



BLOOMINGTON NORMAL COA

Final Report

March 2015



COMPREHENSIVE OPERATIONAL ANALYSIS



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EXECUTIVE SUMMARY

Connect Transit has embarked on an ambitious plan to increase the appeal and usability of public transportation services in the Bloomington-Normal region. In recent years, the agency has focused on improving customer-facing amenities. The Bloomington-Normal Public Transit System was rebranded as Connect Transit in 2012, introducing a new logo and redesigned website. Riders can now access real-time bus arrival information online and on mobile devices. In 2015, Connect Transit also installed permanent bus stops for the first time. Over the next few years, the agency will acquire new buses, install modern fare boxes, and implement new fare payment options. These improvements have led to 40% ridership growth in the last three years, as well as national recognition from the American Public Transportation Association. The time is now right to focus on Connect Transit's core product – its service.

In order to enhance transit service for existing riders and attract new passengers, Connect Transit conducted a Comprehensive Operational Analysis (COA) with the assistance of Nelson\Nygaard Consulting Associates. The goals of this study included identifying the strengths and weaknesses of the existing system, and developing recommendations to improve service. Overall, the aim of the Connect Transit COA was to create a transit network that:

- Supports and meets the needs of transit riders in Bloomington-Normal
- Provides an attractive mobility option for as many residents and visitors of Bloomington-Normal as possible
- Builds upon recent capital investments and amenity enhancements
- Is operated in a cost effective and efficient manner.

The Connect Transit COA study consisted of nine major work tasks:

- **Market Analysis:** An assessment of existing and potential demand for transit service based on population and employment density; socio-economic and demographic characteristics; land use and the built environment (Chapter 2).
- **Analysis of Existing Services:** An evaluation of the overall Connect Transit system, as well as detailed analyses of each bus route operating in Bloomington-Normal. Both analyses examined ridership patterns, service design, and relative route productivity (Chapter 3). Full profiles of each route are included in Appendix D.
- **Development and Analysis of Service Improvement Options:** Using findings from the Market Analysis, Analysis of Existing Services, and Customer and Stakeholder Input, the Nelson\Nygaard team developed a series of service improvement strategies and route modifications (Chapter 4).
- **Final Recommendations:** A set of recommendations designed to better align service with local and regional demand. Final recommendations incorporated elements of the preliminary service improvement options that were most financially feasible and most

- well-received by Connect Transit staff and stakeholders, including members of the general public (Chapter 5).
- **Potential Funding Sources:** An analysis of potential new funding sources that Connect Transit could use to support enhanced services and new capital expenditures (Chapter 6).
 - **Service Standards and Guidelines:** An overview of standards commonly utilized by transit agencies to measure performance. Potential performance standards and goals were developed through a peer agency review and an analysis of Connect Transit's existing service performance (Chapter 7).
 - **Document Review:** An overview of recent planning studies whose findings and recommendations will help inform the COA process (Appendix A.).
 - **Funding and Costs:** An analysis of Connect Transit's existing funding sources, ongoing operations costs, and capital costs (Appendix B.).
 - **Customer and Stakeholder Input:** An analysis of comments, ideas, and suggestions from Connect Transit riders, members of the non-riding public, and other stakeholders. Connect Transit made considerable efforts to ensure the study was conducted in an open and inclusive manner. Each constituent group was presented with numerous opportunities to learn more and comment about the COA process and findings (Appendix C.).

DEVELOPMENT OF SERVICE IMPROVEMENT OPTIONS AND FINAL RECOMMENDATIONS

Over the course of the COA study, Connect Transit and Nelson\Nygaard conducted a robust community outreach effort, including five public meetings and surveys conducted both online and on-board buses. Through this process, the project team interacted with over 800 Bloomington-Normal residents. The outreach process found that three-quarters of Connect Transit riders are almost entirely reliant on transit for mobility, primarily because they do not own or have access to an automobile. Survey respondents indicated a preference for adding additional early morning and late night service on weekdays, as well as introducing Sunday service.

Based on the existing service evaluation and community feedback, the Nelson\Nygaard team developed a redesigned Bloomington-Normal bus network (Figure 1). The proposed network streamlines existing services and provides a framework for future growth. Service is maintained to nearly all currently served neighborhoods and destinations, apart from a few locations on the periphery of the urbanized area where service has been historically unproductive. The proposed network facilitates one-seat rides to Downtown Bloomington and Uptown Normal, while also emphasizing new transfer opportunities throughout the system. The new services should reduce travel times for many existing riders and make transit easier to understand for new customers.

The Nelson\Nygaard team developed two potential scheduling scenarios for the proposed Connect Transit bus network:

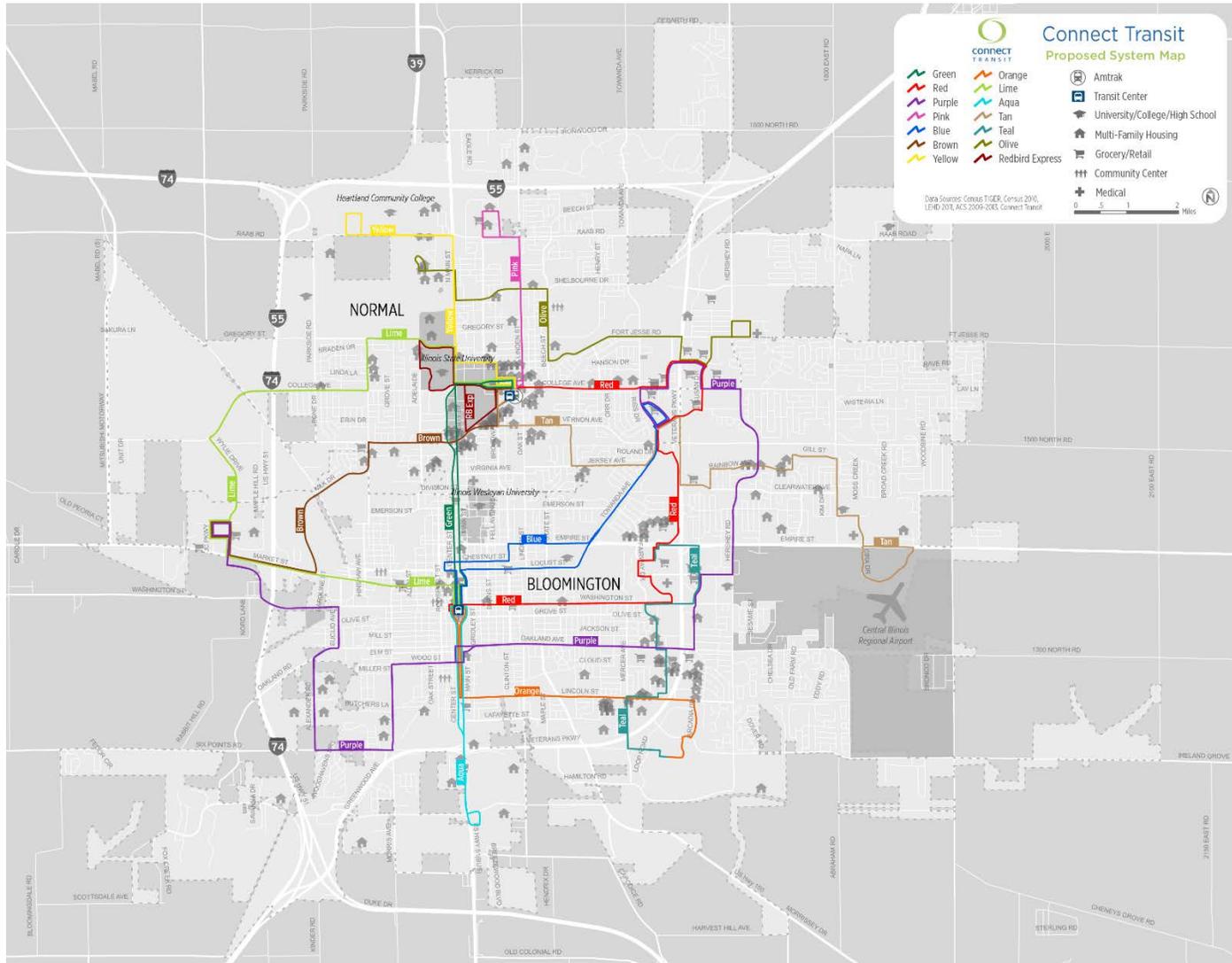
- The first scenario, referred to as "Maximize Weekday Service," is designed to maximize weekday service frequency with only a minor increase in annual operating expenses. On weekdays, 13 of 14 proposed bus routes would operate at least every 30 minutes during peak service. Off-peak service frequency and span vary based on each route's anticipated ridership and travel market. All routes would operate at least once per hour on Saturday,

- with the highest ridership routes running every 30 minutes or less. This scenario would increase total operating costs by 6%.
- The second scenario, called “Add Sunday Service,” introduces comprehensive Sunday service in Bloomington and Normal. Sunday service would be funded by reallocating some weekday service, while also increasing the total number of service hours provided by Connect Transit. This scenario would increase total operating costs by 17%.

Based on available financial resources and community feedback, the Nelson\Nygaard team recommends that Connect Transit adopt the Maximize Weekday Service scenario. This scenario was estimated to increase Connect Transit ridership by 19% on weekdays and 2% on Saturdays. The ridership estimation process cannot fully account for how new riders will use the proposed services, or how existing riders will change their behavior given new destinations and transfer opportunities. Therefore, it is possible that ridership on some routes, or the system as a whole, will increase more substantially than predicted.

About 57% residents in the existing service area would receive significantly increased service under the recommended scenario. Over 92.5% of the entire Connect Transit service area would continue to have access to fixed-route bus services, and just 18% of the population would experience a reduction in service. Neighborhoods with increased service have a greater proportion of low-income and minority residents than areas with decreased service. Thus, the recommended service scenario would not represent a negative disparate impact under Title VI.

Figure 1 Proposed Connect Transit System Map



1 INTRODUCTION

PROJECT BACKGROUND AND GOALS

The City of Bloomington and the Town of Normal began jointly operating transit service in 1972, when the Bloomington-Normal Public Transit System replaced National City Lines as the primary provider of public transportation in the region. Rebranded and renamed in 2012 as Connect Transit, the system now operates as an independent agency governed by a board of trustees appointed by the City of Bloomington and the Town of Normal. Connect Transit operates a fleet of 56 transit vehicles, employs 115 people, and provides more than 2 million rides per year.

Connect Transit has embarked on an ambitious plan to increase the appeal and usability of public transportation services in Bloomington-Normal. In recent years, the agency has focused on improving customer-facing amenities. The Bloomington-Normal Public Transit System was rebranded as Connect Transit in 2012, introducing a new logo and redesigned website. Riders can now access real-time bus arrival information online and on mobile devices. In 2015, Connect Transit also installed permanent bus stops for the first time. Over the next few years, the agency will acquire new buses, install modern fare boxes, and implement new fare payment options. These improvements have led to 40% ridership growth in the last three years, as well as national recognition from the American Public Transportation Association.

To build upon recent ridership gains and ensure that Connect Transit continues to respond to the mobility needs of Bloomington-Normal residents, the agency has initiated a Comprehensive Operational Analysis (COA). Through the COA process, Connect Transit and Nelson\Nygaard Associates assessed the strengths and weaknesses of the existing system, and identified opportunities to improve service and increase ridership. The overall goal of the Connect Transit COA was to create a transit network that:

- Supports and meets the needs of transit riders in Bloomington-Normal
- Provides an attractive mobility option for as many residents and visitors of Bloomington-Normal as possible
- Builds upon recent capital investments and amenity enhancements
- Is operated in a cost effective and efficient manner.

GUIDING PRINCIPLES

Transit services are most successful when they are easy to use and intuitive to understand. Many elements that increase transit usability are directly related to network design and scheduling. The recommendations presented in this document are grounded in the following set of guiding principles designed to create a simple, yet highly functional transit system:

- **Service Should Operate at Regular Intervals:**
 - In general, people can easily remember repeating patterns, but have difficulty remembering irregular sequences.
- **Routes Should Operate Along a Direct Path:**
 - The fewer directional changes a route makes, the easier it is to understand. Circuitous alignments are disorienting and difficult to remember.
- **Routes Should Be Symmetrical:**
 - Routes should operate along the same alignment in both directions to make it easy for riders to know how to get back to where they came from.
- **Routes Should Serve Well Defined Markets:**
 - Routes should include strong anchors, but should avoid unintended service duplication.
- **Service Should be Well Coordinated:**
 - At major transfer locations, schedules should be coordinated to the greatest extent possible to minimize connection times for the predominant transfer flows.

2 MARKET ANALYSIS

The success of transit service is determined as much by the environment in which the service operates as by the design of the service itself. Some environments are more conducive to transit service than others. The purpose of the Market Analysis is to understand both the need and potential for transit service by examining the following market characteristics:

- **Population and employment density**, which are the strongest indicators of transit demand. Put simply, larger numbers of people living and working in close proximity lead to a stronger market for transit.
- **Socio-economic characteristics**, such as income, auto availability, age, and disability status are characteristics indicative of a higher propensity to use transit, and thus are an essential part of market demand.
- **The location of major activity centers**, which indicates where people desire to travel.

Each of these factors indicates demand for transit, but ridership is also affected by urban form, land use, the pedestrian environment, and the convenience of other alternatives. For example, nearly all transit riders are also pedestrians on at least one end of their trip. Thus, the safety and comfort of the walking environment strongly affects ridership. Likewise, areas with minimal traffic congestion and ample (and cheap) parking will have a more difficult time attracting transit riders than areas with a variety of “pain points” for drivers.

The Market Analysis presented in this chapter is a starting point that broadly identifies regions, neighborhoods, and activity centers that may be supportive of transit service. Data sources for this analysis include the U.S. Census, the 2009-2013 American Community Survey, and online research. Additional market context was provided by reviewing previous planning documents and studies, including in Appendix A.

TRANSIT POTENTIAL

Transit service is generally most efficient in areas with high concentrations of people and businesses. Combining both residential and employment densities yields a transit potential index. This index shows where the conditions are most suitable for transit service based on the number of jobs and people per acre

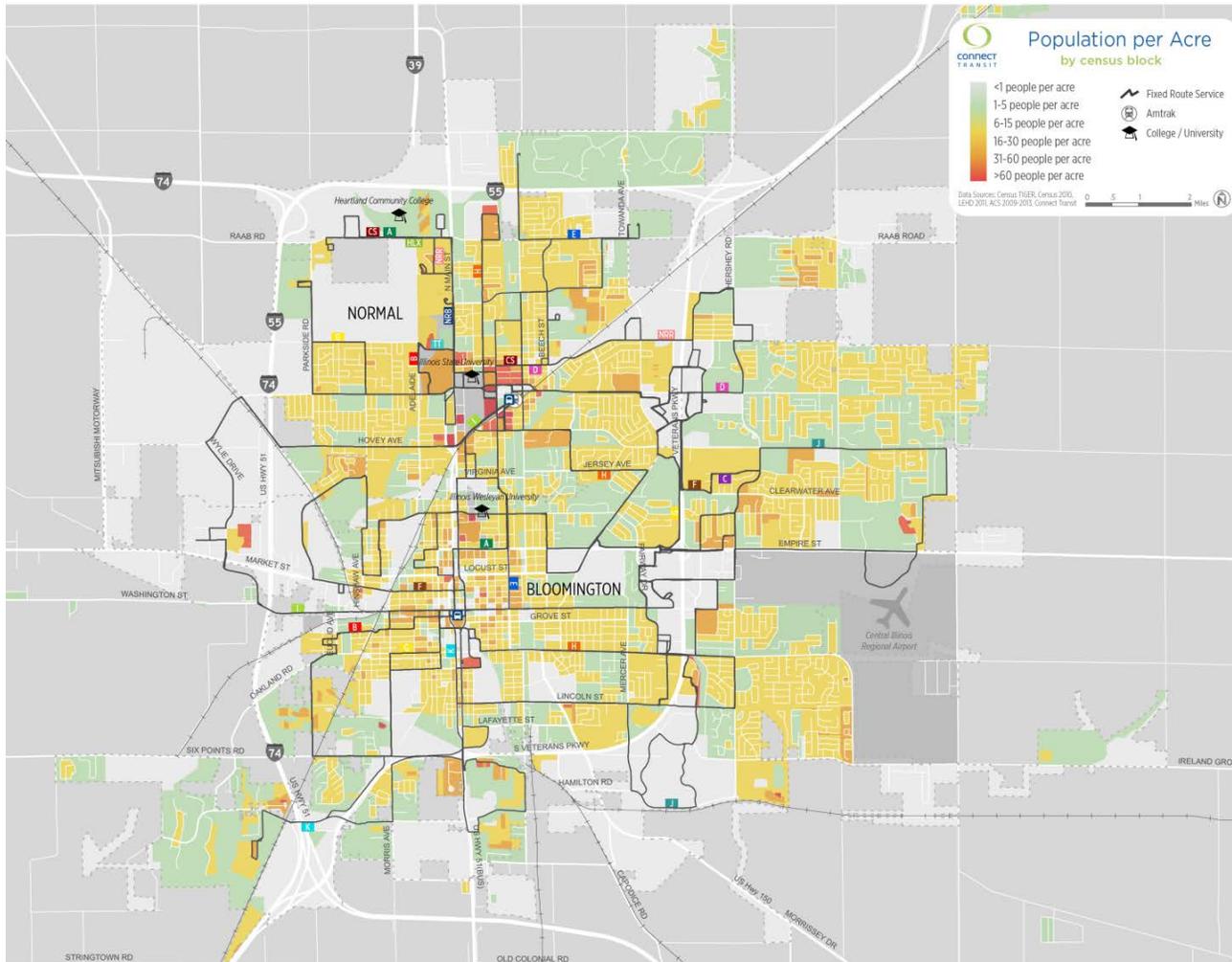
Population Density

Public transportation is most efficient when it connects population and employment centers where people can easily walk to and from bus stops. The reach of transit is generally limited to within $\frac{1}{4}$ to $\frac{1}{2}$ mile of the transit line (depending on the built environment), or a 10-minute walk, and thus the size of the travel market is directly related to the density of population in that area. As a general rule, a density of 3-6 households, or 7-15 people, per acre is needed to support base-level fixed-routes transit service (service every 60 minutes). Lower-density communities may justify lower-frequency or demand response service. Figure 2 below shows the population density by Census block group in the City of Bloomington and the Town of Normal. The yellow color matches with the densities that can support at least hourly service; areas with darker colors can support more frequent service.

Key findings from the Population Density map include the following:

- Much of Bloomington-Normal has moderate population density (6-15 people per acre).
- Most portions of the Bloomington-Normal region that have transit-supportive population densities are served by at least one Connect Transit route.
- The highest density areas around Illinois State University, Illinois Wesleyan University and downtown Normal are served by several transit lines.
- Pockets of moderate to moderate-high levels of population density are present in neighborhoods of Bloomington and Normal east of Hershey Road. Based on their population density, these neighborhoods appear to be generally underserved by Connect Transit.

Figure 2 Population Density



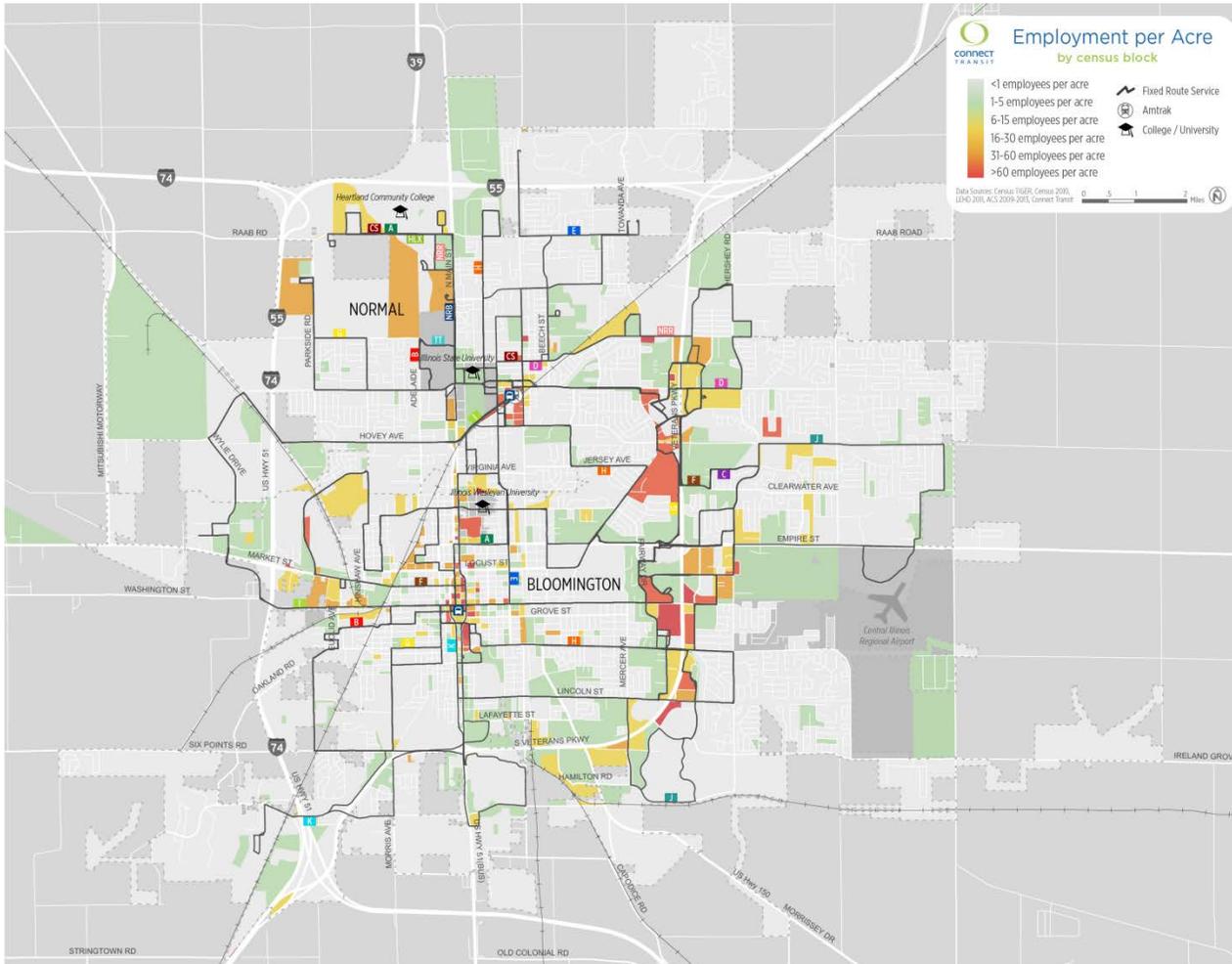
Employment Density

The location and number of jobs is a second strong indicator of transit demand, as traveling to and from work accounts for the largest single segment of transit trips in most markets. Transit that serves areas of high employment density provides key connections to job opportunities. The minimum level of employment density that is typically needed to support hourly transit service is five jobs per acre. This corresponds to the yellow color in Figure 3. Higher densities can support greater frequency.

The employment density presented in Figure 3 reveals several findings:

- As would be expected, relatively high employment density is concentrated in a few key pockets of the service area. These locations include Downtown Bloomington near N. Main Street and W. Front Street, and Uptown Normal in the vicinity of Uptown Station.
- Additional pockets of employment density exist along Veterans Parkway, including the Shoppes at College Hills, Country Financial, Eastland Mall, State Farm Plaza, and the State Farm Corporate Campus.
- High employment density along Veterans Parkway would appear to make it a natural transit corridor, but the design of the roadway, including its wide cross-section, long blocks, and few pedestrian features, makes it a difficult environment to serve effectively with transit.
- Many areas served by Connect Transit routes have low levels of employment density, with fewer than 5 jobs per acre.

Figure 3 Employment Density



Major Employers

Identifying large employers in the Bloomington-Normal area is useful, not only because of the large concentration of jobs they represent, but also because of the marketing and other partnership opportunities that they may offer. Partnerships such as employer-supported transit passes, vanpool programs, and on-site transit coordinators can attract choice riders to a transit system and translate into higher system ridership over-all. The 20 largest employers in the Bloomington- Normal region, as reported by the Bloomington- Normal Area Convention and Visitors Bureau, are shown in Figure 4.

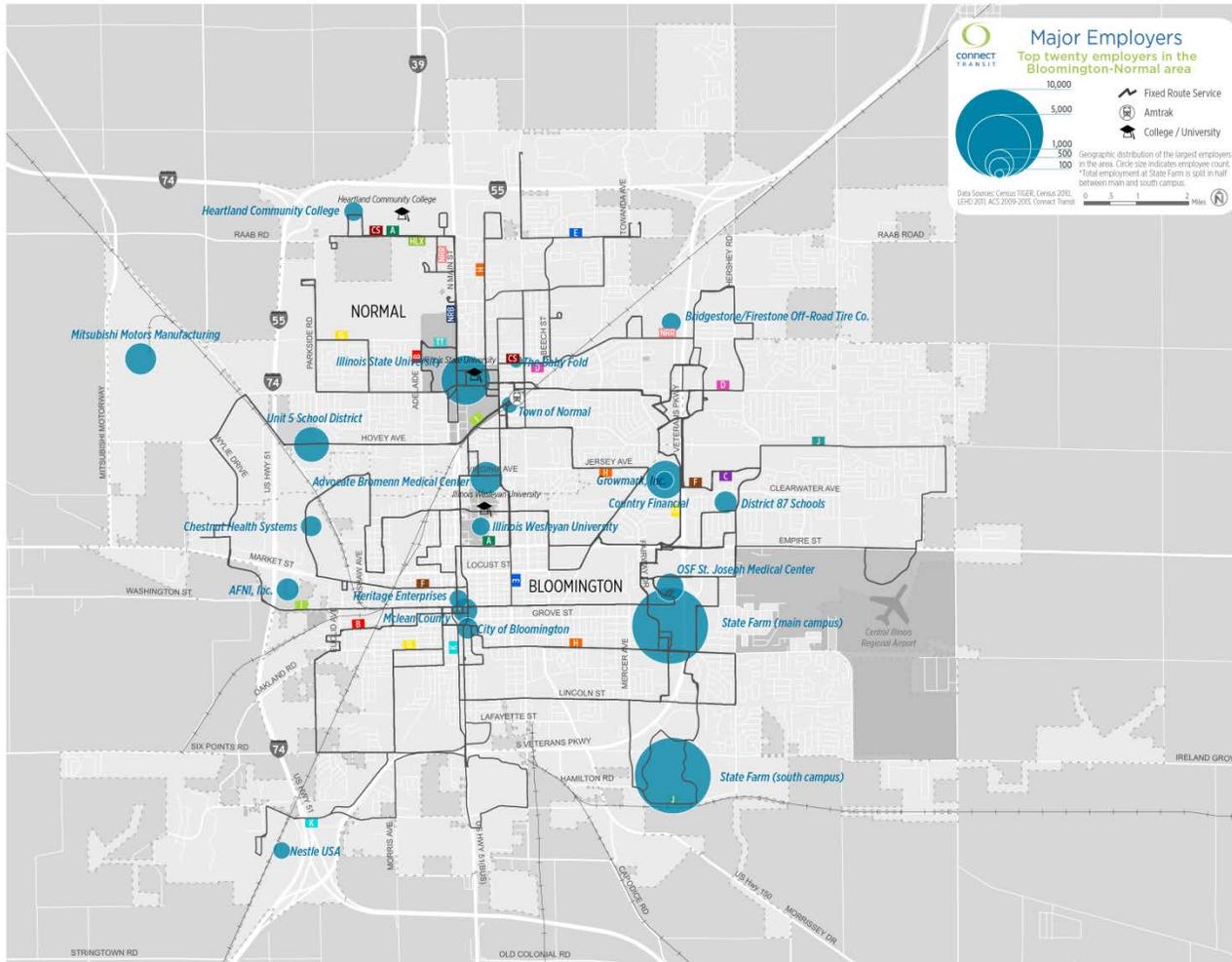
Figure 4 Top 20 Leading Employers in Bloomington- Normal

Employer	Employees	Employer	Employees
State Farm Insurance Companies	14,935	Chestnut Health Systems	605
Illinois State University	3,251	City of Bloomington	581
Country Financial	1,955	Bridgestone/ Firestone Off-Road Tire Co.	514
Unit 5 School District	1,674	Heartland Community College	500
Advocate Bromenn Medical Center	1,028	Heritage Enterprises	478
Mitsubishi Motors Manufacturing ¹	1,294	Illinois Wesleyan University	463
OSF St. Joseph Medical Center	1,028	Growmark, Inc	445
McLean County	806	Nestle USA	422
District 87 Schools	700	Town of Normal	367
AFNI, Inc	700	The Baby Fold	253

Some of the top employers listed in Figure 4 have more than one office in the Bloomington-Normal region. For instance, the State Farm Insurance Corporate Headquarters are located in southeast Bloomington off Ireland Grove Road, while the State Farm Plaza is located closer to the Eastland Commons Shopping Center. Similarly, the Unit 5 School district employs teachers and staff across the region. Figure 5 shows the location of the 20 top employers. All are covered by a Connect Transit route except for the Mitsubishi¹ plant. Large manufacturing and medical-based employers (such as Mitsubishi Motors¹, Bridgestone Tires, Advocate Bromenn and St. Joseph Medical Centers) often have multiple shifts, some of which fall outside traditional commute hours. In addition, manufacturing and other industrial facilities sometimes require large campuses that tend to be located outside of city centers. Combined, these factors can make manufacturing and medical facilities difficult to serve with traditional fixed-route transit service only. Other options such as vanpools and ride-matching can either complement or replace fixed-route service at these locations.

¹ This analysis of major employers was conducted in May 2015. Mitsubishi Motors Manufacturing suspended operations in Normal in August 2015.

Figure 5 Major Employers



Note: This analysis of major employers was conducted in May 2015. Mitsubishi Motors Manufacturing suspended operations in Normal in August 2015.

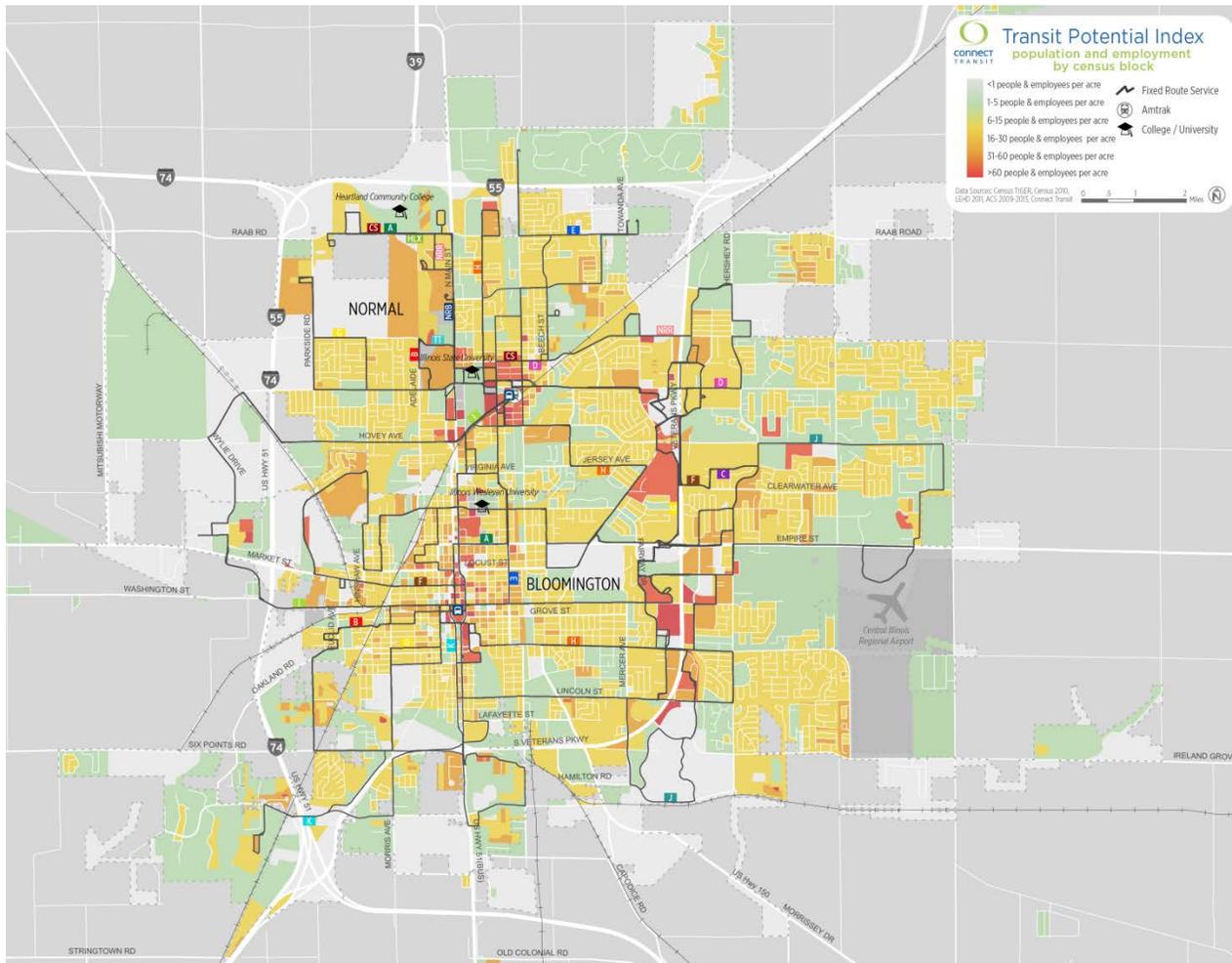
Transit Potential Index

The Transit Potential Index, shown in Figure 6, is a composite of the population and employment densities and is an indicator of the viability of fixed-route service in a particular area. A higher Transit Potential Index score for a census block group points to a higher likelihood of generating substantial transit ridership in that block group. For the transit potential of an area to be fully realized, however, the area must also have transit-supportive infrastructure such as sidewalks and crosswalks. Actual ridership is also highly dependent on service characteristics such as schedule and routing.

A review of the Transit Potential Index for the study area suggests:

- Transit potential is particularly high in Downtown Bloomington along Main Street from Illinois Wesleyan University to Wood Street.
- High transit potential exists in the Town of Normal, in the vicinity of the Illinois State University Campus and in the business district around the Circle.
- Nearly the entire Veterans Parkway corridor demonstrates moderate to high transit potential.
- Outlying pockets of transit potential include an area at Wylie Drive and Market Street in western Bloomington, and a few pockets just north of the airport.
- Much of Bloomington- Normal has moderate transit potential which is reflected in the current transit coverage of the Connect Transit network.

Figure 6 Transit Potential Index



TRANSIT NEED

Above all else, public transportation is a mobility tool. Certain population subgroups are more likely to use transit than other modes as their primary means of local and regional transportation. These groups include:

- **Older Adults**, who as they age, often become less comfortable or less able to operate a vehicle.
- **Individuals in Poverty**, typically because transit is less expensive than owning and operating a car.
- **Persons with Disabilities**, many of whom can't drive and or have difficulty driving.
- **Young adults**, who in general have a significantly higher interest in using many transportation options such as transit, walking, and biking and a lower interest in driving.
- **People without Access to a Vehicle**, whether it be by choice or due to financial or legal reasons, often have no other transportation options besides using transit.

Identifying areas with relatively high concentrations of these groups can help determine where the need for transit service is greatest. It should be noted, however, that high transit need does not necessarily mean that traditional fixed-route transit is ideal for an area. In some locations, the density of transit-dependent population is high, but the total population is still quite low, meaning that the transit potential of the area is also low. The maps in this section utilize the same scale as maps in the Transit Potential section to provide an equal understanding of potential and need. Each community, however, has its own priorities and may choose to focus resources on one or both markets.

Older Adults

Older adults (65 and older) are more likely to use transit than the general population. Many seniors are retirees, and as a result, take fewer daily trips. Some choose or are forced to stop driving due to health issues. Others simply prefer a car-free lifestyle.

Transit provides an important means for this population demographic to remain as active and independent as possible, and to age in place. As of 2010, 9.5% of Bloomington-Normal's population was 65 years of age or older.

Areas with higher densities of older adults in Bloomington- Normal are found primarily in downtown Bloomington and near the Illinois State University campus in Normal. The densest tracts are typically related to the presence of assisted living facilities. For example, Evergreen Place is located west of Illinois State University, and the Heartland Health Care Center sits near the Amtrak station. Currently the areas with the highest density of older adults are served by at least one, and sometimes multiple Connect Transit bus lines (Figure 7).

People with Disabilities

Residents with disabilities are another group with a high propensity for transit use. While many disabled individuals are eligible for Connect Mobility paratransit service, there has been a strong national trend toward "mainstreaming" in recent years. Mainstreaming encourages people with disabilities to use fixed-route transit service instead of paratransit service whenever possible. For

the user, this means a greater level of flexibility, as fixed-route service does not require advanced reservations, but less convenience since the passenger must walk or be dropped off at transit stops. For the transit operator, mainstreaming can result in cost reductions and greater service productivity by shifting trips from costly paratransit service to fixed-route service. For those with disabilities to reasonably be expected to rely on fixed-route service, however, the service must be physically and geographically accessible.

Six percent of Bloomington-Normal's adult population have a disability. As Figure 8 demonstrates, there are no particular hotspots of disabled residents in the service area. Instead, this population sub-group is distributed throughout the community, and served relatively well by existing Connect Transit routes.

People Living in Poverty

Poverty status is a strong indicator of a higher-than-average propensity to use transit because as income falls, the cost of owning and using a private vehicle becomes more burdensome, which makes transit a more attractive option. This analysis used the Census classification of poverty status to identify those living in poverty. Since disposable income is largely a factor of household size and household income, the Census considers household income and the number of members in the household in classifying a household as in poverty or not.

The Town of Normal has a significantly higher percent of population in poverty compared to Bloomington (31 versus 25 percent). The highest densities of individuals are located southeast of W. Beaufort Street and near the Amtrak station (Figure 9). The density may be in part due to clusters of apartment buildings and other higher density housing.

Youth and Young Adult Population

In the same way that older adults are more likely to ride transit than the general population, so are young adults and youth aged 15 to 21 who either cannot drive or do not own a vehicle. This demographic is also increasingly seeking alternative transportation options beyond the automobile. A recent survey of Millennials by Transportation for America and the Rockefeller Foundation reported that more than half of Millennials would prefer to live in a place where they do not have to rely on cars to get around, and two-thirds say access to high quality transportation will be one of their top three criteria when deciding where to live.

Youth and young adults make up 9% of Bloomington-Normal's population. As shown in Figure 10, the highest concentrations of this population are near universities, most noticeably Illinois State University and Illinois Wesleyan University. Additional concentrations of youth and young adult populations are near Martin Luther King Jr. Drive and Valley View Drive. Nearly all of the areas with youth and young adult densities above six people per acre are served by a Connect Transit route.

Households without a vehicle

For self-evident reasons, individuals without access to a vehicle represent a particularly strong market for transit. In some cases, individuals do not have access to an automobile for health, financial, or legal reasons, while others simply choose to live car-free. Currently, 2.5% of households in Bloomington-Normal do not have access to a vehicle.



From Figure 11 it is clear that there are low densities of zero-vehicle households. These households are generally concentrated in Downtown of Bloomington and Uptown Normal and served by one or more Connect Transit lines.

Figure 7 Density of Older Adults

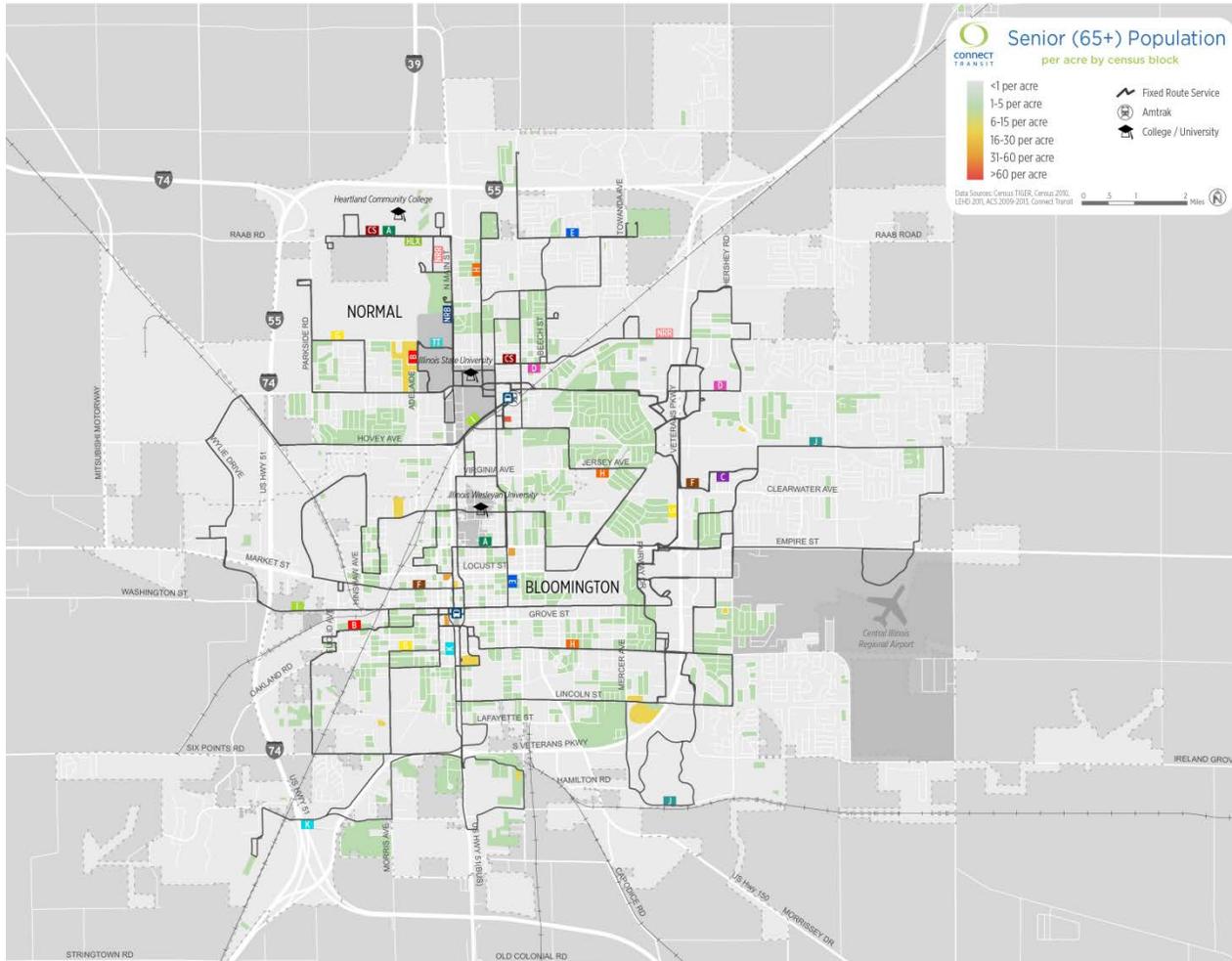


Figure 8 Density of Populations with Disabilities

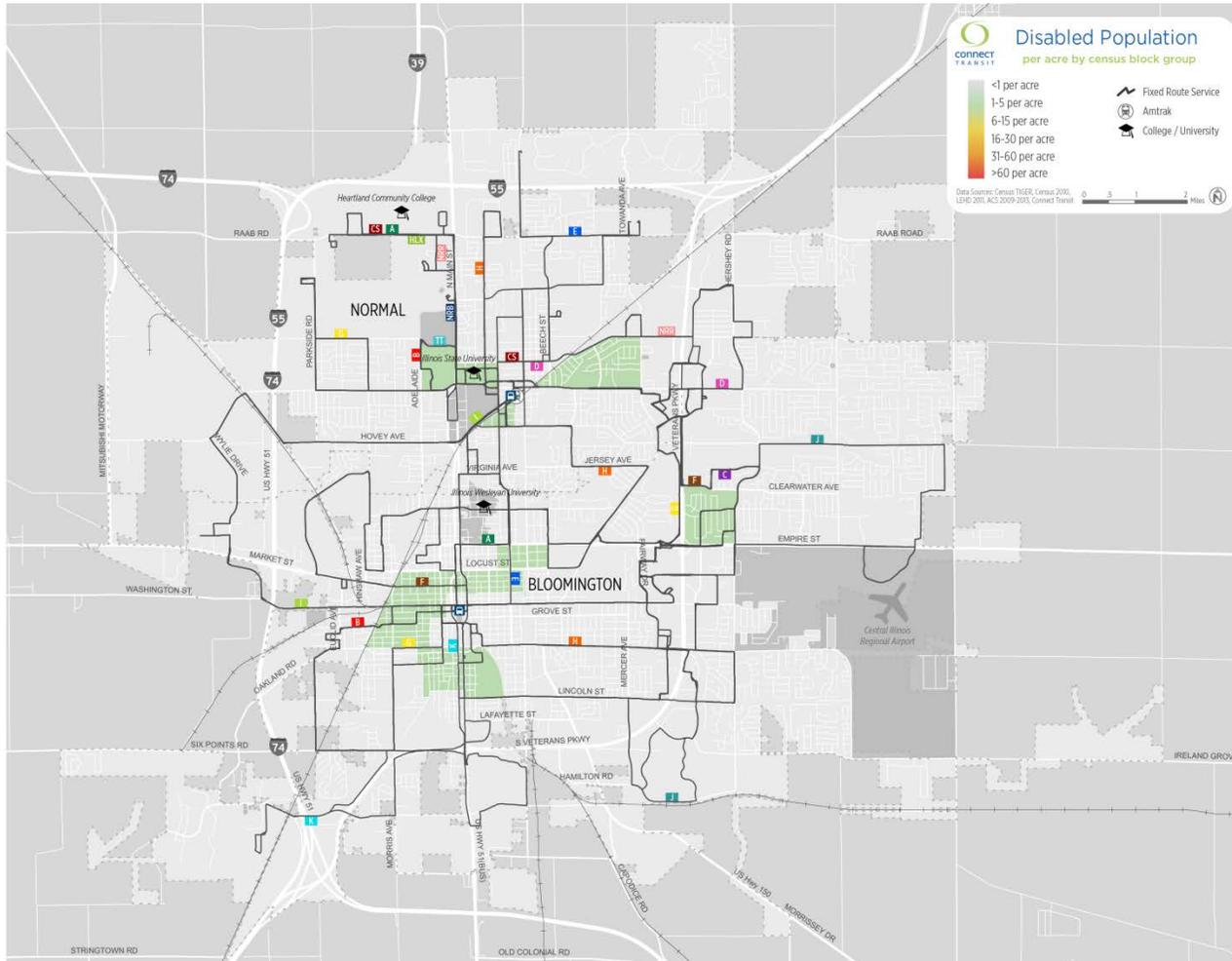


Figure 9 Density of Households Living in Poverty

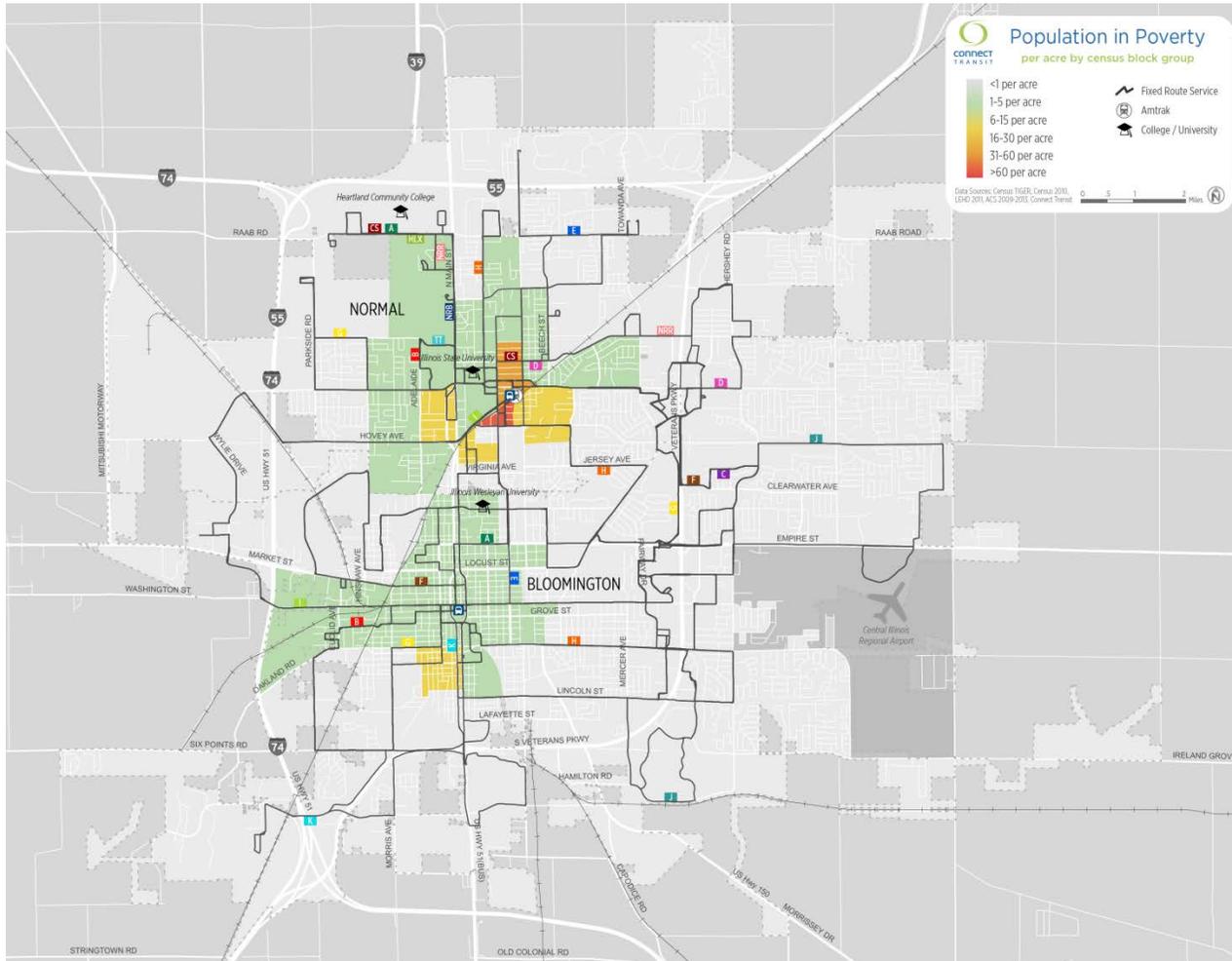
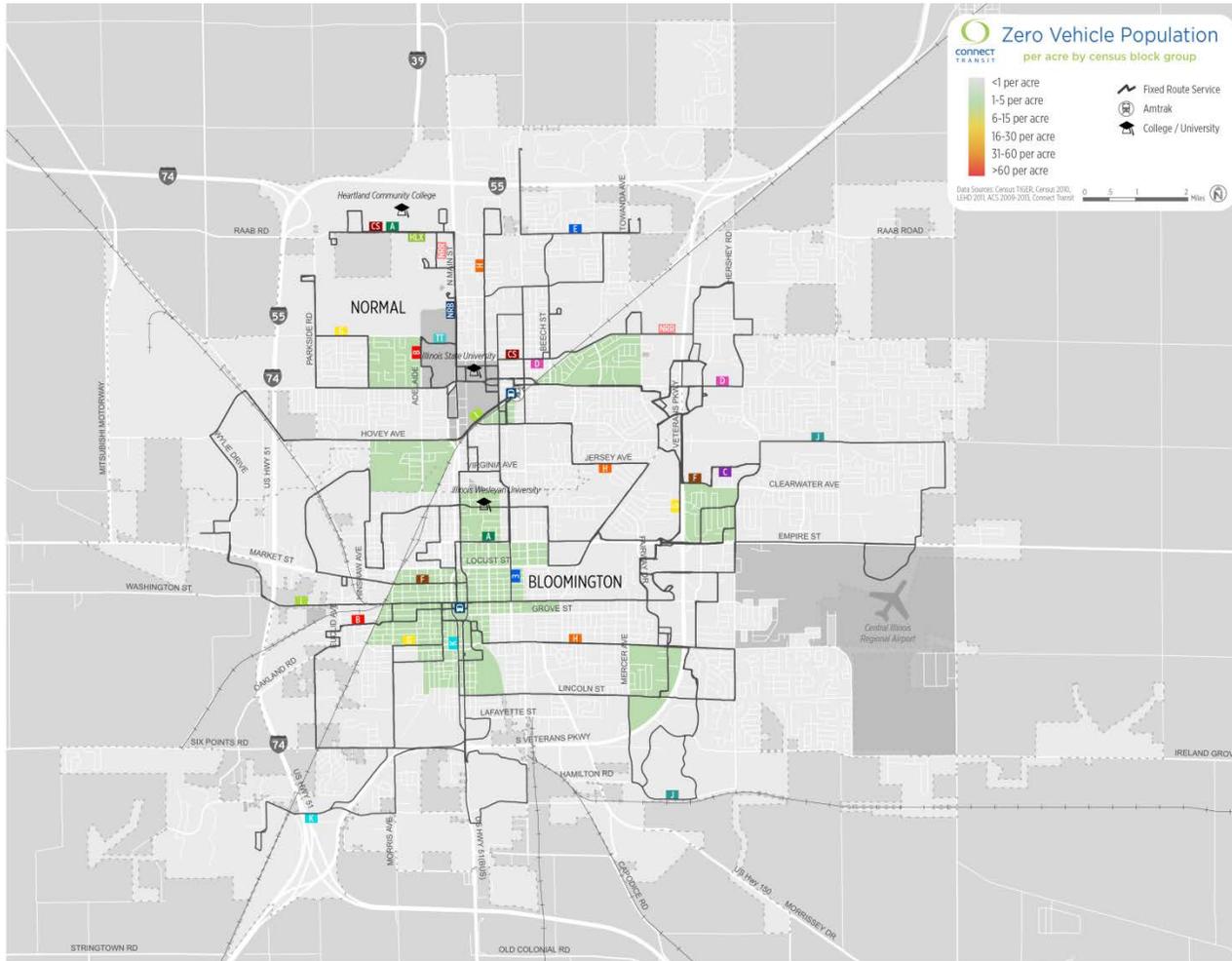


Figure 11 Density of Households without Vehicles



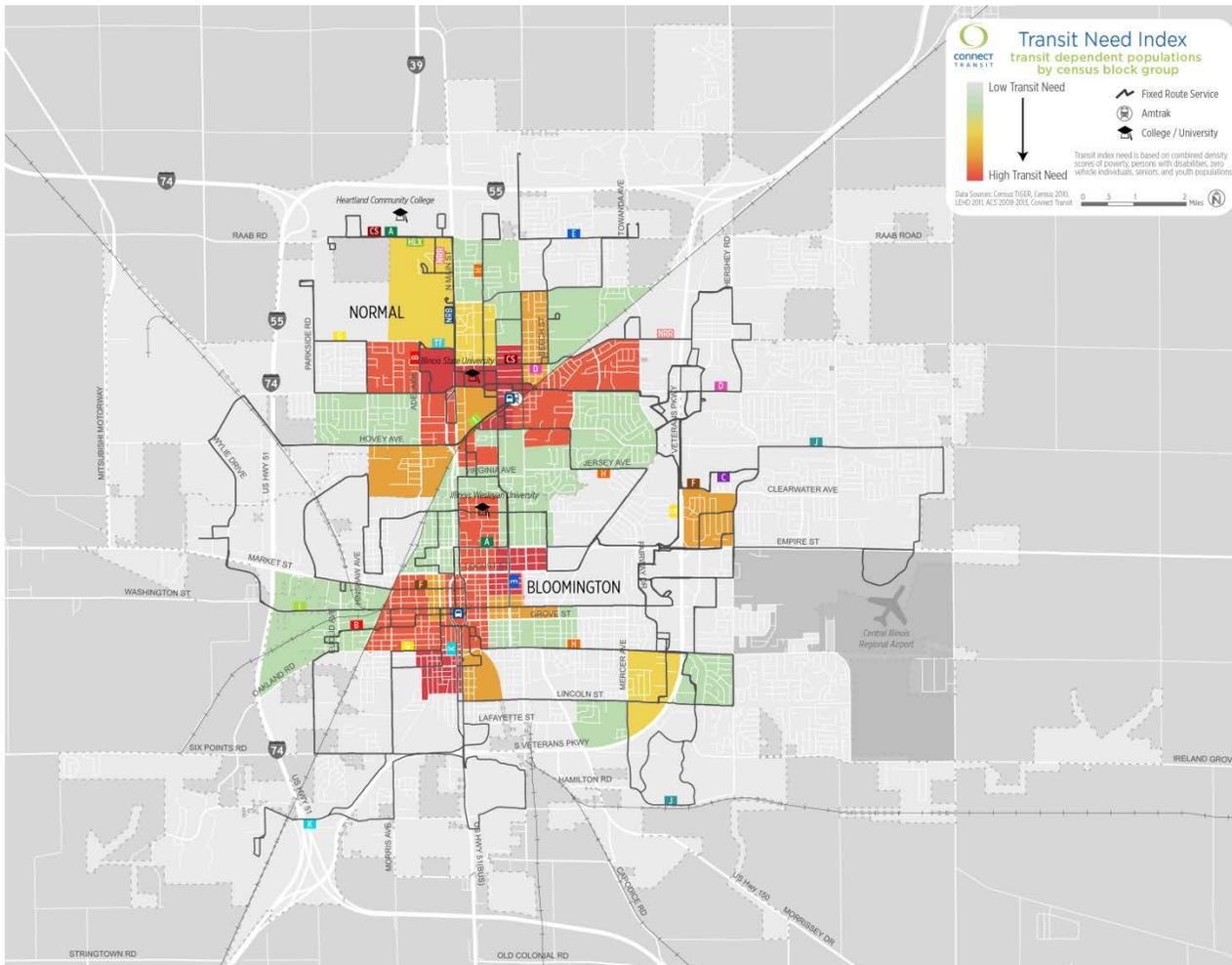
Transit Need Index

In order to aggregate transit needs across all socio-economic subgroups, a score was assigned to each Census block group based on the concentration of each population subgroup in that area. As shown in Figure 12, high need for public transportation equates to the dark red color and indicates high concentrations of individuals in poverty, persons with disabilities, seniors, young adults, and people without access to a vehicle. Transit need does not necessarily equate to transit demand; rather, this analysis highlights areas of the community where high concentrations of people who typically rely on transit happen live. Actual ridership is based upon additional factors such as route structure, frequency, reliability, convenience, and safe access serving these geographic areas.

The areas of highest transit need in Normal are found in the vicinity of Illinois State University where there are particularly high concentrations of young adults, as well as some pockets of poverty between Beaufort Street and Vernon Avenue.

In the core of Bloomington, populations with high levels of transit need are clustered between Illinois Wesleyan University and Downtown Bloomington, as well as neighborhoods adjacent to downtown. These are well established neighborhoods with decent pedestrian grids and relatively good transit coverage. Other areas of Bloomington with elevated transit need are less well served by transit. Neighborhoods northwest of the airport, for example, have moderately high transit need but fewer transit options. Overall, the area of highest transit need in the Bloomington-Normal area correspond closely to areas of high transit potential in the community. This is a positive sign for the prospects of developing a transit system that resonates with a broad range of users, including both choice riders and transit-dependent riders.

Figure 12 Transit Need Index

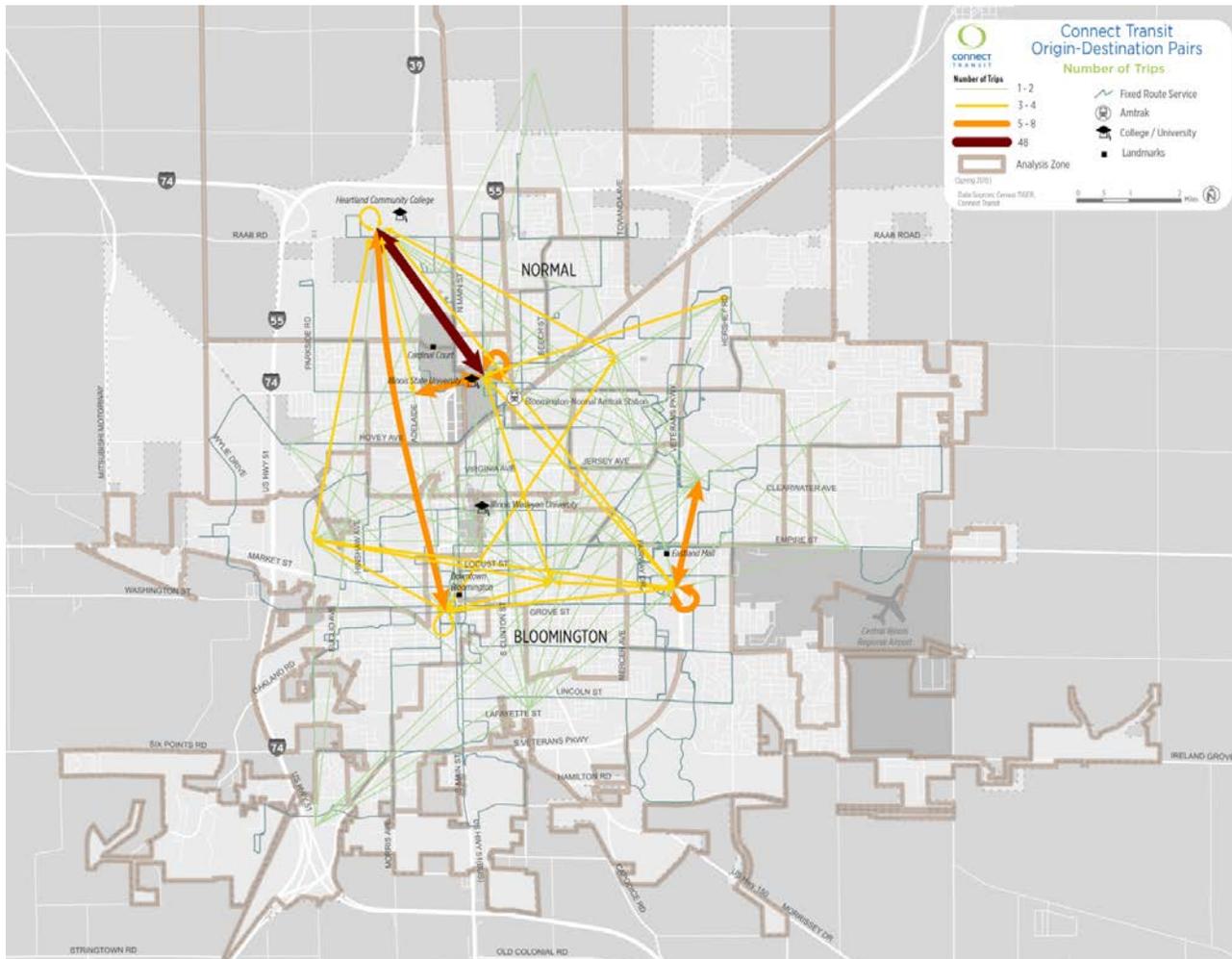


TRAVEL PATTERNS

In general, transit users tend to have the same travel destinations as other commuters, but differ in their mode of travel. An examination of the origins and destinations of transit users can highlight key “desire lines” that may or may not be well served by the existing transit network. If, for example, it takes multiple transfers to complete a trip between two end-points of a strong desire line, then the ridership potential between the two points will likely suffer.

As part of the on-board survey conducted for this study, passengers were asked to list an address for their origin and destination. This reveals how far people travel to get to transit stops, direct lines of travel people want to make, and popular origins and destinations. Figure 13 maps the origins and destinations of 214 survey participants. Trips are aggregated by wards in Bloomington and by voting precincts in Normal. The most trips between zones are seen between the Heartland Community College area and Uptown Normal. A high number of trips are also taken just within the Uptown Normal zone, as well as between Uptown Normal and Illinois State University and between Heartland Community College and Downtown Bloomington. On the eastern side of the study area, many trips are taken within the zone containing the two State Farm campuses, and between State Farm and neighborhoods north of Eastland Mall along Veteran’s Parkway. These travel patterns will be considered in the evaluation of each route and the development of service improvement recommendations.

Figure 13 Passenger Survey Origin and Destination Data



3 ANALYSIS OF EXISTING SERVICES

Existing Connect Transit services in Bloomington-Normal were evaluated individually and as a network. This analysis is presented in three parts:

- **Service Performance:** An overview of Connect Transit service productivity.
- **Adherence to Guiding Principles:** An examination of whether existing Connect Transit services conform to common characteristics of high performing transit networks.
- **Route Profiles:** In-depth analyses of each Connect Transit service operating within Bloomington-Normal. The profiles include route/service descriptions, service productivity data, and potential service improvement recommendations. Each route is evaluated based on alignment, operating characteristics, and markets served, as well as ridership, productivity, and on-time performance. Route profiles for each Connect Transit service are included in Appendix D

Additional insight into the Connect Transit system was developed through a review of existing funding sources, as well as feedback from riders and stakeholders. An in-depth review of both processes is provided in Appendix B and Appendix C respectively.

SERVICE PERFORMANCE

Connect Transit operates 16 fixed-route bus lines throughout Bloomington-Normal. Service primarily operates from 6:00 am to 10:00 pm on weekdays and 7:00 am to 10:00 pm on Saturdays. Select late night service is operated on weekdays, Saturdays, and Sundays. In 2015, an average of 11,334 riders boarded Connect Transit service each weekday. On Saturdays, just over 6,100 riders utilized fixed-route services. An overview of service performance statistics for fixed-route bus services in Bloomington-Normal is provided in Figure 14 below.

Connect Transit currently operates three tiers of fixed-route transit services:

- **30-minute frequency routes.** Three Connect Transit routes operate every 30 minutes throughout weekday and Saturday service, including the A-Green, K-Aqua, and I-Lime Routes. The B-Red and G-Yellow Routes combine to provide 30 minute bi-directional service along their shared alignment. The A-Green and K-Aqua Routes form the backbone of Connect Transit's north-south service. The I-Lime and B-Red/G-Yellow Routes directly connect Uptown Normal and Downtown Bloomington to major retail destinations on the east and west sides of the region.
- **60-minute frequency routes.** Six Connect Transit routes operate every 60 minutes throughout weekday and Saturday service, including the C-Purple, D-Pink, E-Blue, F-Brown, H-Orange, and J-Teal. These routes generally connect residential neighborhoods to Uptown Normal, Downtown Bloomington, retail destinations, and major employment destinations such as State Farm.

- **Illinois State University Shuttles.** Connect Transit operates four routes primarily designed to serve ISU students, staff, and faculty. The Redbird Express Red and Blue Routes act as a weekday-only campus circulator and provide access to some off-campus destinations. The NiteRide Red and Blue Routes provide late night service on weekdays, Saturdays, and Sundays. A fifth route, the Heartland Express, operates as an overlay service targeted primarily towards Heartland Community College students.

On weekdays, the Redbird Express Blue Route is by far the highest ridership and most productive Connect Transit service. This route accounts for about one-quarter of total weekday boardings, but just 7% of total revenue hours. Apart from this student-oriented service, Connect Transit bus routes that operate every 30 minutes generally have the highest ridership and are among the most productive services. In combination, the B-Red and G-Yellow is the highest ridership and most productive Connect Transit service that does not primarily serve ISU. The Aqua-K route is an exception to this rule. This route is among the lowest ridership services in the system, leading to very low productivity.

Overall system productivity declines significantly on Saturdays, as many routes operate a similar level of service despite lower ridership. Most routes serve 15% to 25% fewer riders on Saturdays than they do on weekdays. The most significant ridership declines occur on the A-Green, likely due in part to low demand at Heartland Community College, the H-Orange, which serves lower density residential neighborhoods, and the J-Teal, which serves the State Farm South Campus. Despite lower ridership, the most frequently operated routes continue to generally be the most productive.

Figure 14 Service Performance Statistics by Route

Route	WEEKDAY					SATURDAY				
	Typical Frequency (Minutes)	Service Span	Ridership	Ridership Per Trip	Ridership per Revenue Hour	Typical Frequency (Minutes)	Service Span	Ridership	Ridership Per Trip	Ridership per Revenue Hour
A-Green	30	6:25 am – 9:40 pm	1,323	22.4	44.5	30	7:25 am – 2:30 am	879	14.6	31.7
B-Red	60	6:30 am – 9:45 pm	1,082	33.8	36.4	60	7:30 am – 9:45 pm	837	27.0	30.2
C-Purple	60	6:25 am – 9:35 pm	631	21.0	21.6	60	6:45 am – 9:35 pm	547	18.9	19.7
D-Pink	60	6:55 am – 8:55 pm	407	14.5	29.1	60	7:55 am – 8:55 pm	333	12.8	25.6
E-Blue	60	6:25 am – 9:25 pm	307	10.2	20.5	60	6:40 am – 9:25 pm	254	8.5	17.2
F-Brown	60	6:05 am – 10:05 pm	520	16.8	17.2	60	7:05 am – 10:05 pm	412	14.2	14.2
G-Yellow	60	6:00 am – 9:15 pm	884	27.6	29.1	60	7:00 am – 9:15 pm	808	26.9	28.4
H-Orange	60	6:45 am – 9:45 pm	841	27.1	27.9	60	7:35 am – 9:45 pm	630	21.7	22.5
I-Lime	30	6:55 am – 9:38 pm	966	15.6	31.9	30	6:55 am – 9:38 pm	808	12.0	26.9
J-Teal	60	6:45 am – 8:15 pm	226	7.8	16.2	60	7:15 am – 8:15 pm	78	2.8	6.0
K-Aqua	30	6:25 am – 9:25 pm	432	14.4	28.8	30	6:55 am – 9:25 pm	358	12.3	24.7
NiteRide Blue	30	7:00 pm – 9:00 pm	66	16.5	27.2	30	7:00 pm – 9:00 pm	42	10.5	21.0
NiteRide Red	30	9:00 pm – 1:00 am	184	9.7	17.6	30	9:00 pm – 1:00 am	123	6.5	15.4
Redbird Express Blue	10-20	7:30 am – 7:00 pm	2,829	48.8	122.3	-	-	-	-	-
Redbird Express Red	30	7:18 am – 7:22 pm	550	12.0	28.8	-	-	-	-	-
Heartland Express	30	12:00 pm – 4:45 pm	84	4.2	17.6	-	-	-	-	-
System Total/Average			11,334	21.0	34.6			6,108	15.0	23.1

ADHERANCE TO GUIDING PRINCIPLES

As mentioned previously, transit services are most successful when they are easy to use and intuitive to understand. While each operating environment is unique, adherence to the general guiding principles described below has proven to improve the quality of transit services, and reduce the barriers to access for prospective riders.

Service Should Operate at Regular Intervals

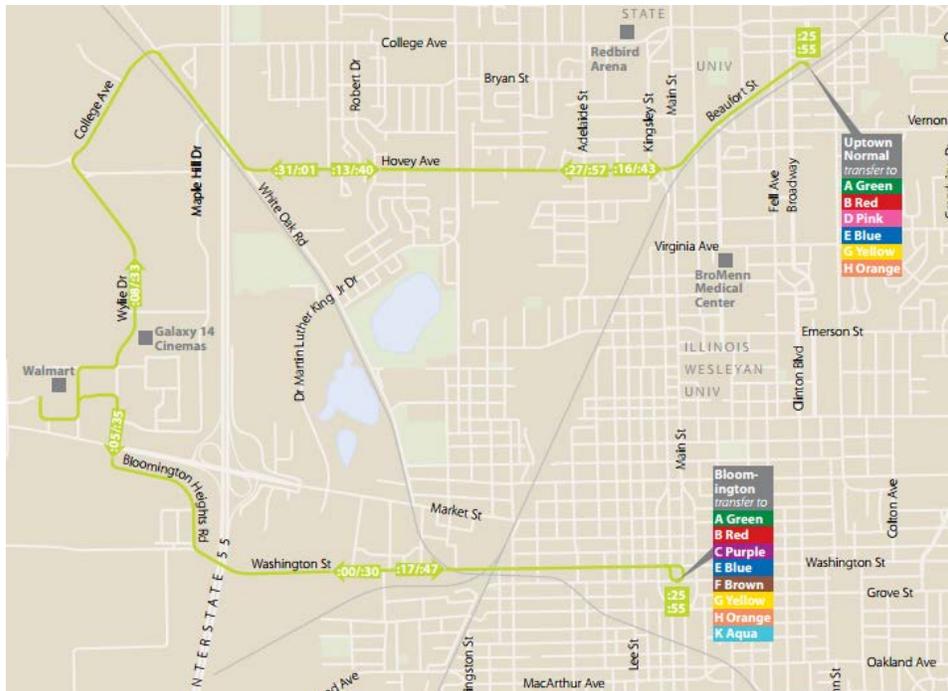
In general, people can easily remember repeating patterns, but have difficulty remembering irregular sequences. Transit riders therefore may find transit routes that operate at different times each hour cumbersome to use. Irregular schedules increase the likelihood a rider will miss a trip or a transfer, thus decreasing the utility of the service. In many cases, operating a service at regular intervals provides a better transit experience for riders, even if doing so results in slightly decreased service frequency.

Ideally, transit routes that operate less frequently than every 15 minutes should utilize clockface scheduling. With a clockface schedule, each bus arrives at the same time or times each hour. For example, a bus route with 20-minute frequency might arrive at :00, :20, and :40 each hour throughout a service period.

Clockface scheduling significantly enhances transit service usability, especially in systems with less frequent service. Passengers can easily remember when their bus will come without having to rely on a paper or online schedule. Regular clockface schedules can also help simplify transfers between routes. Even if two routes do not arrive at a stop at the same time, clockface frequencies will ensure that wait-times between buses are consistent and predictable.

All existing Connect Bus routes operate at regular clockface intervals throughout weekday and Saturday service. In fact, Connect Transit does not even publish schedules and instead provides only the time or times each hour a route will arrive at given point (Figure 15). This schedule structure is ideal for systems operate transit routes at a constant frequency throughout the service day.

Figure 15 Example of Existing Clockface Schedule



Routes Should Operate Along a Direct Path

The fewer directional changes a route makes, the easier it is to understand. Circuitous alignments are disorienting and difficult to remember. Some deviations from the most direct path of travel are necessary and justifiable given that major destinations are sometimes located off of major arterial roadways. However, frequent deviations from the most direct path of travel will increase travel times for the majority of passengers, and thus should be avoided unless there is a strong justification.

Most Connect Transit routes travel in multiple directions and frequently deviate from major corridors. For example, Redbird Express Red Route starts as an east/west route on Raab Road, then becomes a north/south route on Main Street, and finishes with a long one-way loop (Figure 16). The route also includes multiple deviations to serve off-corridor destinations, such as the ISU Student Fitness Center. It often takes longer to serve these destinations by bus than it would take for passengers to walk from the primary corridor. This type of service design is repeated throughout the Connect Transit bus network, likely resulting in customer confusion and unnecessarily long trip times for some riders.

Figure 16 Example of Existing Circuitous Alignment



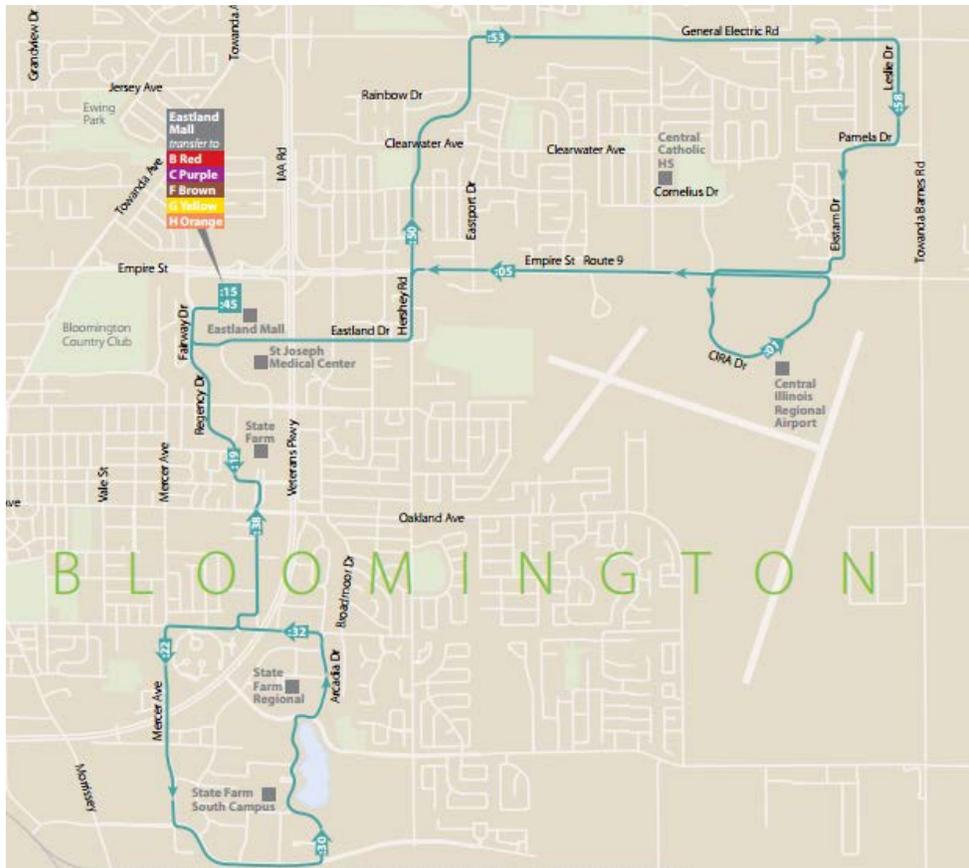
Routes Should be Symmetrical

Routes should operate along the same alignment in both directions to make it easy for riders to know how to get back to where they came from. Providing service on different streets depending on direction can make it difficult for passengers to find the bus stop for their return trip. Splitting service between two streets is sometimes unavoidable due to one-way traffic patterns, but to the extent possible, bus stops for service in opposite directions should be across from one another on opposite sides of the same street.

Large one-way loops can also frustrate riders by forcing out-of-direction travel on either the outbound or return trip. In most circumstances, transit riders prefer bi-directional services that they have to walk somewhat further to access over a close but one-way route.

Several Connect Transit routes include large one-way loops. Most of these loops are designed to increase the system's coverage area, rather than to turn buses around or serve one-way street pairs. For example, the J-Teal Route has long one-way loops at both ends of its alignment (Figure 17). A rider boarding at the Central Illinois Regional Airport would have to ride nearly the entire route to access destinations along General Electric Road. With bi-directional service, this trip could be made in just a few minutes.

Figure 17 Example of Unsymmetrical Route Alignment



Routes Should Serve Well Defined Markets

Routes should include strong anchors, but should avoid unintended service duplication. Strong anchors and a unique alignment help define a transit route. With time, certain routes become synonymous with the corridors they serve in a community. If service duplication does exist, it should be for specific purposes such as to increase effective frequency in a high-ridership corridor, or to create a transfer hub at a key destination.

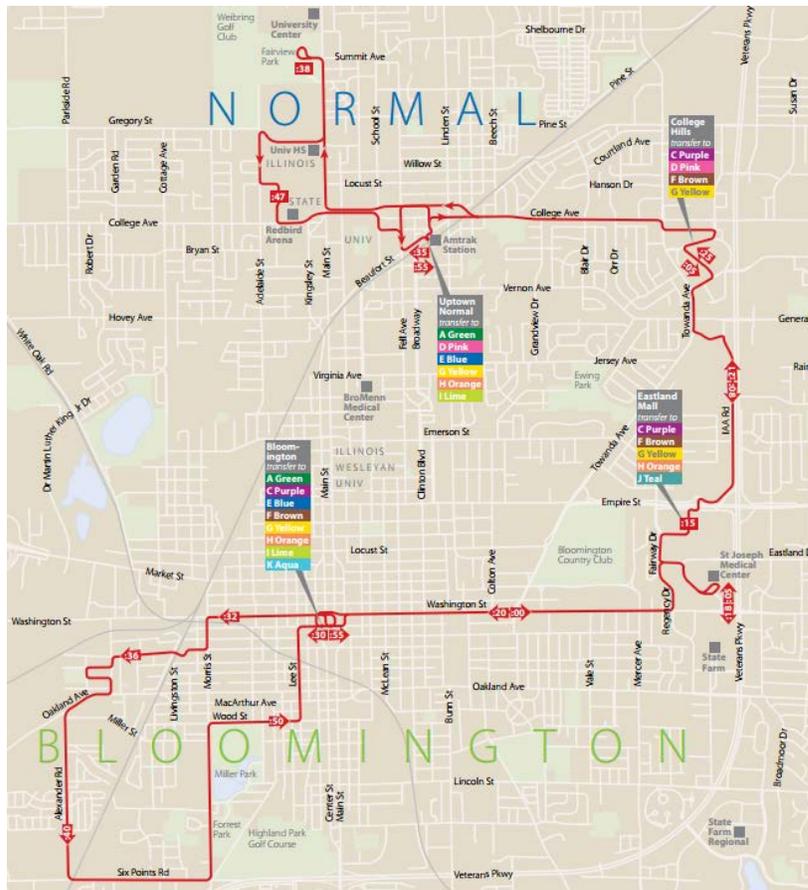
Routes should also avoid serving multiple, unrelated markets. When routes serve multiple markets with varying travel demands, there may be too much or too little service allocated to some portions of the route.

Many Connect Transit routes serve multiple, unrelated markets with varying service demands. Most frequently, Connect Transit routes serve two or three of the following market geographies: south of Downtown Bloomington, Downtown Bloomington to Uptown Normal, and north of Uptown Normal. The B-Red Route directly follows this pattern (Figure 18). South of Downtown Bloomington, the route forms the counter-clockwise service of a loop pair that provides access to a relatively low-density residential neighborhood. B-Red then connects Downtown Bloomington and Uptown Normal to major retail destinations and employers east of Veterans Parkway. Past

Uptown Station, the route transitions into an ISU campus shuttle supplementing more frequent Redbird Express service.

Each of the three markets served by B-Red have completely different service demands. The southern portion of the route likely primarily attracts commuters, who benefit from more frequent service during rush hour. The middle portion of the route serves riders making shopping trips, as well as office workers with regular hours and retail workers with irregular hours. This segment likely can support relatively frequent service throughout the day, and may also benefit from early morning or late night trips. The northernmost segment likely primarily attracts ISU students and staff, who benefit from services tailored to class schedules, social activities, and campus events. By serving each of these three markets with the same level of service, Connect Transit is likely failing to meet the needs of most B-Red riders and potential customers.

Figure 18 Example of a Route Serving Multiple Unrelated Markets



Service Should be Well Coordinated

At major transfer locations, schedules should be coordinated to the greatest extent possible to minimize connection times between services. In general, there are two approaches to coordinating transit service. The first approach is to establish clockface service frequencies on all routes. This ensures a certain predictability for transfers as passengers know when to expect each route regardless of the hour of the day. Clockface schedules can also facilitate pulsing, which is when several routes are designed to arrive at a particular transfer location at the same time. Pulsing is usually used when a transit network has a single primary hub.

The second approach to coordinating transit service is simply to maximize service frequencies on all routes. High frequencies reduce the need to pulse services at a particular location because passengers who miss a connection anywhere in the system can catch the next bus in a relatively short time. If service frequencies cannot be increased at all times due to budget constraints, it is best to increase frequencies during peak-periods when the majority of transfers between services occur.

Apart from ISU shuttle services, all Connect Transit bus routes depart from at least one of four transfer centers either once or twice per hour. At this level of service frequency, pulsing is the most logical coordination approach, but it is nearly impossible to pulse service at four hubs simultaneously.

4 DEVELOPMENT AND ANALYSIS OF SERVICE IMPROVEMENT OPTIONS

Connect Transit strives to enhance transportation options for as many Bloomington-Normal residents, workers, and visitors as possible. To achieve this goal, Connect Transit must serve a wide variety of riders, trip types, and travel demands. As demonstrated through stakeholder surveys and outreach opportunities, constituents hold a wide range of viewpoints regarding how to make public transit services work best for them. Transit agencies must frequently make tradeoffs between competing service improvement options given available resources. For example, many survey respondents indicated a need for increased early morning and late night services, while others strongly advocated for introducing Sunday service. Thus, service and schedule design choices that might attract one type of rider may not satisfy the needs of another.

Throughout the development and analysis of service improvement options, the Nelson\Nygaard team relied on a series of project goals identified through the stakeholder outreach process. These project goals included:

- **Provide Higher Quality Service to Existing Riders:** Connect Transit has an established customer base that relies on existing transit services for mobility and job access. Service improvement opportunities should enhance travel options for these riders, and ensure reliable access to the destinations they currently frequent.
- **Develop Services Attractive to New Riders:** Connect Transit recognizes that existing bus routes and service schedules do not meet the mobility needs of many local residents and visitors. Connect Transit should work to develop services that reduce the barriers to utilizing transit and are attractive to new riders.
- **Leverage Existing Capital Investments:** Connect Transit has invested significant capital resources into rebranding their services, improving customer amenities, and upgrading vehicles. New transportation services and strategies should leverage this investment to further enhance the customer experience.

In addition to these project goals, the Nelson\Nygaard team utilized guiding service design principles, discussed at length in Chapter 6, and the results of the market and service analyses as a framework for developing service improvement options.

The Nelson\Nygaard team developed a single fixed-route network design that could be operated under two service scenarios. **Maximize Weekday Service** provides at least 30-minute weekday peak-period service frequency on all proposed routes, as well as Saturday service, with a minor increase in operating costs (6%). **Add Sunday Service** would redistribute some weekday service hours in order to introduce service on Sundays. This scenario would increase total operations expenditures by approximately 17%. These scenarios were designed to provide an opportunity to

enhance Connect Transit services without significantly increasing costs, while also providing a roadmap for distributing additional resources when and if they are available.

PROPOSED NETWORK DESIGN

The proposed network design streamlines existing Connect Transit bus routes to increase the mobility of Bloomington-Normal residents and provide a framework for future service enhancements. Service is maintained to nearly all currently served neighborhoods and destinations, apart from a few locations on the periphery of the urbanized area where service has been historically unproductive. The proposed network facilitates one-seat rides to Downtown Bloomington and Uptown Normal, while also emphasizing new transfer opportunities throughout the system. The proposed network should reduce travel times for many existing riders and make transit easier to understand for new customers.

Similarly to the existing Connect Transit system, the proposed network includes a hierarchy of services based on each route's anticipated ridership and travel market:

- **Core Network:** Five routes comprise the core of the proposed Connect Transit network and are anticipated to have the highest ridership. The Green Route would directly connect Downtown Bloomington and Uptown Normal, while the Red Route, Lime Route, Yellow Route, and Pink Route connect retail, employment, and education destinations that generate high demand throughout the service day.
- **Neighborhood Network:** The neighborhood network includes eight² routes that primarily connect Bloomington-Normal's residential neighborhoods to retail destinations and employers. These routes are expected to serve more traditional commuting patterns and have lower demand for mid-day service.
- **Illinois State University Shuttle:** A consolidated Redbird Express Route shuttle would function as an all-day high frequency internal campus circulator.

Connect Transit could present this network hierarchy to the public through a standardized route naming convention. Existing Connect Transit route names include both a letter and a number (J-Teal, for example), a convention that is confusing for customers and provides no context about a route's function within the network. As Connect Transit implements the proposed network, new routes could first have only a color name, providing continuity for existing riders. Once the network hierarchy is formalized, the agency could then add a number to each route that represents its service type. Routes in core network could have a two digit number, such as 10-Yellow, while routes in the Neighborhood Network could have a three digit number, such as 101-Purple. As riders become more comfortable with the numeric naming convention, Connect Transit could then drop the color route names. The final numeric naming convention will more easily allow Connect Transit to name new routes in the network, while also providing valuable information to customers.

² The network design presented to the public in August 2015 included seven neighborhood network routes. In response to public feedback, an eighth route, known as the Olive Route, was added to serve Normal residents north of Uptown.



Route Changes

An overview of each proposed Connect Transit route is provided below. For each route, the overview contains a general description of the route, a proposed service map, proposed schedules under the Maximize Weekday Service scenario, and a list of major destinations served. Figure 19 shows an overall map of the proposed Connect Transit network. Figure 20 shows the proposed Connect Transit network along with existing weekday ridership.

Figure 19 Proposed Connect Transit System Map

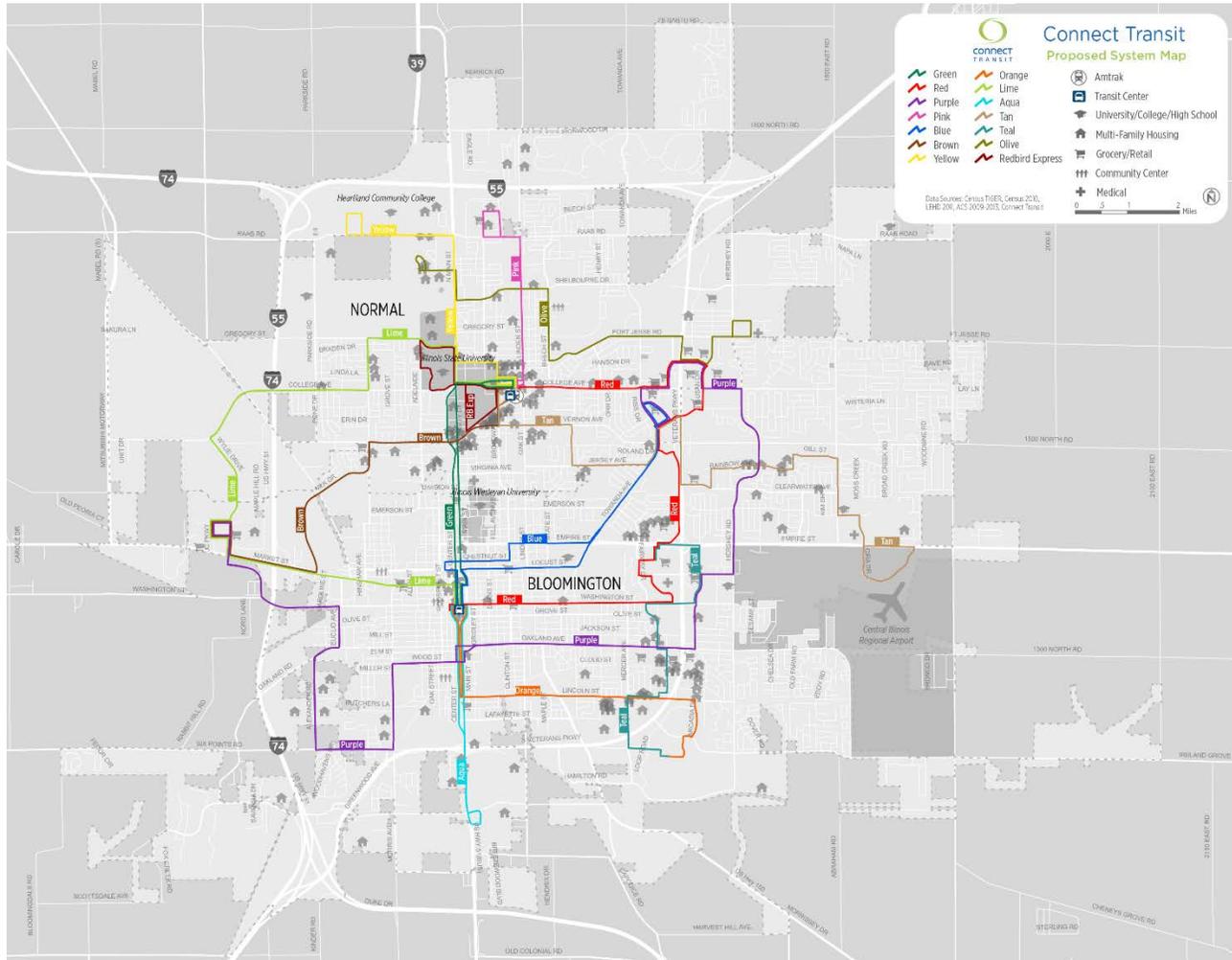
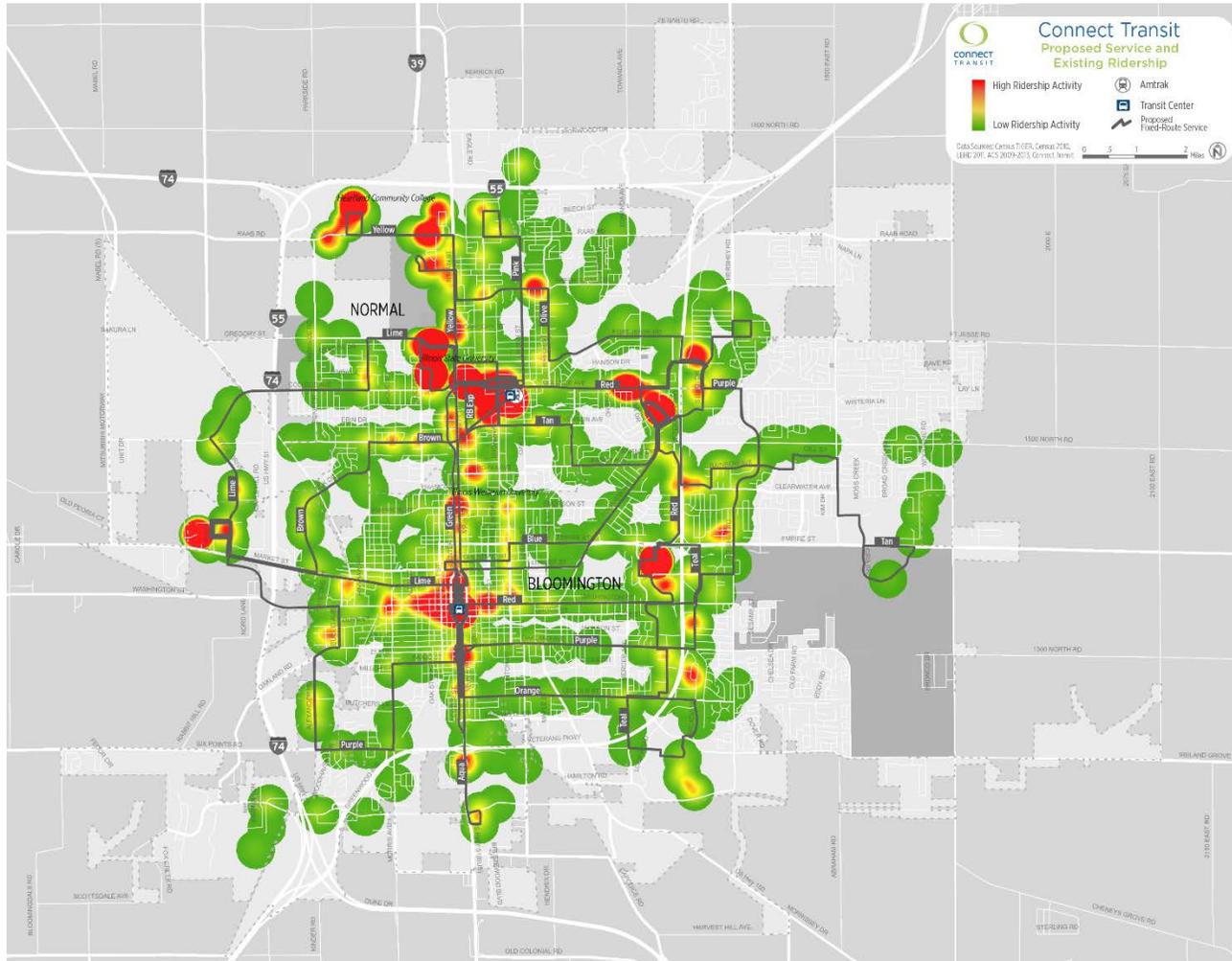


Figure 20 Proposed Connect Transit System Map and Existing Ridership



Aqua Route: Downtown Bloomington – Hamilton Road

The Aqua Route would provide bi-directional service between the Downtown Transfer Center in Bloomington and the intersection of Hamilton Road and Main Street, near State Farm Park. The route would function as the southernmost segment of Connect Transit’s north-south service along Main Street and Center Street.

The Aqua Route would serve corridors currently accessible using K-Aqua and C-Purple. Existing K-Aqua service along Fox Creek Road, Morris Avenue, Bunn Street, and through the Hilltop Mobile Home Park would be eliminated. These corridors generate low ridership and are far from other Connect Transit services, resulting in very low productivity.

Due to one-way road configurations, northbound Aqua Route service would primarily run on Main Street, while southbound service would run on Center Street. These roads are within one block of each other for the entire alignment, allowing riders to easily find and use the Aqua Route in both service directions.

Key destinations along the proposed alignment include:

- Downtown Bloomington
- Wood Hill Towers
- State Farm Park

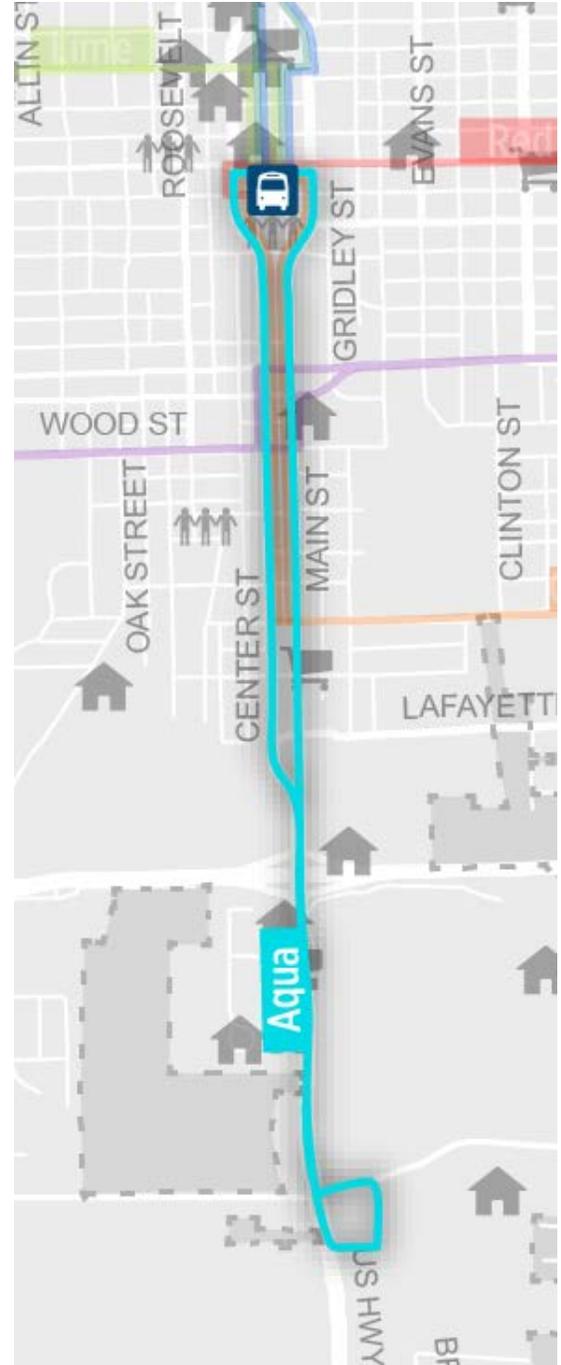


Figure 21 Aqua Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	60
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	60
Saturday	7:00 am – 9:00 pm	60
Sunday	No Service	-

Blue Route: Downtown Bloomington – The Shoppes at College Hills

The Blue Route would provide bi-directional service between the Downtown Transfer Center in Bloomington and The Shoppes at College Hills. The route would directly connect neighborhoods along Towanda Avenue, Empire Street and Locust Street to major retail destinations and Downtown Bloomington. Bloomington High School students would be able to use the Blue Route to quickly access other Connect Transit bus lines serving neighborhoods throughout Bloomington.

Due to one-way road configurations, outbound service would run primarily along Locust Street and Towanda Avenue. Inbound service would run along Towanda Avenue, Empire Street and Chestnut Street. The Blue Route would serve corridors currently accessible using F-Brown and H-Orange.

Key destinations along the proposed alignment include:

- Downtown Bloomington
- Phoenix Towers³
- Bloomington High School
- Towanda Plaza Shopping Center
- Bloomington Post Office
- The Shoppes at College Hills

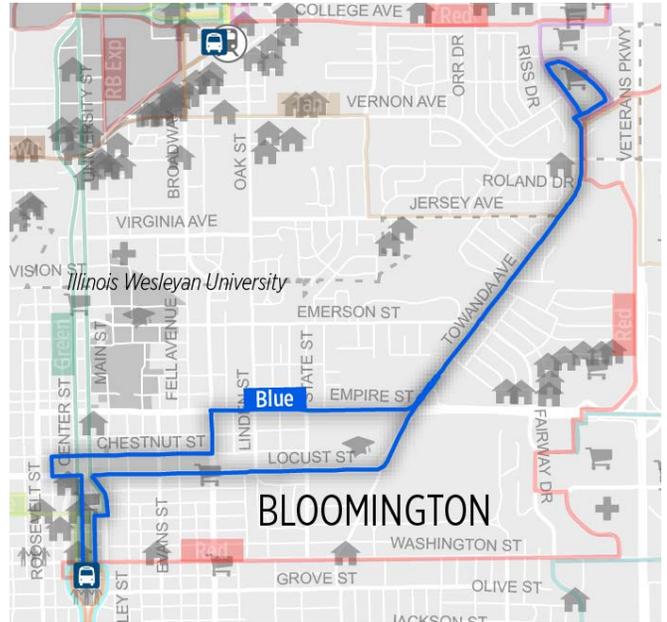


Figure 22 Blue Route Service Schedule

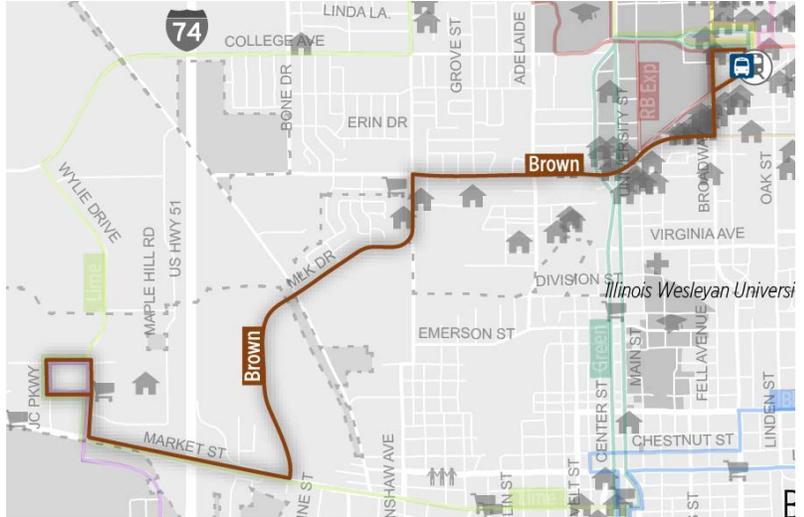
	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	60
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	60
Saturday	7:00 am – 9:00 pm	60
Sunday	No Service	–

³ In response to public feedback, the Blue Route alignment presented to the public in August 2015 was slightly modified to provide direct service to Phoenix Towers.

Brown Route: Uptown Normal – Bloomington Walmart

The Brown Route would provide bi-directional service between Uptown Station in Normal and the Bloomington Walmart. Service would run primarily on Hovey Avenue, MLK Drive, and Market Street. The route would enable residents along these corridors to directly access Uptown Normal, as well as retailers near the intersection of Wylie Drive and Market Street.

The Brown Route would serve corridors currently accessible using I-Lime and F-Brown. Connect Transit would no longer directly serve Hinshaw Avenue and Western Avenue, both of which are currently served by the F-Brown. The few stops that generate ridership on these corridors are located within walking distance of the proposed Market Street service. Reconfiguring the I-Lime and F-Brown also enables Connect Transit to eliminate service on a completely undeveloped segment of White Oak Road.



Key destinations along the proposed alignment include:

- Uptown Normal
- Uptown Station
- Illinois State University
- Jewel-Osco Supermarket
- Bloomington Walmart

Figure 23 Brown Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	60
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	60
Saturday	7:00 am – 9:00 pm	60
Sunday	No Service	–

Green Route: Uptown Normal – Downtown Bloomington

The Green Route would provide bi-directional service between Uptown Station in Normal and the Downtown Transfer Center in Bloomington. The route would be the most direct and most frequent service between Uptown Normal and Downtown Bloomington, which both serve as primary destinations and transfer locations. The Green Route would serve corridors currently accessible using A-Green and C-Purple, and provide service to unserved segments of Main Street and Kingsley Street.

Due to one-way road configurations, northbound Green Route service would primarily run on Main Street, while southbound service would run on Kingsley Street and Center Street. These roadway pairs are within one block of each other for the entire alignment, allowing riders to easily find and use the Green Route in both service directions.

Key destinations along the proposed alignment include:

- Downtown Bloomington
- Bloomington Center for the Performing Arts
- Illinois Wesleyan University
- Advocate BroMenn Medical Center
- Illinois State University
- Uptown Station
- Uptown Normal



Figure 24 Green Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	15
Midday	9:00 am – 2:59 pm	15
PM Peak	3:00 pm – 6:59 pm	15
Evening*	7:00 pm – 9:00 pm	15
Saturday	7:00 am – 3:00 am	30
Sunday	No Service	-

*Additional late night service would run every 30 minutes until 1:00 am on Thursdays and 3:00 am on Fridays.

Lime Route: Uptown Normal – Downtown Bloomington via Bloomington Walmart

The Lime Route would provide bi-directional service between Uptown Station in Normal and the Downtown Transfer Center via the Bloomington Walmart. Service would run primarily on Gregory Street, College Avenue, Wylie Drive, and Market Street. The route provides direct service to Bloomington Walmart from Connect Transit’s major transfer centers and ISU.

The Lime Route would serve corridors currently accessible using F-Brown, G-Yellow, and I-Lime, and provide service to portions of Gregory Street and College Avenue that are currently unserved. Shifting both I-Lime and F-Brown service northward allows Connect Transit to eliminate service on undeveloped corridors, such as White Oak Road, while maintaining access to Normal neighborhoods west of Uptown.

Key destinations along the proposed alignment include:

- Uptown Normal
- Uptown Station
- Illinois State University
- University High School
- Galaxy 14 Cinemas
- Bloomington Walmart
- Bloomington Driver Services Facility
- Downtown Bloomington

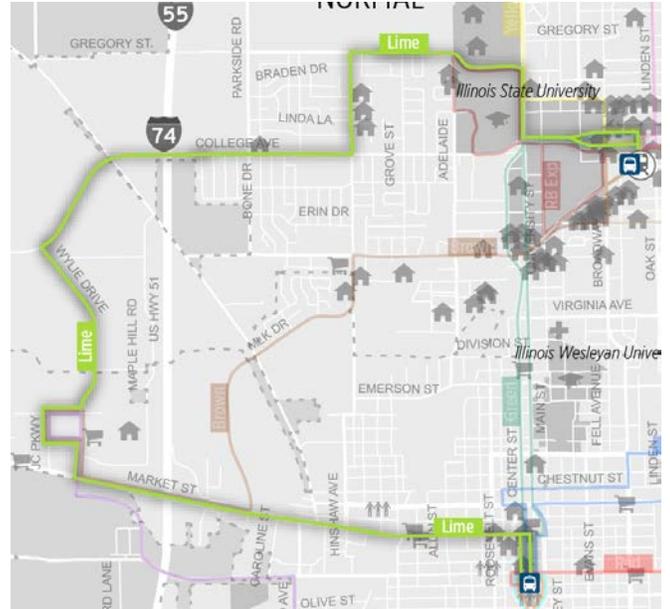
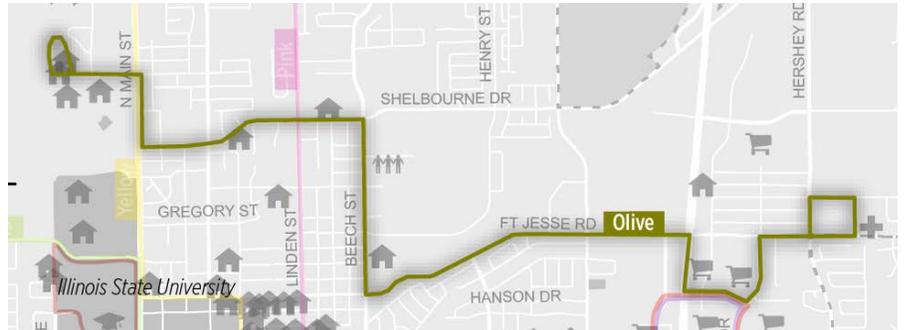


Figure 25 Lime Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	30
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	30
Saturday	7:00 am – 9:00 pm	30
Sunday	No Service	–

Olive Route: Orlando Northbrook – OSF Fort Jesse⁴

The Olive Route would provide bi-directional service between the Orlando Northbrook apartments and OSF Promptcare - Fort Jesse. Service would run primarily on Shelbourne Drive, Beech Street, and Fort Jesse Road. The Olive Route would serve corridors accessible using A-Green, D-Pink, E-Blue, and H-Orange.



The Olive Route would connect residential neighborhoods north of Uptown Normal to retail, employment, and medical destinations along Fort Jesse Road. Riders would also be able to easily transfer to several proposed Connect Transit services, including the Yellow, Pink, Red, and Purple routes. The Olive Route provides bi-directional service to apartments along Orlando Avenue and Northbrook Drive for the first time, allowing residents to return to the neighborhood without traveling out-of-direction towards Heartland Community College.

Key destinations along the proposed alignment include:

- University Center
- Normal Community Activity/Senior Center
- Normal Walmart
- Meijer
- OSF Promptcare - Fort Jesse

Figure 26 Olive Route Service Schedule

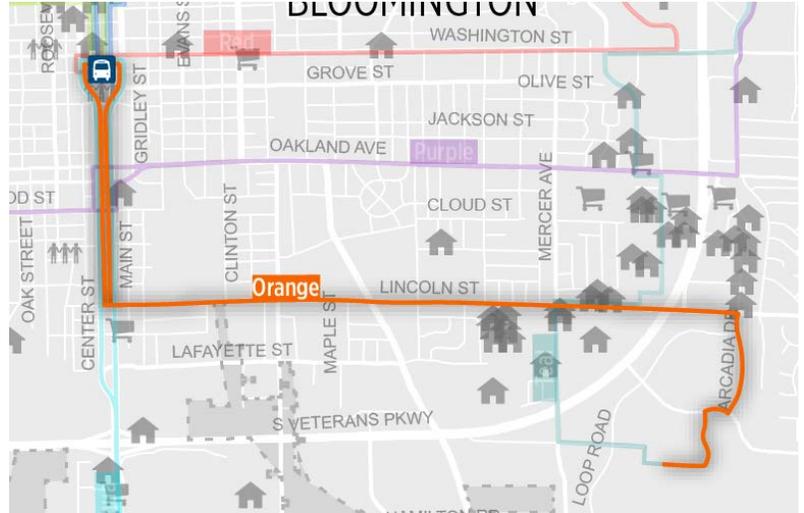
	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	60
Midday	9:00 am – 2:59 pm	60
PM Peak	3:00 pm – 6:59 pm	60
Evening	7:00 pm – 9:00 pm	60
Saturday	7:00 am – 9:00 pm	60
Sunday	No Service	–

⁴ The network design presented to the public in August 2015 did not include the Olive Route. This service was added in response to public feedback.

Orange Route: Downtown Bloomington – State Farm South Campus

The Orange Route would provide bi-directional service between the Downtown Transfer Center in Bloomington and the State Farm South Campus. Service would run primarily on Main Street and Lincoln Street. The Orange Route would serve corridors currently accessible using C-Purple and J-Teal.

The Orange Route would directly connect Downtown Bloomington to the State Farm South Campus, significantly enhancing access to this major employer. Orange Route service would also be interlined with the proposed Teal Route, enabling a one-seat ride from Lincoln Street to the State Farm Main Campus and Eastland Mall.



Key destinations along the proposed alignment include:

- Downtown Bloomington
- Wood Hill Towers
- Holiday Park
- State Farm Regional
- State Farm South Campus

Figure 27 Orange Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	60
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	60
Saturday	7:00 am – 9:00 pm	60
Sunday	No Service	–

Pink Route: Uptown Normal – Lincoln Square Apartments

The Pink Route would provide bi-directional service between Uptown Station in Normal and the Lincoln Square Apartment complex on Raab Road. The route would introduce bi-directional service on Linden Street, which is currently served by the E-Blue only in the northbound direction.

Existing Connect Transit services on School Street and Beach Street would be eliminated. Most destinations along both of these corridors would be within a five minute walk of Pink Route service on Linden Street.

Key destinations along the proposed alignment include:

- Uptown Normal
- Uptown Station
- Schnucks Supermarket
- Starplex Stadium 14

Figure 28 Pink Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	30
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	30
Saturday	7:00 am – 9:00 pm	30
Sunday	No Service	-



Purple Route: The Shoppes at College Hills – Bloomington Walmart

The Purple Route would provide bi-directional service between The Shoppes at College Hills and the Bloomington Walmart. The route would serve several Bloomington neighborhoods, along with retail destinations along Oakland Avenue and east of Veterans Parkway. Purple Route riders would also have access to numerous transfer opportunities at the Bloomington Walmart, Main/Center Streets, Prospect Road, and The Shoppes at College Hills.

Service would primarily run on Hershey Road, Prospect Road, Oakland Avenue, Wood Street, 6 Points Road, Alexander Road, and Washington Street. The Purple Route would serve corridors currently accessible using B-Red, C-Purple, D-Pink, F-Brown, G-Yellow, J-Teal, I-Lime, and H-Orange.

Key destinations along the proposed alignment include:

- The Shoppes at College Hills
- Normal Walmart
- Meijer
- Parkway Shopping Center
- Country Financial IS Services Building
- Bloomington Commons
- Eastland Commons
- State Farm Main Campus
- Jewel-Osco Supermarket
- Wood Hill Towers
- Miller Park
- Bloomington Walmart

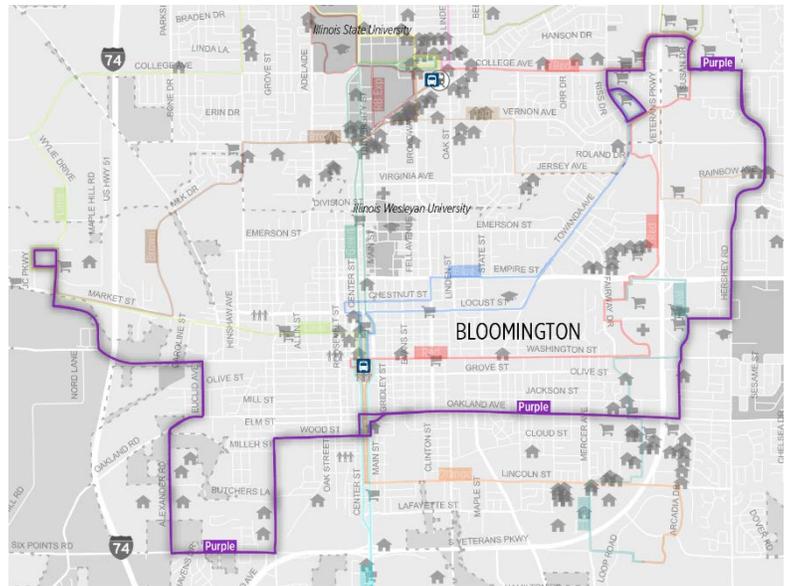


Figure 29 Purple Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	60
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	60
Saturday	7:00 am – 9:00 pm	60
Sunday	No Service	–

Red Route: Uptown Normal – Downtown Bloomington via The Shoppes at College Hills and Eastland Mall

The Red Route would provide bi-directional service between Uptown Station in Normal and the Downtown Transfer Center via The Shoppes at College Hills and Eastland Mall. The route would be the primary service connecting both Uptown Normal and Downtown Bloomington to the major retail destinations bordering Veterans Parkway.

Red Route service would run primarily on College Avenue, IAA Drive, and Washington Street. The route would serve corridors currently accessible using B-Red, D-Pink, and G-Yellow.

Key destinations along the proposed alignment include:

- Uptown Normal
- Uptown Station
- Normal Walmart
- Meijer
- Parkway Shopping Center
- The Shoppes at College Hills
- Country Financial Headquarters
- Empire Plaza Shopping Center
- OSF St. Joseph Medical Center
- State Farm Main Campus
- Downtown Bloomington

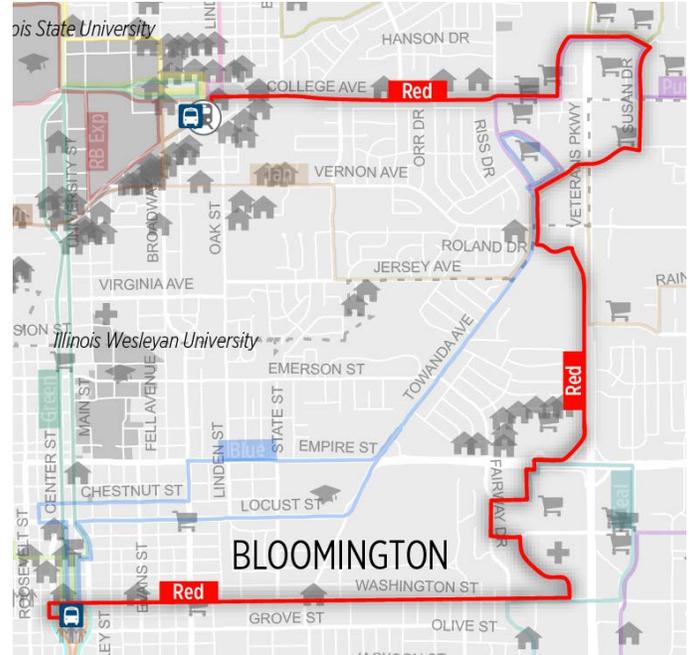


Figure 30 Red Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	30
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	30
Saturday	7:00 am – 9:00 pm	30
Sunday	No Service	–

Redbird Express Route

The Redbird Express Route would operate as a one-way circulator throughout the ISU campus and Uptown Normal. The proposed route would replace existing ISU shuttle services, providing more efficient circulation through the school’s main campus. Riders seeking to access off-campus destinations could transfer proposed Connect Transit services along Main Street and College Avenue.

Service would run primarily along Fell Avenue, Beaufort Street, University Street, Main Street, Gregory St, Adelaide Street, and College Avenue. The Redbird Express Route would replace the existing Redbird Express (Red/Blue) and NiteRide (Red/Blue) Routes as the primary ISU campus circulator.

Key destinations along the proposed alignment include:

- Uptown Normal
- Watterson Commons
- Center for the Visual Arts
- South University Street Garage
- Feeney Dining Center
- Student Fitness Center
- Redbird Arena
- Hancock Stadium
- Linkins Dining Center
- Cardinal Court
- Bone Student Center
- Milner Library
- Vrooman Center



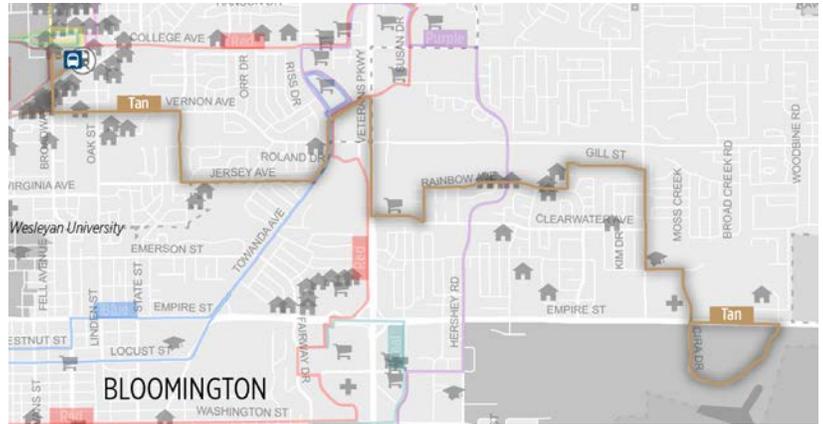
Figure 31 Redbird Express Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	10
Midday	9:00 am – 2:59 pm	10
PM Peak	3:00 pm – 6:59 pm	10
Evening*	7:00 pm – 1:00 am	20
Saturday	7:00 am – 3:00 am	20
Sunday	No Service	–

*Evening service would extend until 3:00 am on Fridays.

Tan Route: Uptown Normal – Central Illinois Regional Airport

The Tan Route would provide bi-directional service between Uptown Station in Normal and the Central Illinois Regional Airport. The route would provide direct service from ISU and transfer centers at Uptown Station and The Shoppes at College Hills to the airport, enabling more Connect Transit customers to make multimodal connections. The proposed Tan Route also provides more direct bi-directional service to neighborhoods north of the airport, which are currently served by an inefficient one-way loop.



Tan Route service would primarily run on Vernon Avenue, Jersey Avenue, Rainbow Avenue, and Airport Road. The Tan Route would serve corridors currently accessible using C-Purple, F, Brown, H-Orange, and J-Teal.

Key destinations along the proposed alignment include:

- Uptown Normal
- Uptown Station
- The Shoppes at College Hills
- Lakewood Plaza
- Country Financial IS Services Building
- Central Catholic High School
- Advocate BroMenn Outpatient Center at Trinity Lane
- Central Illinois Regional Airport

Figure 32 Tan Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	60
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	60
Saturday	7:00 am – 9:00 pm	60
Sunday	No Service	–

Teal Route: Eastland Mall – State Farm South Campus

The Teal Route would provide bi-directional service between Eastland Mall and the State Farm South Campus. Service would primarily run on Prospect Road, Regency Drive, Four Seasons Road, and Mercer Avenue. The Teal Route would serve corridors currently accessible using H- Orange, C-Purple, and J-Teal.

The Teal Route would provide a one-seat ride between State Farms’ Main and South campuses. The route would also be interlined with the proposed Orange Route, enabling a one-seat ride from the Eastland Mall and both State Farm campuses to Downtown Bloomington.

Key destinations along the proposed alignment include:

- Eastland Mall
- Bloomington Commons
- Eastland Commons
- OSF St. Joseph Medical Center
- State Farm Main Campus
- Kroger Supermarket
- State Farm South Campus



Figure 33 Teal Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	60
PM Peak	3:00 pm – 6:59 pm	30
Evening	7:00 pm – 9:00 pm	60
Saturday	7:00 am – 9:00 pm	60
Sunday	No Service	-

Yellow Route: Uptown Normal – Heartland Community College

The Yellow Route would provide bi-directional service between Uptown Normal and Heartland Community College. Service would primarily run on Main Street and Raab Road. The route simplifies service to Heartland Community College, while connecting the ISU main campus to school buildings along Main Street. The Yellow Route would service corridors currently accessible using A-Green, B-Red, Redbird Express Red Route, and the Heartland Express.

The proposed Yellow Route eliminates the southbound diversion from Raab Road to Northbrook Drive and Orlando Avenue. Residents along these corridors would be within a five minute walk of bi-directional service on Main Street and Raab Road. This route configuration significantly reduces travel time for most Yellow Route riders, while ensuring bi-directional service along the entire alignment.

Key destinations along the proposed alignment include:

- Uptown Normal
- Uptown Station
- Illinois State University
- Fairview Park
- University Center
- The Corn Crib
- Heartland Community College

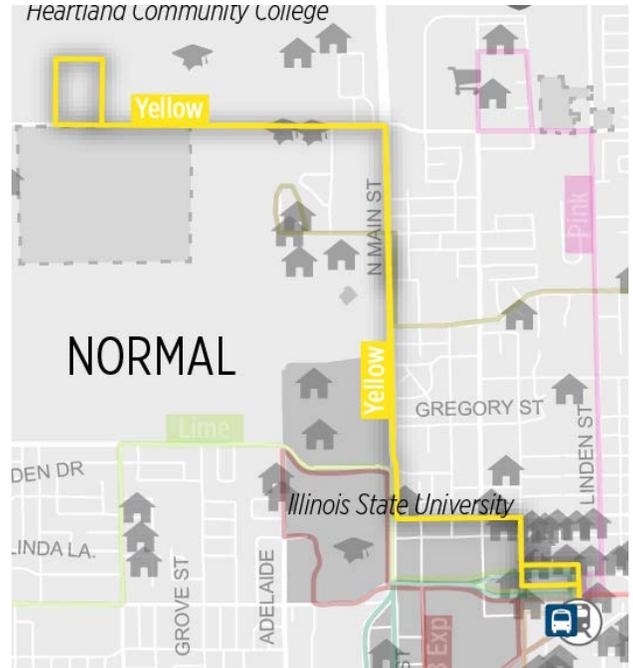


Figure 34 Yellow Route Service Schedule

	Span of Service	Frequency (Minutes)
Weekdays		
AM Peak	6:00 am – 8:59 am	30
Midday	9:00 am – 2:59 pm	30
PM Peak	3:00 pm – 6:59 pm	30
Evening*	7:00 pm – 9:00 pm	30
Saturday	7:00 am – 3:00 am	30
Sunday	No Service	–

*Additional late night service would run every 30 minutes until 1:00 am on Thursdays and 3:00 am on Fridays.

SCENARIO 1: MAXIMIZE WEEKDAY SERVICE

Scenario 1 is designed to maximize weekday service frequency with just a minor increase in annual operating costs (6%). On weekdays, eleven of twelve Core and Neighborhood Network routes would operate every 30 minutes during the morning and evening peak (Figure 35). The Green Route, which provides the most direct service between the Downtown Bloomington and Uptown Normal transfer centers, would operate every 15 minutes. All Core Network routes would continue to run at peak-period frequencies throughout the service day to meet mid-day and evening ridership demand. Seven of the eight Neighborhood Network routes would operate once per hour during mid-day and evening service. The Olive Route would operate once per hour throughout weekday service. The Redbird Express Route would operate every 10 minutes for most of weekday service. Early morning service and late night service would operate every 20 minutes.

All Core Network routes would operate from 6:00 am to 9:00 pm each weekday. The Green Route and Yellow Route would also provide late night service operating every 30 minutes until 1:00 am on Thursday and 3:00 am on Fridays. All Neighborhood Network routes would operate from 6:00 am to 8:00 pm. The Redbird Express Route would operate from 6:00 am to 1:00 am on Monday through Thursday, and have additional late night service until 3:00 am on Fridays.

On Saturdays, all Core Network routes would operate every 30 minutes from 7:00 am to 9:00 pm (Figure 36). Both the Green and Yellow Routes would have extended late night service hours, operating every 30 minutes until 3:00 am. Neighborhood Network routes would provide hourly service from 7:00 am to 8:00 pm. The Redbird Express Route would operate every 20 minutes from 7:00 am to 3:00 am. Under Scenario 1, no Connect Transit service would operate on Sundays (Figure 37).



Figure 35 Scenario 1 Weekday Service Frequency Chart

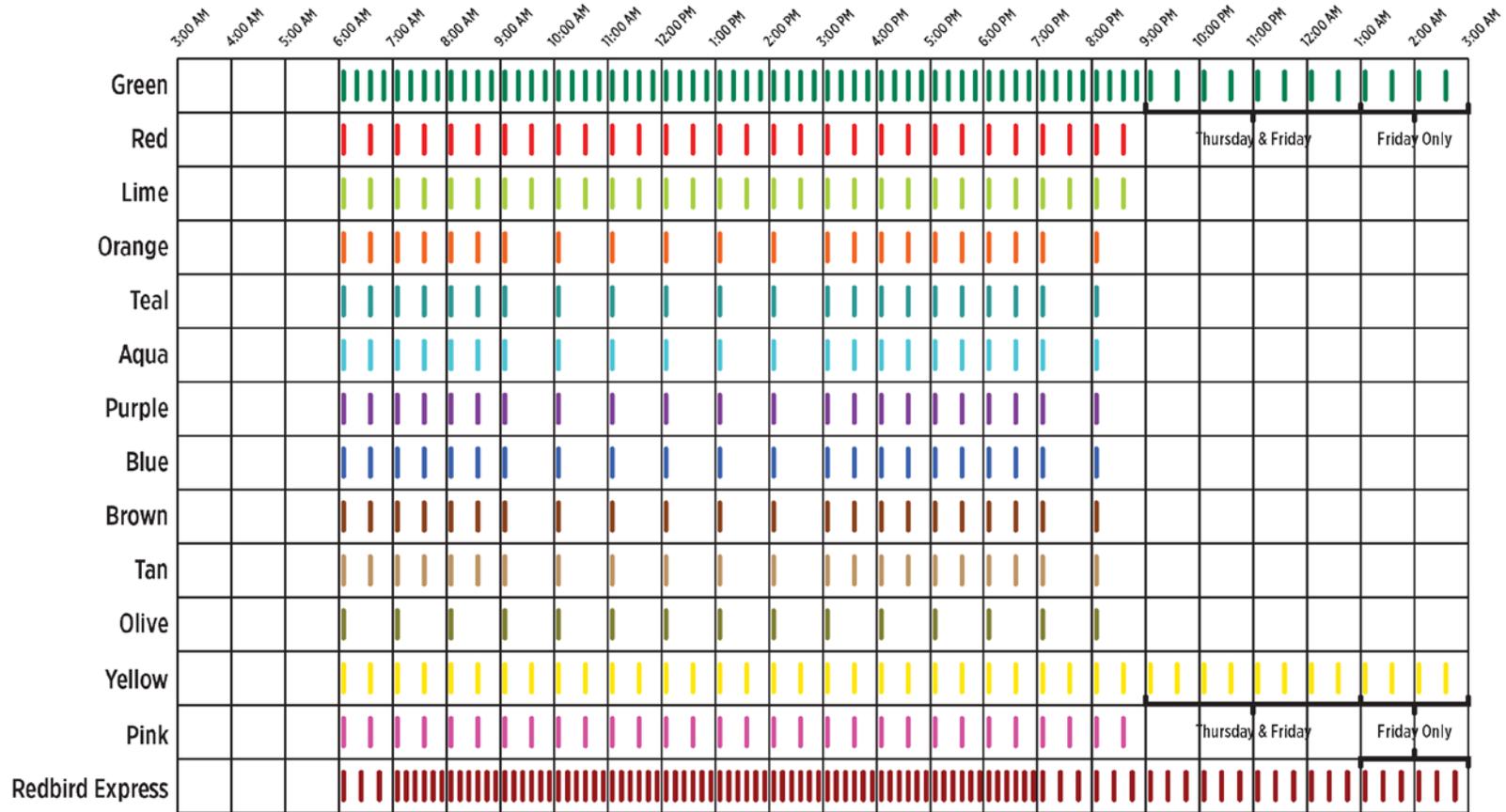




Figure 36 Scenario 1 Saturday Service Frequency Chart

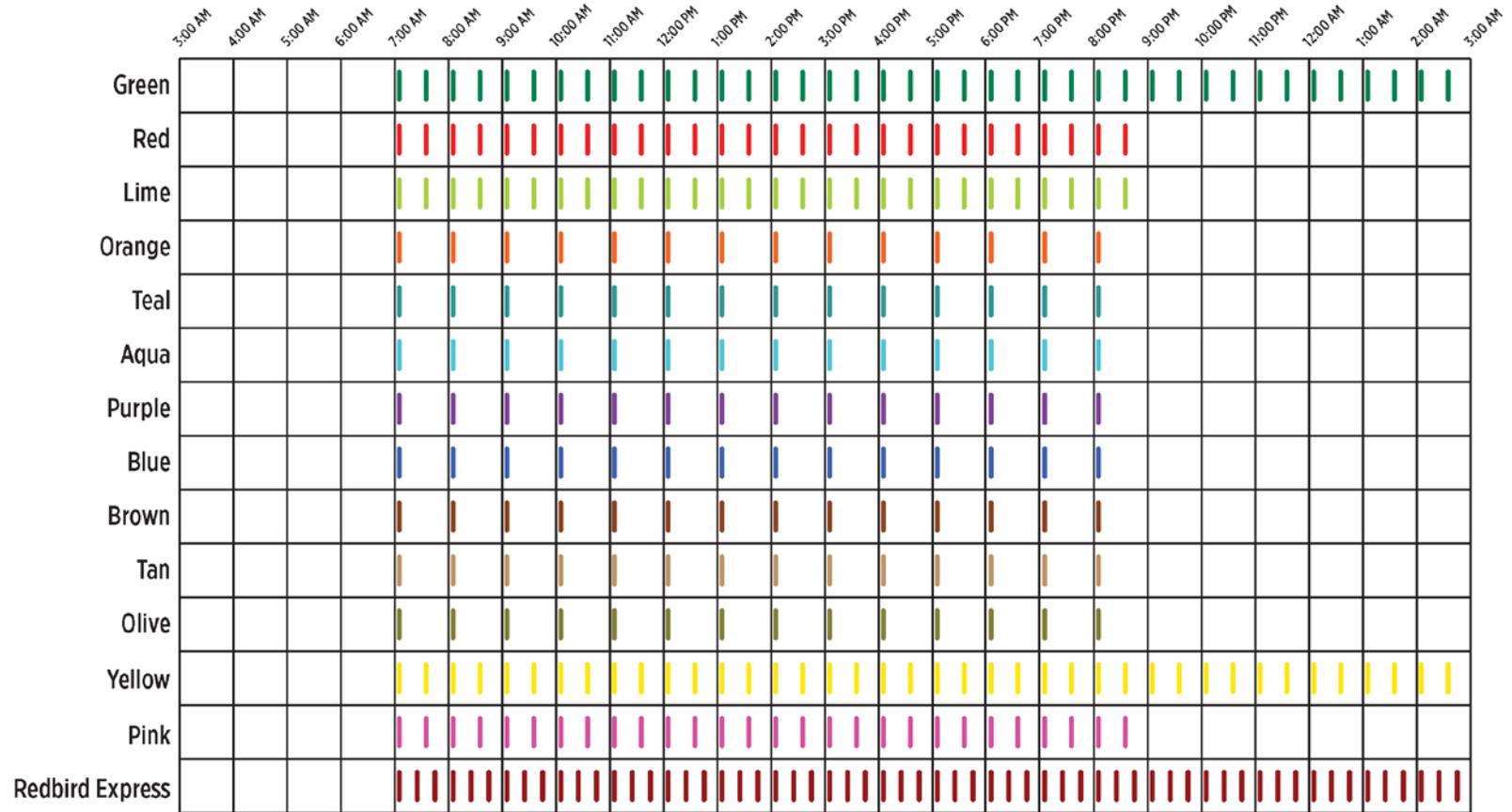




Figure 37 Scenario 1 Sunday Service Frequency Chart

	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	3:00 AM
Green																									
Red																									
Lime																									
Orange																									
Teal																									
Aqua																									
Purple																									
Blue																									
Brown																									
Tan																									
Olive																									
Yellow																									
Pink																									
Rebird Express																									



SCENARIO 2: ADD SUNDAY SERVICE

Scenario 2 includes a moderate increase in operations costs (17%) in order to fund the introduction of Sunday service. To reduce the overall cost increase, some weekday service hours are reallocated to Sunday service. All Core Network routes, as well as the Redbird Express Route, would maintain the same weekday service frequency and span as in Scenario 1 (Figure 38). Three Neighborhood Network routes, the Orange Route, Teal Route, and Aqua Route, would retain 30 minute peak period service and 60 minute off-peak service. These routes serve major employers and are anticipated to attract more rush hour commuters. The remaining five Neighborhood Network routes would operate hourly throughout weekday service.

On Saturdays, all routes would maintain the same service frequency and span as in Scenario 1 (Figure 39). On Sundays, all Core Network routes would operate every 30 minutes from 7:00 am to 7:00 pm. All Neighborhood Network routes would provide hourly service from 7:00 am to 6:00 pm. The Redbird Express Route would operate every 20 minutes from 7:00 am to 7:00 pm (Figure 40).



Figure 38 Scenario 2 Weekday Service Frequency Chart

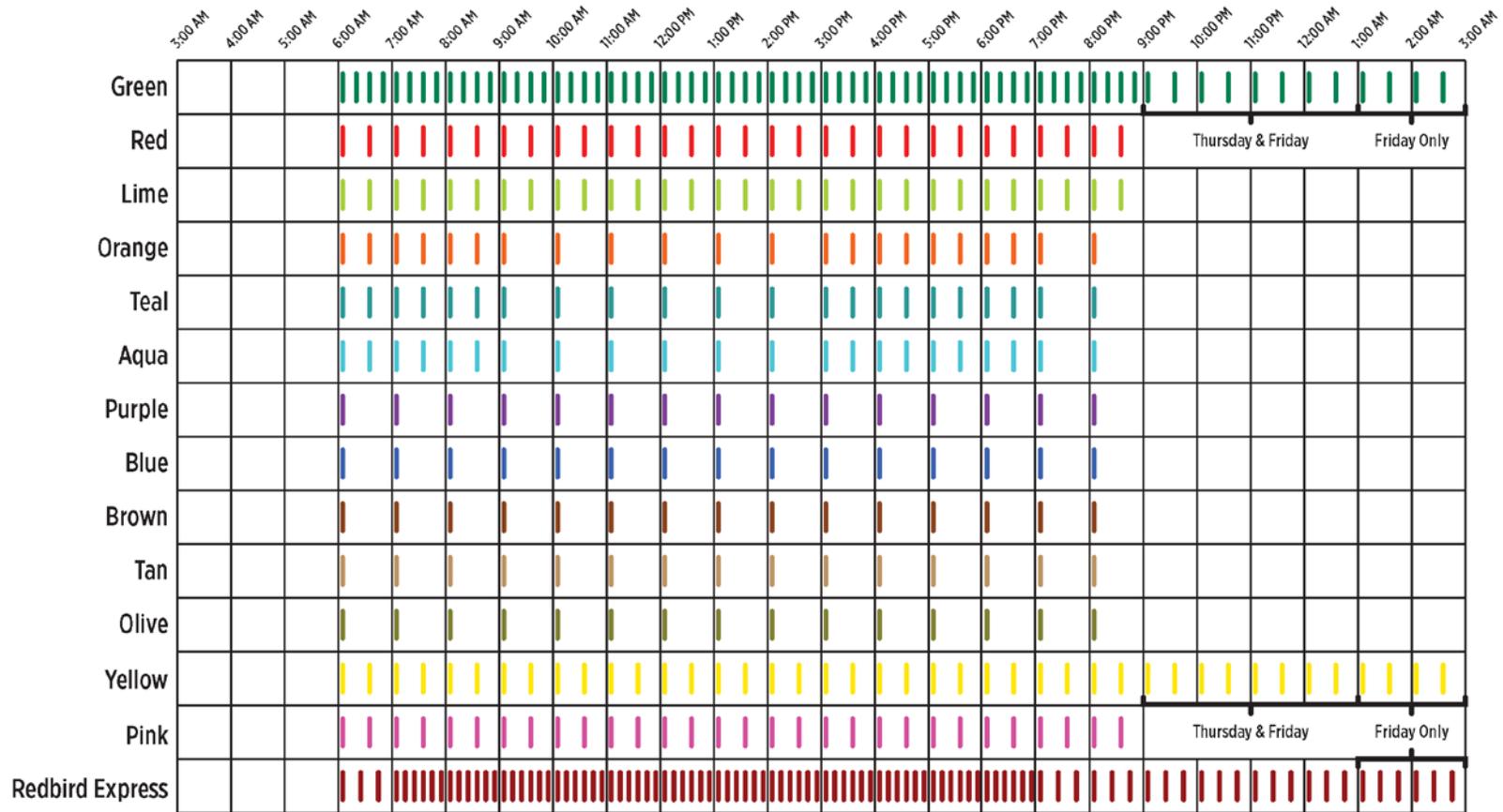




Figure 39 Scenario 2 Saturday Service Frequency Chart

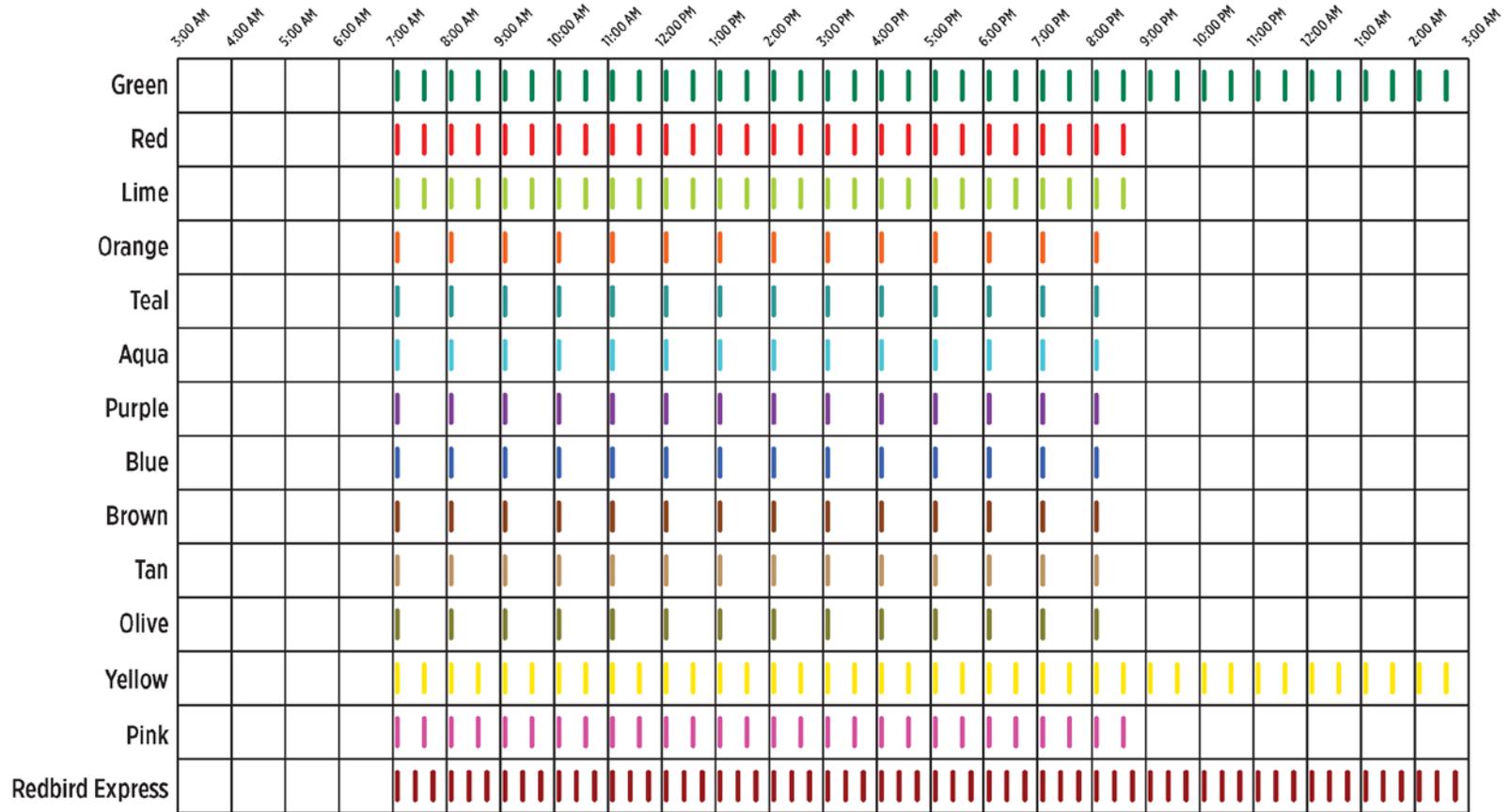
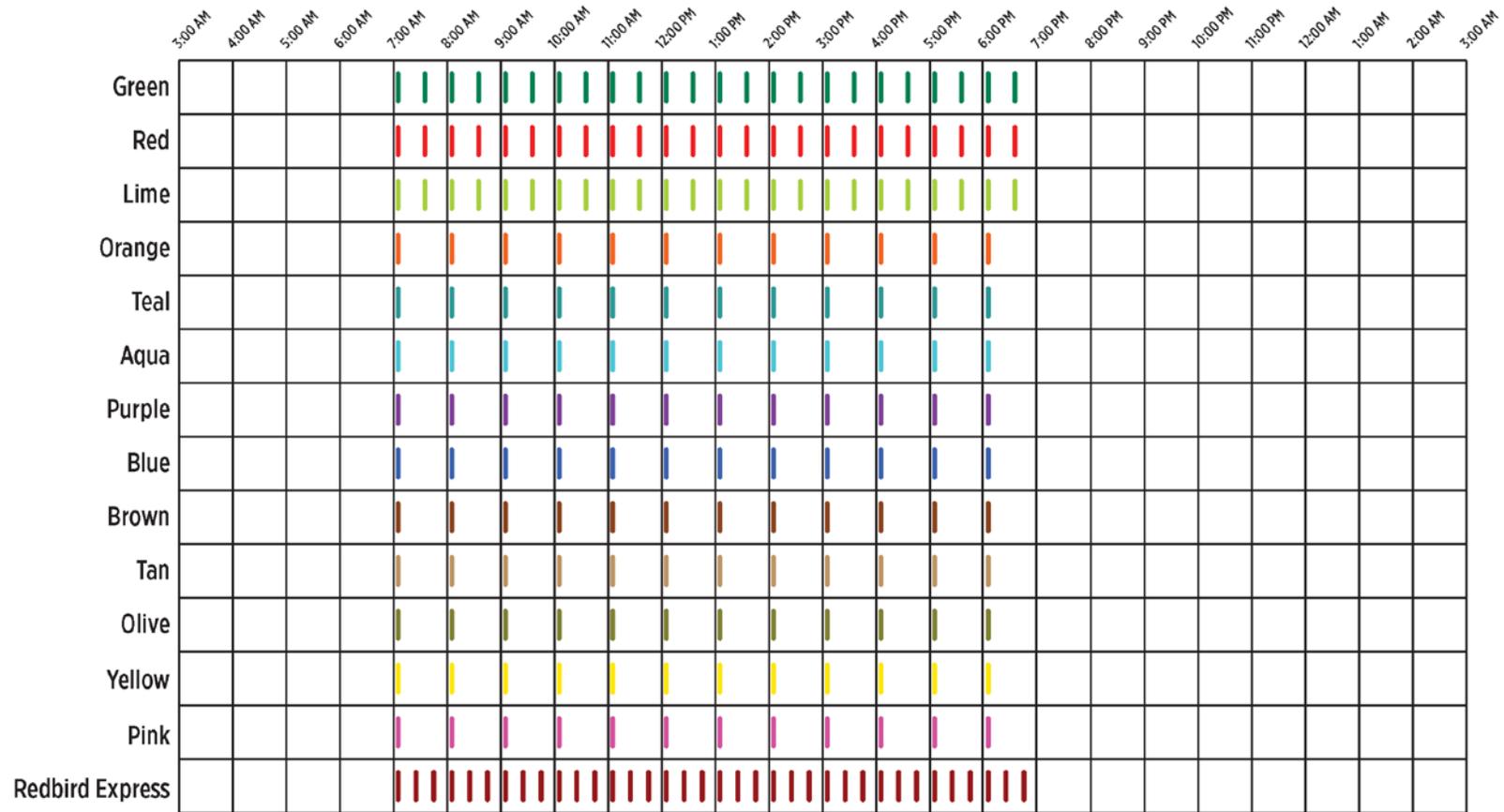




Figure 40 Scenario 2 Sunday Service Frequency Chart



PUBLIC OUTREACH

In October 2015, Connect Transit and Nelson\Nygaard held community meetings in both Bloomington and Normal to gather feedback on the preliminary scenarios. Outreach events were also held at Uptown Station and at ISU. Additional comments were also collected via email and on the COA website. The most frequent comments expressed at these events included the following:

- Community members expressed support for both increased weekday service frequency and service on Sundays. When asked to choose just one service scenario, the majority of residents expressed a preference for additional weekday service over Sunday service. Support for weekday service was strongest at the Bloomington community meeting, while Normal meeting attendees were split between the two scenarios.
- Attendees at both the Bloomington and Normal community meetings expressed concern about the potential loss of direct service to apartments on Orlando Avenue and Northbrook Drive in Normal. Community members noted that many residents of these apartments are older adults, families with small children, or are disabled.⁵
- Numerous attendees expressed frustration over the lack of sidewalk snow removal during the winter, especially in Normal. Several riders noted that they cannot safely access bus stops during the winter, and were concerned that walking one or two blocks to get to the bus would be unsafe.
- Riders and students interviewed at Uptown Station and at ISU were almost universally supportive of the proposed route restructuring.
- Some community members expressed concern over the potential elimination of bus service on Fort Jesse Road.
- Several meeting attendees said they would ride Connect Transit more frequently if most service operated at least every 30 minutes.

Detailed notes for each community meeting/event, as well as comments received online, are provided below.

Bloomington Public Meeting #2 (8/14/2015)

- Do you prefer more frequent weekday service or service on Sunday?
 - More Frequent Weekday Service: 18 Votes
 - Sunday Service: 4 Votes
- Community members expressed concern about service changes or eliminations at the following locations:
 - Orlando Northbrook Estates (Senior Housing); All apartment complexes along Orlando Avenue and Northbrook Drive
 - *Residents would be able to walk to the proposed Yellow Route, but the complex would no longer receive front-door service.*
 - Miller Park Adult Center

⁵ In response to these comments, an additional route (Olive Route) was added to the proposed route network.

- *Would be directly served by the proposed Purple Route.*
- Fort Jesse Road, including the Walgreens and OSF PromptCare
- Bloomington DMV
- *Would be directly served by the proposed Green and Brown Routes.*
- Bloomington Post Office on Towanda Avenue
- Towanda Avenue and Dillion Drive
- Hilltop Trailer Park
- *Currently directly served by Aqua Route. Residents would be able to walk to the proposed Aqua Route, but the complex would no longer receive front-door service.*
- Passengers frequently miss connections at Normal Station due to late buses
- There should be more shelters and bathrooms at bus stops
- Late night service on the proposed Red Route would allow more retail workers to use transit. Most evening retail work shifts end around 9:30.

Normal Public Meeting #2 (8/15/2015)

- Do you prefer more frequent weekday service or service on Sunday?
 - More Frequent Weekday Service: 7 Votes
 - Sunday Service: 7 Votes
- Community members expressed concern about service changes or eliminations at the following locations:
 - Orlando Northbrook Estates (Senior Housing); All apartment complexes along Orlando Avenue and Northbrook Drive
 - Getting rid of bus service at Orlando/Northbrook will increase crime
 - Buses should continue southbound into Northbrook like they do now.
 - Sam's Club, Menards, OSF PromptCare
- Regarding the lack of sidewalk snow removal:
 - Normal doesn't clean the sidewalks. Walking to the bus is difficult and unsafe in the winter.
 - Town of Normal doesn't shovel, not even in front of the police department
- Transferring between bus routes is difficult for people with wheelchairs or strollers
- Service needs to be simple for ISU students, who are not represented at this meeting
- Regarding the complexity of the existing bus network: "Anytime I need to go somewhere I'm not used to going, I literally have to plan it out with a pencil and paper"
- "Doesn't matter if [the bus] comes every 5 minutes, it is not accessible [for me if I have to walk two or three blocks]."
- I live north of Miller Park, but I would be willing to walk to Downtown Bloomington to access 15-minute service to Uptown Normal.
- I prefer getting people from one place to another no matter how long it takes, over more frequent service on routes that take longer to walk to

- I would start riding more if there was 15 minute service. I stopped riding because service was so slow and inconsistent.
- The current Green A route goes off of Main Street to serve residential area where no one ever gets on
- Connect Transit drivers are great

Uptown Station and ISU (8/15/2015)

- Several ISU faculty and staff who currently drive to campus expressed interest in using proposed routes to Uptown Normal, including the proposed Tan and Lime Routes
- Two ISU students noted that existing campus bus service is confusing
- Nearly all riders and non-riders supported the concept of simplifying the Connect Transit route network.
- There was support for both increasing weekday service frequency and adding Sunday service.
 - One rider who works near the Shoppes at College Hills said she takes a taxi to get to work on Sunday
- Several community members at Uptown Station expressed concern that buses would no longer serve the Walgreens on Fort Jesse Road.

Online Comments

- Community members expressed concern about service changes or eliminations at the following locations:
 - Raab Road and Henry Street
 - Evergreen Village Senior Living Community
 - School Street and Orlando Avenue
 - *Service on the proposed Yellow Route is accessible at Main Street and Orlando Avenue, three blocks from this location.*
- “the Green A switching to a north-leg only route (as opposed to its old far north to far south) should make the bus more reliable so it can stick to its time table”
 - *The current Green A route will be split into a south route (Green Route) and a north route (Yellow Route) under the preliminary service plan*
- “While I agree that an increased route frequency would be beneficial, I don’t think that it should come at the expense of accessibility for current riders”
- “I’d prefer the bus routes remain the way they are. I am in the process of purchasing a condo near State Farm. I chose the location based partly on convenient bus service. Using the new map I will now need to change buses at least 2 or 3 times to get to the doctor’s office, grocery store, or dentist office. I am very disappointed with the changes. If I have to choose, I guess more frequent service would be better if I now need to catch 2 or 3 buses to get to my destinations.”
 - *Under the proposed service plan, the Orange Route and Teal Route near State Farm will be interlined. Passengers traveling between the two routes will not have to*

physically change buses as the route color changes. After this explanation, the commenter expressed satisfaction with the preliminary service proposal.

- “I like proposal #2. I really would like Sunday Service and that is most efficient way in making it possible.”
- “I prefer scenario one. I currently am not a bus rider, but you would gain me as a rider if service was more frequent. One of the reasons I choose not to ride the bus is because it does not come that often. If service is more frequent, I would re-think my transportation methods.”

5 FINAL RECOMMENDATIONS

RECOMMENDED SERVICE PLAN

Given current funding levels, the Nelson\Nygaard team recommends that Connect Transit adopt the Maximize Weekday Service scenario. During the public outreach process, Bloomington-Normal residents expressed a preference for more frequent weekday peak service over the introduction of Sunday service. The recommended service scenario provides at least 30-minute service on all routes when demand is greatest. Off-peak and Saturday service frequencies are matched with anticipated demand and market needs. Such a design will enhance the mobility of Bloomington-Normal residents, while increasing the overall productivity of Connect Transit services. An overview of the recommended service characteristics is provided in Appendix E.

Both the Maximize Weekday Service and Add Sunday Service scenarios provide a framework for how Connect Transit could distribute additional operating resources when and if they become available. With a modest increase in funding, Connect Transit could reallocate some peak-period weekday trips to enable limited Sunday service. With a more substantial increase in funding, Connect Transit could maintain at least 30 minute peak period service on weekdays while also introducing Sunday service. Chapter 6 describes potential new funding sources that Connect Transit could pursue to fulfill these further service improvements.

Ridership Impacts

The Nelson\Nygaard team utilized both national research and their experience with similar COA studies to estimate the ridership impacts of the recommended Maximize Weekday Service network plan. Ridership estimates were generated for weekday and Saturday service, as the recommended plan does not include Sunday service at this time. To determine the baseline ridership for each route, the team first distributed the existing ridership at each stop to the route or routes they would be served by under the proposed network. Ridership at stops that would no longer be served was either not redistributed or redistributed to a route that would run within a reasonable walking distance.

After determining baseline ridership, the team then estimated how ridership would be affected by new service areas, schedule design, and route design. In newly served areas, ridership was estimated based on the average boardings at stops that serve similar neighborhoods and destinations. Increased service frequency was expected to increase ridership, while decreased service reduced ridership. Routes that provide more direct connections between major destinations were also anticipated to have increased ridership over previous alignments.

The Nelson\Nygaard team estimates that systemwide weekday ridership will increase by 19% under the proposed service plan, while Saturday ridership will increase by 2%. The Redbird Express Route is anticipated to be the highest ridership route in the proposed Connect Transit



network, serving over 3,000 riders per weekday. Four of the five Core Network routes are estimated to serve over 1,000 daily riders. Most Neighborhood Network routes will serve between 150 and 350 riders per weekday. Figure 41 provides ridership estimates for each proposed Connect Transit service, as well as key impacts that will likely increase or decrease ridership.

The ridership estimation process cannot fully account for how service changes will affect rider behavior, or how shifts in development or employment will affect ridership. Ridership on some routes will likely increase beyond current estimates as riders acclimate to the new network. Some riders transit-dependent riders will likely move to neighborhoods served by higher frequency routes. The new network may also encourage additional transfer opportunities that cannot be fully anticipated. New developments, especially in Uptown Normal and Downtown Bloomington, may also increase ridership on some routes.



Figure 41 Ridership Estimates for Proposed Routes

Proposed Route	Donor Routes	Key Impacts	Baseline Weekday Ridership	Estimated Weekday Ridership Change	Estimated Weekday Ridership	Baseline Saturday Ridership	Estimated Saturday Ridership Change	Estimated Saturday Ridership
Aqua	C-Purple, K-Aqua	<ul style="list-style-type: none"> Reduced off-peak and Saturday service frequency 	366	-25%	274	305	-25%	229
Blue	F-Brown, H-Orange	<ul style="list-style-type: none"> Provides more direct service from transit hubs to Bloomington High School and Towanda Avenue More frequent peak service 	136	38%	187	104	9%	114
Brown	F-Brown, I-Lime	<ul style="list-style-type: none"> Provides more frequent and direct service from Uptown Normal to MLK Drive and the Bloomington Walmart Eliminates circuitous service on Hinshaw and Western Avenues 	297	38%	410	244	11%	272
Green	A-Green, C-Purple, E-Blue, F-Brown	<ul style="list-style-type: none"> Provides more direct service between Uptown Normal and Downtown Bloomington Constant headways on a single route provides more usable service than multiple, uncoordinated routes 	1,024	30%	1,331	743	30%	965
Lime	F-Brown, G-Yellow, I-Lime	<ul style="list-style-type: none"> Reduced travel times due to elimination of at-grade railroad crossings More efficient routing near Bloomington Walmart 	1,018	6%	1,081	850	6%	899
Olive		<ul style="list-style-type: none"> No direct service to Uptown Normal 	246	-13%	215	188	=13%	165



Proposed Route	Donor Routes	Key Impacts	Baseline Weekday Ridership	Estimated Weekday Ridership Change	Estimated Weekday Ridership	Baseline Saturday Ridership	Estimated Saturday Ridership Change	Estimated Saturday Ridership
Orange	C-Purple, H-Orange, K-Aqua	<ul style="list-style-type: none"> Provides direct service between Downtown Bloomington and the State Farm South Campus More frequent peak service 	254	35%	342	208	10%	229
Pink	E-Blue, H-Orange, NiteRide Red, Redbird Express Red	<ul style="list-style-type: none"> More frequent peak, off-peak, and Saturday service 	261	50%	392	158	50%	236
Purple	B-Red, C-Purple, F-Brown, G-Yellow, H-Orange, J-Teal	<ul style="list-style-type: none"> Less frequent off-peak and Saturday service Introduces new service on Hershey Road 	847	-11%	749	676	-25%	229
Red	B-Red, C-Purple, D-Pink, F-Brown, G-Yellow	-	1,822	0%	1,822	1,510	0%	1,510
Redbird Express	Redbird Express Red, Redbird Express Blue, NiteRide Red, NiteRide, Blue	<ul style="list-style-type: none"> More direct service between major ISU campus destinations Increased mid-day and Saturday service frequency Longer service span 	3,336	48%	4,920	116	60%	186
Tan	F-Brown, H-Orange, J-Teal	<ul style="list-style-type: none"> Increased peak period service More direct service between Uptown Normal and the airport Introduces new service on Airport Road and to development sites on Trinity Lane 	181	48%	269	120	18%	142



Proposed Route	Donor Routes	Key Impacts	Baseline Weekday Ridership	Estimated Weekday Ridership Change	Estimated Weekday Ridership	Baseline Saturday Ridership	Estimated Saturday Ridership Change	Estimated Saturday Ridership
Teal	C-Purple, J-Teal	<ul style="list-style-type: none"> More direct service between State Farm's Main and South campuses Increased peak period service Introduces new service along Prospect Road 	285	35%	383	164	8%	178
Yellow	B-Red, H-Orange, Redbird Express Red, NiteRide Red, Heartland Express	<ul style="list-style-type: none"> Provides more direct service between Uptown Normal and Heartland Community College 	1,049	10%	1,154	546	10%	601
Total			11,120	22%	13,530	5,932	5%	6,235

Title VI Analysis

Title VI of the Civil Rights Act of 1964 ensures that “no person in the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” Connect Transit has committed to the Federal Transit Administration (FTA) objectives set forth in Circular 4702.1B. These objectives work to ensure that FTA-assisted benefits and related services are made available and are equitably distributed without regard to race, color, or national origin.

The Connect Transit Operational Analysis focused on identifying potential improvements to bus services in Bloomington-Normal. These improvements were developed through an analysis of the local market and existing services, as well as an extensive outreach process with riders and other community stakeholders. Using this information, Connect Transit developed a network design plan and two potential scheduling scenarios to enhance service for existing riders and attract potential new riders. The proposed network and both scheduling scenarios were presented to the public, with additional feedback received at both community meetings and online. This feedback then informed the development of a third recommended scenario. This final scenario will be examined as part of this Title VI Analysis.

Under the recommended service improvement plan, nearly all areas currently served by Connect Transit will continue to receive fixed-route transit service. This Title VI Analysis therefore focuses primarily on areas where service levels on fixed-route services would be improved, as well as areas where service would remain similar or be reduced. The income, race, and national origin of residents from each neighborhood in Bloomington-Normal was examined to determine whether the proposed services changes would disproportionately impact classes protected by Title VI. Specific focus was placed on identifying areas with disproportionately high low-income and/or minority populations that would see significant service reductions under the final recommended service plan.

Title VI Demographic Analysis Methodology

This analysis measures the impacts of recommended Connect Transit service changes on low-income and minority populations within the current service area. Data concerning these populations were obtained from the 2010-2014 Five-Year American Community Survey (ACS). Individuals who identified as any race other than non-Hispanic white on the ACS were considered “minority.” The US Census Bureau defines individuals who reside in households where total household income is equal to or less than 80% of the area median income as living below the poverty threshold. Individuals living below this threshold were considered “low-income.”

For the purposes of this analysis, Connect Transit’s “service area” is defined as census block groups that are within ¼ mile of existing fixed-route services. Most riders typically find this ¼ mile distance a comfortable walk for accessing transit services. Block groups are the smallest geographic unit for which current low-income and minority population data is available. Many block groups comprise a relatively large portion of the Connect Transit service area, reflecting the lower population density of some Bloomington-Normal neighborhoods. As a result, some individuals residing in block groups within the “service area” area likely to live farther than a ¼ mile from an existing fixed-route service.

To calculate existing service level by block group, each existing route was assigned a total trips per week figure based on existing service levels. This trips per week metric generally reflects the number of times a rider will be able to access transit from a given location. Each block group was then assigned the sum of the total trips per week of all existing routes that passed through it. Block groups were similarly assigned service levels based on the proposed service plan. The proposed trips per week figure was then subtracted from the existing trips per week to determine the change in service.

Some existing Connect Transit routes have long one-way loops which provide only inbound or outbound service, rather than trips in both directions. In limited circumstances, this service design results in some block groups being assigned slightly more trips than are actually accessible to area residents. In most cases, however, a portion of both the inbound and outbound segments of the one-way loop are within a single block group and the assigned trip total accurately reflects total accessible trips. These limited discrepancies did not ultimately affect whether any block group was determined to have gained or lost service.

Any service change involving 25% or more of the total service to a given area was considered a major service change (Figure 42). Therefore, any block group that would have an increase in trips under the recommended service plan above 25% was considered to have “increased service.” Any block group that would see a decrease in trips above 25% was considered to have “decreased service.”

Figure 42 Service Change Definitions

Service Change Category	Definition
Increased Service	More than 25% increase in trips per week
Minimal Service Change	Between 25% decrease and 25% increase in trips per day
Decreased Service	More than 25% decrease in trips per day

Recommended Service Plan Analysis

The recommended service plan proposes to streamline existing Connect Transit services and eliminate service on select low ridership corridors. Most neighborhoods and destinations in Bloomington-Normal will receive an increased or similar level of transit service as they do under the current network. Neighborhoods where service will be reduced or eliminated are primarily located along the periphery of Bloomington-Normal, near or outside of the Interstate 55/Veterans Parkway loop (Figure 46). These neighborhoods are generally low density and inhabited by individuals who are more likely to be white and live in a household above the poverty line.

The proposed Connect Transit bus network will maintain service to all but three currently served block groups in Bloomington-Normal (Figure 45). All three block groups are located in the periphery of existing service area and primarily contain lower density single family housing and scattered apartment complexes. Residents of these neighborhoods represent 7.5% of the existing service area population, and are more likely to be white and live in households above the poverty line. As a result, the proposed service area has slightly more low-income and minority residents than the existing service area (Figure 43).

Figure 43 Existing and Proposed Service Area Demographics

Service Area	Total Population	% Low-Income	% Minority
Existing Service Area	137,052	16.9%	22.8%
Total Proposed Service Area	126,753	17.9%	23.6%
Eliminated Service Area	10,299	4.8%	13.3%

Just over 57% of the existing service area population will see increased service under the recommended service plan. Around 25% of residents will experience minimal change in service, while 18% of residents will see decreased transit service (Figure 43). Residents of neighborhoods with increased transit service are more likely to live in a low-income household than the overall service area population. Residents residing in areas that will see decreased service are substantially less likely to live in a low-income household and are more likely to be white. Based on these findings, the proposed service changes do not appear to have a disparate negative impact on either the low-income or minority residents of Bloomington-Normal.

Figure 44 Resident Demographics by Service Change

Service Area	Total Population	% Low-Income	% Minority
Increased Service	78,171	19.4%	23.3%
Minimal Service Change	33,645	20.4%	25.8%
Decreased Service	25,236	4.8%	17.6%

Figure 45 Change in Service Area Under Proposed Service Plan by Block Group Map

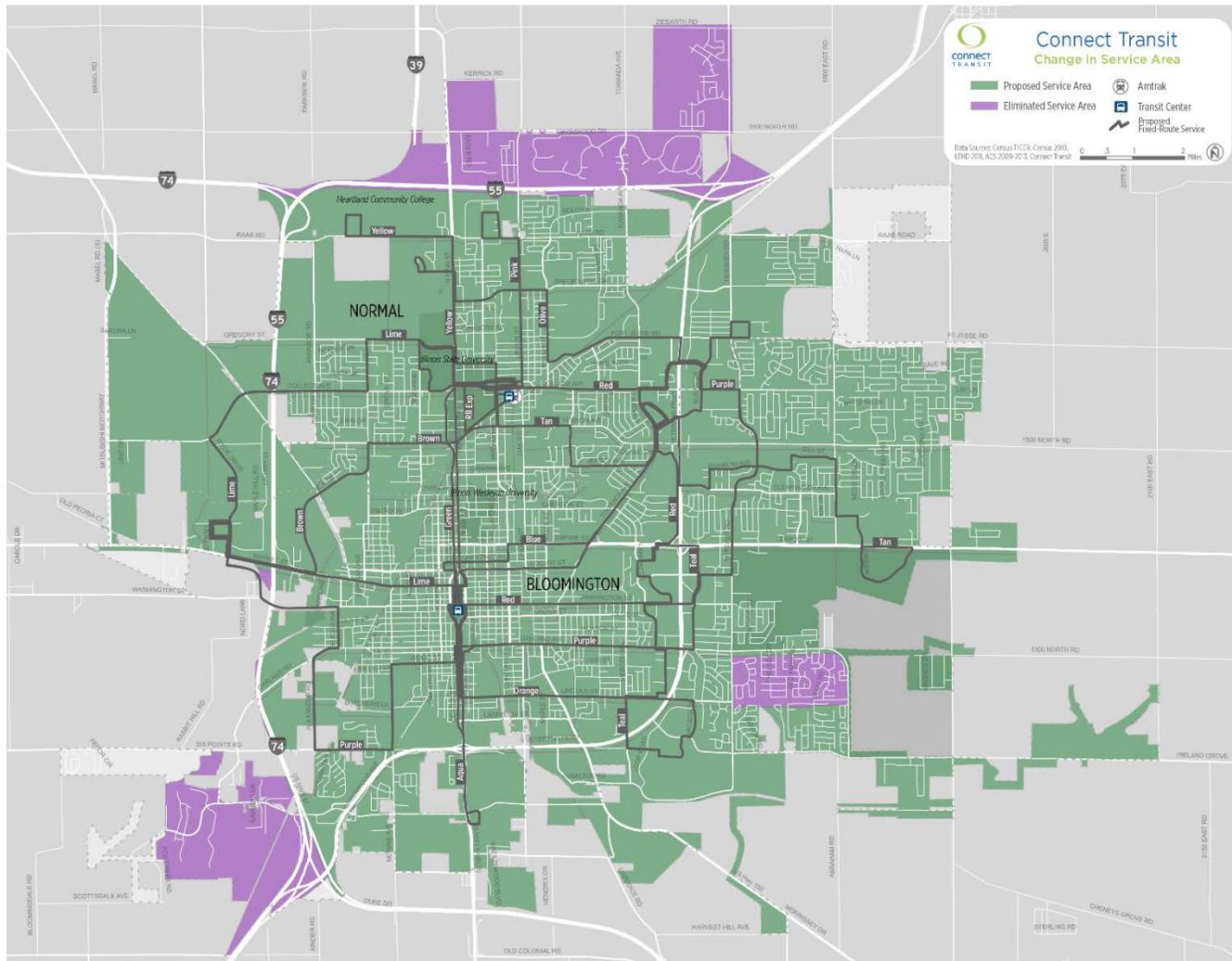
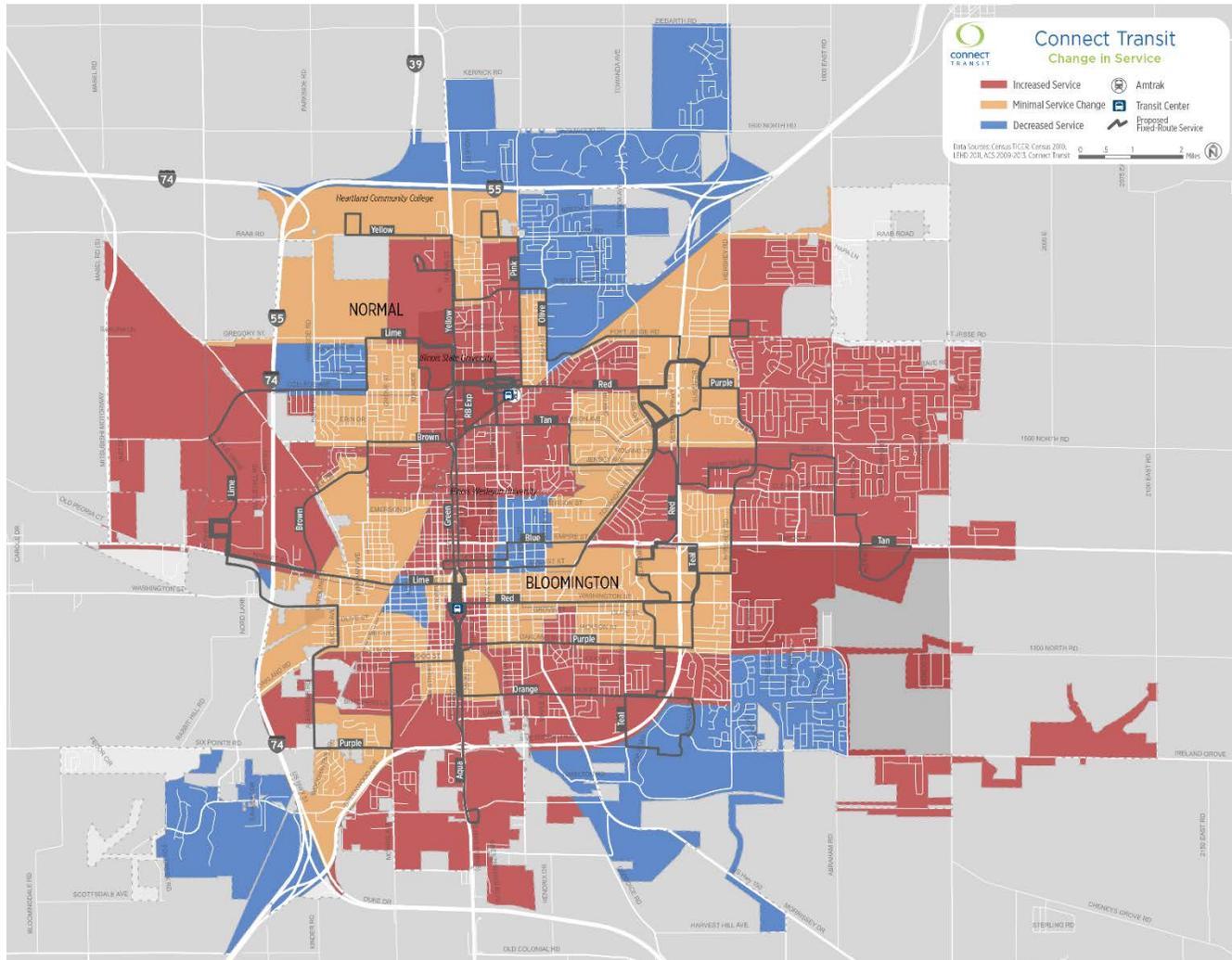


Figure 46 Change in Service Under Proposed Service Plan by Block Group Map



SUBSIDIZED UBER SERVICE PROGRAM

The recommended service plan eliminates fixed-route service in three outlying Bloomington-Normal neighborhoods (see Figure 45). These neighborhoods currently generate low transit ridership and are difficult to access without long stretches of extremely unproductive service. As an alternative to traditional fixed-route bus service, Connect Transit could implement an Uber subsidy program in neighborhoods where service is proposed to be eliminated.

Uber is a technology platform that allows registered users to use their privately owned vehicles to provide rides to members of the public. The company is currently the only major transportation network company (TNC) that operates in Bloomington-Normal. To access the Connect Transit sponsored Uber service, customers would enter a special access code in the Uber smartphone application or use a website link provided on marketing materials and the Connect Transit website. Customers could then instantly request a trip between any location in the neighborhoods where service will be eliminated and the closest fixed-route bus stop. Trips would be fulfilled by an Uber driver, typically within a few minutes. The service would enable riders to continue to access fixed-route service without Connect Transit providing poorly utilized and unproductive service to outlying neighborhoods.

During an initial pilot period, Connect Transit could provide a subsidy for all rides between the designated service zones and a nearby fixed-route bus stop during regular service hours. This program would allow residents who rely on Connect Transit to continue to access public transportation services for a low cost. The pilot program could end as residents adjust their travel patterns or housing to reflect the new service area, or become a permanent service in difficult-to-serve neighborhoods. Connect Transit could provide a fixed subsidy, likely between two and five dollars, on all eligible Uber trips. Alternatively, Connect Transit could institute a rate cap per trip and subsidize any remaining costs.

Most eligible Uber trips would cost between five and ten dollars without a subsidy. However, Uber does implement surge pricing during periods of very high demand. If Connect Transit provided a fixed-subsidy, most eligible trips would cost between three and seven dollars during regular demand periods. When surge pricing occurs, the cost of trips would increase, with users being responsible for the elevated price. Under the rate cap model, Connect Transit would assume this responsibility. Thus, the fixed subsidy model offers a more predictable and financially sustainable approach for Connect Transit. The Nelson\Nygaard team therefore recommends that Connect Transit utilize the fixed subsidy model during the pilot period.

6 POTENTIAL FUNDING SOURCES

This chapter presents estimated operating and capital costs for recommended Maximize Weekday Service scenario, as well as the alternative Add Sunday Service scenario, and discusses likely sources of funding for each.

OPERATING COSTS

Operating costs were estimated for the recommended service scenarios by applying the estimated increase in vehicle hours associated with each scenario to Connect Transit’s current annual operating expenses of approximately \$10,000,000 (excluding depreciation). Estimated annual operating cost for each scenario is shown in Figure 47.

Figure 47 Estimated Annual Operating Cost for Recommended Service Scenarios

Service Scenario	Increase in Annual Vehicle Hours	Estimated Annual Operating Cost
Maximize Weekday Service (Scenario 1)	6%	\$10,558,140
Add Sunday Service (Scenario 2)	17%	\$11,689,922

As shown, the annual cost of Scenario 1 is about 6% higher than Connect Transit’s current annual operating cost, while the cost of Scenario 2 would generate an increase of 17%, or slightly under \$1.7 million, in annual operating expenditures.

Funding Sources

Sources of funding to support the implementation of either of the recommended service scenarios would include Connect Transit’s current primary sources of operating funds:

- Section 5307
- Downstate Operating Assistance Program (DOAP)
- Farebox Revenue

However, funding from the recently passed increase in local sales taxes, described below, may be a source of additional revenue to cover the cost of enhanced services.

Increased Local Sales Tax Revenue

In 2015, both Bloomington and Normal passed a one percent increase in the local sales tax to support mental health programs and a number of other potential programs and services, including Connect Transit. It seems likely that both the Bloomington and Normal City Councils

will approve the use of additional sales tax revenues to support Connect Transit, possibly in the amount of as much as \$1 million in 2017. Access to those additional funds would enable Connect Transit to access up to \$2 million in its annual allocation of state funds from IDOT in DOAP that it has been unable to use in the past due to a shortage of local matching funds. Increased use of state funds will permit Connect Transit to use more of its federal Section 5307 funding for capital projects rather than to cover operating expenses.

The availability of funding for Connect Transit from increased Bloomington-Normal sales tax revenues is expected to be permanent; however, the mechanism for distributing funds in the future for purposes other than mental health programs and services has not yet been identified.

CAPITAL COSTS

Due to more efficient routing and scheduling, Scenarios 1 and 2 will each require the operation of 28 vehicles during peak periods, five more vehicles than Connect Transit currently operates during those times. Consequently, there are only minor additional vehicle costs associated with either of the recommended scenarios.

Thoughts about amounts needed and potential sources of funding for the replacement of Connect Transit's current fixed-route and demand-response vehicle fleets over the next five years are offered below.

Potential Capital Replacement Plan

Figure 48 shows information about Connect Transit's current fleet of buses and demand-response vehicles, including the size, year, make and model, seating capacity, age, and earliest replacement date, based on the relevant FTA useful life standard, of each vehicle.

At present, 28 buses and seven demand-response vehicles are past their target replacement date as measured by years. Although some or all of those vehicles may not have attained their maximum mileage and may be in good operating condition, a plan to replace vehicles regularly is advisable and Connect Transit has accumulated funding for the replacement of 30 vehicles over the next five years.

A suggested schedule for replacing vehicles in both fleets that prioritizes replacement of the oldest vehicles and breaks up the amount of capital funding needed over five years is shown in Figure 49. The estimated cost and federal and local shares for each year are also presented.

Estimated replacement costs range from a high of just over \$4 million in 2017 for the replacement of eight 1998 buses and one 2003 van to a low of \$1.1 million in 2021. Assuming that 80% of the cost of those replacements will be covered by the federal grant programs described below, the 20% non-federal share will range from \$812,000 in 2017 to \$220,000 in 2021.

Figure 48 Connect Transit Bus and Demand-Response Vehicle Fleets

Bus Fleet							
Make/Model	Length	Year	Quantity	Seating	Age	Applicable FTA Useful Life Standard	Earliest Replacement Year
Gillig High Floor 40'	40'	1998	8	38	19.0	At least 12 years or 500,000 miles	2010
Gillig High Floor 30'	30'	2004	14	29	13.0	At least 10 years or 350,000 miles	2014
Gillig High Floor 30'	30'	2005	5	29	12.0	At least 10 years or 350,000 miles	2015
Gillig High Floor 30'	30'	2008	2	29	9.0	At least 10 years or 350,000 miles	2018
Gillig LF Diesel	40'	2010	1	34	7.0	At least 12 years or 500,000 miles	2022
Gillig LF Diesel	35'	2011	4	34	6.0	At least 12 years or 500,000 miles	2023
New Flyer 40' LF	40'	2015	5	40	2.0	At least 12 years or 500,000 miles	2027
Total			39				
Demand-Response Fleet							
FORD	22'	2003	1	15	13	At least 4 years or 100,000 miles	2007
FORD	22'	2009	1	15	7	At least 4 years or 100,000 miles	2013
FORD	22'	2010	2	15	6	At least 4 years or 100,000 miles	2014
FORD	22'	2011	3	15	5	At least 4 years or 100,000 miles	2015
CHEVY	22'	2012	8	15	4	At least 4 years or 100,000 miles	2016
Total			15				

Figure 49 Suggested Capital Replacement Plan and Estimated Funding Requirements

Suggested Vehicle Replacements	Estimated Funding Requirements		
	Estimated Cost*	Federal 80%	Non-federal Match 20%
2017			
8 1998 40' buses	\$4,000,000	\$3,200,000	\$800,000
1 2003 Ford van	\$60,000	\$48,000	\$12,000
Total 2017	\$4,060,000	\$3,248,000	\$812,000
2018			
7 2004 30' buses	\$2,800,000	\$2,240,000	\$560,000
1 2009 Ford van	\$60,000	\$48,000	\$12,000
2 2010 Ford vans	\$120,000	\$96,000	\$24,000
Total 2018	\$2,980,000	\$2,384,000	\$596,000
2019			
7 2004 30' buses	\$2,800,000	\$2,240,000	\$560,000
3 2011 Ford vans	\$180,000	\$144,000	\$36,000
Total 2019	\$2,980,000	\$2,384,000	\$596,000
2020			
5 2005 30' buses	\$2,000,000	\$1,600,000	\$400,000
3 2012 Chevy vans	\$180,000	\$144,000	\$36,000
Total 2020	\$2,000,000	\$1,600,000	\$400,000
2021			
2 2008 30' buses	\$800,000	\$640,000	\$160,000
5 2012 Chevy vans	\$300,000	\$240,000	\$60,000
Total 2021	\$1,100,000	\$880,000	\$220,000

*Assumes a unit cost of \$500,000 for a 40' bus, \$400,000 for a 30' bus, and \$60,000 for a modified van

Funding Sources

In the past, Connect Transit has utilized funding from the federal Section 5307 and Section 5309 programs with nonfederal matching funds from IDOT's Downstate Transit Improvement Fund and contributions from Bloomington and Normal to finance capital projects.

Federal Grant Programs

MAP-21 modified the 5309 program so that it now provides funding for new or expanded fixed guideway projects (rail, BRT, and ferry systems) and no longer supports fixed guideway modernization or bus and bus facilities projects. Those changes were continued in the Fixing America's Surface Transportation (FAST) Act, which was signed into law in December 2015 to reauthorize the federal transit programs.

Section 5307 is still a source of both capital and operating funding for Connect Transit. As mentioned above, the availability of additional local funding from local sales tax revenues will increase the agency's ability to access state operating funds and thereby decrease its reliance on 5307 funding to cover operating costs. Section 5307 will be a greater source of capital funding for Connect Transit in the future.

In addition, the Section 5339 program, as modified by the FAST Act, is another potential source of increased funding for Connect Transit's upcoming vehicle replacements and other capital projects.

FAST Act Section 5339, Bus and Bus Facilities

The FAST Act included positive changes to the 5339 program. Under MAP-21, the program provided formula funds only, which relieved the inconsistency and uncertainty for transit providers of the predecessor 5339 discretionary program, but also decreased the former program's flexibility. Changes to the program under the FAST Act include:

- Increased funding for the program overall, from the MAP-21 level of \$428 million in FFY15 to \$809 million in FFY20
- Authorization of a higher level of annual funding for states to use in nonurbanized areas, from \$1.25 million to \$1.75 million per year
- Introduction of two new competitive programs for states and local transit agencies, which will provide funding in the amount of \$1.5 billion over five years

One competitive program will use \$213 million to \$289 million annually to fund projects to replace, rehab, purchase, or lease buses on the basis of age and condition, or purchase, construct, or lease bus facilities. The other will provide \$55 million per year to support the acquisition of low- or zero-emission vehicles and related facility projects. Ten percent of the competitive funding amounts will be set aside for projects in rural areas. Requirements of the 5307 and 5311 programs will apply to the new competitive grants, including a 20% non-federal matching requirement. FTA expects to issue a Notice of Funding Availability (NOFA) for these two competitive programs soon.



Sources of Nonfederal Matching Funds

The nonfederal share of capital projects may be obtained from eligible state and/or local sources. Grants from IDOT's Downstate Transit Improvement Fund and Connect Transit's funding from increased local sales tax revenue that is not used to cover operating expenses will provide an ongoing source of nonfederal matching funds for vehicle replacements and other capital projects.

Transportation Development Credits (TDCs, formerly known as Toll Revenue Credits) are another eligible source of nonfederal match under FTA's 5307 and 5339 regulations. Essentially, states are awarded credits for the amount of toll revenue that is collected in the state and used to build or maintain infrastructure that is used in interstate commerce. TDCs do not provide additional funding, but can be used as credits against the nonfederal share of a project, allowing federal funding to cover the entire cost of the project.

IDOT has established a TDC policy and procedures for applying those credits to a transit project. If the federal funds will not be administered by IDOT, the transit system applicant must request written permission to use TDCs from DPIT, providing information about the proposed project and including a copy of its electronic grant application to FTA through the Transit Awards Management System (TrAMS). After DPIT reviews the applicant's request and verifies that sufficient credits are available in the state's TDC pool, an approval memorandum is prepared and signed by various parties to authorize use of TDCs for the project. The FTA Regional Office is notified, and the approval memorandum is attached to the applicant's TrAMS application.

7 SERVICE STANDARDS AND GUIDELINES

Service standards are the foundation of transit service planning, and provide an objective and consistent basis upon which to track service performance and make service decisions. Service standards are used to measure and evaluate operational performance, and to support decisions about where and when service should be added, maintained, or reduced. Since resources are always limited, having quantitative criteria can help with prioritizing the most effective use of those resources.

Without an established set of standards, service changes can appear arbitrary, regardless of how justifiable they may be. Ideally, service standards help to establish a network that best meets travel needs, while maintaining reasonable productivity and efficiency.

PERFORMANCE MEASURES

For transit systems that do not have an established set of performance measures and service standards, it is often useful to initially set a baseline that reflects current performance, while also establishing a set of goals by which to judge future service performance measures. For example, a goal may be to match the average service performance of a set of peer systems for one or more performance metrics. Typical metrics used for evaluating service performance include:

- **Passengers per Revenue Hour:** Calculated by dividing the total number of passengers by the total number of vehicle revenue hours. The number of passengers per hour is a good measure of service productivity.
- **Operating Cost per Passenger:** Calculated by dividing all operating and administrative costs by total passengers. The subsidy per passenger is a further refinement of this measure and is calculated by subtracting farebox revenue from gross operating and administrative costs and dividing by total passengers. This measure is useful when service cuts or enhancements are being considered and justified.
- **Operating Cost per Revenue Hour:** Calculated by dividing all operating and administrative costs by total in-service vehicle hours. This metric provides a good measure of cost efficiency, and indicates how much it costs the agency to provide an hour of service.
- **Farebox Recovery:** Calculated by dividing fare revenues by total operating cost. Farebox recovery indicates how much of an agency's operating expenses are covered by passenger fare revenue.
- **On-Time Performance:** Measured by recording bus departure and arrival times on a regular schedule to monitor pickup times.

- **Preventable Accidents/Revenue Mile:** Calculated by dividing the number of preventable accidents by revenue miles.
- **Passenger Complaints:** Records the number of passenger complaints that are submitted in writing or verbally conveyed to the transit agency. This is typically measured as number of complaints divided by 500 or 1,000 passengers.

Most agencies utilize just a subset of these measures, depending on agency goals and objectives, data availability and the desired service evaluation process. As in many areas, the use of a limited, focused set of measures is usually more effective than the use of a more extensive list of measures.

In addition, different sets of thresholds are typically applied to different types of services. At the transit system level, distinctions are usually made among services (regular fixed-routes, university shuttles, flex routes, etc.). Where services are classified differently, the same basic measures are typically used, but different thresholds are set. For example, where the major productivity measure is passengers per revenue hour, the acceptable level of performance could be set at 20 passengers per hour for university shuttles and 10 passengers per revenue hour for local routes.

At the route level, service performance measures can help identify underperforming routes, and determine when it is appropriate to upgrade or downgrade a route’s service category. For example, a flex route may be upgraded to fixed-route service, or a fixed-route may be downgraded to demand-response service, based on demonstrated demand and service performance.

PEER REVIEW

The study team, together with Connect Transit staff, identified a set of transit systems with similar characteristics and operating environments to Connect Transit (Figure 49). The peers generally have metro areas and transit systems that are close in size to Connect Transit and the Bloomington-Normal region. All of the peers have mid-size universities comparable to Illinois State University, but also have other significant trip generators in their communities. Like Connect Transit, some of the peers (Springfield, MO and Knoxville, TN) do not have dedicated state or local funding sources.

Figure 50 Connect Transit and Peer Systems

City	Service Provider	Service Area Size (sq. mi.)	Urbanized Area Population (2010)	Annual Operating Costs (in millions)	Fixed-Route Vehicles in Peak Service
Bloomington, IL	Connect Transit	46	132,600	\$7.5	23
Ames, IA	CyRide	15	60,438	\$8.1	70
Champaign-Urbana, IL	C-U MTD	30	145,361	\$29.4	93
Mankato, MN	MTS	24	57,584	\$1.4	13
South Bend, IN	Transpo	68	278,165	\$9.1	36
Terre Haute, IN	THTU	18	92,742	\$2.1	8
Springfield, MO	CU Transit	104	273,724	\$7.8	66
Knoxville, TN	KAT	78	558,696	\$18.5	21
Peer Average		48	209,530	\$10.9	44

Source: National Transit Database (2013), U.S. Census

Connect Transit and its peer systems were compared in terms of select performance metrics (see Figure 50). The study team contacted staff at the seven peer systems to determine whether they used service standards and to find out which performance measures they used to evaluate service performance and efficiency. Responses were received from three of the systems. Where information was not available, data was collected from the National Transit Database (NTD) based on 2013 reporting data Figure 51 shows how Connect Transit compares to each of the selected peers on a number of measures of service performance and efficiency.

Figure 51 Peer Agency Comparison, Performance Measures from 2013 NTD

City	Service Provider	Passengers per Revenue Hour	Passengers per Revenue Mile	Cost per Passenger Trip	Cost per Revenue Hour	Farebox Recovery (%)
Bloomington, IL	Connect Transit	22.1	1.5	\$3.75	\$82.83	15%
Ames, IA	CyRide	52.9	5.1	\$1.37	\$72.56	43%
Champaign-Urbana, IL	C-U MTD	46.3	4.0	\$2.48	\$114.65	9%
Mankato, MN	MTS	38.7	3.2	\$2.13	\$82.44	7%
South Bend, IN	Transpo	24.4	1.8	\$4.06	\$99.12	14%
Terre Haute, IN	THTU	8.5	0.9	\$5.31	\$45.31	8%
Springfield, MO	CU Transit	19.3	1.3	\$5.23	\$100.70	12%
Knoxville, TN	KAT	16.4	1.4	\$5.22	\$85.80	9%
Peer Average		29.5	2.5	\$3.69	\$85.80	15%

Source: National Transit Database (2013), transit agency staff

Connect Transit is somewhat below the peer average regarding passengers per hour and mile, but better than average in having lower costs per hour, and is close to average in terms of cost per passenger trip. As a result, Connect Transit matches the average of its peers at 15% farebox recovery.

The same peer agencies were asked about their service standards. Most agencies did not respond, and some indicated that they were just beginning to draft service standards. One agency, CyRide, has established standards for each of the FTA-mandated categories (vehicle load, service frequency, on-time performance, and service availability). The measures for each category were based on recommendations by planning staff and approval of the agency board. Although the agency does not meet the threshold for mandatory review of standards under Title VI, agency staff monitor vehicle loads and on-time performance on a daily basis.

ESTABLISHING SERVICE STANDARDS

Connect Transit should determine which set of service performance metrics are the best measures of their agency and community goals. Consideration should include the use of the most common single service performance measure: passengers per revenue hour.

There are no national transit service standards but FTA does have recommendations for the type of service standards and policies to be included in the Title VI plan required of all transit agencies

operating fixed-route service. Since some service standards will be needed as part of submitting a Title VI plan to FTA, Connect Transit should begin by establishing those that are mandated. These include:

- **Vehicle Load:** The acceptable level of crowding at peak and off-peak times
- **Minimum Frequency:** For peak and off-peak, and may be varied according to population density in the area being served
- **On-Time Performance:** May be by route or system-wide, and details can be defined by the agency
- **Geographic Coverage:** Areas served, as well as distance between stops; may be related to population density

These standards are typically developed by an agency team from planning and operations, and possibly other departments. Some consultation with the public is helpful, even though it is more difficult to engage people in the relatively abstract discussion of standards (as compared to specific service change proposals). Finally, the refined standards should be approved by management and/or the Board as appropriate.

In addition to the mandated standards, it may be desirable to set a standard for span of service, which could vary by type of route. For typical local bus service, a minimum span of 12 hours per weekday might be considered, as this span of service usually allows the service to be useful to a relatively large proportion of potential users. Also, it is often useful to balance the standards for coverage, frequency, and span with one or more standards related to efficiency/productivity, such as passengers per revenue hour and/or farebox recovery.

Figure 52 includes a set of proposed service standards for Connect Transit. These standards are primarily based on the productivity and design of existing Connect Transit services, as well as industry standards.

Figure 52 Proposed Connect Transit Service Standards

Metric	Proposed Standard	Justification
Passengers per Revenue Hour	<ul style="list-style-type: none"> ▪ Weekday: 28.5 ▪ Weekend: 23.5 	<ul style="list-style-type: none"> ▪ Current systemwide passengers per revenue hour
Operating Cost per Passenger	<ul style="list-style-type: none"> ▪ Weekday: \$2.90 ▪ Weekend: \$3.50 	<ul style="list-style-type: none"> ▪ Current systemwide operating cost per passenger
Operating Cost per Revenue Hour	<ul style="list-style-type: none"> ▪ Weekday: \$83.00 ▪ Weekend: \$83.00 	<ul style="list-style-type: none"> ▪ Current operating cost per revenue hour
Farebox Recovery	<ul style="list-style-type: none"> ▪ Weekday: 15% ▪ Weekend: 15% 	<ul style="list-style-type: none"> ▪ Current farebox recovery rate
On-Time Performance	<ul style="list-style-type: none"> ▪ 85% (any departure ahead of schedule or more than 5 minutes behind schedule is considered early/late) 	<ul style="list-style-type: none"> ▪ Industry standard
Vehicle Load (Passenger-to-seat ratio)	<ul style="list-style-type: none"> ▪ Peak: 1.5 ▪ Off Peak/Weekend: 1.0 	<ul style="list-style-type: none"> ▪ Industry standard

Minimum Frequency	<ul style="list-style-type: none"> ▪ Peak: 60 minutes ▪ Off Peak/Weekend: 60 minutes 	<ul style="list-style-type: none"> ▪ Current and proposed minimum service frequency
Geographic Coverage	<ul style="list-style-type: none"> ▪ At least 3 households per acre or 5 jobs per acre, contiguous with existing service area, to justify hourly fixed-route service 	<ul style="list-style-type: none"> ▪ Industry best practice
Minimum Stop Spacing	<ul style="list-style-type: none"> ▪ ¼ Mile (1320 feet) 	<ul style="list-style-type: none"> ▪ Industry standard; ensures that most passengers will be within a 2-5 minute walk of a stop without degrading service quality

Generally, service standards should be realistically achievable but somewhat aspirational. Therefore, it is appropriate to set standards which could not be met with existing resources, but could be reasonably achieved within a few years if appropriate resources were made available. As the recommended service plan's effects become more apparent, Connect Transit should reevaluate the standards proposed above. The agency could for example, established tiered performance standards based on the route hierarchy described in Chapter 4. Routes comprising the Core Network, which serve corridors with greater ridership demand, could have higher service productivity standards than Neighborhood Network routes, which provide coverage service in lower demand neighborhoods. Connect Transit could then use this tiered standard to justify increasing service frequency and span on routes that exceed the standards for its tier, as well as to justify reducing service on routes that are underperforming. This practice would allow Connect Transit to easily identify when service modifications are needed and provide a unified and clear message to the public.