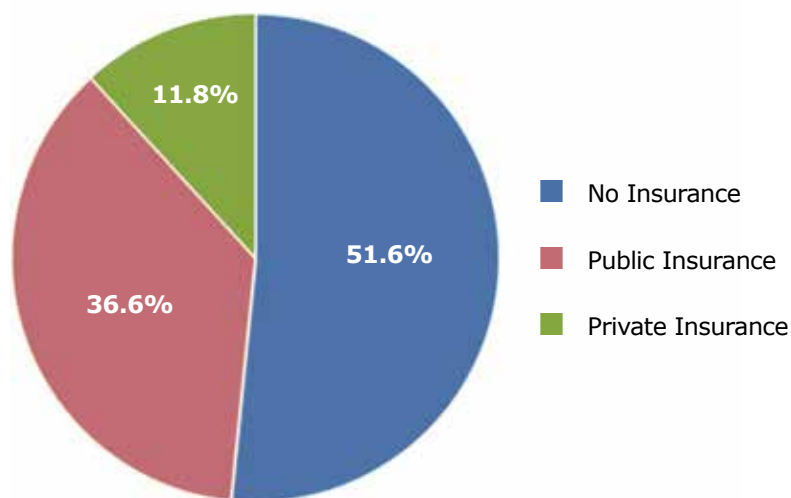
Mobile Medical Clinic Insurance Source, U.S. (2015)

Figure 13. Source of insurance for Mobile Medical Clinic patients in the U.S. in 2015.
(Source: Mobile Health Map)

Regardless of the services offered, there are a number of staffing variations for mobile clinics. Key staff positions include:

- Healthcare practitioner: dentist, physician, physician assistant;
- Nurse or nurse assistant;
- Registration/Administrative clerk, perhaps also serving as driver;
- Community health or social worker;
- Security; and
- Pharmacy, (if applicable).

Research shows that mobile health clinics can provide a significant return on investment (ROI). The Family Van—a mobile health clinic serving the Greater Boston area—modeled the quality adjusted life-years gained by the prevention activities conducted and the savings from unnecessary emergency department visits, and found that their services resulted in a \$30 return on investment for every \$1 invested, equal to \$3 million saved through reduction in visits to the emergency department and more than \$17 million saved in total annual value of life-years saved.¹⁵

24

A follow-up study found that the blood pressure screenings and hypertension counseling provided on the Family Van led to a 32.2 percent decline in the relative risk of myocardial infarction and a 44.6 percent decline in the relative risk of stroke among patients. These reductions, coupled with reduced unnecessary emergency department visits, translated to \$1.6 million in savings over 36 months, or an ROI of \$1.3 per \$1 invested. Aside from the Family Van, other data also suggest cost-effectiveness of mobile clinics. Aggregate data collected by the Mobile Health Map indicate a national estimate of \$14 ROI per \$1 invested in a mobile clinic.



North Hanley MetroLink Station

¹⁵ Mobile Medical Map.

HEALTHCARE PROVIDERS INTERVIEWS

IN PREPARING THIS FEASIBILITY STUDY, THE BI-STATE DEVELOPMENT RESEARCH INSTITUTE INTERVIEWED SEVERAL HEALTHCARE PROFESSIONALS IN THE ST. LOUIS REGION, REPRESENTING A BROAD RANGE OF SERVICE PROVIDERS IN THE COMMUNITY. All of those interviewed clearly believe that significant health needs exist in the St. Louis region. When presented with the concept of a medical clinic co-located at the MetroLink stations, the providers thought a facility like this would be well-positioned to service the populations within those areas. While most providers believed mobile units should be considered as part of the solution, most viewed health care needs as a symptom of more significant sociodemographic and socioeconomic concerns. All those interviewed expressed concern that, if not done appropriately, this program could cause more harm than good, particularly if it adds just another approach to “episodic” care delivery. It is important that the clinics offer services in a consistent manner, with a schedule that is continuously promoted. Additionally, they noted that collaboration and partnerships would be the most critical component of the efficacy of the clinics, and should be established from the onset. Continuity of care is of critical importance. As such, any healthcare services provided at MetroLink locations must not be “isolated” from the rest of the healthcare system.

25

Critical success factors include:

- Partnerships with area healthcare systems and providers;
- Post-grant funding plan for operational sustainability; and
- Consistent schedule and services.

They also believed services should generally focus on preventative and/or primary care services. Ideally, an expanded set of services would focus on chronic disease monitoring and management, although success in this area requires “linkage” with a primary care medical home or other provider for follow-up care. Other specific services or areas of need cited include:

- Dental care;
- Flu shots;
- Health education;

- Mental health and substance abuse treatment;
- Pharmacy support;
- Routine checks and screenings; and
- Social services support.

In general, most felt that MetroLink locations are well positioned in or near the areas of greatest need. These areas, when prioritized, were identified as North St. Louis City, South St. Louis City and North St. Louis County. Finally, this program needs to be part of a long-term solution. Partnerships must be established early on to help with post-grant sustainability given the largely uninsured patient base. They recommended a number of additional resources to consider, including:

- The Ferguson Commission health-related recommendations;
- For the Sake of All's school health clinics. Physicians are established as or under Federally Qualified Health Centers to obtain needed reimbursement;
- Inclusion on United Way 211 resource list;
- St. Louis' Integrated Health Network;
- Regional Health Commission; and
- Community Health Access Program (CHAP) at BJC Christian Hospital.

Our sincere gratitude goes to the following for offering their ideas:

- Sally Altman; Consultant, For the Sake of All;
- Jennifer Cordia, VP/CNO, Christian Hospital (BJC);
- Bethany Johnson-Javois; CEO, Integrated Health Network;
- Karley King; System Community Benefits Manager, BJC Healthcare System;
- Sharon Neumeister, RN, BSN, MA; Director, Mercy Neighborhood Ministry;
- Rebecca Poindexter, Manager, Mental Health and CHAP, Christian Hospital (BJC); and
- Robert Freund, Jr. CEO of the St. Louis Regional Health Commission.

The list of interview questions is included at the end of this report as Appendix II.

CONCLUSION: GOING FORWARD

This research suggests that a variety of priority centers exist for further consideration along the MetroLink system, including:

- North Hanley Station – Located in a Tier 1 community, significant daily ridership, moderate population density and rate of poverty;
- Rock Road Station – Located in a Tier 1 community, significantly high rate of poverty, moderate daily ridership and population density; and
- Wellston Station – Located in a Tier 1 community, moderate daily ridership, moderate population density and significant rate of poverty.

As the maps in Figures 3 through 7 show, there is a great deal of need in North St. Louis City and North St. Louis County beyond the areas where MetroLink stations are located. Two Metro Transit Centers lie in the heart of the most affected areas:

- The North County Transit Center in Ferguson, Missouri (number 1 in Figure 11) is located in a Tier 1 zip code with a moderate rate of poverty with significant population density and daily ridership. Opened in 2017, this facility serves as the hub of North St. Louis County MetroBus service and would be prime location for one of the medical facilities outlined in this report.
- The Riverview Transit Center, located in North St. Louis City (number 2 in Figure 11), would also be a prime location for a medical clinic. Located in a Tier 2 zip code, with a significantly high rate of poverty, moderate daily ridership and high population density, this transit center serves as the core of North St. Louis City MetroBus ridership, and, as noted in Figure 8, is not close to an existing FQHC or other medical facility.

APPENDIX I

Assumptions for Pro-forma

1. 1,500 square-foot building (permanent or modular);
2. 6,000 square-feet of land at \$5.00/square-foot;
3. 10 parking spaces at \$500/space upgraded striping, sealing;
4. Permanent building cost of construction at \$300/square-foot;
5. Modular building cost with installation \$225,000;
6. Mobile unit cost of \$230,000;
7. \$25,000 site work cost for permanent or modular unit;
8. 15 percent project soft costs;
9. No impact fees;
10. Annualized cost of financing equals 6 percent;
11. Operating expenses estimated at \$20,000 annually, including taxes, insurance, janitorial, water, sewer, gas and electric; and
12. Security costs based on \$17.50/hour for daytime and nighttime requirements for permanent and modular units.
13. Cost of Mobile Clinic does not include the cost of nighttime storage, if applicable.
14. Includes cost per location.

APPENDIX II

MetroLink On-Site Medical Services Assessment Interview Questions

1. Please provide some background on yourself, role in your organization, and familiarity with the Bi-State Development Research Institute.
2. Within your organization, how have emergency department volumes trended in recent years?
3. Do you have a sense for the geographies/areas that contribute most highly to your volumes?
4. What portion of emergency department volume at your facility would you estimate to be non-urgent visits?
5. Has the hospital identified heavy utilizers? If so, are efforts being made to limit inappropriate utilization? If yes, have those efforts been successful? Why...or why not?
6. What are the most prevalent disease states within the community that contribute most highly to inappropriate emergency department utilization at your facility?
7. Are you familiar with low/no cost primary or urgent care options within the community and how well they are or aren't currently utilized?
8. Regarding potential mobile services at MetroLink locations:
 - a. What services are most critical to be provided?
 - b. Based on the experience of your patients, are there certain areas/locations where such a service is most needed?
 - c. Are there certain days or hours of operation that would be most appropriate?
 - d. What about composition of staffing? Source(s) for staff?
 - e. What would be the best method(s) for "spreading the word" once services are made available?
 - f. What do you see as being the greatest barriers to success?
 - g. What are the most critical success factors?
9. Do you believe mobile MetroLink services would likely benefit the hospital in terms of impacting emergency department utilization and/or population health?
10. What level of interest do you feel is available re: partnership between Bi-State and local hospitals on potential MetroLink care sites? How might a partnership take place...what might it look like?

BI-STATE DEVELOPMENT
RESEARCH
INSTITUTE

 A Bi-State Development Enterprise

One Metropolitan Square
211 North Broadway, Suite 700
St. Louis, MO 63102-2759
314.982.1400