Transit Development Plan

Janesville Transit System

City of Janesville
Janesville Transit System
Janesville Area Metropolitan Planning Organization

SRF
With Bourne Transit Consulting and KL Engineering

January 2018

Table of Contents

Introduction

The City of Janesville operates the Janesville Transit System (JTS), providing fixed routes serving Janesville and Beloit, and specialized service to Janesville middle and high schools. JTS provides complementary paratransit services through a contract with Rock County Transit (RCT). RCT also provides additional demand response services in the rural parts of the county for older adults and people with disabilities, and has some subscription services. Intercity bus services are provided by Van Galder Bus (with linkages to Madison and Chicago on the I-90 corridor), and Wisconsin Coach Lines which provides daily service to Milwaukee.

The Janesville Transit Development Plan (TDP) is the product of collaboration between staff from multiple City divisions, principally, JTS (Neighborhood and Community Services department) and the Janesville Area Metropolitan Planning Organization (MPO) [Public Works department]. The Janesville Area MPO carries out federally-mandated regional planning and programming requirements for the City to remain eligible for federal transportation funds, including transit funds. Planning Services division staff coordinate the functions of the Janesville Area MPO.

Formation of the Janesville TDP relied heavily on input from community and governmental partners, JTS customers, and residents of Janesville. To provide input throughout the process, the MPO formed a transit advisory committee consisting of representatives from the School District of Janesville (SDJ), Homeless Intervention Task Force, Rock County Transit, Janesville Transit, and the visually impaired community. Additional specialists from area social service programs, aging and disability resources, medical care, economic development, and homelessness prevention were central to the success of this project.

Project Purpose

The purpose of the Janesville TDP is to evaluate the performance of existing transit service, develop strategies to improve transit system connections, and understand how to best meet future mobility needs. This TDP process involves a technical review and analysis of key aspects of current fixed route and paratransit service performance, including: routes, schedules, stops, equipment, current use patterns, costs, revenues, and emerging needs brought on by community expansion. Recommendations and alternatives development are based on stakeholder and community engagement processes, summarized in this report. Potential changes to transit service in and around Janesville are to be reflective of community needs and preferences.

Goals

The goals specific to JTS are an integral part of the City's Comprehensive Plan and are considered during development review, street and highway reconstruction, and neighborhood-level planning. These goals reflect the long-term vision for JTS, although it is expected that JTS's goals will

continue to evolve. As identified in the Janesville Area 2015-2050 Long Range Transportation Plan (LRTP), JTS's goals include:

- To promote the role of public transit in the overall Janesville community transportation system.
- To maintain a fiscally sound public transit system as a vital service worthy of public support similar to that provided for other basic City services.
- To serve the public transportation needs of senior citizens, disabled persons, youth, and major employment centers in an efficient, safe, comfortable, and reliable manner as defined by industry standards.
- To comply with all regulations and mandates set forth by the Federal Transit Administration and the Wisconsin Department of Transportation.

Existing Conditions

System Overview

JTS operates regular service fixed routes during the day (regular routes), three Nightside routes operating after regular service ends on weekday evenings, the Beloit to Janesville Express (BJE), nine tripper routes to Janesville middle and high schools (school trippers), and demand response service for people eligible for complementary paratransit service, as required by the 1990 Americans with Disabilities Act (ADA). In 2016, over 391,000 passenger trips were taken on JTS buses – about 6 trips per Janesville resident. Regular route service accounted for over 293,500 passenger trips, approximately 75 percent of annual JTS ridership in 2016; school tripper service accounted for 12 percent (48,800 rides).

The City owns 17 full-size buses and 1 paratransit van in its active revenue vehicle fleet. In addition to its fleet, the JTS maintains fixed facilities including the Transfer Center at 123 S. River Street in downtown Janesville, the Transit Services Center at 101 Black Bridge Road, as well as passenger shelters, benches, and bus stop signs throughout the community.

Existing Transit Services

Regular Routes

The core of JTS service is its regular fixed routes (Figure 1):

- Milton Avenue – Service from the downtown Transfer Center to shopping centers along Milton near I-90/I-39.
- East Milwaukee Street – Service from the downtown Transfer Center to Walmart along Milwaukee Street, past Marshall Middle School, paralleling Milton Avenue along Deerfield Drive.
- Wright Road—Loop service from the downtown Transfer Center through the east side of Janesville past Craig High School, St. Mary's Hospital, an industrial center, and near Lions Beach and Rotary Botanical Gardens.
- West Court Street—Service to the west part of town, serves Parker High School, Franklin Middle School, Mercyhealth Hospital and Mercyhealth Mall.
- Kellogg Avenue – Service in the south part of town, east of the river. Serves the Rock County Job Center, Edison Middle School, and the Wisconsin Center for the Blind and Visually Impaired (WCBVI).

Beloit to Janesville (BJE)

The Beloit-Janesville Express (BJE) is a fixed route service that connects Beloit and Janesville residents and serves many parts of Janesville that other routes fail to cover. The BJE route connects Beloit Transfer Center to Janesville's downtown Transfer Center about 15 miles north (Figure 1). The BJE serves employment and education centers in and between Beloit and Janesville, creating a 40-minute commute between transfer centers. Key service areas south of the Janesville Transfer Center are Blackhawk Technical College, WCBVI, Cedar Crest senior community, and UW-Rock County. On the north side of town, the BJE makes deviations to KANDU North and IB Milwaukee. It is also the only route that serves Traxler Park, the JTS Transit Services Center and Rock County Complex.

Nightside

After 6:15 p.m. on weekday evenings, three buses operate until 10:15 p.m. on three deviated fixed routes: Milton Avenue Nightside, Nightside-West, and Nightside-East. The three Nightside routes cover much of the same geographic area as the regular fixed routes (Figure 1). Nightside-West is a simplified version of the West Court Street and Kellogg Avenue regular routes, and Nightside-East is a combination of the East Milwaukee Street and Wright Road regular routes.

Nightside service operates on fixed routes and schedules, but deviations are allowed upon request. Route deviation service allows the bus to go three blocks off the normal route, and requires customers to call to schedule an hour ahead of time for a deviation. There is a night dispatcher available at the Transfer Center during Nightside operation hours.

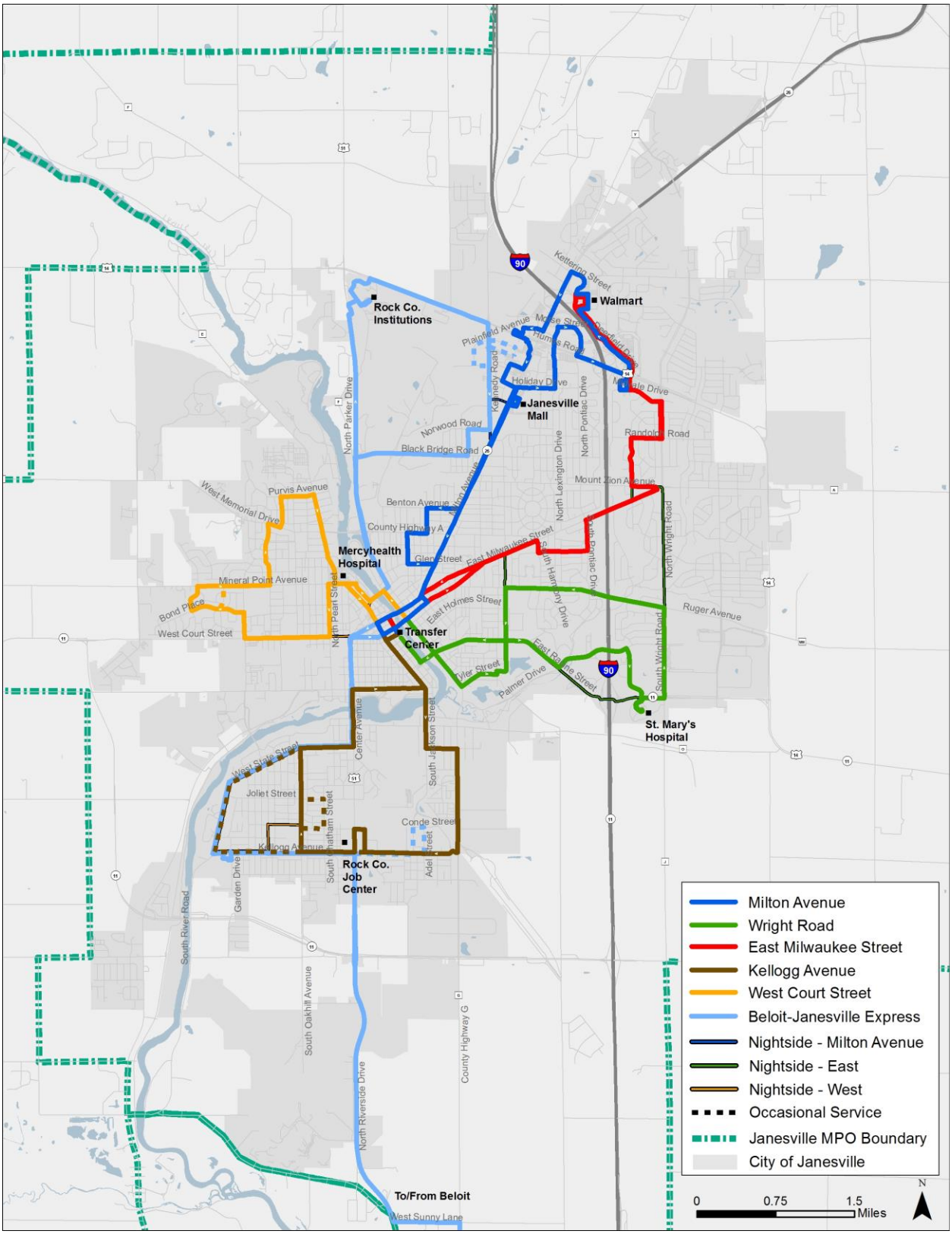
School Trippers

JTS operates extra bus service – school trippers – to Janesville's middle and high schools during the school year with routes and times coordinated with the school schedule. JTS operates eight school tripper routes, most of which provide morning and afternoon service (three routes are afternoon-only and one is morning-only). School tripper buses follow a published schedule, are open to the public, and charge the regular fare.

Complementary Paratransit Service

The City of Janesville contracts with RCT to provide its federally-mandated complementary paratransit service. In accordance with the ADA, complementary paratransit service is offered to individuals that are unable to use JTS fixed route service due to their disability. Individuals must complete an application to be certified to use the service. RCT paratransit service is provided based on reservations, and transports passengers from door to door. Reservations must be made a day in advance of the needed trip during JTS bus service hours.

Figure 1. JTS System Map – Regular, BJE, and Nightside Routes



Governance

Transit services are housed as a division within the City of Janesville's Neighborhood and Community Services department, and operated from the JTS Transit Services Center in the northwest part of town on Black Bridge Road. Janesville City Council is the governing body of JTS.

Funding

JTS relies on operating and capital assistance from the local, state, and federal levels. Operating revenue is comprised of fares, program sponsorship, advertising, and miscellaneous funds (Table 2). Operating assistance from federal, state, and local sources augment operating revenue (Table 1). JTS's operating assistance funds have been comprised of Federal Transit Administration (FTA) Section 5307 Urbanized Area Formula Grants, Wisconsin Department of Transportation (WisDOT) 85.20 State Urban Mass Transit Operating Assistance, and local property tax. Capital funding has generally come from discretionary FTA Section 5309 Capital Investment Grants with local contributions to match.

Table 1. JTS Operating Assistance Sources, 2012-2016

Operating Assistance	2012	2013	2014	2015	2016	Change, 2012-2016	
						Overall	Average Annual
Local	$773,490	$626,846	$760,840	$704,085	$774,829	0.2%	0.0%
State Paratransit	$23,283	$25,318	$33,818	$35,570	$33,109	42.2%	9.2%
State	$779,553	$990,686	$884,600	$866,796	$848,064	8.8%	2.1%
Federal	$932,913	$1,019,350	$1,173,476	$1,097,979	$1,092,132	17.1%	4.0%
Total	**$2,509,239**	**$2,662,200**	**$2,852,733**	**$2,704,430**	**$2,748,134**	**9.5%**	**2.3%**

Source: JTS, 2017

Wisconsin bus systems in communities with populations greater than 50,000 but with operating budgets less than that of Madison and Milwaukee transit systems fall under the Tier B funding category. The State of Wisconsin sets an equalized percent share of state and federal funds that consists of WisDOT 85.20 State Urban Mass Transit Operating Assistance and the Governor's Apportionment of FTA Section 5307 funding. Each year local governments that operate public transit can apply for funding under this program. WisDOT 85.20 funds supplement the non-federal share of operating expenses.

JTS's operating revenue sources for years 2012 through 2016 are summarized in Table 2. Two JTS routes – the BJE and the since-discontinued Janesville-Milton-Whitewater Innovation Express (JMW) – are/were operated using dedicated sponsorship funds, in addition to fare revenue collected associated with the route.

Between 2012 and 2016, fare revenue increased 5.4 percent, at an average annual rate of 1.3 percent. However, fare revenue in 2016 was 13.6 percent less than in 2015. This is partially attributable to

loss of fare revenue from the JMW route, which collected between $17,921 and $38,196 in fare revenue annually over the course of its three-year lifespan.

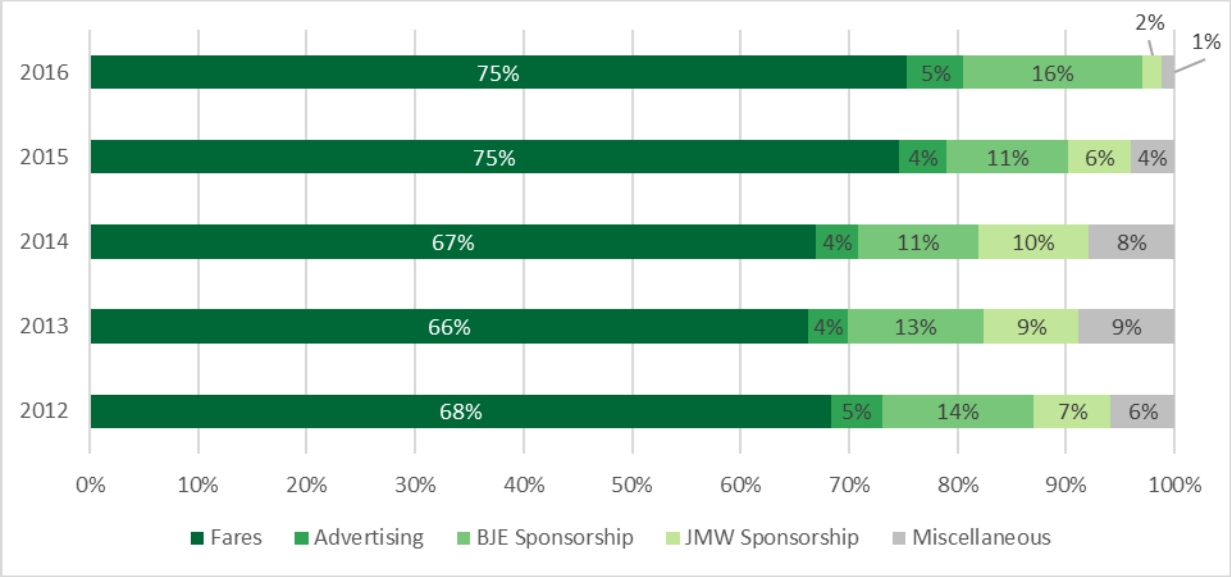
Table 2. JTS Operating Revenue Sources, 2012-2016

Operating Revenue	2012	2013	2014	2015	2016	Change, 2012-2016	
						Overall	Average Annual
Fares	$403,160	$460,988	$486,603	$491,504	$424,825	5.4%	1.3%
Advertising	$27,828	$25,518	$28,862	$28,871	$28,989	4.2%	1.0%
BJE Sponsorship	$82,760	$87,492	$80,123	$74,054	$92,941	12.3%	2.9%
JMW Sponsorship	$41,857	$60,999	$73,835	$37,869	$10,423	-75.1%	-29.4%
Misc.	$34,659	$61,342	$57,928	$26,658	$6,471	-81.3%	-34.3%
Total	**$590,264**	**$696,338**	**$727,352**	**$658,956**	**$563,647**	**-4.5%**	**-1.1%**

Source: JTS, 2017

Shown in Figure 2, most JTS annual operating revenue comes from fares. Since 2012, the proportion of total annual operating revenue attributable to fares increased from 68 percent to 75 percent. BJE sponsorship made up 11 to 16 percent of total annual operating revenue between 2012 and 2012; advertising made up 4 to 5 percent.

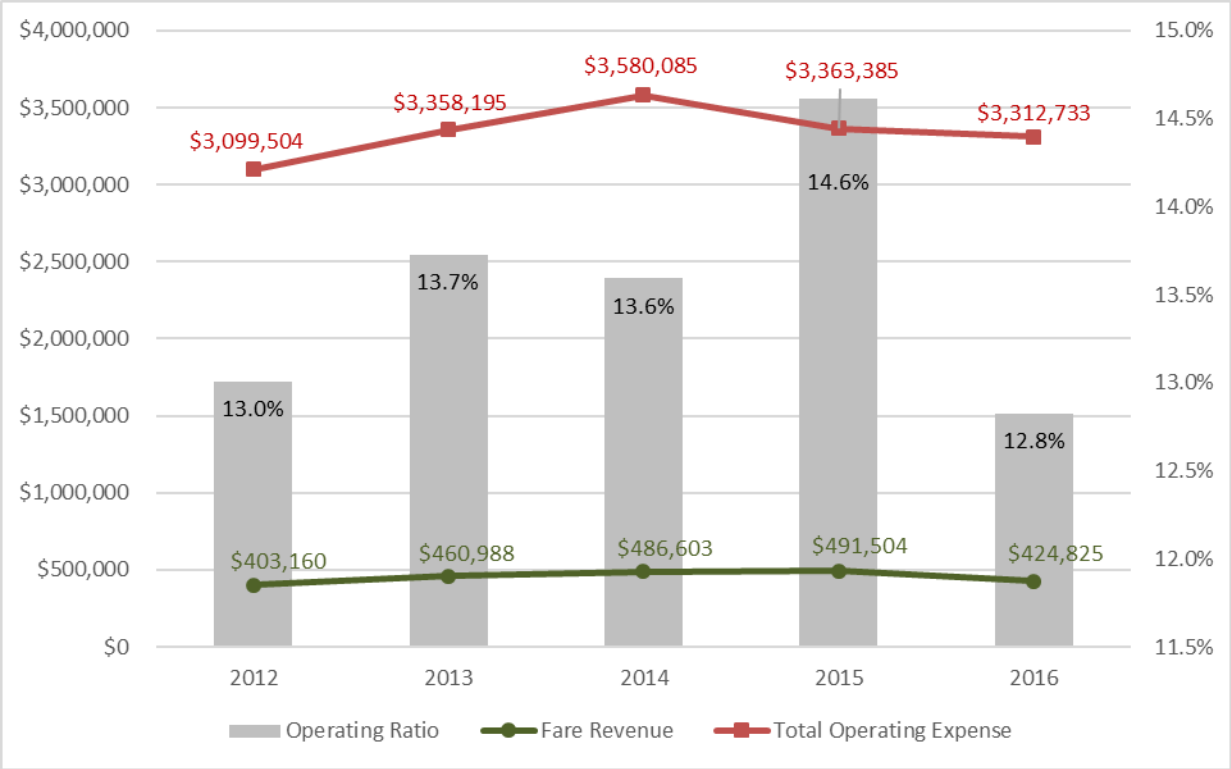
Figure 2. Proportion of Total Operating Revenue by Type, 2012-2016



Source: JTS, 2017

Figure 3 shows JTS's operating ratio, the percentage of all operating expenses covered by fare revenue, for 2012 through 2016. The operating ratio held relatively stable over the five-year period, with a moderate increase in 2015 (7 percent), and a notable decrease in 2016 (12 percent).

Figure 3. JTS Operating Ratio, Expense, and Revenue Trends, 2012-2016



Source: JTS, 2017

Fares

There are many different fare payment options for JTS passengers. Summarized in Table 3, JTS fare products vary by service type (higher fare for BJE service), customer (age, disability, and student status), fare type (number of rides purchased), and fare media (cash, passes, or tokens).

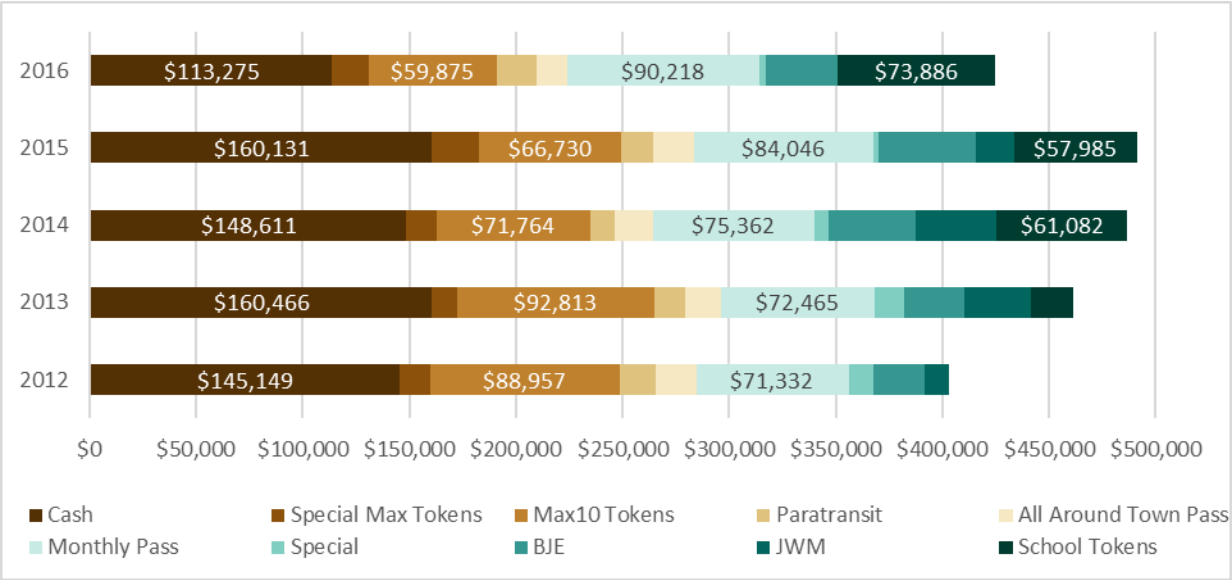
Figure 4 summarizes the total annual amount of fare revenue collected by fare product for the 2012-2016 period. The proportion of total annual fare revenue by fare product during the same five-year period is shown in Figure 5.

Table 3. Fare Products Offered by JTS

Service Type	Customer	Fare Type	Fare Media	
			Cash	Passes and Tokens
Regular, Nightside, and School Tripper Routes	Age 5-64	Base Fare	$1.75	-
		MAX10 (ten rides)	-	$14.50
		All Around Town (daily unlimited)		$4.00
	Age 65+ or Disabled*	Base Fare	$0.85	-
		MAX10 (ten rides)	-	$8.50
		All Around Town (daily unlimited)	-	$2.00
	Janesville School Students	Youth Token	-	$0.85
		Summer Pass	-	$85.00
		Semester Pass	-	$140.00
	All Customers	UltraMAX (monthly unlimited)	-	$52.00
BJE: Between Janesville and Beloit	Age 5-64	Base Fare	$3.50	-
		10-Ride Pass	-	$30.00
	Age 65+ or Disabled*	Base Fare	$1.75	-
		10-Ride Pass	-	$17.50
BJE: Janesville/Beloit to Black Hawk Technical College	Age 5-64	Base Fare	$2.25	-
		10-Ride Pass	-	$20.00
	Age 65+ or Disabled*	Base Fare	$1.10	-
		10-Ride Pass	-	$11.25
Paratransit	Certified Eligible	Base Fare	$3.50	-

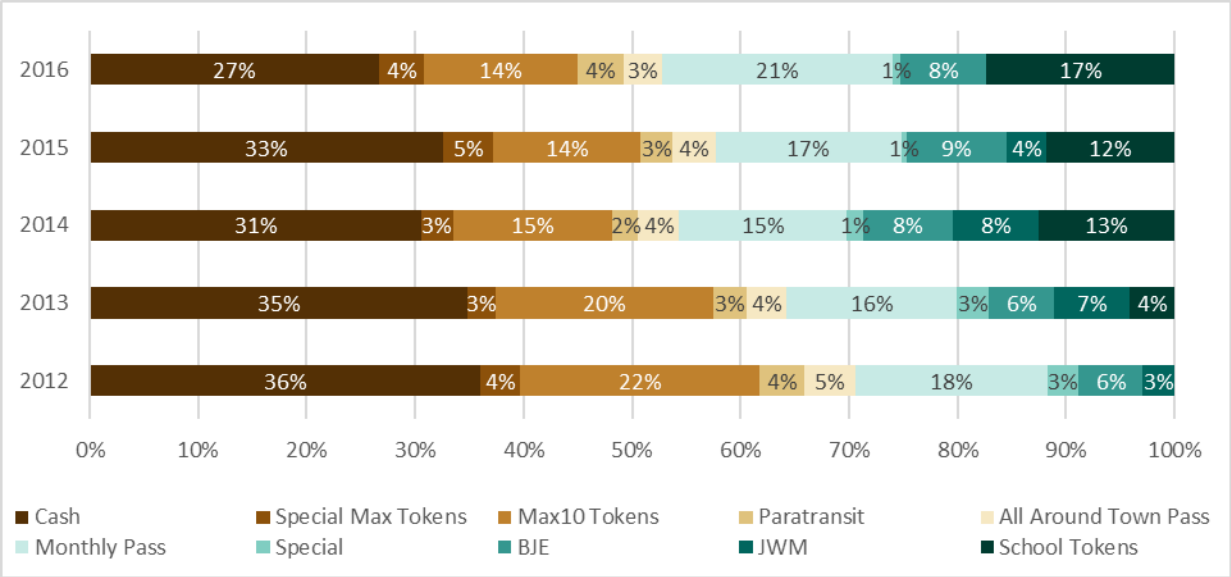
*Must be age 65 or over or have certified disability with Transit ID or Federal Medicare Card

Figure 4. Fare Revenue by Fare Product, 2012-2016



Source: JTS, 2017

Figure 5. Proportion of Fare Revenue by Fare Product, 2012-2016



Source: JTS, 2017

Between 2012 and 2016, cash fares, though still the leading choice of fare by passengers, fell both in raw number and in percent of all fare collections (Figure 4, Figure 5). Similarly, Max 10 Tokens were used less over this period. Use of monthly passes has fluctuated but grown overall over the last five full years of JTS service. The JMW route ended in 2015, and the use of school tokens began to surge at around the same time.

Demographics

Janesville's population has held relatively steady from 2010 to 2016 at around 64,000 people. Janesville makes up about 40 percent of Rock County population (Table 4).

Households with the lowest incomes tend to be in the center of the city (Figure 6). Moderate income earners live throughout Janesville City Limits, while block groups that fall outside of Janesville have some of the highest average household median incomes.

The area with the greatest percentage of people living in poverty is in the Historic Fourth Ward neighborhood, in heart of downtown near the bend of Rock River. Throughout much of the city, by area – particularly in the southwestern portion – there are more than 20 percent of people living in poverty (Figure 7).

The sections of town with the highest median ages (Figure 8) are in the Look West neighborhood, on the west side between Washington Elementary School and Janesville Country Club, and the homes near Hawthorne Park. These are also the census block groups with some of the highest percentages of people over the age of 65 (Figure 9), with the addition of the east bank of the Rock River on the west side of town, which includes Cedar Crest Community.

The census block groups where more than 20 percent of the population do not have access to a car is found between West Racine and Wilson Elementary School and between Centerway and Court Street on both sides of the Rock River downtown (Figure 10).

Janesville does not notably deviate from Rock County or Wisconsin by percent of population in poverty or over the age of 65, but does have a lower percent of minority populations than Wisconsin or Rock County (Table 4). The City of Janesville has about the same as Rock County in terms of percentage of households without a car.

Table 4. Demographics at City, County, and State

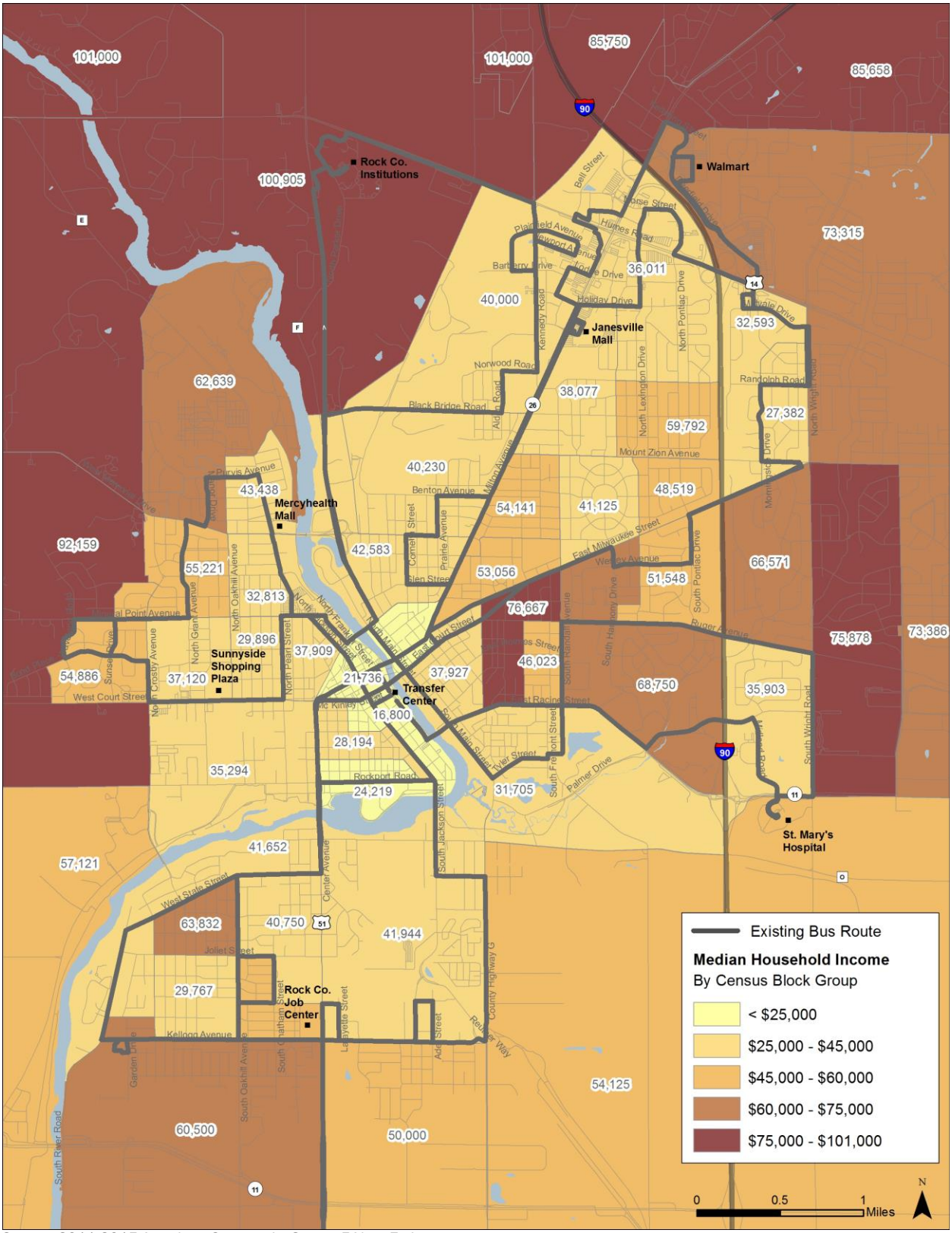
	Total Population	Annual Median Household Income	Percent of Population in Poverty	Percent of Population Age 65 and Over	Percent of Households with no car*	Percent Minority**
City of Janesville	63,799	49,001	15.2	14.5	1.9	12.1
Rock County	160,727	50,324	15.0	14.7	1.7	16.2
Wisconsin	5,742,117	53,357	13.0	14.8	2.7	17.6

Source: 2011-2015 American Community Survey 5-Year Estimates

*Percent of Households with no car = workers 16 years+ in households with no vehicle available

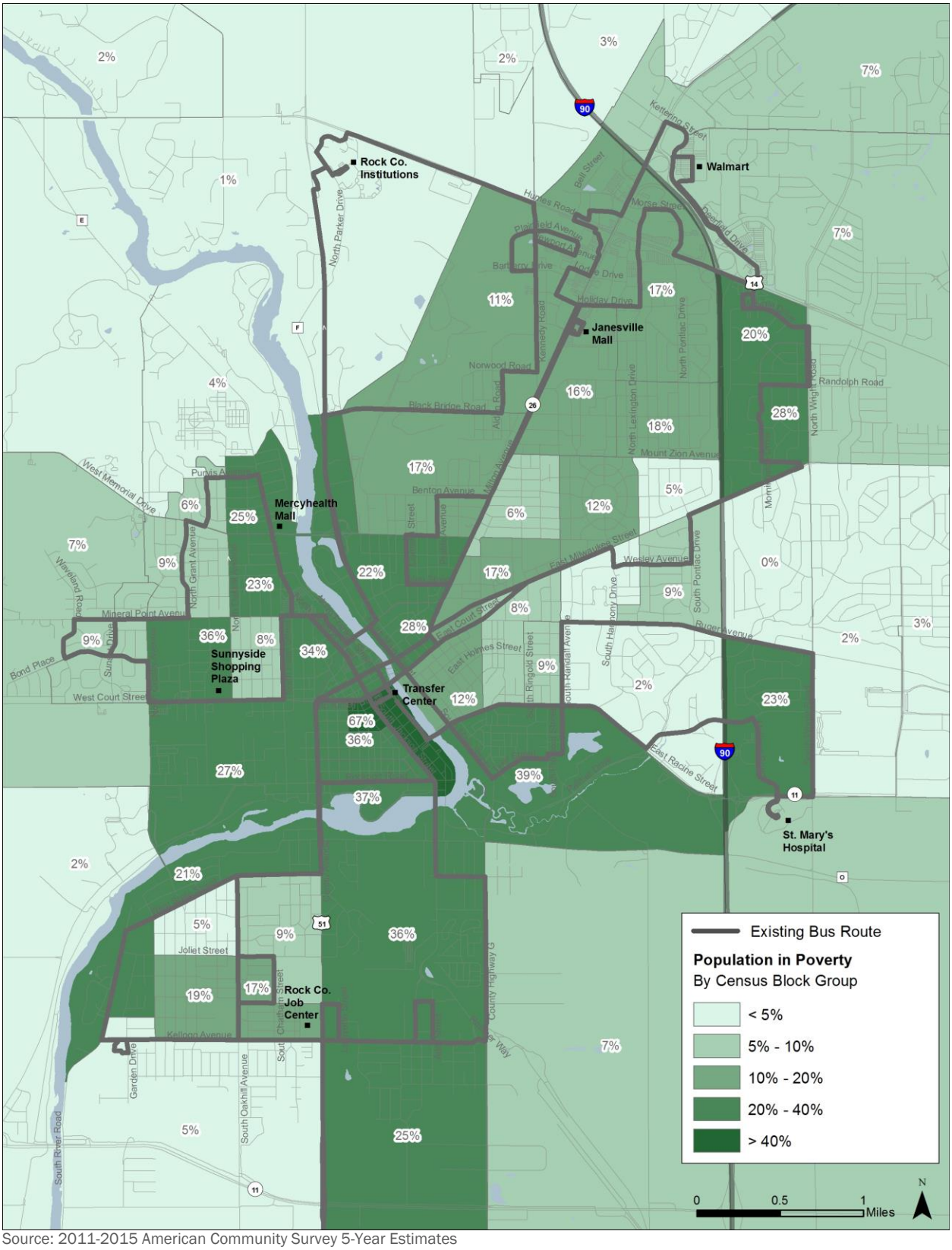
**Percent Minority = 100 - percent of population identified as "white alone"

Figure 6. Median Annual Household Income ($2015) by Block



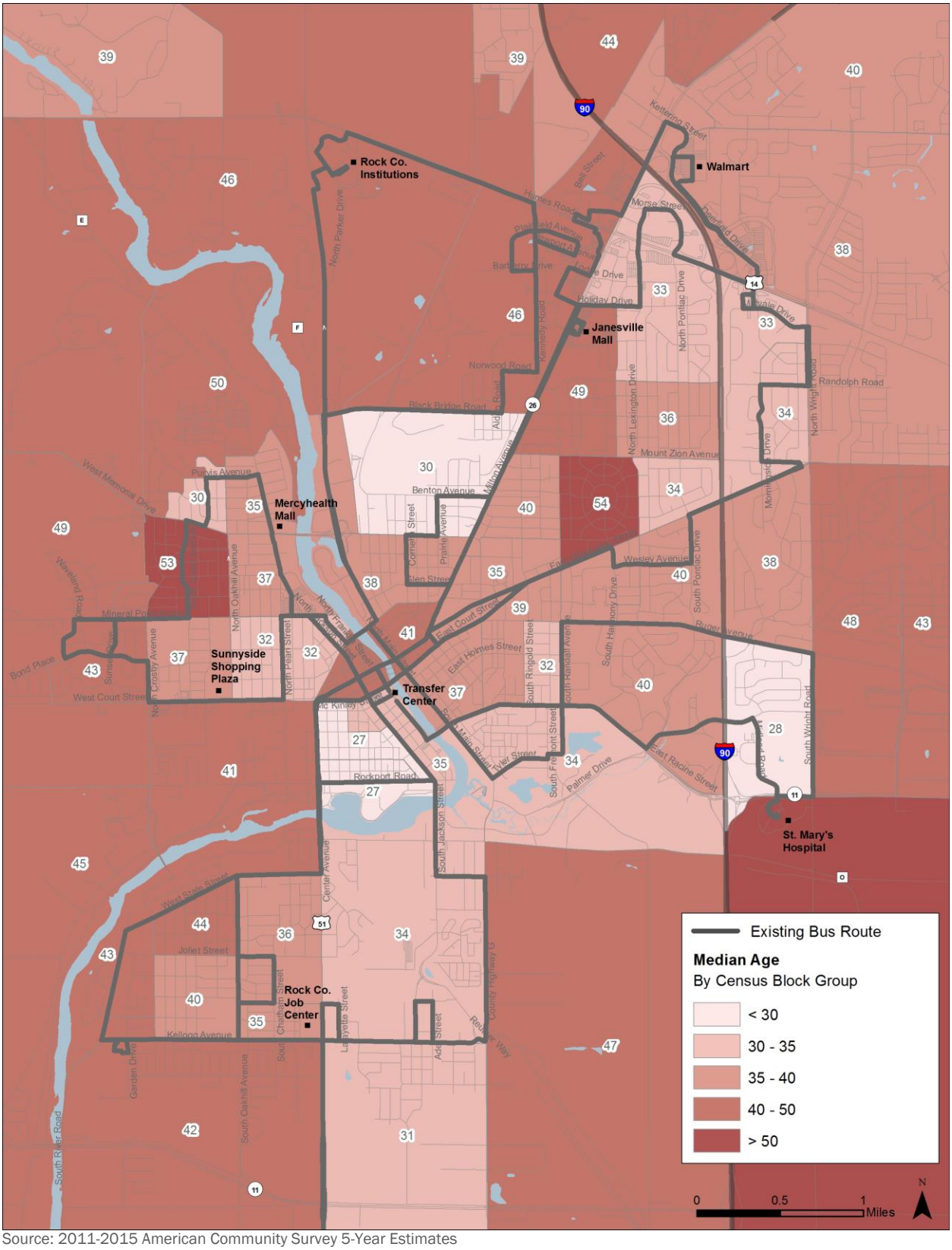
Source: 2011-2015 American Community Survey 5-Year Estimates

Figure 7. Percent of Population in Poverty by Census Block Group



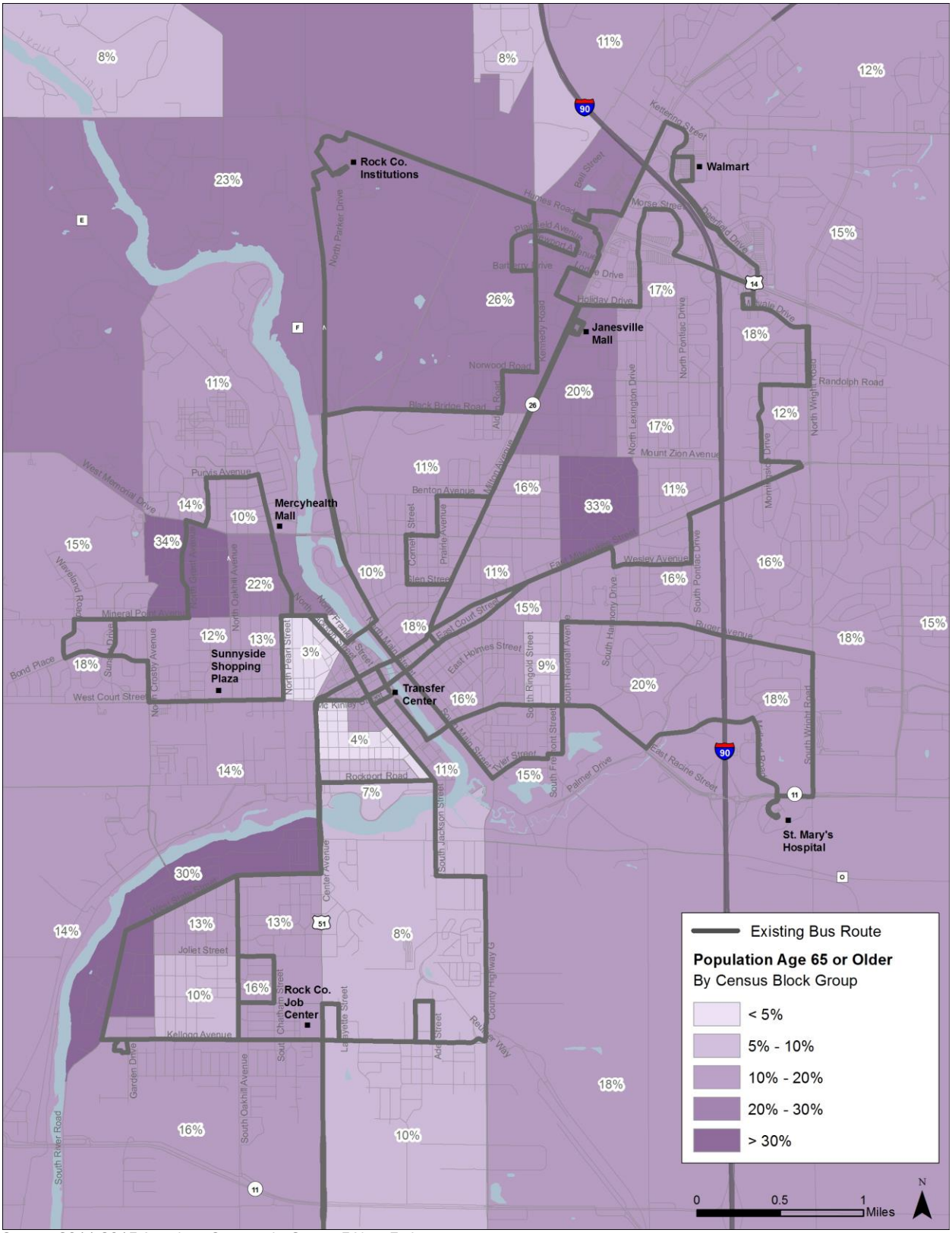
Source: 2011-2015 American Community Survey 5-Year Estimates

Figure 8. Median Age by Census Block Group



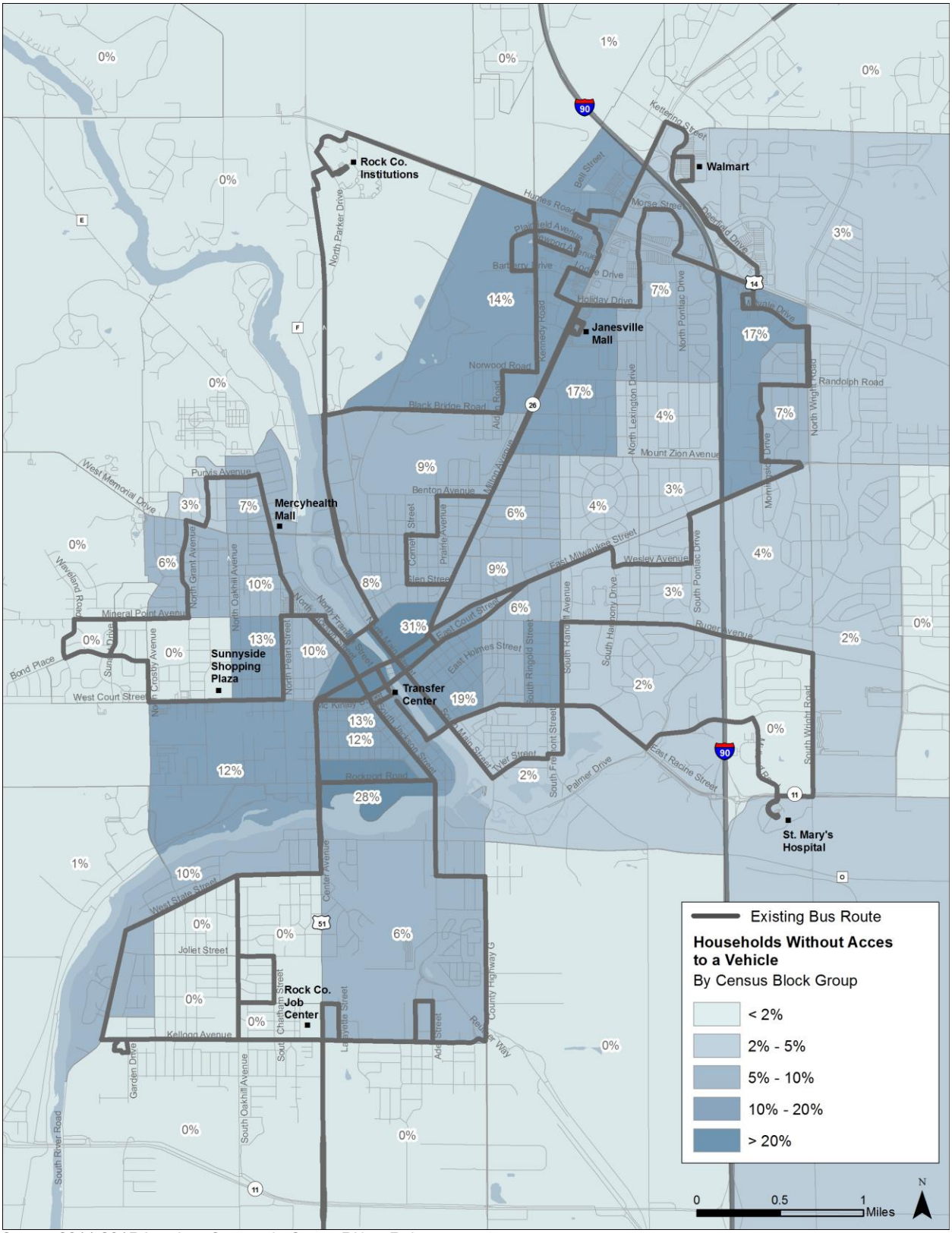
Source: 2011-2015 American Community Survey 5-Year Estimates

Figure 9. Percent of Population Age 65 Years or Older by Census Block Group



Source: 2011-2015 American Community Survey 5-Year Estimates

Figure 10. Percent of Households Without Access to a Vehicle by Census Block Group



Source: 2011-2015 American Community Survey 5-Year Estimates

Transit Supportive Areas

One tool used in determining the adequacy of transit service coverage is to assess the areas within the community that have a minimum employment and population density to support basic levels of fixed route transit. Areas with more than four households per acre or four jobs per acre in the most recent block-level Census data (2010) and Longitudinal Employer-Household Dynamics data (2014), respectively, are shown as a transit supportive area (TSA) in Figure 11 and Figure 12.

An area is considered served by JTS if it is within ¼-mile of existing fixed route service. Of the 3.95 square miles of TSA within the Janesville Area MPO, 3.20 square miles (81 percent) are currently served by JTS regular routes (Table 5); similarly, the rate for Nightside routes is 77.2 percent.

Table 5. Transit Supportive Areas Served by JTS

Service Type	TSA: Inside ¼ Mile JTS Service Buffer in MPO (Square Miles)	TSA: Total Area in MPO (Square Miles)	TSA: Percent Inside ¼ Mile JTS Service Buffer in MPO
Regular Route	3.20	3.95	81.0%
Nightside	3.05	3.95	77.2%

Looking at areas with dense housing and job opportunities can help plan transit service that will serve highly frequented destinations and identify possible areas for expansion of service.

There are a few TSAs not served by the Nightside routes (6:15 p.m. to 10:15 p.m.) that are served by regular service during the day (6:15 a.m. to 6:15 p.m.) [Figure 12], including:

- Along Parker Drive, north of Memorial Drive (E&D Water Works, Werner Electric Supply, Congress Glass), where riders must walk to either Milton Avenue or Washington Street
- Near Palmer Drive and Midland Road (SSI Technologies, Data Dimensions), requiring riders to walk long distances in an area without sidewalks to catch Nightside-East

Shown in Figure 11 and Figure 12, TSAs not served by JTS regular route or Nightside service (not served by fixed route transit at any time of day) include:

- North of existing Milton Avenue service near East McCormick Drive (Morgan Corporation)
- Wuthering Hills Drive, ½ mile east of existing Wright Road service (AMTEX Corporation, IPM Foods)
- Around Venture Drive on the south end of Janesville off Beloit Avenue (Miniature Precision Components, John Deere, Cummins, etc.)
- Along East Delevan Drive, east of existing Kellogg Avenue service on Beloit Avenue (Monterey Mills, J.P. Cullen)

Figure 11. Transit Supportive Areas – Regular Routes

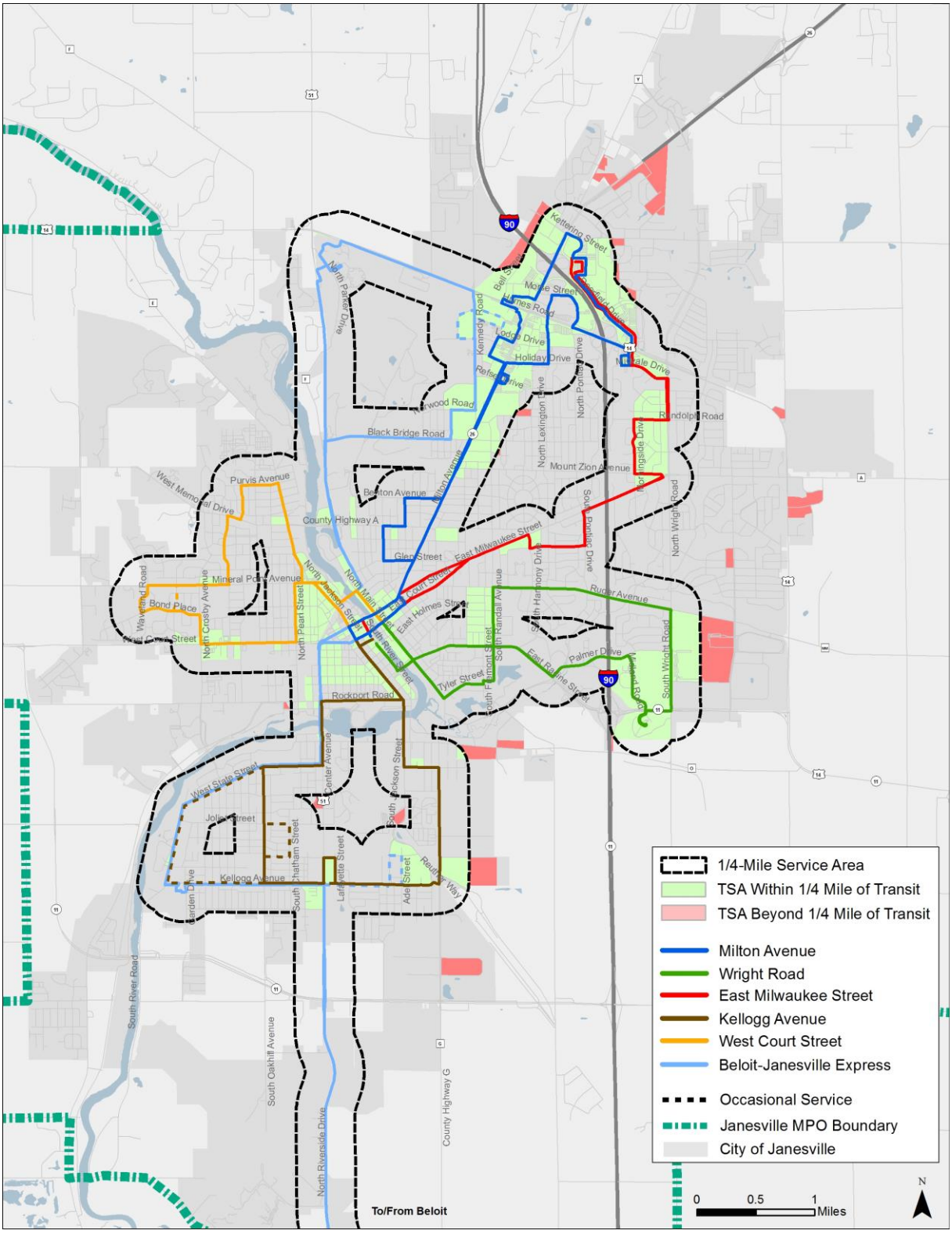
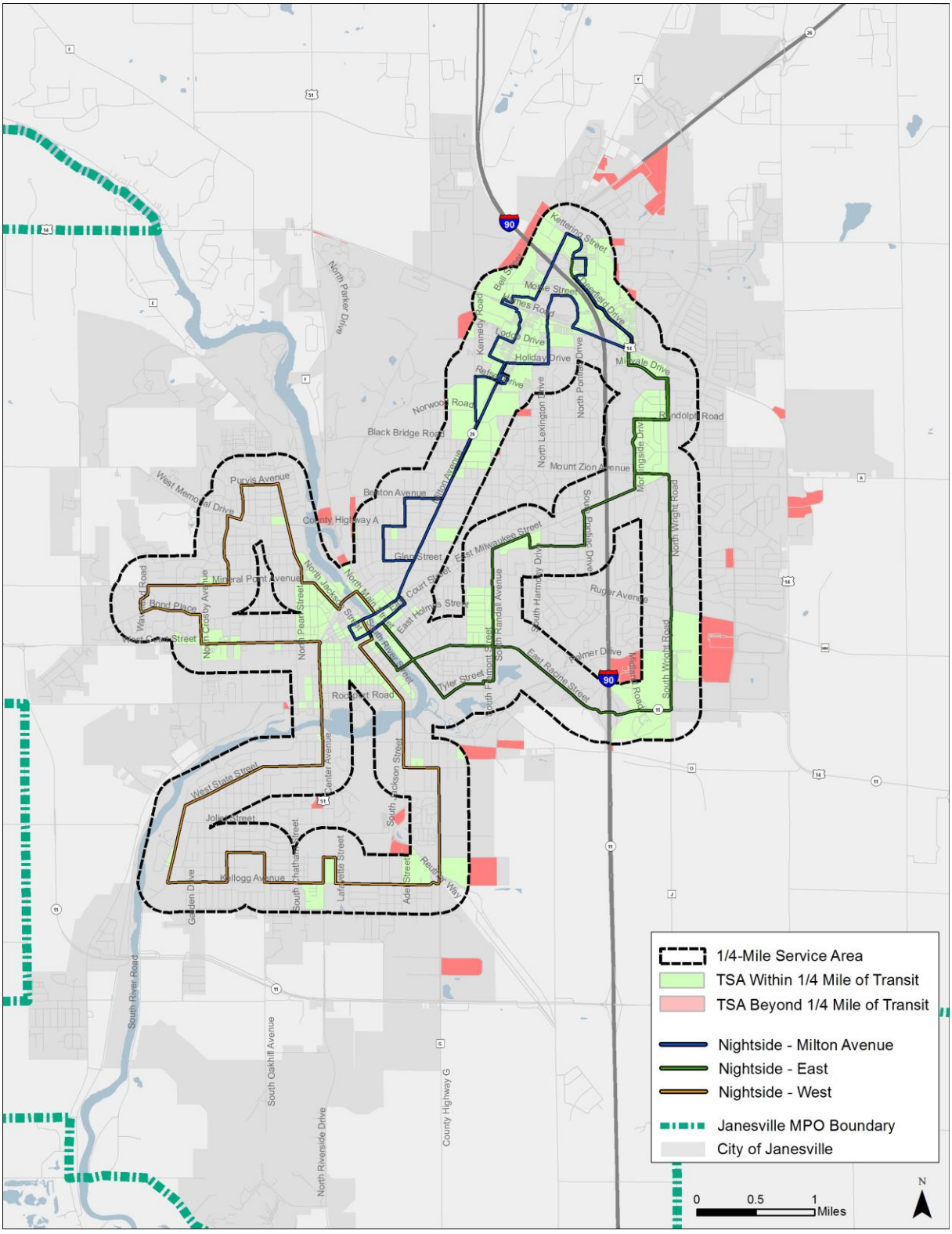


Figure 12. Transit Supportive Areas – Nightside Routes



All high density permanent housing in Janesville is served by transit. However, stakeholder input indicated that, as some families struggle to recover from the economic recession, it is important to consider and consult social service providers on temporarily housed populations utilizing motels for short- and long-term housing. Traditional demographic data is likely to miss this population. Motels that are currently known to be housing transient or temporary populations include:

- Pine Tree Inn on US-14
- Motel 6
- Baymont Inn
- Countryside Motels
- Redwood Motel
- Northern Town Inn

Job centers not captured in the LEHD dataset include those that have been developed after 2014. On the southwest edge of town where Center Avenue crosses Highway 11 adjacent to the airport, the Dollar General Distribution Center and the SHINE Medical Technologies Production Facility have recently built or have plans to build new facilities. It is expected that other time-sensitive shipping businesses may follow SHINE's lead and locate near the Southern Wisconsin Regional Airport.

Previous Planning Efforts

Janesville Area 2015-2050 Long Range Transportation Plan

The Janesville Area 2015-2050 Long Range Transportation Plan (LRTP) is the principal long range planning document that guides the development of safe, efficient transportation in the Janesville area. Completed in May 2016, the LRTP lists long term goals and objectives, describes the existing conditions of JTS and looks at potential changes that JTS may need to respond to in the next 30-plus years. The following goals and objectives specific to JTS are listed in the LRTP:

- Goal I: To promote the role of public transit in the overall Janesville community transportation system.
    - Objective A: By encouraging the use of public transit as an alternative for work and shopping trips.
    - Objective B: By including transit service considerations in all development projects and coordinating public transit improvements with other modes of transportation and parking improvements.
    - Objective C: By providing a level of service consistent with the needs of the community and at a level of local subsidy as specified by the City of Janesville City Council.
    - Objective D: By promoting ridership through a comprehensive marketing plan.
    - Objective E: By maintaining and expanding efficient high capacity transit service oriented to major employment centers.
- Goal II: To maintain a fiscally sound public transit system as a vital service worthy of public support similar to that provided for other basic City services.
    - Objective A: By serving the greatest number of people to the greatest extent possible within the resources available.
    - Objective B: By maintaining an effective preventive maintenance program that ensures that 85% of the bus fleet is available for service at all times and maximizes the useful service life of the fleet.
- Goal III: To serve the public transportation needs of senior citizens, disabled persons, children, and major employment centers in an efficient, safe, comfortable, and reliable manner as defined by industry standards.
    - Objective A: By maintaining the efficient high capacity peak hour public transit service to all children in the community.
    - Objective B: By providing amenities that will appeal to the elderly and disabled senior citizens with facilities and services that will meet the requirements of the American with Disabilities Act for transporting disabled persons.
    - Objective C: By locating the transfer point(s) of the transit system at the most efficient location.
    - Objective D: By providing service to businesses in commercial and industrial areas in concert with economic development activities.
    - Objective E: By implementing a bikes-on-buses program to promote multimodal transportation options and increase ridership.

- Goal IV: To comply with all regulations and mandates set forth by the Federal Transit Administration and the Wisconsin Department of Transportation.
    - Objective A: By encouraging the participation of both public and private service providers in the provision of public mass transportation services consistent with JTS service quality, cost effectiveness, and reliability requirements.
    - Objective B: By complying with all regulations and mandates associated with the American with Disabilities Act, Title VI Civil Rights requirements, federal Environmental Justice goals, and the Disadvantaged Business Enterprise participation goals.

Transportation Improvement Program

The Transportation Improvement Program (TIP) is completed annually for the following six years, and lists all transportation projects in the Metropolitan Planning Area that will receive federal funds. Transit projects are included alongside highway, bicycle, and pedestrian projects. Included are an environmental justice analysis, a financial plan, public notice and comment opportunities, and project costs.

The most recent TIP, covering 2017-2022, was completed in October 2016. Transit projects listed in the 2017-2022 TIP include funds for JTS operations and the replacement of three regular route buses. Aside from operating funds, the 2016-2021 TIP included funds for the replacement of one regular route bus; and the 2015-2020 TIP included funding for the following: replacement of five regular route buses, replacement of radio base station to comply with FCC, replacement of shop service truck, purchase and replacement of passenger shelters, replacement of video recording equipment, and purchase of new bus signs.

Transit Development Plan, 2012

The previous TDP was completed in 2012 and had a specific focus on exploring transit service alternatives. The project team identified three service development scenarios: a resource neutral scenario, a service reduction scenario, and a service expansion scenario. The "preferred alternative" selected for implementation drew primarily from the resource neutral scenario. Recommended route improvements included:

- Kellogg Avenue
    - Route via South Oakhill Avenue between Kellogg Avenue and West State Street instead of serving Conde, Chatham, Nicolet, and Pearl to speed service and better serve WCBVI. Edison Middle School served by trippers at starting and dismissal times.
    - Route through the 4th Ward via West Racine Street instead of Rockport Road to speed service. On Saturdays, when the BJE is not operating, the Kellogg Avenue route would be extended on Kellogg Avenue to West State Street via South River Road, using the same routing as the Nightside-West bus.

- West State Street
    - Eliminate the West State Street route due to low ridership. Weekday coverage provided by the Beloit- Janesville Express, Saturdays by the redesigned Kellogg Avenue route. Use resources saved to operate Wright Road to Dean/St. Mary's every 30 minutes.
- Milton Avenue
    - In the outbound direction, the route would operate via East Court Street to Atwood Avenue before continuing north on Milton Avenue instead of using Court to Garfield Avenue.
    - In the inbound direction, the route would no longer serve Kennedy Road with that coverage provided by the BJE only.
- East Milwaukee Street
    - This route would undergo a major redesign and streamlining to improve its performance and to serve new areas of the east side. It would operate outbound via East Court Street (via the same alignment as the existing Milton Avenue route), but then continue east on East Milwaukee Street to Randall Avenue. The bus would then follow the present route via Harmony Drive, Wesley Avenue, and Pontiac Drive to serve Marshall Middle School and then continue northeast on East Milwaukee to serve Mercy Clinic East (just west of Wright Road). Rather than continue north on Wright Road, the route would make a sharp turn east onto Mt. Zion Avenue and then turn north on to Morningside Drive and travel north past Randolph Road. The route would then turn west onto Greenwood Drive, west on Midvale Drive and north onto Deerfield Drive. The route would continue north along Deerfield Drive and terminate at Walmart. Transfers to and from the Milton Avenue bus to reach other destinations in north Janesville would be available at Walmart. The route would return along the reverse of same alignment back to the downtown Transfer Center.
- Wright Road
    - Service would be doubled to operate every 30 minutes to Dean/St. Mary's.
    - From the downtown Transfer Center, the route would travel via Court Street to South Main Street serving the Hedberg Library and continue to Tyler, South Fremont, and then north on Randall Avenue to East Racine Street, picking-up areas presently covered by the East Milwaukee Street route. Midday passengers to Craig High School would be discharged here; before and after school passengers would be carried by tripper buses. The route would then turn eastbound on E. Racine Street and follow the existing Wright Road route through Palmer Drive and Midland Road to the Dean/St. Mary's Hospital. The route would then return to the Transfer Center via Wright Road, north to Ruger Avenue, west on Ruger and south on Randall Avenue past Craig High School. Finally,

the route would continue west on E. Racine Street and River Street to the Transfer Center. Passengers to the Hedberg Library would ride-through and be dropped-off on the outbound trip.

- Beloit-Janesville Express
  - Route between Janesville and Beloit unchanged. The BJE assumes weekday coverage of West State Street, South River Road and Kellogg Avenue west of South Oakhill Avenue presently provided by the West State Street route.
  - The discussions with the BJE Consortium led to two potential new funding partners. The City of Janesville has tentatively agreed to be a funding partner – due to the local trips taken on the BJE along the West State Street corridor. In addition, Mercy Hospital is a potential new funding partner. If partnering discussions are finalized with Mercy Hospital, the BJE North loop would be adjusted to serve the Mercy Hospital Campus directly on alternating trips.[1] The Rock County Complex would still be served, albeit with reduced frequency. Service to KANDU and Riverfront would be unchanged.
- Nightside-East
  - Northern section of route changed to reflect new East Milwaukee Street routing and extension to Midland Road, Deerfield Drive and Walmart.
  - Southern section continues to serve South Main Street, Racine Street and Dean/St. Mary's hourly.
  - As with East Milwaukee, delete Mt. Zion segment and extension to Janesville Mall.

In addition to service planning options, the TDP outlined needs and action items for financing and capital replacement.

[1] This was not implemented; discussions about Mercy Health becoming a funding partner never materialized.

System Performance

The following section evaluates current system performance at a variety of scales and using several different quantitative and qualitative measures. The *System Performance Analysis* measures JTS's system-wide performance using quantitative operations and financial data pertaining to fixed routes, as reported to the FTA National Transit Database (NTD), and comparing it with national and Wisconsin peer groups. The *Route Performance Analysis* looks at the latest available route-level ridership and service data to evaluate the effectiveness of JTS fixed routes. Next, the *Field Review* section highlights the results of on-off passenger count efforts, as well as observations of infrastructure, equipment, and amenities. Lastly, the *Evaluation of Existing System Speed and Timing* analyzes the on-the-street operations of JTS's regular routes in greater detail.

System Performance Analysis

A quantitative assessment of JTS fixed route system performance was conducted as one of the initial tasks in this review. Since there are no recognized industry standards for most measures of transit system performance, common practice is to compare the performance of a system to the average values of a peer group of systems.

Peer Groups

The selection of the peer group for JTS is based on a review of urbanized systems in the NTD[2]. The NTD is used because its data are readily available and should be consistently reported. Further, the NTD contains systems that have service areas comparable to the JTS service area. Two peer groups were selected for comparison: a national peer group and a Wisconsin peer group. This analysis includes only fixed route service, as paratransit and other demand response services vary widely across peer systems.

This review attempted to select peer systems in cold-weather states based on service area population and density, community characteristics, annual revenue hours, and mode of service operated, among others. Only systems that operate fixed route services were considered. All data reported in this peer system analysis pertains to fixed route service only.

The national peer group includes systems in Colorado, Florida, Iowa, Michigan, Ohio, and Oklahoma. Table 6 contains operating statistics for JTS and the selected national peer systems for 2015. These operating statistics are the basis for the performance measures included in this analysis.

[2] In its NTD reporting, JTS included sponsorship and other revenue as part of its "fare revenue". To present an apples-to-apples comparison among the peer systems, fare revenue presented in this report does not included sponsorship for the BJE, JMW, or other revenue sources, as was initially reported to NTD.

Table 6. 2015 Operating Statistics – National Peer Systems

Peer	Revenue Hours	Unlinked Passenger Trips	Operating Expenses	Passenger Revenues
Battle Creek, MI	28,771	511,428	$2,948,614	$346,259
Dubuque, IA	39,263	479,185	$2,276,078	$229,617
Greeley, CO	32,978	594,531	$2,825,098	$429,507
Lawton, OK	39,677	432,876	$2,385,182	$297,012
Lima, OH	29,042	315,006	$1,823,914	$178,264
Middletown, OH	13,923	163,388	$825,746	$114,986
Muskegon Heights, MI	45,213	624,241	$3,224,457	$418,932
St. Augustine, FL	24,559	293,239	$1,016,473	$114,454
Waterloo, IA	32,096	426,905	$3,379,144	$380,092
Peer Average	31,725	426,755	$2,300,523	$278,791
Janesville	31,733	426,613	$3,284,849	$476,916
Percent of Average	100%	100%	143%	218%

This review recognizes the limitations of using other Wisconsin small urban systems for peer comparison. Each system operates in a vastly different environment, serves different markets, and has a unique management structure. However, Wisconsin peer systems also provide context for operating conditions within the state. Because it is customary in this review to compare each small urban system to others in Wisconsin, the Wisconsin peer comparison is included in this review. Table 7 contains operating statistics for JTS and the selected Wisconsin peer systems for 2015. These operating statistics are the basis for the performance measures included in this analysis.

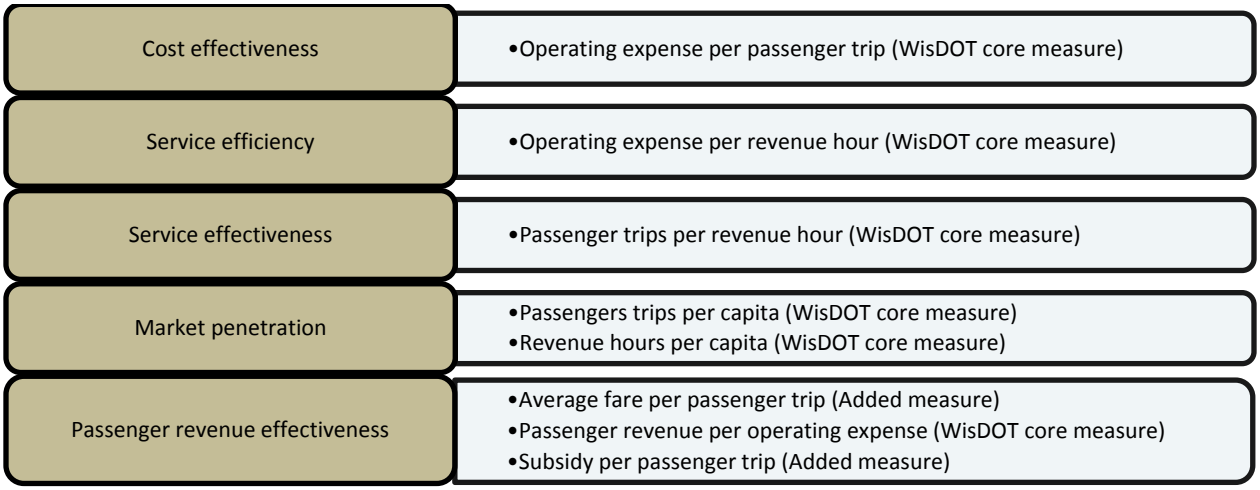
Table 7. 2015 Operating Statistics – Wisconsin Peer Systems

Peer	Revenue Hours	Unlinked Passenger Trips	Operating Expenses	Passenger Revenues
Beloit	20,403	198,719	$1,975,854	$176,760
Eau Claire	48,965	871,229	$4,027,687	$779,801
Fond du Lac	11,169	159,279	$928,146	$126,466
Kenosha	64,101	1,247,542	$5,241,106	$679,172
La Crosse	56,160	1,102,173	$4,993,931	$632,438
Oshkosh	37,805	898,507	$3,156,046	$460,926
Racine	76,910	1,270,611	$6,048,388	$1,153,093
Sheboygan	41,742	537,765	$2,950,870	$451,950
Wausau	27,028	577,044	$2,622,874	$430,033
Peer Average	44,922	878,510	$3,762,615	$531,747
Janesville	31,733	426,613	$3,284,849	$476,916
Percent of Average	74%	56%	93%	112%

Performance Measures

The peer analysis is this section compares JTS fixed route service to that of its peers in five categories using eight specific measures, as organized in Figure 13.

Figure 13. Performance Objectives and Performance Measures



Each measure is used to assess JTS's fixed route performance in two ways:

- **Comparison to peer average for most current year.** Year 2015 NTD data is used. This is the most recent year for which NTD data was available. Consistent with the WisDOT approach to measuring performance, performance is considered "satisfactory" within one standard deviation of the peer average (arithmetic mean). The system's performance is considered "outside the satisfactory range" if it falls more than one standard deviation outside the mean.
- **Comparison to peer average for annual rate of change.** The average annual rate of change from 2011 to 2015 is calculated as follows. NTD data from reporting years 2011 to 2015 is used.

$$Annual\ rate\ of\ change = (Value_{2015} / Value_{2011})^{1/4} - 1$$

For the trend analysis, the system's annual rate of change is compared to the national and Wisconsin peer average rates of change. The system's trend performance is considered "satisfactory" within one standard deviation of the average rate of change. Beyond a standard deviation away from the average rate of change, the system's trend performance is considered "outside the satisfactory range."

Performance measure results, using 2015 fixed route operations data, for Janesville and its national and Wisconsin peers are summarized in Table 8 and Table 9.

Table 8. 2015 Performance Measures – National Peer Systems

Peer	Operating Expense per Passenger Trip	Operating Expense per Revenue Hour	Passenger Trips per Revenue Hour	Passenger Trips per Capita	Revenue Hours per Capita	Average Fare per Passenger Trip	Operating Ratio	Subsidy per Passenger Trip
Battle Creek, MI	$5.77	$102.49	17.78	6.52	0.37	$0.68	11.7%	$5.09
Dubuque, IA	$4.75	$57.97	12.20	7.07	0.58	$0.48	10.1%	$4.27
Greeley, CO	$4.75	$85.67	18.03	5.05	0.28	$0.72	15.2%	$4.03
Lawton, OK	$5.51	$60.11	10.91	4.58	0.42	$0.69	12.5%	$4.82
Lima, OH	$5.79	$62.80	10.85	4.32	0.40	$0.57	9.8%	$5.22
Middletown, OH	$5.05	$59.31	11.74	1.68	0.14	$0.70	13.9%	$4.35
Muskegon Heights, MI	$5.17	$71.32	13.81	3.87	0.28	$0.67	13.0%	$4.49
St. Augustine, FL	$3.47	$41.39	11.94	4.24	0.36	$0.39	11.3%	$3.08
Waterloo, IA	$7.92	$105.28	13.30	3.76	0.28	$0.89	11.2%	$7.03
Peer Average	$5.35	$71.82	$13.39	$4.57	$0.35	$0.64	$0.12	$4.71
Janesville	$7.70	$103.52	$13.44	$6.12	$0.46	$1.12	$0.15	$6.58
Percent of Average	144%	144%	100%	134%	132%	174%	120%	140%

Table 9. 2015 Performance Measures – Wisconsin Peer Systems

Peer	Operating Expense per Passenger Trip	Operating Expense per Revenue Hour	Passenger Trips per Revenue Hour	Passenger Trips per Capita	Revenue Hours per Capita	Average Fare per Passenger Trip	Operating Ratio	Subsidy per Passenger Trip
Battle Creek, MI	$5.77	$102.49	17.78	6.52	0.37	$0.68	11.7%	$5.09
Dubuque, IA	$4.75	$57.97	12.20	7.07	0.58	$0.48	10.1%	$4.27
Greeley, CO	$4.75	$85.67	18.03	5.05	0.28	$0.72	15.2%	$4.03
Lawton, OK	$5.51	$60.11	10.91	4.58	0.42	$0.69	12.5%	$4.82
Lima, OH	$5.79	$62.80	10.85	4.32	0.40	$0.57	9.8%	$5.22
Middletown, OH	$5.05	$59.31	11.74	1.68	0.14	$0.70	13.9%	$4.35
Muskegon Heights, MI	$5.17	$71.32	13.81	3.87	0.28	$0.67	13.0%	$4.49
St. Augustine, FL	$3.47	$41.39	11.94	4.24	0.36	$0.39	11.3%	$3.08
Waterloo, IA	$7.92	$105.28	13.30	3.76	0.28	$0.89	11.2%	$7.03
Peer Average	$5.35	$71.82	$13.39	$4.57	$0.35	$0.64	$0.12	$4.71
Janesville	$7.70	$103.52	$13.44	$6.12	$0.46	$1.12	$0.15	$6.58
Percent of Average	144%	144%	100%	134%	132%	174%	120%	140%

Five-Year Trend Summary

Table 10 and Table 11 show Janesville's operating statistics and performance measures, respectively, for fiscal years 2011 through 2015. The average annual rate of change for the five-year period is calculated for each statistic and performance measure and shown alongside the national and Wisconsin peer average rates of change.

Table 10. Janesville Operating Statistics – Five-Year Trend and Peer Analysis

						Average Annual Rate of Change		
Operating Statistics	2011	2012	2013	2014	2015	Janesville	Wisconsin Peer Average	National Peer Average
Revenue hours	28,846	29,942	32,882	32,396	31,733	2.4%	-1.3%	3.7%
Passenger trips	453,149	488,274	506,016	443,228	426,613	-1.5%	-2.4%	2.9%
Operating expense	$2,886,786	$3,025,870	$3,312,561	$3,542,389	$3,284,849	3.3%	-1.4%	4.6%
Passenger revenue	$439,912	$386,285	$446,876	$475,122	$476,916	2.0%	0.3%	-1.2%

Table 11. Janesville Performance Measures – Five-Year Trend and Peer Analysis

						Average Annual Rate of Change		
Performance Measures	2011	2012	2013	2014	2015	Janesville	Wisconsin Peer Average	National Peer Average
Operating expense per passenger trip	$6.37	$6.20	$6.55	$7.99	$7.70	4.9%	1.2%	1.8%
Operating expense per revenue hour	$100.08	$101.06	$100.74	$109.35	$103.52	0.8%	-0.1%	1.1%
Passenger trips per revenue hour	15.7	16.3	15.4	13.7	13.4	-3.8%	-1.1%	-0.6%
Passenger trips per capita	6.5	7.0	7.3	6.4	6.1	-1.5%	-2.4%	2.9%
Revenue hours per capita	0.4	0.4	0.5	0.5	0.5	2.4%	-1.3%	3.7%
Average fare per passenger trip	$0.97	$0.79	$0.88	$1.07	$1.12	3.6%	2.9%	-3.9%
Operating ratio	15.2%	12.8%	13.5%	13.4%	14.5%	-1.2%	1.8%	-5.3%
Subsidy per passenger trip	$5.40	$5.41	$5.66	$6.92	$6.58	5.1%	1.0%	3.4%

Cost Effectiveness

Cost effectiveness addresses transit use in relation to the level of resources expended. The primary measure for comparison under this area is **operating expense per passenger trip**. The lower the cost per passenger trip, the more cost effective is the service.

Figure 14. Operating Expense per Passenger Trip, 2015 National Peers

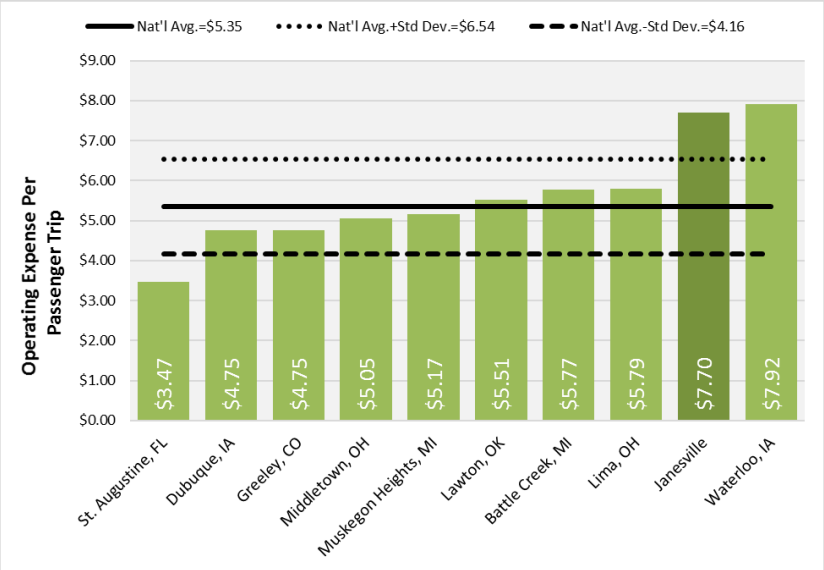
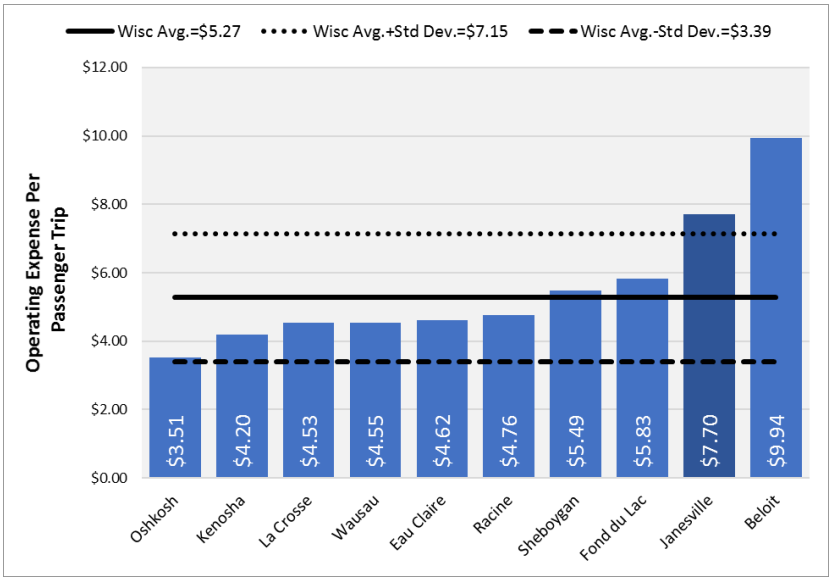


Figure 15. Operating Expense per Passenger Trip, 2015 Wisconsin Peers



In fiscal year 2015, JTS spent an average of $7.70 on each passenger trip. JTS's cost per passenger trip is higher than the national peer average of $5.35 (Figure 14). Among the Wisconsin peers (Figure 15), the average operating expense per passenger trip was $5.27. When compared to both the national and Wisconsin peers, JTS's cost per passenger trip is beyond of one standard deviation of the Wisconsin peer group, outside the satisfactory range. This performance indicates JTS's operating expense is high relative to the number of passengers it serves, when compared to peers.

The trend analysis in Table 11 shows that per-passenger expenses have fluctuated over the years but have risen overall between 2011 and 2015. Over the five-year period, JTS's operating expense per passenger trip has increased by an average of 4.9 percent each year (Table 11). By comparison, the operating expense per passenger trip of national peers, on average, has increased at an annual average rate of 1.8 percent; among Wisconsin peers, on average, the measure increased by an annual average rate of 1.2 percent. Over the last five years, JTS's cost effectiveness trend has performed worse than its peer averages but within one standard deviation.

Service Efficiency

Service efficiency examines the amount of service produced in relation to the amount of resources expended. **Operating expense per revenue hour** is the measure used to assess how efficiently a system delivers service.

Figure 16. Operating Expense per Revenue Hour, 2015 National Peers

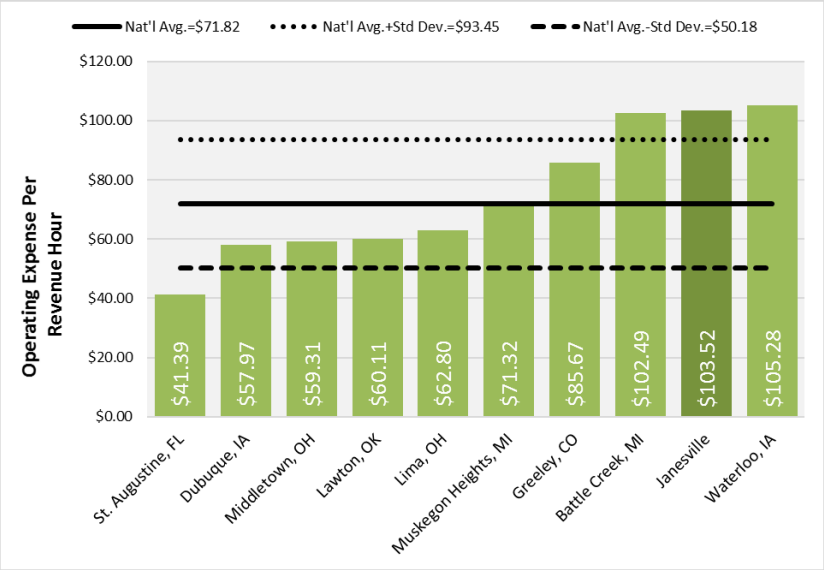
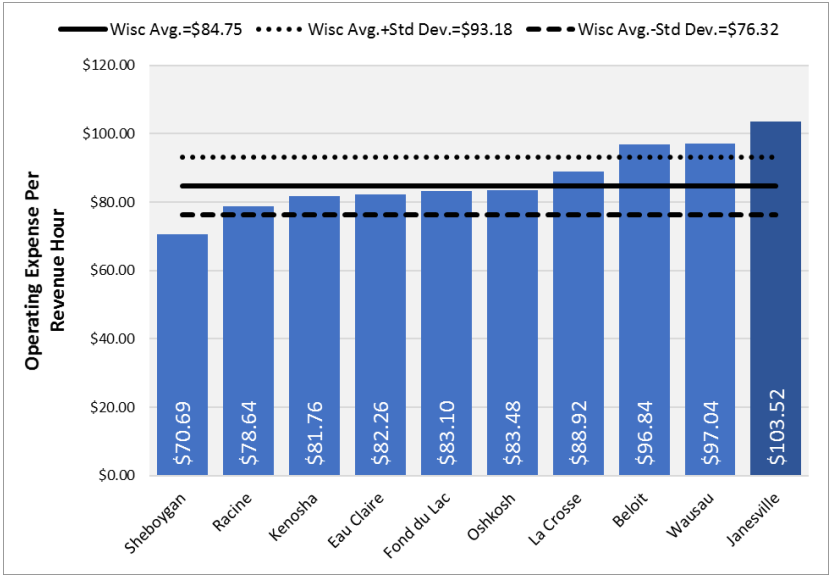


Figure 17. Operating Expense per Revenue Hour, 2015 Wisconsin Peers



In 2015, JTS's hourly operating cost, $103.52, was higher than the national peer average of $71.82 (Figure 16). JTS's service efficiency is beyond one standard deviation from the national peer group average, placing it outside the satisfactory range. Similarly, JTS's operating expense per revenue hour is higher than the Wisconsin peer average of $84.75, and is beyond one standard deviation of the average performance (Figure 17). JTS's service efficiency is outside of the satisfactory range relative to its Wisconsin peers. This performance indicates JTS's operating expense is high relative to the amount of service it provides, compared to peers.

The trend analysis in Table 11 shows that over the five-year span, JTS's operating expense per revenue hour increased at an average annual rate of 0.8 percent. Over this same span, the national peer group average increased at an average annual rate of 1.1 percent; the Wisconsin peer group average decreased at an average annual rate of 0.1 percent. JTS's service efficiency trend performs slightly worse than the Wisconsin peer average, but better than the national peer average.

Service Effectiveness

Service effectiveness is a measure of the consumption of public transportation service in relation to the amount of service available. **Passenger trips per revenue hour** is the measure used to assess service effectiveness.

Figure 18. Passenger Trips per Revenue Hour, 2015 National Peers

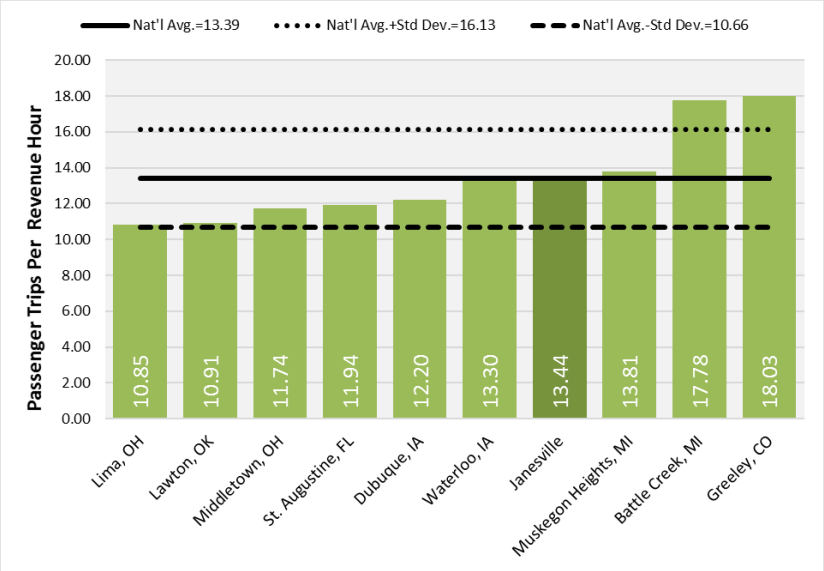
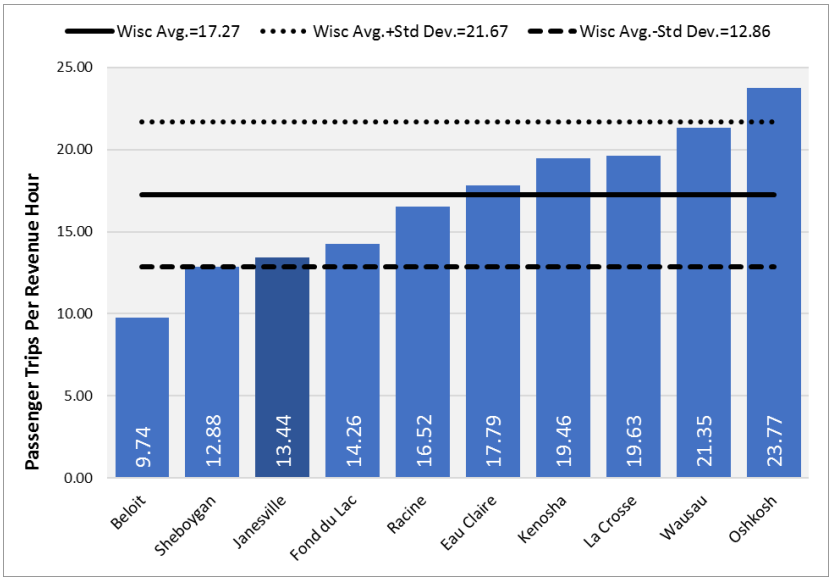


Figure 19. Passenger Trips per Revenue Hour, 2015 Wisconsin Peers



JTS carried an average of 13.44 passenger trips per hour on its fixed route service in 2015 (Figure 18). JTS service effectiveness is above the average performance of the national peer group of 13.39 and below the Wisconsin peer group average of 17.27 but still within one standard deviation (Figure 18 and Figure 19). JTS's performance in 2015 was brought down slightly due to the low-ridership JMW route, which was discontinued at the end of 2015.

The trend analysis in Table 11 shows that JTS's passenger trips per revenue hour has decreased over the last five years, resulting in a 3.8 percent average annual rate of decrease. JTS's service effectiveness is declining. Table 10 shows that the national and Wisconsin peer group averages have decreased at an average rate of 0.6 and 1.1 percent respectively. JTS's service effectiveness trends is worse than the national and Wisconsin peer group averages but within one standard deviation of both, placing it within the satisfactory range.

Market Penetration

Passenger trips per capita is an indicator of overall usage of the transit system in the JTS service area. This measure can be interpreted as the average number of times each service area resident uses JTS's service each year.

Figure 20. Passenger Trips per Capita, 2015 National Peers

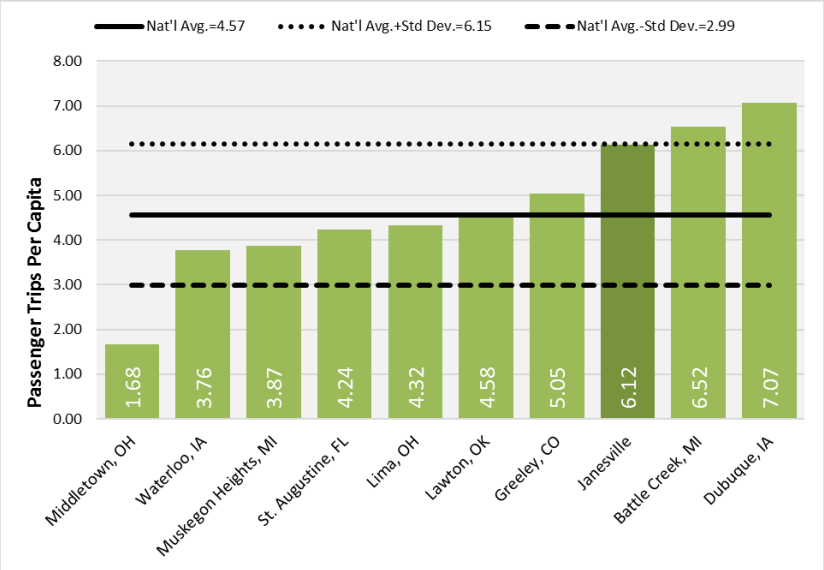
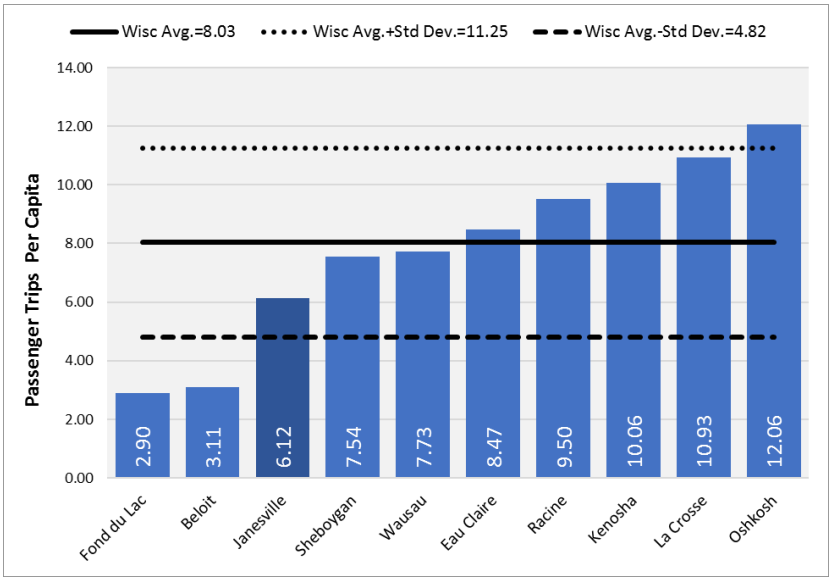


Figure 21. Passenger Trips per Capita, 2015 Wisconsin Peers



In 2015, JTS carried 6.12 passenger trips per capita. In other words, the average resident of the JTS service area boarded the bus 6.12 times during 2015.

Passenger trips per capita carried by JTS is above the national peer average of 4.57 and below the Wisconsin peer average of 8.03 (Figure 20 and Figure 21). JTS's market penetration, as measured by passenger trips per capita, is good relative to the national peer average and below the Wisconsin peer average but within one standard deviation.

The trend analysis in Table 11 shows that JTS's passenger trips per capita value rose between 2011 and 2013 then declined until 2015 for an overall average annual rate of decrease of 1.5 percent. JTS's market penetration, as measured by passenger trips per capita, is declining. The national peer group increased at an average rate of 2.9 percent and the Wisconsin peer group decreased at an average rate of 2.4 percent. JTS's system trend, in terms of passenger trips per capita, performs better compared to the Wisconsin peer group average and worse compared to the national peer group average but within one standard deviation.

Revenue hours per capita is the performance measure used to assess service availability.

Figure 22. Revenue Hours per Capita, 2015 National Peers

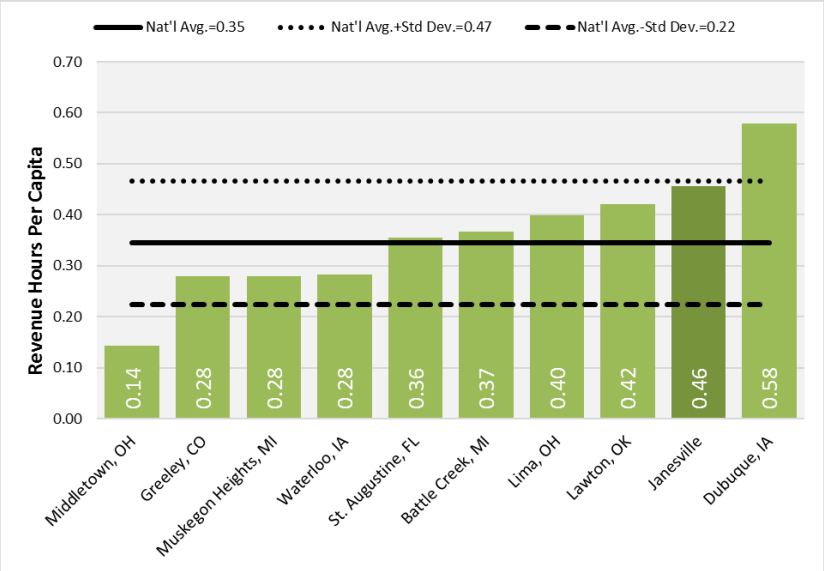
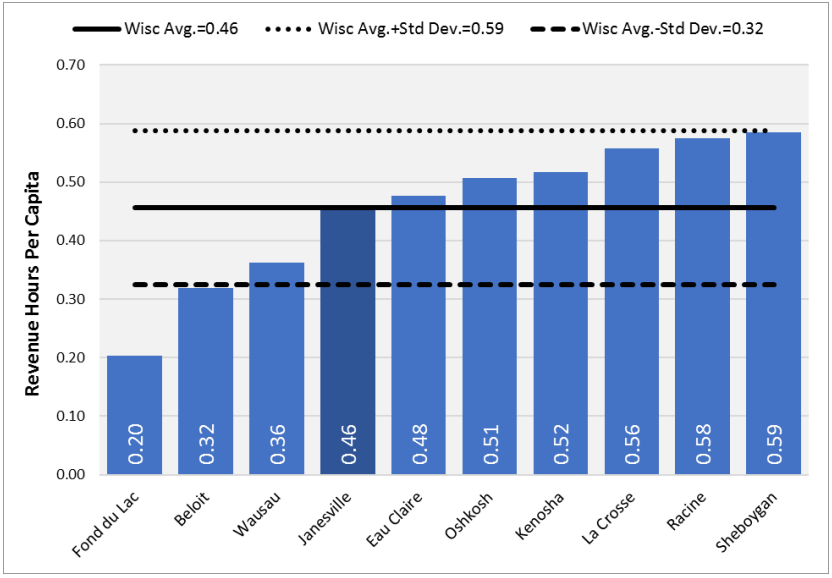


Figure 23. Revenue Hours per Capita, 2015 Wisconsin Peers



In 2015, JTS provided 0.46 revenue hours annually for each person in its service area. This level of service availability is above the national peer average of 0.35 and even with the Wisconsin peer average of 0.46 (Figure 22 and Figure 23). JTS's market penetration, as measured by revenue hours per capita, is better than the national peer group, and on par with the Wisconsin peers.

The trend analysis in Table 11 shows that since 2011, JTS has provided a steady number of revenue hours per capita, with an average annual increase of 2.4 percent. During the same period, the national peer group average revenue hours per capita increased at an average annual rate of 3.7 percent while the Wisconsin peer average decreased at an average annual rate of 1.3 percent (Table 11). As measured by revenue hours per capita, JTS's market penetration is increasing. JTS's performance is better than the Wisconsin peer group but worse than the national peer group, although within one standard deviation.

Passenger Revenue Effectiveness

Passenger revenue per passenger trip, or **average fare per passenger trip,** measures the amount each passenger is paying to use the service. The higher the average fare, the more cost is being borne by the passenger.

Figure 24. Average Fare per Passenger Trip, 2015 National Peers

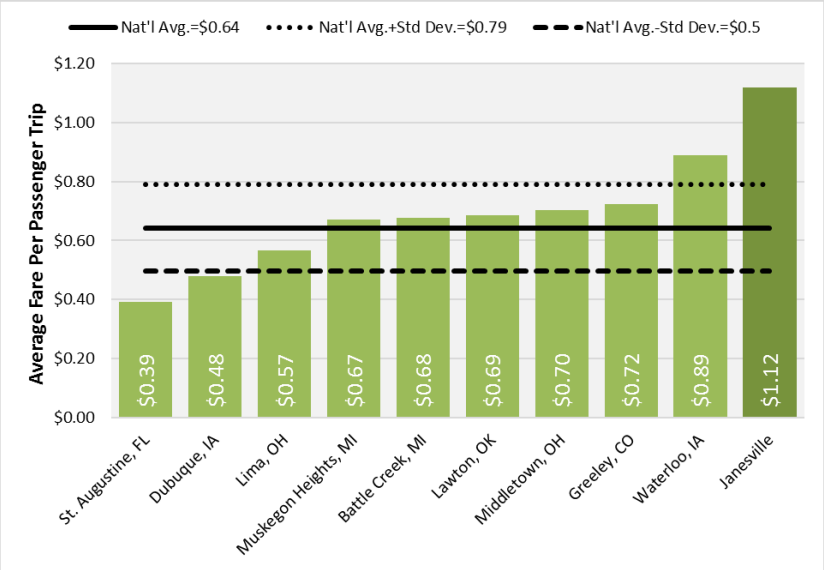
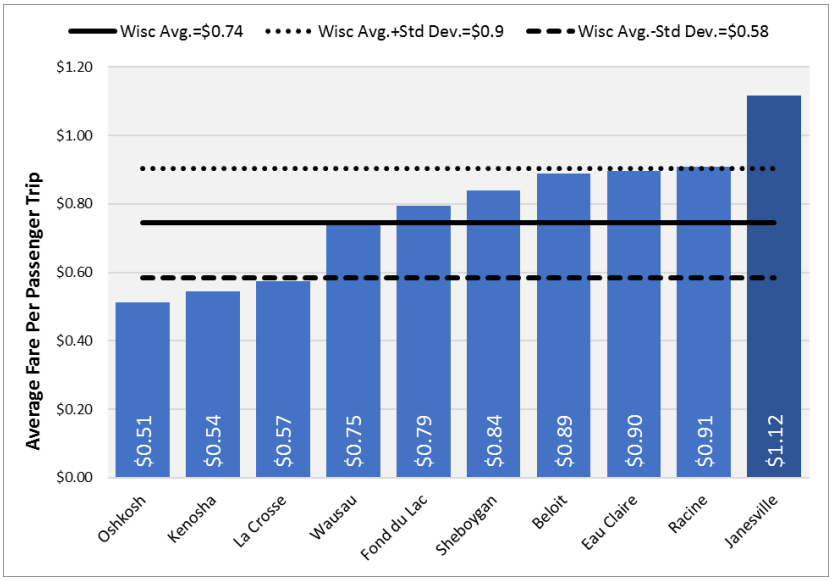


Figure 25. Average Fare per Passenger Trip, 2015 Wisconsin Peers



In 2015, the average JTS fixed route passenger paid $1.12 for a ride. This is above the national and Wisconsin peer averages of $0.64 and $0.74 per passenger trip, respectively (Figure 24 and Figure 25). As measured by average fare per passenger trip, JTS's passenger revenue effectiveness is better than the national and Wisconsin peer averages.

As shown in the trend analysis in Table 11, JTS's average fare per passenger trip increased over the five-year period by an average rate of 3.6 percent each year. During the same period, the national peer average fare decreased 3.9 percent annually, on average; and the Wisconsin peer average fare rose 2.9 percent annually, on average. JTS's average fare has been increasing at a rate higher than the national and Wisconsin peer groups.

The **operating ratio of revenue to operating expenses** measures the level of operating expenses that are recovered through passenger fare payment. This measure is also simply referred to as the **operating ratio**.

Figure 26. Operating Ratio, 2015 National Peers

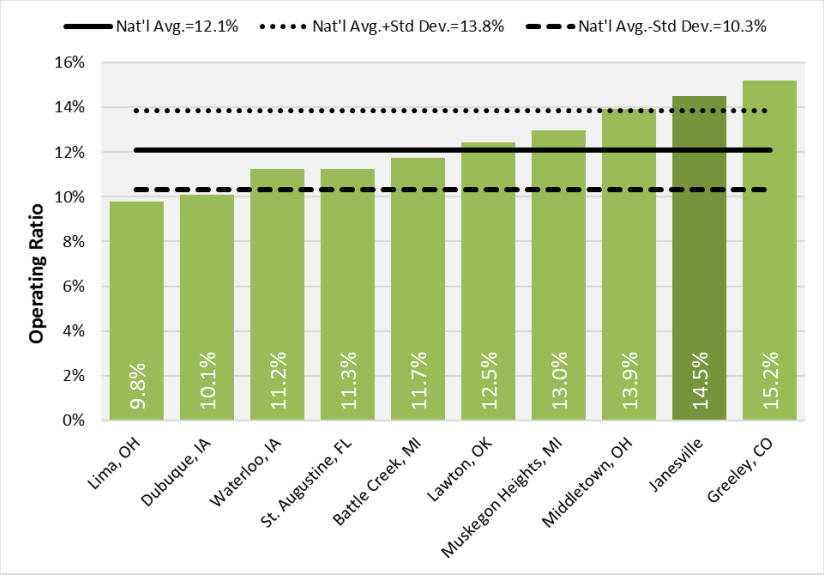
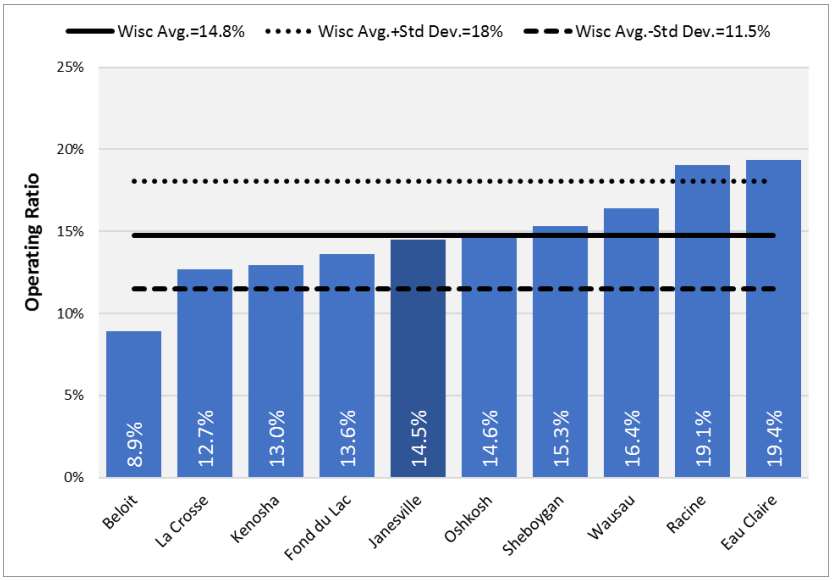


Figure 27. Operating Ratio, 2015 Wisconsin Peers



In 2015, JTS collected about 15 cents in passenger revenue for every dollar of operating expense; in other words, the system recovered 14.5 percent of its operating expense through the farebox. This operating ratio is above the national peer average of 12.1 percent, but is just slightly below the Wisconsin peer average of 14.8 percent (Figure 26 and Figure 27). JTS's operating ratio performs well compared to the national and Wisconsin peer averages.

JTS's operating ratio remained stable between 2011 and 2015. The trend analysis in Table 11 shows that JTS's operating ratio decreased at an average annual rate of 1.2 percent between 2011 and 2015. During the same period, the national peer average operating ratio decreased at an average annual rate of 5.3 percent; conversely, the Wisconsin peer average operating ratio increased at an average annual rate of 1.8 percent. JTS's operating ratio trend is better than the national peer group, and satisfactory compared to the Wisconsin peer group.

Net expense (subsidy) per passenger trip is used to measure the cost of each passenger trip that is paid for by public operating subsidy. Subsidy per passenger trip is calculated by subtracting passenger revenues from total operating expenses and dividing by total trips. The higher the operating subsidy, the more local, state, and federal resources are required to cover expenses.

Figure 28. Subsidy per Passenger Trip, 2015 National Peers

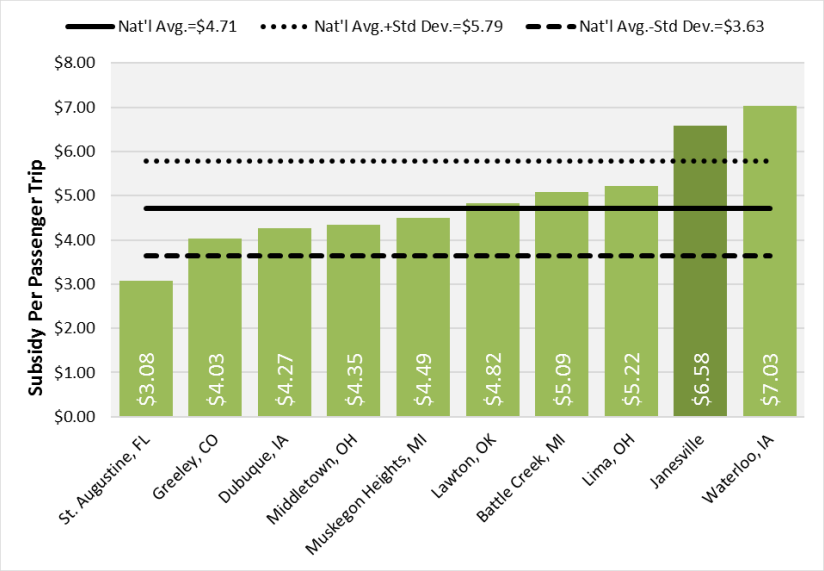
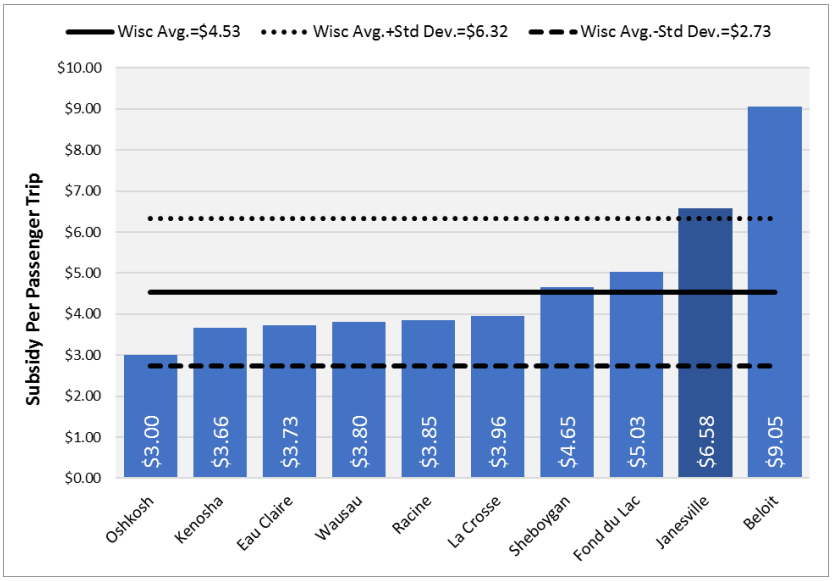


Figure 29. Subsidy per Passenger Trip, 2015 Wisconsin Peers



In 2015, JTS had $6.58 subsidized per passenger trip. JTS's level of subsidy is higher than the national peer average of $4.71, and the Wisconsin peer average of $4.53 (Figure 28 and Figure 29). JTS's performance is over one standard deviation higher than the national and Wisconsin peer averages, outside of satisfactory range.

This performance indicates JTS's operating expense is high relative to the number of passengers it serves, when compared to peers, since its average fare per passenger trips performs well.

The trend analysis in Table 11 shows that JTS's subsidy per passenger trip increased over the five-year period by an average annual rate of 5.1 percent. During the same period, the national peer average subsidy per passenger trip increased at an average annual rate of 3.4 percent, and the Wisconsin peer average subsidy increased at an average annual rate of 1.0 percent. JTS's subsidy per passenger trip trend is worse than the national and Wisconsin peer groups but is within one standard deviation, placing it within the satisfactory range.

Performance Summary

The symbols in Table 12 indicate the measures for which JTS is above average, satisfactory, or below satisfactory.

Table 12. Peer Analysis Summary

Performance Objective	Measure	National Peer Comparison (2015)	Wisconsin Peer Comparison (2015)	National Time Trend Performance (2011-2015)	Wisconsin Time Trend Performance (2011-2015)
Cost effectiveness	Operating expense per passenger trip	▼	▼	●	●
Service efficiency	Operating expense per revenue hour	▼	▼	▲	●
Service efficiency	Passenger trips per revenue hour	▲	●	●	●
Market penetration	Passenger trips per capita	▲	●	●	▲
Market penetration	Revenue hours per capita	▲	▲	●	▲
Passenger revenue effectiveness	Average fare per passenger trip	▲	▲	▲	▲
Passenger revenue effectiveness	Operating Ratio	▲	●	▲	●
Passenger revenue effectiveness	Subsidy per passenger trip	▼	▼	●	●
Key to Symbols	▲ Performs better than peer average				
	● Performs worse than peer average but within satisfactory range (one standard deviation from mean)				
	▼ Performs outside satisfactory range				

JTS performed better than peer average in 2015 when compared to its peer systems in five of eight performance measures. In terms of revenue collection and the percentage of the community served by transit, JTS does particularly well. Compared to both national and Wisconsin peers, JTS in 2015 performed outside satisfactory range in terms of operating expense per passenger trip, operating expense per revenue hour, and subsidy per passenger trip. However, in these measures the trends are stable or improving – 2015 figures were better than those in 2014 in these three categories. JTS also performed within the satisfactory range in all trend performance measures, comparing its performance from 2011 to 2015 to that of its national and Wisconsin peer systems.

Often it is challenging to identify single factors that affect a transit system's performance in comparison to its peers. Improving effectiveness and efficiency involves finding ways to lower operating costs and/or increase ridership. The portions of Janesville covered by transit and the market served indicate that ridership levels are adequate. Next steps in the project include an evaluation of other modes of transit to determine if efficiencies can be gained, and service planning recommendations aimed at increasing transit use and convenience.

Route Performance Analysis

Ridership Trends

The ridership trends of existing JTS regular fixed route, BJE, Nightside, and school tripper services are summarized below in Table 13, Table 14, and Figure 30. Table 13 summarizes JTS fixed route annual ridership for years 2012 through 2016 by service type. The JMW, shown in Table 13 and Table 14, was a pilot fixed route service connecting the three cities, similar in function to the BJE. The JMW was supported by dedicated local sponsorship in addition to fare revenues. However, the JMW pilot route was discontinued at the end of 2015 due to decreased demand and lack of sponsorship.

Table 13. JTS System-wide Ridership by Service Type, 2012-2016

Service Type	Route	Annual Ridership					Change, 2012-2016	
		2012	2013	2014	2015	2016	Overall Change	Avg. Ann. Rate of Change
Regular	All Regular	303,381	314,163	318,937	315,602	293,552	-3%	-1%
BJE	BJE	30,128	30,356	29,046	27,667	23,954	-21%	-6%
JMW	JMW	4,773	18,996	16,910	10,406	0	-	-
Nightside	All Nightside	19,521	22,532	21,811	20,505	19,835	2%	0.4%
School Trippers	All School Trippers	35,365	46,703	56,533	52,426	48,785	38%	8%
Paratransit	All Paratransit	5,625	4,630	3,268	4,247	5,259	-7%	-2%
TOTAL	**All Routes**	**398,793**	**437,379**	**446,505**	**430,853**	**391,385**	**-2%**	**-1%**

Source: JTS, 2017.

Between 2012 and 2016, total JTS system-wide ridership (all fixed route and paratransit) decreased two percent, at an average annual rate of one percent (Table 13). During this same period, regular route ridership decreased three percent, at an average annual rate of one percent. In the five-year period, system-wide ridership, regular route ridership, and school tripper ridership each peaked in 2014, with decreases in 2015 and 2016. BJE ridership decreased 21 percent between 2012 and 2016. Conversely, school tripper ridership was up nearly 38 percent in this time (Table 13). Nightside ridership has remained relatively steady over the five-year period.

Table 14 displays JTS fixed route annual ridership by route for years 2012 through 2016. Included in Table 14 are four routes that have since been discontinued: West State Street regular route, discontinued in mid-2013; JMW, which ended in 2015; and the Holmes/Tyler Special and Garfield/Mt. Zion Special school tripper routes, which ended in 2012 and mid-2016, respectively.

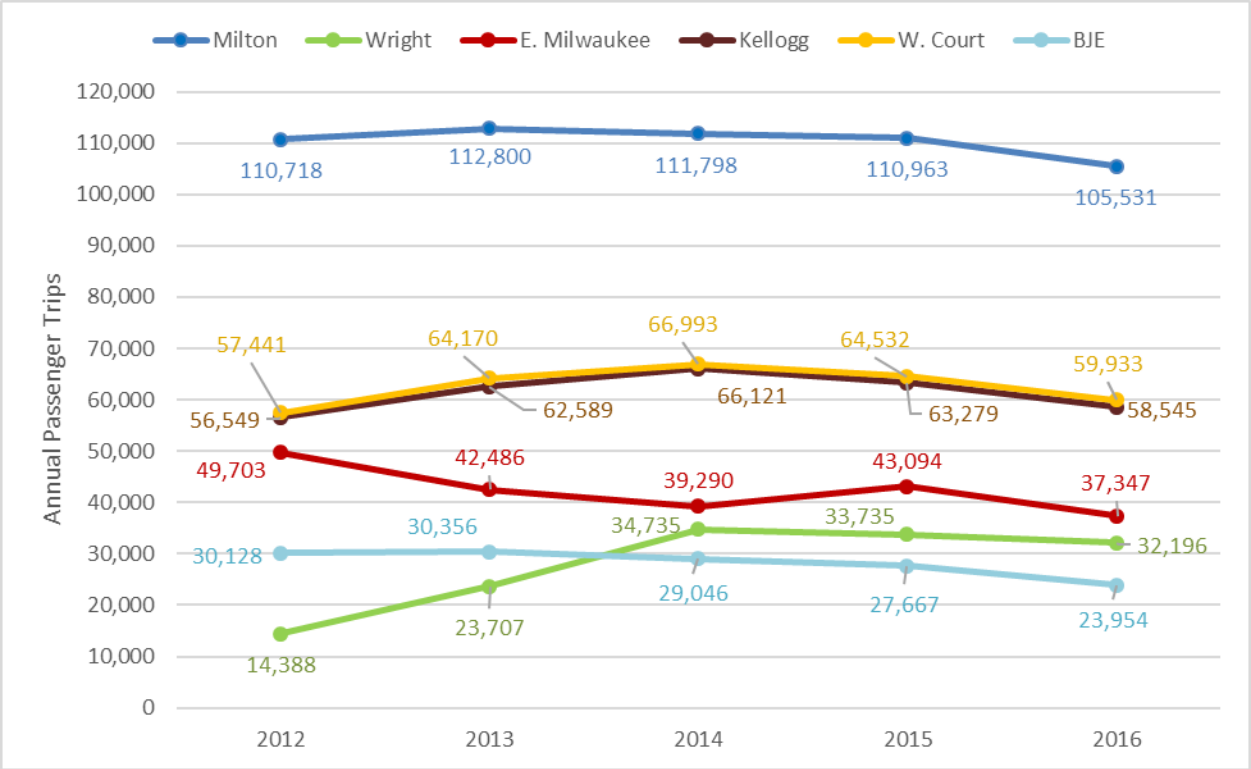
Table 14. JTS Fixed Route Ridership by Route, 2012-2016

Service Type	Route	Annual Ridership					Change, 2012-2016	
		2012	2013	2014	2015	2016	Overall Change	Avg. Ann. Rate of Change
Regular	Milton Avenue	110,718	112,800	111,798	110,963	105,531	-5%	-1%
Regular	Wright Road	14,388	23,707	34,735	33,735	32,196	124%	22%
Regular	East Milwaukee Street	49,703	42,486	39,290	43,094	37,347	-25%	-7%
Regular	Kellogg Avenue	56,549	62,589	66,121	63,279	58,545	4%	1%
Regular	West Court Street	57,441	64,170	66,993	64,532	59,933	4%	1%
Regular	West State Street	14,583	8,411	0	0	0	-	-
BJE	BJE	30,128	30,356	29,046	27,667	23,954	-20%	-6%
JMW	JMW	4,773	18,996	16,910	10,406	0	-	-
Nightside	Milton Avenue Nightside	8,796	9,568	9,859	9,040	8,255	-6%	-2%
Nightside	Nightside-East	4,856	5,556	5,315	5,198	5,317	10%	2%
Nightside	Nightside-West	5,869	7,407	6,637	6,267	6,262	7%	2%
School Tripper	Wright Road Special	408	1,037	928	848	817	100%	19%
School Tripper	East Milwaukee Special	740	940	821	345	210	-72%	-27%
School Tripper	Kellogg Avenue Special	2,904	4,435	5,703	6,196	6,037	108%	20%
School Tripper	West Court Special	4,244	5,862	7,513	7,035	7,058	66%	14%
School Tripper	Arrow Park Special	1,425	1,458	1,157	825	565	-60%	-21%
School Tripper	Randall Avenue Special	-	-	-	-	5,213	-	-
School Tripper	Pontiac/Wuthering Special	6,935	8,334	8,540	8,191	8,643	25%	6%
School Tripper	Southwest Special	9,560	9,615	10,713	8,419	7,473	-22%	-6%
School Tripper	Northwest Special	5,172	6,562	5,474	4,801	4,805	-7%	-2%
School Tripper	Garfield/Mt. Zion Special	0	5,107	15,684	15,765	7,965	56%	16%
School Tripper	Holmes/Tyler Special	3,977	3,354	0	0	0	-	-
TOTAL	**All Routes**	**393,168**	**432,749**	**443,237**	**426,606**	**386,126**	**-1%**	**0%**

Source: JTS, 2017.

Among the regular fixed routes and the BJE, since 2012, Milton Avenue has been by far the highest ridership route (Figure 30). In 2016, Milton Avenue annual ridership was approximately 105,500, over 75 percent greater than the next highest ridership routes, Kellogg Avenue and West Court Street. Starting in 2014, ridership on the Wright Road route surpassed that of the BJE; since 2014, the BJE has remained the lowest ridership route. Between 2012 and 2016, ridership on the Kellogg Avenue route has been nearly equal to that of the West Court Street route (within about 1,500 passenger trips).

Figure 30. JTS Regular Fixed Route and BJE Ridership by Route, 2012-2016



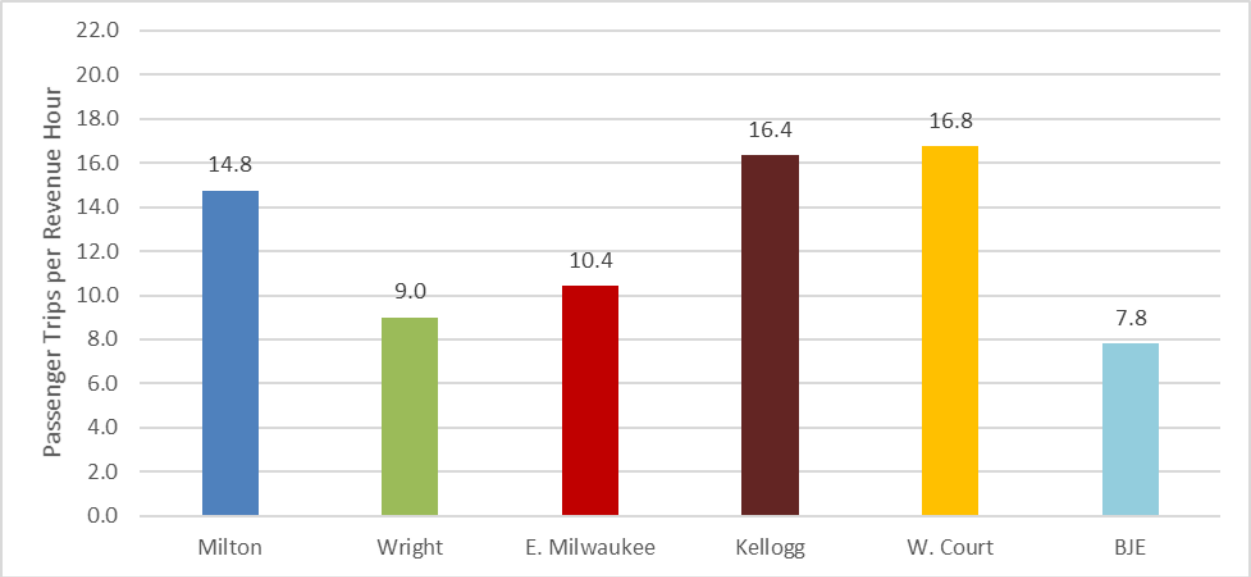
Source: JTS, 2017.

Since 2012, ridership on the Milton Avenue, Kellogg Avenue, and West Court Street regular fixed routes has remained relatively flat, with average annual rates of change of about +/- 1 percent (Table 14). Compared to 2012, ridership on the East Milwaukee Street route in 2016 was 25 percent lower, with an average annual decrease of 7 percent. Alternatively, ridership on the Wright Road route in 2016 was 124 percent greater than 2012 levels. However, Wright Road ridership has declined slightly since 2014. As noted above, ridership on the BJE in 2016 was down 20 percent from 2012 levels, with an average annual decrease of 6 percent in this time.

Service Effectiveness by Route

The 2016 annual total passenger trips per revenue hour by route for JTS regular routes and BJE are summarized in Figure 31. Passenger trips per revenue hour is the measure used to assess service effectiveness. Service effectiveness is a measure of the consumption of public transportation service in relation to the amount of service available. Generally, 20 passenger trips per revenue hour is the standard goal for effective fixed route service.

Figure 31. Passenger Trips per Revenue Hour by Route: JTS Regular Fixed Route and BJE, 2016



Source: JTS, 2017.

As shown in Figure 31, the Kellogg Avenue and West Court Street routes performed the best in terms of passenger trips per revenue hour in 2016, with 16.4 and 16.8, respectively. Among regular fixed routes, Wright Road performed the lowest using this measure of service effectiveness.

The effectiveness of Nightside and tripper service routes are summarized in the *Nightside Service Review* and *Tripper Service Review* sections of this report.

Field Review

On-Off Passenger Counts

The consultant team collected boarding and alighting as well as on-time performance data for all JTS regular routes, the BJE, and most school tripper routes to better understand bus stop- and route-level performance. Data collected allows for identification of under-utilized bus stop locations, travel patterns by route by time of day, schedule adherence, vehicle loads, and operational logistics. The consultant team collected the following data based on observations made over the course of Tuesday, May 23 and Wednesday, May 24, and Tuesday, June 27 and Wednesday, June 28, 2017. To prioritize data collection efforts, passenger counts were not conducted on Nightside routes.

As a relatively small sample, the data provide a snapshot of service provided and consumed, highlighting patterns and areas for further study. The data collected are not to be interpreted as a complete or statistically significant representative sample.

Table 15 summarizes the May and June 2017 passenger count observations by route. The passenger trips per revenue hour by route observed by the consultant team are generally comparable to those calculated using 2016 JTS annual data, with some variation. For the West Court Street and Wright

Road routes, observed passenger trips per revenue hour were higher than those calculated using 2016 annual data, with 22.8 vs. 16.8 and 14.8 vs. 9.0, respectively (Table 15, Figure 31).

Table 15. Passenger Count Observations

Route	Route Trips	Passenger Trips	Revenue Hours	Passenger Trips per Revenue Hour
Milton Avenue	23	377	23	16.4
Wright Road	24	178	12	14.8
East Milwaukee Street	12	153	12	12.8
Kellogg Avenue	24	227	12	18.9
West Court Street	24	273	12	22.8
BJE	6	96	11	8.7
Total	**113**	**1,304**	**82**	**15.9**

Source: Consultant team data collection, May and June, 2017

Detailed information on bus stop-level boarding and alighting counts by route are included in Appendix A. By far, the bus stop observed to have the greatest passenger activity was the downtown Transfer Center, with over 500 observed passenger boardings throughout the service day (38 percent of observed total). Other high-use bus stops in terms of passenger activity were Walmart (served by the Milton Avenue and East Milwaukee Street routes) with about 50 boardings, and the Janesville Mall (Milton Avenue route) and Rock County Job Center (Kellogg Avenue and BJE routes) with about 25 boardings, respectively.

Unsigned Bus Stops

Results of the on-off passenger count data collection efforts indicated a small percentage of total observed passengers boarding or alighting at unsigned bus stops. Only 2.0 percent of observed passenger activity (boarding or alighting) was done at unsigned bus stops ("flag stops").

In total, 22 passengers were observed boarding, and 29 passengers were observed alighting, at one of 21 unsigned bus stops observed to be used in this period. The combined passenger activity at unsigned stops (51) accounted for just 2.0 percent of total passenger activity (2,567) observed in this period.

For additional information pertaining to existing bus stop placement and the requirements associated with a conversion to a "bus stop only" system, see the *Bus Stop Analysis* section of this report.

Infrastructure, Equipment, and Amenities Issue Identification

Pedestrian Connections

Currently, the flag stop and route deviation policies mean that riders board and exit the bus at many different locations in town. Currently, there are parts of Janesville that do not have sidewalks,

primarily on the west side of town. A bus stop only policy will improve boarding and alighting by making it consistent and safe for passengers. Pedestrian facilities near bus stops and those connecting to destinations should be monitored in a transition to a bus stop only system.

Some current bus stop locations require that pedestrians walk across parking lots in shopping centers to get to their destination. This is unsafe, and several riders that are blind or low-vision expressed that walking across parking lots was troublesome.

Bus Stops and Shelters

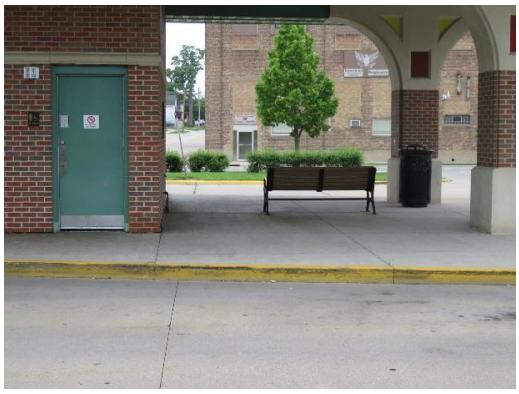
Implementing a bus stop only program would have a great benefit to both passengers and drivers. It would allow for safer passenger boarding and alighting, increased accessibility at boarding and alighting locations, and improve route schedule adherence and operational efficiency. Such a program that would have positive benefits for everyone involved in delivering service. If there is a transition to a bus stop only system, stops would need to be programmed for ADA compliance, with prioritization protocols developed to determine the order for implementing the bus stop improvement program.

JTS has two types of shelters. The older bus shelters are standard shelters purchased in the late 1970s. The newer shelters are distinctive and complement the design of the JTS downtown Transfer Center and tie the routes together in a very effective manner. However, many of the shelters need attention. Some of the footings on the newer shelters are beginning to rust. While not an immediate structural problem, an analysis of the rust condition and its possible risk of failure should be conducted in the next two years. Privately owned shelters at St. Mary's Hospital and the Janesville Mall are well maintained and attractive.

For additional information pertaining to bus stops and shelters, see the *Bus Stop Analysis* section of this report.

Janesville Downtown Transfer Center

The Janesville downtown Transfer Center was constructed in 1999 prior to the current ADA Accessibility Guidelines (ADAAG). Presently, there is not enough space at the East Milwaukee Street stop at the downtown Transfer Center for the required eight-foot clearance distance from the curb to the building to safely deploy the ramp for wheelchair operations. Similarly, the BJE stop is inadequate; drivers currently accommodate wheelchairs by stopping short of the normal berthing location. Bollards placed throughout the facility near boarding areas pose issues for blind and low vision riders trying to access the bus. Metal footings on the furnishings and the corners of the building at the downtown Transfer Center are rusting.

East Milwaukee Street stop has 48-inch clearance. BJE buses stop near bench for clearance.

Given the Transfer Center's accessibility issues, age and condition, and the operational challenges it presents, a Transfer Center refurbishment study should be completed. Improvements to the Transfer Center would translate to a better customer experience and smoother and more reliable transit operations. An Architectural/Engineering firm would provide necessary information to determine the cost of refurbishing the facility. It could also be a shovel-ready program after the study is completed.


At downtown Transfer Center, benches need replacement and footings are rusting.

Public information at the downtown Transfer Center could be better displayed. The route maps are faded and the plastic that protects the displays is etched or scratched. The doors that hold the plastic are not properly secured. While the overall appearance of the Transfer Center is clean and attractive, the information needed to access the bus service is unclear and difficult to read.

Streets

The City of Janesville Public Works may consider studying traffic control along bus routes. Establishment of yield or stop signs at currently unmarked intersections in residential areas can improve bus speeds slightly and provide a minor improvement in average miles per gallon for the bus fleet. Extended green lights in the downtown area controlled by the driver on demand would

assist buses in maintaining schedule; such is part of a larger strategy often referred to as transit signal priority (TSP). The potential for impacts on cross traffic and the commercial businesses downtown should be studied. In relation to the West Court Street route, JTS drivers also requested a traffic signal left turn arrow at Mineral Point Avenue and Crosby Avenue to facilitate vehicular traffic, and a longer green light at Main Street and Centerway Street to facilitate bus left turns.

Fleet

Buses at JTS are in good mechanical condition, but are near the end of their design life. Typically, small urban communities had stable federal funding for vehicle replacement either through FTA Section 5309 or FTA Section 5339 Bus and Bus Facilities grant programs. These programs are no longer adequate to meet nationwide vehicle needs. It is difficult to determine when the entire fleet can be replaced. Funding for five buses has been secured, and they will be able to operate on high-mileage service as part of the BJE and on the evening service, which requires three buses. However, additional equipment may be needed within the next three years. At the peak afternoon times, 15 of the 17 buses at JTS are in service.

Maintenance expenses can be expected to increase in the near-term due to the age of the fleet and its deteriorating condition. Phasing in new buses, at a rate of four or five buses every three years, will allow JTS to continue to operate efficiently while also taking advantage of the benefits of new technology as it develops. It will also control maintenance costs as older buses are redirected to lower-mileage assignments. In most systems, the new buses are assigned to the high-mileage services. Three buses are needed for evening service and one for the BJE. These four runs would then always have the newest buses.

A transition period of several years will be needed to accomplish a fleet replacement program that has new buses every three years. This program will spread the risk of mechanical deterioration over more time and develop a more balanced system where costs are more predictable and consistent. Unfortunately, the fleet in existence now will need some replacement buses sooner than later. After management evaluates each vehicle, a decision can be made whether to rehabilitate existing equipment or buy used buses, either from other transit systems or from the private sector used bus dealers. Used buses from private dealers in reasonable condition cost between $60,000 and $90,000 and usually have a life expectancy of three to six years. Used buses from other transit systems are less expensive, but often have mechanical or body issues that will have a cost component to consider.

The minimal rear light protection on JTS buses is inadequate and antiquated. More lights on the rear of buses reduce rear end collisions and allow cars adequate warning to change lanes when there is a stopped bus in the roadway. A retrofit program to include rear roof lights on buses would improve safety protocol and prevent accidents. It is estimated that a retrofit program may require four to six hours of labor per vehicle.

Left: Reflective stripe and flashers. Right: Flashers located high on the vehicle.

The new FHWA regulations for rear light visibility for some commercial vehicles will improve visibility of stopped vehicles, and transit vehicles should follow similar guidelines.

Public Information

As at the downtown Transfer Center, public information throughout the system could be better displayed. Public information in the buses is warped and exposed to the elements. Lamination of notices would improve the physical appearance and would allow the notices to be easily read for a longer time.

People with limited English proficiency or intellectual disabilities may not be able to easily read the bus overhead sign indicating which route the vehicle is operating on. A numbered route, where routes are designated with numbers instead of or in addition to descriptions of where they serve, is more universal and is easier to comprehend for most passengers.

Left: On-bus public information in poor condition. Right: Regular fixed route buses have only one overhead reading at all times and there is no route number.

Tripper buses were observed with rotating overhead signs with multiple readings, while fixed route buses have only one reading on their overhead signs. For regular routes, the route number and name should be displayed, followed by the destination for ease of rider understanding. Buses from Beloit and from Janesville on the BJE were observed with different readings. The Beloit buses and Janesville buses should display the same route readings, along with their destination.

Overhead rotating destination signs, which show longer messages by alternating between two readings on a vehicle, are used on school trippers.

Technology

JTS can elevate to meet the technology standards of many transit systems in Wisconsin and the Midwest by adding automatic vehicle locators (AVL) which uses global positioning system (GPS) technology on buses. AVL on buses is needed to measure schedule adherence and to provide data for a mobile app that shows customers the exact location of the bus they are waiting for. A May 2015 survey showed that 63 percent of JTS passengers have smart phones. AVL data would provide critical real-time information to these riders. This is especially beneficial in the winter months to minimize outdoor waiting time. The GPS system can be tied into automatic passenger enunciators to assist blind or low vision passengers. AVL technology can also be programmed with additional hardware to measure boardings and alightings at individual bus stops (often referred to as automatic passenger counters [APC]), which assists in decisions on future routing changes.

Evaluation of Existing System Speed and Timing

Route Performance Criteria

In evaluating the existing system speed and timing, route performance was measured by schedule adherence and delay. Because JTS does not collect GPS or long-term boarding and alighting data, the route performance evaluation was conducted using passenger counts, consultant team route observations, and interviews with drivers and supervisors regarding running times and ridership patterns.

Each route's running time is subject to repetitive conditions such as:

- The built environment along the route
- The number of turns on the route
- Driving speed and conditions on differing types of streets—arterial, collector, residential
- Traffic signal timing
- Fare collection procedures and passenger boarding patterns
- Infrastructure conditions

These are known conditions that management can address and/or measure to create schedules that accurately represent the conditions of the route, increasing the likelihood that the route will reliably adhere to schedule. However, there are also several incidental or non-repetitive issues that can occur throughout the day that also affect schedule adherence such as:

- Passenger events—illness, ramp needs, behavior
- Traffic events—emergency vehicles, unanticipated congestion
- Malfunctioning traffic lights

Because these events cannot be worked into a predictable schedule, adequate recovery time is required at the end of each trip to ensure that the next trip can depart on time.

In addition to overall cycle adherence (a route that is scheduled to take 60 minutes should take very close to 60 minutes), JTS, like all transit agencies, strives to adhere to scheduled timepoints along each route as well. Timepoints are the expected times the bus will arrive at a series of locations along the route. Adherence to the scheduled timepoints depends on the occurrence of non-repetitive incidents, but is especially dependent on schedules reflecting reasonable estimates of travel time between timepoints that are reflective of repetitive conditions.

Route Performance Results

Consistent with good scheduling policy, JTS lists major destinations and ridership generators as its timepoints. It also uses five- or ten-minute times between timepoints. Unfortunately, major traffic generators are often not five or ten minutes apart, so some route schedules are difficult to maintain. Tight schedules are stressful for drivers and passengers alike. Passengers may perceive variation in schedule performance as a requirement for them to be at a bus stop earlier than is necessary. They may also be anxious about making transfer connections when buses are late. Drivers may also experience stress trying to make transfer connections and adhere to a difficult schedule while also managing their other work tasks and ensuring safety. Poor passenger relations are often the manifestation of schedule stress, and collisions or other traffic incidents are often an unfortunate by-product of an overly-tight schedule. Implementing a realistic schedule is essential to improving reliability and reducing stress for passengers and drivers.

Rail crossings contribute to schedule adherence difficulties on certain JTS routes. The West Court Street, Kellogg Avenue, BJE, and Nightside-West routes have at least two rail crossings per trip (Table 16).

Table 16. Number of Rail Crossings by Route

Regular Route	Number of Rail Crossings Per Bus Trip
West Court Street	2
Kellogg Avenue	4
Nightside-West	6
BJE*	10

*Full cycle: Beloit to Janesville, County Institutions, and Janesville to Beloit

Of consequence to bus schedule adherence are crossings in the five points area (Centerway/Center Avenue, West Court Street, and West Milwaukee Street); at Jackson Street, just north of Centerway Avenue; along Beloit Avenue; and along Highway 14 near Kennedy Road. To date, efforts to coordinate bus schedules with train schedules have fallen short as train schedules have become less predictable.

Table 17 through Table 21 show assumed average speeds between timepoints; shaded cells represent segments that are assumed to have high average speeds, or locations where buses are less likely to maintain the schedule.

Table 17. Milton Avenue Route Average Timepoint Speed

Timepoint Location	Distance (miles)	Time (minutes)	Miles per Hour
Transfer Center	0.00		
Memorial/Milton	1.21	5	14.5
Janesville Mall	1.50	5	18.0
Festival Foods	1.25	5	15.0
Pine Tree Plaza	1.16	5	13.9
Walmart	0.98	5	11.8
Target	1.25	5	15.0
Janesville Mall	1.37	10	8.2
Milton/Benton	1.30	5	15.6
Glen/Milton	1.32	5	15.8
Transfer Center	0.96	5	11.5
Route Average Speed	**12.30**	**55**	**13.4**

Table 18. East Milwaukee Street Average Timepoint Speed

Timepoint Location	Distance (miles)	Time (minutes)	Miles per Hour
Transfer Center	0.00		
Harmony/East Milwaukee	1.65	10	9.9
Mercyhealth East	1.60	5	19.2
Randolph/Wright	1.00	5	12.0
Pine Tree Plaza	0.94	5	11.3
Walmart	0.94	5	11.3
Pine Tree Plaza	1.00	5	12.0
Randolph/Wright	0.94	5	11.3
Mercyhealth East	1.00	5	12.0
Harmony/E. Milwaukee	1.65	5	19.8
Transfer Center	1.78	10	10.7
Route Average Speed	**12.50**	**60**	**12.5**

Table 19. Wright Road Route Average Timepoint Speed

Timepoint Location	Distance (miles)	Time (minutes)	Miles per Hour
Transfer Center	0.00		
St. Mary's Hospital	3.80	10	22.8
Ruger/Lexington	2.26	5	27.1
Ringold/Racine	1.14	5	13.7
Transfer Center	1.00	8	7.5
Route Average Speed	**8.20**	**28**	**17.6**

Table 20. West Court Street Route Average Timepoint Speed

Timepoint Location	Distance (miles)	Time (minutes)	Miles per Hour
Transfer Center	0.00		
Mercyhealth Hospital	1.02	5	12.2
Court/Crosby	1.50	5	18.0
Mineral Point/Crosby	1.45	5	17.4
Purvis/Washington	1.56	5	18.7
Jackson/Wall	1.36	5	16.3
Transfer Center	0.41	3	8.2
Route Average Speed	**7.30**	**28**	**15.6**

Table 21. Kellogg Avenue Route Average Timepoint Speed

Timepoint Location	Distance (miles)	Time (minutes)	Miles per Hour
Transfer Center	0.00		
State/Beloit	1.64	5	19.7
Kellogg/Lafayette	1.80	5	21.6
Oakhill/Kellogg	1.00	5	12.0
State/Washington	1.42	5	17.0
Jackson/Rockport	1.30	5	15.6
Transfer Center	0.84	3	16.8
Route Average Speed	**8.00**	**28**	**17.1**

Per drivers and supervisors, the West Court Street route is the most difficult route to maintain on the existing schedule, closely followed by the Milton Avenue route, then Kellogg Avenue, Wright Road, and East Milwaukee Street routes. Some drivers indicated that the Kellogg Avenue route was also difficult to adhere to schedule, while other drivers indicated that Kellogg Avenue is not a problem if they arrive at the downtown Transfer Center with adequate recovery time after making a trip on the West Court Street route. (West Court Street and Kellogg Avenue routes are paired routes where the driver alternates trips between the two routes).

Adequate recovery time is needed to allow drivers to start the subsequent trip on time. The general prevailing practice in the transit industry is a 10 to 12 percent recovery time (six or seven minutes in a 60-minute cycle). For 30-minute cycle routes, a four- to six-minute recovery time is typical. Recovery time allows drivers to maintain their schedule if they have been delayed by an unexpected event, time-consuming ramp operation, or other passenger boarding patterns. When there are no delay events, recovery time allows time for a break to use the restroom, stretch one's legs, or clear one's head.

Results of the evaluation of existing system speed and timing are summarized in Table 22.

Table 22. Regular Route Performance Results

Route	Schedule Adherence Difficulty*	Miles	Scheduled Speed (mph)	Turns	Timepoint Distribution: Route segments where average speed is overestimated
West Court Street	Highest	7.3	15.6	17-20 per 28 min.	4 of 6
Milton Avenue	High	12.3	13.4	37 per 55 min.	6 of 10
Kellogg Avenue	Medium	8.0	17.1	17-20 per 28 min.	5 of 6
Wright Road	Medium	8.2	17.6	17-20 per 28 min.	2 of 4
East Milwaukee Street	Medium	12.5	12.5	26 per 60 min.	2 of 10

*Source: JTS drivers. Without robust on-time performance data, the difference between the routes cannot be quantified.

The City of Janesville intends to convert Court Street from one-way to two-way traffic in 2018. Such a change could have a detrimental impact on current JTS bus operations. Notably, the planned removal of the traffic signal at the intersection of Court Street and Jackson Street could impact the southbound to eastbound left turn from Jackson Street onto Court Street made by the Wright Road and BJE routes. This change may result in increased travel time for the Wright Road and BJE routes, and negatively impact safety due to limited sight distance.

In all its roadway design decisions, the City must fully consider and weigh the potentially negative impacts to JTS customers and staff. City leaders and Public Works staff must place transit safety and convenience high on its priority list to allow JTS to thrive.

Specialized Transit Review

Tripper Service Review

Janesville Transit System (JTS) operates extra bus service – school trippers – to Janesville's middle and high schools during the school year with routes and times coordinated with the school schedule. School tripper service involves adding extra public transit trips to supplement regular route service during peak school start and end times. School tripper routes by number of daily bus trips by time of day are summarized in Table 23. Of the eight tripper routes operated by JTS during the 2017-2018 school year, three are afternoon-only routes and one is a morning-only route. School tripper buses follow a published schedule, are open to the public, and charge the regular fare. Certain students may qualify for fare assistance or bus passes provided by the SDJ.

Table 23. School Tripper Routes by Number of Daily Bus Trips by Time of Day, 2017-2018 School Year

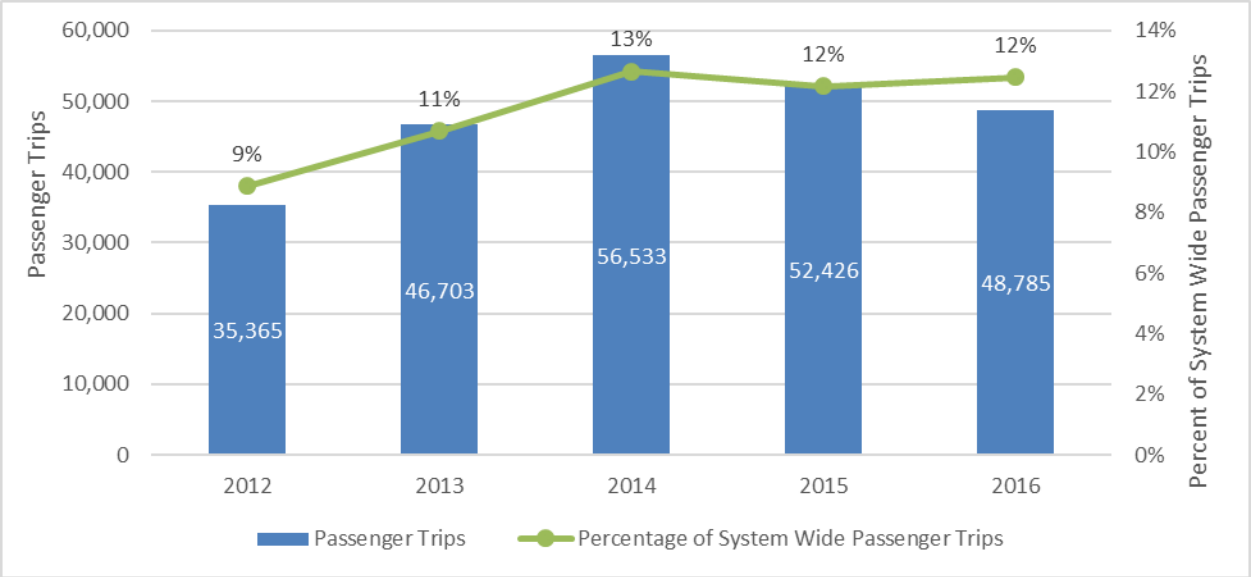
Tripper Route	Number of Daily Bus Trips		
	Total	AM	PM
Wright Road Special	1	1	-
East Milwaukee Special	1	-	1
Kellogg Special	1	-	1
West Court Special*	2	-	2
Pontiac/Wuthering Hills Special	2	1	1
Southwest Special	2	1	1
Northwest Special	2	1	1
Randall Avenue Special	3	1	2
Total	**14**	**5**	**9**

*A second afternoon trip was introduced in the 2017-2018 school year to address crowding.

Ridership and Performance

Since 2012, JTS school tripper ridership has grown 38 percent, at an average annual rate of eight percent. Correspondingly, youth tokens – sold only at Janesville schools – were introduced in 2013. However, school tripper ridership over the last five years peaked in 2014 then decreased in 2015 and 2016 (Figure 32), on par with the system wide ridership trend. School tripper service is an important element of JTS's service. Since 2013, school tripper passenger trips have accounted for between 11 and 13 percent of system wide ridership (Figure 32).

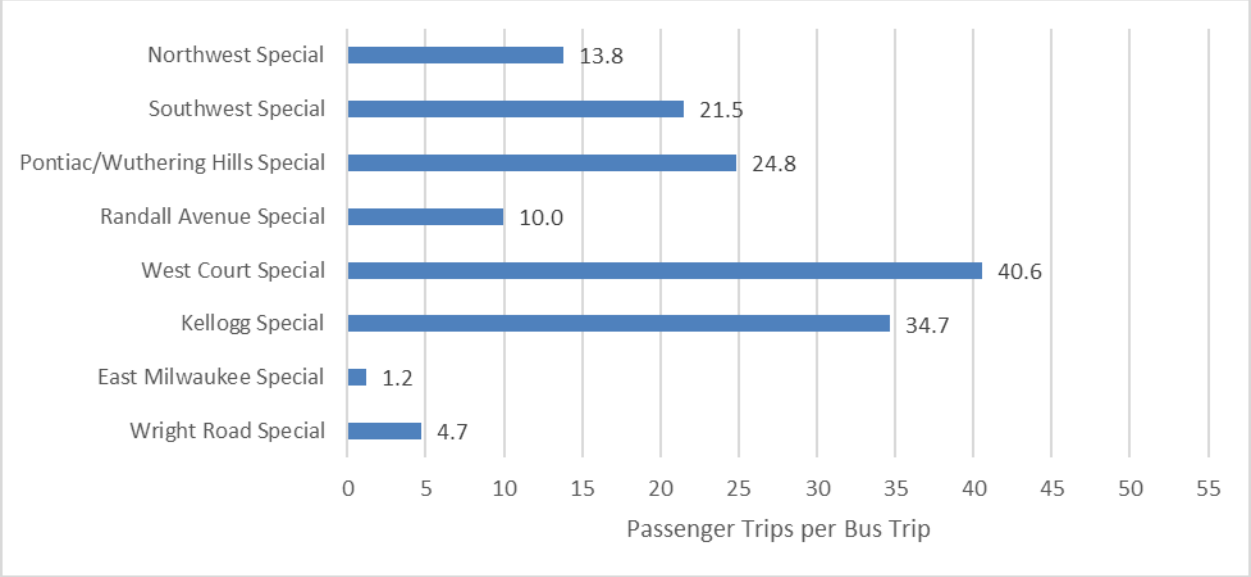
Figure 32. School Tripper Ridership, 2012-2016



Source: JTS, 2017.

Shown in Figure 33, the West Court Special, Kellogg Special, Pontiac/Wuthering Hills Special, and Southwest Special were the most effective school tripper routes in terms of ridership per bus trip in 2016. In response to an average of over 40 passengers boarding the one daily trip operated in 2016, a second afternoon trip was added to the West Court Special school tripper route to ease crowding.

Figure 33. School Tripper Ridership by Bus Trip by Route, 2016



Source: JTS, 2017. Based on 174 days of school tripper service in 2016.

The East Milwaukee Special and Wright Road Special were the least effective in terms of passengers per bus trip. The East Milwaukee Special and Wright Road Special should be further evaluated by JTS and SDJ staff to explore routing and other service opportunities to more efficiently serve students in these areas. This should be done in collaboration with SDJ staff and students. Additionally, a minimum ridership threshold should be informally established by JTS to review the benefit of tripper routes. Supplementary analysis and engagement should be conducted prior to implementing any changes to the East Milwaukee Special and Wright Road Special school tripper routes.

It is evident from stakeholder input – including surveys, public and stakeholder meetings – that JTS and SDJ enjoy a cooperative and productive relationship. Of the many successes resulting from this partnership are the creation of the well-used fare types specific to students (Youth Tokens and Semester and Summer Passes), student-focused training and engagement, and level of customer satisfaction. SDJ staff and administrators report high on-time performance and customer service from JTS school tripper bus service.

Opportunities

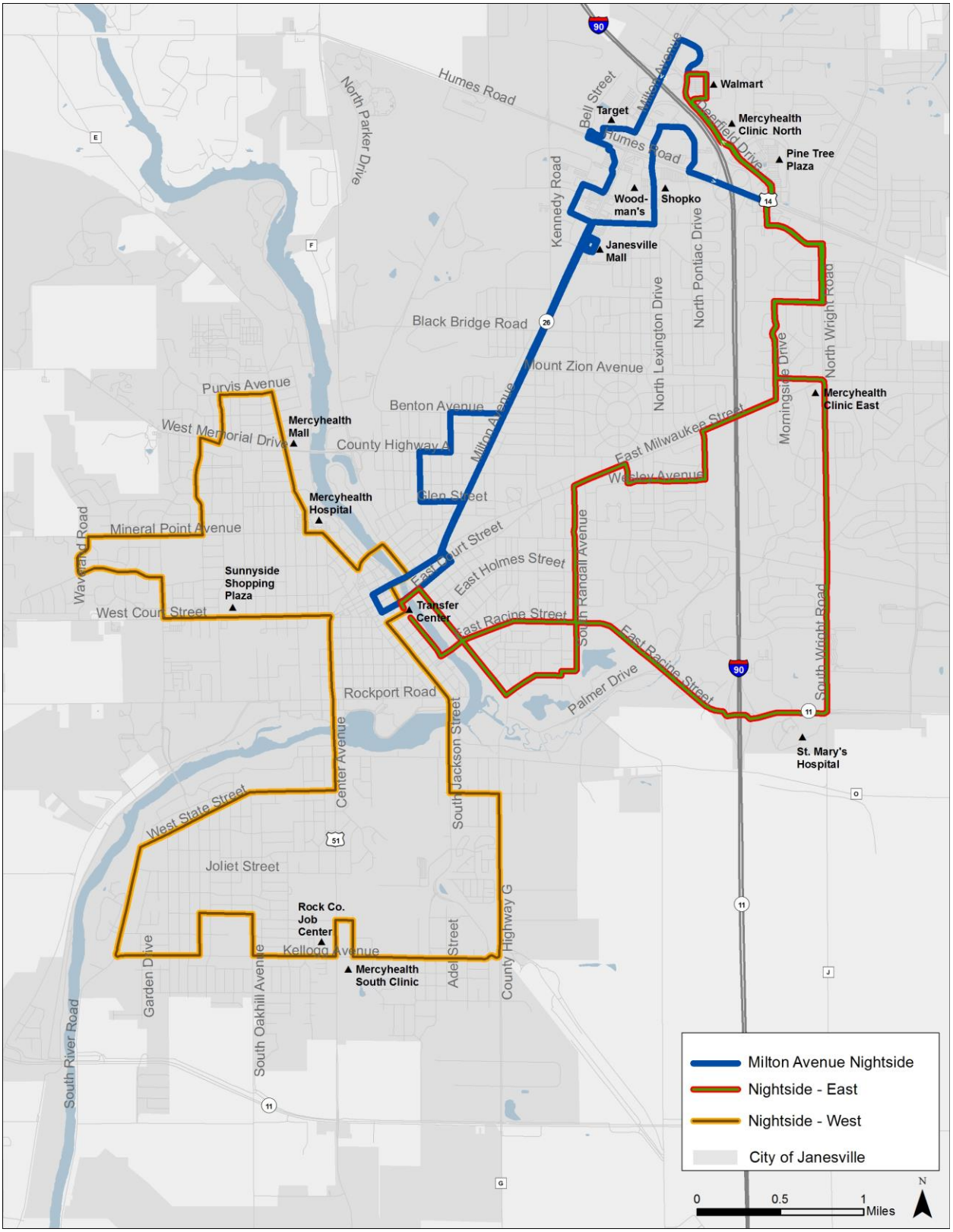
The successful school tripper service model could be applied to different trip types at different times throughout the JTS service area. One opportunity that could be explored in greater detail is the need for mid-day service to aid SDJ middle and high school students in accessing day treatment centers. These types of trips may be best suited - in terms of effectiveness and efficiency – by a recurring, "standing order" demand response service option, rather than providing fixed route service with large buses. This type of service would likely require some level of subsidy by SDJ or other area partners. SDJ and JTS should continually evaluate the level of service provided to students to ensure the type of transit service mode most effectively and efficiently corresponds with the trip purpose and demand.

Additionally, transit service to low-density areas such as the cluster of businesses in southeast Janesville around Beloit Avenue/Prairie Road and State Highway 11 (i.e., Dollar General, Miniature Precision Components, John Deere, Cummins, etc.) could be best served by tripper service. However, the success of tripper service to these businesses will require intense coordination of shift start and end times between businesses and JTS. This targeted type of service would likely require financial investment from route partners – in the initial stages, at a minimum – for it to be a wise use of JTS's limited resources. Today, JTS and Beloit Transit successfully partners with businesses, organizations, and institutions to adequately fund the Beloit-Janesville Express (BJE). JTS should continue to explore opportunities to partner with area employers to effectively and efficiently serve low-density business districts.

Nightside Service Review

Between 6:15 p.m. and 10:15 p.m. on weekday evenings, three buses operate on three Nightside deviated fixed routes: Milton Avenue Nightside, Nightside-West, and Nightside-East (Figure 34).

Figure 34. Nightside Routes

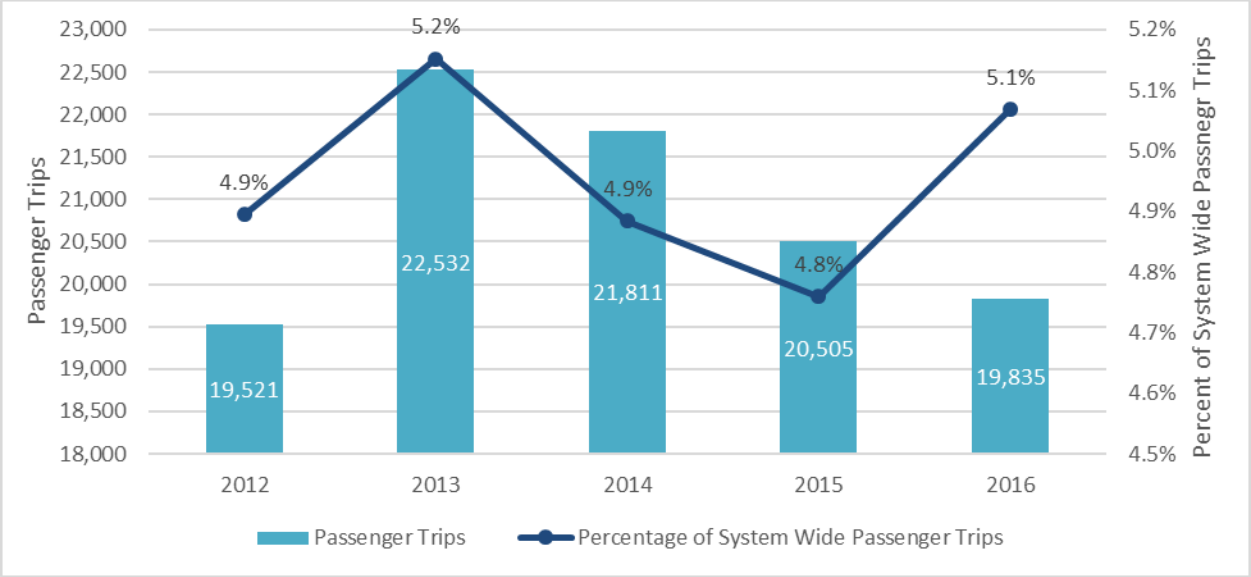


Nightside service operates on fixed routes and schedules, but deviations are allowed upon request. Route deviation service allows the bus to go ¾ mile off the normal route, and requires customers to call to schedule an hour ahead of time for a deviation. There is a night dispatcher available at the Transfer Center during Nightside operation hours.

Ridership and Performance

Nightside ridership by route is summarized in Figure 35 and Figure 36. Following a peak in Nightside ridership in 2013, combined annual Nightside ridership in 2016 was about even with 2012 levels (Figure 35). Between 2012 and 2016, Nightside ridership comprised about 5 percent of JTS ridership system wide. About 75 to 90 passenger trips were made per evening on Nightside routes during this period.

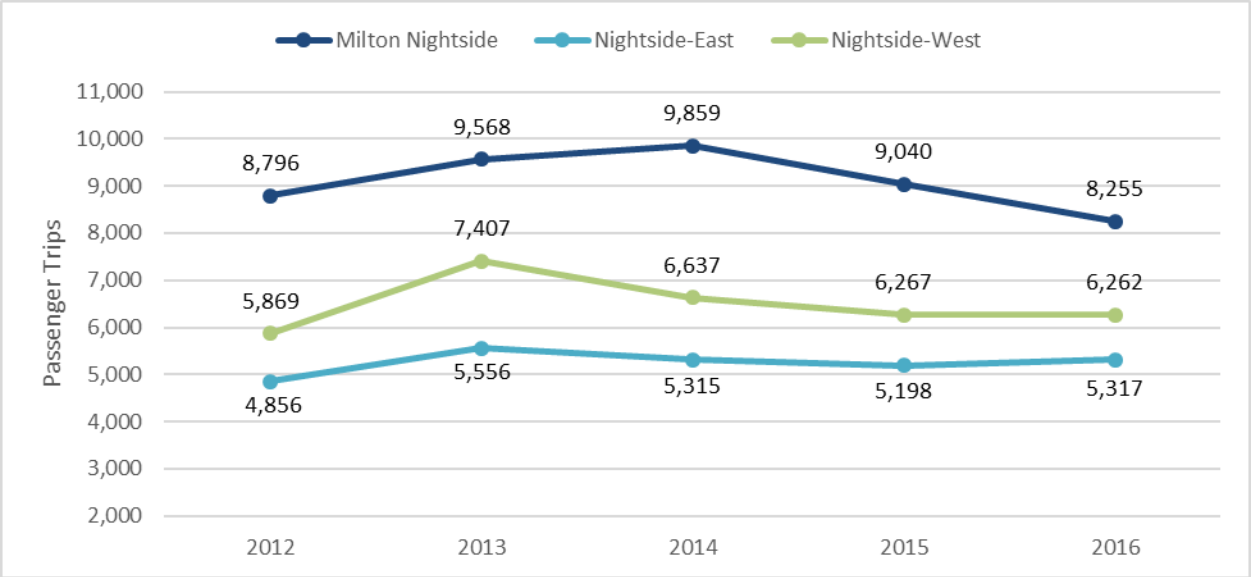
Figure 35. Nightside Ridership, 2012-2016



Source: JTS, 2017.

Like its regular fixed route counterpart, since 2012 the Milton Avenue Nightside route is the highest ridership route within its service type (Figure 36). However, Milton Avenue Nightside ridership is down 6 percent in the last five years, with a small decline since 2014. It is important to consider this decline in context: there were about 1,600 fewer annual passenger trips in 2016 compared to 2014 – about 6 fewer passenger trips per service day. Ridership on the Nightside-East and Nightside-West routes have remained consistent since 2014.

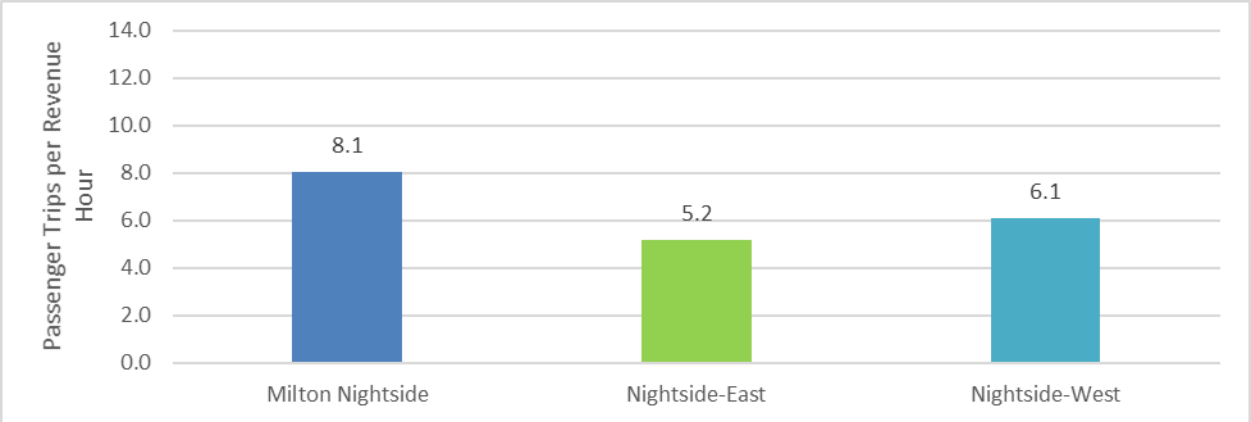
Figure 36. Nightside Ridership by Route, 2012-2016



Source: JTS, 2017.

In 2016, the Milton Avenue Nightside route was the most effective of the three Nightside routes, with 8.1 passenger trips per revenue hour (Figure 37). A reasonable performance range for determining effective Nightside service is 5 to 10 passenger trips per revenue hour. Shared-ride-taxi service may be better suited for Nightside routes, segments of routes, or trips that steadily and significantly perform below 5 passenger trips per revenue hour.

Figure 37. Nightside Passenger Trips per Revenue Hour by Route, 2016



Source: JTS, 2017.

Opportunities

Stakeholders have made clear that evening and night time public transit service is highly-valued and represents a critical need in the Janesville area. Nightside service fills a gap for this need, but does not adequately service many current and potential customers due to limited span (operating until

10:15 p.m. on weekdays) and frequency (once every hour). Opportunities exist for expanding Nightside service to Saturdays, later in the evening on weekdays, and reducing travel time. JTS must consider these and other options to attract additional ridership to the Nightside service.

Based on results of the On-Board Survey, Nightside service on Saturdays is a priority improvement for current JTS riders that would increase frequency of use. In engagement activities, the consultant team on multiple occasions heard of a lack of late-night transit service at the end of retail shift work, particularly along Milton Avenue. Employees ending their shift around 10:00-10:30 p.m. are often not be able to access the final Nightside trips in time, and thus walk long distances or rely on friends, family, or private taxi service to get home, despite using Nightside to get to work. These types of customer trips may be best served by an extended Nightside service (e.g., until 12:15 a.m.). A change in service will depend upon detailed analysis of trip-level Nightside ridership and additional outreach and coordination with employees and businesses.

The three Nightside routes cover much of the same area as the five regular fixed routes: Milton Avenue Nightside corresponds largely to the Milton Avenue regular route; Nightside-West covers most of the area served by West Court and Kellogg Avenue regular routes (plus West State street and River Road, served by the BJE); and Nightside-East mirrors Wright Road and East Milwaukee Street regular routes. However, there remain inconsistencies in service coverage between the regular routes and Nightside routes; the following should be addressed:

- Milton Avenue Nightside operates on Kennedy Road; the route should operate as the corresponding regular route does, and not serve Kennedy Road directly.
- Nightside-West operates on Conde Street and Willard Avenue, while neither the Kellogg Avenue regular route nor the BJE serve this area directly. Ideally, scheduled service would be on Kellogg Avenue.
- Nightside-East operates on Racine Street between Palmer Drive and Midland Road, unlike the regular Wright Road route; the route should operate via Palmer Drive and Midland Road.

Because it is JTS policy that Nightside service may deviate up to ¾ mile off the published fixed route, there is little need for the Nightside fixed routes to be circuitous and overly coverage-oriented. Rather, the Nightside fixed routes should be as direct and streamlined as possible to reduce travel time. Currently, all Nightside routes operate at 60-minute frequency. If not as direct as possible, the Nightside fixed routes should follow as closely as possible the path of the regular routes to maintain consistency (unless prohibited due to schedule constraints). Creating unique differences between Nightside and Regular routes, rather than promoting consistency, adds to customer confusion.

Shared-Ride-Taxi Feasibility

Definition

Shared-ride-taxi or "demand response" service is defined by FTA as any non-fixed route system of transporting individuals that requires advanced scheduling by the customer, including services provided by public entities, nonprofits, and private providers. Service is provided curb-to-curb and there are no formalized schedules. In Wisconsin, these services are provided by taxi companies or rural transportation providers. The vehicles do not operate over a fixed route or on a fixed schedule except, perhaps, on a temporary basis to satisfy a special need (e.g., mid-day shift work). The vehicle may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations and may even be interrupted en route to these destinations to pick up other passengers.

A shared-ride taxi will primarily serve a population that relies on transit, and has overlap with the human service transportation market (i.e., medical transportation, transportation for older adults, transportation for people with disabilities, people without access to vehicles, etc.). Shared-ride-taxi service can also provide service for a transit agency's guaranteed ride home program.

Service Components

In combination with fixed route bus services, shared-ride taxi service can extend a transit system's coverage area. Janesville has both urban and rural characteristics. Shared-ride-taxi is an appropriate mode of transportation for serving areas like the less dense and/or rural parts of the Janesville area.

If introduced to the Janesville area, the fleet for a shared-ride taxi service could consist of eight-passenger mini-buses. The buses could also be supplemented with taxi sedans or accessible minivans during times of peak demand, or to provide a trip that is difficult to coordinate as a shared ride. Currently, JTS does not own or operate mini-buses, taxi sedans, or accessible minivans. Rather, its entire fleet consists of 35-foot low floor buses (large buses).

Left: Washington County, WI shared-ride taxi mini-bus. Right: Door County, WI shared-ride taxi accessible minivan.

Fares for a shared-ride taxi service could be configured several ways. Often, a flat fare comparable to fixed route service is charged for service within a primary service area. A per-mile or zone-based rate may be applied for trips that have origins or destinations outside of the defined service area.

Tradeoffs

Compared to other modes of transit, shared-ride taxi service has several key advantages and disadvantages. Shared-ride-taxi service has a lower cost per revenue hour compared to JTS fixed route bus and contracted ADA complementary paratransit service provided by RCT. JTS fixed route service operating cost is approximately $110 per revenue hour;[3] RCT ADA complementary paratransit service operating cost is assumed to be about $60 per revenue hour;[4] shared-ride taxi operating cost per hour is assumed to be a contracted cost of about $35 per revenue hour.[5] The hourly cost estimate for shared-ride taxi does not capture the cost of purchasing additional vehicles nor any costs that could be borne by JTS by introducing a new vehicle type(s) into its system. Further, the hourly cost estimate does not account for the additional oversight burden that would be brought upon JTS by introducing a new service type/mode to the system. Lastly, the shared-ride taxi operating cost per hour is significantly lower partially due to the reduced pay and level/presence of benefits offered to drivers.

Shared-ride-taxi service can cover broad geographic areas. Specifically, it can provide curb-to-curb service in areas that are difficult to serve by larger buses due to street design or other factors influencing the operating environment. Additionally, because of the need to schedule rides, a shared-ride taxi system develops a valuable customer base and point of data collection for future transit service.

Among its main disadvantages, shared-ride taxi service has a constrained capacity due to the smaller vehicles used and lower passenger trips per revenue hour. With the smaller, more agile vehicles, a shared-ride taxi service requires more vehicles to provide the same level of service of a larger bus operating on a fixed route. At a certain point, the vehicle requirements may negate any cost savings made from shared-ride taxi's lower operating cost per revenue hour. To introduce a shared-ride taxi service in Janesville, JTS would be required to purchase and lease the required smaller vehicles that it does not currently maintain in its fleet.

A shared-ride taxi service typically does not attract "choice riders." Rather, it caters primarily to people who rely on transit and those needing to travel outside of JTS service area. However, it should be noted that 80 percent of on-board survey respondents indicated that they did not have a valid driver's license, and 38 percent did not live in a household with a vehicle available to them. Another disadvantage of shared-ride taxi mode is that users must always initiate pick-up. And lastly, this mode has the potential for users to expect curb-to-curb service for all trip types, at all times, making it difficult to convert to a route deviation or fixed route service in the long term.

[3] Based on 2014-2015 NTD reporting and 2016 internal JTS data.
[4] Based on 2014-2015 NTD reporting.
[5] Based on average fully-allocated operating cost per revenue hour of shared-ride taxi systems in the following Wisconsin communities: Washington County, Ozaukee County, Onalaska, Hartford, River Falls, and Chippewa Falls.

Opportunities

In a reduced resources scenario, a shared-ride taxi service may result in a cost savings when compared to fixed route service using large, high-capacity buses. If JTS experiences a dramatic reduction in capital and operating resources, replacing Nightside-East and Nightside-West service with shared-ride taxi could be a reasonable option. More promisingly, JTS could consider a shared-ride taxi mode to serve the low-density cluster of businesses in southeast Janesville. If the demand for such a service is proven, a coordinated, shift-specific fixed route should be considered.

However, the introduction of a shared-ride taxi system to JTS would not be congruent with recent and ongoing investments in the fixed route system. Absent dramatic change, shared-ride taxi should not be considered as a replacement for existing transit service. Rather, with the right partnership, shared-ride taxi could be an appropriate tool for expansion of transit service and/or connecting areas of the region that are impossible to serve with a fixed route. Absent a drastic reduction in funding and/or ridership, opportunities for the successful application of shared-ride taxi mode in the existing JTS are limited.

Stakeholder Input

Stakeholder Meetings

In May and October 2017, consultant team met with several stakeholder groups:

- City of Janesville department heads
- Education leaders
- Economic development leaders
- Industries for the Blind (riders, blind or low vision)
- Elderly and disabled focus group (service providers)
- Homeless and low-income focus group (service providers)
- Wisconsin School for the Blind and Visually Impaired (instructors and riders)

Below are some points made by stakeholders at these meetings, organized by Strengths, Weaknesses, Opportunities, and Threats. Strengths and weaknesses are considered internal, while opportunities and threats are external.

Transit System Strengths

- Nightside route deviations for people who have difficulty navigating sidewalks
- Friendly bus drivers
- Meets needs of transit dependent people
- BJE service fills a lot of gaps and promotes and maintains a strong collaboration between stakeholders
- Serves traditional shift workers well
- Fair fare for regular service riders and students
- Students largely feel safe on the bus
- Staff are very good at working with people with disabilities, both drivers and dispatchers
- JTS is good at seeking sponsorship with the business community
- Sending out a van if the bus is running very late or inoperable
- Easy to make transfers at the downtown Transfer Center

Transit System Weaknesses

- Large concrete bollards at downtown Transfer Center
- Limited span—requests for late night, Sunday, and Saturday night service
- JTS braille signs out of date
- Lack of connection to available jobs, most of which are second or third shift. Does not serve commuters working between the hours of 9pm and 6am.
- Loss of Janesville-Milton-Whitewater Innovation Express

- Late hour ER Discharge (sometimes having a way to get home is a part of discharge requirements)
- Dropping children off at childcare can be difficult because of low frequency, requiring guardians to wait 30 minutes to an hour for the next bus
- Riders must take two buses to get from southwest industrial area to Milton Avenue
- Lack of shelters makes it harder to ride in the winter
- Fleet age
- No GPS and outdated fareboxes
- Need more shelters at bus stops
- System is difficult to learn for new riders
- Infrequency identified as a barrier to use

Transit System Opportunities

- Announcing stops for blind and low vision riders
- Shopper bus that serves large shopping destinations only.
- BJE is great, but could use expansion in either frequency or service area
- Better ways to see bus times with personal devices
- Farebox updates, smart fare cards
- Future re-use of GM Plant, central job area
- Potential shuttle service between Milton and Janesville
- Sunday Service
- Growing business community
- Develop an active military/veteran reduced fare
- Travel training programs for students and new riders/residents (currently provided by Rock County Mobility Manager)
- Connections to bicycle infrastructure
- A dozen plus employers have purchased shuttle vans and offer transportation stipends for carpooling, but they don't advertise this widely
- Riders included in focus groups enjoyed bulk fare purchases (monthly pass or 10-punch pass) and found tokens difficult to use

Transit System Threats (Challenges)

- Private vehicle drivers parking in bus stops
- New employment centers located far away from existing routes
- People living in motels that are far away from existing routes
- Declining/flat non-student ridership
- Business leaders do not fully appreciate the role of transit to their employees—many are not sure how employees get to work
- Difficult to create sustainable service with low unemployment rate and dispersed job centers
- Transit viewed as last resort, only used if it is the only option or if gas prices rise
- Reduced state and federal aid
- Discussion of seeing empty buses

- Any new, highly visible capital investment in Janesville will draw scrutiny

Public Meetings

In addition to focused stakeholder meetings, public meetings and targeted open houses were held in Janesville on Wednesday, May 24; Thursday, May 25; Tuesday, October 17; and Wednesday, October 18, 2017.

Format

Public meetings were held in Janesville at the JTS downtown Transfer Center, Rock County Job Center, and Hedberg Public Library. On two occasions - an afternoon and an early evening – at the downtown Transfer Center, staff set up boards and started discussions with people waiting to catch their next bus. Participants were welcomed to enter their name in a drawing for free bus tokens after sharing their thoughts on a few questions. Few people interacted with the boards, but many were happy to talk with staff.

The Rock County Job Center meeting was held in the late morning. People who worked at the Job Center stopped by to give input on how their clients used the bus; those visiting the job center for training and information were also engaged with the materials. Though attendance was low, conversations were detailed. An additional public meeting was held at the Hedberg Public Library. The project team engaged over 12 people in interactive exercises, and had brief conversations with several others as they passed by.

Open houses were held at KANDU North and Industries for the Blind where staff spoke directly with employees and supervisors of both businesses to learn about their experiences with JTS and their transportation needs.

Summary of Response

Table 24 through Table 27 summarize the input that the consultant team received using interactive presentation and comment materials as part of public meetings.

Table 24. Given financial constraints, how would you prioritize transit service improvements?

Frequency	Span	Coverage	Travel Time	Amenities	Information
3 Votes. *Comments:* --30 min frequency needed on East Milwaukee Street route --Higher frequency important to get to grocery stores	*15 Votes.* *Comments:* --Sunday service --Need early bus for East Milwaukee Street route --Later BJE service --Classes at U Rock go until 10:00 p.m.	*6 Votes.* *Comments:* --Athletic center near black bridge --Milton --Need a bus going to Morgan Corp. again. Milton Avenue bus used to serve this area.	*1 Vote.* *Comment:* --Need bus to come on time	*4 Votes.* *Comment:* --Need bus to come on time --Bus stop on U.S. 14 are dangerous --TAGOS: remove mid-block stop, move to corner	*2 Votes.* *Comment:* --More bus tokens --Reduce fare

Table 25. Do you ride JTS buses? Why or why not?

The reasons I ride…	The reasons I don't ride…
--Commuting (work to home)	--No Sunday service
--Timely, reliable	--People with disabilities worry about safety
--To get home from work	--People with disabilities carrying groceries is more of a challenge
--The only way that I can get to work	--Bus system isn't frequent or easy to use like in larger cities (mentioned Portland), blue bus in Beloit is slow, S Beloit service cuts, Lawrence unserved
--To reach shopping destinations (East Milwaukee-Walmart and doctor appointments; Milton bus-Target and ShopKo)	--Service to Milton cut
--I like the price for the monthly pass ($52)	--More frequent BJE service
--Unable to drive a car	--Not dependable
--To travel to employment on northeast side of town	--It doesn't come often enough
--I don't have a car	--Safety concerns
	--Safety concerns at downtown Transfer Center

Table 26. Do you ride JTS Nightside routes? Why are why not?

The reasons I ride…	The reasons I don't ride…
--When my car is broken	--I drive
--Fortunate to have a transit system like this in a relatively small town	--I don't ride the bus at night because I am asleep early
--Dependent on transportation to Rock Valley	--Doesn't run late enough

Table 27. How well do current transit services meet travel needs in the community?

	Very well	Basic needs	Not very well
Transit dependent	*1 Vote*	*3 Votes*	
Students	*1 Vote*		
Commuters	*1 Vote*		*1 Vote*
Visitors		*1 Vote*	

Additional notes from transit dependent respondents:

- Early service needed on weekends, clinics open at 8 am
- Some have said there are no buses to churches
- Don't change the routes!
- Safe areas to smoke near downtown Transfer Center (but not inside) with disposal, shelter over area for smoking
- Need shelters all over the city for riders in cold weather
- Don't move East Milwaukee farther from LaMancha
- Make day passes available for Nightside service

Additional notes from commuter respondents:

- East Milwaukee Street route needs to run more frequently, approximately once every 30 minutes
- We need more shelters, especially over by Jim's Pizza, East Milwaukee & Morningside, Target, Hedberg Public Library, near Midwest Christian Center
- Connection to Milton would be nice

Discussion

Recurring themes among information collected at public meetings were span of service; safety at the downtown Transfer Center; JTS service not meeting the needs of commuters; the high quality of JTS customer service; and acceptance of potentially transitioning to a bus stop only system. Comments related to span of service often involved the introduction of Sunday service. Additionally, several comments were received regarding Nightside service not operating late enough into the evening to accommodate shift end times. There were more than five unique recorded comments about safety at the downtown Transfer Center, and a few long discussions about safety including providing a smoking area outside of the shelter, monitoring people who make the place an unsafe environment, night safety, and protecting vulnerable adults.

Commuters spoke highly of the BJE. The consultant team heard from several people that used the BJE to get to work when without the means to purchase a car. Many commuters mentioned that between limited night service and the elimination of the JMW route to Milton, getting to work was harder. Several riders relayed stories of losing jobs because they were late once because of the bus, and often didn't depend on the bus to make trips to work out of fear of losing another job. Further,

they would choose not to seek employment outside of the service area or that required shift work outside of the JTS hours of operation.

Riders, with a few exceptions, were very fond of bus drivers. A non-native English speaking rider shared stories of bus drivers helping them navigate Janesville as they began to learn English; a vulnerable adult shared stories of drivers joking around with them; and a person with difficulty getting around spoke highly of the courtesy of drivers. In discussion, a few riders mentioned difficulties with understanding the BJE fare structure because of inconsistent in- and out-of-town fares charged by drivers. Two separate JTS riders reported having gotten on and off at the same stops but were charged different fares by different drivers. Additionally, a few riders shared that they had been denied deviation requests on Nightside routes when the route was behind schedule.

Public meeting and open house attendees had few comments related to the possibility of transitioning to a bus stop only system, which would disallow JTS customers to flag down a bus at an unsigned stop. Generally, attendees thought that the safety improvements and operational efficiencies that the change would bring outweighed the cost of decreased service accessibility (requiring some to walk farther to access a bus stop). However, a few comments logged by representatives of the disability community noted that transitioning away from a flag stop system would result in inconvenience for those with limited mobility. These comments indicated that care needed to be given to ensure bus stop access is maintained for these individuals, if and when JTS transitions to a bus stop only system.

Staff Outreach

The consultant team conducted meetings with JTS staff, drivers, and supervisors. Additionally, the consultant team participated in ride-alongs with managers and rode bus routes with drivers. Service concepts and alternative scenarios were created with input from, and in collaboration with, JTS staff, drivers, and supervisors. Specific comments from staff, drivers, and managers related to existing conditions are included in observations detailed throughout this report.

Most JTS drivers were supportive of the potential transition from a flag stop system to a bus stop only system. Drivers agreed that such a change would increase safety for passengers wishing to board and alight JTS vehicles and improve on-time performance. By creating greater certainty in bus operations, the drivers would benefit from reduced stress brought on by looking for passengers at unsigned bus stops and trying to maintain route schedules that have little room for error. However, there was concern by a minority of drivers related to the potential change, suggesting a bus stop only system may have a negative impact on customer service. While not unanimous, the large majority of JTS staff – including drivers – were supportive of transitioning to a bus stop only system, with the understanding that such would require a phased approach.

On-Board Survey

More than 350 surveys were distributed to riders on buses and returned or completed online between May 24 and the end of July 2017 (Table 28). More than 160 surveys returned were completed by middle or high school students, while more than 200 surveys were returned by other members of the community (non-students). The survey asked riders about their experience using JTS, including how frequently the use the bus, what their other transportation options are, and how well they JTS meets their needs. See Appendix B for a complete summary of responses to the on-board survey.

Table 28. On-Board Surveys Completed and Returned

Students	161
Non-Students	203
Total	364

Riders had lower-incomes and were more racially diverse than the population of Janesville (Figure 38 and Figure 39).

Figure 38. Household Income (On-Board Survey Responses)

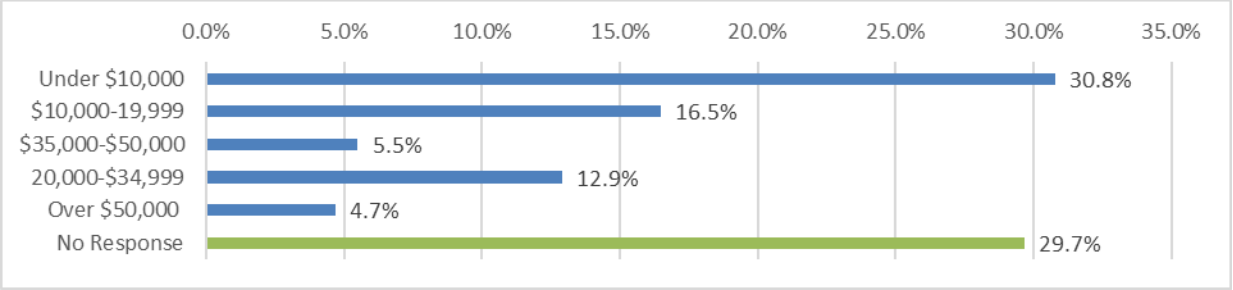
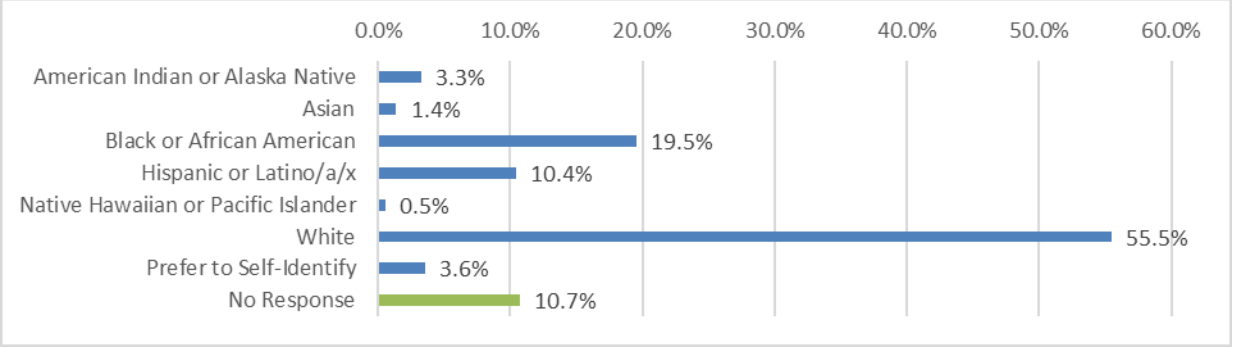
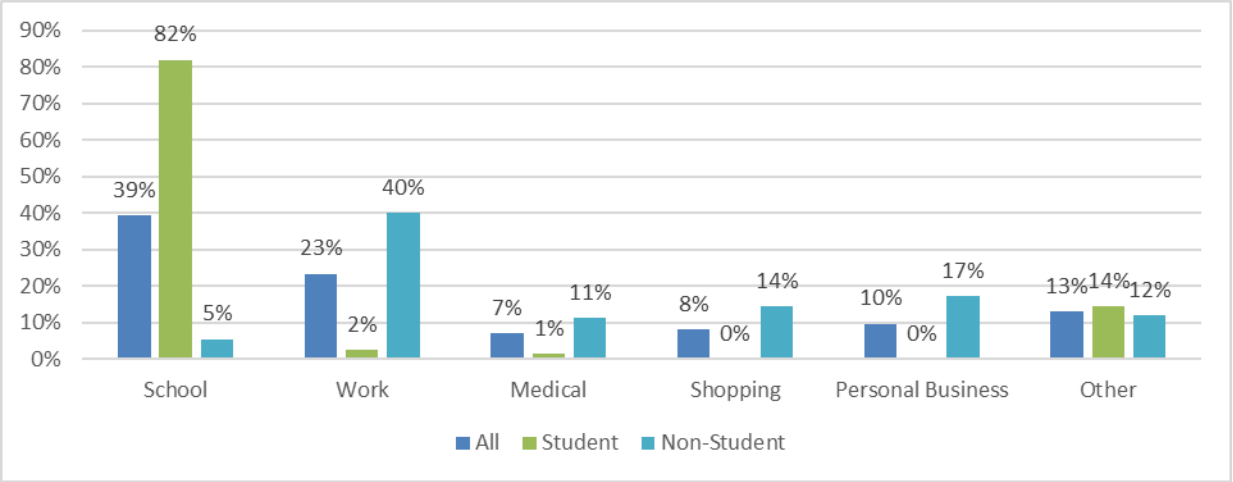


Figure 39. Race & Ethnicity (On-Board Survey Responses)



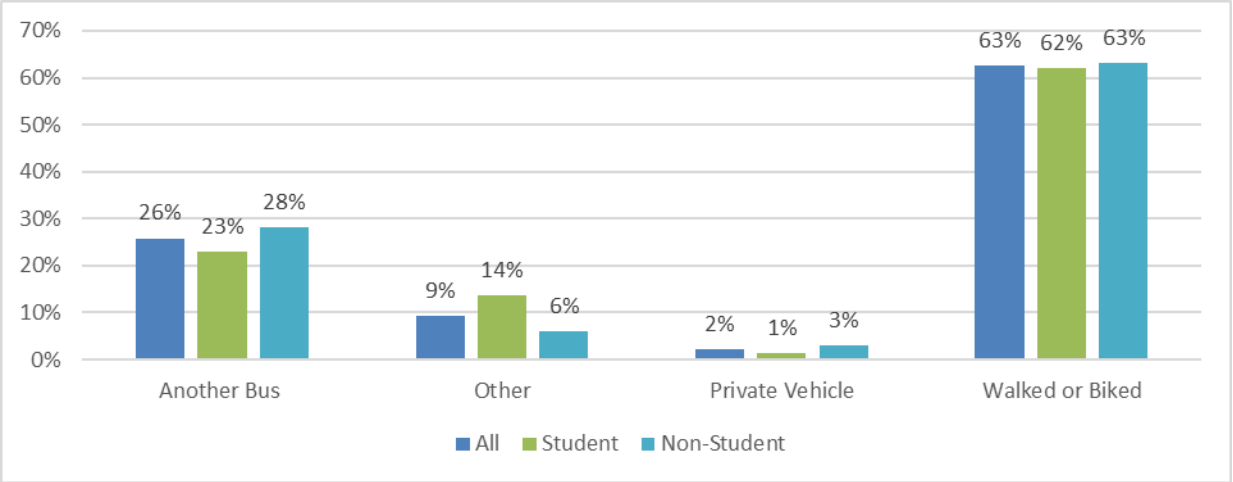
Over sixty percent of respondents reported their trip purpose as school or work (Figure 40). Among non-student respondents, work was the most reported trip purpose (40 percent), followed by personal business and shopping.

Figure 40. Trip Purpose (On-Board Survey Responses)



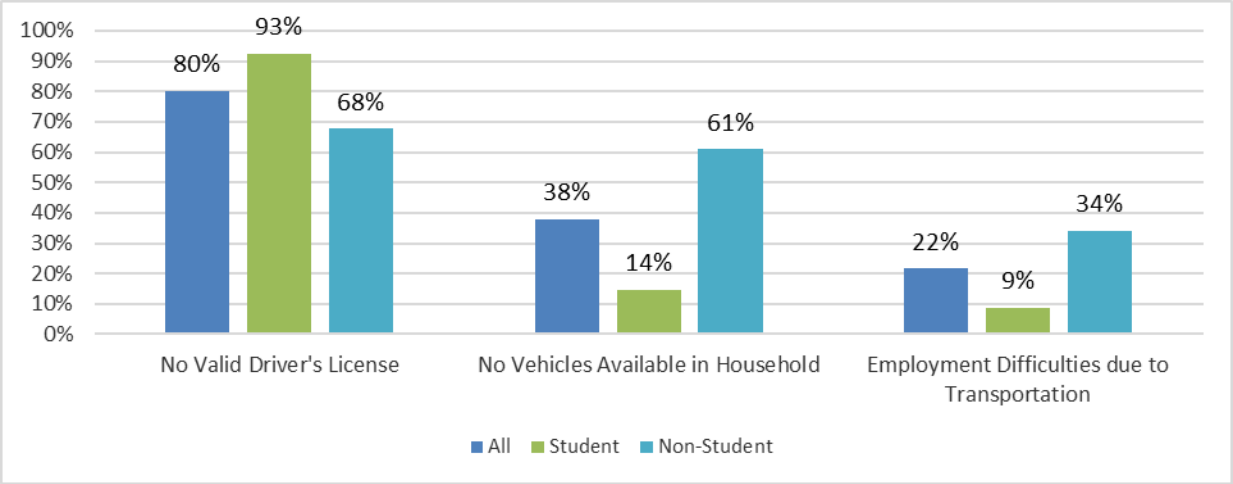
Most respondents – over 60 percent – accessed the bus by walking or biking (Figure 41). Approximately 25 percent of respondents accessed the bus they were riding by transferring from another bus. Very few respondents to the on-board survey accesses the bus via private vehicle.

Figure 41. Travel Mode Used to Access the Bus (On-Board Survey Responses)



Riders were asked to share whether they had a valid driver's license, how many vehicles were available in their household, and if they had ever quit or lost a job due to transportation difficulties (Figure 42). Among all respondents, 80 percent did not have a valid driver's license, 38 percent lived in a household with no vehicles available, and 22 percent experienced employment difficulties due to transportation. Riders that had quit or lost jobs mentioned that the bus didn't run at the right time of day for them to take the bus to work.

Figure 42. Transit Dependent Measures (On-Board Survey Responses)



Shown in Figure 42, student respondents were less likely to have a license, but more likely to have a vehicle available in their household than non-students. Additionally, student respondents reported to have experienced employment difficulties due to transportation at a lower rate than non-students.

The on-board survey respondent pool is largely comprised of frequent bus riders; 87 percent reported that they ride the bus at least once a week (Figure 43). Student respondents were more likely to ride the bus every day than other riders. Meanwhile, non-student riders were more likely to have ridden the bus for a longer amount of time; nearly half of whom reported riding for five years or more (Figure 44). Two-thirds of survey respondents have been using JTS service for at least one year.

Figure 43. Ridership Frequency (On-Board Survey Responses)

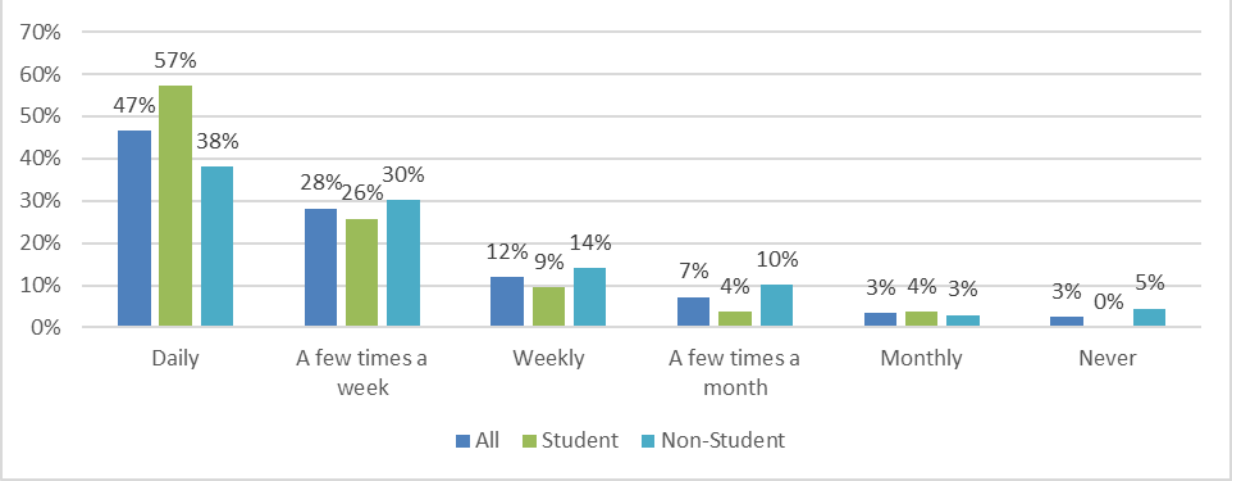
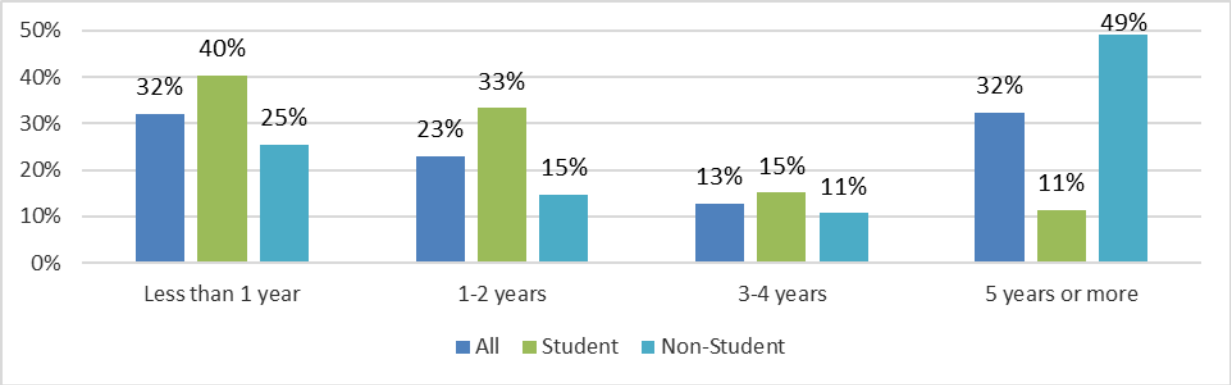
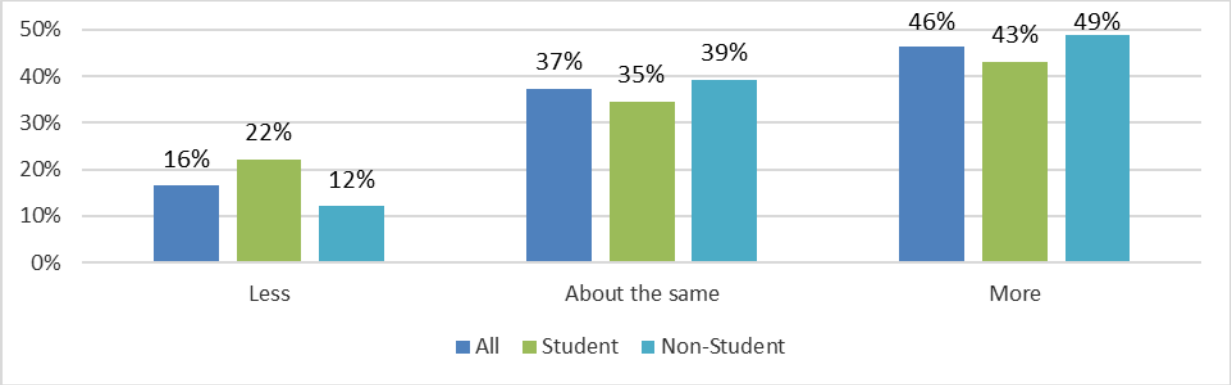


Figure 44. Tenure of Ridership (On-Board Survey Responses)



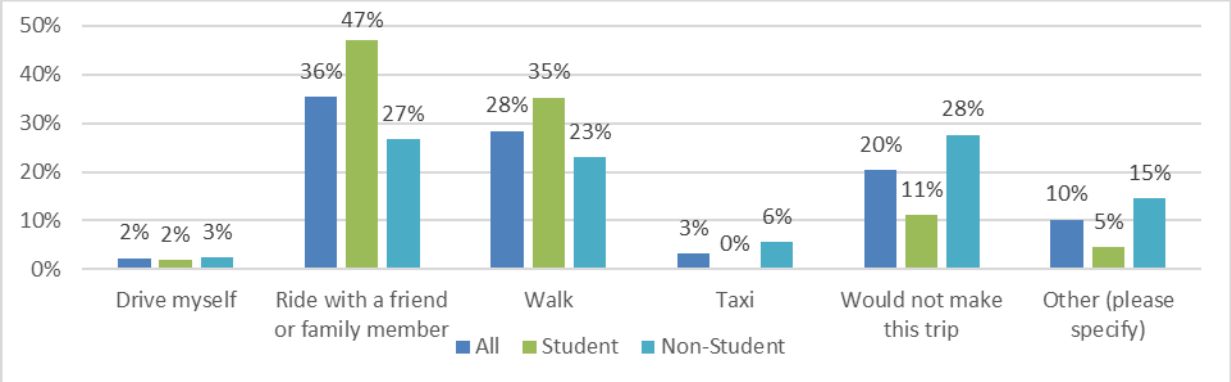
About 85 percent of respondents said they rode the bus more frequently compared to the previous year (Figure 45). Non-student riders reported riding the bus more frequently compared to the previous year than did students, but not by a large amount.

Figure 45. Ridership Frequency Compared to Last Year (On-Board Survey Responses)



The results summarized in Figure 46 highlight the importance of JTS service as a dependable means of transportation available to the community. Twenty percent of respondents would not make their trip if the bus was not available at the time they took the survey. Additionally, just two percent of respondents indicated that they would drive themselves.

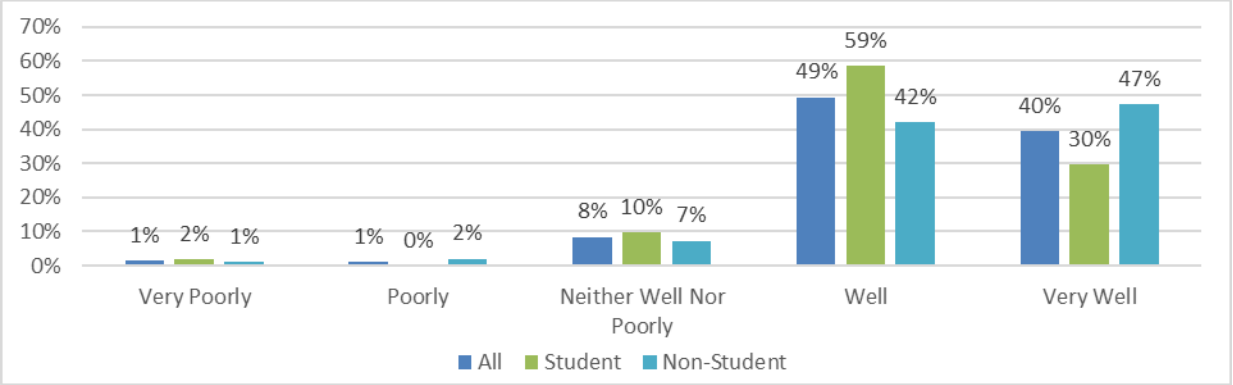
Figure 46. Alternative Mode if Bus Was Not Available (On-Board Survey Responses)



Students were more likely to walk or catch a ride with a friend or family member than non-student riders, while non-student respondents said that they were more than twice as likely to not make the trip at all (Figure 46). Non-student riders that chose "Other" frequently responded with ridesharing services like Uber or Lyft; some replied they would bike.

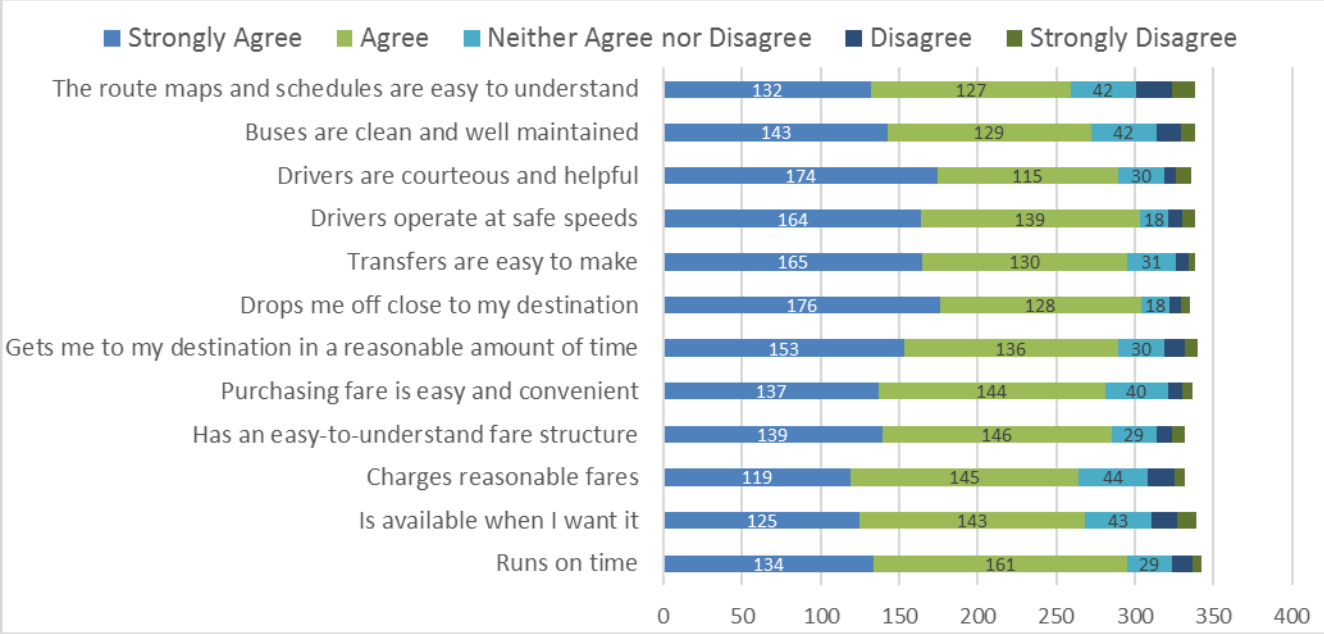
When asked how well JTS service met their needs, the majority (89 percent) of both student and non-student respondents reported "Well" or "Very Well" (Figure 47).

Figure 47. Overall Satisfaction with JTS Service (On-Board Survey Responses)



When asked about more specific elements of JTS service, most respondents indicated high levels of satisfaction across the many of the statements presented in the survey (Figure 48).

Figure 48. Rider Perception of JTS Performance (On-Board Survey Responses)



To identify the statements that riders were riders were least satisfied, the percent of responses with "Disagree", and "Strongly Disagree" are listed in Table 29.

Respondents were most frequently dissatisfied with the ease of understanding route maps and schedules; the service span; the reasonableness of fares; and the cleanliness and maintenance of buses (Table 29). Service span and public information materials are the areas in need of greatest improvement, according to respondents. Conversely, respondents were most uniformly satisfied with buses dropping off close to their location and easy to make transfers.

Table 29. Percent of Respondents Not Satisfied

Question	Disagree or Strongly Disagree
Transfers are easy to make	3.7%
Drops me off close to my destination	4.0%
Purchasing fare is easy and convenient	5.0%
Drivers operate at safe speeds	5.3%
Drivers are courteous and helpful	5.3%
Runs on time	5.6%
Has an easy-to-understand fare structure	5.7%
Gets me to my destination in a reasonable amount of time	6.6%
Buses are clean and well maintained	7.6%
Charges reasonable fares	7.8%
Is available when I want it	9.0%
The route maps and schedules are easy to understand	12.3%

Respondents were asked to choose one improvement that they would most like to see JTS implement, and then indicate whether that improvement would cause them to ride the bus more often; results are summarized in Table 30.

Table 30. Choosing One Improvement and Ridership Effects

Improvement	Total	Percent that would ride the bus more often as a result
Sunday service	84	93%
Later hours on Saturdays	59	NR
Buses that operate on time	48	81%
Route maps and schedules that are easier to understand	43	72%
Designated bus stops	19	NR
Service to unserved areas, please specify	17	NR
Beloit-Janesville Express service on Saturdays	16	NR
Better transfer connections	16	NR
Earlier hours on Saturdays	12	0%
Later hours for Beloit-Janesville Express	10	0%
Earlier hours on weekdays	1	NR

NR – Not Reported, either because the total was below 20 or number of respondents that replied it wouldn't cause them to ride the bus more frequently was below 5.

Four improvements gathered more than 40 votes: Sunday service; later hours on Saturdays; buses that operate on time; and route maps and schedules that are easier to understand (Table 30). More than 90 percent of respondents that chose Sunday Service, which also garnered the most votes over all, said it would cause them to ride the bus more frequently. Later hours on Saturdays came with the second most votes, suggesting a strong preference for more weekend service. More than 80 percent that chose buses that operate on time said it would cause them to ride the bus more frequently.

Off-Bus Survey

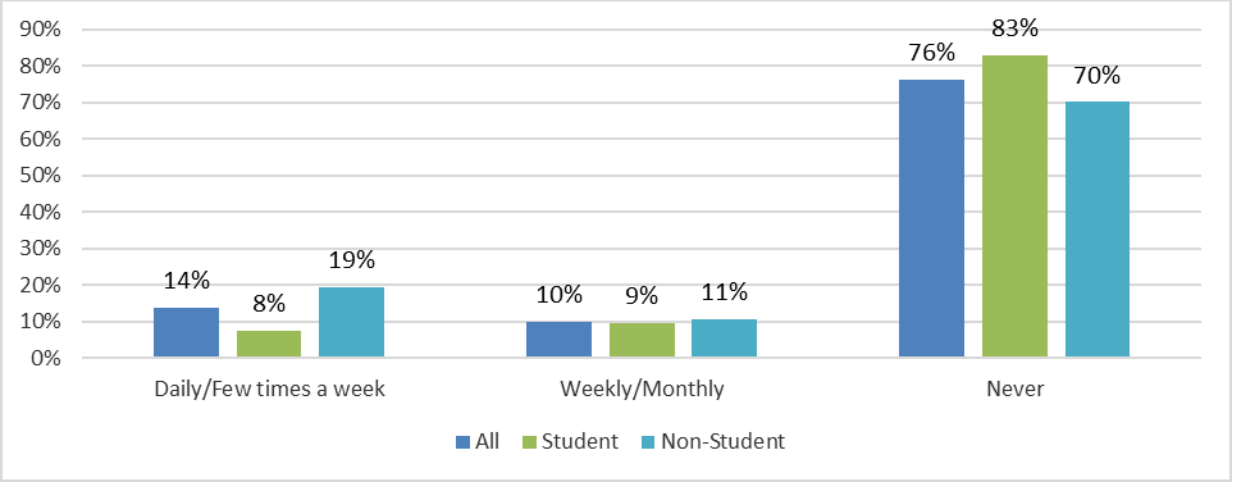
A second survey, the off-bus survey, was distributed widely throughout the community electronically. In total, there were more than 174 responses from middle or high school students (most of whom attended Craig High School), and 62 responses from non-student for a total of 236 off-bus survey responses (Table 31). See Appendix C for a complete summary of responses to the off-bus Survey.

Table 31. Off-Bus Surveys Completed and Returned

Students	174
Non-Students	62
Total	236

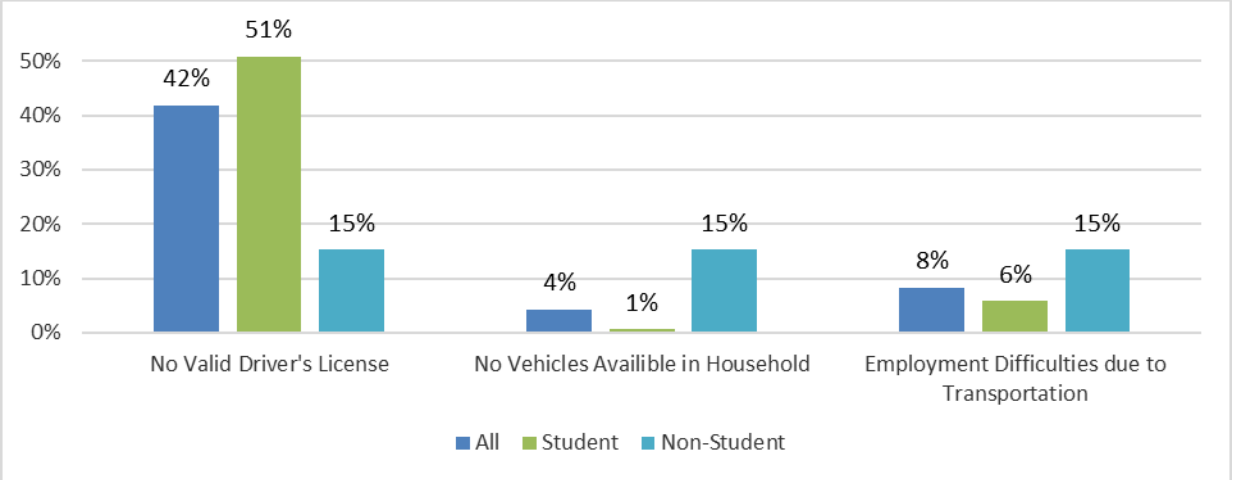
Most respondents reported that they had never ridden the bus (Figure 49). Just 8 percent of students and 19 percent of other respondents indicated that they rode the bus at least a few times a week.

Figure 49. Ridership Frequency (Off-Bus Survey Responses)



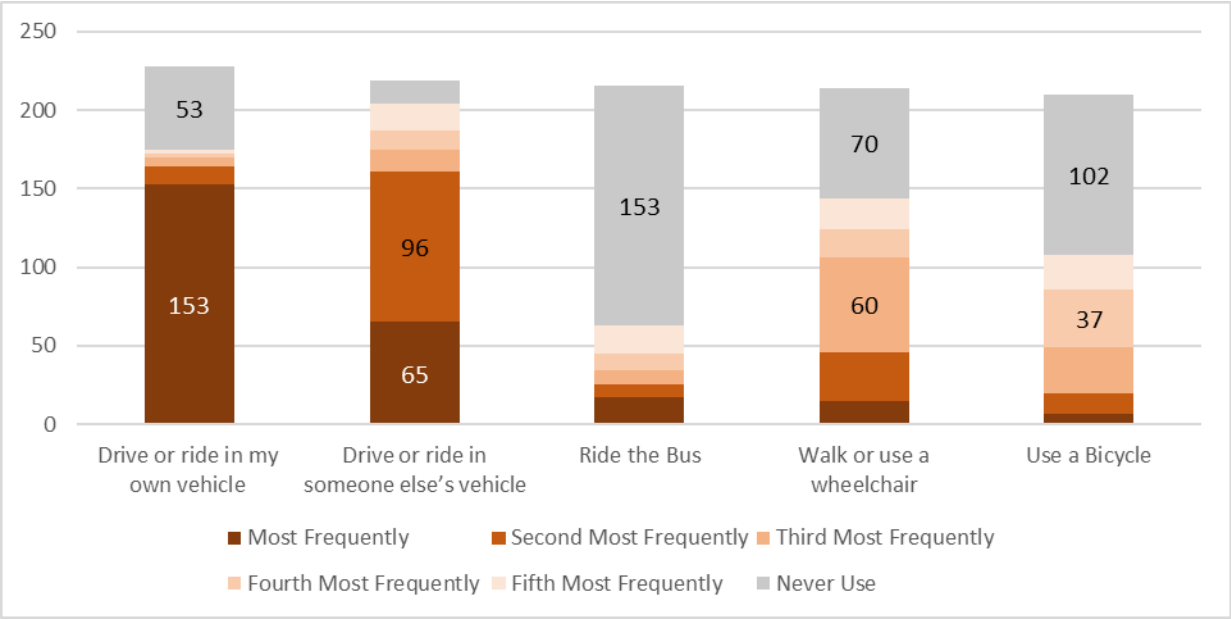
Transit dependent measures were reported at much lower rates among those responding to the off-bus survey compared to the on-board survey (Figure 50). Four percent of respondents to the off-bus survey indicated that their household did not have access to a vehicle, compared to 38 percent of respondents to the on-board survey.

Figure 50. Transit Dependent Measures (Off-Bus Survey Responses)



Off-bus respondents were asked to identify how frequently they traveled by certain modes. Over two-thirds of all respondents indicated that they never rode the bus (Figure 51). Respondents were more likely to travel in their own or someone else's vehicle.

Figure 51. Mode Use, All Responses (Off-Bus Survey Responses)



Most non-student respondents reported that they either ride or drive in their own vehicle or ride the bus most frequently (Figure 52). Students reported that they travel most frequently in their own or someone else's vehicle (Figure 53). Less than a quarter of student respondents rode the bus at all.

Figure 52. Mode Use, Non-Student Responses (Off-Bus Survey Responses)

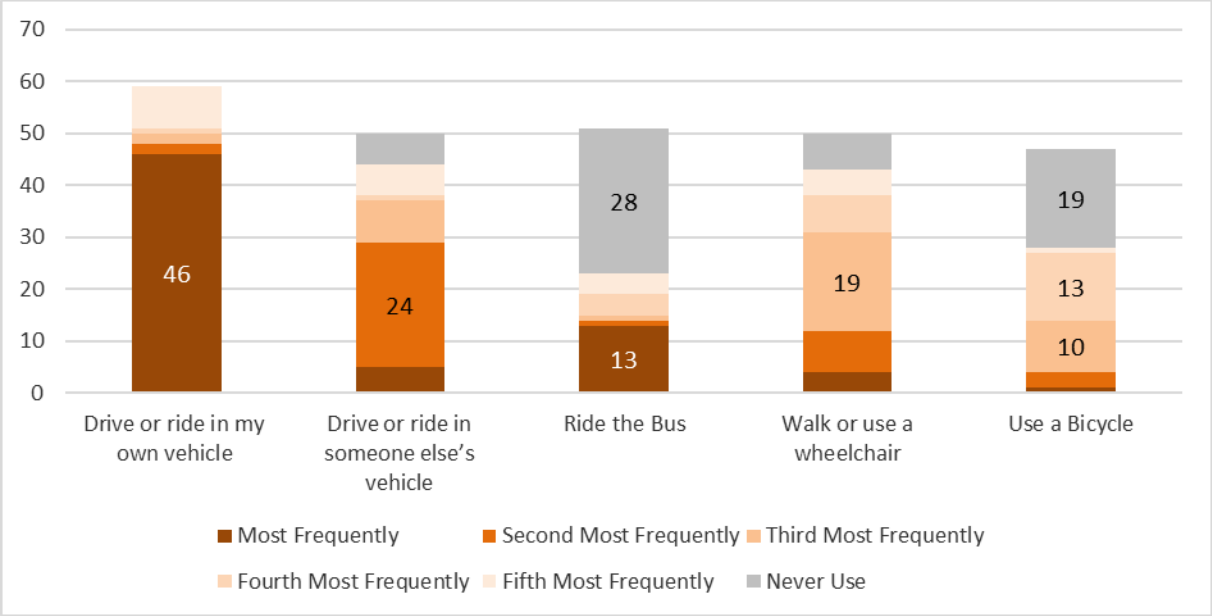
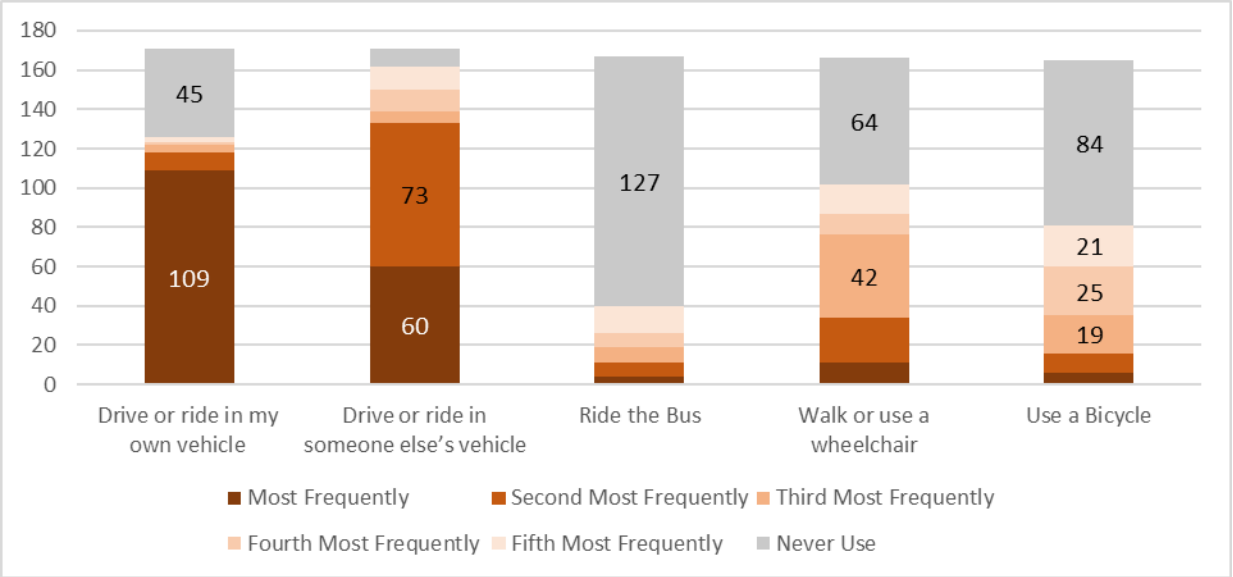
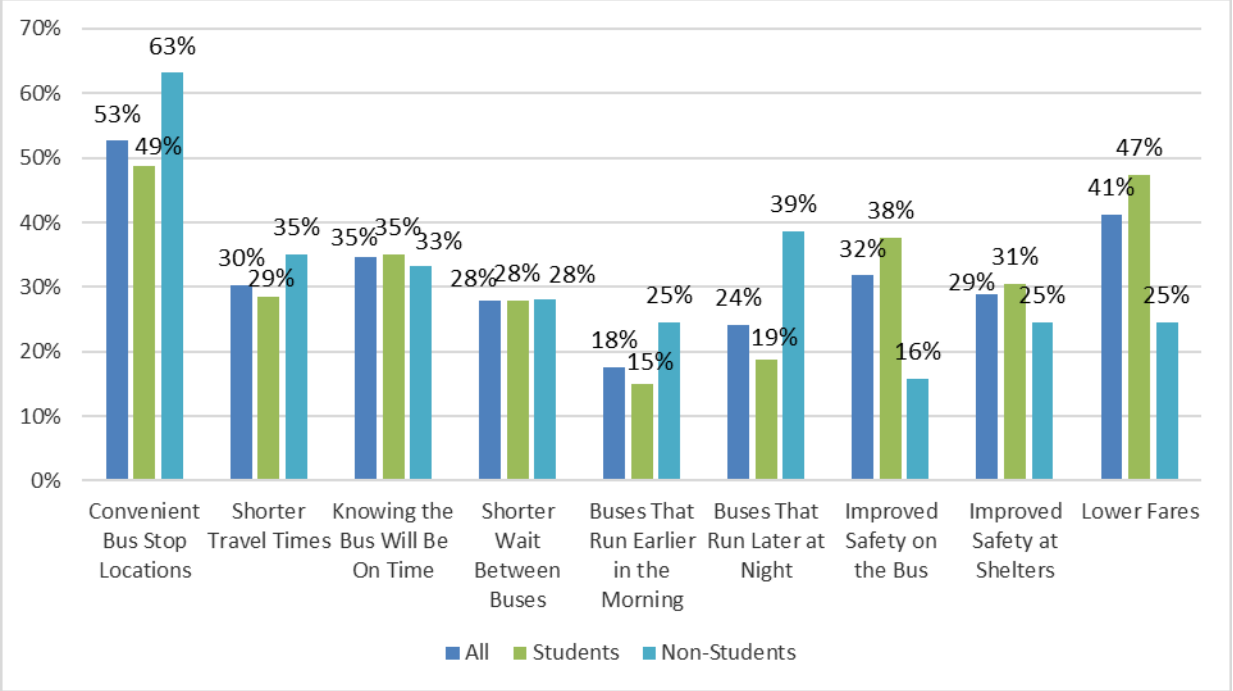


Figure 53. Mode Use, Student Responses (Off-Bus Survey Responses)



Those taking the off-bus survey were asked to choose as many improvements as they wished that would cause them to ride the bus more frequently; results are summarized in Figure 54. Students most often reported that lower fares and convenient bus stop locations would cause them to ride the bus more frequently. Non-student riders also reported that convenient bus stop locations would cause them to ride more frequently, with buses running later at night as the second most chosen improvement. Knowing the bus will be on time, shorter travel times, and shorter wait between buses were also selected at high rates among all respondents.

Figure 54. Improvements to Increase Ridership (Off-Bus Survey Responses)



Respondents were invited to put any other improvement that might make them ride the bus more. Many indicated that they would like to know more about the bus and that if they knew where it went and at what times, they might use it. Some responded they never planned on using the bus, and many cited general safety concerns, both experienced and perceived.

Alternative Scenarios

The following are alternative scenarios for transit system change under different fiscal scenarios. Each service concept and recommendation is consistent with identified local needs and stakeholder input. The Cost Neutral Scenario assumes minimal additional resources; the Opportunities Scenario represent expansion of existing service or new service based on access to additional resources; and the Reduced Resources Scenario introduces changes that could be implemented given fiscal constraints.

Cost Neutral Scenario

The following service recommendations can be implemented with minimal additional resources. They represent fine tuning and efficiencies that JTS can further explore without increasing the number of vehicle revenue hours, number of buses required to operate service, or increasing the amount of ADA complimentary paratransit service required of JTS.

Based on customer and staff input, maintaining the existing fixed route frequency was prioritized in the Cost Neutral Scenario. To maintain effective and reliable service with high on-time performance, the consultant team looked for underperforming segments of fixed routes that could be transitioned to occasional service or be eliminated.

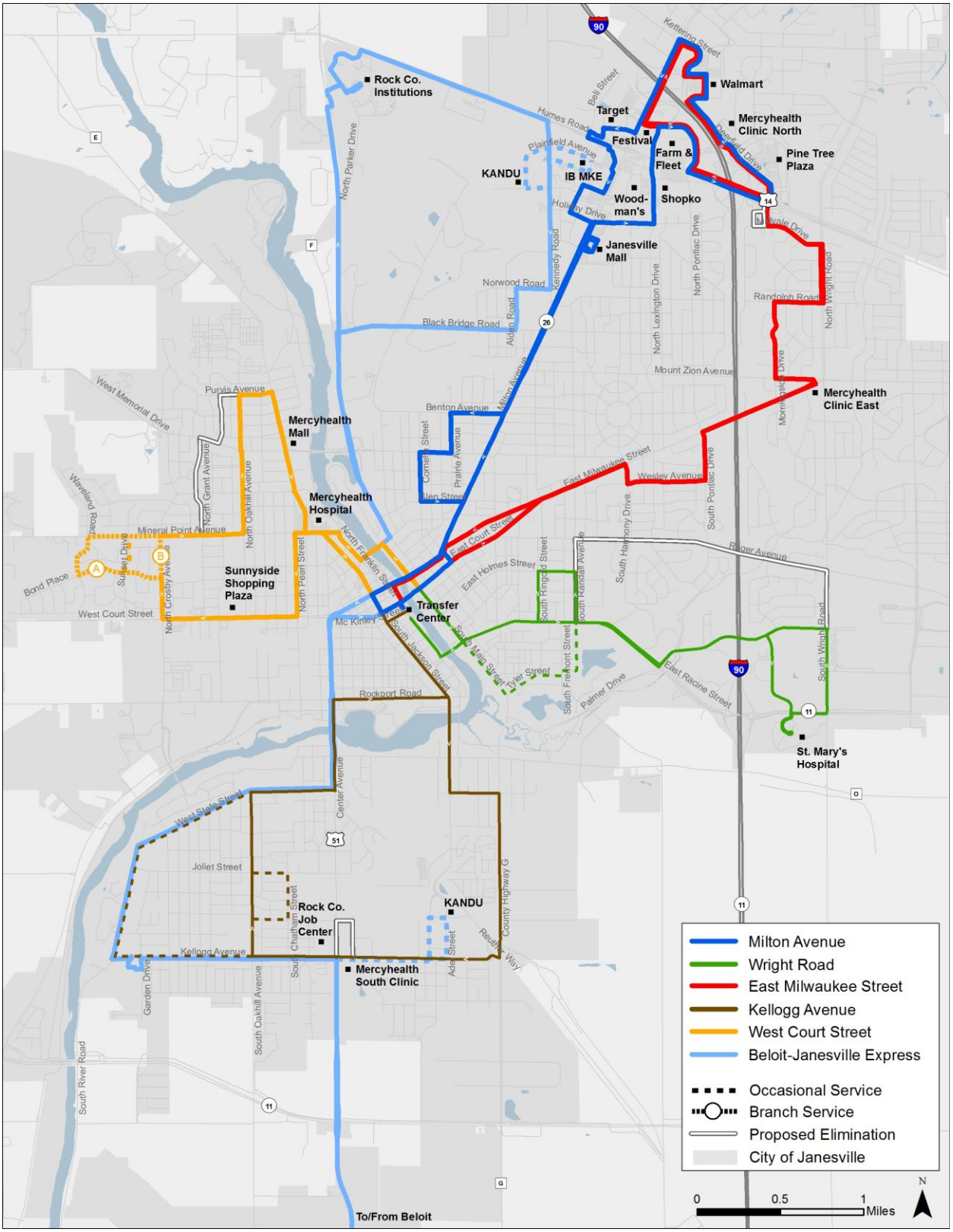
Service Concepts

Milton Avenue

No major changes are proposed to the Milton Avenue route, as it is JTS's highest ridership route. However, one small routing change is proposed to reduce circuity and streamline the route to improve travel times.

Limited service to the Holiday Inn Express southwest of U.S. 14 and Deerfield Drive is proposed for elimination due to irregular and limited use, and the availability of service from the East Milwaukee Street route (Figure 55). This change to the Milton Avenue route will result in a two- to three-minute travel time savings and 4/10-mile reduction in route mileage.

Figure 55. Cost Neutral Scenario Regular Route Network



East Milwaukee Street

JTS customers identified connection between the East Milwaukee Street and Milton Avenue routes as important to facilitating more efficient and convenient travel patterns. Additionally, JTS drivers and customers often note that the East Milwaukee Street schedule has too much time built into its schedule ("slack"), requiring excessive dwelling at points along the route to maintain schedule adherence at timepoints. The proposed routing of East Milwaukee Street aims to address both issues.

Currently, the Milton Avenue route serves Pine Tree Plaza, Mercyhealth Clinic North, and Walmart in the counter-clockwise direction every half hour. The East Milwaukee Street routes serves these same destinations – in the same direction – once every hour before turning around at Walmart to head southeast toward U.S. 14 (Humes Road). Current route design does not allow for an efficient transfer between the two routes. East Milwaukee Street riders who want to access Target, Festival Foods, and the many other destinations around U.S. 14 and Milton Avenue must wait 25 minutes to transfer to the Milton Avenue route.

As shown in Figure 55, the proposed East Milwaukee Street route – in its northbound direction – turns west off Deerfield Drive at U.S. 14, then operates via Pontiac Drive, Morse Street, and Milton Avenue en route to Walmart. From Walmart, the proposed East Milwaukee Street route will serve Mercyhealth North Clinic and Pine Tree Plaza as it does today. This routing increases accessibility for East Milwaukee Street riders by reducing the need to transfer to the Milton Avenue route. The proposed design introduces bi-directional service on U.S. 14, Pontiac Drive, and Morse Street, and increases the number of transfer points between the two routes. The proposed routing requires approximately five additional minutes of running time and results in a tight but manageable schedule with adequate recovery time.

Table 32 shows the existing and proposed East Milwaukee Street schedule, each requiring 60 minutes to complete one full round trip. The proposed East Milwaukee Street schedule accounts for the proposed routing changes and redistributes time throughout the schedule based on field observations. Unlike the existing schedule, which does not formally build in recovery time for driver breaks or to make up for lost time, the proposed schedule provides six minutes of recovery time. The proposed East Milwaukee Street schedule should be field tested, reviewed thoroughly by JTS, and considered for implementation.

With the eventual reconfiguration of the Milton Avenue/I-90 interchange, Ryan Road may continue cross I-90 via an underpass between Morse Street and Deerfield Drive. This may offer the potential for more efficient transit routing for the proposed East Milwaukee Avenue route.

Table 32. Existing and Proposed Schedule: East Milwaukee Street

Timepoint	Existing	Proposed
Janesville Transfer Center - Depart	:15	:15
Harmony/East Milwaukee	:25	:20
Mercyhealth East	:30	:25
Randolph/Wright	:35	:30
Van Galder	-	:37
Pine Tree Plaza	:40	-
Walmart	:45	:42
Pine Tree Plaza	:50	:46
Randolph/Wright	:55	:52
Mercyhealth East	:00	:58
Harmony/E. Milwaukee	:05	:04
Janesville Transfer Center - Arrive	:15	:09

Wright Road

Ridership on the Wright Road route more than doubled between 2012 and 2016, from about 14,300 to 32,200 annual passenger trips. However, Wright Road remains the least productive of JTS's regular fixed routes in terms of ridership and passenger trips per revenue hour. The following proposed changes to the Wright Road route aim to reduce travel time and route mileage, while increasing its directness. Absent opportunities for frequency or span improvements, strategies for increasing Wright Road route ridership are focused on fine tuning the route to be more convenient for current and potential riders.

The proposed Wright Road route operates as bi-directional service on Racine Street between Main Street and Randall Avenue (Figure 55). This differs from current service, which in the eastbound direction travels via Main Street south of Racine Street; Tyler Street; and Randall Avenue; before turning east onto Racine Street. The proposed change reduces route running time by about two to three minutes, and is ½ mile shorter than present. Based on boarding and alighting observation in May 2017, 17 passengers will be impacted by this change.[6] Most of those impacted (11 of 17) are those accessing the route at Randall Arms Apartments (535 S Randall Avenue), who have front-door service today. These riders will be required to walk approximately 350 feet north to access the nearest Wright Road route bus stop on Racine Street.

The second proposed change to the Wright Road route is oriented to current and future customers in the South Wright Road Industrial Park. The proposed route – rather than continuing north on

[6] The consultant team collected boarding and alighting data over the course of Tuesday, May 23 and Wednesday, May 24, 2017. As a relatively small sample, the data provide a snapshot of service provided and consumed and are not to be interpreted as a complete or statistically significant representative sample.

Wright Road to turn west on to Ruger Avenue – turns west off Wright Road onto Palmer Drive en route to Racine Street and Randall Avenue. This eliminates the large loop service along Ruger Avenue, reducing route mileage by about 1/3 mile. Based on consultant observation, eliminating service on Ruger Avenue will impact three riders. Ruger Avenue bus stops were used on just 3 of the 24 (12 percent) daily trips observed.

West Court Street

Per JTS drivers and supervisors, the West Court Street route is the most difficult route to maintain on the existing schedule. West Court Street and Kellogg Avenue routes are paired routes where the driver alternates trips between the two routes. Thus, a West Court Street bus that is running late to the Transfer Center may result in the late departure on the Kellogg Avenue route.

The West Court Street route is geographically stretched out, such that it cannot consistently make its full trip in the 28-minutes allotted. Rather than reduce the route frequency from once every 30 minutes to once every 40 minutes, it is recommended that segments of the route be eliminated to reduce travel time. The following proposed changes are aimed at making the West Court Street route shorter and more reliable.

First, rather than operate in the northbound direction via Grant Avenue, Memorial Drive, and Manor Drive, between Mineral Point and Purvis Avenues, the proposed West Court Street route stays on Oakhill Avenue (Figure 55). This change makes the route simpler and more direct (requiring the bus to turn two fewer times), and may result in a time savings of about one-half to one minute. Based on observations made by the consultant team, this change would require an additional one to three-block walk for a few customers (three passengers were observed that would be minimally negatively affected by the change).

Secondly, the proposed West Court Street route operates as two branches that alternate – Branch A and Branch B, each with one trip per hour – to improve schedule adherence. Shown in Figure 55, Branch A operates as it does today, serving Parker High School on the far west side of the route (via Bond Place Waveland Road, and Mineral Point Avenue), at the western edge of development in Janesville. Branch B provides slightly faster service by skipping Parker High School and operating on Crosby Avenue from Court Street to Mineral Point Avenue. Branch B is about one mile shorter and two to three minutes faster than Branch A.

Serving Parker High School just once per hour (rather than twice as it does today) results in a time savings, and thus better on-time performance, for 50 percent of the West Court Street trips operated daily. Since the West Court Street route is paired with the Kellogg Avenue route, 50 percent of the Kellogg Avenue daily trips will also benefit and be on time more often. Alternatively, if the West Court Street and Kellogg Avenue route were no longer paired (one bus operating on each route, with no switching between routes) the two-branch service would result in improved on-time performance for 75 percent of West Court Street and Kellogg Avenue daily trips.

Prior to these changes to the West Court Street route, JTS staff will discuss more in depth the transit needs of Parker High School students with school and SDJ staff to determine the transportation need and appropriate level of transit service to the school.

The two-branch West Court Street route represents a stop-gap measure to improve schedule adherence without eliminating service. Given additional resources, the West Court Street route should be restructured into two routes to better meet existing demand, while improving customer and driver experience.

Kellogg Avenue

Minimal changes to the Kellogg Avenue route are proposed. A major grocer (Pick 'n Save) located near Lafayette and Conde Streets recently closed. Considering this, the Kellogg Avenue route in its westbound direction should remain on Kellogg Avenue, rather than operate via Lafayette Street, Conde Street, and Center Avenue (Figure 55). It is estimated that this change will shave one to two minutes in running time from the route.

The Kellogg Avenue route, which is paired with the West Court Street route, operates on a tight but manageable schedule. Much like the West Court Street route, the Kellogg Avenue Route is geographically stretched out, such that it is difficult for many drivers to operate the full trip in the time allotted. It is anticipated that the Kellogg Avenue route will be easier to operate and become more reliable for passengers with the reconfiguration of service away from the closed grocery store and the proposed changes to the West Court Street route.

Beloit-Janesville Express (BJE)

No changes to the routing of the BJE are proposed. The route plays a vital role in intracity and intercity travel for employment and access to services. However, based on consultant team observations, there are opportunities to better redistribute time throughout the existing schedule timepoints. Table 33 shows the existing and proposed BJE schedule, each requiring 120 minutes (2 hours) to complete one full cycle. The proposed BJE schedule redistributes time throughout the schedule based on field observations. The existing schedule has 12 minutes of recovery time (10 percent of cycle time), while the proposed has 11 minutes (9 percent). The proposed should be field tested, reviewed thoroughly by JTS and Beloit Transit, and considered for implementation.

Table 33. Existing and Proposed Schedule: BJE

Timepoint	Existing	Proposed
Janesville Transfer Center - Depart	:15	:15
State at Center/Washington	:20	:25
UW Rock Co.	:25	:30
Kellogg at Rock County Job Center	:30	:33
Rock Valley Comm. Program	:38	:40
Blackhawk Tech.	:40	:42
Hwy. 51 and Inman	:45	:47
Beloit Transfer Center – Arrive	:55	:57
Beloit Transfer Center – Depart	:00	:00
Riverside/Hwy. 51 and Inman	:10	:12
Blackhawk Tech.	:15	:17
Rock Valley Comm. Program	:17	:20
Kellogg at Rock County Job Center	:25	:28
UW Rock Co.	:30	:31
Center north of Jim's Pizza	:35	:37
Janesville Transfer Center - Arrive	:40	:42
Janesville Transfer Center - Depart	:45	:47
Rock County Complex	:55	:57
Kennedy at Plainfield	:00	:02
Alden at Black Bridge	:03	:05
Janesville Transfer Center - Arrive	:13	:12

Summary of Service Concepts

The service concepts and recommendations presented in this Cost Neutral Scenario aim to improve service delivery while maintaining existing frequency, revenue hours, and vehicle requirements. These options should be considered in the near-term to provide more reliable, efficient, and effective service to JTS customers.

Opportunities Scenario

Unlike those in the Cost Neutral Scenario, the following service concepts should be considered for implementation if additional resources become available. These service concepts require additional revenue hours; some require an additional transit vehicle. The Opportunities Scenario assumes proposed changes as part of the Cost Neutral Scenario are implemented, unless otherwise noted.

The operating cost estimates provided in Table 34 and throughout this report were calculated at a high level using observed operations data (i.e., annual operating expenses and revenue hours). All cost estimates represent a fully-allocated operating cost per hour of revenue service. JTS fixed route service operating cost is assume to be approximately $110 per revenue hour;[7] RCT ADA paratransit service operating cost is assumed to be about $60 per revenue hour;[8] shared-ride taxi operating cost per hour is assumed to be a contracted cost of about $35 per revenue hour.[9] Annual revenue hours were calculated based on estimated daily revenue hours by route/service multiplied by the corresponding number of annual service days:

- Weekdays: 255 annual service days
- Saturdays: 52 annual service days
- Sundays: 52 annual service days
- School days: 180 annual service days

The cost estimates in this report do not account for additional capital, administrative, or staffing costs incurred because of the proposed change. Cost estimates herein should be interpreted as guides for scenario planning.

Service Concepts

1. Milton Avenue: Increased Frequency

The Milton Avenue regular route is the most well-designed and well-used of JTS's routes. Given additional resources dedicated to JTS, the Milton Avenue route should be invested in further. In this option the Milton Avenue frequency will be improved, from 30-minute to 20-minute headways. This service improvement will require one additional bus, 3,060 annual revenue hours, and cost an additional approximately $336,000 to operate, annually (Table 34). Investment in frequency on the Milton Avenue route will increase convenience for transit dependent riders and attract new riders.

2. West Court Street: Split into Two Routes

The existing West Court Street route operates on a very tight schedule that is difficult to maintain for drivers, resulting in occasional reliability concerns. Moreover, the route operates as a large clockwise loop, creating long, inconvenient travel times for many of its riders. The proposed option, feasible with additional resources, restructures the West Court Street route into two routes to better meet existing demand, while improving customer and driver experience.

Displayed in Figure 56, the proposed new West Court Street will depart the downtown Transfer Center and head west on West Milwaukee Street to Court Street, where it will serve the commercial and retail corridor. The redesigned route will continue west on Court Street, north on Crosby Avenue, west on Bond Place, and north of Waveland Road to provide service near Parker High

[7] Based on 2014-2015 NTD reporting and 2016 internal JTS data.
[8] Based on 2014-2015 NTD reporting.
[9] Based on average fully-allocated operating cost per revenue hour of shared-ride taxi systems in the following Wisconsin communities: Washington County, Ozaukee County, Onalaska, Hartford, River Falls, and Chippewa Falls.

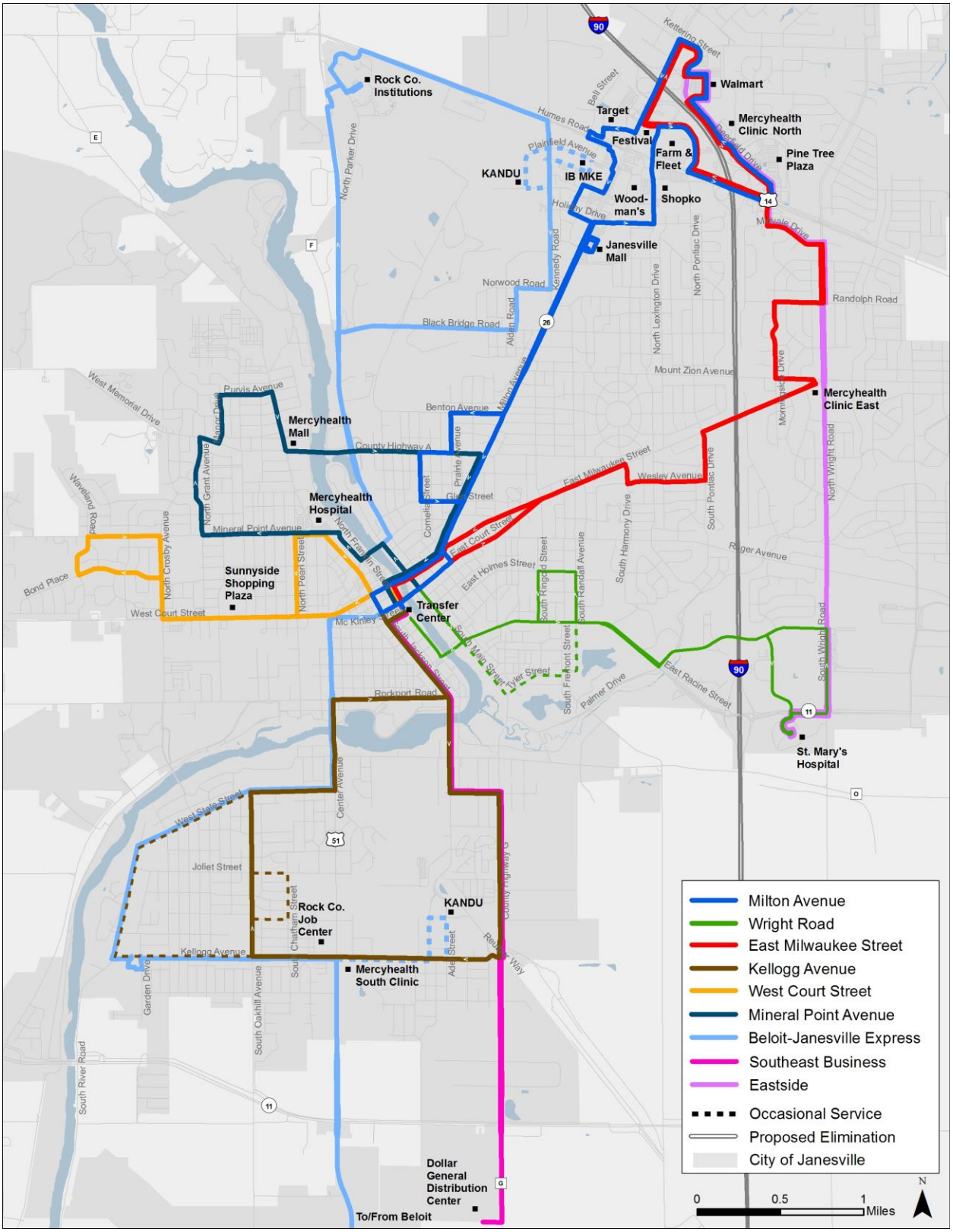
School; it will then continue west on Mineral Point Avenue to go south on Crosby Avenue, and east on Court Street. This design provides bi-directional service along Court Street, better facilitating employment and shopping trips. Continuing east on Court Street, the route will then continue north on Pearl Street, serve Mercyhealth Hospital, then return to the downtown Transfer Center via Jackson Street.

The second route to come about from the redesign – the new Mineral Point Avenue route – will originate at the downtown Transfer Center; cross the Rock River, travel along Main Street to Centerway Street, and crossing back over the Rock River (Figure 56). The new route will serve Mercyhealth Hospital before continuing west on Mineral Point Avenue; it will then travel north on Grant Avenue en route to Oakhill Avenue and Purvis Avenue, and continue east on Purvis Avenue then south on Washington Street. After serving the Mercyhealth Mall, the Mineral Point Avenue route will cross the Rock River a third time via Memorial Drive; turn south at Milton Avenue; and return to the downtown Transfer Center.

The restructured West Court Street and Mineral Point Avenue routes provide several advantages over existing service. First, each is designed with adequate time to more easily complete its 30-minute cycle. Second, the restructured route provides bi-directional service to along West Court Street near Sunnyside Shopping Plaza, increasing convenience and reducing circuity for current riders. Meanwhile, bi-directional service between Mercyhealth Hospital – a major employer and service provider – and downtown is preserved. Lastly, with the Mineral Point Avenue route continuing east over the Rock River along Memorial Drive, a new cross-town connection to the Milton Avenue route is created. Thus, those living or working in northwest Janesville will be able to access the Milton Avenue commercial corridor without having to first travel to the downtown Transfer Center.

Both the redesigned West Court Street route and the new Mineral Point Avenue route will operate weekdays once every 30-minute from 6:15 a.m. to 6:15 p.m. An additional bus and 3,060 annual revenue hours are required to implement the change; an additional annual allocation of $336,600 is required to operate the new route (Table 34). The proposed change will have a large positive impact on ridership, due to the added convenience provided by the crosstown connection, reduced travel time, and improved service reliability.

Figure 56. Opportunities Scenario Regular Route Network



3. Beloit-Janesville Express (BJE): Saturday Service

JTS customers have expressed a need for Saturday service on the BJE to provide a more reliable connection to employment. Furthermore, JTS's partners that support the BJE financially have also indicated a desire for Saturday service. The annual cost to JTS to operate one bus on the BJE route on Saturdays (9:00 a.m. to 3:45 p.m.) would be approximately $37,750 (Table 34). It may be possible to offset some of this cost with additional sponsorship funding from JTS's BJE community partners. The estimated operating cost for Beloit Transit to operate one of its buses on the BJE route on Saturdays at comparable times is about $33,270.[10]

4. Nightside: Saturday Service

Nightside service on Saturdays is a priority improvement for current JTS riders that would increase frequency of use, per stakeholder outreach results. JTS should consider Saturday service on all three existing Nightside routes. Following a one-year maturation period, Saturday Nightside service can be pulled back if observed to be unwarranted based on demand. The resource estimates in Table 34 assume JTS-operated fixed route service on all three existing Nightside routes on Saturdays from 6:15 p.m. to 10:15 p.m. Annually, this service concept would require 624 revenue hours, at an estimated cost of $68,640.

5. Nightside: Operate Later in Evening

Stakeholder input indicated a preference for transit service later in the evening, particularly to aid access to employment; currently, service is provided until 10:15 p.m. This option assumes all three existing Nightside routes will operate on weeknights from 6:15 p.m. to 12:15 a.m. The resource estimates in Table 34 assume JTS-operated fixed route service. Expanding Nightside service until 12:15 a.m. will result in an additional 1,530 revenue hours, at a net cost of $168,300 annually. This estimate does not incorporate the cost of Saturday service (Option 4).

6. Regular Routes: Sunday Service

According to survey responses, service on Sundays is a priority improvement for current JTS riders that would increase frequency of use. This service concept assumes 8:45 a.m. to 6:15 p.m. Sunday service for each of the regular routes (excludes the BJE). Following a one-year maturation period, Sunday service can be pulled back if observed to be unwarranted based on demand. Annually, this service concept would require 2,964 revenue hours, at an estimated cost of $326,040 (Table 34).

7. Shared-Ride-Taxi for Southeast Businesses

Businesses and JTS customers have expressed a need for transportation solutions to and from areas of low-density employment – specifically surrounding the Dollar General distribution center south of State Highway 11. Employers in this area offer several different non-traditional work shifts,

[10] Using a cost of $97 per revenue hour, based on Beloit Transit 2016 NTD reporting.

including second and third shifts. To meet this demand, JTS could consider shared-ride taxi with service available around the most frequent shift start and end times. The service must be flexible to meet the changing needs of employers and new employees.

This service concept assumes four daily revenue hours of shared-ride taxi service Monday through Saturday, using two mini-buses or accessible minivans. Vehicles should be dedicated to this service at popular shift times, to be determined upon close collaboration with southeast businesses. At this level of service, shared-ride taxi service to southeast businesses will require 1,228 annual revenue hours at an estimated cost of $58,580, annually (Table 34). It may be possible to offset some of this cost with sponsorship funding from employers – a model similar to that of the BJE. This operating cost estimate does not include the administrative and capital costs associated with introducing a shared-ride taxi system in Janesville (see: Shared-Ride-Taxi Feasibility section).

8. Southeast Business Fixed Route

This service concept builds upon concept 7, and may be most appropriate beyond the five-year scope of this TDP. If the shared-ride taxi service demonstrates a high level of demand for service to the southeast business corridor, a fixed route in the corridor should be considered to maximize ridership potential. Shown in Figure 56, the proposed Southeast Business fixed route will operate four daily trips (requiring a 30-minute cycle) between the downtown Transfer Center and the southeast business corridor via Jackson Street and Beloit Avenue/Prairie Road (County Highway G). The four daily trips will be coordinated with shift start and end times to take employees to and from their place of work. The service will operate Monday through Saturday using one large bus. Given these assumptions, it is estimated the route requires 614 annual revenue hours at a cost of $67,540, annually (Table 34). The success of this service will depend upon frequent evaluation and refinement, and require close collaboration with employers and their employees.

Rather than travel downtown (Figure 56), another option for the Southwest Business route could be to operate via a timed transfer with the Kellogg Avenue route at a specified point or points (e.g., Rock County Job Center). Doing so would likely result in additional time for the route to provide expanded coverage closer to more businesses. The two options – via downtown Transfer Center or time transfer with Kellogg Avenue route – should be analyzed further if it is determined the Southeast Business fixed route is warranted based on demand.

9. Eastside Route

The South Wright Road Industrial Park and areas surrounding St. Mary's Hospital will continue to develop over the next decade. As the area accepts more residential, commercial, and industrial development, there will be a need for transit service that connects it to the north side of Janesville. By introducing a new north-south regular route east of I-90, employees and residents in and around the South Wright Road Industrial Park will be able to connect with the East Milwaukee Street and Milton Avenue routes without first having to first travel downtown. This service concept is likely most appropriate for implementation outside of the five-year scope of this TDP.

Shown in Figure 56, the proposed Eastside route will originate at St. Mary's Hospital, operate via Wright Road, Midvale Drive and Deerfield Drive, serving Pine Tree Plaza and Mercyhealth Clinic North. The Eastside route will continue north to serve Walmart, with transfers to East Milwaukee Street and Milton Avenue routes, before continuing in its southbound direction back to St. Mary's Hospital. It is assumed the route will operate weekdays on a 30-minute headway from 6:15 a.m. to 6:15 p.m. Shown in Table 34, the new Eastside regular route costs approximately $336,600 to operate, annually. Following a three-year maturation period, it is expected the East Side route will achieve ridership similar to that of the East Milwaukee Street and Wright Road routes.

As the Eastside route is being considered, opportunities to expand the route farther to the north should be tested. There may be opportunities for the Eastside route to serve residential neighborhoods north and east of Walmart.

Summary of Service Concepts

Table 34 summarizes the resource requirements and ridership impact of the service concepts identified as part of the Opportunities Scenario. Annual revenue hours were estimated based on existing JTS service and projected levels of service; annual operating costs were estimated based on fully-allocated cost assumptions in 2017 dollars.

Table 34. Summary of Opportunity Scenario Service Concepts

No.	Service Concept	Net Annual Revenue Hours	Net Annual Operating Cost*	Net Vehicles Required	*Positive* Ridership Impact
1	Milton Avenue: 20-minute frequency	3,060	$336,000	1	High
2	West Court Street: Split into two routes	3,060	$336,000	1	High
3	BJE: Saturday service	343	$37,750	0	Medium
4	Nightside: Saturday service	624	$68,640	0	Medium
5	Nightside: Service until 12:15 a.m.	1,530	$168,300	0	Low
6	Regular Routes (except BJE): Sunday Service	2,964	$326,040	0	High
7	Southeast Businesses: Shared-ride-taxi	2,456	$117,160	**2	Low
8	Southeast Businesses: Fixed route	614	$67,540	1	Low
9	Eastside Route: Fixed route	3,060	$336,600	1	Medium

*Estimated based on assumptions of fully-allocated cost of $110 per revenue hour for fixed route service and $35 per revenue hour for shared-ride taxi service.
**One to two mini-buses or accessible minivans.

Reduced Resources Scenario

The following service strategies should be considered under a scenario where JTS experiences a dramatic reduction in ridership, revenue and/or funding. As it stands, there are very limited opportunities to trim existing JTS transit service. JTS provides a high level of service to its

customers in an efficient manner, and adjusting bus route designs will not yield much in cost savings. Instead, reducing resources would have to be completed through an elimination of service hours or changing the cost structure of the transit system. Cuts to existing service should be considered only in extreme circumstances. Below are three general strategies that JTS could employ under a reduced resources scenario.

Service Reduction Strategies

1. Reduced Span of Service

System wide operating expense can be reduced by cutting back the hours that transit service is provided. For example, weekday service could start at 8:15 a.m. rather than 6:15 a.m., as currently operated; or Saturday service could end at 5:15 p.m. as opposed to the current 6:15 p.m. cutoff. Trimming an hour or two on either end of a route's span of service would allow for a relatively small reduction in annual expenses. However, given the proven demand for its current level of service – and calls for expanding service to include Sundays – there is little more than small changes (an hour here and there) that could be made if reductions are necessary. As it stands, JTS is a very lean system that could successfully operate a larger span of service.

2. Reducing the Number of Buses in Service

The most impactful strategy for reducing system operating expense is removing a bus from the system operations. This is done either by completely redesigning routes to significantly reduce the cycle time, or by reducing service frequency. For JTS, absent eliminating a route completely, reducing frequency is the only viable option available to reduce the number of buses in service. For example, reducing frequency would mean a route that today operates once every 30 minutes would operate once every 60 minutes. However, hourly frequency is not conducive to growing ridership. Frequency reductions would have a large negative impact on JTS system wide ridership.

3. Contracted Service

In theory, the City of Janesville could provide all or part of its transit service via a contractor. The City currently contracts with Rock County for ADA complementary paratransit. While there are many ways the relationship could be structured, contracted service is generally less expensive than that directly operated by a city department.

If it were to contract all or part of its transit service, the City of Janesville would be the contract manager and the fiscal agent for state and federal funds. Vehicles would be owned by the City of Janesville and leased to an operator, or wholly owned by a contractor. State and federal grant management and reporting would be completed by the City of Janesville.

Bus Stop Analysis

Currently, JTS operates as a "flag stop" system, meaning that in addition to allowing passengers to board and alight at signed bus stops, a bus driver may pick up or drop off passengers at any corner along a route or other safe location; effectively, passengers can hail a bus at most corners within the service area. During on-site field observations, only about two percent of passenger pick-ups and drop-offs were at unsigned locations. While this can provide a premium level of service to some riders, there are several shortcomings to a flag stop style of service, including:

- **Safety** – A signed stop gives a bus driver a signal to be aware of passengers and pedestrians and prepare to slow and stop a bus. Signed stops are also typically in places that are safe for passengers to board and alight the vehicle. Additionally, they reduce the incidences of passengers running toward a bus, or having to navigate hazards upon exiting a bus.
- **Ease of Access** – Bus stops provide equitable access to transit service, and are typically priorities for physical improvements to be in compliance with ADA. Paved landings, sidewalks, wayfinding, and shelters are all features of bus stops that aide in ease of use and promote access to fixed route service. Moreover, signed bus stops make a transit system easier to understand for a new user, as this is more of a customary procedure.
- **Operational Efficiency** – Having an unpredictable number of bus stops can make it difficult to plan running times for bus routes, require additional "slack" to be built into a schedule, and can cause unexpected delays due to making more stops than necessary and excess bus maneuvering.

To understand the impact of converting to a signed stop system, the consultant team conducted a field review and inventory of existing bus routes and stops, noting where improvements would be advisable based on industry standard guidelines. This report also provides some strategic recommendations for implementation.

Field Review

Spacing

Bus stop spacing for a fixed route system is typically ¼ mile for regular route service; ¼ mile is generally recognized as the average distance people are willing to walk to reach local bus service. Higher quality services (express bus, bus rapid transit, light rail) can tolerate greater spacing. However, bus stop placement must be done in such a way that balances providing access to transit service and maximizing travel speed and convenience. The ¼-mile spacing is intended as a general rule. Areas of higher activity – such as the downtown core of a city – may warrant closer spacing to manage higher boarding and alighting patterns. Areas with low activity – suburban areas with less intense land use or lower density – may not require close spacing. Table 35 shows locations on JTS

regular and BJE fixed bus routes that have stop spacing greater than ¼ mile where additional stops may be considered. Noted under "Facilities Missed Between Stops" are locations that may benefit from improved transit access.

Table 35. Gaps in Bus Stops

Milton Ave.			
Stop	**Previous Stop**	**Distance From Previous Stop**	**Facilities Missed Between Stops**
Memorial at Milton	Court at Atwood	0.6 mi	
Target	Milton at Kettering	0.8 mi	Menards, Chipotle, Arby's and Popeye's
Lodge at Toys-R-Us	Target	0.8 mi	
Milton at Newman	Milton at Pizza Hut	0.5 mi	Walgreens, CVS, Sunset Tan, Cost Cutters
East Milwaukee St.			
Stop	**Previous Stop**	**Distance From Previous Stop**	**Facilities Missed Between Stops**
East Milwaukee at Post Office	Court at Ringold	0.45 mi	
Kellogg Ave.			
Stop	**Previous Stop**	**Distance From Previous Stop**	**Facilities Missed Between Stops**
State at Jerome	Jackson at Delavan	0.4 mi	
BJE			
Stop	**Previous Stop**	**Distance From Previous Stop**	**Facilities Missed Between Stops**
Center and Holmes (SB)	JTC	0.6 mi	Riders In, Larry's Barber Shop, Stop-N-Go
Center and Delavan (SB)	Center at Holmes	0.65 mi	
Riverside at Kwik Trip (SB)	Center at Burbank	0.9 mi	BMO Harris, First National, City Glass Company, and Janesville Comfort Shoppe.
Hwy. 51 at Sherman (SB)	Hwy. 51 at Airport	0.7 mi	Song of Joy Church, Rock County Christian School and Pinnacle Bar
Hwy. 51 at Inman (SB)	Hwy. 51 at Boundaries Bar	1.7 mi	
Riverside at Henderson (SB)	Hwy. 51 at Inman	1.8 mi	
BTC	Riverside at ABC	1.8 mi	
Center at Holmes (NB)	Center at Delavan	0.65 mi	
Kennedy at Plainfield	Rock County Jail	1.5 mi	GEOX Corporation, Badgerland Supply, Marling Lumber, and K&W Greenery
Wright Rd.			
No Stop Spacing Issues			
West Court St.			
No Stop Spacing Issues			

In summary, the following routes are candidates for added bus stops upon converting the existing fixed route system from a flag stop system to a signed stop system:

- Milton Avenue Route: 4 additional stops
- East Milwaukee Street Route: 1 additional stop
- Kellogg Avenue Route: 1 additional stop

The BJE is a hybrid between a regular route (local bus) service and an express or limited stop service. There were nine segments of the BJE that have greater than ¼-mile spacing, however placing stops in those segments may not be necessary due to low activity.

Shelter Placement

Bus shelters are a critical amenity of any fixed route transit system, protecting customers from weather and offering a venue to communicate system information. Shelters should be placed at

stops where there is adequate space for accessible routes, places where route transfers are made, and at areas of high activity and boardings. Per the Janesville Area 2015-2050 LRTP:

> The City of Janesville's Distribution of Transit Amenities Policy regarding passenger comfort and safety dictates that bus shelters will be strategically placed on inbound stops in residential neighborhoods and areas that serve 50 or more boarding or transferring passengers daily, and have an evenly distributed daily ridership. All [existing] shelters are located at major destinations (grocery stores, retail centers, medical facilities, job sources, and educational institutions) or residential developments with high ridership (Environmental Justice Section, page 10).

Bus stops with existing shelters and their associated number of daily boardings, as observed by the consultant team, are shown in Table 36. The consultant team collected boarding and alighting data for all JTS regular routes, the BJE, and most school tripper routes over the course of Tuesday, May 23 and Wednesday, May 24, and Tuesday, June 27 and Wednesday, June 28, 2017. As a relatively small sample, the data provide a snapshot of service provided and consumed, and should be interpreted with caution. However, these data represent the most up-to-date quantitative assessment of JTS ridership at the bus stop-level.

Table 36. Bus Stops with a Shelter

Location	Routes Served	Observed Daily Boardings
Downtown Transfer Center	All Regular Routes and BJE	537
Walmart	Milton Avenue, East Milwaukee Street	46
Janesville Mall	Milton Avenue	27
Beloit Transfer Center	BJE	20
KWIK Trip – Crosby Avenue & Court Street	West Court Street	19
Rock County Job Center - Kellogg Avenue & Center Avenue (North side)	Kellogg Avenue, BJE	19
Shopko - N. Lexington Drive	Milton Avenue	15
Pine Tree Plaza (I-HOP, East side)	Milton Avenue, East Milwaukee Street	14
Garden Court Apartments - Main Street	West Court Street, BJE	12
WI Center for the Blind and Visually Impaired – Oakhill Avenue & State Street	West Court Street	11
Milton Avenue & Kettering Street	Milton Avenue	11
Mercy Hospital - Mineral Point Avenue & Washington Street	West Court Street, BJE	10
Riverview Heights - North Washington & Greenview	West Court Street	10
Mercyhealth Clinic East - East Milwaukee Street & Suffolk Drive	East Milwaukee Street	8
Festival Foods	Milton Avenue	8

Continued

Kellogg Avenue and Center Avenue (South side)	BJE	7
Sunnyside Shopping Center - West Court Street	West Court Street	5
BioLife – Midland Road & Midland Court	Wright Road	5
Creston Park - Milton Avenue	Wright Road	5
Mercyhealth Clinic North – Deerfield Drive	Milton Avenue, East Milwaukee Street	4
U-Rock	West Court Street	2
Van Galder Depot – North Pontiac Drive (West side)	Milton Avenue	2
Pick 'n Save—Lafayette Street & Conde Street	Kellogg Avenue	1
Kellogg Avenue - West of Garden Drive (South side)	BJE	0
Fairview—Harmony and East Milwaukee	East Milwaukee Street	0

As shown in Table 36, just two bus stops with shelters – the Downtown Transfer Center and Walmart – were observed to have about 50 or more daily boardings. JTS should consider revising its shelter placement policy (to a lower minimum daily boardings threshold) to better reflect boarding patterns. However, again, the observed boarding data in Table 36 are based on a small sample size and should be interpreted with caution.

For the purposes of this report, bus stops that were observed to have 20 or more boardings per day have been identified as being potential candidates for shelter locations – today or in the future. There are no industry standards for passenger activity necessitating a shelter; however, most transit systems apply a daily boardings measure as part of their assessment. Based on observed boarding data compiled by the consultant team, there is just one bus stop location in Janesville that may benefit from a shelter, using this 20-boarding threshold: Bond Place and Waveland Road (Table 37).

Table 37. Bus Stops with Twenty or More Boardings per Day

Location	Routes Served	Observed Daily Boardings	Existing Shelter?
Downtown Transfer Center	All Regular Routes and BJE	537	Y
Walmart	Milton Avenue, East Milwaukee Street	46	Y
Janesville Mall	Milton Avenue	27	Y
Bond Place at Waveland Road	West Court Street	24	N
Beloit Transfer Center	BJE	20	Y

JTS should continue to collect stop-level boarding and alighting data to continually evaluate where shelters are most needed. The bus stop serving the recently-closed Pick 'n Save at Lafayette and Conde Streets on the Kellogg Avenue route has a shelter that could be repositioned to another site.

Bench Placement

As with shelters, there is no industry standard threshold for passenger activity necessitating a bench at a bus stop. JTS does not currently have such a standard. In addition to areas of moderate or high ridership, benches are generally warranted at bus stops in high activity locations (e.g., pedestrian activity, density); where seniors, children, and passengers with special needs frequently board; wait times are longer; and there is no other shelter from the elements.

Moving forward, JTS should consider placing benches at bus stop locations that might not yet meet standards for shelter placement and where it is safe to do so. Bench placement should be approached as an incremental improvement to passenger amenities if shelter placement is not immediately feasible. Further, benches should be placed at bus stops based on the general guidelines listed above and where there may be advertising revenue opportunities, such as areas with high pedestrian/vehicular traffic. There may also be opportunities to partner with developers and housing complexes to incorporate benches or other passenger facilities into their properties.

Customer Information

JTS publishes a Route Guide that indicates stop locations in its service area. There are several locations that are listed as stops that do not currently have signage. These are locations that presently operate as flag stops and should be formalized to signed stops under an updated system. There were approximately 50 stops listed in the Route Guide that do not have signage. The locations and directions of these stops are shown in Table 38.

Table 38. Route Guide Bus Stops without Signage

Milton Ave.	
Stop	**Direction**
Milton at Centerway	NB
Milton at Memorial	NB
Woodlane at Holiday	SB

BJE	
Stop	**Direction**
River at Cedar Crest Community	SB
Hwy. 51 at Inman	SB
Riverside at Henderson	SB
Riverside at Henry	SB
Riverside at ABC	SB
Riverside at ABC	NB
Riverside at Knilans	NB
Center at Burbank	NB
UW Rock Co.	NB
River at Cedar Crest Community	NB
River at State	NB
Center at Delavan	NB
Parker at Ba-Wood	NB
Parker at Rock County Health	NB
Rock County Complex	NB
Rock County Jail	NB
Kennedy at Plainfield	SB
Black Bridge at Mayfair	SB

Kellogg Ave.	
Stop	**Direction**
Beloit at Conde	Loop
Center at Rock County Job Center	Loop
State at Center for the Blind	Loop
Center at Delavan	Loop
Jackson at Racine	Loop

East Milwaukee St.	
Stop	**Direction**
Court at Ringold	NB
Harmony at Wesley	NB
Pontiac at Marshall Middle School	NB
Morningside at Green Forest	NB
Wright at Curry	NB
Wright at Greenwood	NB
Pine Tree Plaza	SB
Midvale at Greenwood	SB
Wright at Curry	SB
Randolph at Wright	SB
Pontiac at Marshall Middle School	SB
Harmony at East Milwaukee	SB
East Milwaukee at Centerway	SB

Wright Rd.	
Stop	**Direction**
Tyler at Fremont	Loop
Tyler at Vista	Loop
Midland at Subway	Loop
Wright at DMV	Loop
Wright at Enterprise	Loop
Wright at Palmer	Loop
Ruger at Greendale	Loop
Ruger at Lexington	Loop
Ruger at Randall	Loop
Racine at Ringold	Loop

West Court St.	
Stop	**Direction**
Grant at Woodruff	Loop

Additionally, there were three stops on Milton Avenue that had signage, but were not mapped or listed in JTS Route Guide. These stops are listed in Table 39.

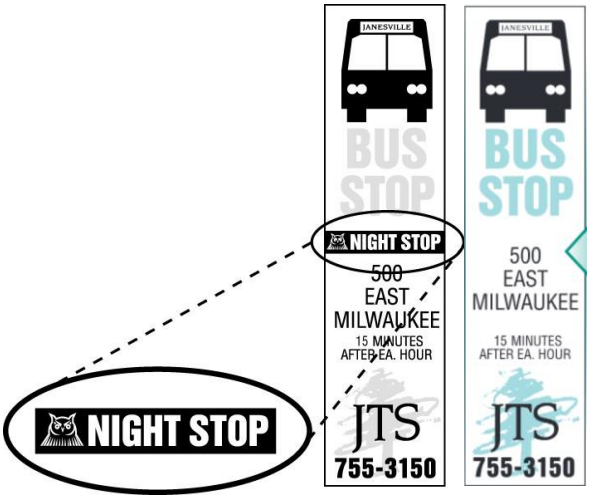
Table 39. Signed Bus Stops Not Listed in Route Guide

Milton Ave.	
Stop	**Direction**
Milton at Atwood	NB
Milton at Randolph	NB
Milton at Hawthorn	SB

Signage

As bus stops are replaced throughout the transit system, it is advised that JTS improve the current signage and customer information at stops and shelters. Current bus stops have issues with legibility, visibility, material wear, and fading. Current JTS bus stop sign designs are shown in Figure 57.

Figure 57. Current Janesville Bus Stop Sign Designs



The narrow, vertical orientation of the bus stop sign reflects older City of Janesville design guidelines and forces customer information to be compressed into a small space. The current signs are effective in that they contain an easily identifiable logo and bus icon, the route name, contact information, and route frequency, however it is more conventional for bus stop signs to have wider dimensions and more intuitive wayfinding elements.

There is a wealth of peer research involving effective customer information and signage. Publications such as *Bus Stop Customer Information Program Technical Report* by the Washington Metropolitan Area Transportation Authority and *Customer Information at Bus Stops*, a synthesis report by the Transit Cooperative Research Program, found that items like route name and number, service type, service span (items not subject to frequent revision) are standard informational items posted on bus stop signage. Furthermore, a national survey of transit systems has shown that the following items are common industry practice to include on bus stop signage[11]:

- Route number (or route name)
- Destination and route description
- Service days
- Service hours
- Route map
- Stop identification number
- How to use stop number (text message, phone call)
- Transit system contact information

[11] Transit Information at Bus Stops: Background Study and Guidelines, Metro Transit (Minneapolis-St. Paul), 2015.

The following figures are examples of bus stop signs of other urban transit systems that convey this information in a variety of ways. Metro Transit in the Minneapolis-St. Paul, Minnesota region has several tiers of bus stop signage depending on the boarding activity and level of transit service available at each location. The Tier 1 and Tier 2 bus stops are most applicable to JTS. Tier 1 (Figure 58) is the most basic bus stop sign in the system and contains the Metro Transit logo, route numbers, stop identification, and phone and web links to obtain real-time information. For bus stops with higher boarding activity, a Tier 2 bus stop is used (Figure 59). These stops contain the same information as the Tier 1 bus stops, but add route maps, destinations, and more detailed schedule information.

Milwaukee County, Wisconsin also has bus stop signs that include the route number, route name, contact information, and bus stop identification for real-time information (Figure 60). Examples of Milwaukee bus stops in the central business district or served by multiple routes are shown in Figure 61. Finally, an example of a Chicago Transit Authority bus stop on a local route is shown in Figure 62.

While the amount and type of information provided on bus stop signs varies across transit systems, the size and shape consistently differs from the signs that JTS currently uses. The larger (wider) sign sizes used in Minneapolis-Saint Paul, Milwaukee, and Chicago allow for more information to be provided on the sign in a concise and legible manner. Moreover, many systems take a modular approach to signage, meaning that there is a basic sign with static information that rarely changes, and items like maps and schedules can be added and removed based on the specific circumstances at that bus stop location, as done in the Tier 2 Metro Transit signs.

Figure 58. Metro Transit (Minnesota) Tier One Bus Stop Sign

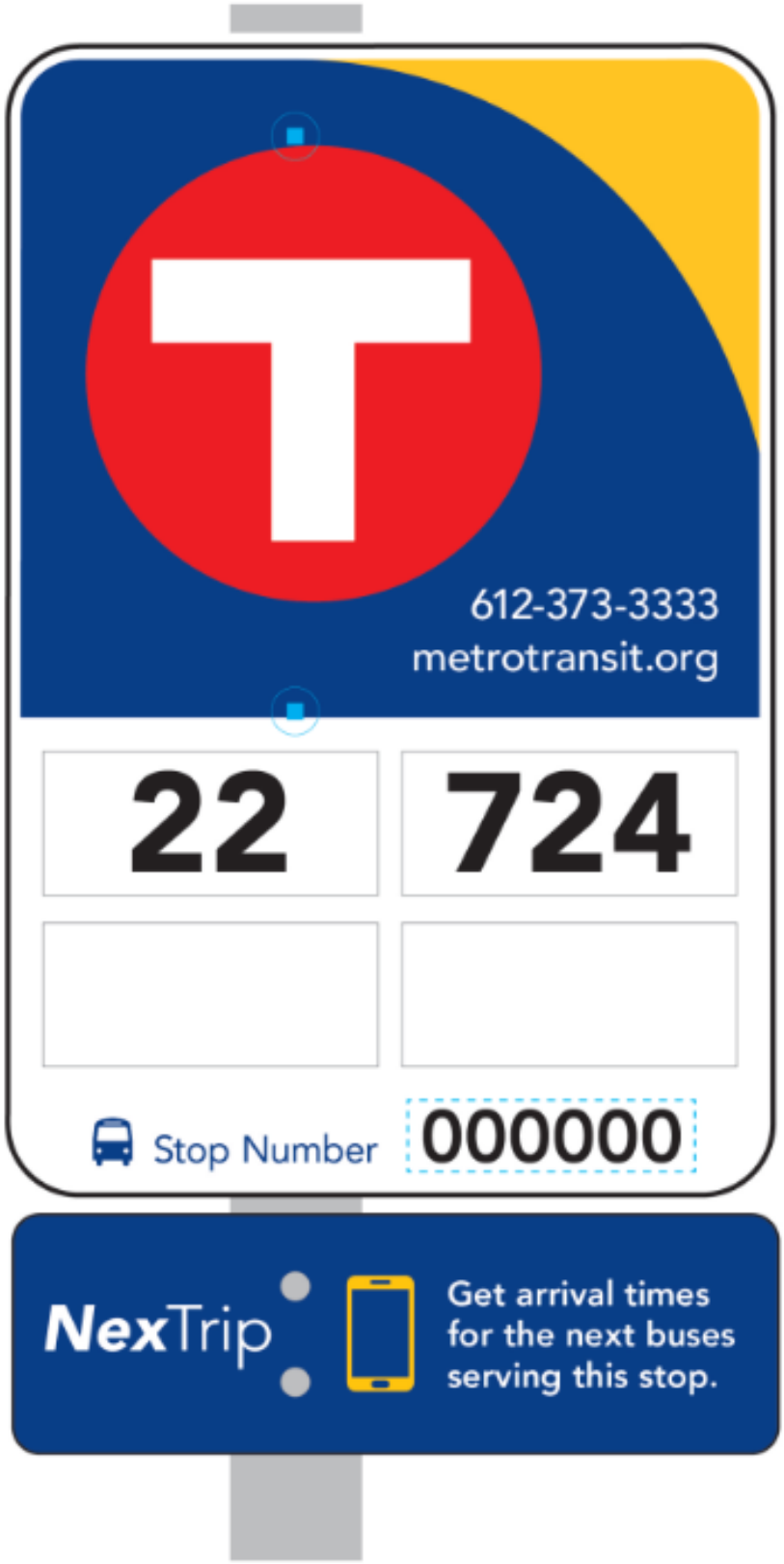


Figure 59. Metro Transit (Minnesota) Tier Two Bus Stop Sign

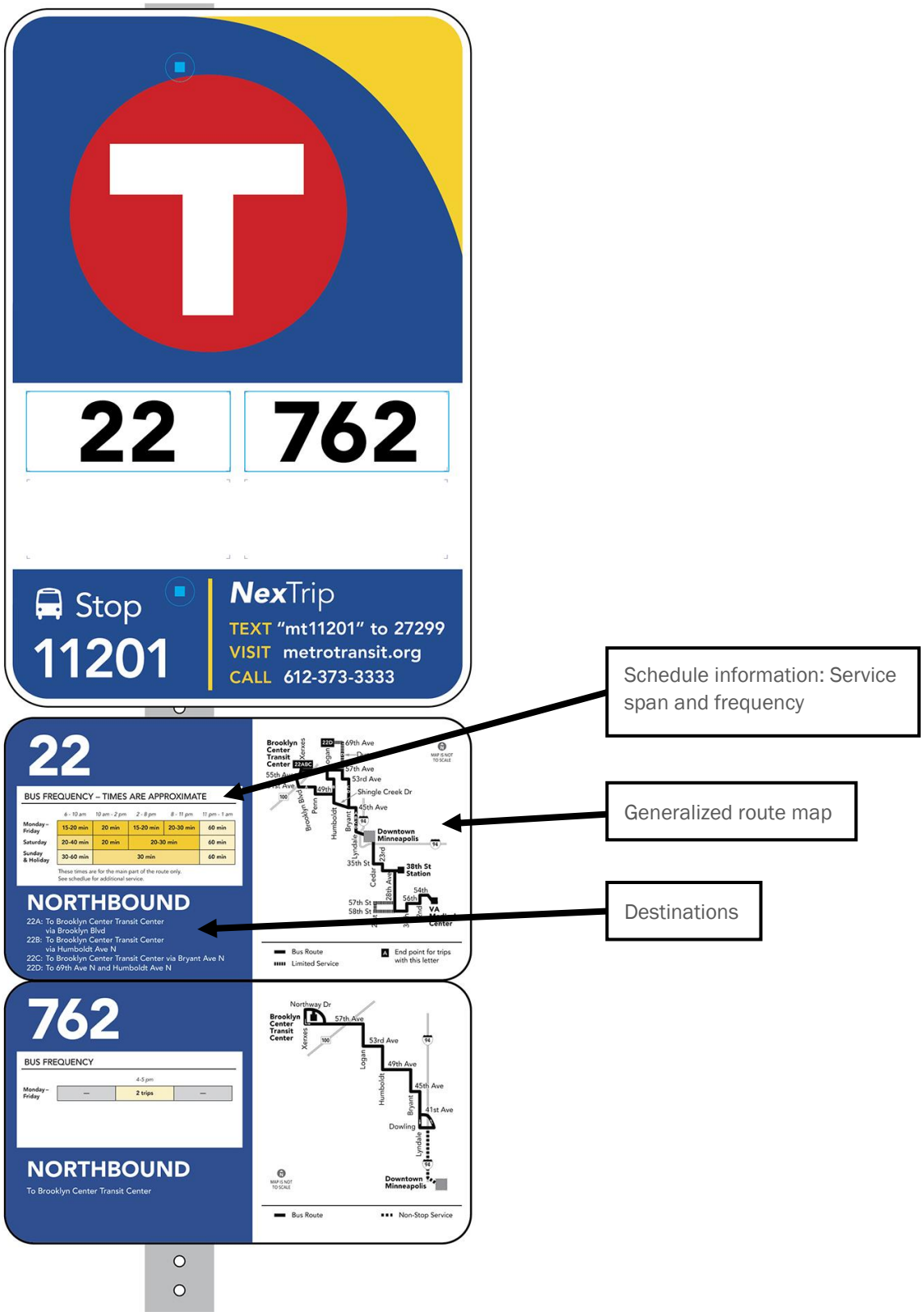


Figure 60. Standard Milwaukee County Bus Stop Sign[12]

Figure 61. Downtown Milwaukee Bus Stop Sign[13]

[12] *County Further Expands Real-Time Bus Routes,* Janeane, Jeremy, urbanmilwaukee.com, 28 July 2014.
[13] Transit Information at Bus Stops: Background Study and Guidelines, Metro Transit (Minneapolis-St. Paul), 2015.

Figure 62. Chicago Transit Authority Bus Stop Sign[14]

[14] How-To Guide: Bus Tracker by Text, Chicago Transit Authority, 2017.

Sign Concepts

Three JTS bus stop sign concepts were developed for future consideration. Each concept displays a different type and amount of information. Different sign types – with a shared design scheme – could be used at different bus stops depending on amount of passenger activity and availability of other public information and amenities nearby. All three concepts share the same shape, which is wider than the current standard JTS bus stop sign. The wider signs are more noticeable and allow for additional information to be displayed clearly.

Shown in Figure 63, Bus Stop Sign Concept 1 is the simplest and contains the least amount of information of the three concepts. However, Concept 1 features consistent and recognizable branding; the route name(s) that serves the stop; the JTS phone number and website; and a unique bus stop ID. Customers calling JTS for additional schedule information can reference the bus stop ID to receive useful information faster. Concept 2 incorporates the same elements as Concept 1, but adds schedule information by route by service day (Figure 64).

Bus Stop Sign Concept 3 provides the most amount of information – appropriate for higher-use bus stops that do not contain additional schedule information (i.e., posted in a shelter). In addition to the features of the previous two concepts, Concept 3 includes a generalized route map that identifies timepoints and destinations; it also identifies the stop as being served by a Nightside route (Figure 65).

Figure 63. Bus Stop Sign Concept 1

Figure 64. Bus Stop Sign Concept 2

Figure 65. Bus Stop Sign Concept 3

Implementation

Deploying signed bus stops within JTS will require a combination of capital investment, planning and outreach, and program development. Several systems nationally have undergone the process of converting from a flag stop system to a signed stop system. Even though a relatively small number of users participate in the flag stop system, there are likely occasional customers and people that will need to be familiarized with a new process. The robust travel training and outreach program provided by Rock County can help with this process, as will providing a means by which transit users can communicate with JTS and the City to ensure their needs are met. Also, taking a phased and transparent approach to implementing the bus stop only system is advisable given the importance of transit service to the community. The MPO plans to prepare an ADA Transition Plan for the City of Janesville in 2018.

Accessibility

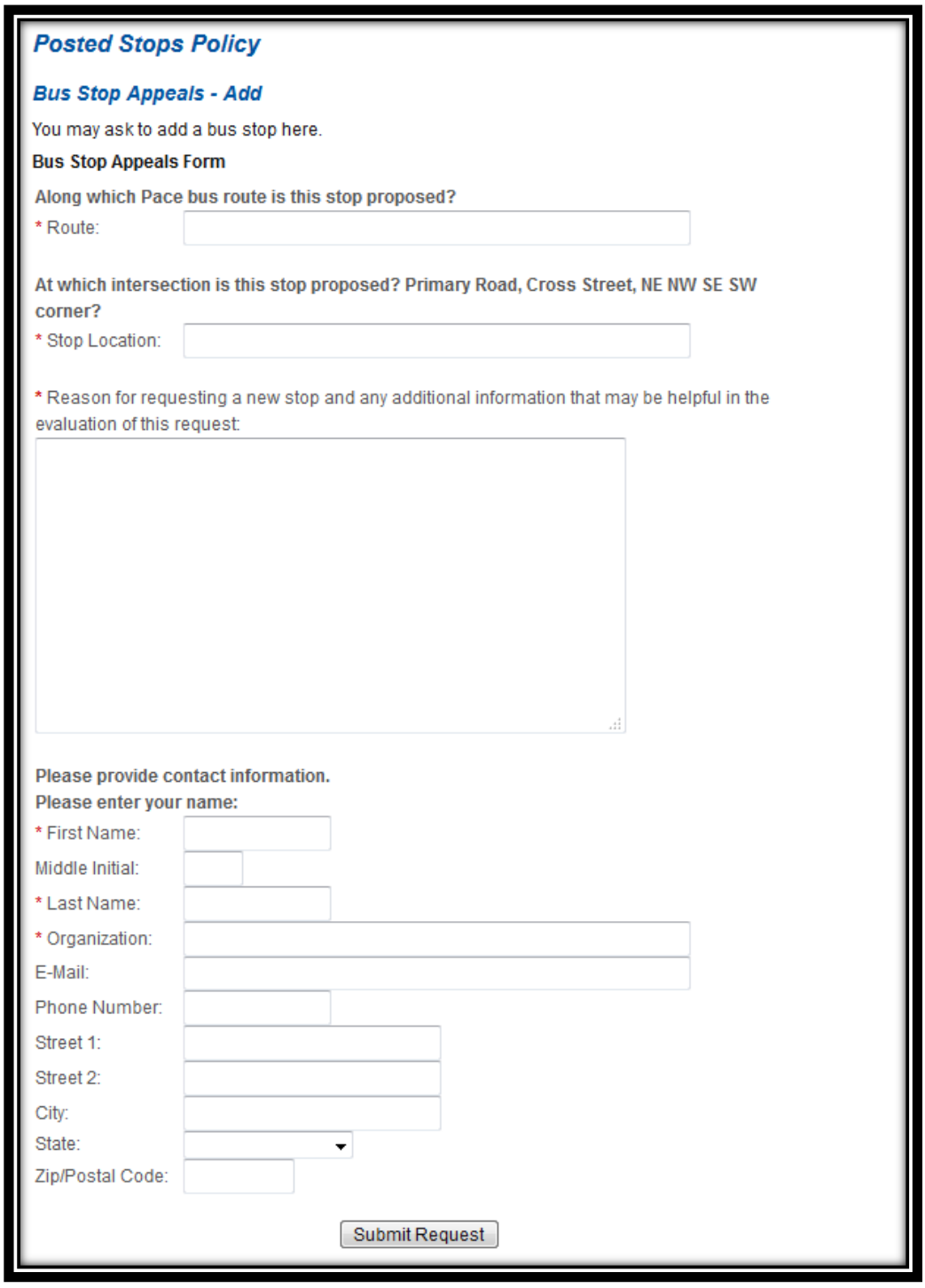
Several locations were identified in the current system that would benefit from having stops added (Table 35). However, there are additional stop locations where customers may benefit from stop placement. Pace, the transit provider in suburban Chicago, Illinois, is in the process of converting to a signed stop system. In addition to a public information campaign they have established several procedures for customers to request system improvements.

System Conversion – Pace Case Study

Currently, on most Pace bus routes passengers can board or alight the bus at any intersection along the route where the driver deems it is safe to do so. Passengers are encouraged to wait for the bus at bus stop signs, but it is not mandatory that they do so. Pace is in the process of transitioning to a system where passengers can board or alight only at posted Pace bus stop signs. This conversion process involves selecting stops, installing signs with the updated Pace logo, and informing stakeholders about where boarding and alighting can take place. Through posted flyers on vehicles, email alerts, and social media promotion passengers are notified of when each route will be converted. Pace also held various meetings with mayors, county board members, business leaders, and community advocates to keep them up to speed with the changes. JTS is considerably smaller in scale than Pace – Pace operates over 220 bus routes -- and may be able to convert their system on a shorter timeframe.

In addition to providing public information, Pace offered a process by which people could request a bus stop to be located at a more convenient or accessible location after the conversion. They accomplished this by providing a bus stop appeals form, available online and at their offices. If stakeholders in the Pace service area have a concern about a bus stop (or lack of a bus stop) in any location, they can fill out the bus stop appeals form and Pace staff will conduct a review and site visit and respond to the request. There are three different forms available: adding a bus stop, relocating a bus stop, and removing a bus stop. The forms are shown in Figure 66 and Figure 67.

Figure 66. Pace Bus Stop Addition Form



Posted Stops Policy

Bus Stop Appeals - Add

You may ask to add a bus stop here.

Bus Stop Appeals Form

Along which Pace bus route is this stop proposed?

* Route:

At which intersection is this stop proposed? Primary Road, Cross Street, NE NW SE SW corner?

* Stop Location:

* Reason for requesting a new stop and any additional information that may be helpful in the evaluation of this request:

Please provide contact information.

Please enter your name:

* First Name:

Middle Initial:

* Last Name:

* Organization:

E-Mail:

Phone Number:

Street 1:

Street 2:

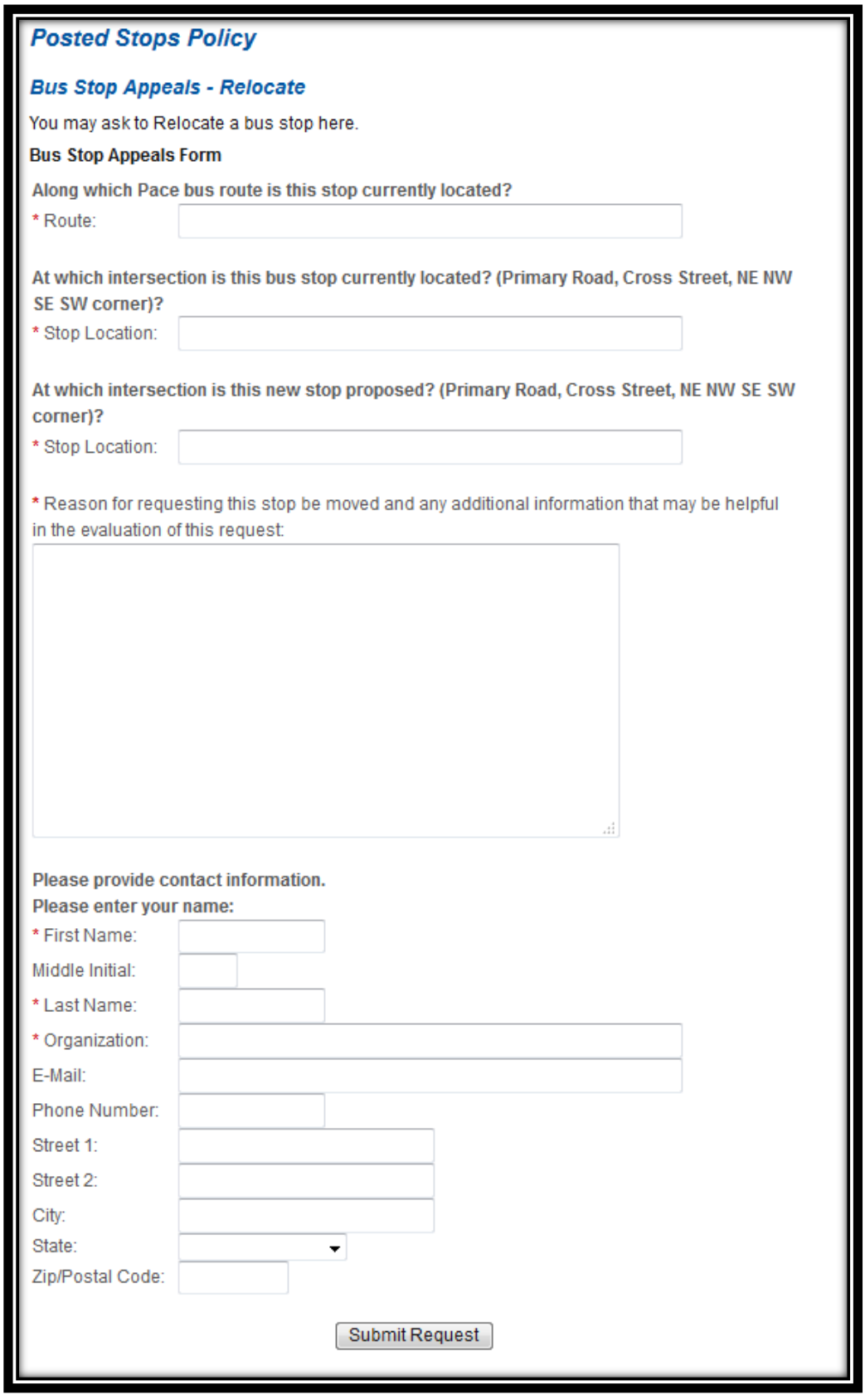
City:

State:

Zip/Postal Code:

Submit Request

Figure 67. Pace Bus Stop Relocation Form



Posted Stops Policy

Bus Stop Appeals - Relocate

You may ask to Relocate a bus stop here.

Bus Stop Appeals Form

Along which Pace bus route is this stop currently located?

* Route:

At which intersection is this bus stop currently located? (Primary Road, Cross Street, NE NW SE SW corner)?

* Stop Location:

At which intersection is this new stop proposed? (Primary Road, Cross Street, NE NW SE SW corner)?

* Stop Location:

* Reason for requesting this stop be moved and any additional information that may be helpful in the evaluation of this request:

Please provide contact information.

Please enter your name:

* First Name:
Middle Initial:
* Last Name:
* Organization:
E-Mail:
Phone Number:
Street 1:
Street 2:
City:
State:
Zip/Postal Code:

Submit Request

Infrastructure Improvements/ADA Transition Plan

Any bus stop that is added to the system must be made compliant with ADA. Moreover, there are many gaps in Janesville's sidewalk network that limit access to transit service. In cooperation with other City departments, it is advisable for improvements to streets and other parts of the built environment to be updated accordingly. A method of quantifying and prioritizing these improvements is through the development of a citywide ADA Transition Plan that is inclusive of JTS. Title II of ADA pertains to the programs, activities, and services that public agencies provide. Transportation falls under this category. An ADA transition plan inventories transportation facilities and infrastructure (i.e., bus stops, shelters, sidewalks, curb ramps, trails, signals, etc.), establishes local programs and procedures for coordinating accessibility improvements, and develops a plan for phased implementation. It also establishes policies and procedures for monitoring accessibility in the community.

Capital Investment

Much of the conversion to a signed stop system will begin with a simple replacement of signs. Based on examples from peer transit systems, a modern and reflective bus stop sign costs about $125-$350 per sign to produce. The higher the volume of the purchase, the more favorable pricing a transit system can get, so cooperative purchasing is encouraged.

More significant investment may be required for the construction of new bus stops. The following are elements of a properly developed bus stop:

- Bus stop signage
- Paved boarding area with link to sidewalk where possible
- Lighting
- Tactile identification for visually impaired individual or beacon

The new construction of a bus stop where necessary can range from about $3,000 to $5,000 (for those stops requiring improvements above and beyond signage), with more elaborate stops requiring utility improvements or heavier construction costing upwards of $10,000. Sidewalks and paving tend to be one of the costlier components of a new bus stop construction and the cost of a compliant sidewalk is about $90 per linear foot.

Summary

Conversion to a signed bus stop transit system will require a phased process that will coincide with citywide improvements to roadways, public spaces, and accessibility. Initially, gaps in bus stops must be filled and customer information must be updated and corrected. Subsequently, an outreach and education program must begin to involve transit users in the upcoming changes.

Near-Term Improvements

Prior to formally changing the JTS flag stop policy, infrastructure and systems should be developed for easy implementation. This means filling in bus stop gaps on fixed routes where it is necessary, and making sure that existing bus stops accurately reflect customer information. Moreover, JTS must update its training materials and internal policies to reflect the changes to the system.

Bus Operator Training

JTS training materials and programs must be updated so that bus operators are familiarized with the new system. This includes guidelines for safe and equitable boarding and alighting, customer service training specific to the change, and noting any procedures for safely approaching and serving certain types of bus stops (e.g., near side, far side, detour, parking lot, bus bays, etc.).

Outreach and Education

Flyers, travel training, public information meetings, pop-up sessions, and signage are all components of making sure that the small, but important, group of riders that regularly use the flag stop system are adequately trained and aware of the service. This can be carried out in partnership with local advocacy organizations and Rock County Mobility Managers. Further, a bus stop request process and accessibility grievance procedure should be adopted by the City of Janesville.

Standard Operating Procedures

JTS will need to update standard operating procedures for passenger boarding and alighting to reflect operational changes. In addition, the City of Janesville will need to develop policies and standards for bus stop placement and for their incorporation into roadway and other infrastructure projects conducted by the City, County, and State.

Bus Stop Alignment

This report noted six locations, without changes to routing, where bus stops may need to be placed and three where they may need to be removed. This will come at an initial cost of $18,000-$30,000 including labor, pavement, and materials. When route patterns are changed, other bus stops will need to be installed using a guideline of ¼-mile spacing. A simple "sign and pole" installation is typically less than $1,000 in cost for labor and materials; however, any new bus stop should be ADA compliant and that may have additional costs associated with it.

Long-Term Improvements

Sign Replacement

As the transit system is rebranded and its visual identity is updated, new bus stop signs should be purchased and installed at all stop locations.

Shelter Placement

Bus stops that routinely have over 20 daily boardings are candidates for shelters. As boarding and alighting data is collected and analyzed, shelter placement should be reviewed on an annual basis. Additionally, JTS can partner with housing developers, employers, retailers, and property managers to obtain funding for bus shelters.

Accessibility

A citywide review of bus stop infrastructure should be carried out as part of an ADA Transition Plan or other study of transit facilities. A bus stop only system is not as flexible in how/where people can enter and exit a vehicle; thus, signed stops should be accessible. Landings, shelters, and sidewalk routes should all be assessed as a part of this effort. ADA improvements are typically made as part of broader roadway projects and the City of Janesville can partner with State and County entities on implementation. Ad hoc accessibility improvements can also be completed in areas of critical need. By coordinating with local Capital Improvement Programs, JTS will be able to have a timeline for ADA compliance at bus stops.

Appendix A: Passenger Count Maps

The consultant team collected boarding and alighting data for all JTS regular routes, the BJE, and most school tripper routes to better understand bus stop- and route-level performance. The consultant team collected the following data based on observations made over the course of Tuesday, May 23 and Wednesday, May 24, and Tuesday, June 27, and Wednesday, June 28, 2017. As a relatively small sample, the data provide a snapshot of service consumed, highlighting patterns and areas for additional study. The data collected are not to be interpreted as a complete or statistically significant representative sample.

Maps of bus stop-level boarding and alighting counts by route are shown in Figure 68 through Figure 79.

Figure 68. Observed Daily Boardings by Stop: Milton Avenue

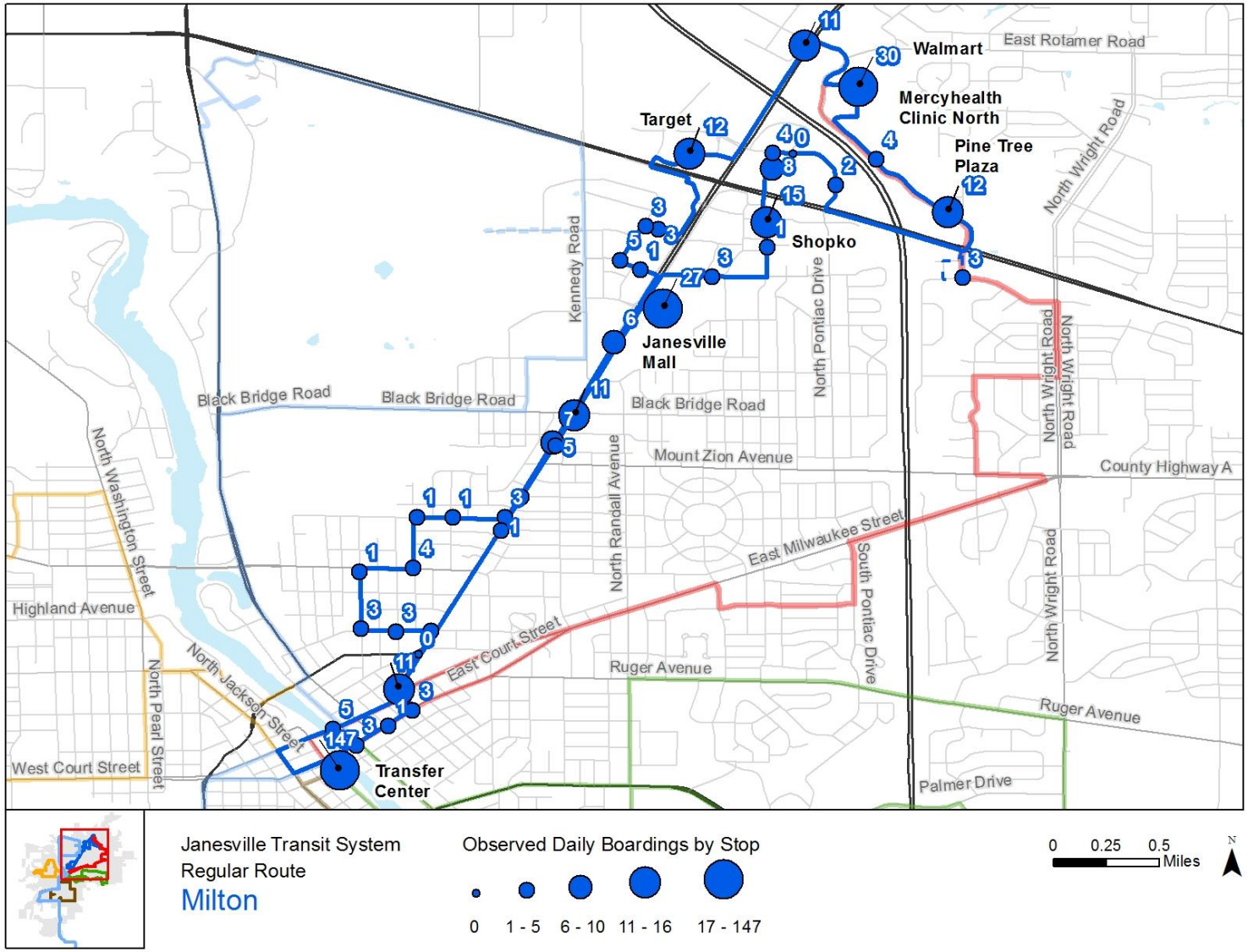


Figure 69. Observed Daily Alightings by Stop: Milton Avenue

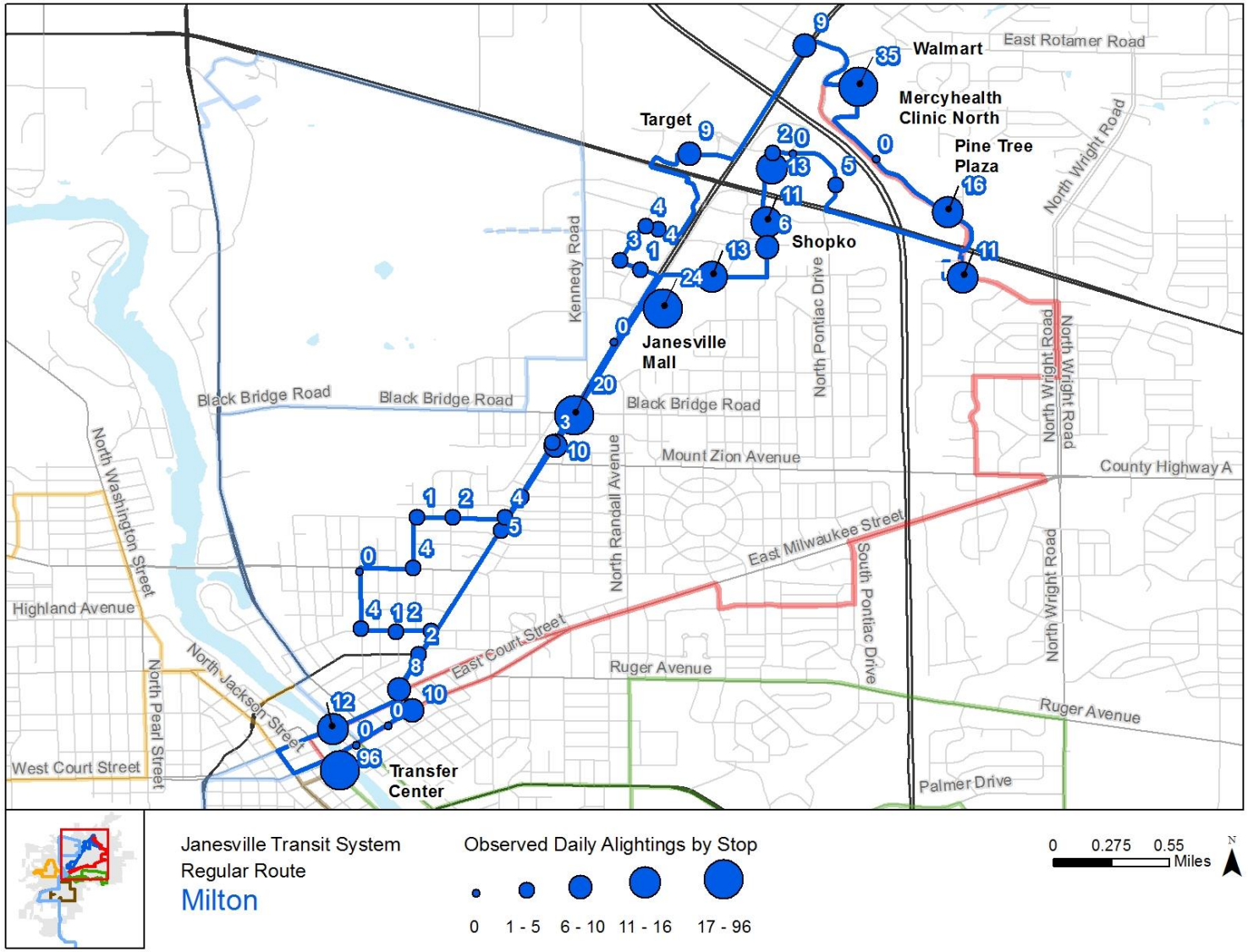


Figure 70. Observed Daily Boardings by Stop: Wright Road

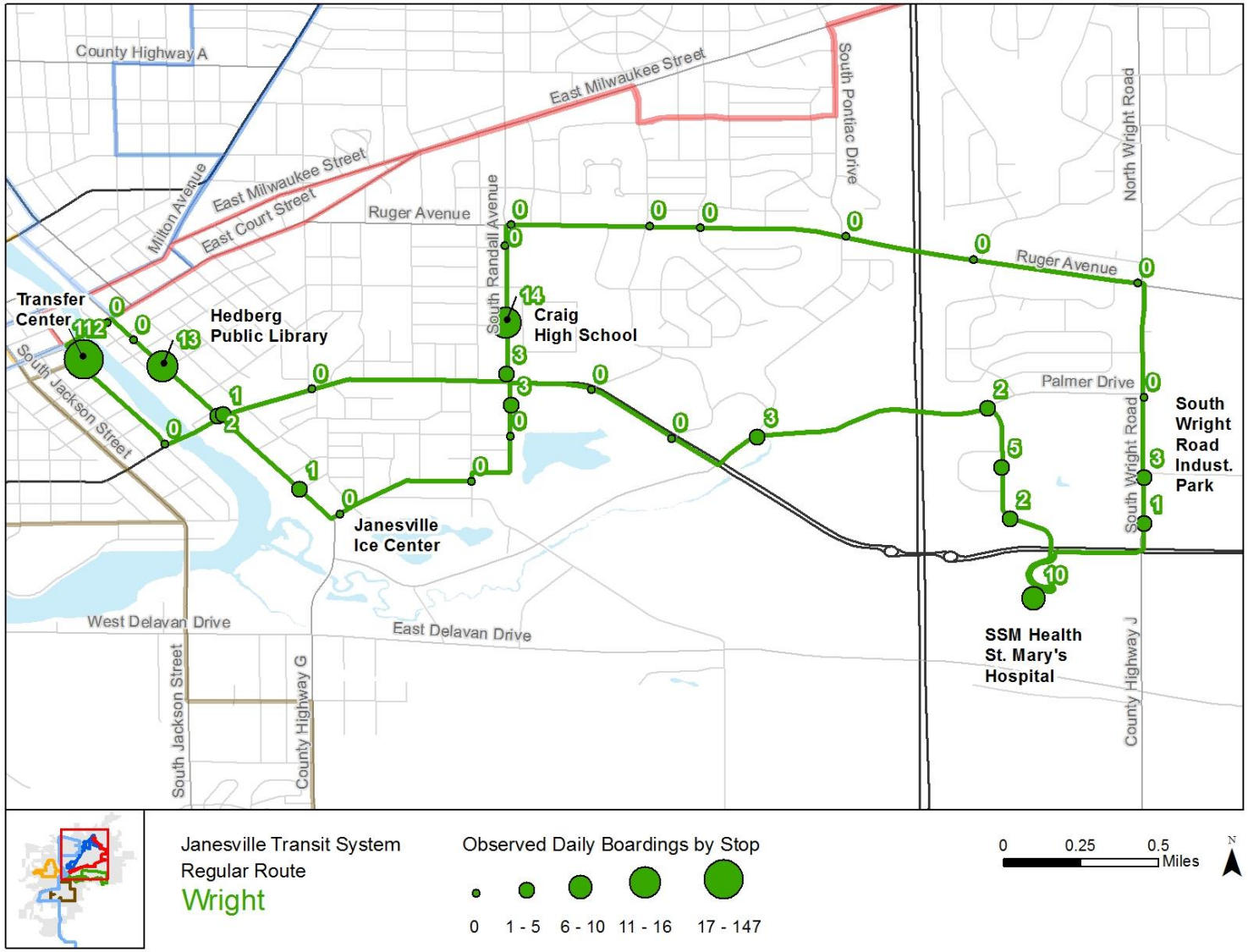


Figure 71. Observed Daily Alightings by Stop: Wright Road

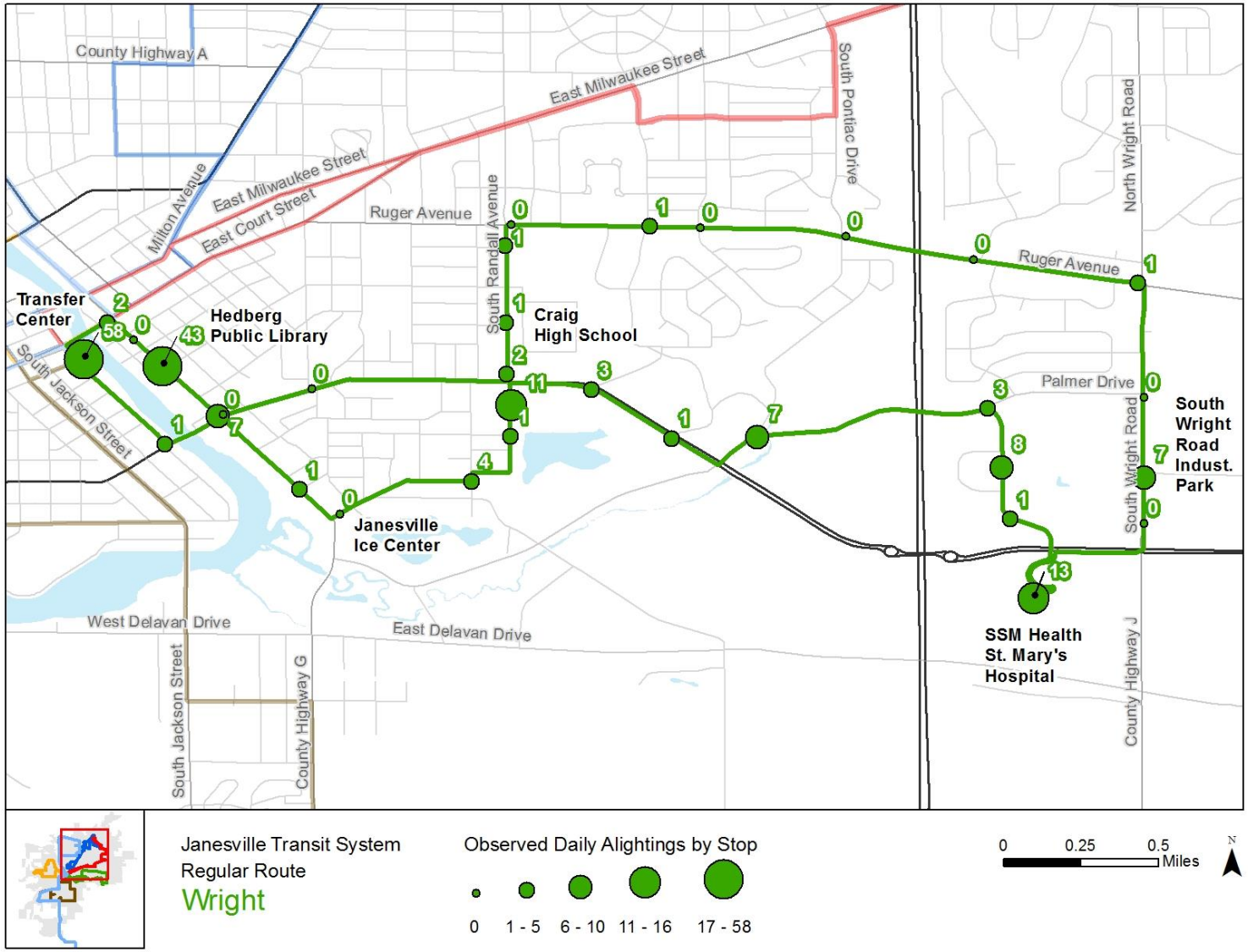


Figure 72. Observed Daily Boardings by Stop: East Milwaukee Street

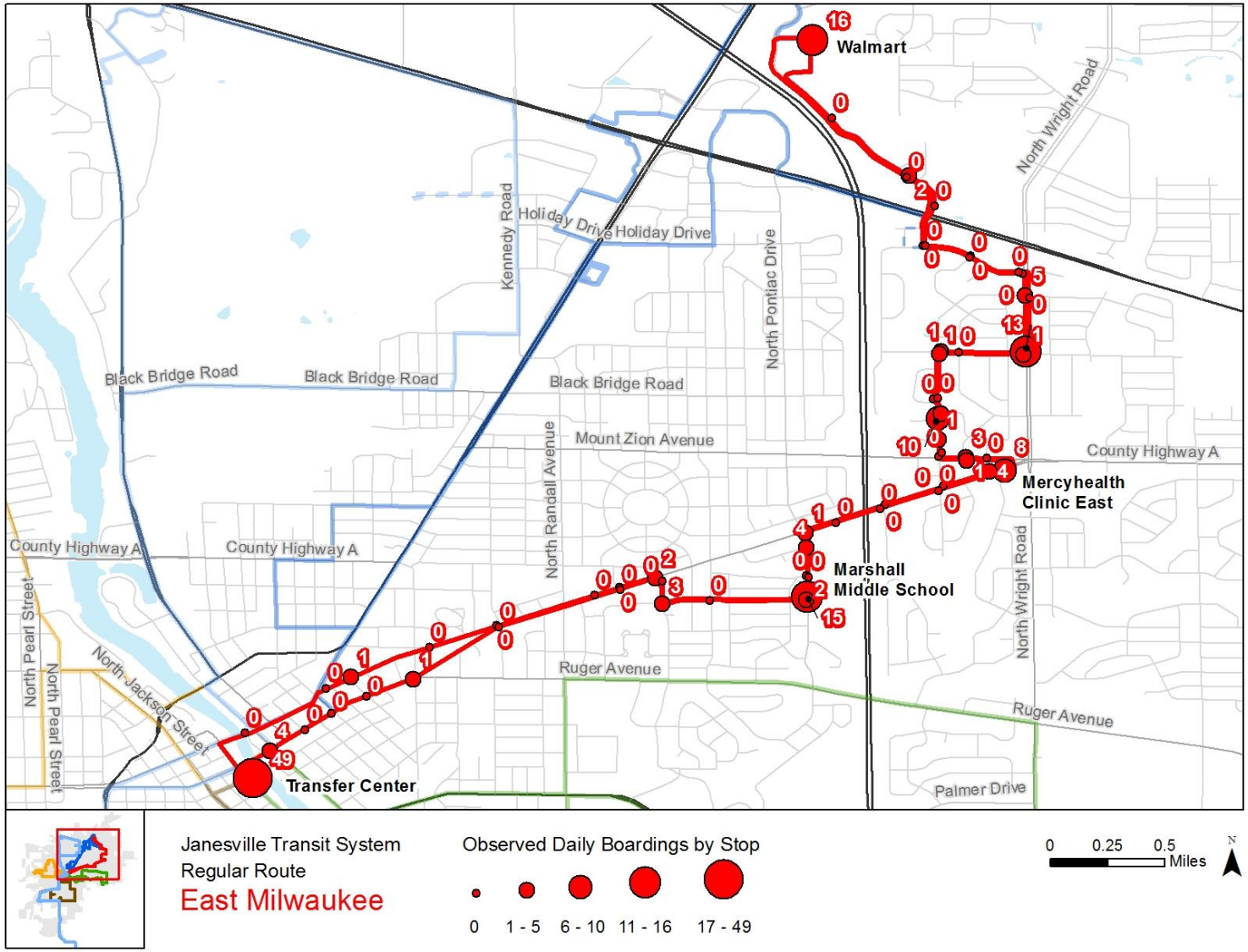


Figure 73. Observed Daily Alightings by Stop: East Milwaukee Street

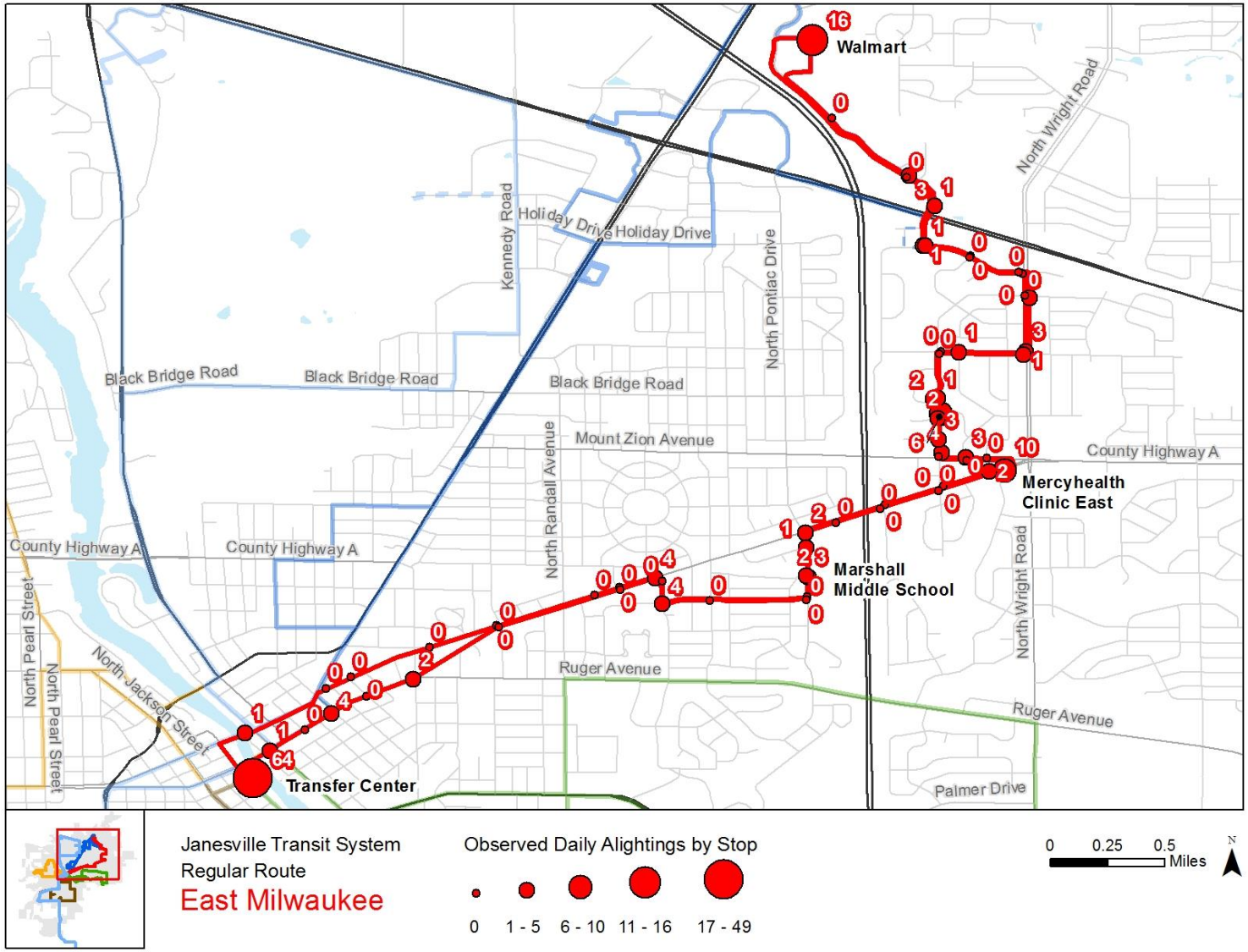


Figure 74. Observed Daily Boardings by Stop: Kellogg Avenue

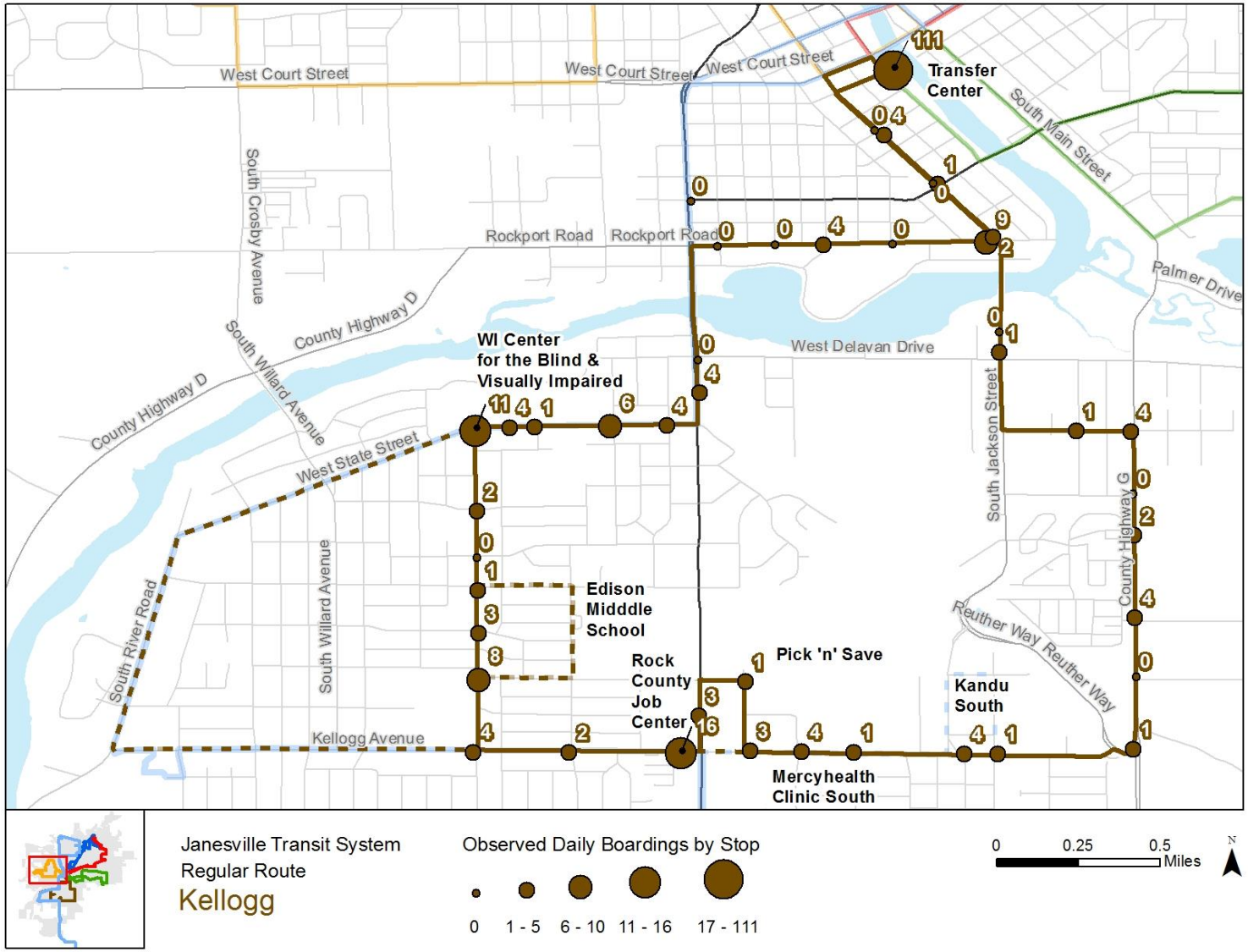


Figure 75. Observed Daily Alightings by Stop: Kellogg Avenue

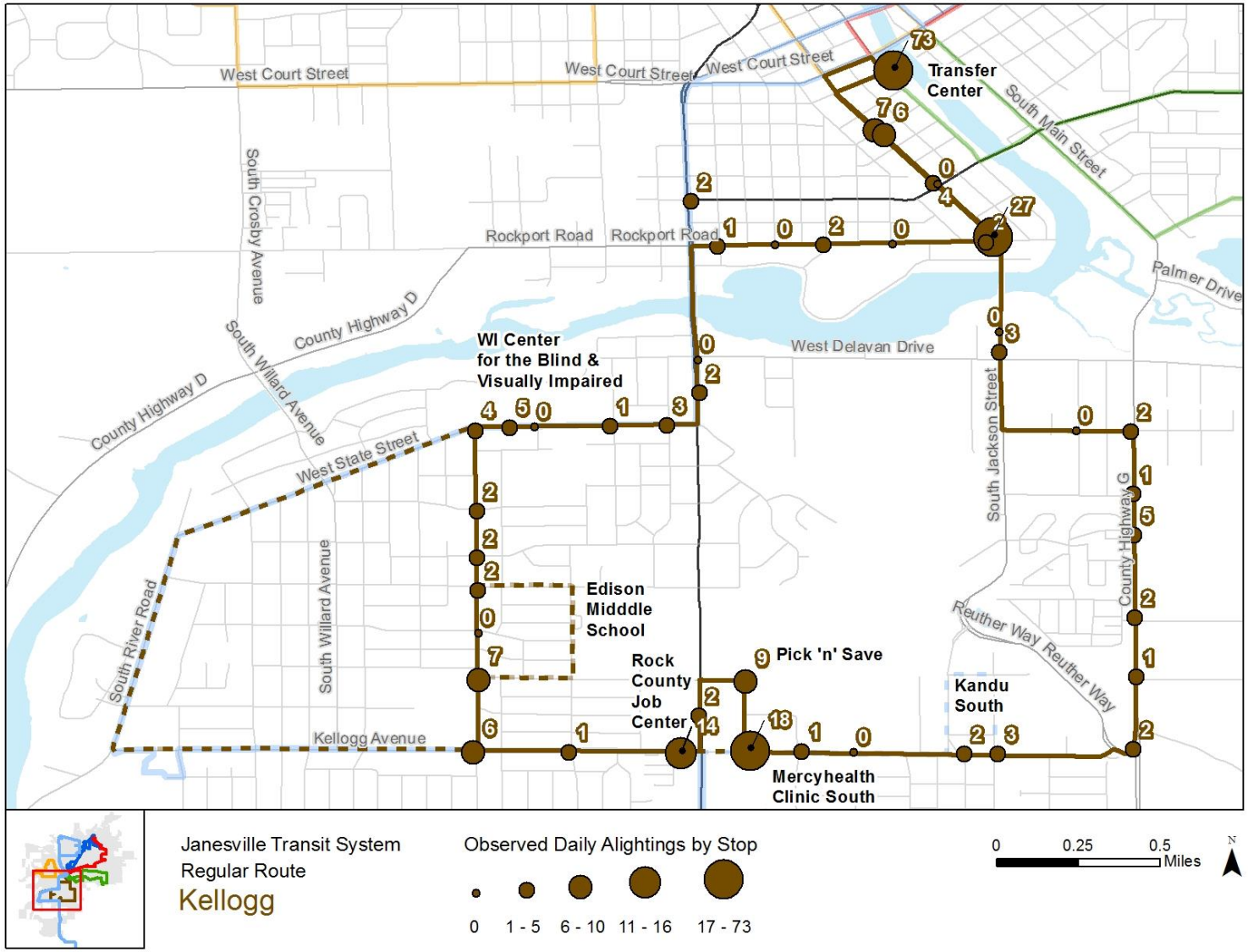


Figure 76. Observed Daily Boardings by Stop: West Court Street

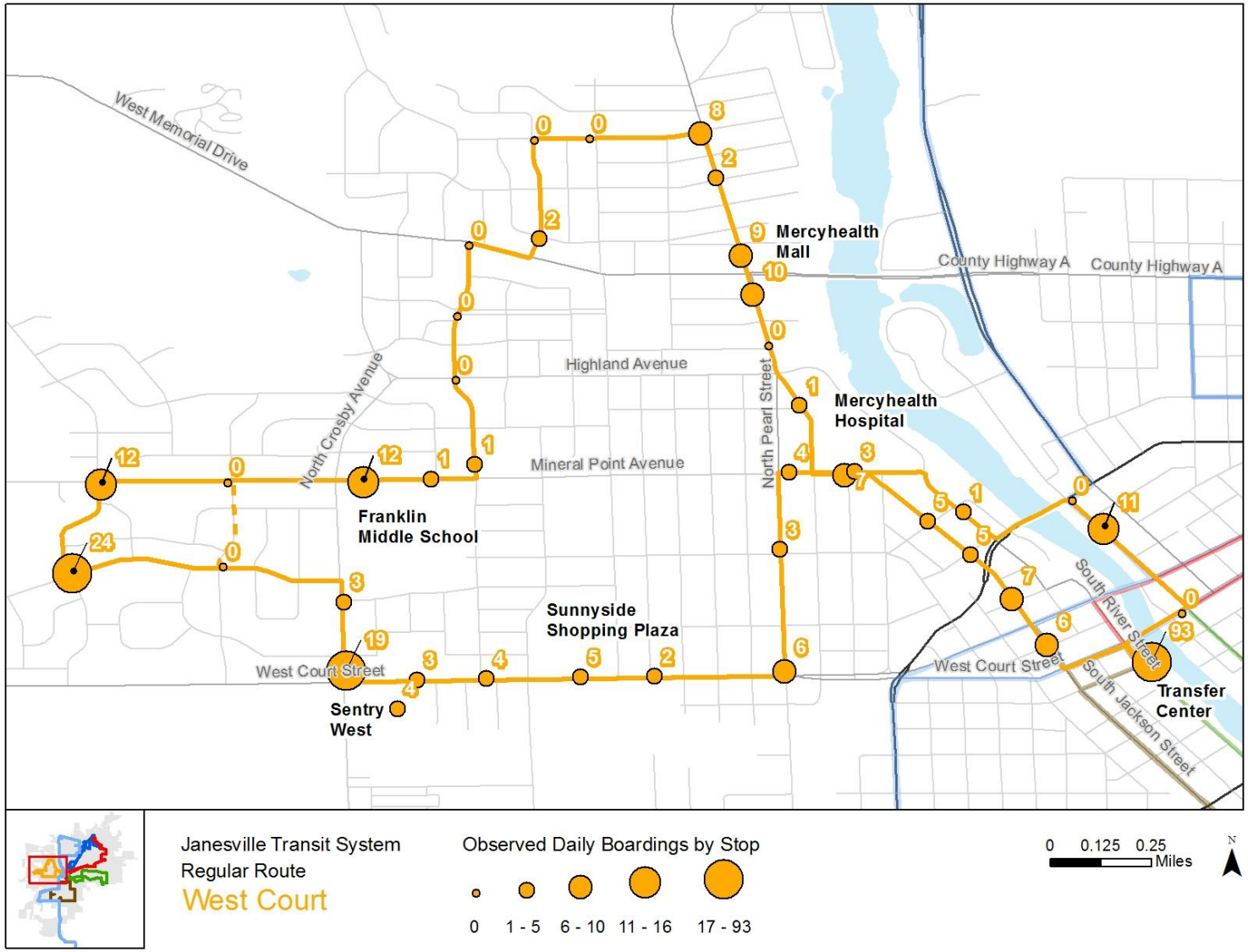


Figure 77. Observed Daily Alightings by Stop: West Court Street

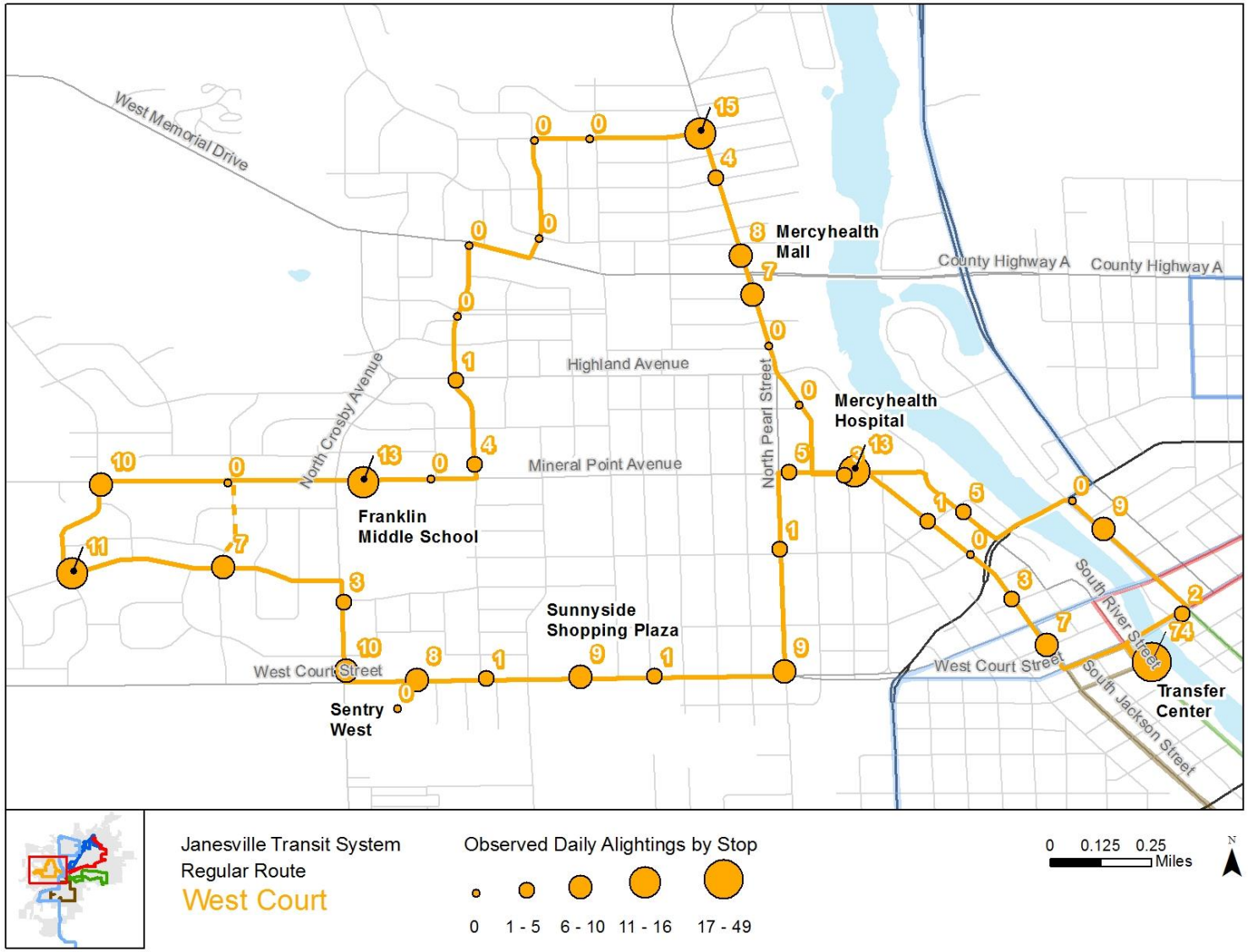


Figure 78. Observed Daily Boardings by Stop: Beloit-Janesville Express

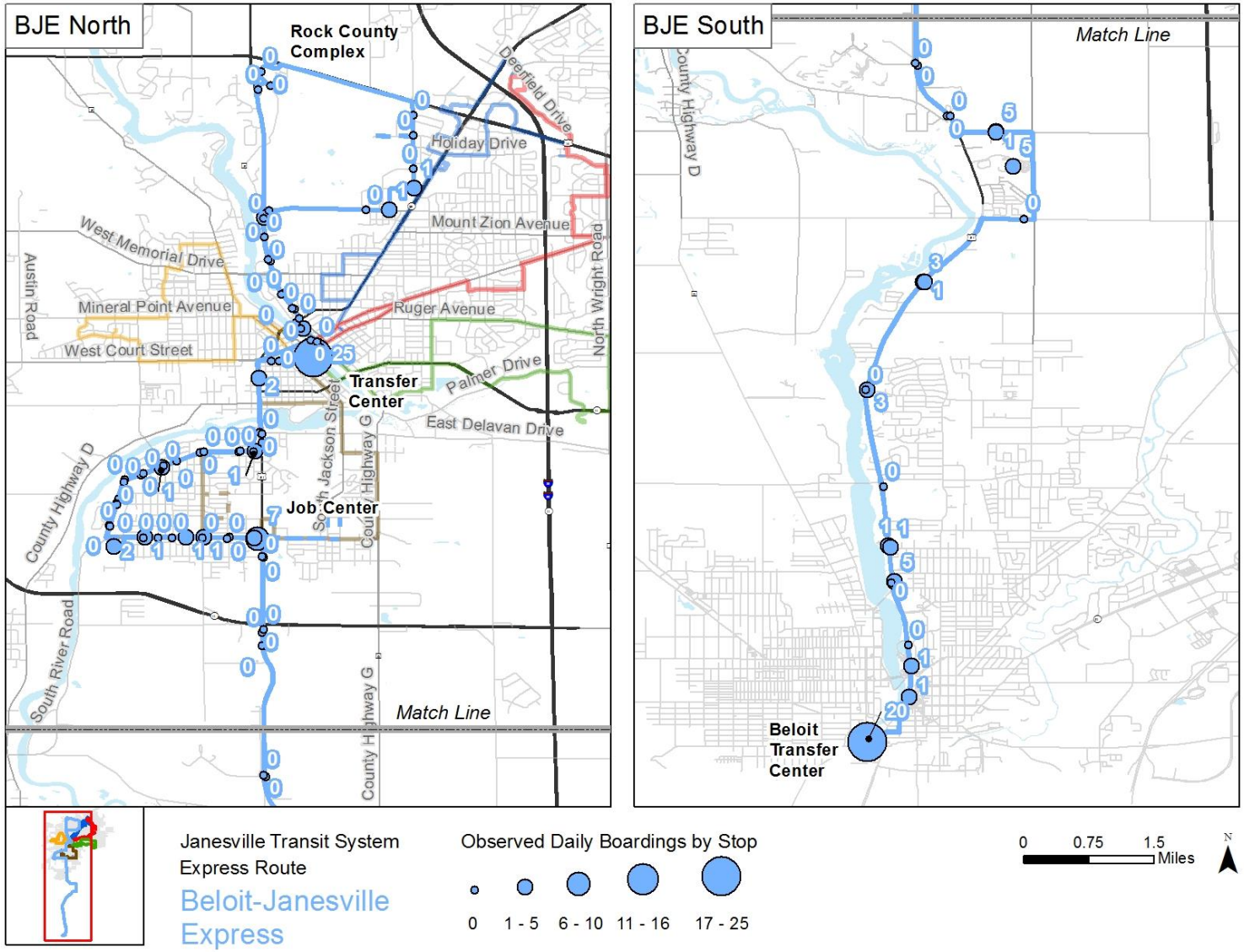
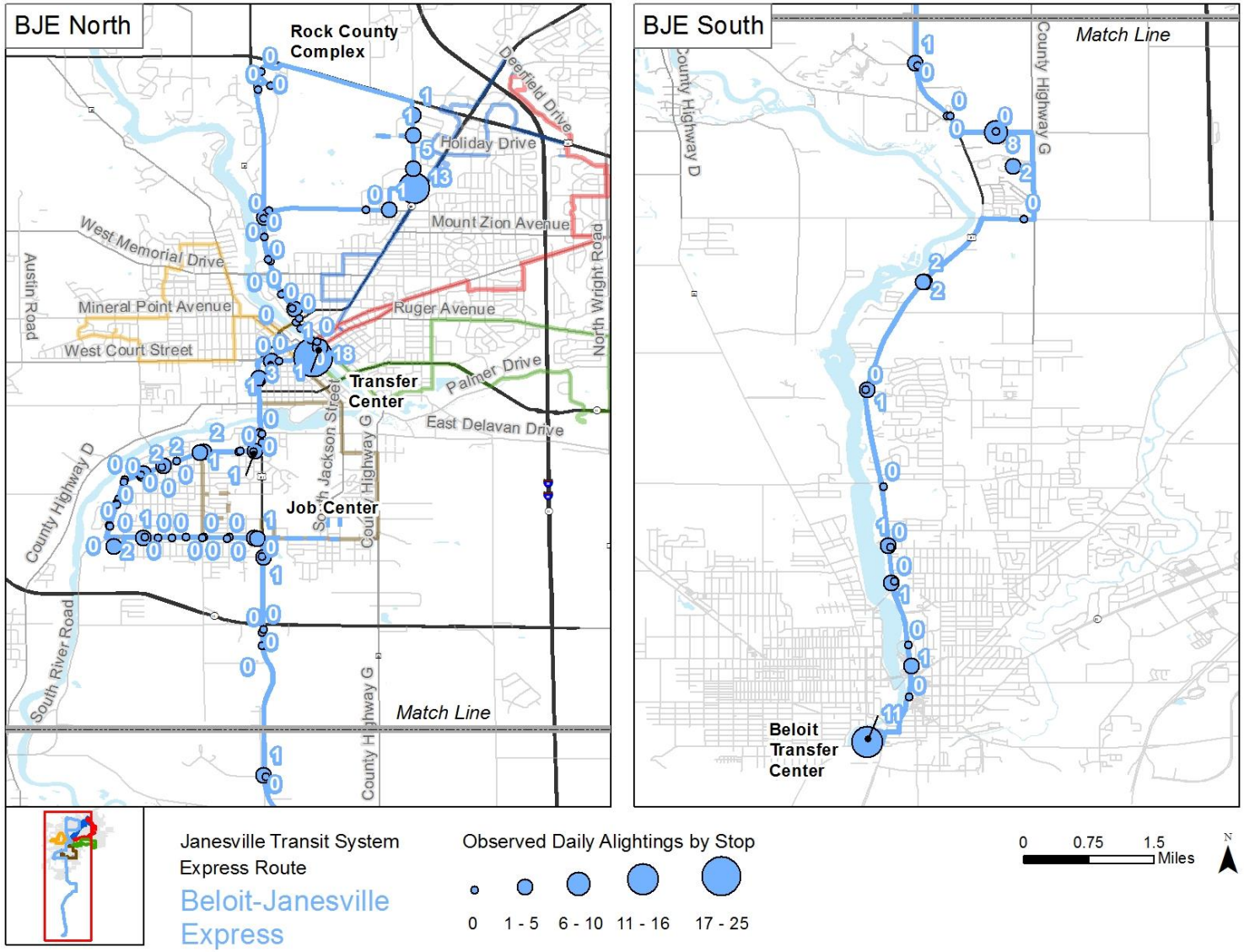
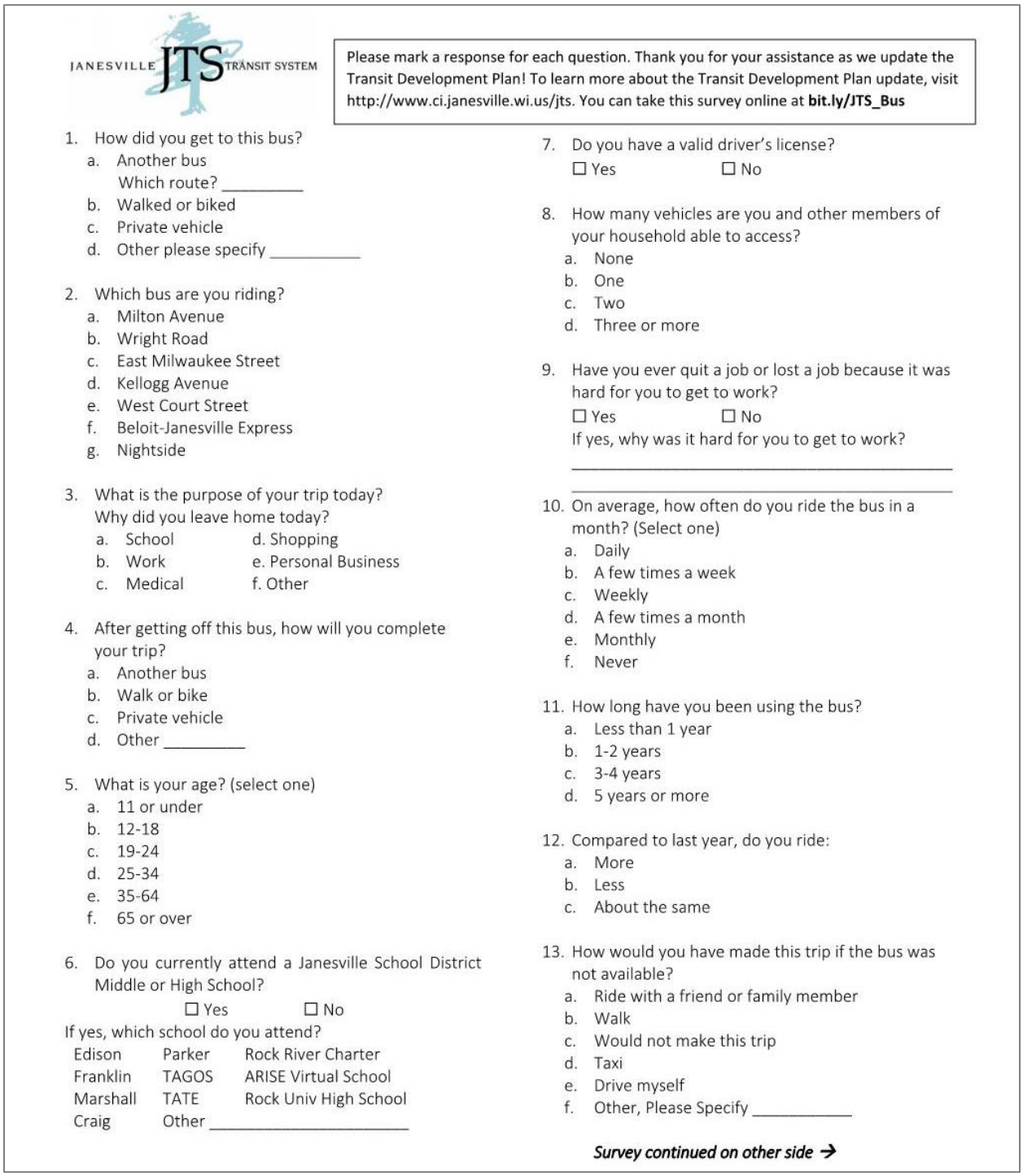


Figure 79. Observed Daily Alightings by Stop: Beloit-Janesville Express



Appendix B: On-Board Survey



JANESVILLE JTS TRANSIT SYSTEM

Please mark a response for each question. Thank you for your assistance as we update the Transit Development Plan! To learn more about the Transit Development Plan update, visit http://www.ci.janesville.wi.us/jts. You can take this survey online at **bit.ly/JTS_Bus**

1. How did you get to this bus?
   a. Another bus
      Which route? _____
   b. Walked or biked
   c. Private vehicle
   d. Other please specify _____

2. Which bus are you riding?
   a. Milton Avenue
   b. Wright Road
   c. East Milwaukee Street
   d. Kellogg Avenue
   e. West Court Street
   f. Beloit-Janesville Express
   g. Nightside

3. What is the purpose of your trip today?
   Why did you leave home today?
   a. School
   b. Work
   c. Medical
   d. Shopping
   e. Personal Business
   f. Other

4. After getting off this bus, how will you complete your trip?
   a. Another bus
   b. Walk or bike
   c. Private vehicle
   d. Other _____

5. What is your age? (select one)
   a. 11 or under
   b. 12-18
   c. 19-24
   d. 25-34
   e. 35-64
   f. 65 or over

6. Do you currently attend a Janesville School District Middle or High School?
   ☐ Yes ☐ No
   If yes, which school do you attend?
   Edison, Franklin, Marshall, Craig, Parker, TAGOS, TATE, Other _____, Rock River Charter, ARISE Virtual School, Rock Univ High School

7. Do you have a valid driver's license?
   ☐ Yes ☐ No

8. How many vehicles are you and other members of your household able to access?
   a. None
   b. One
   c. Two
   d. Three or more

9. Have you ever quit a job or lost a job because it was hard for you to get to work?
   ☐ Yes ☐ No
   If yes, why was it hard for you to get to work?
   _____
   _____

10. On average, how often do you ride the bus in a month? (Select one)
    a. Daily
    b. A few times a week
    c. Weekly
    d. A few times a month
    e. Monthly
    f. Never

11. How long have you been using the bus?
    a. Less than 1 year
    b. 1-2 years
    c. 3-4 years
    d. 5 years or more

12. Compared to last year, do you ride:
    a. More
    b. Less
    c. About the same

13. How would you have made this trip if the bus was not available?
    a. Ride with a friend or family member
    b. Walk
    c. Would not make this trip
    d. Taxi
    e. Drive myself
    f. Other, Please Specify _____

Survey continued on other side →

Answer the following questions on the Janesville Transit System

		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
14	Runs on time	☐	☐	☐	☐	☐
15	Is available when I want it	☐	☐	☐	☐	☐
16	Charges reasonable fares	☐	☐	☐	☐	☐
17	Has an easy-to-understand fare structure	☐	☐	☐	☐	☐
18	Purchasing my fare is easy and convenient	☐	☐	☐	☐	☐
19	Gets me to my destination in a reasonable amount of time	☐	☐	☐	☐	☐
20	Drops me off close to my destination	☐	☐	☐	☐	☐
21	Transfers are easy to make	☐	☐	☐	☐	☐
22	Drivers operate at safe speeds	☐	☐	☐	☐	☐
23	Drivers are courteous and helpful	☐	☐	☐	☐	☐
24	Busses are clean and well maintained	☐	☐	☐	☐	☐
25	The route maps and schedules are easy to understand	☐	☐	☐	☐	☐

26. Overall, how well does JTS meet your needs?
    a. Very Well
    b. Well
    c. Neither well nor poorly
    d. Poorly
    e. Very Poorly

27. What one improvement do you most want to see JTS make?
    a. Buses that operate on time
    b. Better transfer connections
    c. Route maps and schedules that are easier to understand
    d. Designated bus stops
    e. Later hours on Saturdays
    f. Earlier hours on Saturdays
    g. Sunday service
    h. Earlier hours on weekdays
    i. Beloit-Janesville Express service on Saturdays
    j. Later hours for Beloit-Janesville Express
    k. Service to unserved areas, please specify _____

28. Would this improvement cause you to ride the bus more often?
    ☐ Yes ☐ No

29. If it becomes necessary for the city to reduce bus service, which choice would you most recommend we consider?
    a. Eliminate Saturday service
    b. Eliminate the least productive routes
    c. Eliminate special routes for students
    d. Eliminate evening bus service
    e. Less frequent service on Saturdays and mid-day on weekdays
    f. Maintain existing service with substantial fare increase ($.50 or more per ride)
    g. Other please specify _____

30. What else could be done to improve JTS bus service?
    _____
    _____

OPTIONAL QUESTIONS:

31. What is your gender?
    ☐ Female ☐ Male Prefer to self-identify _____

32. What is your race and/or ethnicity?
    Please select all that apply.
    a. American Indian or Alaska Native
    b. Asian
    c. Black or African American
    d. Hispanic or Latino/a/x
    e. Native Hawaiian or Pacific Islander
    f. White
    g. Prefer to self-identify _____

33. What was your household income before taxes during the last 12 months? (Select one)
    a. Under $10,000
    b. $10,000-19,999
    c. 20,000-$34,999
    d. $35,000-$50,000
    e. Over $50,000

Figure 80. On-Board Survey Q1: "How did you get to this bus?" (n=364)

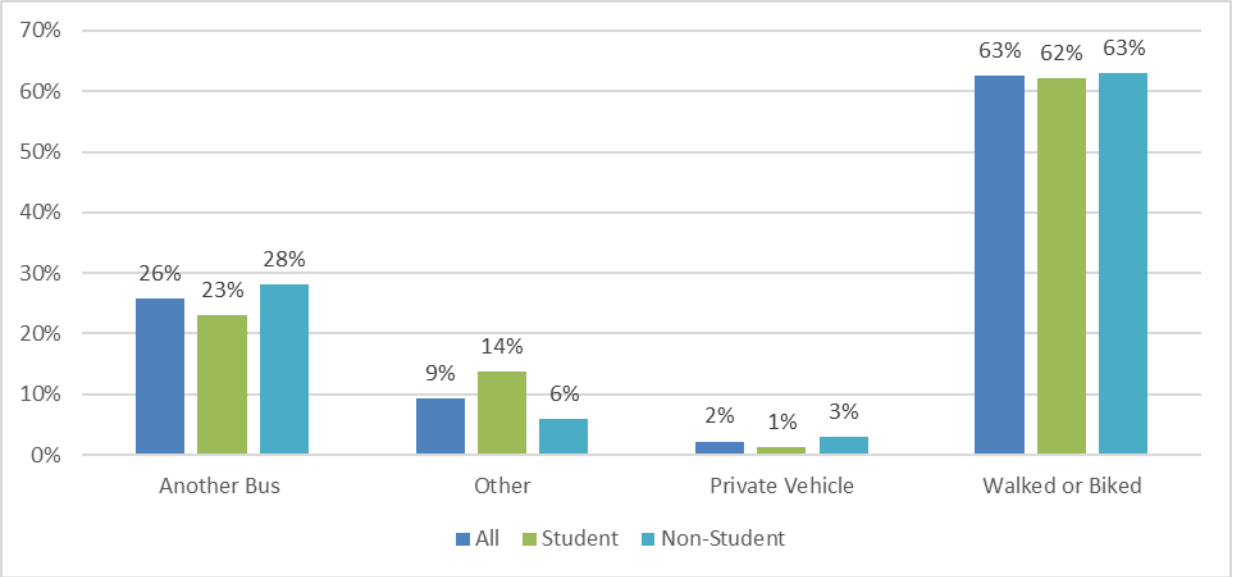


Figure 81. On-Board Survey Q2: "Which bus are you riding?" (n=364)

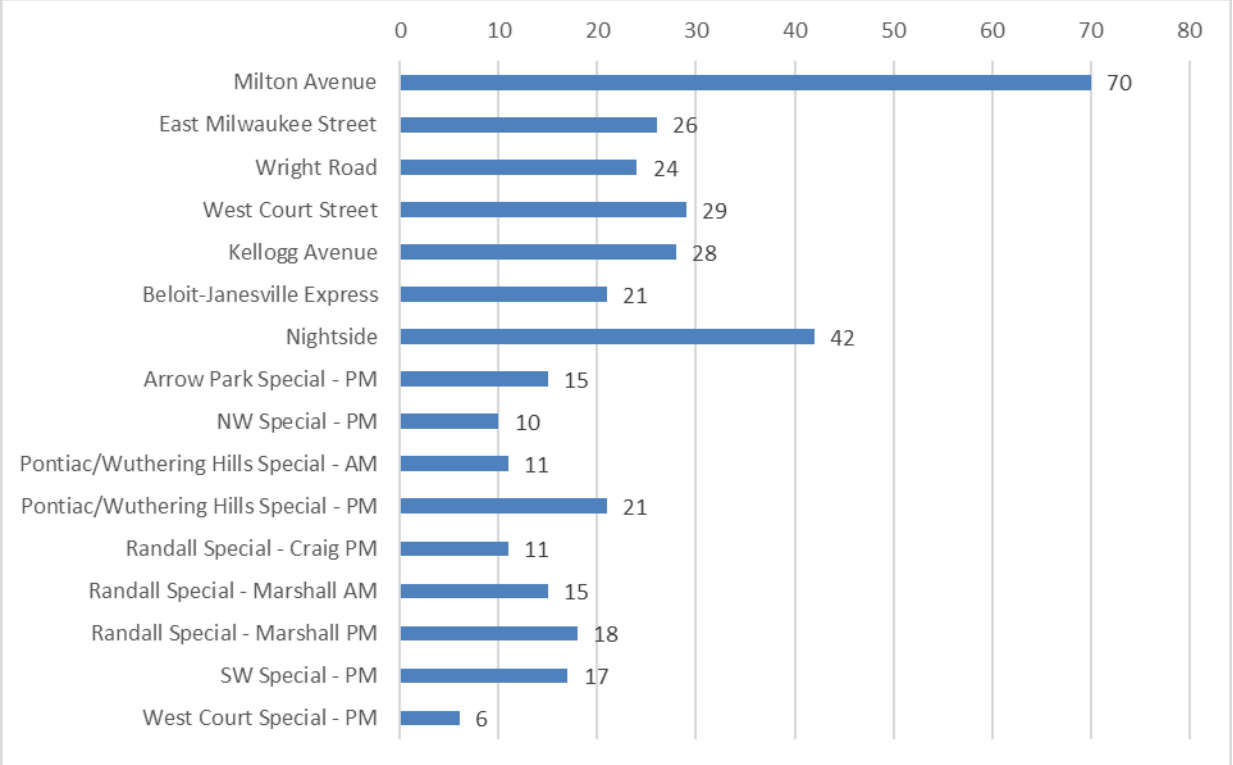


Figure 82. On-Board Survey Q3: "What is the purpose of your trip today?" (n=364)

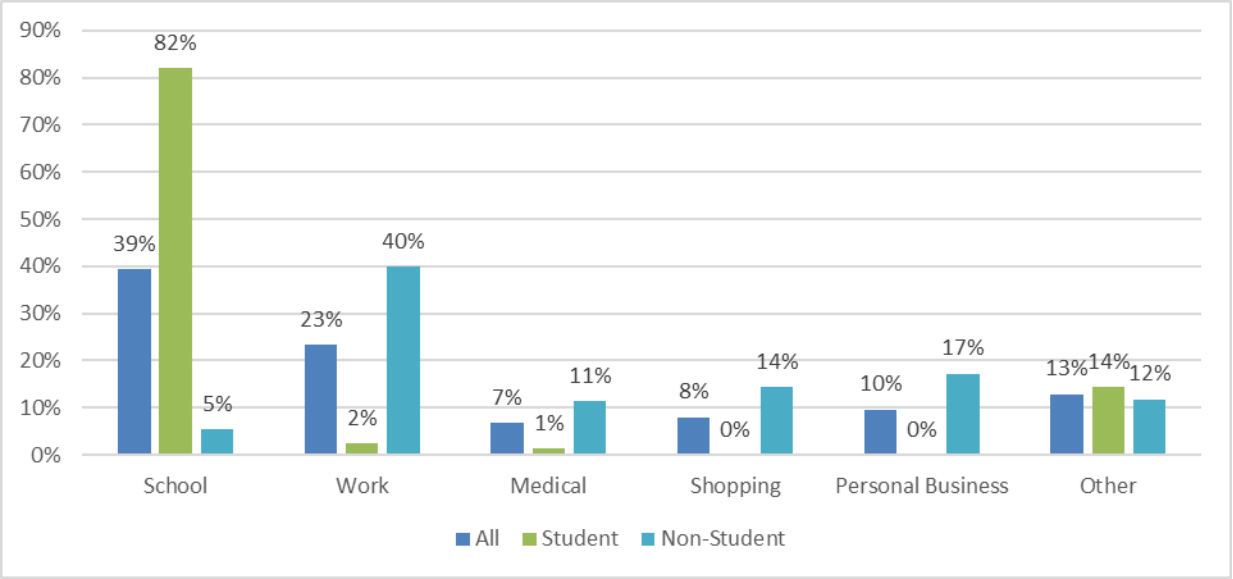


Figure 83. On-Board Survey Q4: "After getting off this bus, how will you complete your trip?" (n=364)

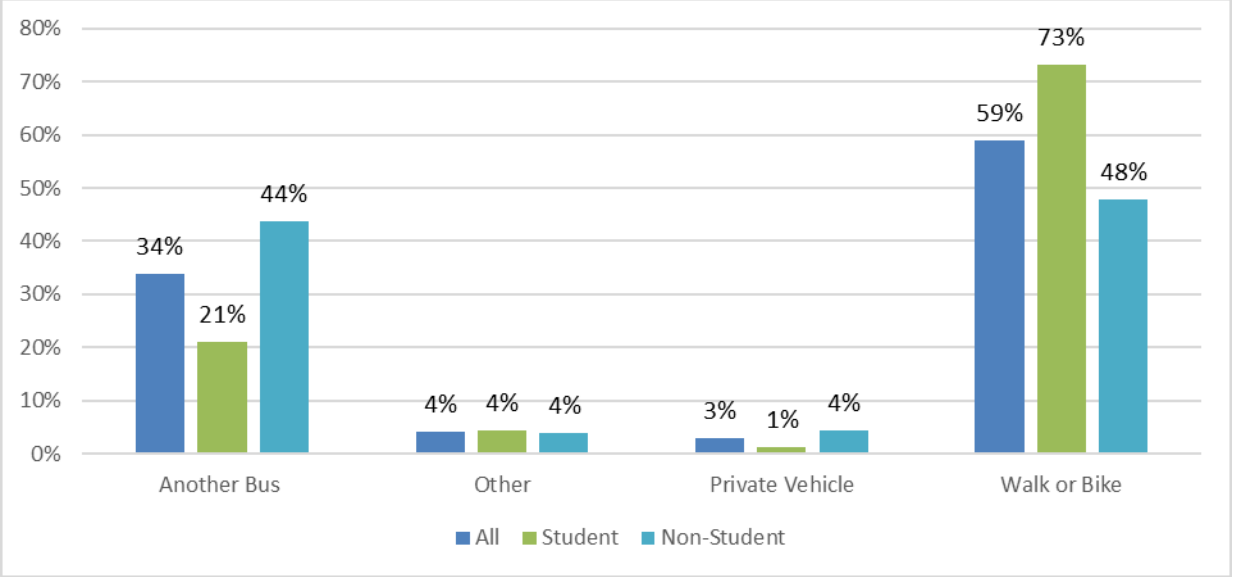


Figure 84. On-Board Survey Q5: "What is your age?" (n=362)

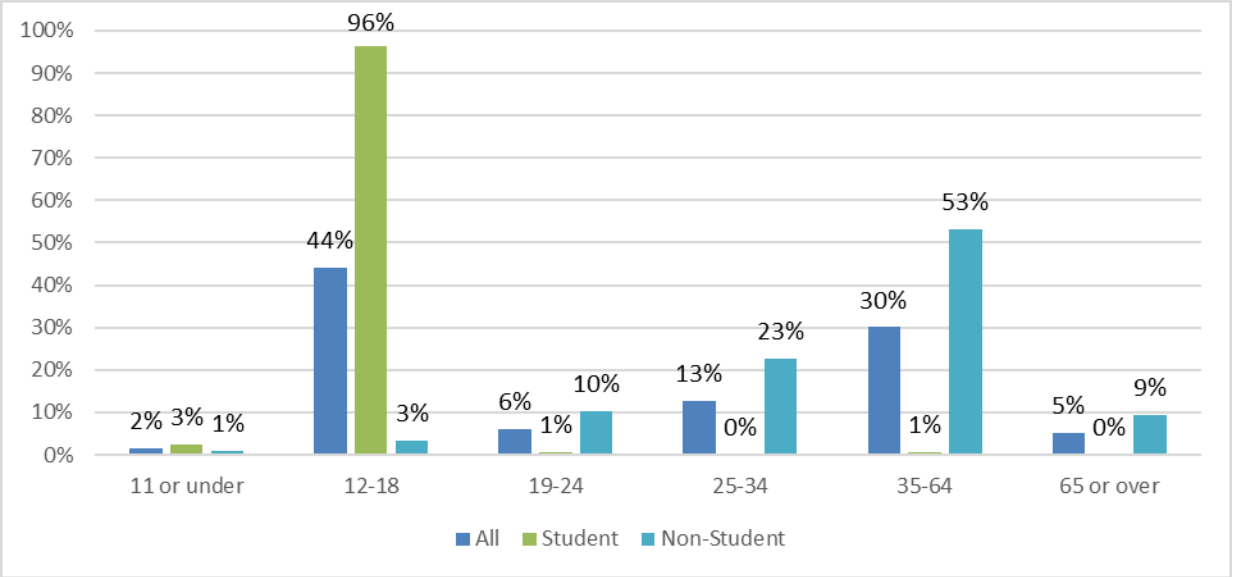


Figure 85. On-Board Survey Q6a: "Do you currently attend a Janesville School District Middle or High School?" (n=364)

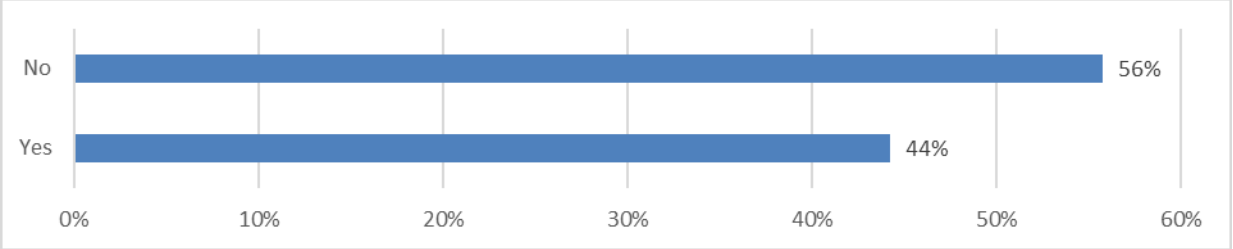


Figure 86. On-Board Survey Q6b: "If yes, which school do you attend?" (n=159)

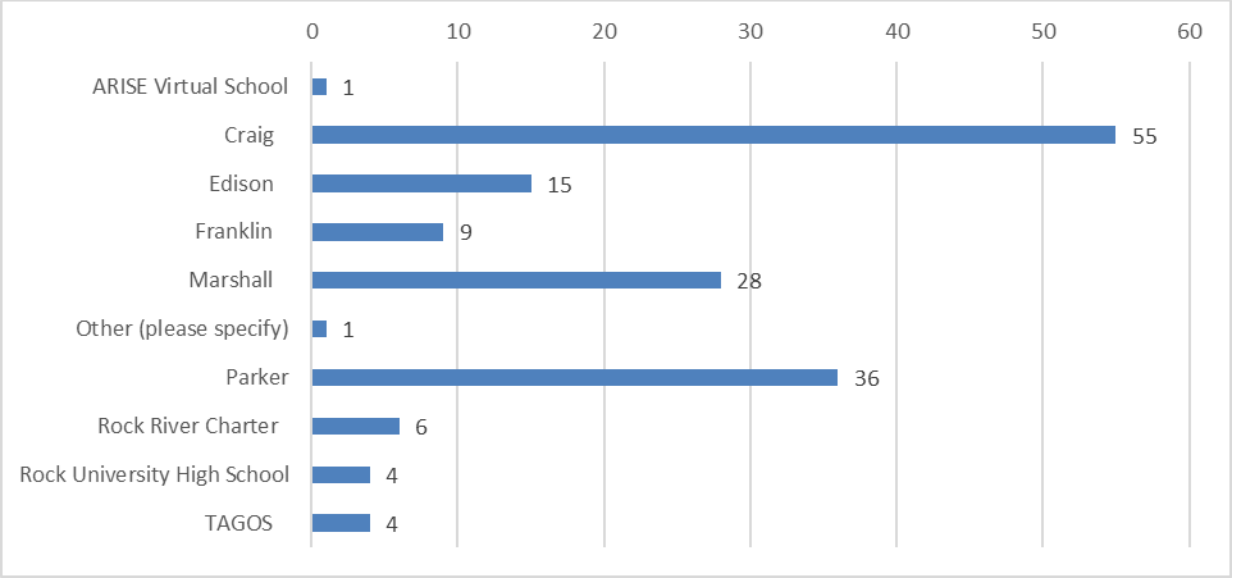


Figure 87. On-Board Survey Q7: "Do you have a valid driver's license?" (n=363)

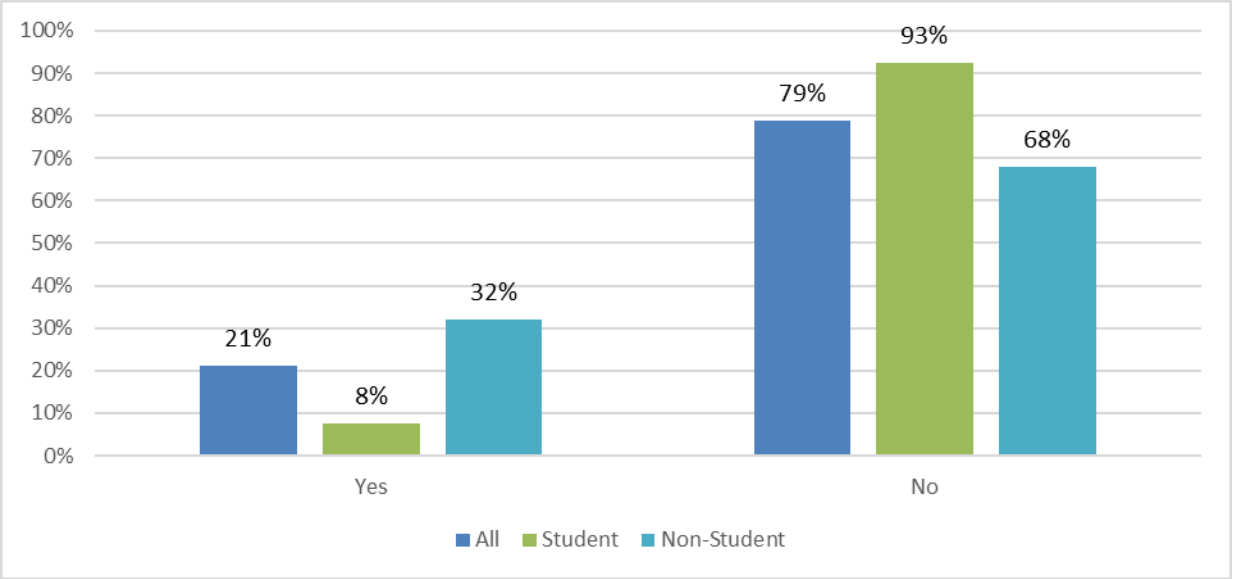


Figure 88. On-Board Survey Q8: "How many vehicles are you and other members of your household able to access?" (n=320)

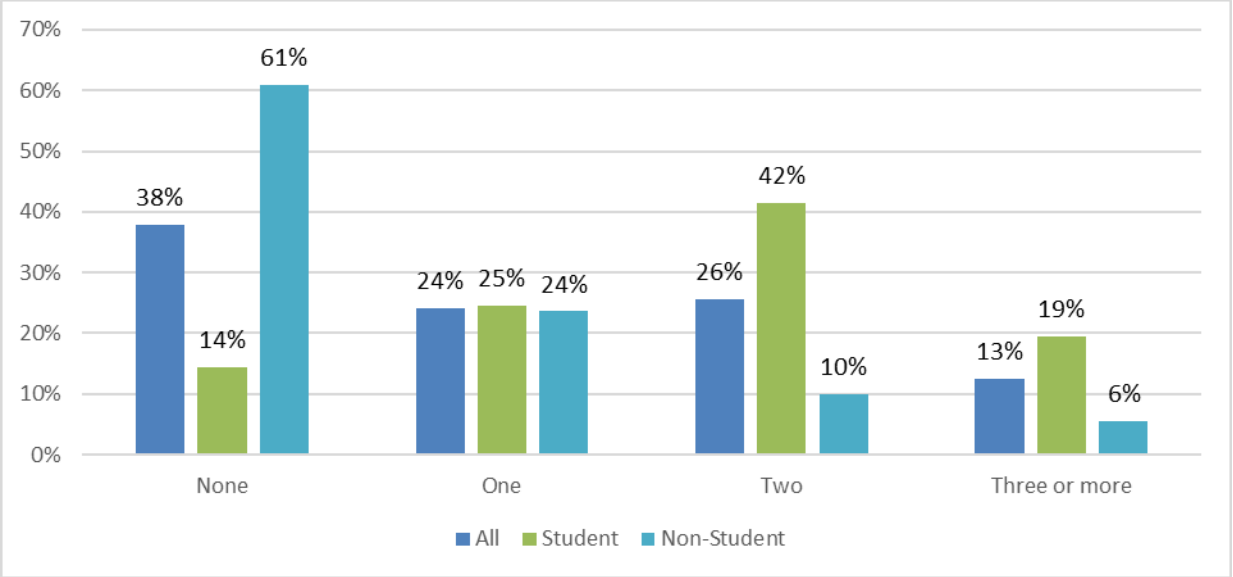
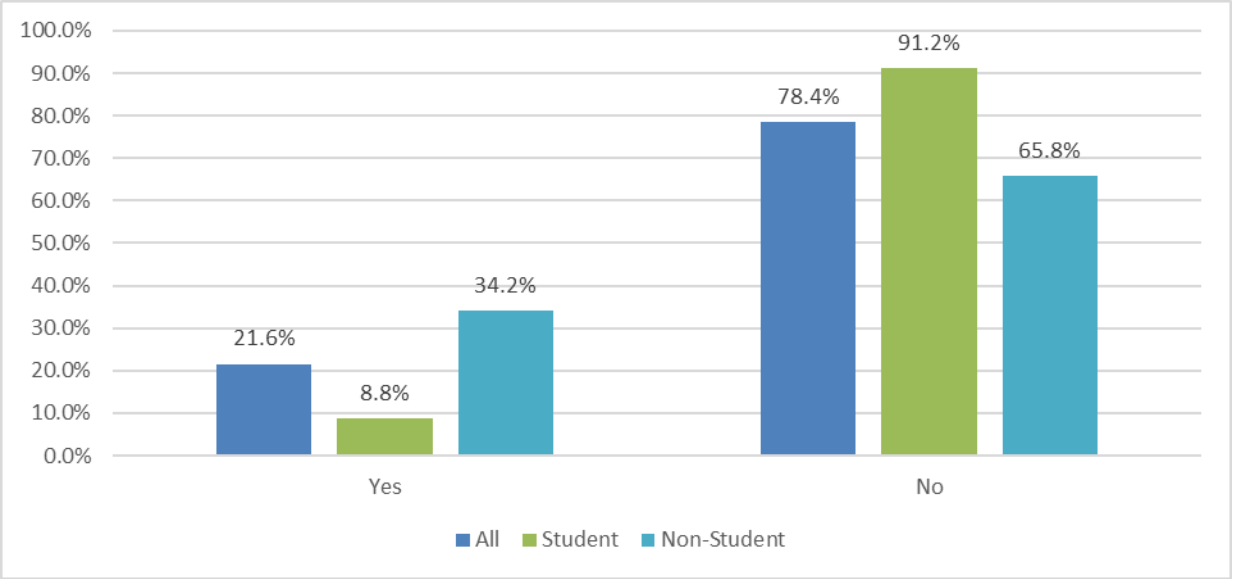


Figure 89. On-Board Survey Q9a: "Have you ever quit a job or lost a job because it was hard for you to get to work?" (n=320)



On-Board Survey Q9b: "If yes, why was it hard for you to get to work?" (n=49)

The most common responses (summarized) included:

- Bus schedule did not correspond well to my work schedule (n=17)
- Buses did not run late enough (n=9)
- Job located outside JTS service area (n=9)

Figure 90. On-Board Survey Q10: "On average, how often do you ride the bus in a month?" (n=358)

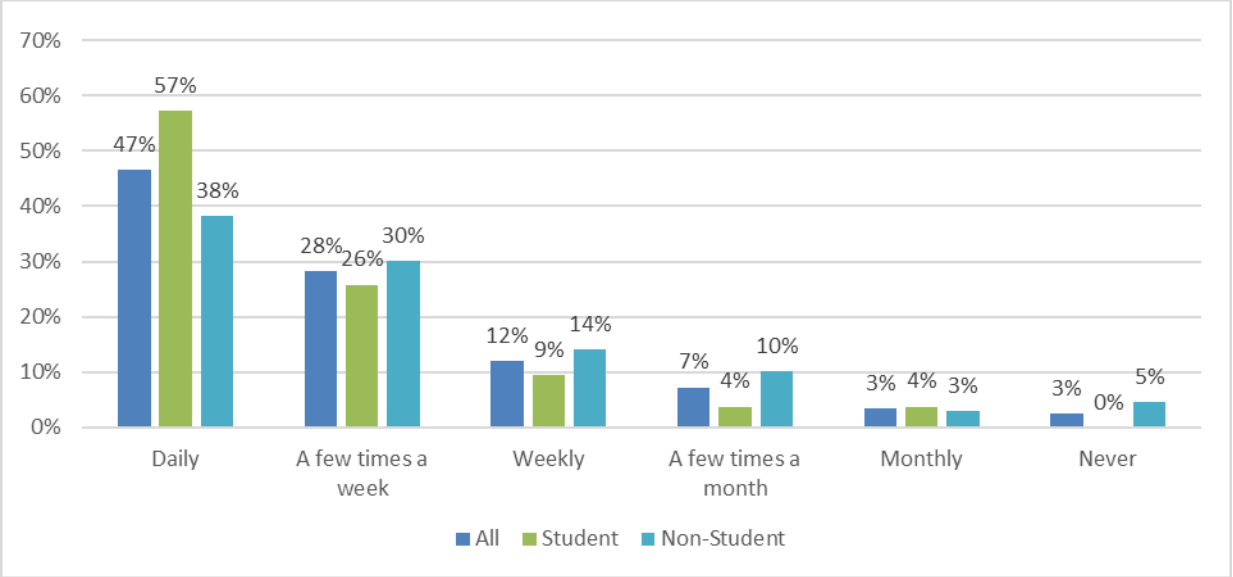


Figure 91. On-Board Survey Q11: "How long have you been using the bus?" (n=356)

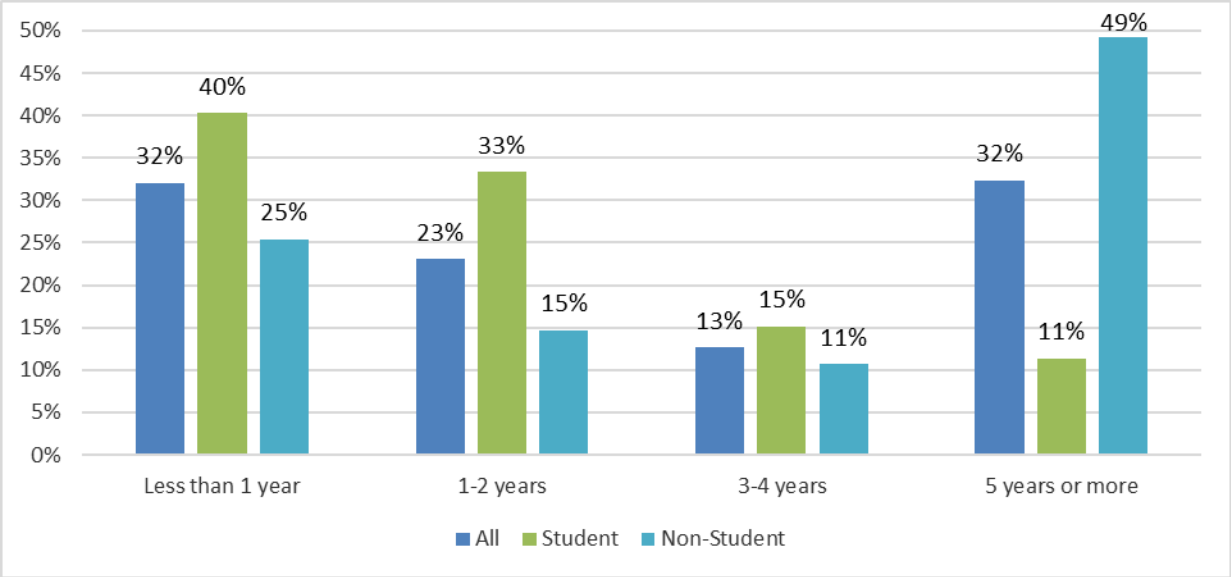


Figure 92. On-Board Survey Q12: "Compared to last year, do you ride more often, less often, or about the same amount?" (n=352)

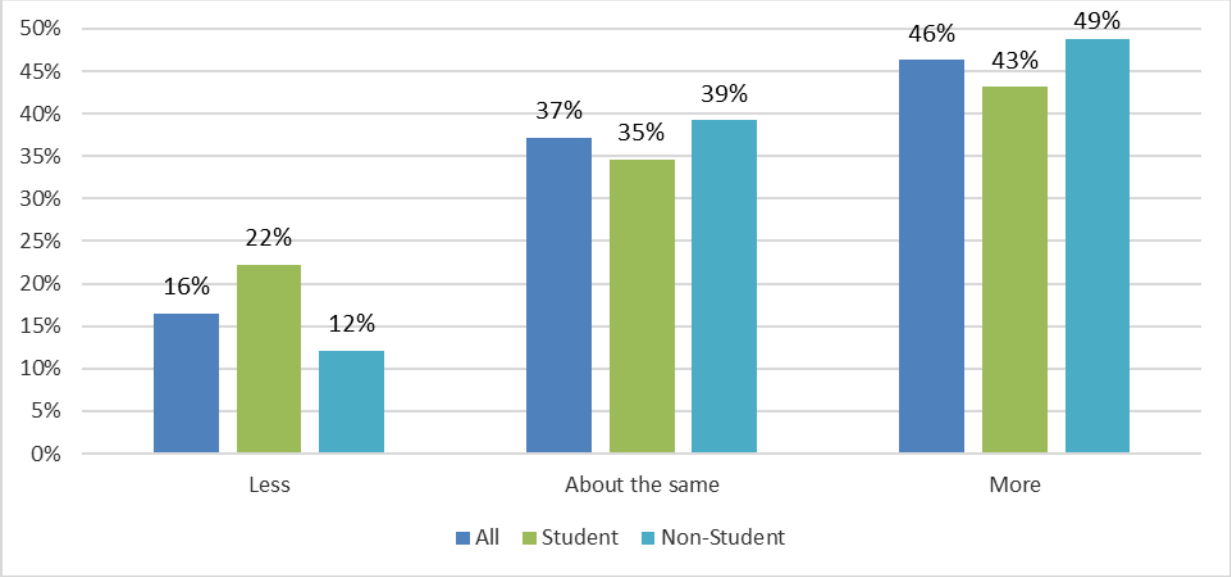


Figure 93. On-Board Survey Q13: "How would you have made this trip if the bus was not available?" (n=332-342)

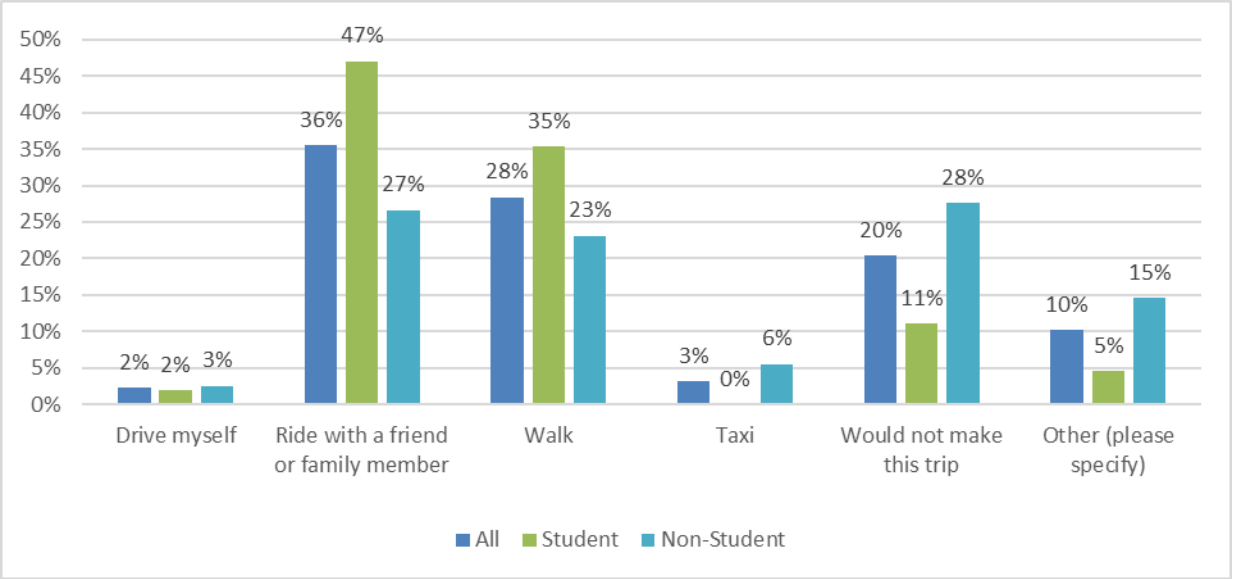


Figure 94. On-Board Survey Q14-25: "Answer the following questions on the Janesville Transit System:" (n=352)

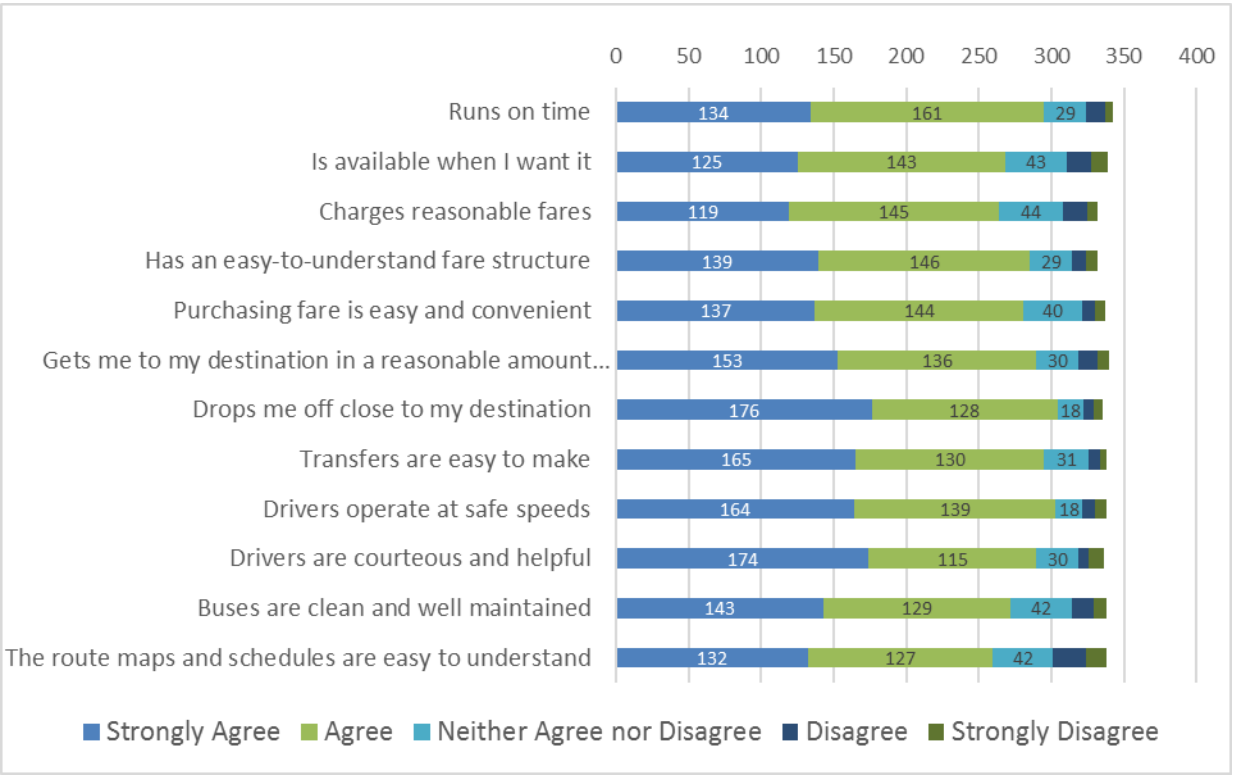


Figure 95. On-Board Survey Q26: "Overall, how well does JTS meet your needs?" (n=344)

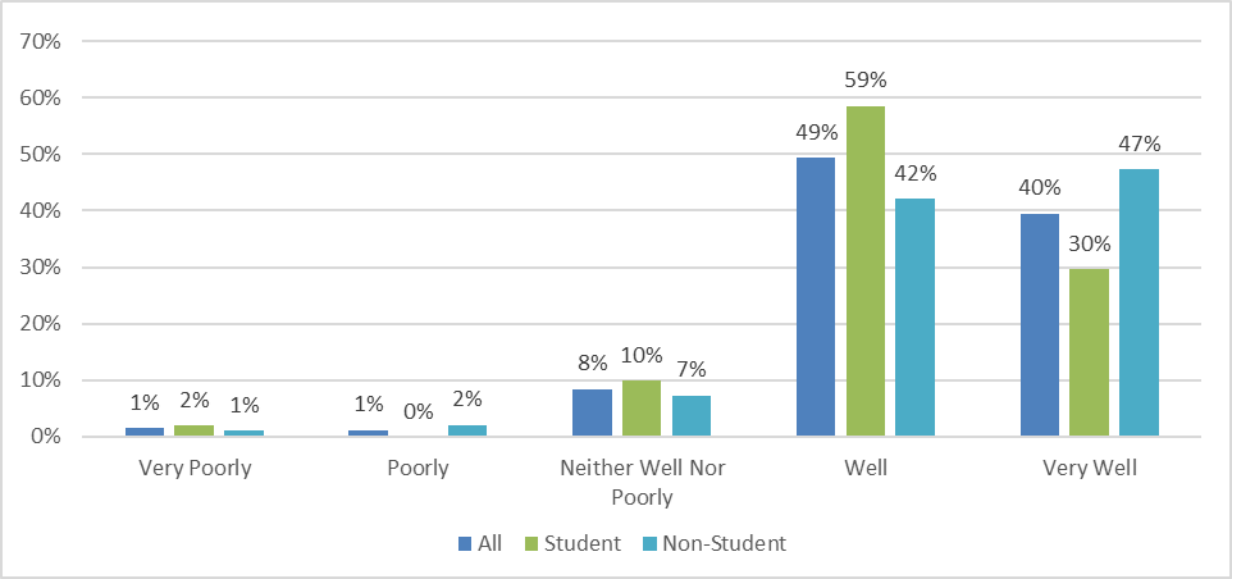
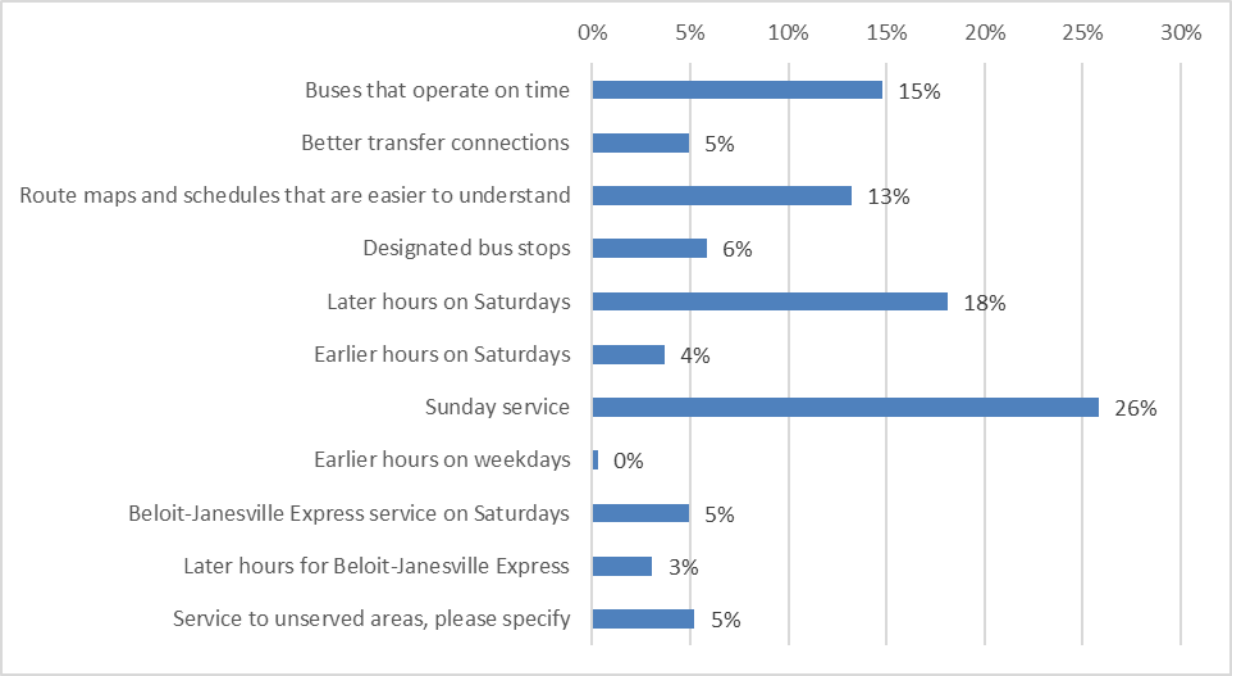


Figure 96. On-Board Survey Q27: "What one improvement do you most want to see JTS make?" (n=325)

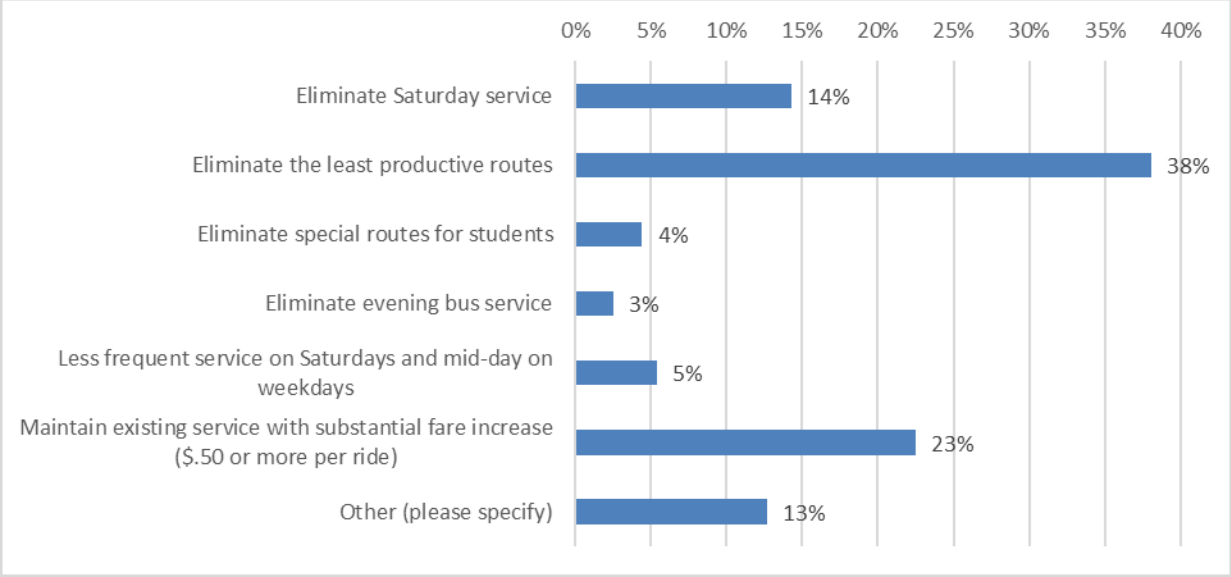


Responses corresponding to "Service to unserved areas" included:

- Around Kellogg to South Marion Avenue
- Milwaukee
- Bring back Milton service
- Beloit Avenue (Kellogg Avenue route)
- Closer to Woodman's
- Closer to LaMancha Drive

- Avalon Road

Figure 97. On-Board Survey Q29: "If it becomes necessary for the city to reduce bus service, which choice would you most recommend we consider?" (n=325)



Unique responses corresponding to "Other" included:

- "Cut something else because the bus system is only 2% of the city budget"
- "Edit routes, side roads, low use"
- "Combine routes like they do on Saturday night service"
- "Get vans that run more often"

Figure 98. On-Board Survey Q31: "What is your gender?" (n=322)

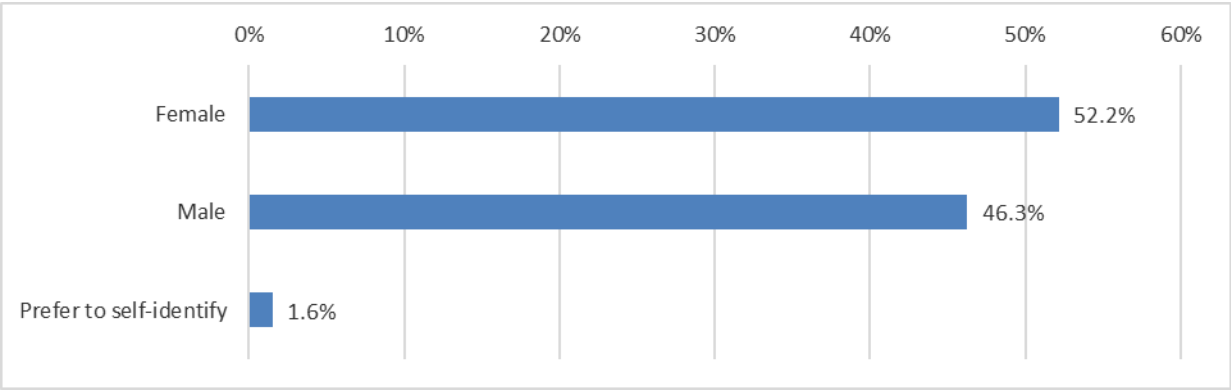


Figure 99. On-Board Survey Q32: "What is your race and/or ethnicity?" (n=343)

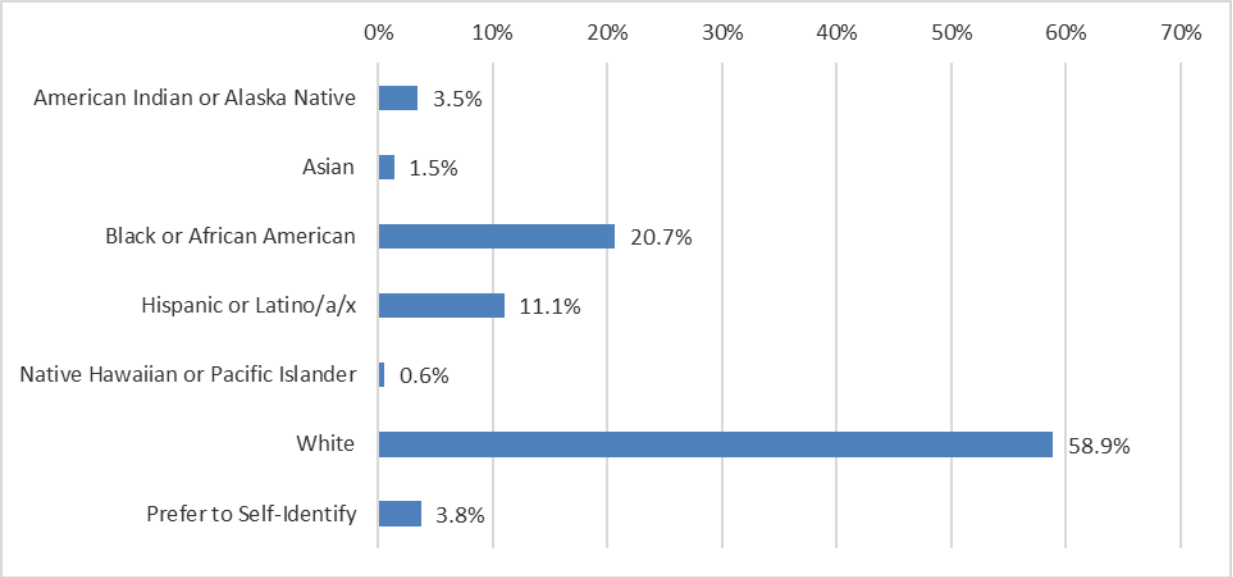
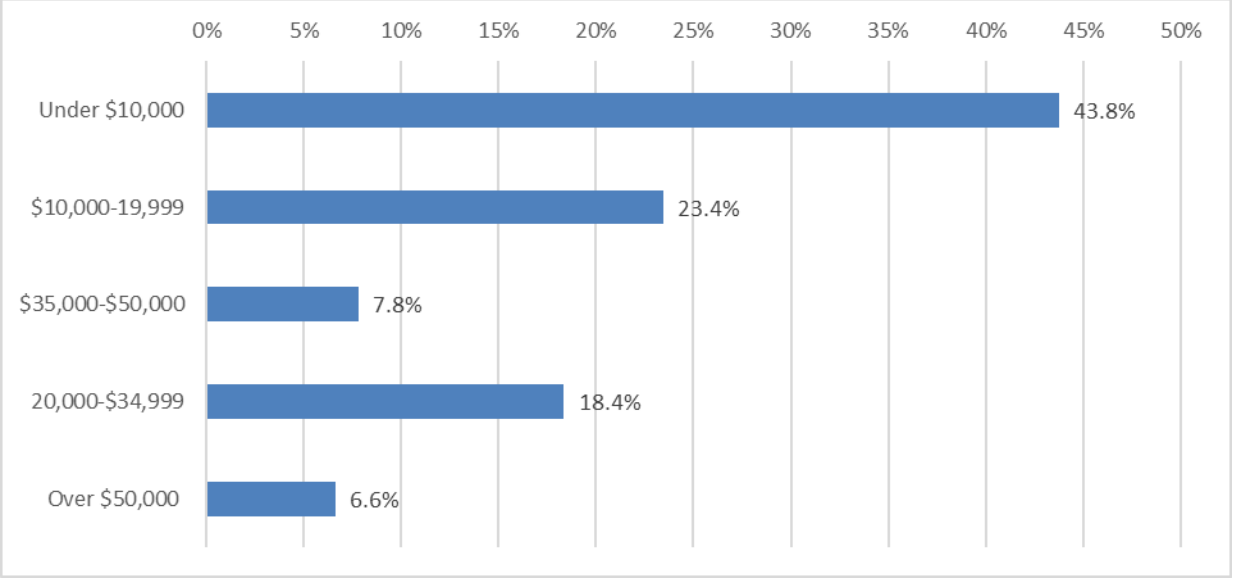


Figure 100. On-Board Survey Q33: "What was your household income before taxes during the last 12 months?" (n=256)



Appendix C: Off-Bus Survey

JANESVILLE JTS TRANSIT SYSTEM

Please mark a response for each question. Thank you for your assistance as we update the Transit Development Plan! To learn more about the Transit Development Plan update, visit http://www.ci.janesville.wi.us/jts. You can take this survey online at **bit.ly/JTS_TDP**

1. How do you get to the places you want to go? (Please rank the ways you get around, using 1 as the way you get around most frequently, and higher numbers as those you use less frequently.)
   __ Drive or ride in my own vehicle
   __ Drive or ride in someone else's vehicle
   __ Ride the Bus
   __ Walk or use a wheelchair
   __ Use a Bicycle
   __ Other Please Specify _____

2. What is your age? (select one)
   a. 11 or under
   b. 12-18
   c. 19-24
   d. 25-34
   e. 35-64
   f. 65 or over

3. Do you currently attend a Janesville School District Middle or High School?
   ☐ Yes ☐ No
   If yes, which school do you attend?

Edison	Parker	Rock River Charter
Franklin	TAGOS	ARISE Virtual School
Marshall	TATE	Rock Univ High School
Craig	Other _____	

4. Do you have a valid driver's license?
   ☐ Yes ☐ No

5. How many vehicles are you and other members of your household able to access?
   a. None
   b. One
   c. Two
   d. Three or more

6. Have you ever quit a job or lost a job because it was hard for you to get to work?
   ☐ Yes ☐ No
   If yes, why was it hard for you to get to work?
   _____
   _____

7. On average, how often do you ride the bus in a month? (Select one)
   a. Daily
   b. A few times a week
   c. Weekly
   d. A few times a month
   e. Monthly
   f. Never

8. What would cause you to ride the bus more often? (Select all that apply)
   a. Convenient bus stop locations
   b. Shorter travel times
   c. Knowing the bus will be on time
   d. Shorter wait between buses
   e. Buses that run earlier in the morning
   f. Buses that run later at night
   g. Improved safety on the bus
   h. Improved safety at shelters

9. What else could be done to improve JTS bus service?
   _____
   _____
   _____
   _____
   _____

OPTIONAL QUESTIONS:

10. What is your gender?
    ☐ Female ☐ Male Prefer to self-identify _____

11. What is your race and/or ethnicity? Please select all that apply.
    a. American Indian or Alaska Native
    b. Asian
    c. Black or African American
    d. Hispanic or Latino/a/x
    e. Native Hawaiian or Pacific Islander
    f. White
    g. Prefer to self-identify _____

12. What was your household income before taxes during the last 12 months? (Select one)
    h. Under $10,000
    i. $10,000-19,999
    j. 20,000-$34,999
    k. $35,000-$50,000
    l. Over $50,000

Figure 101. Off-Bus Survey Q1: "How do you get to the places you want to go?" (n=228) [All]

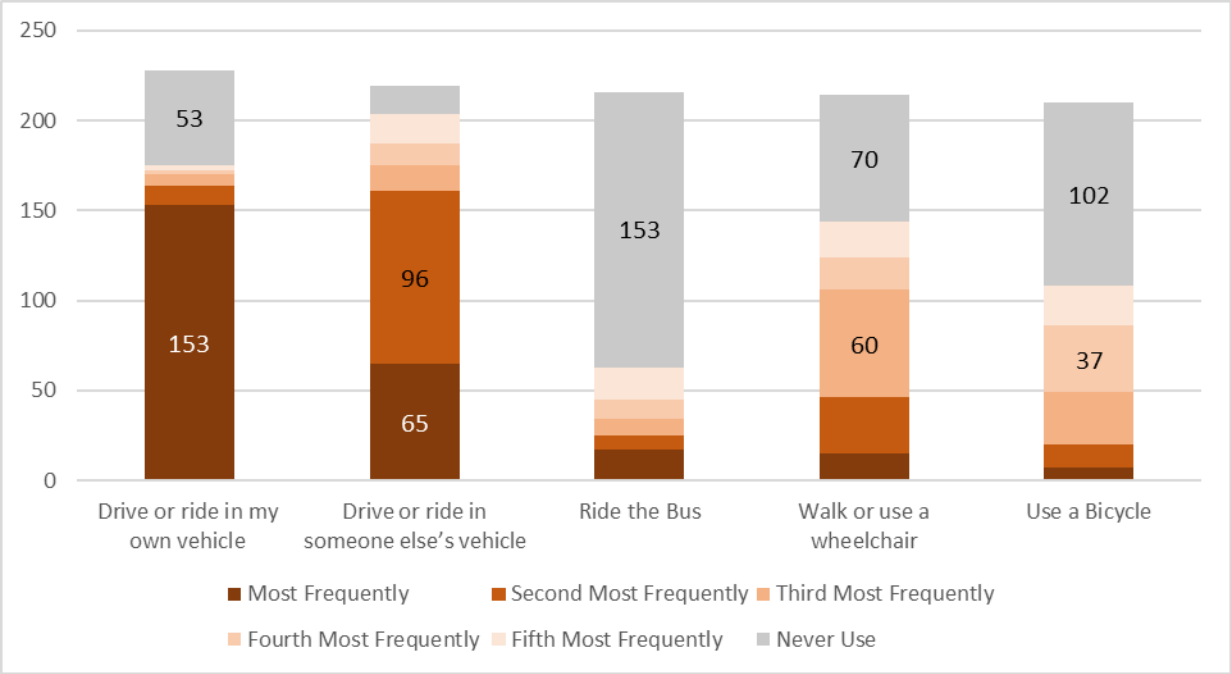


Figure 102. Off-Bus Survey Q1: "How do you get to the places you want to go?" (n=59) [Non-Students]

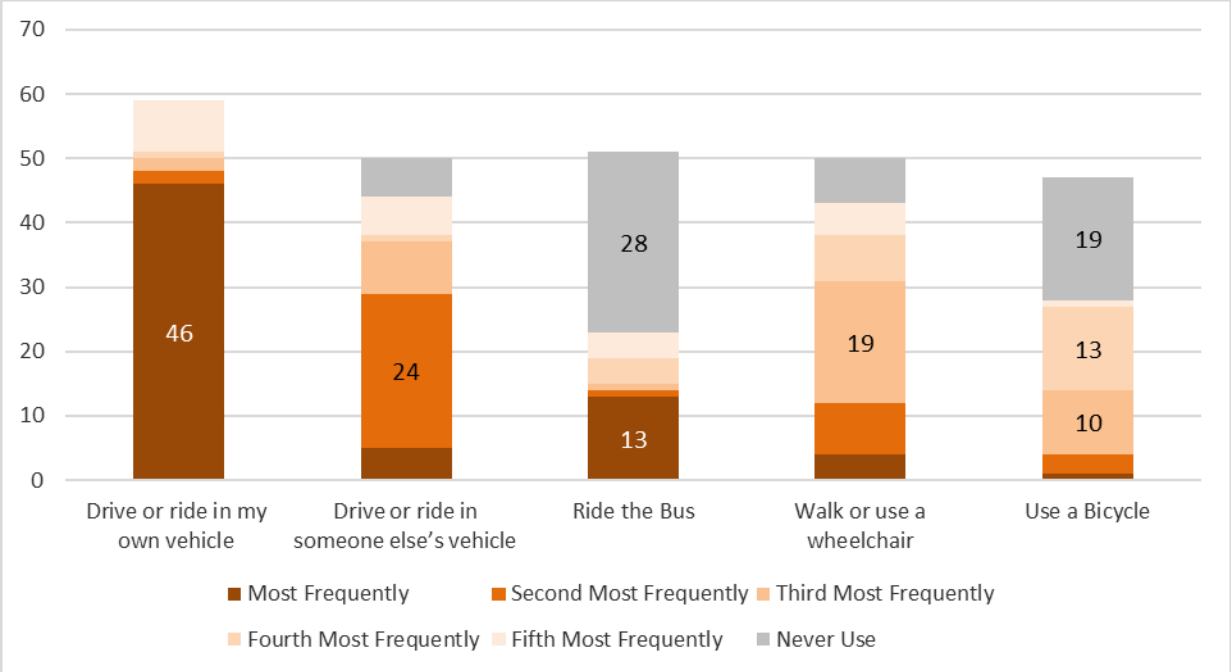


Figure 103. Off-Bus Survey Q1: "How do you get to the places you want to go?" (n=171) [Students]

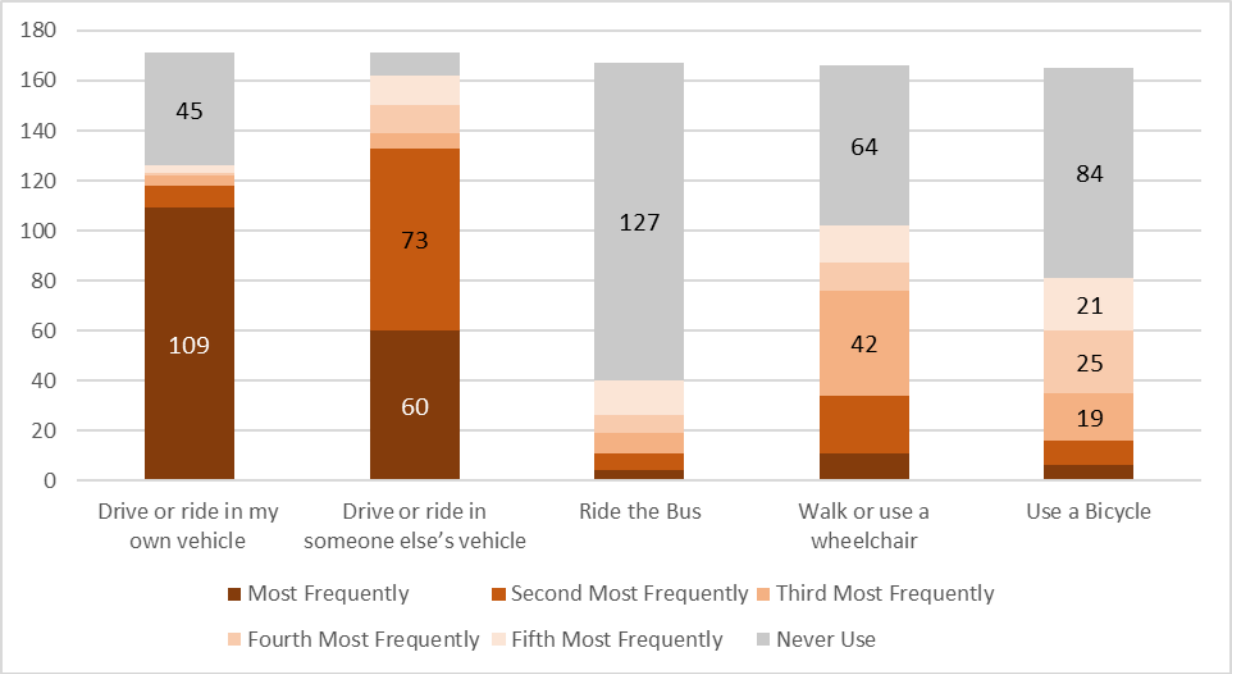


Figure 104. Off-Bus Survey Q2: "What is your age?" (n=234)

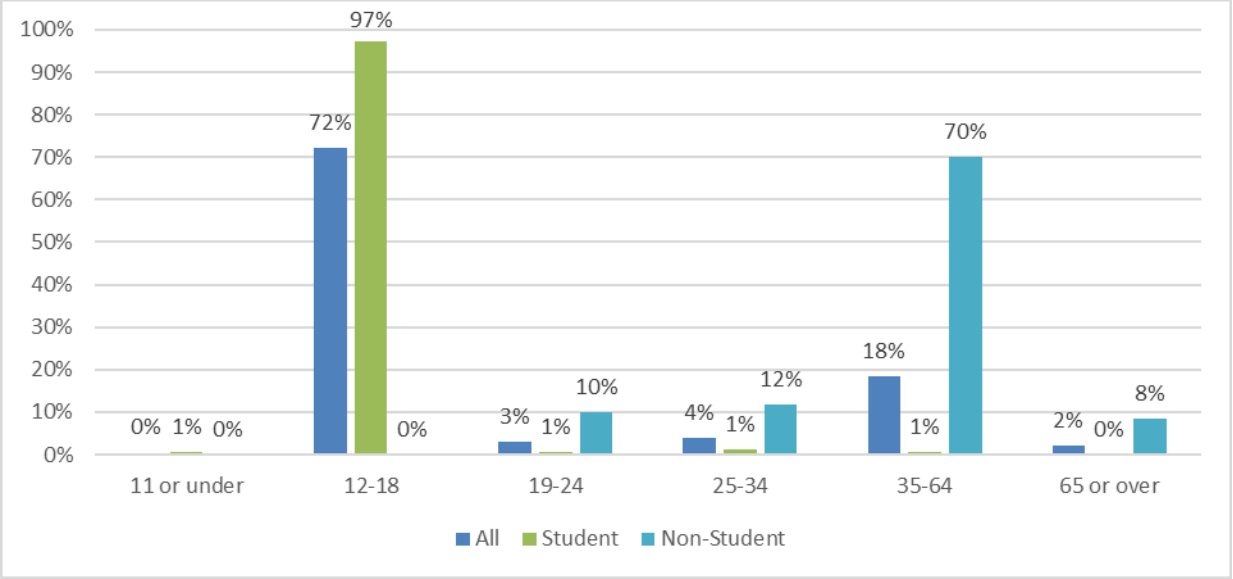


Figure 105. Off-Bus Survey Q3a: "Do you currently attend a Janesville School District Middle or High School?" (n=236)

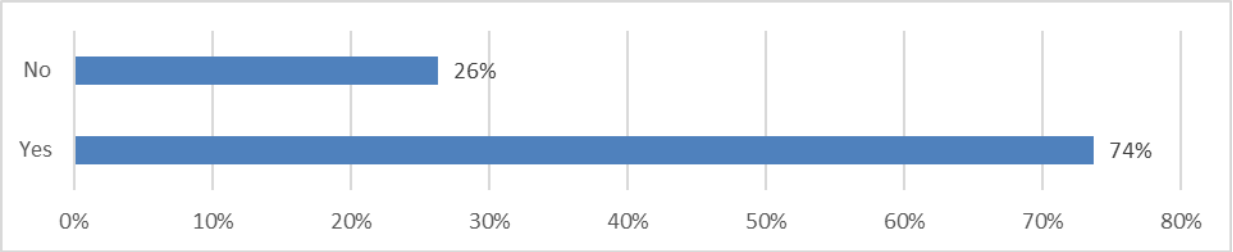


Figure 106. Off-Bus Survey Q3b: "If yes, which school do you attend?" (n=173)

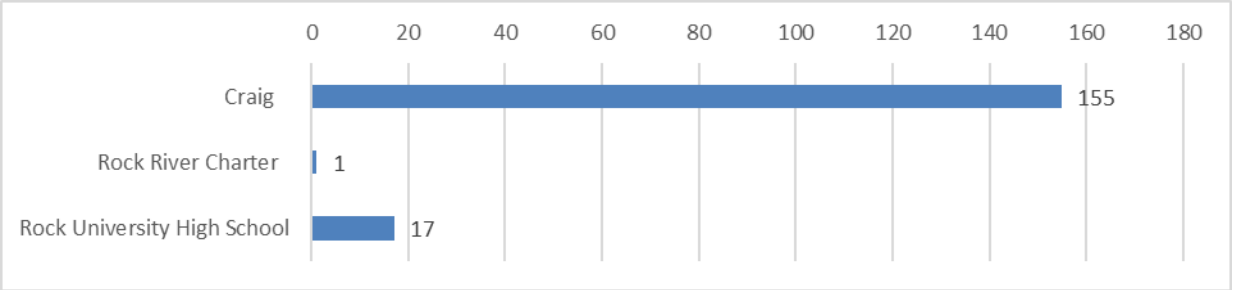


Figure 107. Off-Bus Survey Q4: "Do you have a valid driver's license?" (n=232)

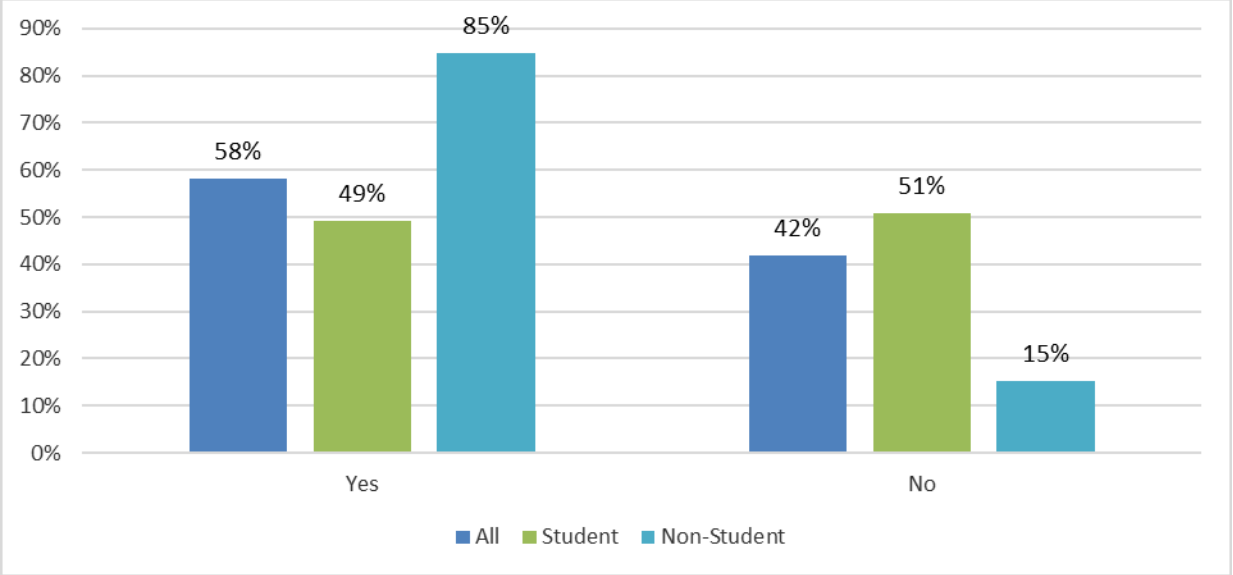


Figure 108. Off-Bus Survey Q5: "How many vehicles are you and other members of your household able to access?" (n=232)

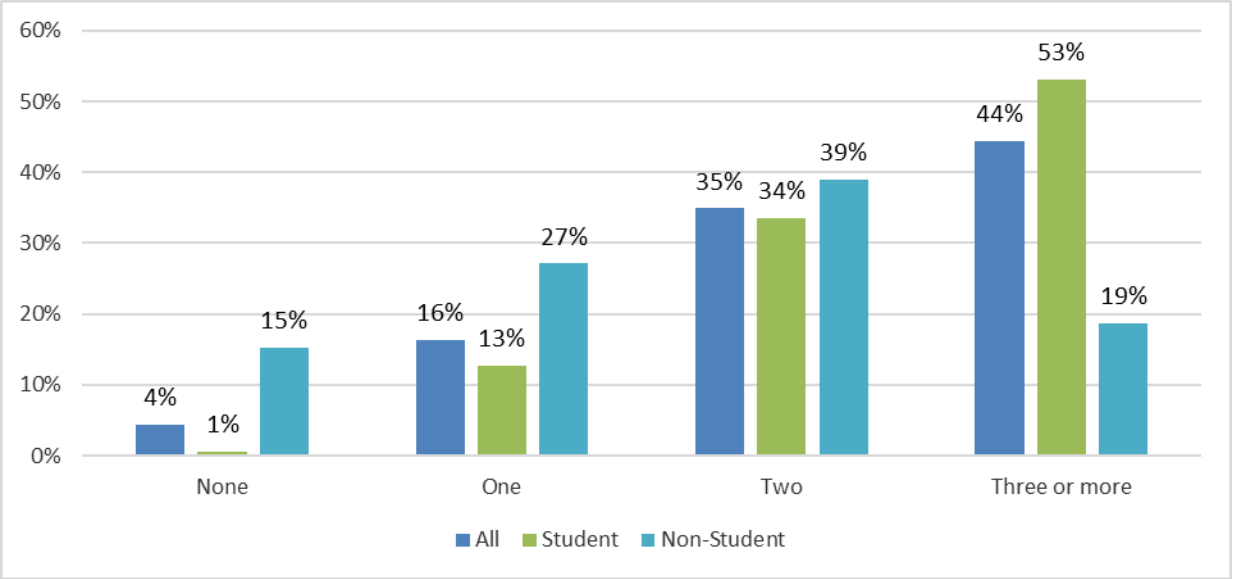
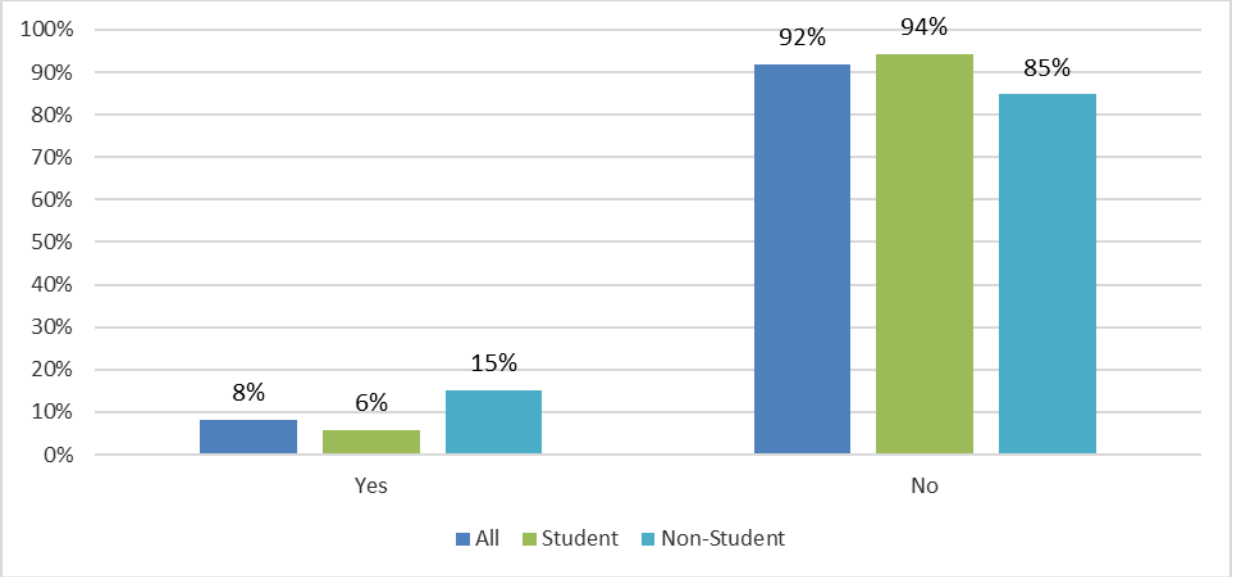


Figure 109. Off-Bus Survey Q6a: "Have you ever quit a job or lost a job because it was hard for you to get to work?" (n=232)



On-Board Survey Q6b: "If yes, why was it hard for you to get to work?" (n=16)

The most common responses (summarized) included:

- Travel distance (n=6)
- Bus schedule did not correspond well to my work schedule (n=4)

Figure 110. Off-Bus Survey Q7: "On average, how often do you ride the bus in a month?" (n=358)

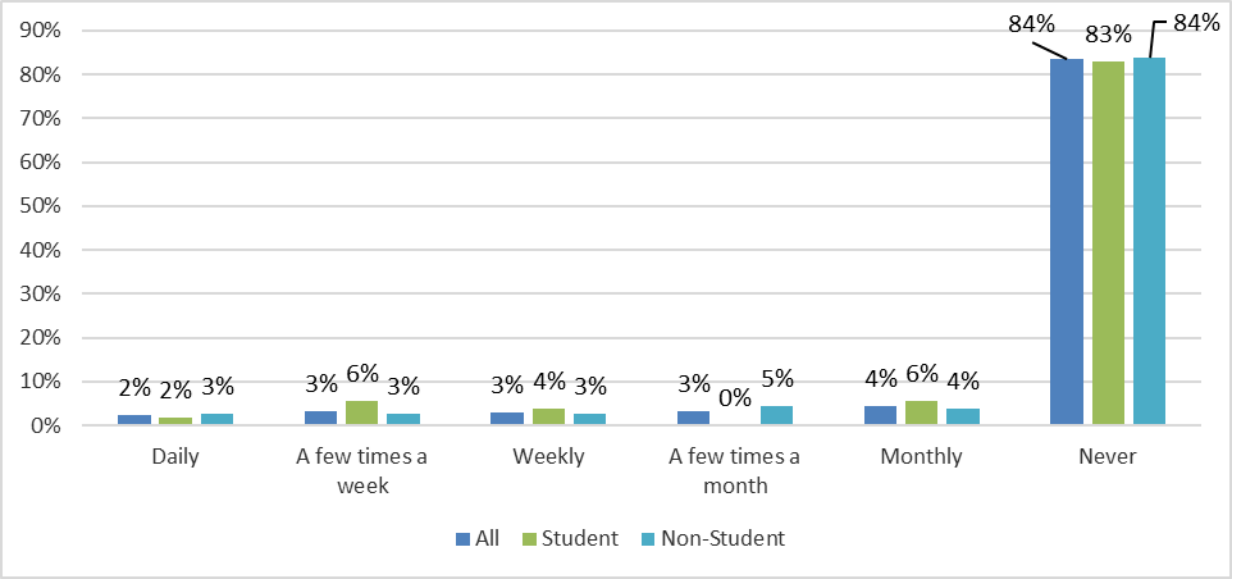


Figure 111. Off-Bus Survey Q8: "What would cause you to ride the bus more often?" (n=211)

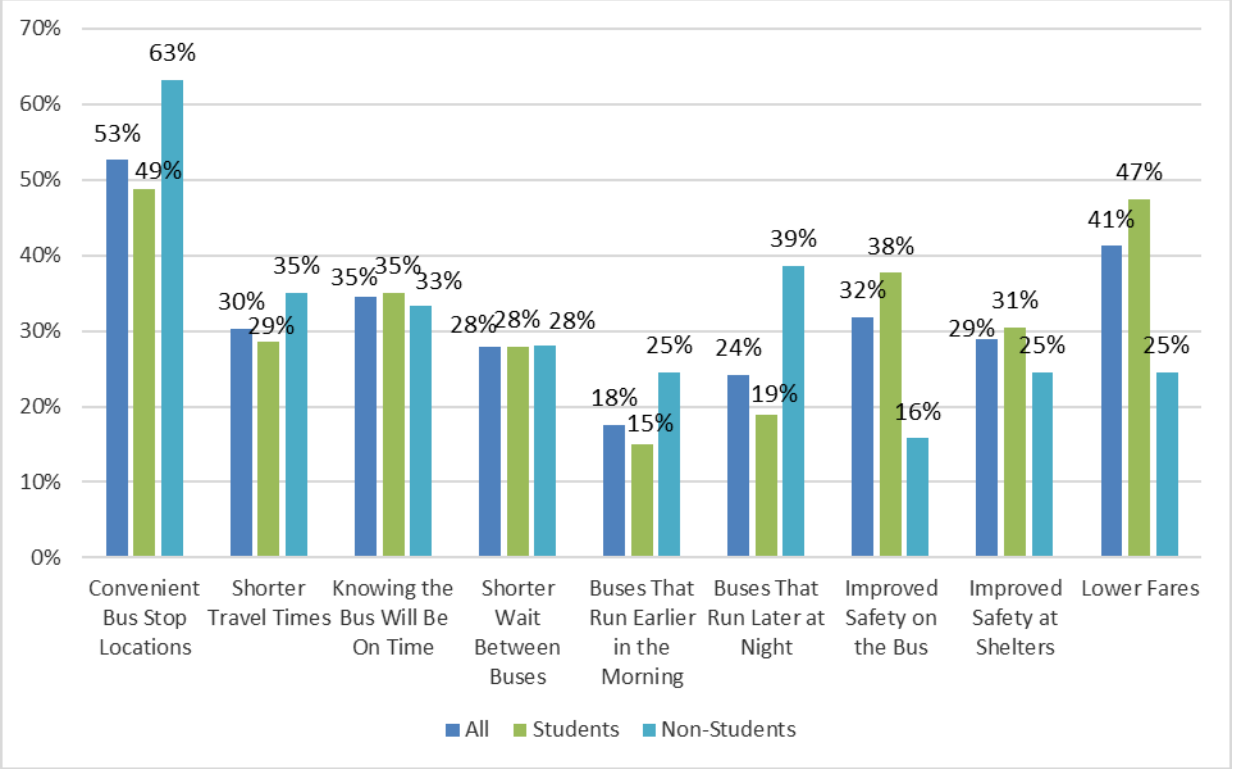


Figure 112. Off-Bus Survey Q10: "What is your gender?" (n=199)

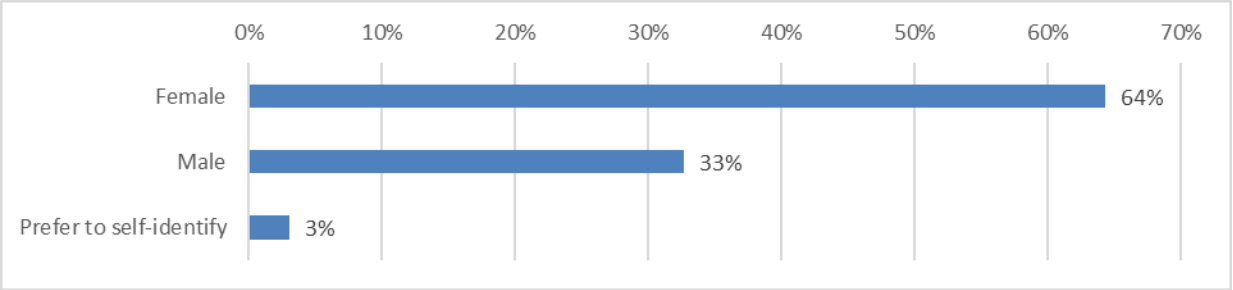


Figure 113. Off-Bus Survey Q11: "What is your race and/or ethnicity?" (n=227)

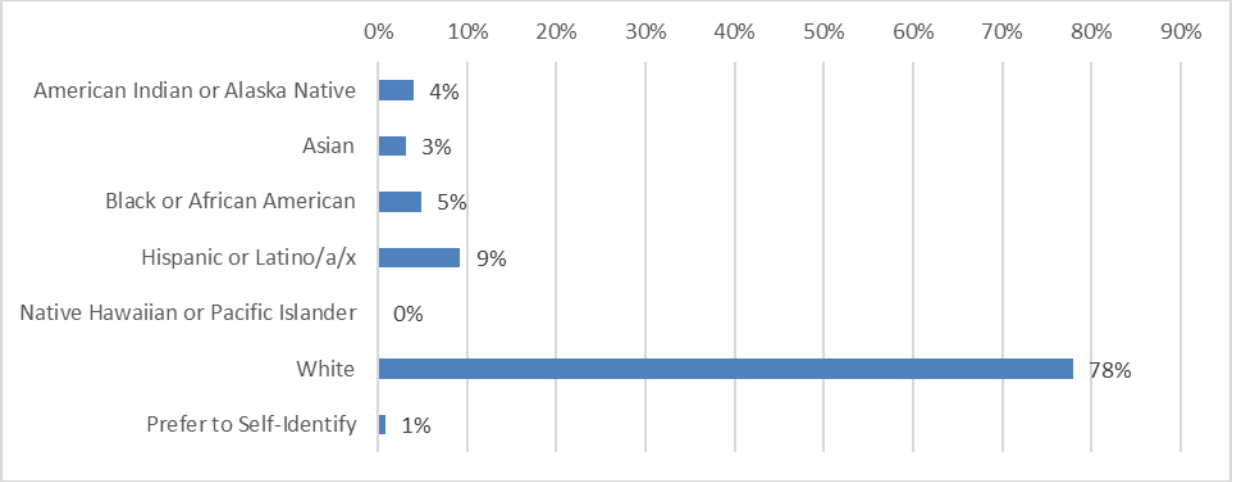


Figure 114. Off-Bus Survey Q12: "What was your household income before taxes during the last 12 months?" (n=186)