

TRANSIT NEEDS ASSESSMENT & ROUTE REALIGNMENT STUDY

Bowling Green, Kentucky



Submitted to:

*Bowling Green-Warren County
Metropolitan Planning Organization*

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GO bg Transit Needs Assessment and Route Realignment Study

Final Report

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Introduction

The GO bg Transit Needs Assessment and Route Realignment Study was conducted in spring of 2016 by the Bowling Green Warren County Metropolitan Planning Organization (MPO), along with staff from GO bg Transit, Western Kentucky University's (WKU) Parking and Transportation Department, and the Kentucky Transportation Cabinet (KYTC) – referred to later as the study team.

Consultant technical assistance was provided by WSP | Parsons Brinckerhoff. In addition, the Bowling Green Area Chamber of Commerce provided assistance in conducting stakeholder outreach through the development, administration, and compilation of surveys of area employers and social service agencies regarding their transit needs. While the survey was not statistically valid, the data collected helped to inform the study's recommendations about potential expansion to serve the industrial areas and the transit needs of individuals in the community seeking job training and placement.

Purpose of the Study

The MPO and GO bg Transit have shown that they are committed to providing a quality public transportation system for the Bowling Green community by periodically initiating planning studies to evaluate their system and to examine potential changes to more effectively and efficiently deliver transit services to the community. These studies often take a broad look at planning and development trends in the region to determine how GO bg Transit can effectively position itself to meet the changing needs of the community. Because Bowling Green is home to WKU, these studies also generally include an assessment of the transit needs of WKU students, staff, and faculty to determine how best to coordinate service with WKU's Topper Transit system and capitalize on the connections between the two systems. This study is a continuation of that commitment to providing quality public transit to the Bowling Green community and preserving the spirit of collaboration between all parties in the region.

The overarching purpose of this study is to identify ways to improve the existing public transit services in Bowling Green through an assessment of the transit needs of the community and the potential realignment of transit services to more effectively meet those needs. More specifically, this study will focus on three key areas:

1. Improving access to jobs and job training resources, including an examination of the feasibility of providing transit service to the industrial areas located to the northeast and southwest of downtown Bowling Green
2. Providing service to serve the emerging medical services area on Lovers Lane, which will include the relocation of a major social service agency in the near future.
3. Streamlining routes to provide more direct, efficient transit service that brings the GO bg Transit and Topper Transit systems into better alignment with one another.

Goals and Objectives

Many planning studies and evaluations commence by developing goals and objectives to guide the study as it progresses, and this one is no exception. The goals seek to broadly define or provide guidance on what the study or project should attempt to achieve with its recommendations and outcomes. The objectives are more measurable and often outline specific achievements or processes within the larger framework of the goals. The objectives also serve to frame measures of effectiveness (MOEs), which are often used to evaluate different planning scenarios or, in this case, proposed transit service changes.

The following goals and objectives were collaboratively established by the study team for the GO bg Transit Needs Assessment and Route Realignment Study:

Goals:

1. Design a more efficient and effective system by directing transit investment to where it is needed most within current funding parameters and projections.
2. Expand GO bg Transit's customer base in terms of ridership and potential new areas served.
3. Minimize the impact of potential service changes to existing riders.

Objectives:

1. Develop route and service profiles to provide a detailed understanding of system and route design, service performance, and ridership patterns.
2. Analyze alternative service delivery concepts for their relevance and potential application to the GO bg service area, focusing on potential efficiency improvement(s).
3. Examine the feasibility of expanding into new services and markets, including the industrial parks and Lovers Lane area.
4. Address potential partnerships and service changes to increase ridership among local universities and colleges (WKU and Southern Kentucky Community and Technical College (SKyTC)).
5. Develop capital cost, operating cost, and revenue projections of proposed change(s) and identify potential alternative funding sources.
6. Communicate recommendations and their rationale effectively to elected officials and stakeholders.

Study Area Demographics

Demographic patterns are used to better understand the existing and potential transit market in a region. A demographic review generally tries to identify areas with the greatest potential transit demand, or areas where a high percentage of the population has demographic characteristics that often correlate with transit ridership, including high rates of poverty, low car ownership, and minority and foreign born populations. The patterns of several demographic indicators are described below for the GO bg service area.

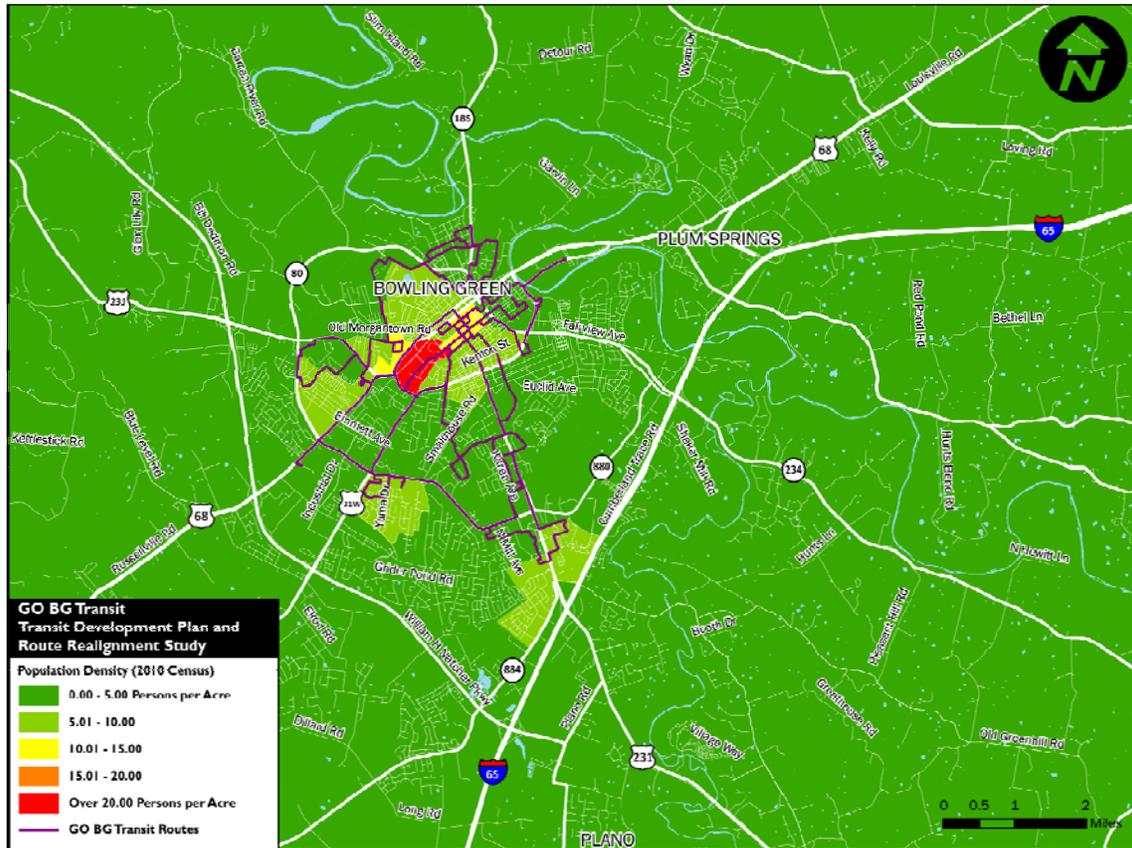
Population Density

Population density is often one of the most important, if not the most important, indicators of potential transit use, so much so that it is often used to identify the level of transit service that an area or corridor is likely to be able to support. There are many reasons that population density serves as a reliable indicator of transit use. Higher density neighborhoods by definition have more people living within walking distance of a transit stop or corridor than lower density neighborhoods. Higher density areas are also more likely to exhibit other characteristics of urban form that contribute to more people using transit, including higher development density, less available parking, smaller lots and setbacks, and a greater mix of land uses. Although there are many factors that can influence the transit level of service that is appropriate for an area, a common rule of thumb is that areas with population above 5 people per acre can support hourly bus service, and areas with a population density above 10 people per acre can support bus service with headways between 30 and 60 minutes.

As shown in Figure 1, population density in the Bowling Green area is highest on the main campus of WKU and in the areas immediately adjacent to the campus. On campus, the population density exceeds 20 persons per acre, which is not unexpected for a university with a significant residential student population. Aside from the WKU campus, the only other Census block groups in Bowling Green where the population density exceeds ten persons per acre are located immediately to the west of campus, in the area west of University Drive and south of Old Morgantown Road, and to the northeast of campus, in the area which extends towards downtown Bowling Green. In general, these are the areas where residential densities indicate that the highest levels of transit could be supported in the region. Other areas where population density is greater than five persons per acre include the neighborhoods just south of downtown (bounded by the US-31W corridor) and the West End (to the west of Adams Street/University Drive and bounded by the US-68 corridor), as well as neighborhoods located farther afield from downtown, including the area south of the Greenwood Mall retail area near I-65, the area just south of SKyTC (bounded by US-68 and Russellville Road), and the area south of Campbell Lane and east of Nashville Road. These areas are likely to be able to support a lower level of fixed route transit service than those nearer to downtown and WKU.

As shown by the depiction of GO bg service in Figure 1, nearly all Census block groups where the population density is greater than five persons per acre are currently served by GO bg fixed route service. However, the neighborhood just south of the Greenwood Mall is served only peripherally by Route 3/Green Line, and the neighborhood south of SKyTC and north of Russellville Road and parts of the West End would likely benefit from more direct or bidirectional service than what is currently provided by the Route 2/Blue and Route 4/Yellow Lines.

Figure 1: Population Density



Employment Density

In addition to population density, employment density also serves as a strong indicator of potential transit use because a high number of transit trips are made by people traveling to and from work. Employment density is often used as an indicator of potential transit ridership because areas with concentrated employment, or a large number of people traveling to work in a small area, are easiest to serve by fixed route bus service. Areas with high employment density are also more likely to exhibit other characteristics, such as higher levels of traffic congestion and constrained parking conditions that make transit a more desirable mode of transportation for travel to work.

Employment density for the Bowling Green area is shown in Figure 2. At first glance, the map seems to indicate that downtown Bowling Green and the Scottsville Road corridor are the areas of highest employment concentration in the region, and that employment at WKU is limited to a single traffic analysis zone (TAZ) in the center of campus. However, this erroneous depiction of WKU employment is likely the result of all university employees being assigned to a single address, such as an administrative building, which is not an uncommon occurrence with the incorporation of large employers into a regional travel demand model. In reality, the entirety of the WKU campus would be expected to exhibit a high level of employment density, with 25 or more employees per acre. Other areas where employment density exceeds 25 persons per acre include:

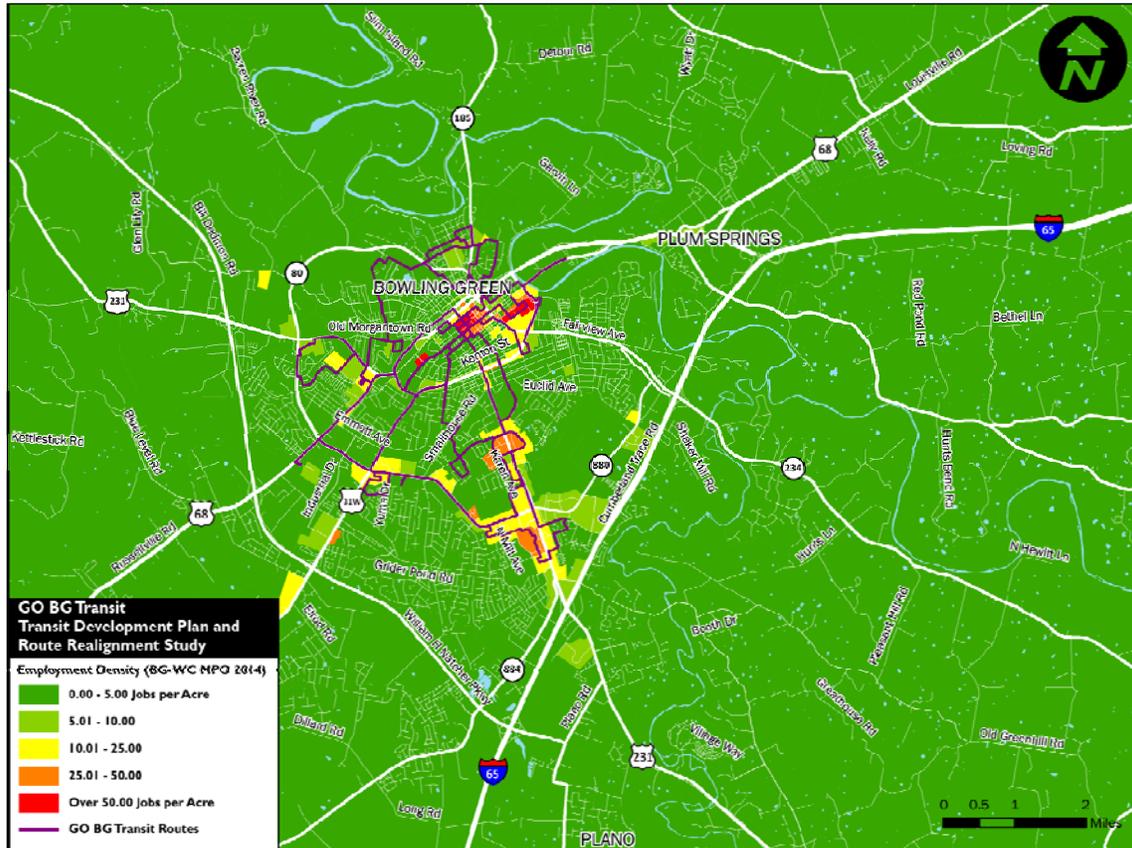
- the concentration of public employers located to the northeast of campus towards downtown Bowling Green near the GO bg Transit Center
- The Medical Center and its surrounding area
- Greenview Regional Hospital and its surrounding area
- Greenwood Mall

In addition to these major employers, there are several corridors with contiguous or nearly contiguous TAZs where the employment density exceeds 10 employees per acre. These include:

- Scottsville Road between South Park Drive and Three Springs Road
- Campbell Lane between Nashville Road and Scottsville Road

Notably, the concentrations of industrial employers to the north, along Louisville Road, and to the south, between Russellville and Nashville Roads, are shown as having relatively low levels of employment density, with most TAZs in these areas having fewer than five employees per acre. These low levels of employment density are partially the result of being located at the periphery of Bowling Green where the TAZs are generally larger, but are also indicative of the sprawling form that most industrial parks exhibit, with large single-story buildings located on large parcels set back from often winding major roads and surrounded by surface parking. These development characteristics, in addition to the challenges posed by their remote location and shift times, are part of the reason why industrial employers are often difficult to serve with traditional fixed route transit services.

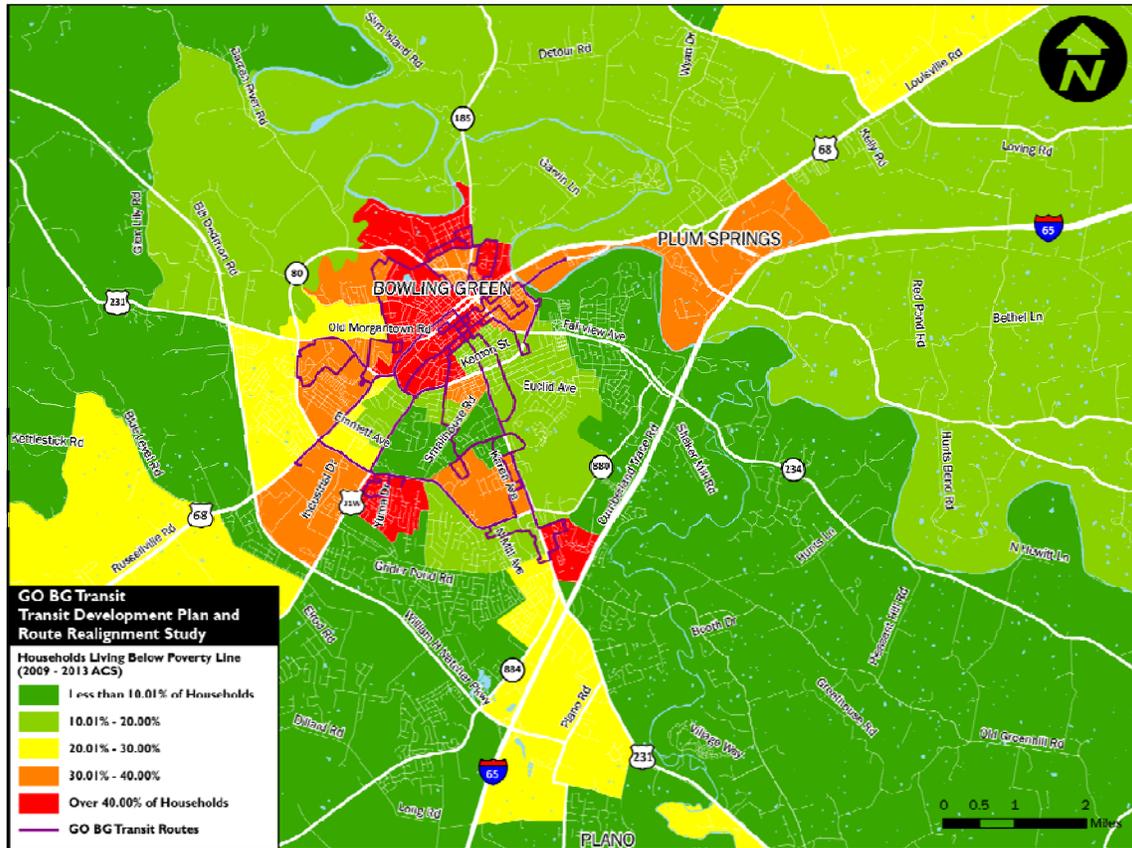
Figure 2: Employment Density



Poverty and Car Ownership

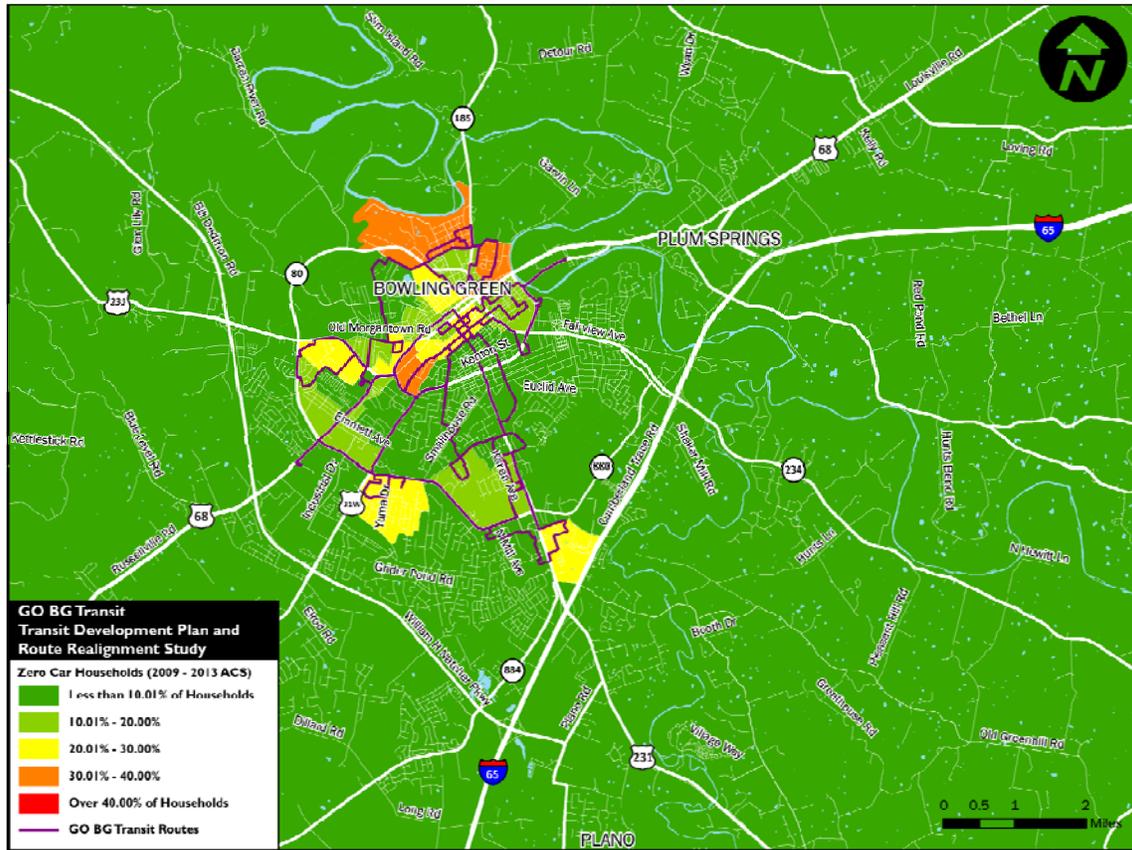
High rates of poverty and high rates of households without access to an automobile are also strong indicators of propensity to rely on public transit as a primary means of transportation. However, in a college town, block groups with high levels of poverty and low levels of car ownership are just as likely to be indicative of a student neighborhood as of a low-income housing complex. Nevertheless, both indicators help to identify populations for whom the cost of owning, operating, and maintaining a car may represent a financial hardship, and are therefore more inclined to use public transit.

Figure 3: Households with Income below Poverty Level



As shown in Figure 3, the highest concentrations of households with income below the Federal poverty level are located in central Bowling Green, with most Census block groups comprising WKU, downtown Bowling Green, and the West End having more than 40% of all households in poverty. Other areas with significant concentrations of poverty are located in block groups surrounding SKyTC, along Campbell Lane (between Russellville Road and Smallhouse Road), east of the Greenwood Mall (near Bryant Way), and out Louisville Road towards the northern industrial park. Nearly all block groups where the percentage of households in poverty exceeds 30% are served at least peripherally by a GO bg fixed route, with the one exception being the northern industrial area, where the residential densities are quite low. Within the city of Bowling Green, the areas with the lowest concentrations of poverty are the inner neighborhoods to the south and east of the Nashville Road/US-31 Bypass, which also correspond with some of the lowest population densities in the city. These are areas where fixed route transit service is likely to perform poorly in terms of service productivity and efficiency.

Figure 4: Households without a Vehicle



As shown in Figure 4, the Census block groups with the highest concentrations of households without access to a vehicle are located at the southern end of WKU's main campus and in the neighborhoods directly north of downtown (north of Kentucky Street and east of Gordon Avenue) and further north in the area bounded by US-68, Gordon Avenue and the Barren River. Overall, the GO bg system does a good job of serving areas where levels of car ownership are low; all Census block groups where more than 10% of households do not have access to a vehicle are served at least peripherally by a GO bg fixed route.

Minority Population

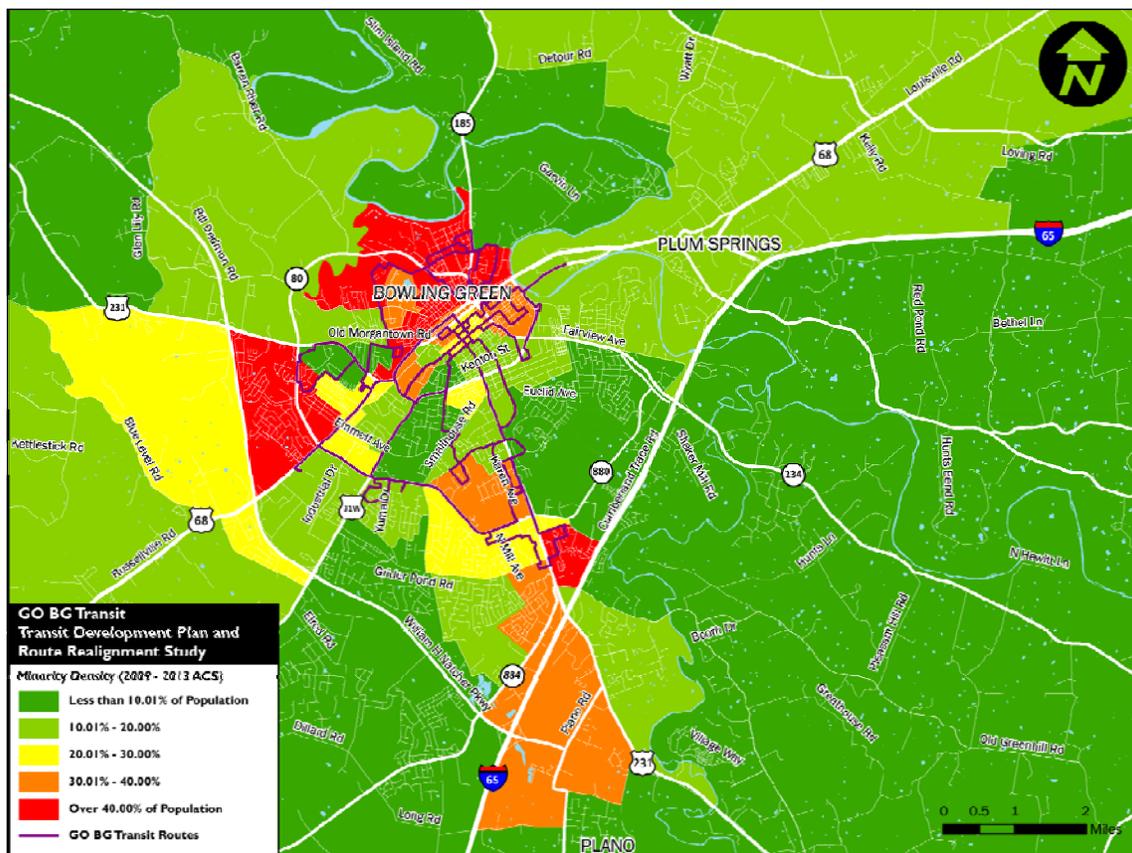
Minority population is used as an indicator of propensity to use transit because minority populations tend to ride public transportation in numbers that are disproportionately larger than their population share, even when controlling for socio-economic status, age, disability status and other factors that correlate with high transit use. Concentrations of minority population in the Bowling Green area are shown in Figure 5. For the purposes of this analysis, the minority population is the total population decreased by the non-Hispanic White population, as defined by the US Census.

The patterns exhibited in Figures 3 and 5 indicate that there is a correlation between poverty and minority populations in the Bowling Green area. Two exceptions to this correlation are the north and

south industrial areas, which have high percentages of households with income below the poverty level but low concentrations of minority populations, and two areas on the periphery of Bowling Green which have relatively high concentrations of minorities but more moderate levels of poverty. These two areas, which are both located beyond the existing GO bg service area, are located:

- On the western edge of Bowling Green, in an area bounded by William H. Natcher Parkway to the west, Morgantown Road to the north, and Russellville Road to the south
- Near the southern edge of Bowling Green, in the neighborhood south of Greenwood Mall and north of Three Springs Road, and extending further south between the I-65 and Scottsville Road corridors into the unincorporated area of Warren County

Figure 5: Minority Population

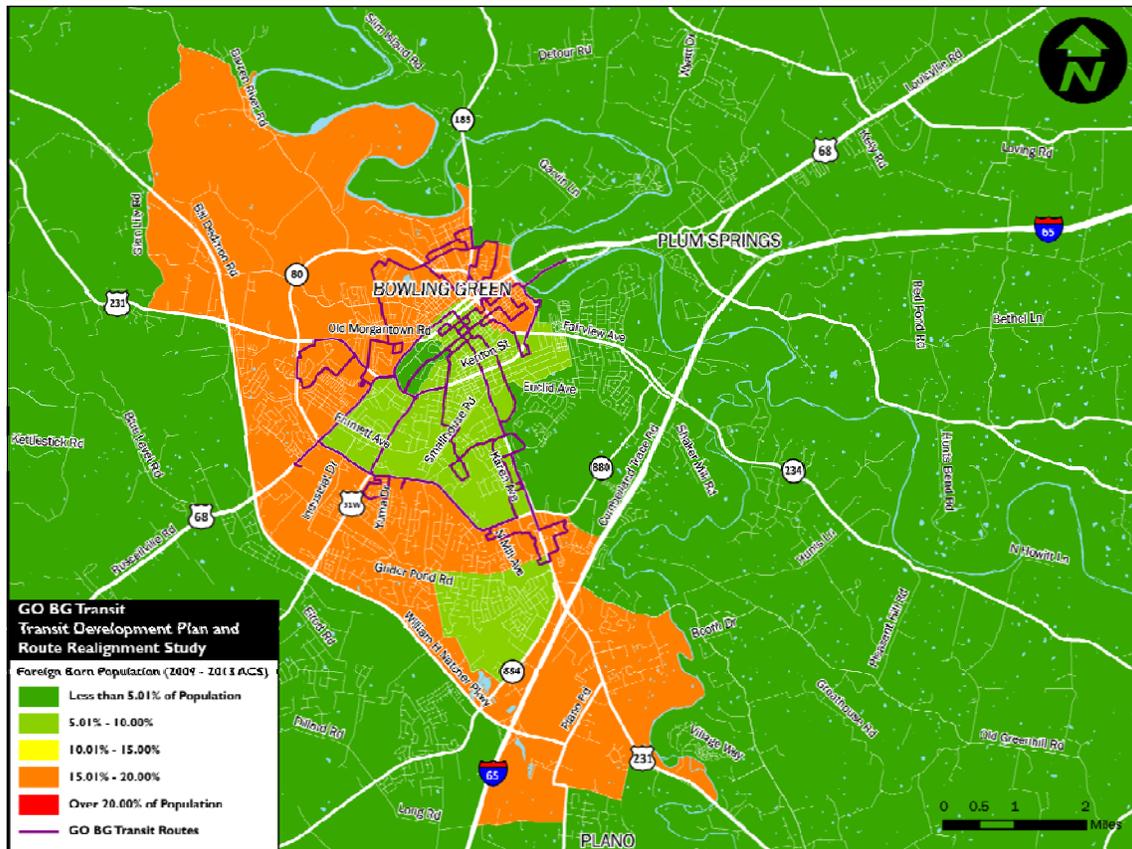


Foreign Born and Limited-English Proficiency Population

As with minority populations, foreign born and limited English proficiency (LEP) populations are also used as indicators of propensity to use transit because international populations tend to ride public transit in greater proportion than their population share. Bowling Green has a growing international population, in part due to the international student population at WKU, but also as a result of the International Center of Kentucky’s active role in resettling refugees and other immigrants in the

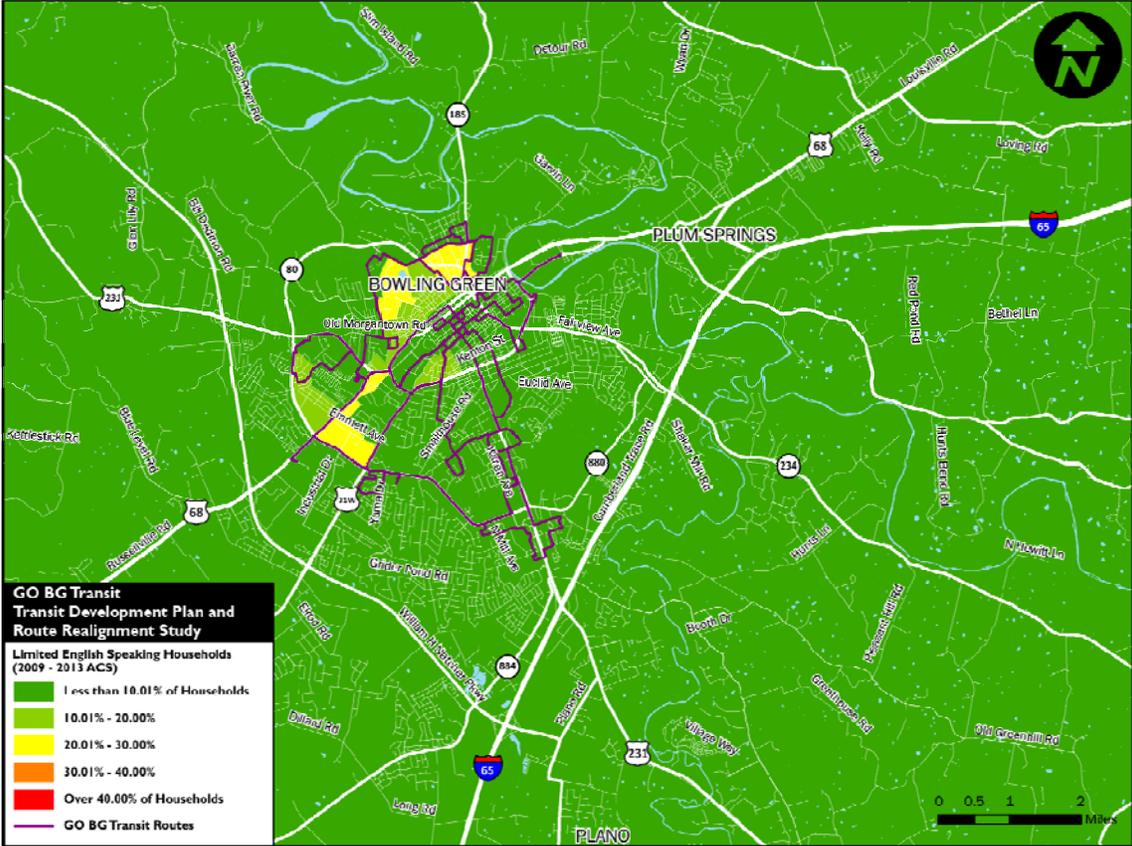
community. The percentage of foreign born population is shown in Figure 6, but the map has limited utility because this information is only available at the Census Tract level. It is evident that the foreign born population primarily resides in the areas to the northwest of downtown and the university and to the south of Campbell Lane and along the Scottsville Road corridor, However; it is difficult to determine how well these populations are served by the GO bg system at this larger aggregated level.

Figure 6: Foreign Born Population



The percentage of LEP population is shown at a more disaggregated level in Figure 7. This map indicates that the highest concentrations of LEP populations are located in the West End neighborhoods and along the Russellville Road corridor to the southwest of the university.

Figure 7: LEP Population



Transit Propensity Analysis

A transit propensity analysis was also conducted as a complement to the demographic analysis. While demographic characteristics can be used to identify the origin locations with the greatest potential transit demand, a transit propensity analysis goes a step further by pairing this market information with regional travel patterns in order to identify trips that are most likely to be made by transit.

The transit propensity analysis conducted for this study had two distinct purposes, and in fact, was conducted as two distinct analyses. The first analysis focused on identifying existing travel patterns for Bowling Green's two major industrial areas located along Louisville Road/US-31W to the northeast of downtown and the along Nashville Road/US-31W to the southwest of downtown. The purpose of this analysis was to determine which, if any, of the existing travel patterns destined for these industrial areas could potentially be served by transit. The second analysis focused on identifying trip patterns that are not currently served by transit, but where the origin locations have demographic characteristics that correlate with transit use. The purpose of this analysis was to identify potential "gaps" in the existing GO bg system, where people who are the most likely to use transit are completing trips by some other mode because the trip cannot be completed using transit. These analyses and their results are described in greater detail below.

Industrial Analysis

Part of the impetus for this study was to determine the feasibility of providing transit service to Bowling Green's two major industrial employment areas located to the northeast and southwest of downtown along US-31W. In addition to surveying employers in these areas regarding the transportation needs of their employees, the travel patterns of current employees were also examined using inputs from the Warren Area travel demand model for Warren County and its immediately adjacent counties to determine if any of the existing travel markets to the industrial areas could potentially be served by transit.

The analysis focused on identifying home-based work (HBW) trips destined for Bowling Green's two major industrial employment areas, which were considered separately. The first step in the analysis was to identify traffic analysis zones (TAZs) within the industrial areas that had a large concentration of industrial or manufacturing jobs. TAZs with 100 or more industrial/manufacturing jobs were grouped into contiguous, or nearly contiguous, areas in the north and south. Only those TAZs that are not currently served by a GO bg route were included; this was not a differentiating factor for defining the northern industrial area, as there is no GO bg service in the immediate area, but a few TAZs were eliminated in the southern industrial area due to their intersection with the Yellow Line/Route 4. The second step in the analysis was to identify and map the origin zones for HBW trips destined for the identified industrial zones. Origin zones were mapped by time period for the four time periods provided by the model (AM Peak – 6am to 9am, Midday – 9am to 3pm, PM Peak – 3pm to 6pm, Night – 6pm to 6am) and also aggregated for the entire day.

The results and the analysis for the northern industrial zone are shown in Figures 8 and 9. On all of the industrial analysis maps, the destination zones are shown in yellow and the origin zones are shown in the beige-to-red spectrum, depending on the number of HBW trips originating from that zone. As shown in Figure 9, the largest concentrations of HBW trips destined for the northern

industrial zone are located either very near the industrial areas, right along Louisville Road, or further to the east or northeast along the US-68 and US-31W corridors towards Edmonson and Barren Counties. There are even some concentrations of HBW trips originating from out-of-county in Barren and Allen Counties, but very little travel originating from a single location within the city of Bowling Green. Figure 8 illustrates how these trips are distributed over the course of a day, with most HBW trips occurring during the AM Peak Period, and far fewer HBW trips occurring during the Midday and Night time periods. This is consistent with a large 1st shift workforce traveling to work during the AM Peak, and smaller 2nd and 3rd shift workforces traveling during the Midday and Night time periods respectively.

Figures 10 and 11 show a similar, but inverted, pattern for the southern industrial zone. The largest concentrations of HBW trips destined for the southern industrial zone are located further to the southwest of the industrial area, along the US-31W corridor towards Simpson County. The origin zones here are somewhat more concentrated along a single corridor than in the north, but there are also concentrations of HBW trips originating from several other counties, including Butler, Logan, and Allen Counties. The temporal distribution of trips is similar to that shown for the northern industrial area as well, with the most HBW trips occurring during the AM Peak Period, and fewer HBW trips occurring during the Midday and Night time periods.

The results of this analysis illustrate some of the challenges that transit agencies typically face in attempting to provide fixed route transit service to industrial employment areas, which more often than not are located on the periphery of an urbanized area. The major challenge here is not only that the existing workforce for the two identified industrial areas is traveling from all over the region, but that the largest concentrations of employees are actually not located within the city of Bowling Green, but in locations further out in the county and in adjacent counties. These areas have very low density levels and would be nearly impossible to serve efficiently, or cost-effectively, with fixed route transit service. The other challenge that is illustrated here, and to a greater degree in the results of the employee survey, is that GO bg Transit's existing service span does not align well with the shift change times when many employees would be traveling to and from work. Only 1st shift employees could potentially be served within existing service hours, and even then, only if service were provided slightly earlier than it is now to accommodate 1st shifts that begin before 7am.

Figure 8: HBW Trips to North Industrial Area by Time Period

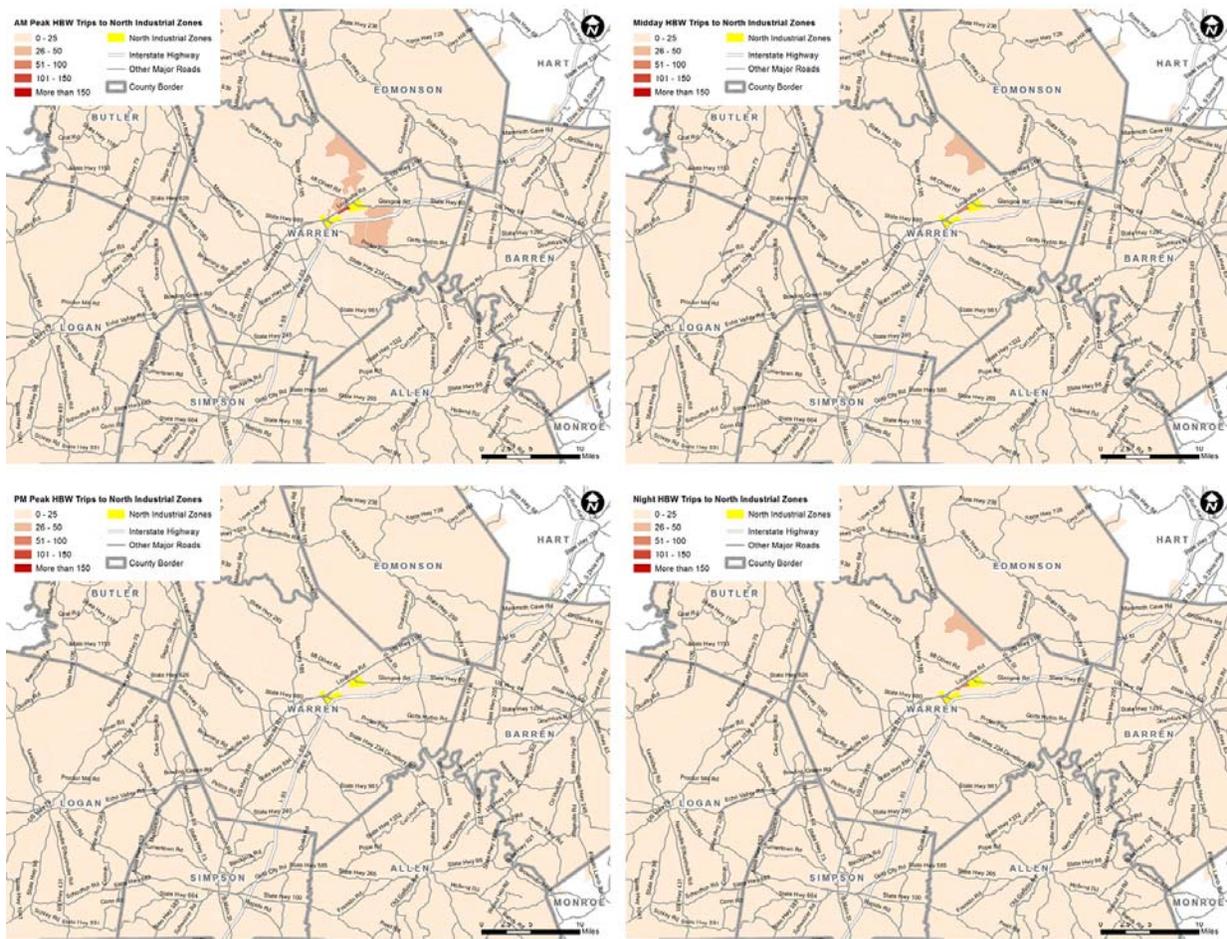


Figure 9: HBW Trips to North Industrial Area – All Time Periods

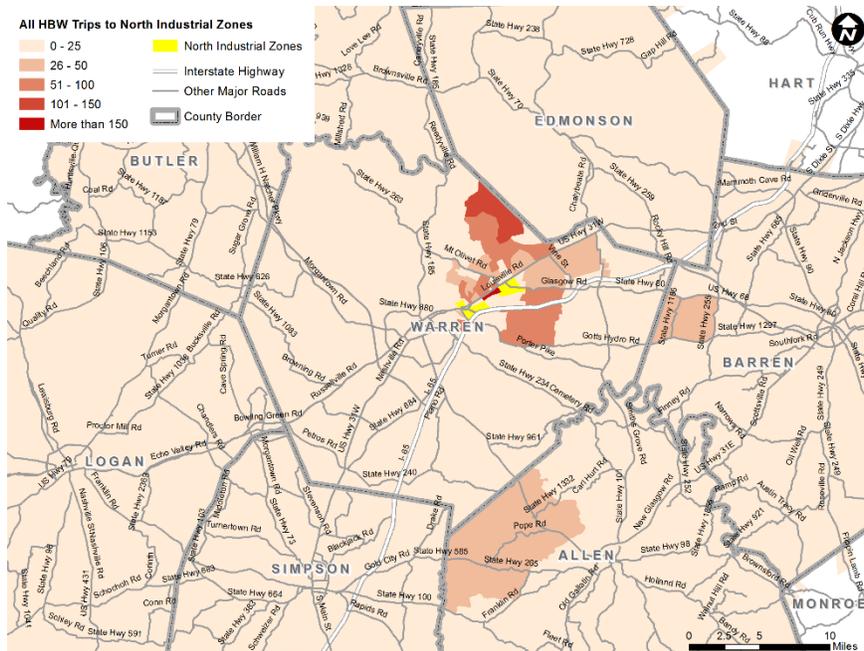


Figure 10: HBW Trips to South Industrial Area by Time Period

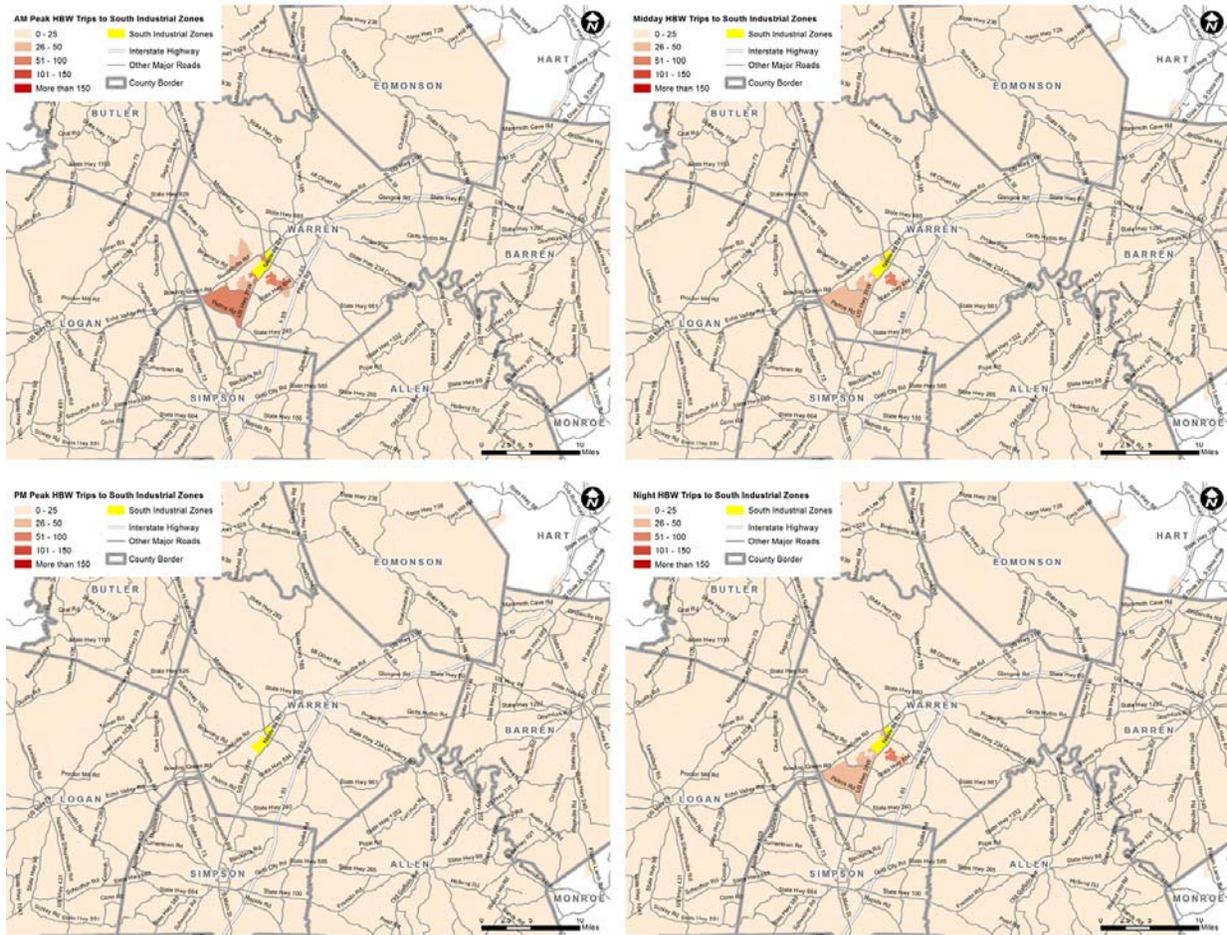
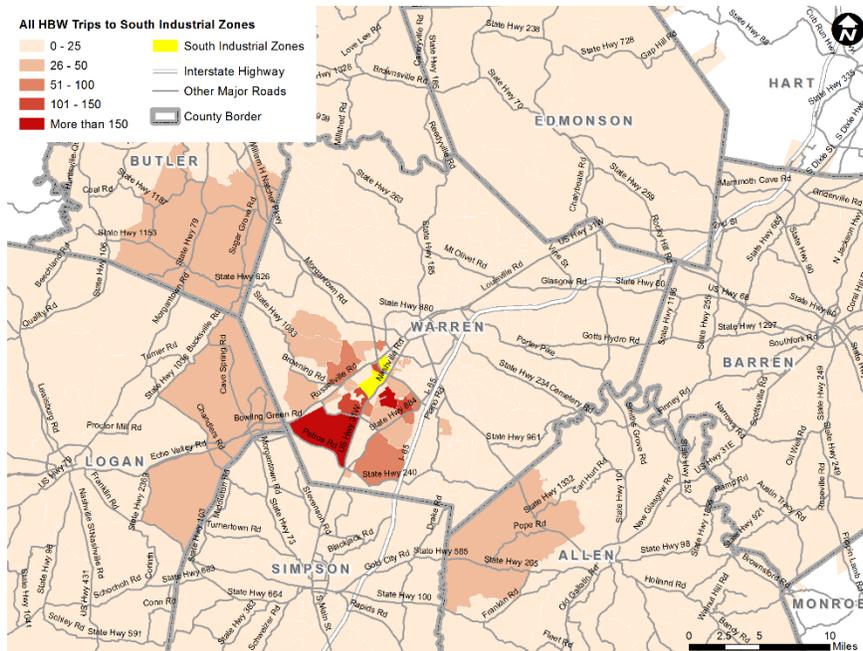


Figure 11: HBW Trips to South Industrial Area - All Time Periods



Gaps Analysis

The second part of the transit propensity analysis focused on identifying trip patterns between TAZs that are not currently served by transit, but where the origin zone has demographic characteristics that correlate with transit use. These trips patterns are often considered to be “gaps” in the system, indicating trips that people would be likely to make by transit if the service were available. The gaps analysis was also conducted using inputs from the Warren Area model, but the analysis was limited to TAZs within Warren County as this is generally defined as the transit service area for the GO bg system.

The first step in this analysis was to identify origin TAZs with a high propensity for transit use. These include zones with high percentages of minority population (>25%), households within income below the Federal poverty level (>25%), or households without access to a vehicle (>10%). However, a TAZ was only identified as having a high propensity for transit use if, in addition to meeting one or more of these demographic thresholds, the population density of the zone was also greater than five persons per acre. The second step in the analysis was to identify significant trip patterns originating from the high transit propensity zone that are not currently served by transit. Origin-destination pairs were identified for trip patterns with more than 100 trips per day, including all trip types and time periods, where one or both of the origin and destination zones were not intersected by a GO bg route.

The results of the gap analysis are shown in Figure 12 below. Four major trip patterns were identified as being gaps in the existing GO bg system, as described below:

1. Trips originating from the neighborhood south of the Greenwood Mall and north of Three Springs Road that are destined for the mall and other nearby destinations along Campbell Lane and Scottsville Road.
2. Trips originating from the neighborhoods directly south of SKyTC that are destined for the WKU main campus.
3. Trips originating from the neighborhood north of Russellville Road and west of US-68/Veterans Memorial Lane that are destined for either WKU, SKyTC, or the Morgantown Road Walmart.
4. Trips originating from the neighborhood north of Adams Street and Old Morgantown Road that are destined for the WKU main campus.

The identified gaps in the system vary in both the severity of the gap and the degree of difficulty of providing transit service to serve the identified origin zones or trip patterns. The neighborhood to the north of Russellville Road and west of US-68/Veterans Memorial Lane, for example, would likely be the most difficult to serve due to its remoteness from the existing system and the fact that trips originating from this zone are destined for three distinct areas. On the other hand, these are trips that are unlikely to be made by walking or cycling, whereas some parts of the neighborhood north of Adams Street and Old Morgantown Road are within walking distance of the WKU main campus. Similarly, many residents in the neighborhood south of SKyTC are likely within walking distance of either the Blue Line/Route 2 or Yellow Line/Route 4, both of which serve the WKU campus.

Figure 12: Gap Analysis Results



Stakeholder Outreach

The Bowling Green Area Chamber of Commerce provided assistance in conducting stakeholder outreach through the development, administration, and compilation of two surveys, one of which was distributed to employers in Bowling Green’s major industrial areas, and the other of which was distributed to social service and workforce development agencies that provide training and job placement assistance in the community. While the surveys were tailored to their respective audiences, both surveys sought to delineate the potential transit market for employees or prospective employees in the Bowling Green area by inquiring about the likelihood of transit use, the existing barriers to using transit for travel to work, and the locations where transit service would be most effective. The complete set of survey responses are included as an appendix to this document. A summary of the responses to each survey is provided below. The surveys and the responses were not scientific in a rigorous research sense. However, they did provide good insights into the needs of the respective populations of industrial employers and employees, and those local residents needing access to jobs, job, training and social services respectively.

Employer Survey

Survey responses were received from six industrial employers, four of which are located in the Kentucky Transpark area to the northeast of downtown and two of which are located in the South Central Kentucky Industrial Park to the southwest of downtown. As shown in Table 1 below, most of the survey respondents operate three shifts, with first shift workers accounting for nearly half of the total workforce. Of the six employers, three reported that nearly all of their employees drive alone to work. The other three estimated that anywhere from 15 to 40 percent of their employees either participate in a carpool, get dropped off, or walk or bike to work. Only two employers – Bendix and Shiloh – responded that some of their employees would likely be willing to use public transit if the service was convenient to their shift times, with an estimated 20 potential riders for first and second shifts. However, when asked about their willingness to subsidize transit service, none of the employers indicated that they were, at this point in time, willing to consider subsidizing transit service to their respective locations.

Table 1: Employer Survey Respondents and Employee Shift Times

Survey Respondents	Shift Times (Number of Employees)		
	1st Shift	2nd Shift	3rd Shift
American Howa Kentucky	6am (100+)	2pm (50+)	10pm (50+)
Bendix	6:30am (200)	2:30pm (125)	10:30pm (75)
Bilstein Cold Rolled Steel LP	7am (20)	3pm (TBD)	11pm (TBD)
Cannon Automotive Solutions	6am (40)	2:30pm (12)	10pm (10)
Shiloh Industries	6am (42)	3pm (19)	-
Valspar	7am (68)	3pm (16)	11pm (16)
Total Employees	470	222	151

Agency Survey

Survey responses were received from nine agencies involved in workforce development in Bowling Green, two of which responded to the survey twice, but seemingly covering different locations. As shown in Table 2, the types of agencies and the number of clients that they typically serve varied widely, from less than 20 clients to upwards of 2,000. In contrast with the responses from the industrial employers, all of the agencies responded that their clients would be likely to use transit to get to a new or existing job if it were available, but may not do so currently for a number of reasons. The most frequently cited reasons for not using transit were the limited service hours and days of the week that the GO bg system operates. Other reasons included job locations that were not served by the existing system, long or indirect routes, the reliability of schedules, cost of the service, and general inconvenience. Many of the agencies indicated that their clients are typically placed in jobs in the service industry including food service, hotels, and retail, as well as in industry, manufacturing, and warehousing/distributing, where hours vary widely and include shifts at all times of the day and days of the week. Due to the wide range and variability of shift times, these jobs are often the most difficult to serve with fixed route transit.

Table 2: Agency Survey Respondents and Number of Clients

Survey Respondents	Clients Currently or Typically Served
The Salvation Army (2)	75
Community Education	-
Haven4Change	55 annually
Potter Children's Home and Family Ministries	14
Cumberland Trace Elementary Family Resources Center	-
Goodwill Industries of Kentucky, West Region Job Junction	2,200 (since 2013)
HOTEL INC	250-500 annually
Audubon Area Community Services - Bowling Green (2)	45
Audubon Area Community Services - Owensboro	2,000

Existing System Overviews

GO bg Transit

The GO bg fixed route system is comprised of five routes which are operated from approximately 7am to 6pm on weekdays. In addition, two routes are operated as “shopper shuttles” on the second Saturday of each month from 9am to 3pm. In 2015, the system carried just under 106,000 passengers on weekdays. As shown in Figures 13 and 14, ridership has remained fairly constant over the past four years, but ridership gains and losses have not been evenly distributed across all routes. The Blue Line/Route 2 and Purple Line/Route 5 have experienced steady growth, but ridership on the Green Line/Route 3 and Yellow Line/Route 4 have declined since 2012 when recommendations from the previous route study were implemented.

Figure 13: GO bg Annual Weekday Fixed Route Ridership (2012-2015)

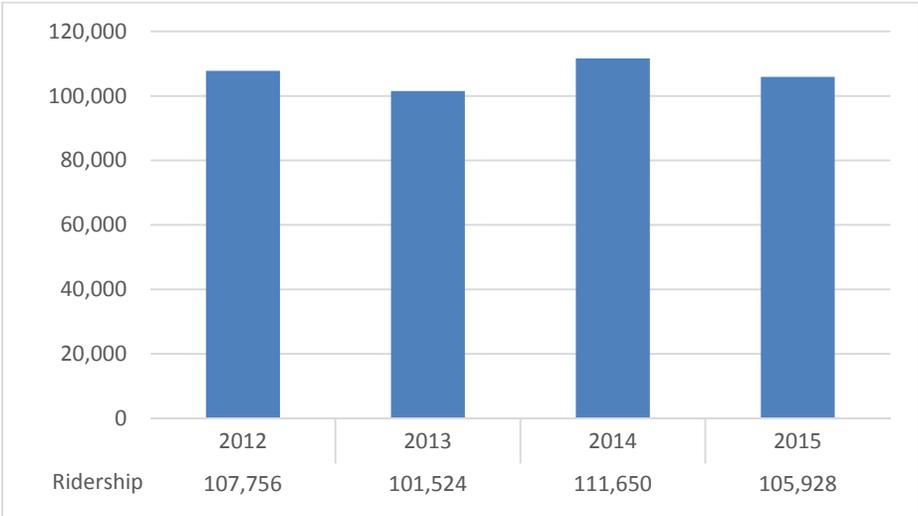
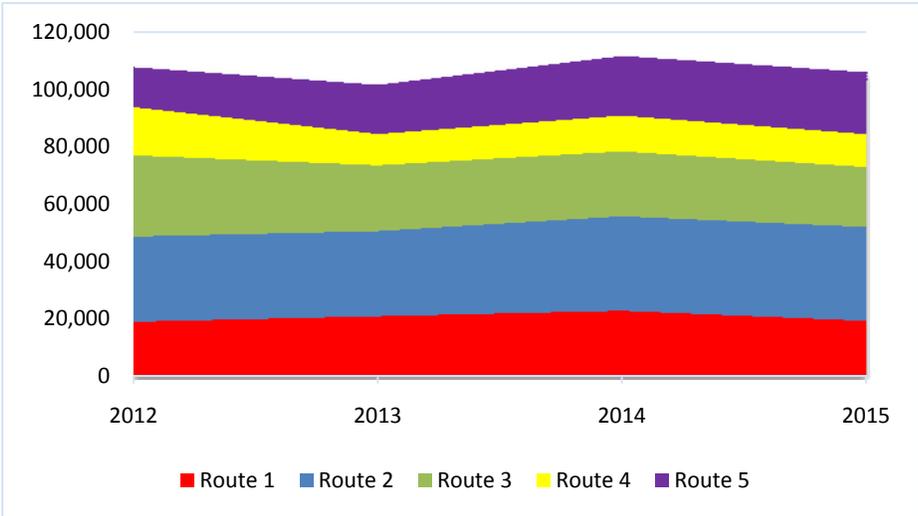


Figure 14: GO bg Annual Weekday Ridership by Route (2012-2015)



Prior to 2012, all of the GO bg routes except the Purple Line/Route 5 served the Community Action of Southern Kentucky (CASOKY) location on Beauty Avenue. The four routes were scheduled to “pulse”, or depart at the same time, from this location, which helped to facilitate transfers between the routes. However, there were drawbacks from using this location as the main transfer point in the system, the most significant of which was that it was not centrally located. Not only was the transfer point too far removed from the most important destinations in the region, but it also negatively impacted the on-time performance of the system because routes serving the southern areas of the city were often unable to complete their trip within the scheduled one-hour running time.

In 2012, the GO bg system was restructured to use the transit center located at 11th Avenue and Center Street in downtown Bowling Green as the central point of the system. Three of the routes – Red Line/Route 1, Green Line/Route 3, and Yellow Line/Route 4 – serve the new transit center directly, while the Blue Line/Route 2 serves a stop two blocks away on State Street. The Red Line/Route 1 and Blue Line/Route 2 continue to layover at the CASOKY location on Beauty Avenue, and their departures there are coordinated. The Green Line/Route 3 and Yellow Line/Route 4 layover at the downtown transit center, but have only a brief scheduled overlap at that location. There are many other connection points between routes throughout the system which facilitate “field” transfers at less centralized locations. However, given the large number of connection points in the system, it is not feasible to time the majority of these transfers, and consequently transfers between some routes necessitate a long wait time.

The fifth route in the GO bg system, the Purple Line/Route 5, is somewhat distinct because it is operated more frequently than the other routes (which are all operated hourly) and does not serve the downtown transit center. The Purple Line/Route 5 is operated every 15 minutes from 7am-1pm and every half hour from 1pm-6pm during WKU’s Fall and Spring semesters. During the remainder of the year, the Purple Line/Route 5 is operated every half hour from 7am-6pm.

A brief description of each GO bg route is provided in the following sections. Major trip generators for each route were identified based on ridership data collected as part of the 2010 study and input from GO bg staff.

Red Line/Route 1

The Red Line/Route 1 is comprised of two one-way loops that are both operated in the counter-clockwise direction. The northern loop serves the CASOKY location on Beauty Avenue, as well as a number of low-income housing facilities. The southern loop provides circulation through downtown Bowling Green, including to the downtown transit center, as well as bidirectional service on a segment of Old Louisville Road.

As shown in Figure 16, annual weekday ridership on the Red Line/Route 1 increased by nearly 4,000 passengers from 2012 to 2014, but declined in 2015. As shown in Figure 15, the route is evenly utilized throughout the day, with a small decline in ridership on the last two trips of the day.

The major trip generators for the Red Line/Route 1 are mostly low-income housing facilities, social service agencies, and shopping and medical destinations. These include both the Beauty Avenue and Center Street locations of CASOKY, Fort Webb Manor, HOTEL Inc., the Salvation Army, Fairview Health Center, Fairview Plaza, and the Kroger on the US-31 Bypass.

Figure 15: Red Line/Route 1 - 2015 Average Hourly Ridership

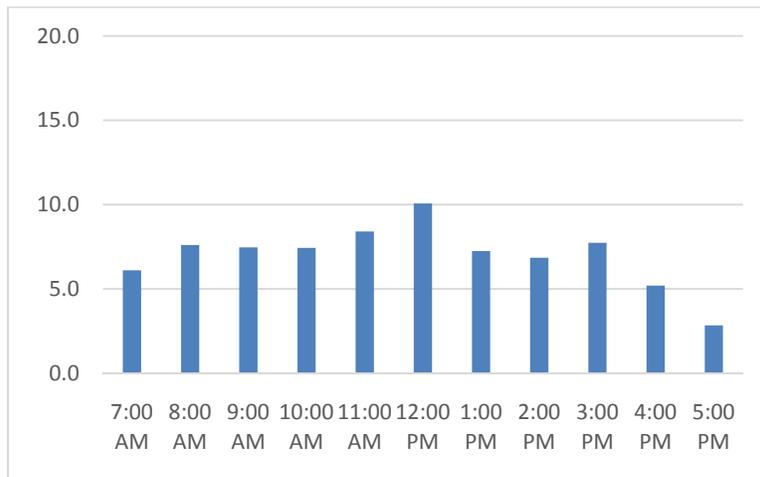


Figure 16: Red Line/Route 1 - Annual Weekday Ridership (2012-2015)

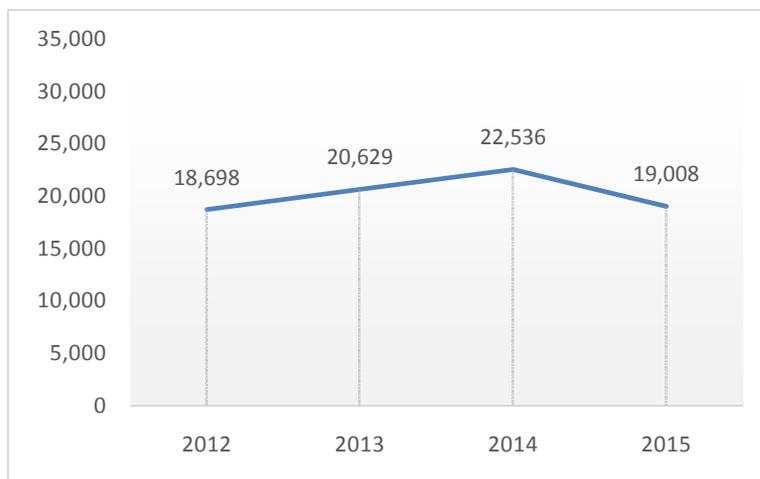
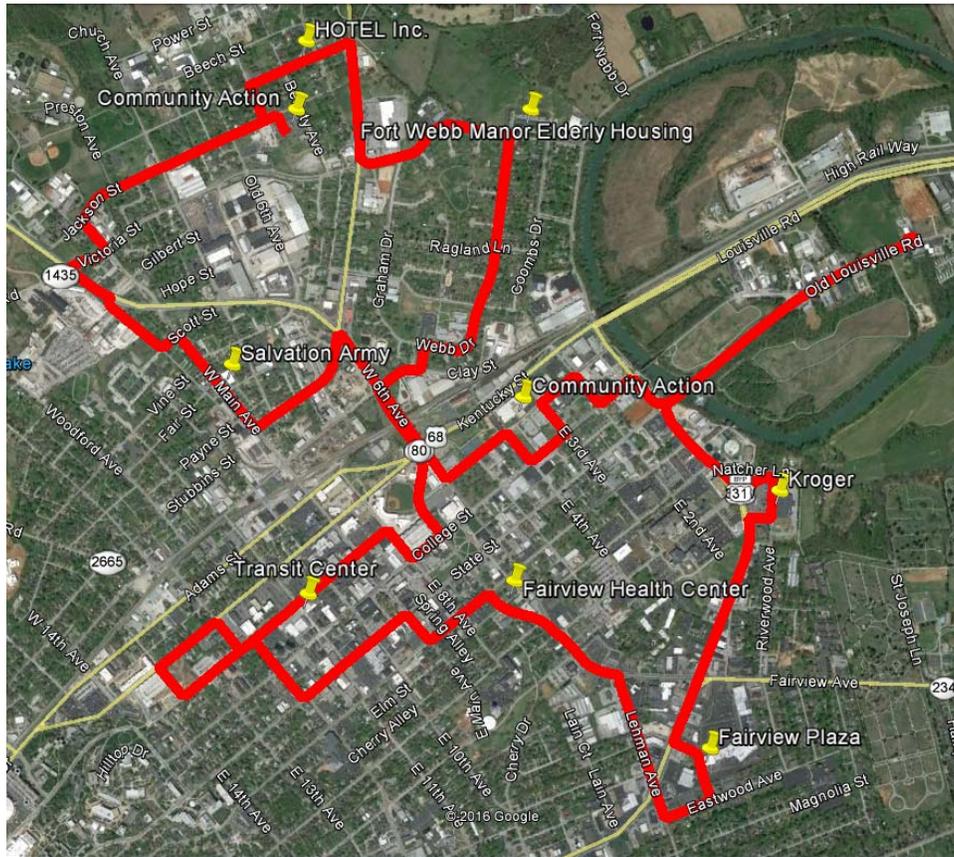


Figure 17: Red Line/Route 1 - Major Trip Generators



Blue Line/Route 2

The Blue Line/Route 2 is operated as a large one-way loop in the counter-clockwise direction, with the exception of a smaller loop serving SKyTC and the Wal-Mart on Morgantown Road, which is operated in the clockwise direction. The route connects the West End with many of the major destinations in the region, including downtown Bowling Green, WKU's main campus, and SKyTC. It is unsurprising, then, that the Blue Line/Route 2 is the best performing route in the GO bg system.

As shown in Figure 19, ridership on the Blue Line/Route 2 has generally increased over the past four years. In 2015, this route carried nearly 33,000 passengers on weekdays, which is almost three times as many riders as on GO bg's lowest performing route, the Yellow Line/Route 4. As shown in Figure 18, ridership is highest on the 8am trip, but the route is well utilized throughout the day.

The major trip generators for the Blue Line/Route 2 are social service agencies, and educational, shopping, and medical destinations. These include the CASOKY Beauty Avenue location, The Medical Center, Warren County Public Library, many destinations along Normal Drive/State Street on WKU's main campus, SKyTC, the Western Gateway Shopping Center and the Walmart on Morgantown Road.

Figure 18: Blue Line/Route 2 - 2015 Average Hourly Ridership

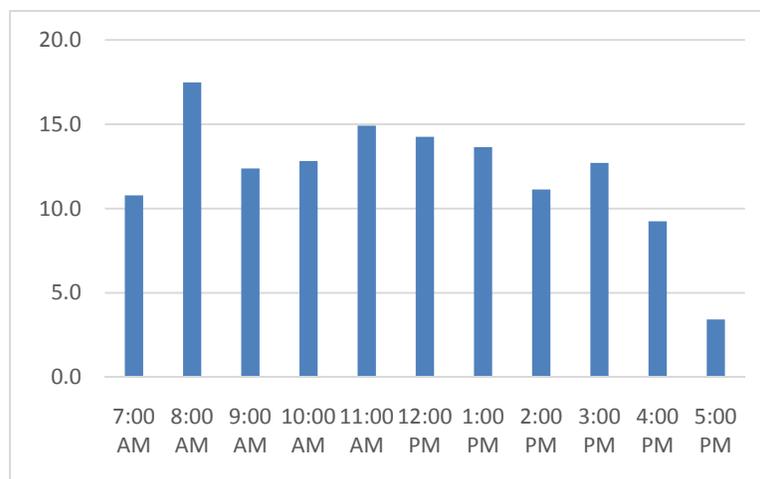


Figure 19: Blue Line/Route 2 - Annual Weekday Ridership (2012-2015)

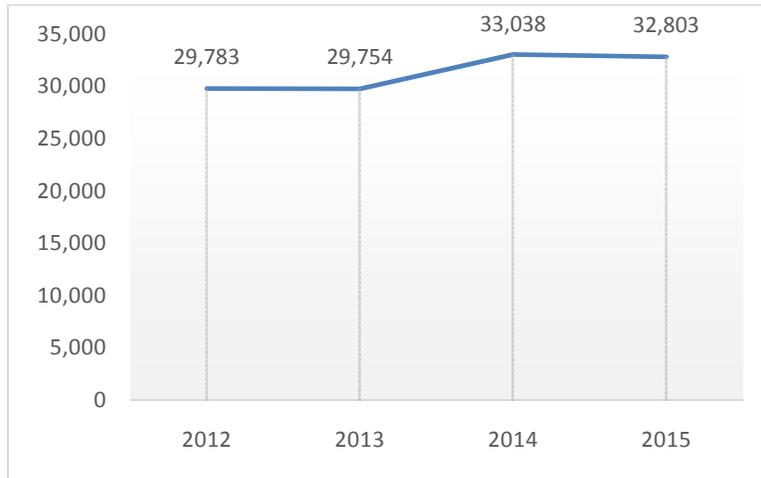
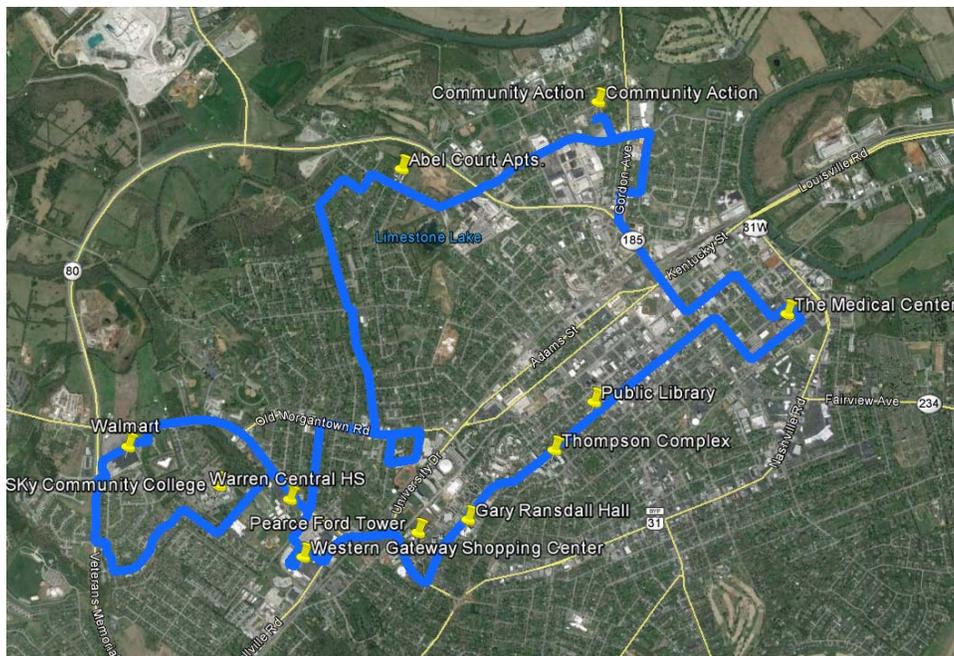


Figure 20: Blue Line/Route 2 - Major Trip Generators



Green Line/Route 3

The Green Line/Route 3 is more linear than most of the other routes in the GO bg system, but due to the poor pedestrian environment on Scottsville Road, there are limited opportunities to safely cross the road and take advantage of the linear structure of the route. As a result, the route functions more like a one-way loop operated in the counter-clockwise direction than a bidirectional route.

As shown in Figure 22, ridership on the Green Line/Route 3 decreased sharply from 2012 to 2013, with a loss of more than 5,000 riders, and has continued to decline over the past two years, although at a slower rate. Part of the explanation for the sudden drop in ridership in 2013 may be due to the opening of the new Walmart on Morgantown Road, which resulted in reduced demand for the Campbell Lane Walmart. It also suggests that the Green Line/Route 3 may have been negatively impacted by losing its timed transfer connections with the Red Line/Route 1 and Blue Line/Route 2 when the system was restructured.

The Green Line/Route 3 is currently being operated a half hour earlier and a half hour later than the other routes in the system on a trial basis. As shown in Figure 21, ridership on the first trip of the day was low in 2015, but more data may need to be collected to before reaching a conclusion about the success of the trial.

The major trip generators for the Green Line/Route 3 are low-income housing complexes, several major shopping destinations, and the hospital. These include the BG Towers, the various apartment complexes located along Bryant Way, the Greenwood Mall and its surrounding retail destinations (Target, Walmart, Kroger, Kmart), Greenview Hospital, and the International Center of Kentucky.

Figure 21: Green Line/Route 3 - 2015 Average Hourly Ridership

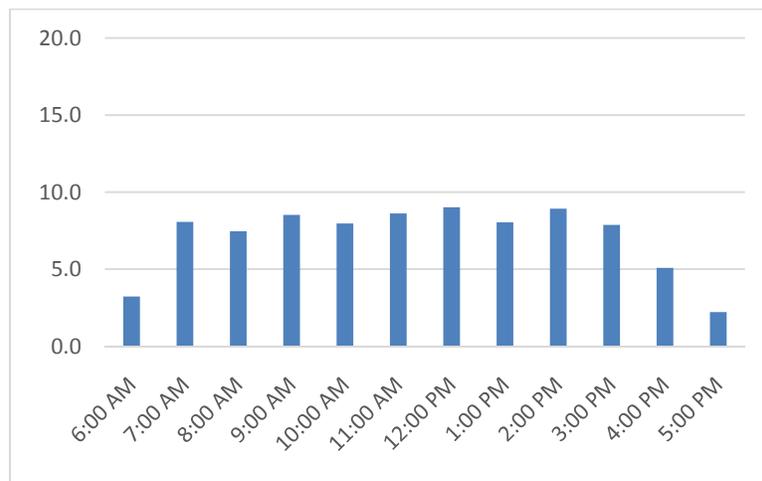
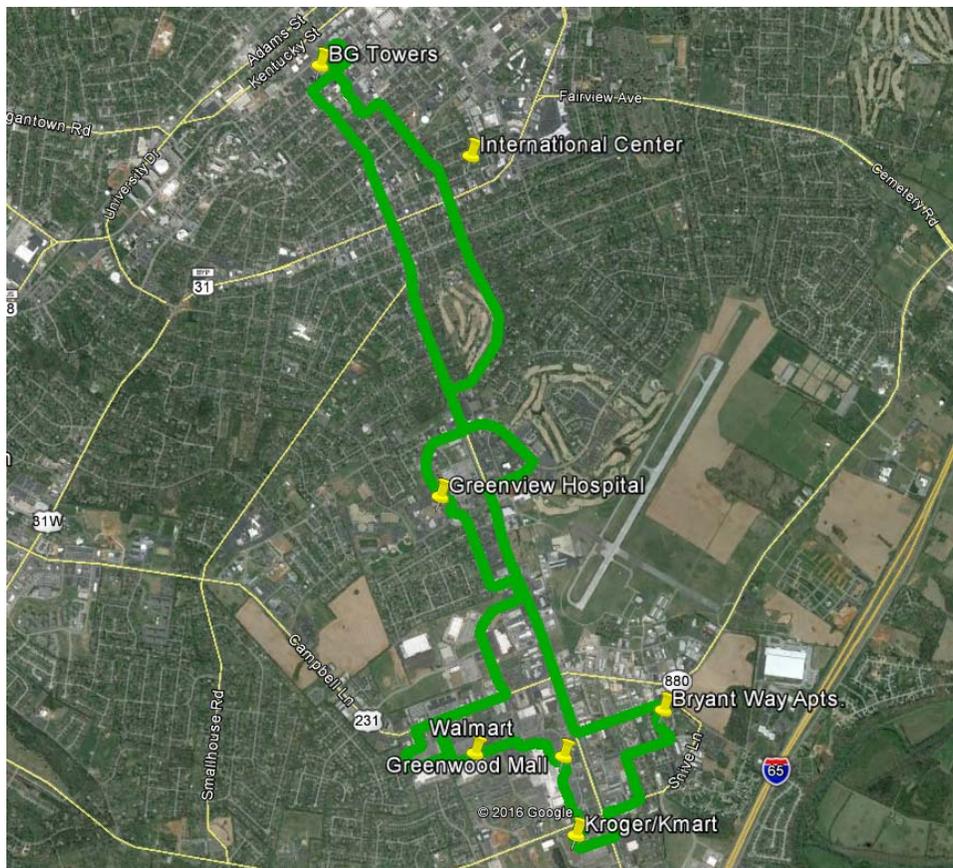


Figure 22: Green Line/Route 3 - Annual Weekday Ridership (2012-2015)



Figure 23: Green Line/Route 3 - Major Trip Generators



Yellow Line/Route 4

The Yellow Line/Route 4 operates as a large one-way loop on the southwest side of Bowling Green, connecting the neighborhoods south of downtown with the Greenview Hospital and destinations along Campbell Lane and Russellville Road. The route also connects WKU's south campus and Campbell Road park and ride with the backside of the main campus, but does not penetrate either campus and provides a far less efficient trip than Topper Transit's White Line.

As shown in Figure 25, ridership on the Yellow Line/Route 4 also decreased sharply from 2012 to 2013, with a loss of almost 6,000 riders. The decline in ridership from 2012 to 2013 suggests that, like the Green Line/Route 3, the route has suffered from the loss of its timed transfer with the Red Line/Route 1 and Blue Line/Route 2. As shown in Figure 24, the Yellow Line/Route 4 carries fewer than five passengers per hour over the course of the day.

The major trip generators for the Yellow Line/Route 4 are low-income and student housing complexes, retail destinations, and the hospital. These include the Plaza Shopping Center, Kroger on Campbell Lane, Western Gateway Shopping Center, Regency Park Apartments, and the Greenview Hospital.

Figure 24: Yellow Line/Route 4 - 2015 Average Hourly Ridership

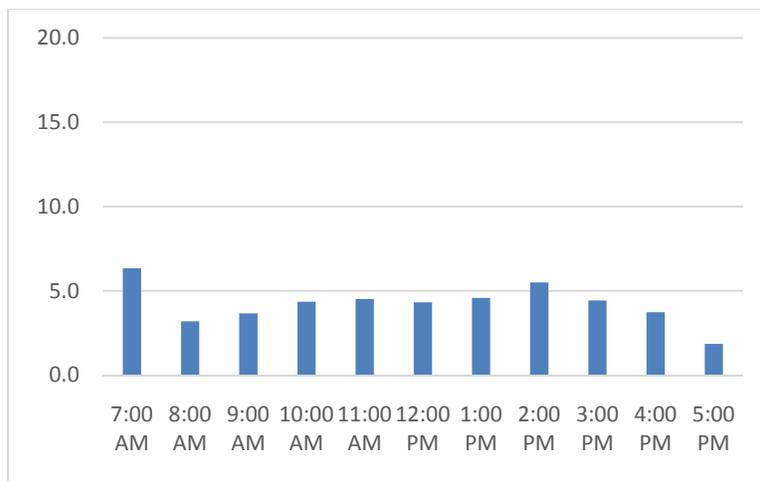


Figure 25: Yellow Line/Route 4 - Annual Weekday Ridership (2012-2015)

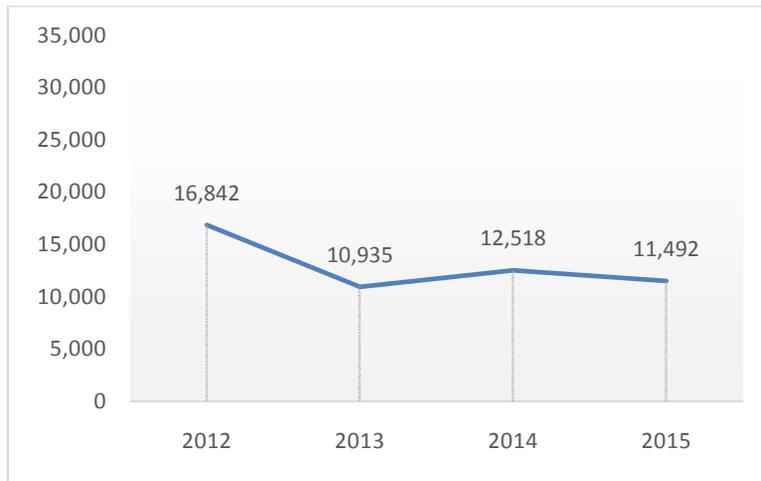
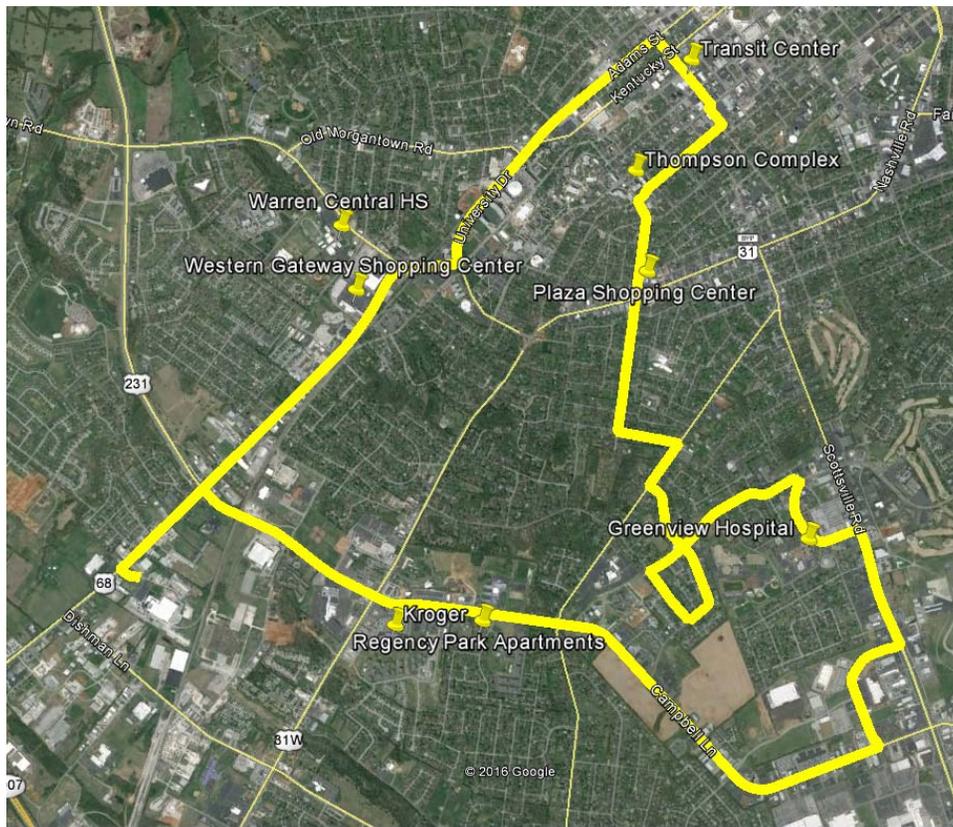


Figure 26: Yellow Line/Route 4 - Major Trip Generators



Purple Line/Route 5

The Purple Line/Route 5 is the most bidirectional route in the GO bg system, and is operated more frequently than the other routes in the system, particularly during WKU's Fall and Spring semesters. The route connects the various apartment complexes to the east of Nashville Road along Campbell Lane with shopping destinations along the US-31 Bypass and WKU's main campus, but does not serve the downtown transit center. Connections to the Blue Line/Route can be made on WKU's main campus and connections to the Yellow Line/Route 4 are possible at the Plaza Shopping Center.

As shown in Figure 28, ridership on the Purple Line/Route 5 has grown every year over the past four years. The route carried more than 7,000 additional riders in 2015 than in 2012. As shown in Figure 29, ridership is higher in the morning, but not markedly so given that the route is operated twice as frequently from 7am to 1pm during WKU's Fall and Spring semesters.

The major trip generators for this route are the Regency Park and College Suites Apartments, Kroger on Campbell Lane, Goodwill, Plaza Shopping Center, and various WKU destinations along Normal Drive/State Street.

Figure 27: Purple Line/Route 5 - 2015 Average Hourly Ridership

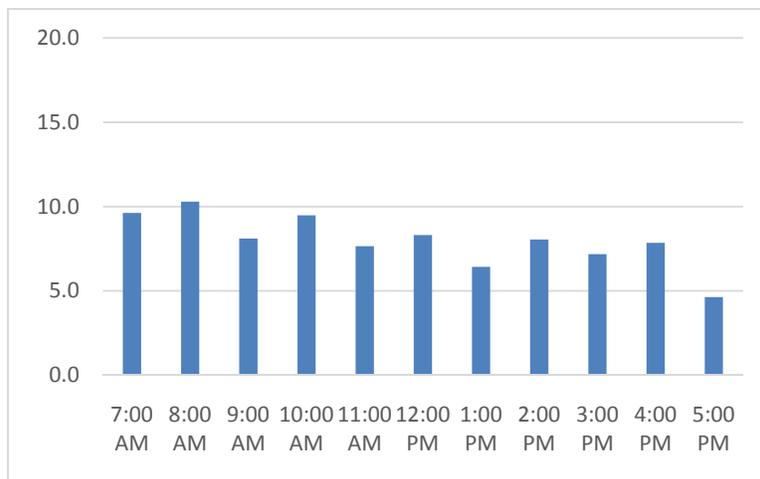


Figure 28: Purple Line/Route 5 - Annual Weekday Ridership (2012-2015)

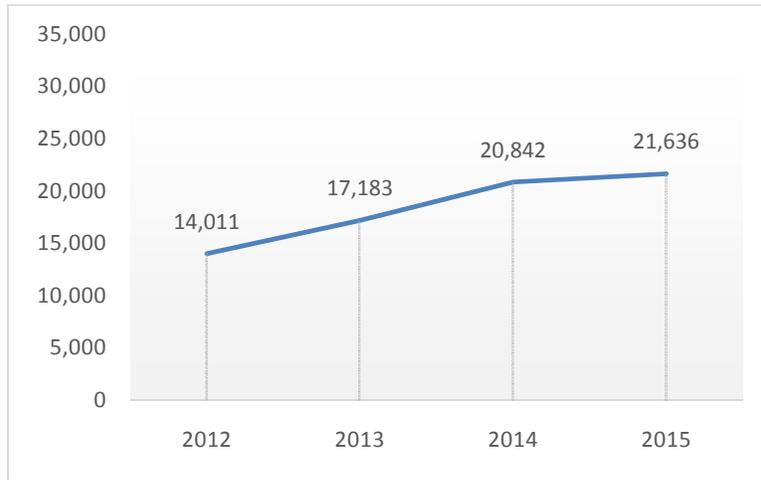
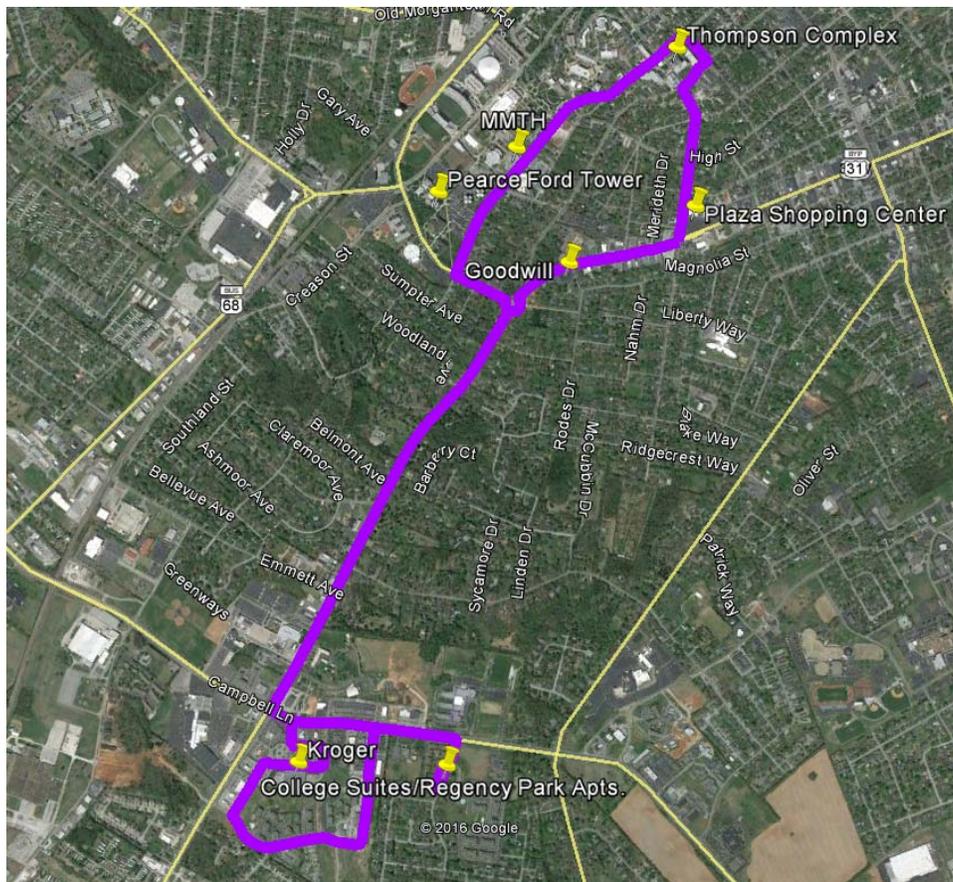


Figure 29: Purple Line/Route 4 - Major Trip Generators



WKU Topper Transit

WKU's Topper Transit system consists of six routes that are primarily oriented toward providing connections between the university's various parking lots and garages and the major destinations on the main campus, as well as providing circulation within the campus and between the south and main campuses. Several routes also provide connections to off-campus destinations, including downtown Bowling Green, the Greenwood Mall area, and several off-campus student apartment complexes. Most routes are operated Monday through Friday during WKU's Fall and Spring semesters, with the exception of the Green Line, which is operated on Saturdays, and the Purple Line which is operated on Thursday, Friday, and Saturday evenings only.

In FY 2015 the Topper Transit system carried over 730,000 riders, which represents a 28% increase over the prior year. As shown in Figures 30 and 31, ridership on the Topper Transit system has grown in direct relation to the quantity of service provided by WKU. As service hours and miles have increased over the past four years, so has ridership. More importantly, the productivity of the system has continued to improve even as additional service has been operated. In FY 2012, the system carried 3.7 passengers per service mile and 42.8 passengers per service hour, and in FY 2015 it carried 4.2 passenger per service mile and 43.2 passengers per service hour.

Figure 30: Topper Transit Annual Ridership (FY 2012 – FY 2015)

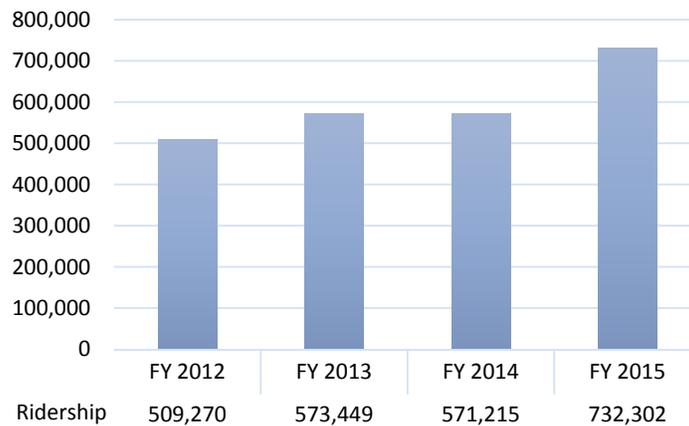
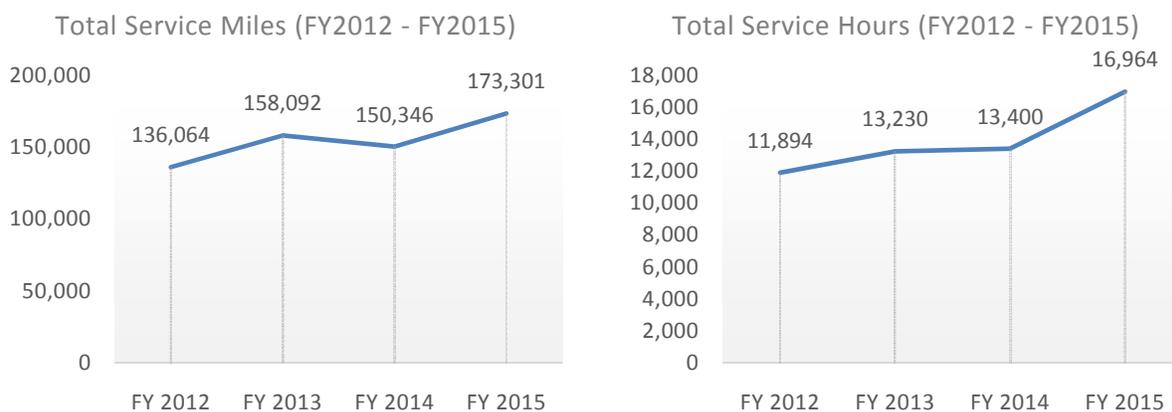


Figure 31: Topper Transit Annual Service Miles and Hours (FY 2012 – FY 2015)

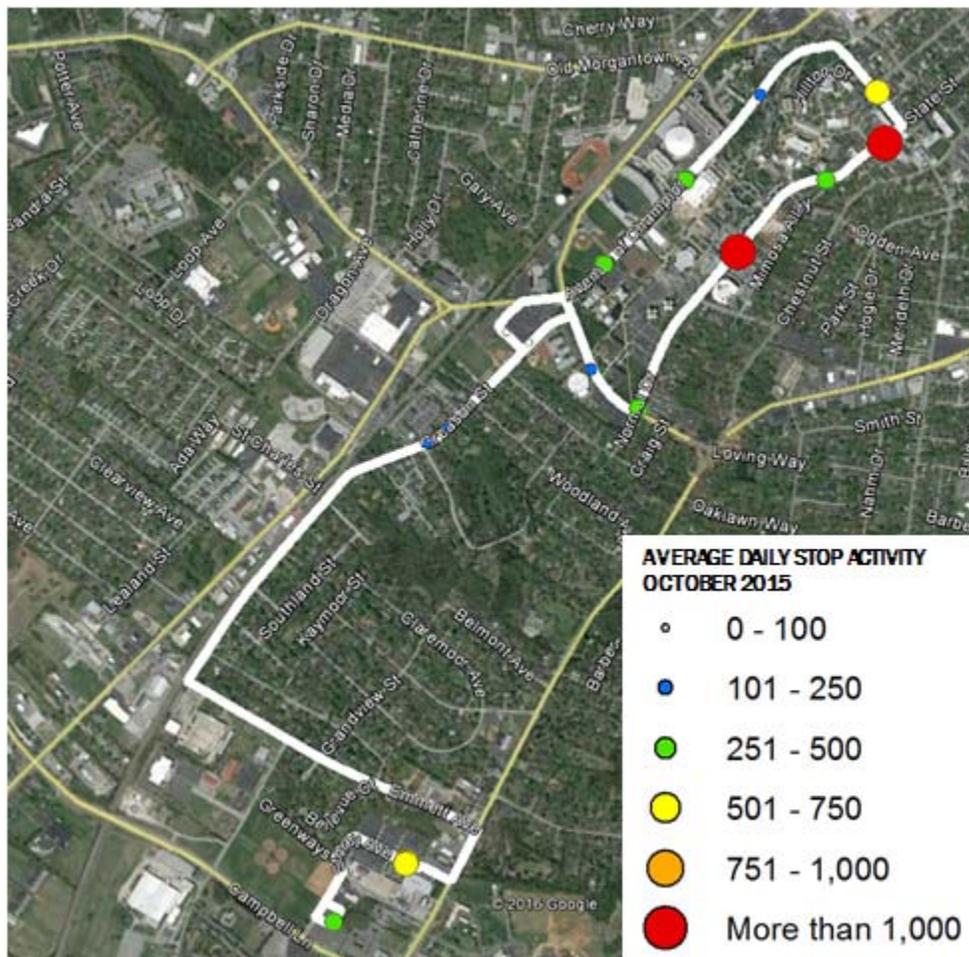


A brief description of each of the Topper Transit routes is provided below. The average daily stop activities shown for each route were collected in October 2015 from the system's automatic passenger counters.

White Line

The White Line is the backbone of the Topper Transit system, operating every 6 minutes from 7:15am to 3pm and every 12 minutes from 3pm to 6pm. The route connects WKU's main and south campuses and provides circulation from the Creason parking lot around the main campus, traveling northbound on Normal Street and southbound on College Heights Boulevard. As shown in Figure 32, several stops on the White Line have more than 1,000 daily boardings + alightings, including the Ransdell Hall and EST stops on Normal Drive and the South Campus stops (when inbound and outbound stops are combined).

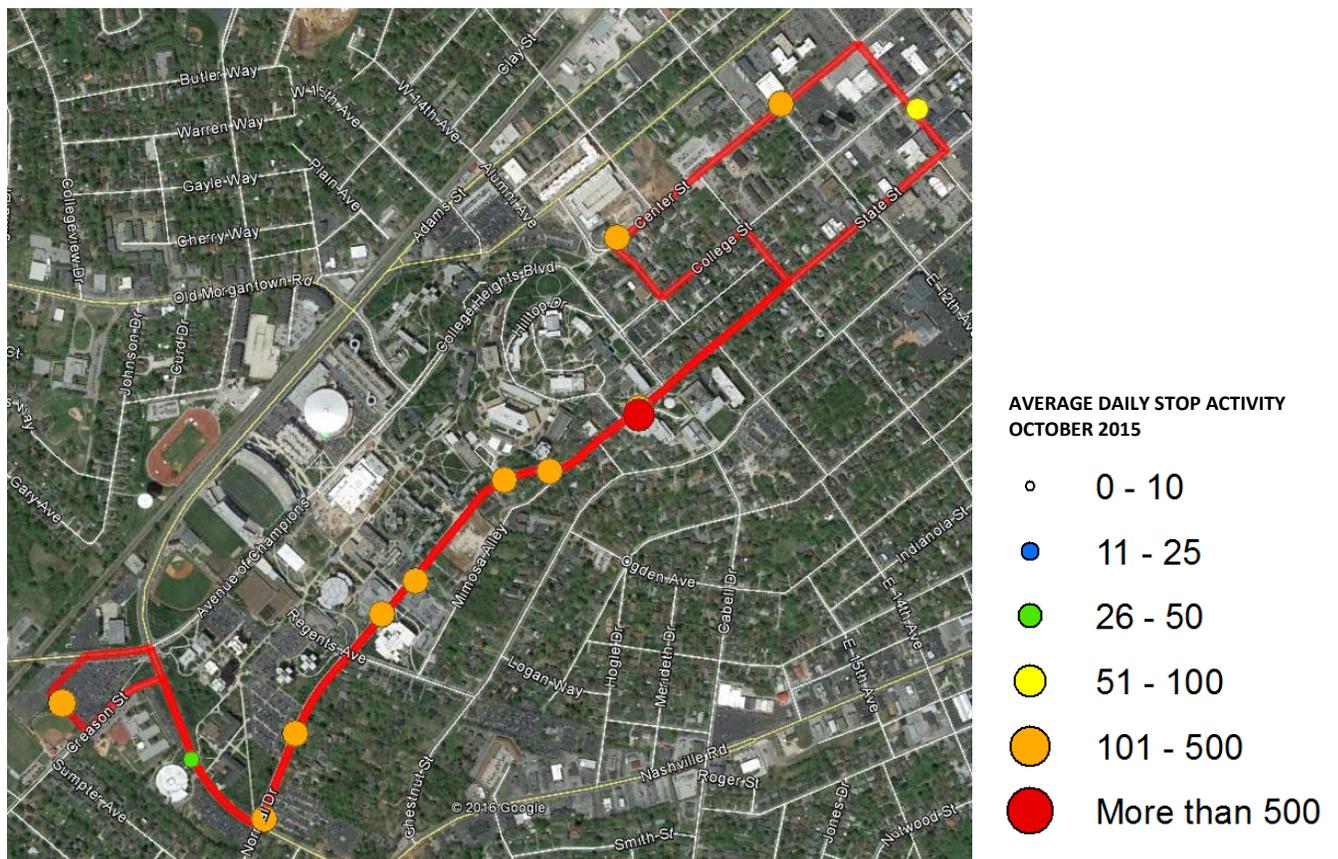
Figure 32: White Line Average Daily Stop Activity



Red Line

The Red Line complements the White Line by providing circulation from the Creason parking lot to the main campus, but in contrast with the White Line, the Red Line operates bidirectionally on Normal Drive and continues into downtown Bowling Green to serve several off-campus student apartment complexes and connect with the GO bg downtown transit center. The Red Line is operated every 10 minutes from 7:25am to 3pm and every 15 minutes from 3pm to 6pm. As shown in Figure 33, most stops on the route are very well utilized, with 11 of the 13 total stops having more than 100 daily boardings + alightings. On average, 30 daily boardings and 30 daily alightings occurred at the stop nearest to the GO bg transit center at 11th Avenue and College.

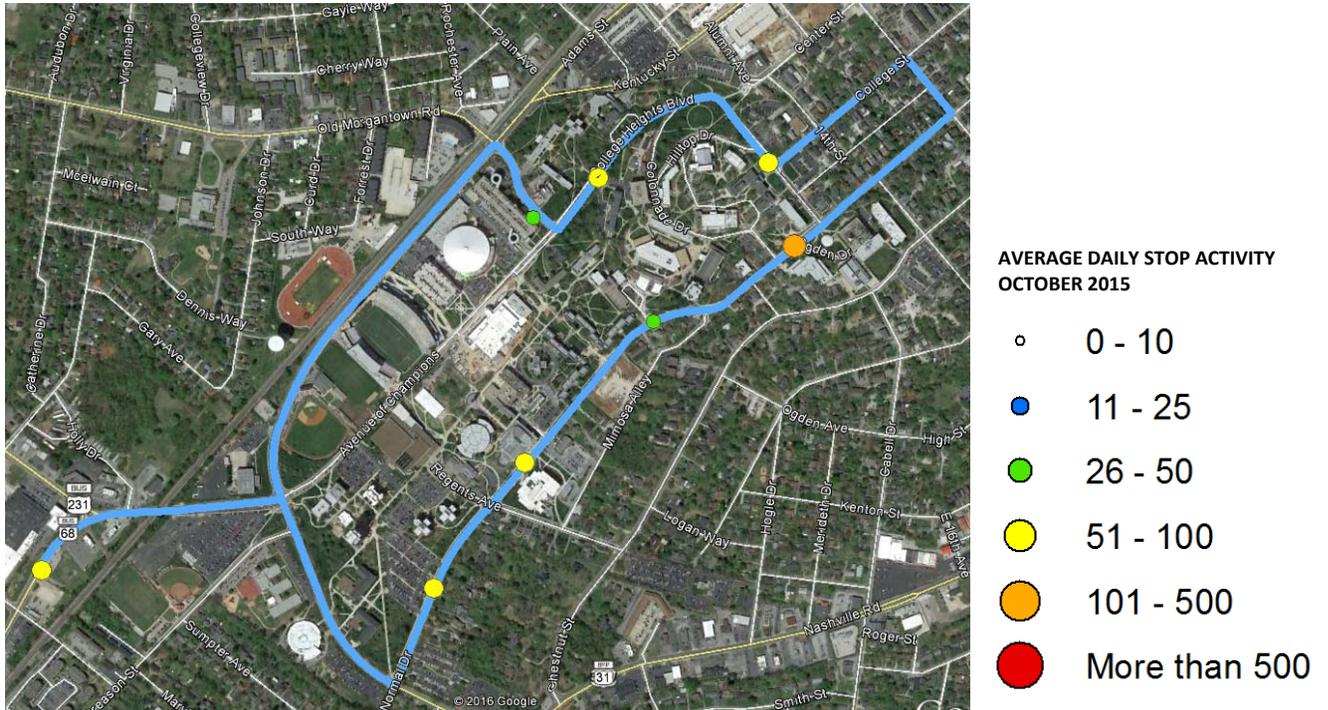
Figure 33: Red Line Average Daily Stop Activity



Blue Line

The Blue Line is the only Topper Transit route which operates in the clockwise direction around the campus. It primarily serves commuters traveling from the Russellville Road parking lot, and to a lesser extent the PS1 parking garage, to destinations along Normal Drive. The Blue Line is operated every 15 minutes from 7:15am to 6pm.

Figure 34: Blue Line Average Daily Stop Activity



Green Line Express

The Green Line Express is operated only in the afternoons, from 2pm to 6pm, and provides a connection between WKU's south campus, the Kroger on Campbell Lane, and the Greenwood Mall and its surrounding retail destinations. The ridership data suggests that most passengers utilize this route in the outbound direction, traveling from south campus to the Greenwood Mall area, and may use the Green Line to make their return trip after 6pm. In comparison with some of the other Topper Transit routes, the Green Line Express is not very well utilized, but it hasn't been in operation for very long and has had longer than expected running times which may impact on-time performance.

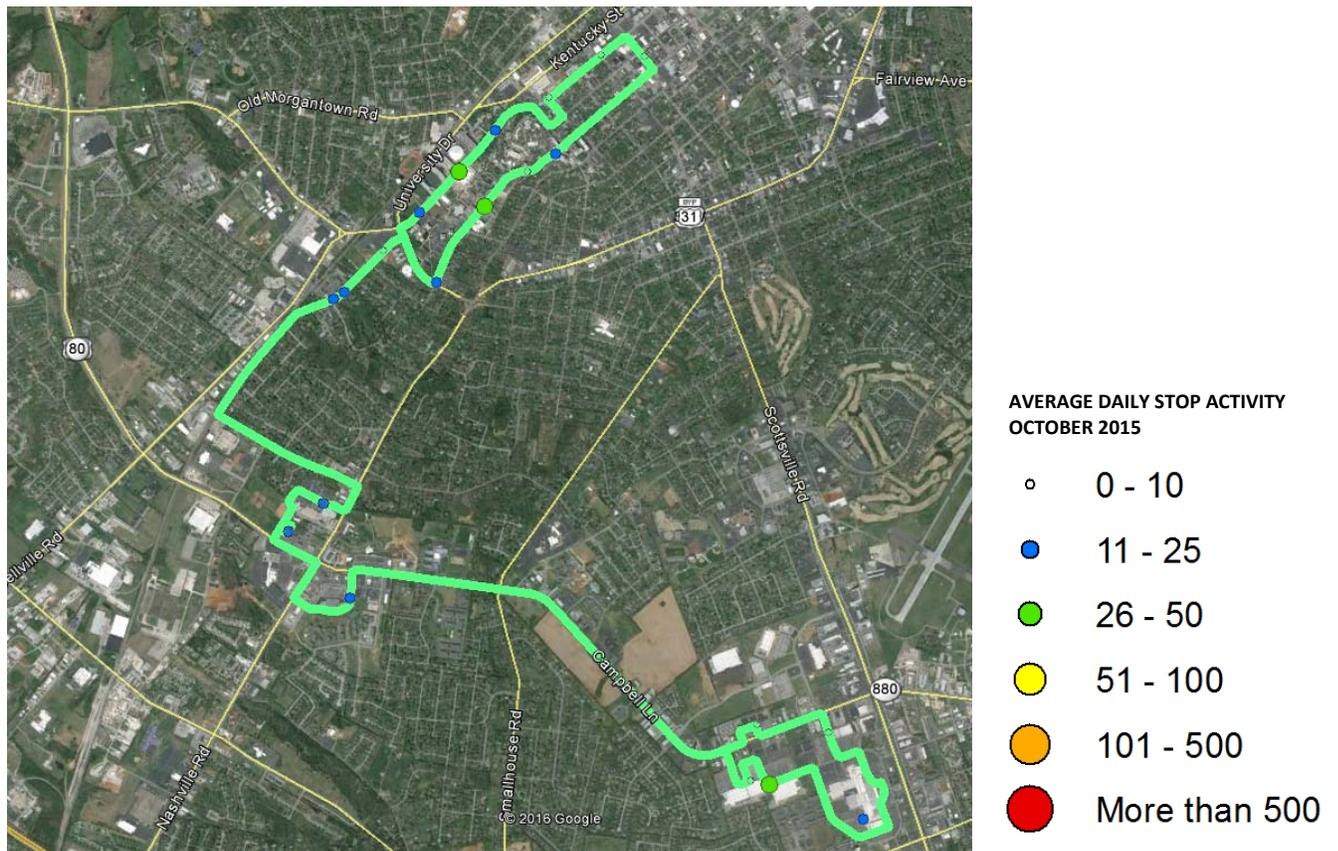
Figure 35: Green Line Express Average Daily Stop Activity



Green Line

The Green Line is the “catch all” route of the Topper Transit system, providing night and weekend service between the two campuses and connections to off-campus housing and shopping destinations along Campbell Lane. The route is operated every 30 minutes during the evenings, from 6pm to 10pm, and hourly on Saturdays, from 4pm to 8pm. The ridership data suggests that most passengers utilize the Green Line either to travel from the Greenwood Mall area back to the main campus or from the south campus to the main campus; there is very little travel from the south campus to the mall area and the downtown stops are not well utilized.

Figure 36: Green Line Average Daily Stop Activity



Recommendations and Implementation

The existing conditions analysis, including the analysis of study area demographics, transit propensity, and individual routes that comprise the system, indicates that GO bg does a good job of providing transit service to the areas where it is most likely to be used. Areas with the highest population and employment densities, as well as high percentages of the residents who are most likely to use transit, are largely covered by the existing GO bg system. The gaps analysis found relatively few trip patterns where transit service might be utilized if it were available, and most of the trips patterns that were identified had origin locations at the periphery of the existing service area.

The major limitations of the system, then, are not that it doesn't provide service to the right areas, but that the service is infrequent and often indirect due to the prevalence of large one-way loops. These limitations, however, are for the most part the result of limited resources – any increase in frequency or move towards more bidirectional service will require either additional revenue or a loss of coverage to an area that is currently served by the existing system. Moreover, providing service to new areas, whether it's the industrial parks along US-31W or the emerging medical and social services hub on Lovers Lane, will also require either additional resources or a reallocation of existing service. The central challenge of this plan is to balance the needs of transit passengers in the existing service area with the potential for developing new transit markets by extending service to these new areas. The results of the transit propensity analysis and survey responses from industrial employers and agencies involved in workforce development indicate that new service to the Lovers Lane area is likely to be better utilized than service to either of the industrial parks, given the myriad of challenges related to serving a workforce market that is widely dispersed and largely located in the rural and semi-rural areas of Warren County and beyond. Since there are finite resources to devote to transit, they would be better spent on accommodating and serving the social service, medical and job training travel needs rather than the industrial employment needs.

However, given the remoteness of the Lovers Lane destinations, it is also unlikely that any service extended to that corridor would be more productive than any of GO bg's existing routes, and therefore it is not recommended that existing service be reallocated in order to serve the Lovers Lane corridor. Additional revenue will be required in order to serve Lovers Lane, as well as to transition the system towards providing more frequent and bidirectional service.

With these limitations in mind, recommendations were developed for the following scenarios:

- **Scenario 1** – This is a cost neutral scenario for a future in which there would be no additional resources available for the GO bg system. Recommendations for this scenario include reallocation of resources from less to more productive areas of the system and smaller modifications that can be accomplished with the existing resources, with limited extension of service to new areas.
- **Scenario 2** – This scenario is for a future in which there would be a small increase in existing resources, with enough funding to operate one additional vehicle for all or part of GO bg's existing service span. Recommendations for this scenario include the restructuring and smaller scale modifications to routes that are included in Scenario 1, as well as a new route which would provide service to the Lovers Lane corridor.

- **Scenario 3** – This scenario is for a future in which GO bg has far fewer financial constraints. However, this is not an “unconstrained” scenario, but rather represents the level of fixed route transit service that the Bowling Green region could reasonably support while still maintaining a high level of efficiency and fiscal accountability. Recommendations for this scenario include the introduction of two new, corridor-based routes which would extend GO bg Transit’s service area on the southwest side of Bowling Green.

Detailed recommendations for each of these scenarios are provided below.

Scenario 1 – Cost Neutral

Recommendations for this cost neutral scenario include a reallocation of resources from less to more productive areas of the system and a restructuring of the Blue and Purple Lines to complement and capitalize on the large quantity of service that Topper Transit operates both within and between its campus locations. In this scenario, the Blue and Purple Lines would undergo significant modifications, while the Green and Red Lines would remain largely unchanged. The Yellow Line, which carries far fewer passengers than any other route in the system, would be eliminated, with some segments previously served by the route now covered by the proposed Purple and Black Lines.

As shown in Figure 37, a new Black Line route would provide service along the central spine of Bowling Green, connecting the major regional destinations with a single route, including downtown Bowling Green, The Medical Center, the WKU main campus, and SKyTC. The Black Line would also extend service into the neighborhood south of SkyTC, providing the connection between this neighborhood and the WKU campus that was identified in the gaps analysis.

The Blue Line would be restructured as a largely bidirectional route, providing two-way service between downtown Bowling Green, the West End neighborhood, SKyTC, Wal-Mart on Morgantown Road, and the Western Gateway Shopping Center. This two-way route will greatly improve the quality of service in the West End, eliminating the need for passengers to travel the entire loop of the existing Blue Line in order to complete their trip. The Blue Line would no longer directly serve the WKU main campus, but would provide transfer opportunities with the Topper Transit at the downtown transit center and the Russellville Road park and ride lot. Eliminated sections of the Blue Line in downtown and in the neighborhood surrounding the CASOKY – Beauty Avenue location will be served by the proposed Black and Red Lines.

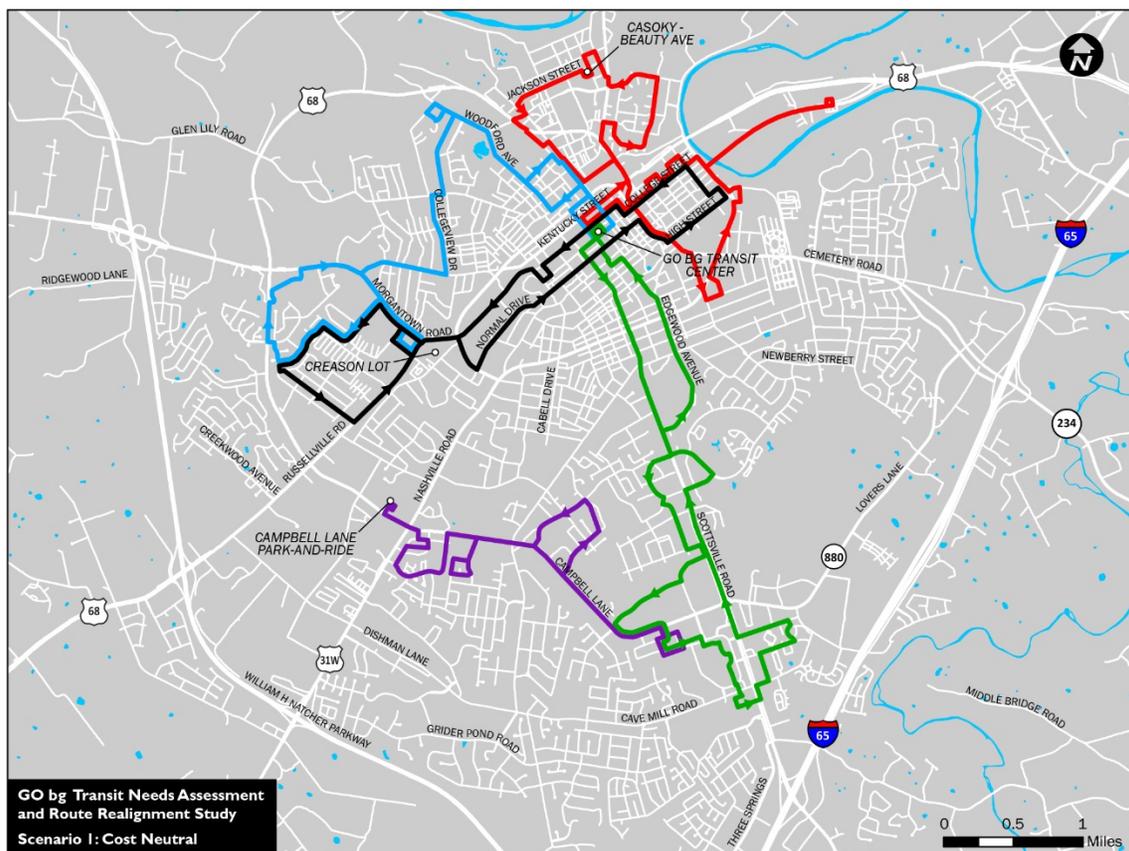
The Purple Line would also be restructured to provide bidirectional service along the Campbell Lane corridor, connecting the WKU south campus with the Campbell Lane Kroger shopping plaza, Regency Park and College Suites apartments, and Greenwood mall retail area. While this route would eliminate the direct connection between the apartments south of Campbell Lane and the WKU main campus, it would provide a direct connection with the Campbell Lane park and ride lot, allowing students and other Purple Line passengers to transfer to the very frequent Topper Transit White Line to reach the main campus. Conversely, Topper Transit passengers originating from the main campus could transfer to the Purple Line at south campus to reach the Greenwood mall area during the day. The proposed Purple Line would also serve the neighborhood along Patrick Way, which is currently served by the Yellow Line.

There are no proposed changes for the Green Line in this scenario, and the proposed changes for the Red Line are relatively minor. The proposed Red Line would turn at the downtown transit center,

rather than continuing on Center Street to East 13th Avenue. The eliminated segments on Center Street and State Street would be served by the Black Line.

As mentioned previously, the Yellow Line is proposed to be eliminated in this scenario. Segments of the existing route, including sections of Russellville Road, Campbell Lane, and Patrick Way, would be served by the Black and Purple Lines, and much of the southeastern section of the Yellow Line would continue to be served by the Green Line, as it is now. The segments where service would be eliminated entirely include the Cabell Drive/Ridgecrest Way/Smallhouse Road area, the mostly desolate segment of Campbell Lane between Russellville Road and the WKU south campus, and the southernmost segment of Russellville Road between Springhill Avenue and Turner Court. Other segments would no longer be served directly, but would have service operating within a block or two of the existing route; this includes segments along Chestnut Street in the College Hill District and along University Drive/Adams Street to the north of the WKU main campus.

Figure 37: Scenario 1 – Cost Neutral

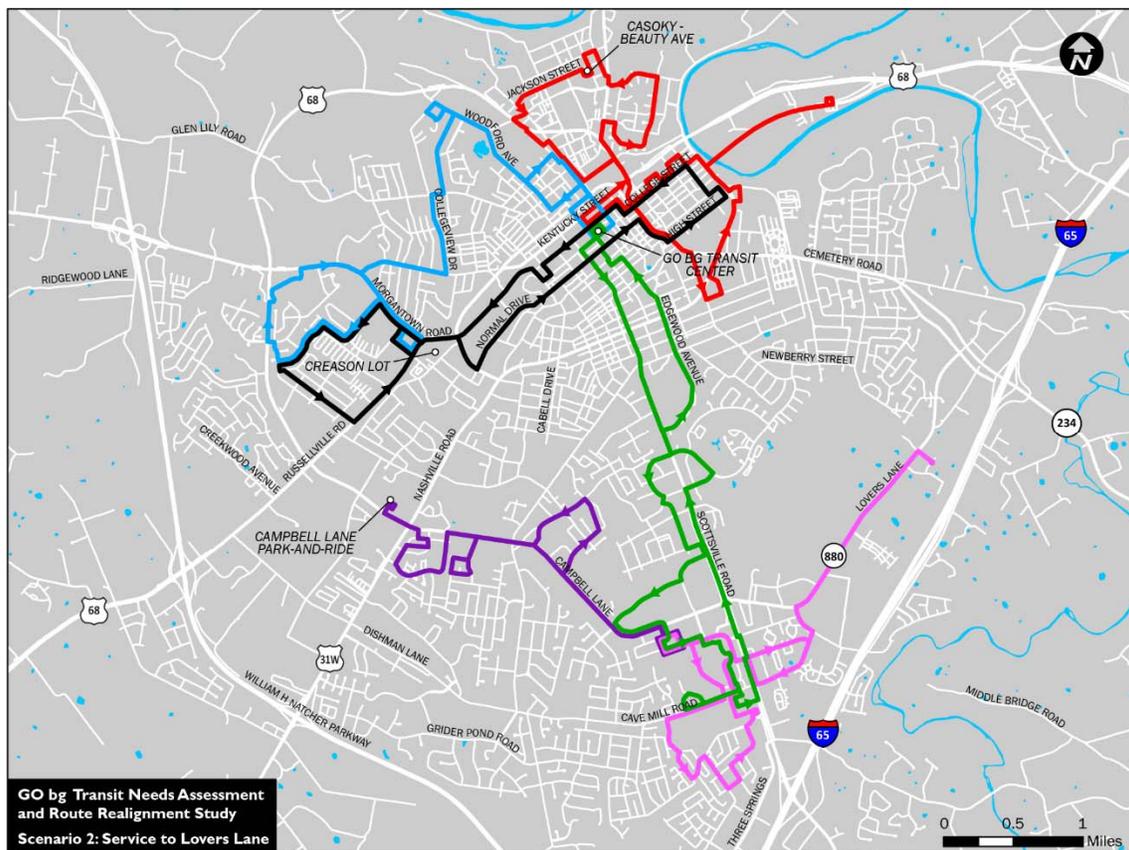


Scenario 2 – Service to Lovers Lane

In this scenario it is assumed that enough additional funding would be available to operate one additional vehicle for all or part of GO bg’s existing service span. It is recommended that this vehicle be used to serve the emerging medical and social service area on Lovers Lane via the proposed Pink Line, as shown in Figure 38. It is assumed that recommendations to GO bg’s existing five routes made in Scenario 1 would also be applied in Scenario 2.

The proposed Pink Line would serve the emerging Lovers Lane corridor, but would also improve connections between the apartment complexes to the east of Scottville Road and the Greenwood Mall area, and extend service to the neighborhood south of the mall as identified in the gaps analysis. The Green Line would be modified slightly to extend service to the Social Security office on Cave Mill Road. As a trade-off for this extension, the Green Line would no longer circulate through the apartment complexes near Bryant Way. However, the Green Line would still be accessible to residents in these apartments via the Scottville Road access road. In addition, the Pink Line would now provide two-way service between the apartments, mall, and Walmart.

Figure 38: Scenario 2 – Service to Lovers Lane

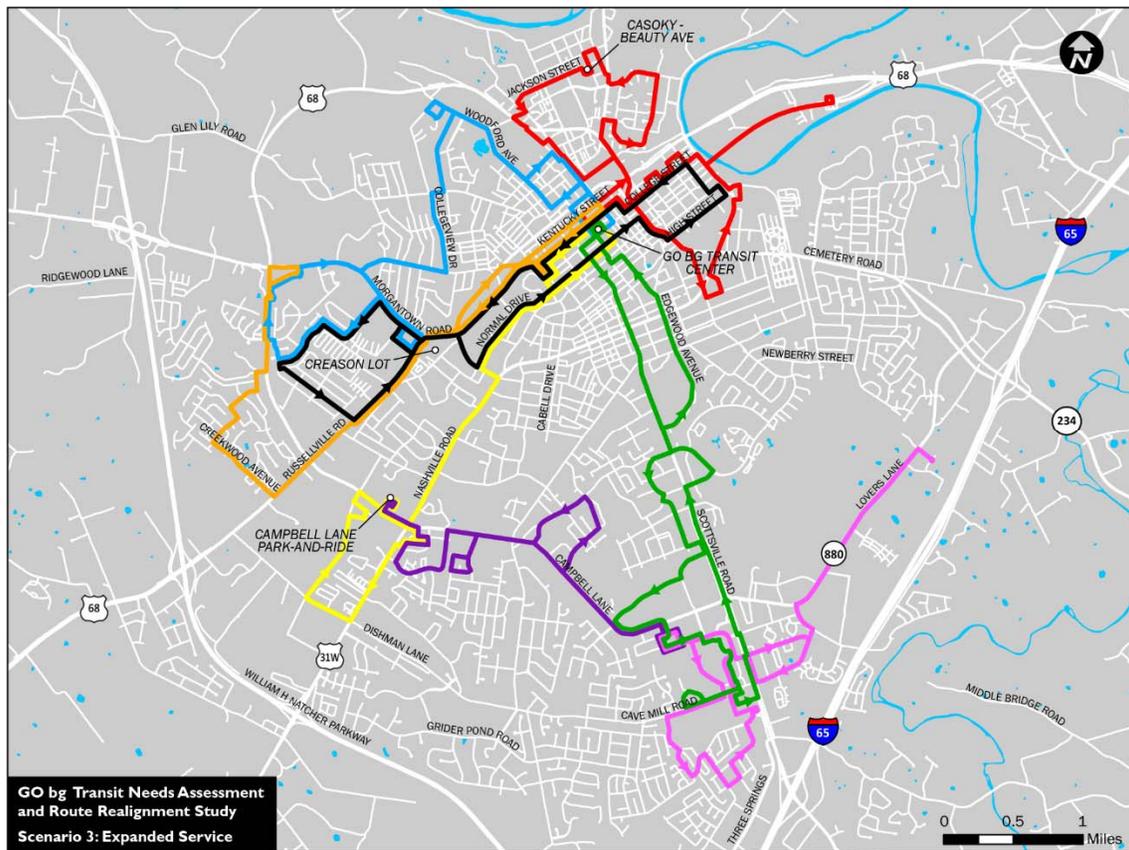


Scenario 3 – Expanded Service

In this final scenario, it is assumed the GO bg would have fewer financial constraints than it does now, which would allow for the introduction of new routes to expand GO bg’s service area, as well as to potentially increase the frequency on the system’s highest performing routes. It is assumed that the recommendations for restructuring existing service and implementing new service in Scenarios 1 and 2 would also be applied in Scenario 3.

As shown in Figure 39, this scenario includes the introduction of two new routes that would extend GO bg’s service area to the southwest and provide bidirectional service on two of the city’s radial corridors. The proposed Yellow Line would replicate some of the service that is provided by the existing Purple Line, but in addition to connecting the WKU main campus with the Kroger shopping plaza off of Campbell Lane, the route would extend to the downtown transit center at the northern end and to Dishman Lane at the southern end, serving the new Graves Gilbert Clinic on Nashville Road and the Cameron Park apartments on Fitzgerald Industrial Drive. The proposed Orange Line would serve the Russellville Road corridor and the Creekwood neighborhood, providing connections to the Walmart on Morgantown Road, WKU main campus, and downtown Bowling Green.

Figure 39: Scenario 3 – Expanded Service



Implementation

Scenario 1 is cost neutral but involves service changes to several GO bg routes, which need to be presented to customers with ample notice prior to implementing the proposed changes. GO bg's policy is to solicit and consider public comments prior to any fare increase or major service change, with a major service change being defined as a 25% or greater change in miles or hours of service at the route level. Given the proposed elimination of the Yellow Line and restructuring of the Blue and Purple Lines, the implementation of Scenario 1 would constitute a major service change.

As such, GO bg must give a minimum of seven days notice prior to any public hearings related to the service changes. These notices should be placed in the Bowling Green Daily News, and posted on Community Action of Southern Kentucky's web site and all buses. The public hearings should be held at locations and times that would allow ample opportunity for all who would wish to attend to do so. At the hearings, a GO bg representative should present the proposed changes and invite the public to provide their comments for consideration. Service changes should only be made following the conclusion of the public input process and should be implemented during the beginning of the month that the changes go into effect.

Scenario 2 builds on the changes recommended in Scenario 1, but involves the introduction of a new route – the Pink Line – to serve the Lovers Lane corridor. This route could be implemented in concert with the Scenario 1 changes if the additional vehicle and funds are available for operation. The Pink Line could also be implemented independently at a later date if funding or vehicle availability is an issue. Because the Pink Line is a new route serving a new area, with only minor impacts on the existing Green Line route, it does not appear that this would be characterized as a major service change. Nonetheless, GO bg should publicize the new service as if it were a service change, in addition to advertising on the agency's web site, social media, and on the buses. Posters or flyers showing the route alignment, proposed timetable, and other information should be placed at the locations of the agencies and offices that will be served by the new route.

Scenario 3 is a longer term option and would only be possible with additional funding for both operations and additional vehicles. As such, it does not have a specific timeline, but could be rolled out in a similar fashion as Scenario 2. Discussion and dialogue between GO bg staff, WKU Topper Transit staff, and other stakeholders in the region should continue regarding an expansion of GO bg routes and service area.

On-Going Collaboration

Continuing development and redevelopment in the GO bg service area is inevitable, and transit agencies often must adapt to these changes. However, it is easier for GO bg staff to recommend and implement services changes to provide access to common destinations for transit users if the discussion about the development or relocation occurs before the actual move or change is made.

Agencies and businesses whose clients and customers depend on transit should endeavor to discuss and collaborate with GO bg staff prior to establishing or relocating their business or service locations. Such discussion and collaboration can provide valuable information on site selection and other location decisions that best serve the customers/clients, the agency/business and GO bg service. It is better to be proactive on the front end of decisions than reactive on the back end, when it is often difficult or impossible to provide transit service to locations far beyond GO bg's existing service area.

GO bg should also work with the Planning Commission and those agencies responsible for reviewing development to provide input, particularly when the development is likely to be a destination for transit riders. Locating development along an existing GO bg route provides opportunities for transit and related multimodal connections that would otherwise not be available. Businesses and agencies that actively choose to locate along a GO bg route should be recognized and commended for their decisions.

Financial Implications

The financial implications of the proposed service changes include both operating and capital costs for GO bg's fixed route system, as well potential impacts on GO bg's ADA service area and associated paratransit costs. While an attempt has been made to enumerate costs associated with the proposed service changes in Scenarios 1-3, these estimates are limited to the operations and maintenance costs of providing the proposed service, capital costs associated with the acquisition of additional vehicles or the construction of off-street transfer facilities, and broad impacts on GO bg's paratransit costs. They do not include costs associated with shelter relocations, the potential need for a new garage or storage facility for additional vehicles, rising demand for paratransit services due to population growth or demographic trends, or other factors, such as the cost of fuel, wages, or benefits, which might impact GO bg's financial ability to operate the proposed service.

Operations and Maintenance Costs

Operations and maintenance costs for the existing system and Scenarios 1-3 were estimated using a single-factor cost model (cost per revenue hour). Annual revenue hours were estimated for the existing system and each of the proposed scenarios, then multiplied by the cost per revenue hour as obtained from GO bg's 2014 NTD submittal. In estimating revenue hours for each scenario, the following assumptions were made:

- It is assumed that WKU will continue to fund the operation of a second vehicle on the Purple Line for six hours per day during WKU's fall and spring semesters. While the existing route is scheduled to operate at a 15-minute headway during those six hours, the proposed route (which has a 60-minute cycle time) would be operated at a 30-minute headway for six hours per day, and an hourly headway for the remaining five hours per day.
- All other routes are assumed to be operated at an hourly headway in all scenarios. In the long term (Scenario 3), it may be beneficial to increase the service frequency on one or more routes, but GO bg should continue to evaluate the system's performance with each service change to determine which routes merit the additional service. For the purposes of this cost estimate, it is assumed that all routes would be operated hourly. Increasing the service frequency on one or more routes will necessarily impact operating costs, and will have capital cost implications as well.
- It was assumed that the Saturday Shopper Service would continue to operate as it does now. While the elimination of the Yellow Line in Scenario 1 makes it unlikely that GO bg would continue to operate this particular route on Saturdays, it was assumed that two routes would be operated for 5.5 revenue hours per day on twelve Saturdays per year.
- It was assumed that GO bg's service span would remain unchanged in all scenarios.
- It was assumed that GO bg would operate on 255 weekdays and twelve Saturdays per year, and the WKU-funded Purple Line (5B) would operate on 193 weekdays per year.

Estimated daily and annual revenue hours for the existing and proposed systems in Scenarios 1-3 are shown in Table 3. While revenue miles were not used as a factor in estimating the operations and maintenance costs, they were also calculated and are shown in Table 4.

Table 3: Estimated Revenue Hours for Existing and Proposed Systems

Route	Existing	Scenario 1	Scenario 2	Scenario 3
	Weekday Daily Revenue Hours			
1 Red Line	11	11	11	11
2 Blue Line	11	11	11	11
3 Green Line	12	12	12	12
4 Yellow Line	11	-	-	11
5a Purple Line	11	11	11	11
5b Purple Line	6	6	6	6
6 Black Line	-	11	11	11
7 Pink Line	-	-	11	11
8 Orange Line	-	-	-	11
Weekday Daily Total	62	62	73	95
Saturday Daily Total	12	12	12	12
Annual Total¹	15,582	15,582	18,387	23,997

Table 4: Estimated Revenue Miles for Existing and Proposed Systems

Route	Existing	Scenario 1	Scenario 2	Scenario 3
	Weekday Daily Revenue Miles			
1 Red Line	127	121	121	121
2 Blue Line	142	136	136	136
3 Green Line	131	131	132	132
4 Yellow Line	139	-	-	99
5a Purple Line	152	110	110	110
5b Purple Line	83	60	60	60
6 Black Line	-	108	108	108
7 Pink Line	-	-	104	104
8 Orange Line	-	-	-	127
Weekday Daily Total²	772	666	771	996
Saturday Daily Total	154	154	154	154
Annual Total	193,672	167,953	194,710	252,213

¹ Daily revenue hours were determined by GO bg's existing service span. Annual revenue hours were calculated by multiplying weekday daily revenue hours for each route by 255 days per year and Saturday daily revenue hours by 12 days per year. Daily revenue hours for Route 5b were multiplied by 193 days per year and summed with the previous total.

² Daily revenue miles were calculated by multiplying the two-way distance for each route by the number of scheduled trips per day. Annual revenue miles were calculated by multiplying the weekday daily revenue miles for each route 255 days per year and Saturday daily revenue miles by 12 days per year. Daily revenue miles for Route 5b were multiplied by 193 days per year and summed with the previous total.

Annual operations and maintenance cost estimates for the existing and proposed systems were calculated by multiplying the annual revenue hours for each scenario shown in Table 3 by the cost per revenue hour, as submitted to NTD in 2014 (\$63.97). The resulting annual operations and cost estimates are shown in Table 5.

Table 5: Annual Operations and Maintenance Cost Estimates

	Existing	Scenario 1	Scenario 2	Scenario 3
Annual O&M Cost Estimate	\$996,781	\$996,781	\$1,176,216	\$1,535,088
Estimated Annual Increase over Existing	-	\$0	\$179,436	\$538,308

As shown in Table 5, and by definition, Scenario 1 is a cost neutral solution. The proposed changes in this scenario could be implemented without any anticipated impact on operations and maintenance costs to the agency. It is estimated that the implementation of the Pink Line in Scenario 2 would require approximately \$180,000, or an 18% increase, in additional operating funding per year over the existing system. The implementation of all three new routes in Scenario 3 (Pink, Yellow, and Orange) would require approximately \$540,000 in additional funding, or a 54% increase, over the existing system.

Capital Costs

Capital costs associated with the proposed changes include the costs of additional vehicles needed to operate the proposed routes and the potential costs of off-street transfer facilities. The cost of a new 28-seat cutaway vehicle was assumed to be \$80,000 based on GO bg's 2014 procurement.

No additional vehicles would be required to implement the proposed service changes in Scenario 1. One additional vehicle would be required to operate the Pink Line in Scenario 2 (\$80,000), and three additional vehicles would be required to operate the Pink, Yellow, and Orange Lines in Scenario 3 (\$240,000), assuming all routes are operated at an hourly headway. An increase in service frequency on one or more routes would necessitate the purchase of additional vehicles to operate the service, as well as to maintain an adequate spare ratio.

The cost of an off-street transfer facility can vary widely depending on the land acquisition costs and amenities, ranging from \$250,000 for a basic outdoor facility with a driver comfort station to millions of dollars for an indoor climate-controlled transit center. While an off-street transfer facility is not among GO bg's more pressing needs, in the long term, it would be beneficial to look for a location in the Greenwood Mall area that would allow for layovers and facilitate transfers between the Green, Purple, and Pink Lines, as well as any Topper Transit routes serving the area. Also in the long term, the Western Gateway Shopping Plaza area would serve as a good location for an off-street transfer facility for the Black, Blue, and Orange Lines, and might provide an opportunity to partner with WKU at the Russellville Road park and ride lot.

Table 6 provides a summary of the capital cost estimates for each scenario. These number represent the minimum anticipated capital costs increases over the existing system and are based on the assumptions that all routes would continue to be operated hourly, and that off-street transfer facilities be would outdoor and would include a very basic level of amenities.

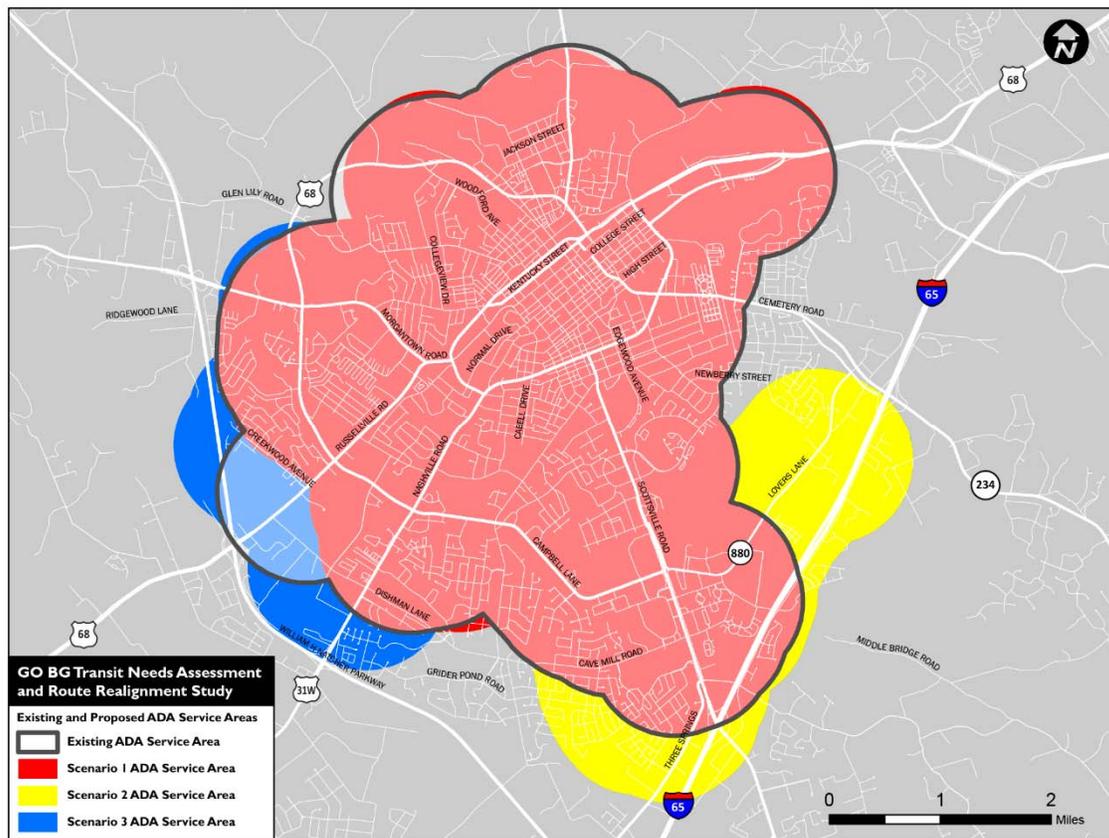
Table 6: Capital Cost Estimates Summary

	Scenario 1	Scenario 2	Scenario 3
Additional Vehicle Procurements	\$0	\$80,000+	\$240,000+
Off-Street Transfer Facilities	\$0	\$250,000+	\$500,000+
Total Additional Capital Costs	\$0	\$330,000+	\$740,000+

Paratransit Costs

In order to provide a broad estimate of the impact of the proposed changes on paratransit costs, the ADA service area (defined as a ¾ mile buffer around the fixed route system) was mapped for the existing and proposed systems, as shown in Figure 40. The existing ADA service area is 23.95 square miles, which is actually slightly larger than the Scenario 1 service area, at 23.14 square miles. However, this reduction in the ADA service area is unlikely to result in any paratransit cost savings, as the eliminated area along Russellville Road is mostly industrial. The addition of the Pink Line in Scenario 2 would have a significant impact on the ADA service area, expanding it to 26.62 square miles, and the addition of the Orange and Yellow Lines in Scenario 3 would expand it to 28.77 square miles. This represents an 11% increase over the existing ADA service area in Scenario 2 and a 20% increase over the existing ADA service area in Scenario 3. However, it is unlikely that either of these expansions would result in an equivalent increase in paratransit ridership or costs in the short term, given the sparse population densities in these areas, particularly along Lovers Lane, where much of the expanded area includes the Bowling Green airport. In the long term, the cost of providing paratransit service to these areas will be determined by the level of development and location of services that are frequent destinations for paratransit customers. If the Lovers Lane corridor continues to attract new medical and social service developments, it will have a significant impact on GO bg's paratransit costs.

Figure 40: Existing and Proposed ADA Service Boundaries



Title VI Implications

The impact of the proposed changes on Title VI populations, including minority and limited English proficiency (LEP) populations, as well as low-income populations, was examined for the existing and proposed systems in Scenarios 1-3. Because Scenario 1 represents a reallocation of existing service from less to more productive areas of the system, the impacts in this scenario are more significant than for Scenarios 2 and 3, which represent only the addition of new services without loss of service to any areas of the system.

A buffer analysis was conducted to determine the proportion of minority, LEP, and low-income populations that would be served by the existing and proposed systems. The analysis was conducted using both $\frac{1}{4}$ and $\frac{1}{2}$ mile buffers and considered any person or household in a block group that intersected the buffer to be part of the coverage area. A visual comparison of the coverage areas for the existing and proposed systems was also conducted to identify the demographic characteristics of the areas that would lose coverage with the proposed changes.

Table 6 shows the results of the buffer analysis for minority populations, defined as the total population decreased by the non-Hispanic White population by the US Census. As shown in Table 6, as well as Tables 7 and 8, the $\frac{1}{2}$ mile buffer analysis provides very little distinction between the existing and proposed systems, or even between individual scenarios. This is partially due to the large size of the block groups near the periphery of Bowling Green's urbanized area, and partially due to the compactness of GO bg's service area, such that a $\frac{1}{2}$ mile buffer around the proposed systems generates very similar coverage areas, even with the additional routes in Scenarios 2 and 3. Therefore, this discussion focuses on the results of the $\frac{1}{4}$ mile buffer analysis, which provides greater distinction between the existing and proposed systems.

As shown in Table 6, the percent minority population within $\frac{1}{4}$ mile of the Scenario 1 system (28.4%) is slightly higher than for the existing system (28.1%). However, the extension of service to the Lovers Lane corridor in Scenario 2 results in a decrease in the percent minority population within $\frac{1}{4}$ mile of the proposed system (26.5%), and the percent minority population within $\frac{1}{4}$ mile buffer of the proposed Scenario 3 system is slightly lower still (25.5%). The small increase from the existing system to Scenario 1 is due to the elimination of service on Nashville Road and the Cabell Drive/Ridgecrest Way segments, whose surrounding block groups have low minority populations. The decreases in percent minority population that occur in Scenarios 2 and 3 are primarily the result of very low minority populations in the block groups surrounding the Lovers Lane corridor, as well as the reinstatement of service on Nashville Road in Scenario 3.

Table 6: Minority Population Buffer Analysis for Existing and Proposed Routes

	Block Groups within 1/4 Mile Buffer			Block Groups within 1/2 Mile Buffer		
	Total Population	Minority Population	Percent Minority Population	Total Population	Minority Population	Percent Minority Population
Existing	61,082	17,143	28.1%	73,909	18,684	25.3%
Scenario 1	59,816	16,982	28.4%	73,186	18,684	25.5%
Scenario 2	69,287	18,327	26.5%	73,186	18,684	25.5%
Scenario 3	73,186	18,684	25.5%	75,192	19,176	25.5%

Source: 2010-2014 American Community Survey Block Group 5-year Estimates

Figure 41 shows the ¼ mile buffer for the existing and Scenario 1 systems overlaid on a map of minority population in Bowling Green. As shown on the map, there are two primary areas that fall within ¼ mile of the existing system but not within ¼ mile of the Scenario 1 system. These include the area directly south of the 31W bypass along Nashville Road and the Cabell Drive/Ridgecrest Way corridors, and the southernmost end of the Russellville Road corridor. The map indicates that the only area with a high percentage of minority residents that would lose service coverage in Scenario 1 is located north of Russellville Road and west of Veterans Memorial Lane. However, the Scenario 1 system would provide slightly better coverage to the high minority block groups in the West End, as well as the neighborhoods east of Veterans Memorial Lane along Russellville Road.

Figure 41: Minority Population – ¼ Mile Buffer Analysis for Existing and Scenario 1 Routes

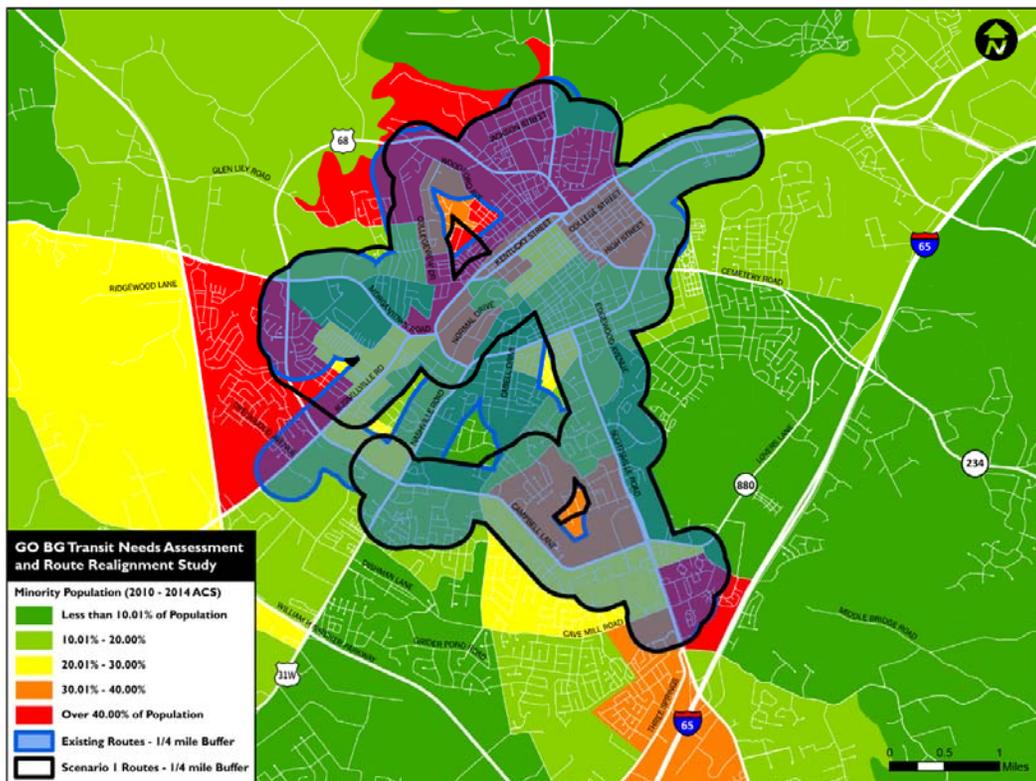


Table 7 shows the results of the buffer analysis for population with income below the poverty level. As with minority populations, the percentage of the population with income below poverty is slightly higher within ¼ mile of the Scenario 1 system (30.2%) than the existing system (29.9%), but declines in Scenarios 2 (26.9%) and 3 (25.8%). Again, the slight increase from the existing system to Scenario 1 is caused by the elimination of service on the Nashville Road and Cabell Drive/Ridgecrest Way corridors, whose surrounding block groups have relatively low levels of poverty. The decreases in percent population with income below poverty that occur in Scenarios 2 and 3 are primarily the result of very low poverty levels in the block groups surrounding the Lovers Lane corridor, as well as the reinstatement of service on Nashville Road in Scenario 3.

Table 7: Poverty Population Buffer Analysis for Existing and Proposed Routes

	Block Groups within 1/4 Mile Buffer			Block Groups within 1/2 Mile Buffer		
	Total Population*	Poverty Population	Percent Poverty Population	Total Population*	Poverty Population	Percent Poverty Population
Existing	54,459	16,263	29.9%	67,130	17,122	25.5%
Scenario 1	53,232	16,083	30.2%	66,407	17,122	25.8%
Scenario 2	62,548	16,830	26.9%	66,407	17,122	25.8%
Scenario 3	66,407	17,122	25.8%	68,410	17,256	25.2%

**Total population for whom poverty status is determined*

Source: 2010-2014 American Community Survey Block Group 5-year Estimates

Figure 42 shows the ¼ mile buffer for the existing and Scenario 1 systems overlaid on a map of population with income below poverty in Bowling Green. The map indicates that the only block groups with high incidences of poverty that would lose service coverage in Scenario 1 surround the intersection of Russellville Road and Veterans Memorial Lane/Campbell Lane. However, the Scenario 1 system would provide slightly better coverage to the block groups with high rates of poverty in the West End, as well as the neighborhoods east of Veterans Memorial Lane and north of Russellville Road.

Figure 42: Poverty Population – 1/4 Mile Buffer Analysis for Existing and Scenario 1 Routes

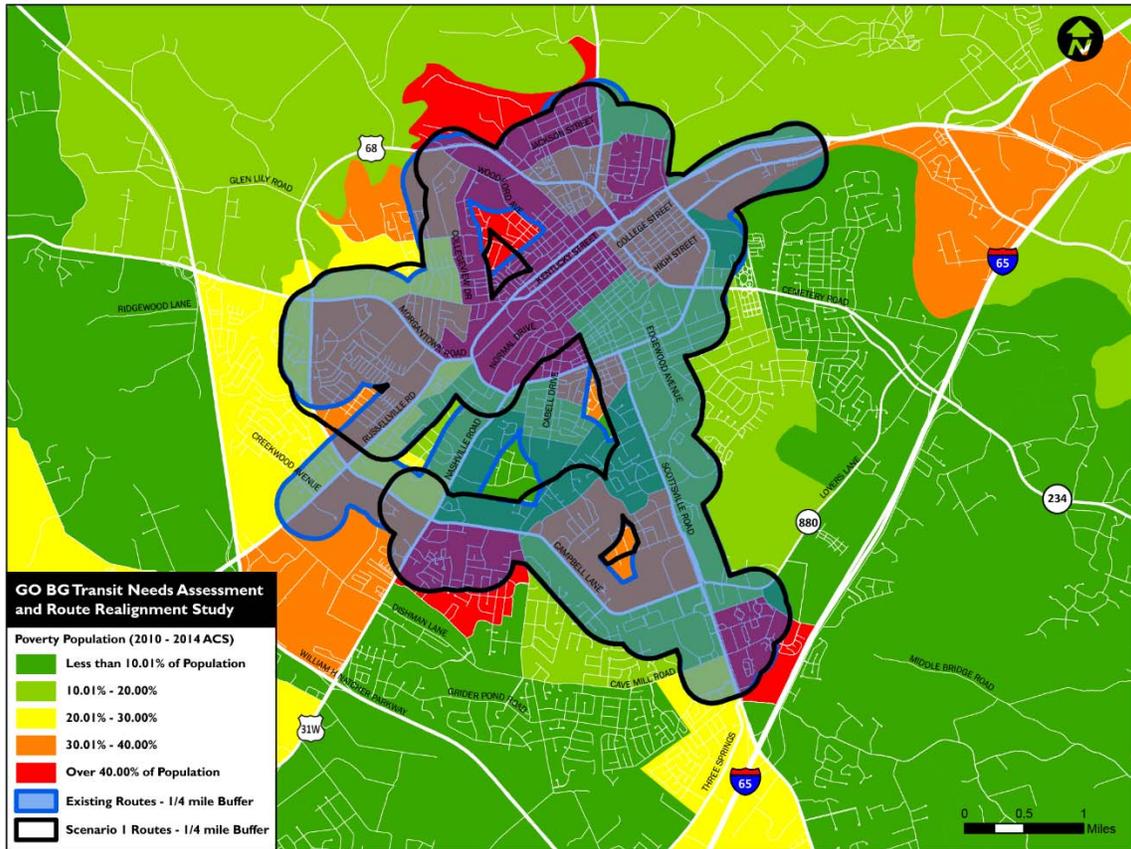


Table 8 shows the results of the buffer analysis for households with limited English proficiency. Overall, LEP households represent a small percentage of all households in the Bowling Green area. Block groups within an ¼ mile of the Scenario 1 system have a slightly higher percentage of LEP households (5.3%) than the existing system (5.2%), and block groups within ¼ mile of the Scenario 2 and 3 systems have slightly lower percentages (5.0% and 4.8%). It is difficult to discern the exact cause of these minor variations given the overall low levels of LEP households in the GO bg service area, however it is reasonable to assume that the small decline in Scenarios 2 and 3 is due to low percentage of LEP households in the Lovers Lane corridor and area south of the 31W bypass.

Table 8: LEP Households Buffer Analysis for Existing and Proposed Routes

	Block Groups within 1/4 Mile Buffer			Block Groups within 1/2 Mile Buffer		
	Total Households	LEP Households	Percent LEP Households	Total Households	LEP Households	Percent LEP Households
Existing	23,620	1,240	5.2%	28,036	1,329	4.7%
Scenario 1	23,209	1,240	5.3%	27,731	1,329	4.8%
Scenario 2	26,338	1,329	5.0%	27,731	1,329	4.8%
Scenario 3	27,731	1,329	4.8%	28,397	1,329	4.7%

Source: 2010-2014 American Community Survey Block Group 5-Year Estimates

Figure 43 shows the ¼ mile buffer for the existing and Scenario 1 systems overlaid on a map of LEP households in Bowling Green. The map indicates that almost all block groups where the percentage of households with limited English proficiency exceeds 20% are within ¼ mile of the proposed Scenario 1 system. The only lapse in coverage is the small area east of Russellville Road and north of Campbell Lane.

Appendix A: Meeting Minutes

MEETING MINUTES

Project Name: GO bgTransit Realignment Study
Place Held: GO bgTransit - Downtown Building, Bowling Green, Kentucky
Date: January 29, 2016
Subject: Minutes of Kick Off Meeting

Attendees		
Steve Rowland	WKU – Parking & Transportation	stephen.rowland@wku.edu
Ken Merideth	GO bgTransit	kmerideth@casoky.org
Donna Tooley	GO bgTransit	dtooley@casoky.org
Miranda Clements	City-County Planning Commission	miranda.clements@bgky.org
Karissa Lemon	City-County Planning Commission	kariss.lemon@bgky.org
Jennifer Tougas	WKU – Parking & Transportation	jennifer.tougas@wku.edu
Jeff Moore	KYTC – D-3 Planning	jeff.moore@ky.gov
Caroline Nardi	WSP Parsons Brinckerhoff	nardi@pbworld.com
Shawn Dikes	WSP Parsons Brinckerhoff	dikes@pbworld.com

Welcome and Introductions

Miranda Clements began the meeting with a welcome and brief introduction of the study, including its purpose. She then asked for self introductions from those gathered. After those were complete, she turned the meeting over to Shawn Dikes and a discussion began on various topics, generally following the agenda as follows:

1. Introductions
2. What is a Strategic Transit Realignment Plan? / Purpose of a Proposed Realignment?
3. Scope / Focus Areas
4. What will the Realignment Plan produce?
5. Data Driven Decisions
6. Communication
7. Schedule / Meetings
8. Questions
9. Next Steps

Purpose of Realignment – Focus Areas & Drivers of Changes

There was much discussion about the purpose and what the realignment study was to accomplish. Most of the discussion focused on changes in the GO bg service area and the community. The following was noted:

- Route 4 is the lightest in terms of passenger load, but is needed for connectivity especially to places along Scottsville Road and Russellville Road. It connects pods of activities.
- The population of international students, refugees and others new to Kentucky is growing. WKU is recruiting international students and Community Action is helping to settle new Kentuckians not native to the US.
- The Title VI report on the MPO's website will have information about where these communities reside in the area.
- The employment concentrations are changing in the region. So are the locations of the social service agencies.
- Continued collaboration among GO bg and WKU is desirable. Also, there is more of a connection needed between SKY and WKU.
- Congestion in the region is growing. It is harder to make the time points work and to achieve on-time performance. Examining a linear system of fixed routes with feeders might make sense.
- The hours of service of traditional transit may not align with shift work. Also, the system is not always easy to understand, especially for new customers who may need to transfer among routes. We should seek ways to simplify it.
- Areas to focus on serving include: 1) north industrial area (Corvette plant), 2) south industrial area, and 3) Lover's Lane / Life Skills. It was noted that a shuttle bus from Life Skills meets the GO bg service at Fairview Plaza on Tuesdays to facilitate service.
- There's a perception that transportation to jobs is an issue in the region. A candid conversation with HR managers and the local chamber of commerce is needed to confirm and to detail the nature of the issue. Is this a workforce development issue? What types of transportation issues are present and who experiences them? What type of jobs do they hold? A potential contact for this is Meredith Robinson at the Chamber.

- At one point there was a vanpool program proposed, and it was run by BRADD. It didn't work though for a variety of reasons.
- The United Way may have recently done a survey concerning access to work that might be useful.
- The WKU service is used largely by students. It can do a better job of recruiting riders from the employees and staff. Every semester they get a few students that request service to the Medical Center on 31W. WKU will also be opening a remote bookstore location in partnership with the Hot Rod's stadium parking deck wrap project on 8th Avenue. They could potentially envision extending service to this location in the future. WKU would like to strengthen the "town and gown" relationship and one way to do that is through transit services.

DRAFT Goals and Objectives

The **DRAFT** Goals and Objectives were handed out. They are as follows:

Goals:

1. Design a more efficient and effective system by directing transit investment to where it is needed most within current funding parameters and projections.
2. Expand GO bgTransit's customer base in terms of ridership and potential new areas served.
3. Minimize the impact of potential service changes to existing riders.

Objectives:

1. Develop route and service profiles to provide a detailed understanding of system and route design, service performance, and ridership patterns.
2. Analyze alternative service delivery concepts for their relevance and potential application to the GO bg service area.
3. Examine the feasibility of expanding into new services and markets.
4. Address potential partnerships and service changes to increase ridership among local universities and colleges
5. Develop capital cost, operating cost, and revenue projections and identify potential alternative funding sources.
6. Communicate recommendations and their rationale effectively to elected officials and stakeholders.

They are intended not only to be a starting point for what the realignment intends to achieve, but how to measure options or scenarios. Those assembled were encouraged to forward any proposed changes to Miranda and/or Shawn.

What will the Study Produce? / Data Driven Decisions

A brief discussion about what the study will produce ensured. It was generally agreed that the realignment should come up with different scenarios for operations / service. These scenarios include:

- Scenario 1 – modifications to routes that can be accomplished with existing resources. This scenario will examine the efficiency and effectiveness of the existing system, as well as consider whether service should be reallocated to serve the industrial areas or relocated social services (Lover's Lane).
- Scenario 2 – modifications to routes that would be feasible with a small increase in existing resources (potentially \$80k). This scenario would again examine the existing system, but would not necessarily require a reallocation of existing service in order to serve the new employment or social service sites.
- Scenario 3 – develop the ideal system that GO bg would operate if it had fewer financial constraints. This would not be a completely "unconstrained" scenario – rather, it would focus on developing routes which would grow ridership while maintaining a fiscally responsible and efficient level of service.

A focus of the impacts of proposed changes should also be the ramifications for the ADA service. The existing service is $\frac{3}{4}$ mile from existing fixed routes, with some exceptions to fill in gaps in the coverage area. The # of eligible customers is 1,200. Recently the # of trips has been relatively flat as GO bg increased the fare from \$2 to \$4. They also provide travel training. It was noted that any new service on Louisville Road would have substantial impacts on paratransit demand.

Also, sidewalks in the region needs to be more widespread and better correspond to transit origins and destination. This should also be noted in the service changes.

The costs of the scenarios will also be noted in terms of capital (new vehicles, shelters, etc.) and also in terms of operations and maintenance (O&M) costs.

WSP | Parsons Brinckerhoff intends to let data and trends drive the decisions on what areas to serve. Typically we map transit oriented demographics and populations to see where customers typically area. We try and match the services to fit a pattern to maximize the coverage to these areas linking where transit customers live to where they work, shop, go to school, etc.

Communication

Shawn detailed that he is open to receiving questions and especially requested data from anyone on the team. For clarity and to respect the contract reporting requirements, Miranda Clements should be copied on all correspondence going to Shawn.

Schedule / Meetings

Since the project started later than expected, the following is the revised project schedule:

- May 31, 2016 – Final Report
- April 31, 2016 – Second DRAFT
- March 31, 2016 – First DRAFT

In addition, the project team will likely meet two more times. Once to develop some alternative scenarios in an interactive type workshop. This will likely take place at the City – County Planning Commission and is scheduled for February 26, 2016 at 10:00 AM Central time. The last meeting is TBD.

Next Steps

WSP | Parsons Brinckerhoff will collect needed data and develop mapping based on data received from GO bg and WKU regarding transit operations. Miranda will send an invitation to the team for the February 26th meeting. Shawn will develop minutes of the meeting and will contact the Chamber to discuss the transportation / work force issue(s).

With no further comments, the meeting was adjourned at 11:45 PM (CDT).

MEETING MINUTES

Project Name: go BG Transit Realignment Study

Place Held: Bowling Green – Warren County Planning Commission, Bowling Green, Kentucky

Date: February 26, 2016

Subject: Minutes of Workshop #1

Attendees		
Ken Merideth	go BG Transit	kmerideth@casoky.org
Donna Tooley	go BG Transit	dtooley@casoky.org
Miranda Clements	City-County Planning Commission	miranda.clements@bgky.org
Karissa Lemon	City-County Planning Commission	kariss.lemon@bgky.org
Steve Rowland	WKU – Parking & Transportation	stephen.rowland@wku.edu
Jennifer Tougas	WKU – Parking & Transportation	jennifer.tougas@wku.edu
Jeff Moore	KYTC – D-3 Planning	jeff.moore@ky.gov
Barry House	KYTC – Central Office Planning	barry.house@ky.gov
Caroline Nardi	WSP Parsons Brinckerhoff	nardi@pbworld.com
Shawn Dikes	WSP Parsons Brinckerhoff	dikes@pbworld.com

Welcome and Introductions

Miranda Clements began the meeting with a quick welcome and thanked those in attendance for coming. She then turned the meeting over to Shawn Dikes who quickly discussed the overview of the meeting and its purpose: this is the second of three planned meetings, the focus today is on the existing demographics and systems and what the data analysis tells us. Shawn remarked that today we will attempt to have a workshop to draw up an ideal system. The outline for the discussion is as follows:

1. Introductions
2. Purpose of Meeting
3. Demographic Maps
4. Transit Propensity Analysis Maps
5. Agency / Employer Survey Results
6. Existing Systems / Data
7. Discussion / Questions
8. Routing Exercise

9. Next Steps

Shawn then turned the meeting over to Caroline Nardi who went through Agenda items 3 through 6.

Demographic Maps

The demographic maps were produced for various populations that typically use transit. Maps included ones for population density, employment density, and combined population and employment density, as well as poverty, zero car households, minority population, foreign born, and limited English proficiency (LEP). The foreign born and LEP was chosen because the region has a fair number of international students and migrant from other countries. Most of the data comes from the American Community Survey (ACS) and is a five year average from 2010 – 2014, the most recent data available.

One of the densest areas for population is around WKU. The population and employment density combined shows that the go BG system pretty much serves the areas needed. While it doesn't penetrate all the densest areas, it at least skirts them all. Concentrations of poverty represent both the student population in Bowling Green as well as the general low-income population. Some of the concentrations of poverty are skewed by the size of the block groups or the way the block group boundaries are drawn (e.g. the majority of the residential development within the block group may be public or Section 8 housing.)

LEP and foreign born populations are also important to look at as they are Title VI analysis populations as well.

Transit Propensity

The transit propensity analysis included two separate analyses using demographic and travel information from the Warren Area travel demand model to examine the existing travel market for Bowling Green's industrial areas and the potential market for fixed route transit service in Bowling Green that is not currently served. The analysis of the industrial areas examined travel patterns for employees working in the north and south industrial areas that are not currently served by transit. The gaps analysis identified trip patterns between zones that are not currently served by transit, but where the origin zone has demographic characteristics that correlate with transit use.

The industrial areas are attracting employees from either close by or relatively far away, i.e. other counties in the region. There is an area along Louisville Road that is underserved, but, because of shift work and the physical nature and location of the industrial areas, providing effective transit to those areas would be a challenge. GO bg transit could only potentially serve the first shift for many industrial employers due to their service hours.

The gaps analysis showed that there are three areas where transit supportive demographics exist and where service could be increased or started. Those areas included: 1) the West End community that seemingly wants to go to WKU – these trips might be better served though through cycling and walking rather than transit, 2) an area bounded by and near the Natcher Parkway, Morgantown Road, Campbell Lane and Russellville Road – these trips are also going to WKU and destinations nearby, and 3) an area along Scottsville Road near I-65 – these trips want to go to the mall area.

There was discussion regarding the fact that this analysis is based on existing trips patterns. The large social service agency building, which houses the Department for Families and Children that currently is in downtown Bowling Green, is going to relocate to the Lover's Lane area. While this move is important and will affect transit needs, it is not accounted for in this analysis because those trips are not yet being made.

Agency / Employer Surveys

The Chamber of Commerce partnered with WSP | Parsons Brinckerhoff to administer a survey to two groups; the local social service/job training agencies and the local industrial employers at both industrial parks. While these were not scientific surveys, they did yield some interesting anecdotal data related to transit, and the needs and willingness or lack thereof on the part of potential users.

On the employer side, there were 6 surveys returned from 26 sent, and most respondents reported that over half of their employees drive alone to work. Only two employers reported that their employees might use transit and relatively little interested was expressed in subsidizing transit trips. Good collector points for picking up riders included: Bristow area, Cumberland Trace Village, Memphis Junction, Campbell Lane, Russellville Road, Smiths Grove and Lost River. Some of which can't be served by go BG.

On the agency side, there were 12 of 18 surveys returned with some agencies completing more than one survey for the same location. All survey respondents reported that their clients need and would use transit. Many have very limited resources or language skills which prohibit owning a vehicle. Destinations that were reported as needing service include: the industrial parks, LifeSkills, social security administration, Bob Kirby library branch, and daycare locations. They expressed a concern over the long travel times of some routes. Locations where clients live and would need to catch the buses include: 400 West Main Street, 1500 Parkside Drive near Morgantown Road, 2350 Nashville Road, Highland Way, McIntosh, O'Shea, Flannigan, Patrick Way, Audubon, Bryant Way, Kelly Road, Nutterville Parkway, Trent Way, Old Barren River Road, Scottsville Road, Louisville Road, Double Springs Road, BG Scholar House Apts., Bryant Way, Lovers Lane, Louisville Road, Section 8 housing off Kelly Road.

Serving industrial areas with transit is often difficult. The 2nd and 3rd shifts are typically outside of the normal operating hours, and the nature and location of industrial parks make them hard to

serve. There is often a need to circulate inside industrial parks which leads to long run times. Many employers also attract workers from an area that is much larger than a typical transit service area, and many employers are reluctant to partner with transit agencies on routes and even less are willing to subsidize the costs. Based on this experience, which was reinforced by the survey results, it is better to spend finite transit resources on serving agency clients rather than devising routes to service industrial employment. The return on investment in getting clients of the social service and job training agencies needed transit service is much higher.

Existing Systems Overview

GO bg –

The overall fixed route ridership for the go BG has been relatively flat the last few years. The weekday fixed route ridership was 107,756 in 2012 and 105,928 in 2015. Overall, the Yellow and Green routes declined while other routes stayed the same and/or increased during this time period. The last route realignment in 2013 changed some of the routes and affected ridership.

Red Line – Ridership on this route has been flat since 2013. It connects several low-income residential areas with shopping and social service agencies, and shares a layover with the Blue Line at Beauty Avenue.

Blue Line – This is route has the highest ridership. It serves SKYTC, the library, the area's newest Walmart, WKU, and the Medical Center. It shares a layover with the Red Line at Beauty Avenue.

Green Route – Ridership on this route has declined since 2012. It is more linear than some of the other routes, but the pedestrian environment on Scottsville Road likely requires that most passengers ride to the end of the route to make their return trip rather than cross the road. The route connects downtown with the hospital, Wal-Mart, the mall and its surrounding retail, the apartment complexes to the east of Scottsville Road, and the international center. Ridership on this route was likely impacted by the construction of the other Wal-Mart, as well as a lack of strong connection to the Blue and Red Lines.

Yellow Route – This route has the lowest ridership. It connects WKU, several off-campus student apartment complexes, low-income housing, grocery and retail destinations, and the hospital. It is a long looping route. The destinations along Campbell Lane have a lot of free parking, and the international center had been placing new residents in the Creekwood Apartments, which are served by this route, but they are now being located along Scottsville Road, on the Green Line.

Purple Line – This is one of the newest routes and its ridership has been increasing. During WKU's fall and spring semesters, it is operated every 15 minutes using two vehicles, one of which is funded by WKU. After 1pm, and during intersession periods, it is operated every 30

minutes. The route is primarily linear, with small loops on the ends, connecting WKU, Kroger, apartments and Goodwill.

In general there is very little bidirectional service operated, resulting in long travel times for at least one leg of the trip. Any change to service to make it more direct/bidirectional will result in a substantial loss of coverage. One issue is the lack of a single location with a timed transfer -- ideally this location would be the layover point for the route, but does not have to be. Overall, GO bg needs more frequency and bidirectional service.

WKU Topper –

The WKU Topper Transit service is well utilized. The ridership has responded to the increase in service that has occurred over the past few years. Ridership has grown from 509,270 in 2012 to 732,302 in 2015.

White Route – This route, which connects Main Campus with South Campus, is the most frequent and heavily used of WKU's routes. There are stops on Main Campus with more than 1,000 daily combined boardings and alightings.

Red Route – This route provides bidirectional service on Normal Drive and serves several off-campus stops, including the GO bg Transit Center. Most stops are very well utilized.

Blue Line – This route mainly serves commuters using the Russellville Road lot and to a lesser degree the PS1. The diversion on College Street to 13th Avenue in downtown is due to traffic/operational issues, not to serve any particular destination.

Green Line – This line is somewhat of a catch all route as it provides night and weekend service that connects Main and South Campuses with off-campus apartment complexes and retail destinations near the mall.

Green Line Express – This route connects South Campus and Campbell Lane areas to retail destinations near the mall.

The system is generally performing very well, and the additional service has not decreased the productivity of the system. The biggest issue is on-time performance, which is mitigated by real-time vehicle location. WKU is planning changes to some routes to decrease running times for next year.

Next Steps



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WSP | Parsons Brinckerhoff will collect the transit system maps drawn up by the participants and develop an outline of the three (3) system scenarios, forwarding them to Miranda for confirmation by the study group.

The goal is to have a DRAFT of the report by March 31, 2016. WSP | Parsons Brinckerhoff will likely have the second and final workshop after delivering the first DRAFT of the report. This workshop will likely take place in early April 2016.

With no further comments, the meeting was adjourned at 12:00 PM.

MEETING MINUTES

Project Name: Go bg Transit Realignment Study

Place Held: Bowling Green – Warren County Planning Commission, Bowling Green, Kentucky

Date: April 21, 2016

Subject: Minutes of Workshop #2

Attendees		
Ken Merideth	go BG Transit	kmerideth@casoky.org
Donna Tooley	go BG Transit	dtooley@casoky.org
Miranda Clements	City-County Planning Commission	miranda.clements@bgky.org
Karissa Lemon	City-County Planning Commission	kariss.lemon@bgky.org
Jennifer Tougas	WKU – Parking & Transportation	jennifer.tougas@wku.edu
Deneatra Henderson	KYTC – D-3	deneatra.hendeson@ky.gov
Caroline Nardi	WSP Parsons Brinckerhoff	nardi@pbworld.com
Shawn Dikes	WSP Parsons Brinckerhoff	dikes@pbworld.com

Welcome and Introductions

Miranda Clements began the meeting with a quick welcome and thanked those in attendance for coming. She then turned the meeting over to Shawn Dikes who quickly discussed the overview of the meeting and its purpose: this is the third and final of three planned meetings, the focus today is on the existing DRAFT routings and alignments, as well as to receive and discuss any comments about the DRAFT report. The outline for the discussion is as follows:

1. Introduction
2. Purpose of Meeting
3. Report Comments / Discussion / Questions
4. Routing Comments / Discussion / Questions
5. Next Steps

Report Comments

Shawn asked if there were any substantive comments on the report. Jennifer remarked that she had some minor working changes / comments. She will get those comments electronically to the team within a few days so that they may be incorporated into the next revision of the report. The next revision will include costing information, implementation and next steps as well as LEP

and Title VI analysis. Costing and demographic analysis were not included in the first DRAFT since it was likely that the routing would change and thus affect the analysis.

Routing Comments

The discussion began with comments on Scenario 1. This scenario is revenue neutral and would make minor modifications to the existing routes. The consultant has three (3) options for the Red Route and there was some discussion about how to serve the area along Old Louisville Road. One way to do that is with some sort of on-demand service perhaps with a service window and limiting the number of trips.

After some discussion about routing and the interaction of GO bg routes and coverage area(s) with the WKU Topper service, it was determined that Scenario 1 would realign the Red Route and also eliminate the Yellow Route and add services to the others, along with the Topper White Route to better serve the areas with more / improved service that is efficient and likely to be consumed. This would better allow the system to serve the core area of Bowling Green and do so in a more efficient manner, linking destinations with trip origins.

The discussion then turned to how best serve the new emerging medical and social services agencies and destinations along Lover's Lane. This is the Scenario 2. The consultant is proposing a new Pink Route to serve the area which would require an additional vehicle and additional service miles and hours. This would go along with the WKU Purple route in the area and be in concert with the service realignments in Scenario 1. This scenario provides for expanded service to the Lover's Lane area which is currently in need of improved services.

Finally, the discussion centered around Scenario 3 which would extend the range and reach of the GO bg Routes to include providing new service to areas along Nashville Road and Russellville Road. This would add an Orange Route and require additional vehicles and service hours.

The service changes are designed to respond to changing demographics and other shift in terms of where people live and want to go. The goal is reduce or maintain travel time and on time performance while providing the services as efficiently as possible.

Details of the capital costs (new vehicles) and operations and maintenance (O&M) costs in terms of new miles and hours of service as well as the demographic analysis (Title VI and Low English Proficiency (LEP) are forthcoming in the next revision of the DRAFT report.

Additionally, GO bg Staff would also like a statement in the report outlining and improved process for collaborating with businesses and other agencies when they determine where to locate or relocate. Considerations for being on an existing transit line ought to be part of this decision making before sites are chosen. It is easier to be proactive with regard to transit connections to new or relocated businesses and service agencies rather than reactive.

Next Steps

WSP | Parsons Brinckerhoff will collect comments on the initial DRAFT of the report, perform the costing and demographic analysis and delivered a revised second DRAFT report on April 29, 2016.

The goal is to get comments on this DRAFT back to the consultant team by May 13, 2016 so a FINAL report can be delivered by May 31, 2016.

In the report package, WSP | Parsons Brinckerhoff will deliver the report document (Word and PDF files), as well as the survey responses done by the Chamber along with Google Earth files of the routes.

With no further comments, the meeting was adjourned at 12:00 PM.

Appendix B: Surveys and Responses

GO bg Transportation Survey
February 2016

GO bg is undertaking a study of its existing routes and looking for ways to better connect residents with job opportunities in the region. As part of this study, GO bg is examining the feasibility of providing transit service to the industrial parks in the Bowling Green region. This survey will help to determine the existing level of demand for transit service to these areas, where that demand is located, and how the demand might best be met.

Please respond to this survey by the close of business on February 12, 2016.

If you have questions, please contact _____

1) Company Name:

2) Company Address:

3) What times do your shift changes occur?

1st shift:

2nd shift:

3rd shift:

4) How many employees work each shift?

1st shift:

2nd shift:

3rd shift:

5) How many of your current employees drive alone to work?

6) How many of your current employees travel to work by some other means other than driving alone?

How many employees walk or bike to work? ____

How many employees get a ride to work? ____

How many employees participate in a carpool? ____

7) Does your company offer any of the following to your employees?

___ Rideshare matching for carpools

___ Vanpools

___ Other organized transportation options (Please explain: _____)

8) If your company location were served by public transit at times that corresponded with shift changes, how many of your current employees would be likely to use the service?

How many of those employees work 1st shift? _____

How many of those employees work 2nd shift? _____

How many of those employees work 3rd shift? _____

9) The most efficient way to provide transit service to Bowling Green's industrial parks would be to serve clusters of employees that live within the same apartment complexes, neighborhoods, or areas of town that are within close proximity to one another.

Please identify the apartment complexes or neighborhoods where multiple employees live. Please provide a street name, cross street, town/city, and zip code for each location.

Please identify any other locations that might serve as good "collector" points, where multiple employees might be picked up at the same location. Please provide a street name, cross street, town/city and zip code for each location.

10) In addition, we would like to obtain the addresses (or streets and cross streets) for all employees. This information will be kept confidential and will only be used to identify clusters of employees (both within your company and with other nearby companies) that might be served by transit.

11) Would you be willing to consider subsidizing bus service to your facility to increase the available workforce? Please rate your willingness on a scale of 1 to 10, with 1 being not at all willing and 10 being very willing.

Q1: Company Information

- Company Name: Bilstein Cold Rolled Steel LP
- Company Address: 3250 Spring Hollow Ave., Bowling Green, KY 42104

Q2: What times do your shift changes occur?

- 1st Shift: 3 pm
- 2nd Shift: 11 pm
- 3rd Shift: 7 am

Q3: How many employees work each shift?

- 1st Shift: 20
- 2nd Shift: TBD
- 3rd Shift: TBD

Q4: How many of your current employees drive alone to work?

20

Q5: How many of your current employees travel to work by some other means other than driving alone?

- How many employees walk or bike to work? 0
- How many employees get a ride to work? 0
- How many employees participate in a carpool? 0

Q6: Does your company offer any of the following to your employees?

Respondent skipped this question

Q7: If your company location were served by public transit at times that corresponded with shift changes, how many of your current employees would be likely to use the service?

Respondent skipped this question

Q8: The most efficient way to provide transit service to Bowling Green's industrial parks would be to serve clusters of employees that live within the same apartment complexes, neighborhoods, or areas of town that are within close proximity to one another. Please identify the apartment complexes or neighborhoods where multiple employees live. Please provide a street name, cross street, town/city, and zip code for each location. Please identify any other locations that might serve as good "collector" points, where multiple employees might be picked up at the same location. Please provide a street name, cross street, town/city and zip code for each location.

Cumberland Trace Village

Q9: In addition, we would like to obtain the addresses (or streets and cross streets) for all employees. This information will be kept confidential and will only be used to identify clusters of employees (both within your company and with other nearby companies) that might be served by transit.

Respondent skipped this question

Q10: Would you be willing to consider subsidizing bus service to your facility to increase the available workforce? Please rate your willingness on a scale of 1 to 10, with 1 being not at all willing and 10 being very willing.

Q1: Company Information

Company Name: Bendix

Company Address: 346 Central Ave. Bowling Green

Q2: What times do your shift changes occur?

- 1st Shift: 6:30am
- 2nd Shift: 2:30pm
- 3rd Shift: 10:30pm

Q3: How many employees work each shift?

- 1st Shift: 200
- 2nd Shift: 125
- 3rd Shift: 75

Q4: How many of your current employees drive alone to work?

60%

Q5: How many of your current employees travel to work by some other means other than driving alone?

- How many employees walk or bike to work? 0
- How many employees get a ride to work? 20%
- How many employees participate in a carpool? 20%

Q6: Does your company offer any of the following to your employees?

Respondent skipped this question

Q7: If your company location were served by public transit at times that corresponded with shift changes, how many of your current employees would be likely to use the service?

- How many of those employees work 1st shift? 15
- How many of those employees work 2nd shift? 20
- How many of those employees work 3rd shift? 4

Q8: The most efficient way to provide transit service to Bowling Green's industrial parks would be to serve clusters of employees that live within the same apartment complexes, neighborhoods, or areas of town that are within close proximity to one another. Please identify the apartment complexes or neighborhoods where multiple employees live. Please provide a street name, cross street, town/city, and zip code for each location. Please identify any other locations that might serve as good "collector" points, where multiple employees might be picked up at the same location. Please provide a street name, cross street, town/city and zip code for each location.

Unknown

Q9: In addition, we would like to obtain the addresses (or streets and cross streets) for all employees. This information will be kept confidential and will only be used to identify clusters of employees (both within your company and with other nearby companies) that might be served by transit.

Can provide excel spreadsheet with data as needed.

Q10: Would you be willing to consider subsidizing bus service to your facility to increase the available workforce?

Please rate your willingness on a scale of 1 to 10, with 1 being not at all willing and 10 being very willing.

Q1: Company Information Company Name:
Shiloh Industries
Company Address: 310 Jody Richards Drive

Q2: What times do your shift changes occur?

- 1st Shift: 6am
- 2nd Shift: 3pm
- 3rd Shift: NA

Q3: How many employees work each shift?

- 1st Shift: 42
- 2nd Shift: 19
- 3rd Shift: 0

Q4: How many of your current employees drive alone to work?

49

Q5: How many of your current employees travel to work by some other means other than driving alone?

- How many employees walk or bike to work? 2
- How many employees get a ride to work? 6
- How many employees participate in a carpool? 4

Q6: Does your company offer any of the following to your employees?

- Other (please specify) NA

Q7: If your company location were served by public transit at times that corresponded with shift changes, how many of your current employees would be likely to use the service?

- How many of those employees work 1st shift? 5
- How many of those employees work 2nd shift? 0
- How many of those employees work 3rd shift? 0

Q8: The most efficient way to provide transit service to Bowling Green's industrial parks would be to serve clusters of employees that live within the same apartment complexes, neighborhoods, or areas of town that are within close proximity to one another. Please identify the apartment complexes or neighborhoods where multiple employees live. Please provide a street name, cross street, town/city, and zip code for each location. Please identify any other locations that might serve as good "collector" points, where multiple employees might be picked up at the same location. Please provide a street name, cross street, town/city and zip code for each location.

Memphis Junction, Campbell Lane, Russellville Rd, Smiths Grove

Q9: In addition, we would like to obtain the addresses (or streets and cross streets) for all employees. This information will be kept confidential and will only be used to identify clusters of employees (both within your company and with other nearby companies) that might be served by transit.

On file at Shiloh Industries

Q10: Would you be willing to consider subsidizing bus service to your facility to increase the available workforce? Please rate your willingness on a scale of 1 to 10, with 1 being not at all willing and 10 being very willing.

Q1: Company Information

- Company Name: American Howa Kentucky
- Company Address: 445 Jody Richards Drive

Q2: What times do your shift changes occur?

- 1st Shift: 6 AM-2:30 PM
- 2nd Shift: 2:00 PM - 10:30 PM
- 3rd Shift: 10PM - 6:30 AM

Q3: How many employees work each shift?

- 1st Shift: 100+
- 2nd Shift: 50+
- 3rd Shift: 50+

Q4: How many of your current employees drive alone to work?

N/A

Q5: How many of your current employees travel to work by some other means other than driving alone?

- How many employees walk or bike to work? 0
- How many employees get a ride to work? 10+
- How many employees participate in a carpool? 15+ or more

Q6: Does your company offer any of the following to your employees?

Respondent skipped this question

Q7: If your company location were served by public transit at times that corresponded with shift changes, how many of your current employees would be likely to use the service?

Respondent skipped this question

Q8: The most efficient way to provide transit service to Bowling Green's industrial parks would be to serve clusters of employees that live within the same apartment complexes, neighborhoods, or areas of town that are within close proximity to one another. Please identify the apartment complexes or neighborhoods where multiple employees live. Please provide a street name, cross street, town/city, and zip code for each location. Please identify any other locations that might serve as good "collector" points, where multiple employees might be picked up at the same location. Please provide a street name, cross street, town/city and zip code for each location.

Bristow area /

Q9: In addition, we would like to obtain the addresses (or streets and cross streets) for all employees. This information will be kept confidential and will only be used to identify clusters of employees (both within your company and with other nearby companies) that might be served by transit.

Respondent skipped this question

Q10: Would you be willing to consider subsidizing bus service to your facility to increase the available workforce? Please rate your willingness on a scale of 1 to 10, with 1 being not at all willing and 10 being very willing.

Q1: Company Information

- Company Name: Cannon Automotive Solutions
- Company Address: 210 Jody Richards Drive, Bowling Green, KY 42101

Q2: What times do your shift changes occur?

- 1st Shift: 6:00 a.m.
- 2nd Shift: 2:30 p.m.
- 3rd Shift: 10:00 p.m.

Q3: How many employees work each shift?

- 1st Shift: 40
- 2nd Shift: 12
- 3rd Shift: 10

Q4: How many of your current employees drive alone to work?

98%

Q5: How many of your current employees travel to work by some other means other than driving alone?

- How many employees walk or bike to work? none
- How many employees get a ride to work? unknown
- How many employees participate in a carpool? unknown

Q6: Does your company offer any of the following to your employees?

Respondent skipped this question

Q7: If your company location were served by public transit at times that corresponded with shift changes, how many of your current employees would be likely to use the service?

Respondent skipped this question

Q8: The most efficient way to provide transit service to Bowling Green's industrial parks would be to serve clusters of employees that live within the same apartment complexes, neighborhoods, or areas of town that are within close proximity to one another. Please identify the apartment complexes or neighborhoods where multiple employees live. Please provide a street name, cross street, town/city, and zip code for each location. Please identify any other locations that might serve as good "collector" points, where multiple employees might be picked up at the same location. Please provide a street name, cross street, town/city and zip code for each location.

Respondent skipped this question

Q9: In addition, we would like to obtain the addresses (or streets and cross streets) for all employees. This information will be kept confidential and will only be used to identify clusters of employees (both within your company and with other nearby companies) that might be served by transit.

Respondent skipped this question

Q10: Would you be willing to consider subsidizing bus service to your facility to increase the available workforce? Please rate your willingness on a scale of 1 to 10, with 1 being not at all willing and 10 being very willing.

Q1: Company Information

Company Name: Valspar

Company Address: 347 Central Avenue Bowling Green, KY 42101

Q2: What times do your shift changes occur?

- 1st Shift: 7 AM
- 2nd Shift: 3 PM
- 3rd Shift: 11 PM

Q3: How many employees work each shift?

- 1st Shift: 68
- 2nd Shift: 16
- 3rd Shift: 16

Q4: How many of your current employees drive alone to work?

98

Q5: How many of your current employees travel to work by some other means other than driving alone?

- How many employees walk or bike to work? 0
- How many employees get a ride to work? 0
- How many employees participate in a carpool? 2

Q6: Does your company offer any of the following to your employees?

Respondent skipped this question

Q7: If your company location were served by public transit at times that corresponded with shift changes, how many of your current employees would be likely to use the service?

- How many of those employees work 1st shift? 0
- How many of those employees work 2nd shift? 0
- How many of those employees work 3rd shift? 0

Q8: The most efficient way to provide transit service to Bowling Green's industrial parks would be to serve clusters of employees that live within the same apartment complexes, neighborhoods, or areas of town that are within close proximity to one another. Please identify the apartment complexes or neighborhoods where multiple employees live. Please provide a street name, cross street, town/city, and zip code for each location. Please identify any other locations that might serve as good "collector" points, where multiple employees might be picked up at the same location. Please provide a street name, cross street, town/city and zip code for each location.

Lost River

Q9: In addition, we would like to obtain the addresses (or streets and cross streets) for all employees. This information will be kept confidential and will only be used to identify clusters of employees (both within your company and with other nearby companies) that might be served by transit.

There are too many to type in this box. This needs to be addressed/obtained in a different matter.

Q10: Would you be willing to consider subsidizing bus service to your facility to increase the available workforce? Please rate your willingness on a scale of 1 to 10, with 1 being not at all willing and 10 being very willing.

GO bg Transportation Survey
February 2016

In order to possibly realign the GO bg transit services with agency clients that are in need of job training or other services and eventually placement with jobs in the region, we are conducting this survey. We are trying to understand the need for transportation services in general and transit in particular in hopes of aligning where jobs seekers might live with where there are open positions, possibly realigning the GO bg transit routes to better serve existing transit customers and those in need of jobs.

Please respond to this survey by the close of business on February 12, 2016.

If you have questions, please contact _____

1). Agency Name:

2). Agency Address:

3). Number of job training / workforce development / job matching clients you typically or currently serve?

4). What are the transportation issues of your clients? (check all that apply)

_ lack of transportation / access (car / bus, etc.)

_ limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle

_ limited understanding of English

_ other - explain

5). If available, would your clients use transit to get to a new or existing job?

Yes Or No.....If no please explain why _____

6). Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit? - Yes - No

7). What would be needed for them to use transit? Explain_____

8). What shifts or hours are jobs where your clients are most placed in?

1st shift

2nd shift

3rd shift

9). Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

10). What types of jobs are your clients typically places in?

- Industry / manufacturing

- warehousing / distribution

- retail

- food service

- other (explain or detail)_____

Q1: Agency Name:

The Salvation Army

Q2: Agency Address:

400 West Main St, Bowling Green, Ky 42101

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

75

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- Other (please specify) Lack of transportation to industrial parks.

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

For the bus system to go where is needed. Example: Lifeskills, Social Security Administration, Industrial Parks

Q8: What shifts or hours are jobs where your clients are most placed in?

- 1st Shift
- 2nd Shift
- 3rd Shift

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

The Salvation Army.

Q10: What types of jobs are your clients typically placed in?

- warehousing / distribution

Q1: Agency Name:

Community Education

Q2: Agency Address:

1227 Westen Ave

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

Respondent skipped this question

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

Get to local elementary schools throughout the entire county to work after-school programs

Q8: What shifts or hours are jobs where your clients are most placed in?

- Other (please specify) 2:30pm-6:00pm

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

Respondent skipped this question

Q10: What types of jobs are your clients typically placed in?

- Other (please explain or detail) school settings

Q1: Agency Name:

Haven4Change

Q2: Agency Address:

1500 Parkside Drive

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

55 per year

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

Proximal bus stop Affordability of services with possible vouchers Notice of amount of time to reach destinations

Q8: What shifts or hours are jobs where your clients are most placed in?

- 1st Shift

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

1500 Parkside Drive near Old Morgantown Road

Q10: What types of jobs are your clients typically placed in?

- Other (please explain or detail) All the above

Q1: Agency Name:

Potter Children's Home and Family Ministries

Q2: Agency Address:

2350 Nashville Road, Bowling Green KY 42101

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

14

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

Reliable schedule, transportation at needed hours of work schedule, transportation to daycare to drop off and pick up children

Q8: What shifts or hours are jobs where your clients are most placed in?

- 1st Shift

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

on our campus 2350 Nashville Road, Bowling Green KY 42101

Q10: What types of jobs are your clients typically placed in?

- warehousing / distribution

Q1: Agency Name:

Cumberland Trace Elementary Family Resource Center

Q2: Agency Address:

830 Cumberland Trace Rd, Bowling Green, KY 42103

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

I serve parents/families of the students at Cumberland Trace elementary. Many of these parents need access to computers/internet to apply to jobs online and work on resumes. If they had access to the Bob Kirby Branch of the Public Library they would have more success in job searching and developing computer skills.

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle
- limited understanding of English

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

some of the current routes are very long, they would need to be able to get to work on time.

Q8: What shifts or hours are jobs where your clients are most placed in?

Respondent skipped this question

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

Highland Way, McIntosh, O'shea, Flannigan, Patrick Way,

Q10: What types of jobs are your clients typically placed in?

- Other (please explain or detail) cleaning hotels, waitressing, cooking

Q1: Agency Name:

Goodwill Industries of Kentucky, West Region Job Junction

Q2: Agency Address:

1806 US 31-W Bypass Bowling Green, KY 42101

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

Over 2200 job seekers since late 2013

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle
- limited understanding of English
- Other (please specify) Public transit runs limited schedule and limited routes. Riders many times have to ride up to 1.5 hours and must change buses to get across town.

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes
- No (If "no" please explain why) It depends on cost, available transit times, and transit routes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

Door to door pick up provided by dependable on time providers would be of greater benefit than mass transit with limited pick up and drop off locations.

Q8: What shifts or hours are jobs where your clients are most placed in?

- 1st Shift
- 2nd Shift
- 3rd Shift
- Other (please specify) Varying shifts. Example: some employers have 12 hours shifts, some 10, some 8. Some run 7 days a week, others

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

Honestly, scattered throughout Bowling Green/Warren County with no clear area of concentration

Q10: What types of jobs are your clients typically placed in?

- Industry / manufacturing

Q1: Agency Name:

HOTEL INC

Q2: Agency Address:

PO Box 1688, BG 42102

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

250-500 per year or more

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

Shortened transport times from pickup to destination; expanded hours; expanded routes; expanded days of operation

Q8: What shifts or hours are jobs where your clients are most placed in?

- 2nd Shift
- 3rd Shift

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

We serve the entire County although we track addresses we do not map client locations.

Q10: What types of jobs are your clients typically placed in?

- warehousing / distribution

Q1: Agency Name:
Audubon Area Services

Q2: Agency Address:
1010 State St.

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?
45

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle
- limited understanding of English
- Other (please specify) Lack of driver's license/training

Q5: If available, would your clients use transit to get to a new or existing job?
Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

Convenient schedules/stops to areas in which they live & work; Accessibility for single mothers, sometimes multiple children, strollers, etc.

Q8: What shifts or hours are jobs where your clients are most placed in?

- 1st Shift
- 2nd Shift

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

Bryant Way Area BG Scholar House Apts Double Springs Rd. Area

Q10: What types of jobs are your clients typically placed in?

- Other (please explain or detail) My clients are placed across industries, mostly in blue color jobs in manufacturing, food service, retail, call centers, and similar.

Q1: Agency Name:

The Salvation Army

Q2: Agency Address:

400 W. Main Ave

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

45

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

Routes that connect with job.

Q8: What shifts or hours are jobs where your clients are most placed in?

- Other (please specify) 6am to 6pm or 6pm to 6am

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

The Salvation Army Center of Hope 400 W. Main Ave Bowling Green, KY 42101

Q10: What types of jobs are your clients typically placed in?

- Industry / manufacturing

Q1: Agency Name:

Adubon Area Coummunity Services, Inc

Q2: Agency Address:

1010 State St Bowling Green, KY 42101

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

40

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle
- limited understanding of English
- Other (please specify) The hours the GO Bus runs

Q5: If available, would your clients use transit to get to a new or existing job?

Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

A discount on passes, longer hours, more rotation in the buses, and weekend transit.

Q8: What shifts or hours are jobs where your clients are most placed in?

- 1st Shift
- 2nd Shift
- Other (please specify) Many clients work on the weekend as well.

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

Bryant way apartment, Kelly road, Nutterville, Parkway , Trent way, Old Barren River Rd, Scottsville and, Louisville Rd.

Q10: What types of jobs are your clients typically placed in?

- Industry / manufacturing

Q1: Agency Name:

Audubon Area Community Services, Inc.

Q2: Agency Address:

1800 West 4th Street, Owensboro, KY 42301

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

2000

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle
- limited understanding of English

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

More than just one bus per day

Q8: What shifts or hours are jobs where your clients are most placed in?

- 1st Shift
- 2nd Shift

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

42101,42102,42103,42104 - Bryant way, Lovers Lane area, and out Louisville road... near all the section 8 housing off Kelly Rd.

Q10: What types of jobs are your clients typically placed in?

- Industry / manufacturing

Q1: Agency Name:
Hope House Ministries

Q2: Agency Address:
112 West 10 Avenue Bowling Green, KY

Q3: Number of job training / workforce development / job matching clients you typically or currently serve?

30-40 a month

Q4: What are the transportation issues of your clients? (check all that apply)

- lack of transportation / access (car / bus, etc.)
- limited resources to afford fare, gasoline or upkeep or maintenance of a vehicle

Q5: If available, would your clients use transit to get to a new or existing job?

- Yes

Q6: Would getting a subsidy of commuting allowance or discount on a bus pass persuade them to use transit?

- Yes

Q7: What would be needed for them to use transit? Explain.

Direct transit routes to transpark area and other manufacturing parks in community from downtown areas.

Q8: What shifts or hours are jobs where your clients are most placed in?

- 1st Shift
- 2nd Shift
- 3rd Shift

Q9: Where do your clients typically live? Please name the apartments complexes, areas of town, etc. and provide a cross street, street or zip code if available.

West End Neighborhood and Enterprise District From railroad tracks to Veterans Memorial and from Barren River to Morgantown Road.

Q10: What types of jobs are your clients typically placed in?

- Industry / manufacturing



*TRANSIT NEEDS ASSESSMENT &
ROUTE REALIGNMENT STUDY*

Bowling Green, Kentucky

