

KFH GROUP, INC.

City of Harrisonburg Transit Development Plan

Final Report

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Under Subcontract to:
Cambridge Systematics

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City of Harrisonburg
and the
Virginia Department of Rail and Public Transportation

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Executive Summary

INTRODUCTION

This Executive Summary provides an overview of the Transit Development Plan (TDP) process that has been completed for the Harrisonburg Department of Public Transportation (HDPT). A TDP is a Short-Range Transit Plan that outlines the services that HDPT intends to implement during the six-year planning horizon, estimates what resources will be needed, and what funding opportunities are likely to be available. The TDP was guided by a Steering Committee that provided input throughout the study process. The technical study tasks were undertaken by KFH Group, Inc., in close consultation with the Steering Committee, HDPT staff, and the Virginia Department of Rail and Public Transportation (DRPT). Task work for the TDP began in October 2010 and was completed in June 2011. The Harrisonburg City Council will review the Plan in July 2011 for adoption.

DRPT requires that its local grantees have a current TDP in place. As such, DRPT provides the funding and technical assistance required to complete a TDP. The objectives of this (TDP) were to:

- Create a management and policy document for HDPT for the six-year planning horizon;
- Provide DRPT with information necessary for programming and planning;
- Provide DRPT with an up-to-date record of the HDPT's capital and operating budgets; and
- Provide HDPT with the basis for including capital and operating programs in the Six Year Improvement Program (SYIP), Statewide Transportation Improvement Program (STIP), the Metropolitan Planning Organization's (MPO Transportation Improvement Program (TIP), and the Constrained Long Range Transportation Plan (CLRTP).

HDPT BACKGROUND AND SERVICE CHARACTERISTICS

Public transportation in the City of Harrisonburg is provided by the HDPT, a department within the City government. HDPT is comprised of three branches: transit operations, school bus operations, and the central garage. The transit operations branch is the focus of this TDP and operates fixed-route bus service, Americans with Disabilities (ADA) paratransit service, and scheduled shuttles to Bridgewater and Dayton. Fixed-route services include five full-time routes geared toward city residents, and several more seasonal routes during the school year, geared toward James Madison University (JMU) students. The JMU community accounts for about 90% of the system's ridership. HDPT is set up as an enterprise fund for budgeting purposes within the City of Harrisonburg.

HDPT's goals are stated as the following priorities:

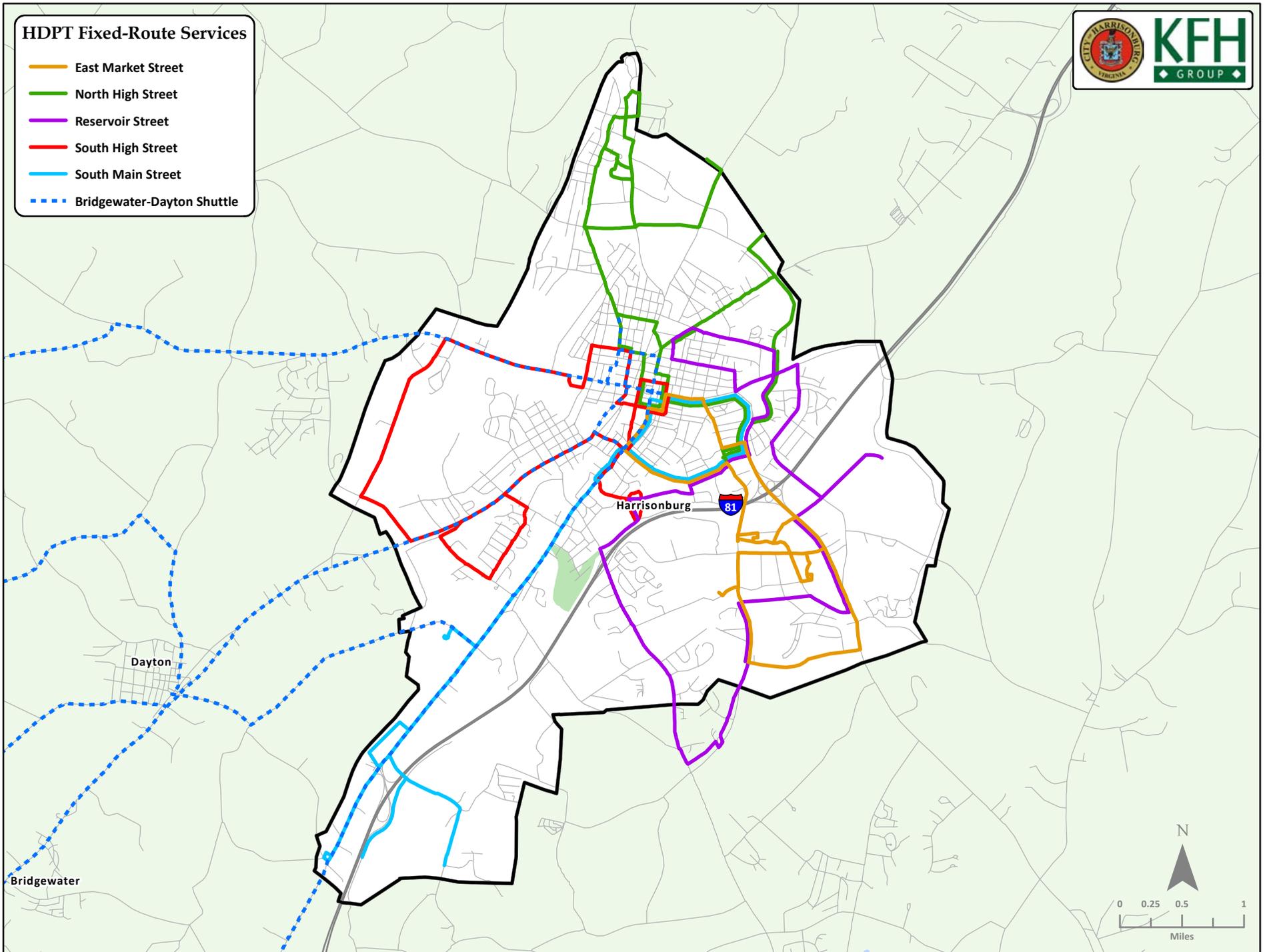
- Safety
- Customer Service
- The Schedule

Figure ES-1 provides a map of HDPT's year-round fixed-route bus services and Figure ES-2 provides a map of HDPT's seasonal fixed-route bus services. As these maps indicate, HDPT provides comprehensive geographic coverage of the City. The transit fleet is comprised of 27 transit buses and eight paratransit vehicles. The fleet is completely accessible with wheelchair ramps or lifts as of January 2011. HDPT currently has a very low spare ratio for the fixed-route fleet during peak periods (only 4%), and this condition will be alleviated upon the arrival of seven new buses in the coming fiscal year and another two for the FY 2012 grant cycle.

HDPT has experienced continued growth, with ridership doubling between FY 2003 and FY 2010. This trend has continued in FY 2011, with HDPT providing its 2 millionth ride in early May, well ahead of the FY 2010 ridership of 1,862,500. The ridership analysis examined the City routes separately from the seasonal routes, as the characteristics and productivity are quite different. The City routes averaged just under 12 passenger trips per revenue hour (FY10), and the seasonal routes averaged just under 51 passenger trips per revenue hour (FY10).

In FY 2011, HDPT's operating budget was \$3,273,653 and in FY 2012 the approved budget is \$3,483,584.

Figure ES-1: Fixed-Route Bus Service in the City of Harrisonburg



ES-3

TRANSIT NEEDS ANALYSIS

The transit needs analysis, which is fully documented in Chapter 3, included a significant data collection effort that considered demographics and land use, previous planning efforts, rider opinion, and stakeholder opinion. Demographic data indicate that the City's population is growing at a rate of about 2% per year, based on the 2000 and 2010 Census data. JMU, a major economic factor for the City, has grown as well and is expected to grow by another 7,000 students over the next several years. JMU is also working on implementing a campus master plan that calls for a more pedestrian-oriented campus that will increase the need for transit services.

In reviewing and analyzing the various data concerning transit needs, a number of unmet transit needs and potential services were echoed by several of the data sources. These key unmet needs and potential services formed the basis for the six-year plan.

SIX-YEAR PLAN

The draft six-year plan for HDPT was developed from a series of potential service and organizational alternatives that were presented in May 2011 (Chapter 4 of the full TDP report). The plan incorporated several of the alternatives, with improvements phased over time based on likely funding availability and lead time for implementation. Projects already being pursued by HDPT were also included, most significantly the proposed new administrative, operations, and maintenance facility.

The plan is expansionary in nature and proposes applying for additional grant assistance in collaboration with the Department of Social Services. The plan also proposes some modest funding from additional partners to implement services that riders have requested.

Table ES-1 provides a summary of the recommended projects for the six-year plan, including project descriptions, purposes, estimated revenue service hours, proposed implementation years, and estimated expenses. The plan proposes to add just over 19,000 annual service hours to the current 66,272, an increase of 29% over the six-year period. This level of growth is consistent with the growth experienced over the past six years. The annual operating and administrative budget is projected to grow from just under \$ 3.5 million (FY 2012) to \$5.6 million in FY 2017.

Table ES-1: HDPT SUMMARY OF TDP PROJECTS

| Project | Purpose | Annual Operating Hours | Estimated Annual Operating Cost | Capital Needed | Capital Cost | Planned Imp. Year |
|--|--|------------------------|---------------------------------|----------------------|--------------|--|
| Improvements Focused on the Year Round, City-Oriented Routes | | | | | | |
| Split the Route 2 | Provides a second route to RHM, offers linear rather than loop service, service to newly developing area, and Route 2 West provides year-round service to areas that currently only have seasonal service. | 3,425 | \$ 170,000 | 1 additional vehicle | \$ 425,000 | FY 2014 |
| Offer limited later hours of service through the implementation of a taxi voucher program, funded in part by a JARC grant and the DSS. | Provides a way home for people whose jobs require them to be at work later than the year-round transit services operate. | n.a. | \$ 122,265 | 0 | \$ - | Grant application- FY 2012 for FY 2013 program |
| Job Access taxi voucher program to help parents and children access daycare and work. Proposed funding through a JARC grant and the DSS. | Provides assistance to community members needing help finding and keeping employment. | n.a. | \$ 266,475 | 0 | \$ - | Grant application- FY 2012 for FY 2013 program |

Table ES-1, Continued

| Project | Purpose | Annual Operating Hours | Estimated Annual Operating Cost | Capital Needed | Capital Cost | Planned Imp. Year |
|--|--|------------------------|--|---------------------------|------------------------------|-------------------|
| Improvements Focused on the Seasonal Routes | | | | | | |
| Campus Connector | Provides direct service between college campuses, the downtown, and the major shopping attractions. | 3,624 | \$ 180,000 | 2 new vehicles | \$ 850,000 | FY 2013 |
| Additional service to accommodate west campus road closures and football game traffic. | Component of JMU's Master Plan - To accommodate growth while reducing SOV congestion on campus. | 3,000 | Already included in FY2012 budget. \$149,000 | 7 buses | \$3.1 million Already funded | FY 2012 |
| Continue to accommodate seasonal growth | Adds capacity as needed to support JMU's growth, and to continue to focus on pedestrian and transit focused environment. | 2,000 added each year | \$ 99,000 additional each year | 1 additional bus per year | \$ 425,000 | FY 2013-FY 2017 |
| Improvements Focused on the Region | | | | | | |
| Local Regional Route - Route 42 Corridor. Proposed partnership with Blue Ridge Community College's existing shuttle. | Provides mobility for residents for several small towns in the Route 42 Corridor, connecting them to services in the City of Harrisonburg. | 2,040 | \$ 103,000 | 1 body-on-chassis vehicle | \$ 73,000 | FY 2014 |
| Intercity Bus Service | Provide a greater number of intercity bus service options in the region. Harrisonburg serving as advocate. | n.a. | | | | |

Table ES-1, Continued

| Project | Purpose | Annual Operating Hours | Estimated Annual Operating Cost | Capital Needed | Capital Cost | Planned Imp. Year |
|---|--|------------------------|---------------------------------|---|-----------------------------------|-------------------|
| Infrastructure Improvements | | | | | | |
| New transfer location to be located at N. Gay and N. Mason in the Roses' parking lot. | A larger, off-street location will allow all of the City routes to meet for transfer opportunities and will allow for some modest system growth. | n.a | \$ - | 3 shelters, signage, and lighting | \$ 50,000 already funded | FY 2012 |
| Real-time transit information | Will allow transit riders to access real-time schedule information from their computers, cell phones, and via electronic signs at major bus stops. | n.a | \$47,925 already in budget | LED signs, AVL equipment, hardware, and software | \$ 212,915 already funded | FY 2011/2012 |
| Computer-aided dispatching | Improve the productivity of the paratransit program and help with paratransit record-keeping. | n.a | \$ 23,000 | MDC/AVL units (8) Software Mobile Data Computers (8) | \$191,925 hardware already funded | FY 2012/2013 |
| Transit portion of new administrative, operations, and maintenance facility | Accommodate growth of system. | n.a | | Facility construction | \$10,000,000 | FY 2013/2014 |
| Transit portion of shop equipment and tools- new facility | Accommodate growth of system. | n.a | | List found in facility feasibility study. | \$ 904,995 | FY 2014 |
| Passenger Shelters | To improve passenger comfort. | n.a. | n.a | 10 ordered for FY 2012; 2 per year after that | \$ 150,000 | FY 2012-2017 |

Planned improvements include a sixth city route, additional seasonal services, a regional route, a new transfer center, real-time transit information, and computer-aided dispatching, additional passenger shelters, and a new administrative, operations, and maintenance facility.

Table ES-2 provides the financial plan for operations for the six-year period, Table ES-3 provides the financial plan for vehicle replacement and expansion, and Table ES-4 provides the financial plan for facilities, equipment, and other capital.

Table ES-2: HDPT TDP Financial Plan for Operations

| Constrained and Unconstrained Projects | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <i>Annual Service Hours</i> | | | | | | |
| HDPT City Routes | 17,940 | | | | | |
| HDPT Seasonal Routes | 39,383 | | | | | |
| HDPT Paratransit Service | 8,949 | | | | | |
| <i>Subtotal, FY2012 Level of Service</i> | 66,272 | 66,272 | 66,272 | 66,272 | 66,272 | 66,272 |
| Campus Connector | | 3,624 | 3,624 | 3,624 | 3,624 | 3,624 |
| Continue to Accommodate Seasonal Growth | | 2,000 | 4,000 | 6,000 | 8,000 | 10,000 |
| Split Route 2 | | | 3,425 | 3,425 | 3,425 | 3,425 |
| Regional Route 42 Corridor Service | | | 2,040 | 2,040 | 2,040 | 2,040 |
| <hr/> | | | | | | |
| Total Transit Service Hours | | 71,896 | 79,361 | 81,361 | 83,361 | 85,361 |
| <hr/> | | | | | | |
| <i>Projected Operating Expenses</i> | | | | | | |
| Cost Per Revenue Hour- Directly Operated Service- Inflation only | \$ 49.68 | \$ 51.17 | \$ 52.70 | \$ 54.29 | \$ 55.91 | \$ 57.59 |
| Cost Per Revenue Hour- Inflation and Considering Expansions, | | | | | | |
| Directly Operated Service | \$ 50.59 | \$ 52.04 | \$ 54.58 | \$ 56.17 | \$ 57.81 | \$ 59.50 |
| Current HDPT Operating Expenses | \$ 3,292,330 | \$ 3,391,100 | \$ 3,492,833 | \$ 3,597,618 | \$ 3,705,546 | \$ 3,816,713 |
| JARC Program- DSS Parent/Child Transportation (Taxi Voucher) | | \$ 266,475 | \$ 274,469 | \$ 282,703 | \$ 291,184 | \$ 299,920 |
| JARC Program- Limited Evening Service (Taxi Voucher) | | \$ 122,265 | \$ 125,933 | \$ 129,711 | \$ 133,602 | \$ 137,610 |
| Campus Connector | | \$ 185,438 | \$ 191,001 | \$ 196,731 | \$ 202,633 | \$ 208,712 |
| Continue to Accommodate Seasonal Growth | | \$ 102,339 | \$ 210,818 | \$ 325,714 | \$ 447,314 | \$ 575,916 |
| Split Route 2 | | | \$ 180,513 | \$ 185,928 | \$ 191,506 | \$ 197,251 |
| Regional Route 42 Corridor Service | | | \$ 107,517 | \$ 110,743 | \$ 114,065 | \$ 117,487 |
| Additional Support Staff | 60,500 | 62,315 | \$ 148,884 | \$ 153,351 | \$ 157,952 | \$ 162,690 |
| <hr/> | | | | | | |
| Total Projected Operating Expenses- Constrained and Unconstrained | \$ 3,352,830 | \$ 4,129,932 | \$ 4,731,969 | \$ 4,982,499 | \$ 5,243,803 | \$ 5,516,300 |

Notes: Proposed implementation years are estimated. Actual implementation is dependent upon funding availability.

Table ES-2: HDPT TDP Financial Plan for Operations (continued)

| Anticipated Funding Sources | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <i>Federal</i> | | | | | | |
| FTA S. 5307 | \$ 953,025 | \$ 981,616 | \$ 1,101,321 | \$ 1,134,360 | \$ 1,168,391 | \$ 1,203,443 |
| FTA S. 5311 (proposed) * | \$ - | \$ - | \$ 53,759 | \$ 55,371 | \$ 57,032 | \$ 58,743 |
| JARC-Evening Service * | | \$ 61,133 | \$ 62,966 | \$ 64,855 | \$ 66,801 | \$ 68,805 |
| JARC-Parent/Child * | | \$ 133,238 | \$ 137,235 | \$ 141,352 | \$ 145,592 | \$ 149,960 |
| Sutotal, Federal | \$ 953,025 | \$ 1,175,986 | \$ 1,355,280 | \$ 1,395,939 | \$ 1,437,817 | \$ 1,480,951 |
| <i>State</i> | | | | | | |
| Formula Assistance | \$ 472,729 | \$ 486,911 | \$ 501,518 | \$ 516,564 | \$ 532,061 | \$ 548,022 |
| <i>Local Contributions</i> | | | | | | |
| City of Harrisonburg | \$ 426,830 | \$ 470,201 | \$ 574,564 | \$ 591,801 | \$ 609,555 | \$ 627,841 |
| Department of Social Services | \$ 500 | \$ 164,319 | \$ 169,248 | \$ 174,326 | \$ 179,556 | \$ 184,942 |
| James Madison University | \$ 1,450,000 | \$ 1,688,558 | \$ 1,847,694 | \$ 2,018,020 | \$ 2,200,161 | \$ 2,394,768 |
| Advertising | \$ 50,000 | \$ 60,000 | \$ 65,000 | \$ 70,000 | \$ 75,000 | \$ 80,000 |
| Special Transit Services | \$ 30,000 | \$ 30,900 | \$ 31,827 | \$ 32,782 | \$ 33,765 | \$ 34,778 |
| Farebox Revenues, Including Coupons | \$ 100,500 | \$ 103,515 | \$ 106,620 | \$ 109,819 | \$ 113,114 | \$ 116,507 |
| Rockingham County (proposed) * | | | \$ 53,759 | \$ 55,371 | \$ 57,032 | \$ 58,743 |
| Eastern Mennonite University (proposed) * | | \$ 50,000 | \$ 51,500 | \$ 53,045 | \$ 54,636 | \$ 56,275 |
| Total Local | \$ 2,057,830 | \$ 2,567,493 | \$ 2,900,212 | \$ 3,105,164 | \$ 3,322,819 | \$ 3,553,856 |
| Total Projected/Proposed Operating Funds/Revenues | \$ 3,483,584 | \$ 4,230,389 | \$ 4,757,010 | \$ 5,017,666 | \$ 5,292,696 | \$ 5,582,830 |
| <i>Surplus/Deficit</i> | \$ 130,754 | \$ 100,458 | \$ 25,042 | \$ 35,167 | \$ 48,894 | \$ 66,530 |

Notes: (1) A 3% annual rate of inflation has been assumed

(2) Funding sources that are not currently in place are marked with an asterisk.

Table ES-3: HDPT TDP Financial Plan for Vehicle Replacement and Expansion

| Number of Vehicles | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Replacement | 0 | 3 | 0 | 6 | 6 | 1 |
| Expansion | 2 | 3 | 2 | 1 | 1 | 1 |
| Total Vehicles | 2 | 6 | 2 | 7 | 7 | 2 |

Vehicle Costs

| | | | | | | |
|--------------------------------------|-------------------|---------------------|-------------------|---------------------|---------------------|-------------------|
| Replacement | \$ - | \$ 219,000 | \$ - | \$ 1,142,000 | \$ 2,550,000 | \$ 73,000 |
| Expansion | \$ 850,000 | \$ 1,275,000 | \$ 498,000 | \$ 425,000 | \$ 425,000 | \$ 425,000 |
| Total Projected Vehicle Costs | \$ 850,000 | \$ 1,494,000 | \$ 498,000 | \$ 1,567,000 | \$ 2,975,000 | \$ 498,000 |

Anticipated Funding Sources

| | | | | | | |
|------------------------------|-------------------|---------------------|-------------------|---------------------|---------------------|-------------------|
| Federal | \$ 680,000 | \$ 1,195,200 | \$ 398,400 | \$ 1,253,600 | \$ 2,380,000 | \$ 398,400 |
| State | \$ 91,800 | \$ 149,400 | \$ 49,800 | \$ 156,700 | \$ 297,500 | \$ 49,800 |
| Local | \$ 78,200 | \$ 149,400 | \$ 49,800 | \$ 156,700 | \$ 297,500 | \$ 49,800 |
| Total Vehicle Funding | \$ 850,000 | \$ 1,494,000 | \$ 498,000 | \$ 1,567,000 | \$ 2,975,000 | \$ 498,000 |

Note: Vehicle expenses are in FY2012 dollars

Table ES-4: HDPT TDP Financial Plan for Facilities, Equipment, and Other Capital

| Projects | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 |
|--|-------------------|---------------------|---------------------|------------------|------------------|------------------|
| ADA Vehicle Equipment | \$ 177,100 | \$ - | \$ - | \$ - | \$ - | \$ - |
| Vehicle Locator System | \$ 14,825 | \$ - | \$ - | \$ - | \$ - | \$ - |
| Paratransit Scheduling Software | | \$ 65,000 | | | | |
| Miscellaneous Technology Equipment | \$ 6,000 | \$ 10,000 | \$ 10,000 | \$ 10,000 | \$ 10,000 | \$ 10,000 |
| Canopy for Train Station Passenger Loading Area | | \$ 45,000 | | | | |
| Facility Construction (transit portion) | | \$ 5,000,000 | \$ 5,000,000 | \$ - | \$ - | \$ - |
| Shop Equipment and Tools- New Facility (transit portion) (1) | \$ - | \$ - | \$ 904,995 | | | |
| Shop Equipment, Tools, Miscellaneous Equipment | \$ - | \$ 15,000 | \$ 15,000 | \$ 15,000 | \$ 15,000 | \$ 15,000 |
| Passenger Shelters | \$ 50,000 | \$ 20,000 | \$ 20,000 | \$ 20,000 | \$ 20,000 | \$ 20,000 |
| Bus Stop Signs | \$ 20,800 | \$ 2,000 | \$ 2,000 | \$ 2,000 | \$ 2,000 | \$ 2,000 |
| Total Projected Non-Vehicle Capital Expenses | \$ 268,725 | \$ 5,157,000 | \$ 5,951,995 | \$ 47,000 | \$ 47,000 | \$ 47,000 |
| Anticipated Funding Sources | | | | | | |
| Federal | \$ 214,980 | \$ 4,125,600 | \$ 4,761,596 | \$ 37,600 | \$ 37,600 | \$ 37,600 |
| State | \$ 29,022 | \$ 515,700 | \$ 595,199 | \$ 4,700 | \$ 4,700 | \$ 4,700 |
| Local | \$ 24,723 | \$ 515,700 | \$ 595,199 | \$ 4,700 | \$ 4,700 | \$ 4,700 |
| Total Projected Non-Vehicle Capital Revenue | \$ 268,725 | \$ 5,157,000 | \$ 5,951,995 | \$ 47,000 | \$ 47,000 | \$ 47,000 |

(1) The transit portion of the equipment listed in the 2009 Facility Feasibility Study.

Chapter 1

Overview of Transit

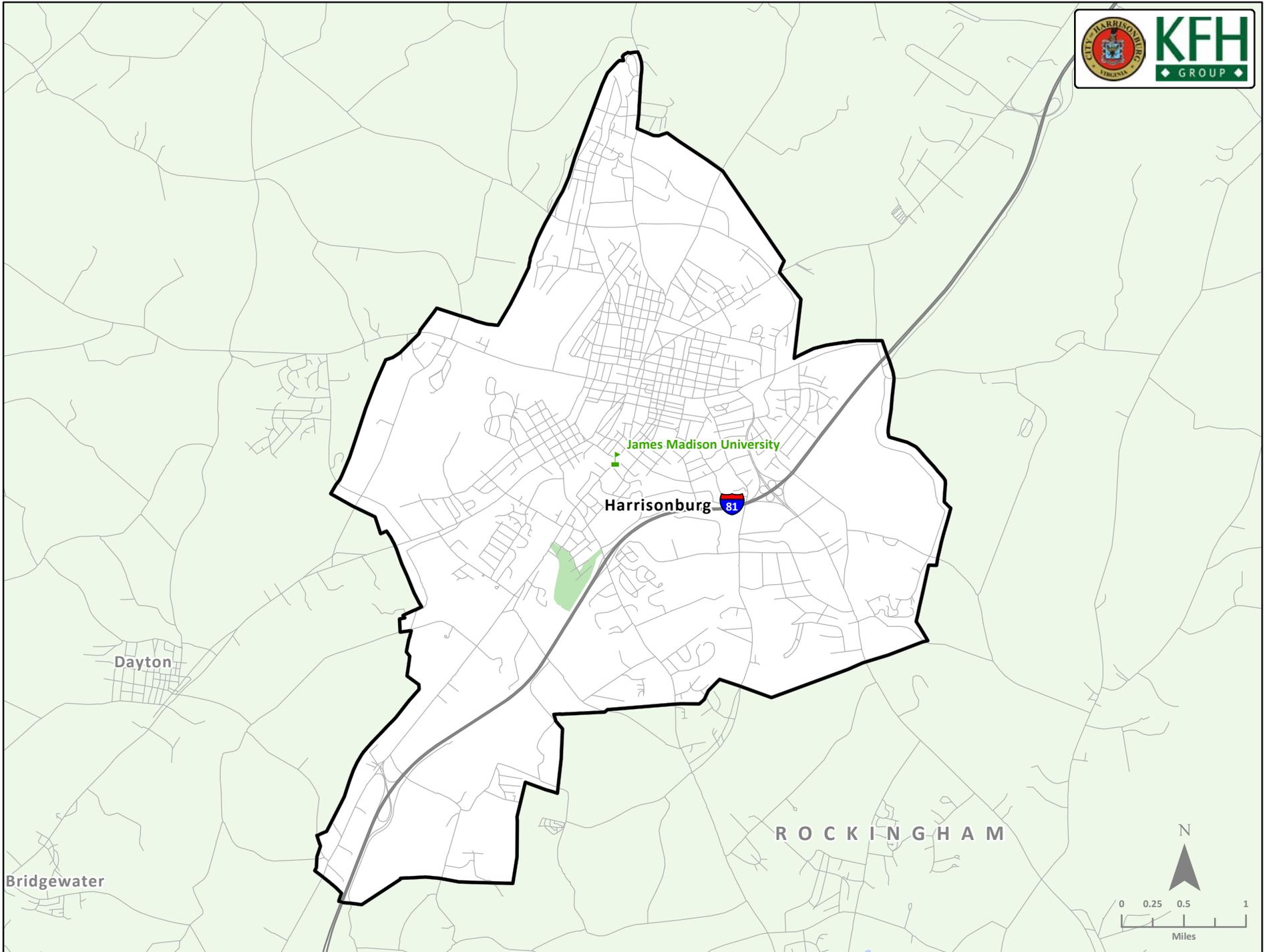
BACKGROUND

The City of Harrisonburg is an independent jurisdiction, surrounded by Rockingham County, located in the Central Shenandoah Valley of Virginia. The City is part of the Harrisonburg-Rockingham County Urbanized Area, which also includes the nearby Towns of Dayton and Bridgewater. Serving as the county seat, the City of Harrisonburg is located along the Interstate 81 corridor, about a two-hour drive from Washington, D.C. Other transportation corridors that serve the City include U.S. Highways 11 and 33, State Highways 42 and 253, the Norfolk Southern Railroad, and the Shenandoah Valley Railroad, which connects Staunton to Pleasant Valley just south of Harrisonburg. Figure 1-1 displays a map of Harrisonburg and the surrounding region.

The Chamber of Commerce highlights agriculture and poultry as major industries in the Harrisonburg area; more than 3,000 farmers are farming land around Harrisonburg, namely for poultry, dairy, and livestock.¹ The City also has a significant high tech industry, having drawn large technology and research companies to its location with its proximity to Washington, D.C. and tech-supportive infrastructure. Several higher education institutions are located in the Harrisonburg area, including James Madison University (JMU), Bridgewater College, Eastern Mennonite University, National College, Blue Ridge Community College, and Massanutten Technical Center. The 2005 - 2009 American Community Survey cites educational services, health care and social assistance, manufacturing, arts, entertainment, and recreation, accommodation and food services; and retail trade as the top industries in the City. Massanutten Resort, located just east of Harrisonburg, serves as a local recreation and

¹ Harrisonburg-Rockingham Community Profile and Member Directory website, <http://communitylink.com/harrisonburg-virginia/category/business-industry/>.

Figure 1-1: City of Harrisonburg, Virginia



1-2

tourism attraction that offers a variety of sports activities, a spa, a water park, and hosts various events throughout the year.²

According to the U.S. Census Bureau's 2005 - 2009 American Community Survey, the City of Harrisonburg has a population of 45,137, with a median age of 22.4, reflecting the City's large student population.³ JMU alone has a combined undergraduate and graduate student population of 19,434 as of Fall 2010, and this number is expected to grow to more than 25,000 in the next few years.⁴ The recently released 2010 Census indicates that the City has a population of 48,914, which is almost 21% higher than the 2000 population of around 40,500. Harrisonburg consists of 17.4 square miles, resulting in a population density of approximately 2,811 persons per square mile.⁵

Public transportation in the City is provided by the Harrisonburg Department of Public Transportation (HDPT), a department within the City government. HDPT operates fixed-route bus service, Americans with Disabilities Act (ADA) paratransit service, scheduled shuttles to Bridgewater and Dayton, and school bus service. The transit system operates five full-time routes geared toward City residents, and several more seasonal routes during the school year, geared toward JMU students. JMU accounts for about 90% of the system's ridership. HDPT is set up as an enterprise fund for budgeting purposes within the City of Harrisonburg. HDPT receives revenue from JMU, fares, and advertising. The net operating deficit of the enterprise fund is financed through a mix of federal and state grants, supplemented by a fund transfer from the city's general fund.

The Valley Program for Aging Services, the Area Agency on Aging for the Central Shenandoah Valley, provides non-emergency transportation for seniors for a variety of trip purposes. The Harrisonburg - Rockingham Department of Social Services also provides transportation to medical and essential non-medical appointments for residents that are seniors, persons with disabilities, or persons living at or below the federal poverty level. Medicaid transportation is provided through Logisticare using local private operators.

² Harrisonburg-Rockingham Community Profile and Member Directory website, <http://communitylink.com/harrisonburg-virginia/2011/01/04/massanutten-resort/>.

³ U.S. Census Bureau, 2005-2009 American Community Survey Fact Sheet for Harrisonburg City, Virginia, www.factfinder.census.gov.

⁴ Current (Fall 2010) student enrollment cited from the JMU website, <http://www.jmu.edu/jmuweb/aboutJMU/factsheet.shtml>; while the expected growth in the student population was cited from input at the study's kick-off meeting in October, 2010.

⁵ Geographic size of the City cited from the City's webpage, 'History of Harrisonburg City', <http://www.harrisonburgva.gov/index.php?id=599>; and the population density was calculated by dividing the current population by 17.4 square miles.

Coordinated Area Transportation Services (CATS), the public transit provider for Staunton, Waynesboro, and Augusta County, operates the Blue Ridge Community College (BRCC) Shuttle, a fixed-route service geared toward students in Rockingham and Augusta Counties and the Cities of Harrisonburg and Staunton, but is open to the general public.⁶ The BRCC North Shuttle connects BRCC to JMU, the Walmart Supercenter on State Highway 42, Dayton, Bridgewater including Bridgewater College, and Mount Crawford.⁷ The service is free for students with proper identification and costs \$0.50 per ride for the general public. RideShare is a commuter resource and ridesharing program sponsored by the Thomas Jefferson Planning District Commission and the Central Shenandoah Planning District Commission, of which the City of Harrisonburg is a member. RideShare provides free carpool matching and vanpool coordination, a Guaranteed Ride Home program, and other commuter resources.⁸

Two JMU-specific ridesharing resources are available: the university hosts Rideboard, an online resource for their students to share rides, and Zimride is a private company that fosters ridesharing through social networks including a JMU network. A few private companies operate transportation geared toward JMU students during holiday breaks. College Transit provides bus service from JMU to destinations throughout the Northeast including the Baltimore-Washington International Airport and Amtrak station, while Home Ride of Virginia offers weekend and holiday service between JMU and Virginia destinations such as Northern Virginia, Richmond, and Hampton.

The nearest intercity bus stops to Harrisonburg are in Charlottesville, which is served by Greyhound routes between Lynchburg and Washington, D.C. and between Richmond and Nashville, Tennessee. Megabus has recently started service in the Roanoke region, stopping in Christiansburg, Virginia. The nearest intercity rail stop is in Staunton, about 30 miles south of Harrisonburg, along Amtrak's Cardinal/Hoosier State route that travels between Chicago and New York.

HISTORY, GOVERNANCE, AND ORGANIZATIONAL STRUCTURE

HDPT was established as part of the City government in 1976 through the purchase of the area's local taxi company. A timeline of notable events in the growth of HDPT is outlined below:

⁶ Coordinated Area Transportation Services website, <http://www.staunton.va.us/community/transportation/cats>.

⁷ Blue Ridge Community College Shuttle Service website, <http://www.brcc.edu/student/shuttle/>.

⁸ RideShare website, <http://www.rideshareinfo.org>.

- 1978: HDPT began operation of fixed-route transit services with two buses.
- 1983: HDPT began two contracts, one with JMU to operate bus services for the university students and the other with Harrisonburg City Schools to provide school bus service required by the State. HDPT's original maintenance facility was also constructed this year.
- 1994: HDPT sold its taxi operations to a private operator.
- 1995: In addition to operating and maintaining transit and school buses, HDPT took over maintenance of other city vehicles and equipment.⁹

HDPT is comprised of three branches: transit operations, school bus operations, and the central garage. The entire department is led by the Director of Public Transportation, who reports to the City Council and meets with the City Manager regularly to discuss needs and issues. The Director also meets with JMU staff to discuss issues related to the university services, and serves as a member of the Metropolitan Planning Organization's policy board to represent HDPT in regional transportation planning efforts. Immediately below the Director is the position of Assistant to the Director/Safety and Training Coordinator. This position is responsible for safety and security issues, including logistics regarding vehicle accidents and the training program.¹⁰

The Transit Superintendent oversees daily transit and paratransit operations and manages several staff including the paratransit coordinator, transit front-line supervisors, bus driver trainers, dispatchers, and transit and paratransit drivers. HDPT shares the maintenance department, administrative specialist, and program support specialist with other City departments, but has a Grants and Compliance Officer dedicated to transit. The organization of HDPT permits staffing flexibility, such as part-time school bus operators supplementing transit operations.¹¹ Exhibit 1-1 displays the HDPT organizational chart from the transit system's 2009 performance review.

As a reflection of the relatively small staff, each of whom have specific duties, the 2009 performance review recommended that HDPT staff undergo more cross-training in order to perform other individuals' tasks and to ensure the continued, smooth operation of transit services should a staff member resign or take an unforeseen leave of

⁹ *Harrisonburg Department of Public Transportation Transit Development Plan Final Report* (December 2006), prepared by HNTB Corporation for the Virginia Department of Rail and Public Transportation and HDPT.

¹⁰ *Performance Review – Harrisonburg Transit* (January 2009), prepared by Vanasse Hangen Brustlin, Inc. with Abrams-Cherwony Associates for the Department of Rail and Public Transportation.

¹¹ *Ibid.*

Exhibit 1-1

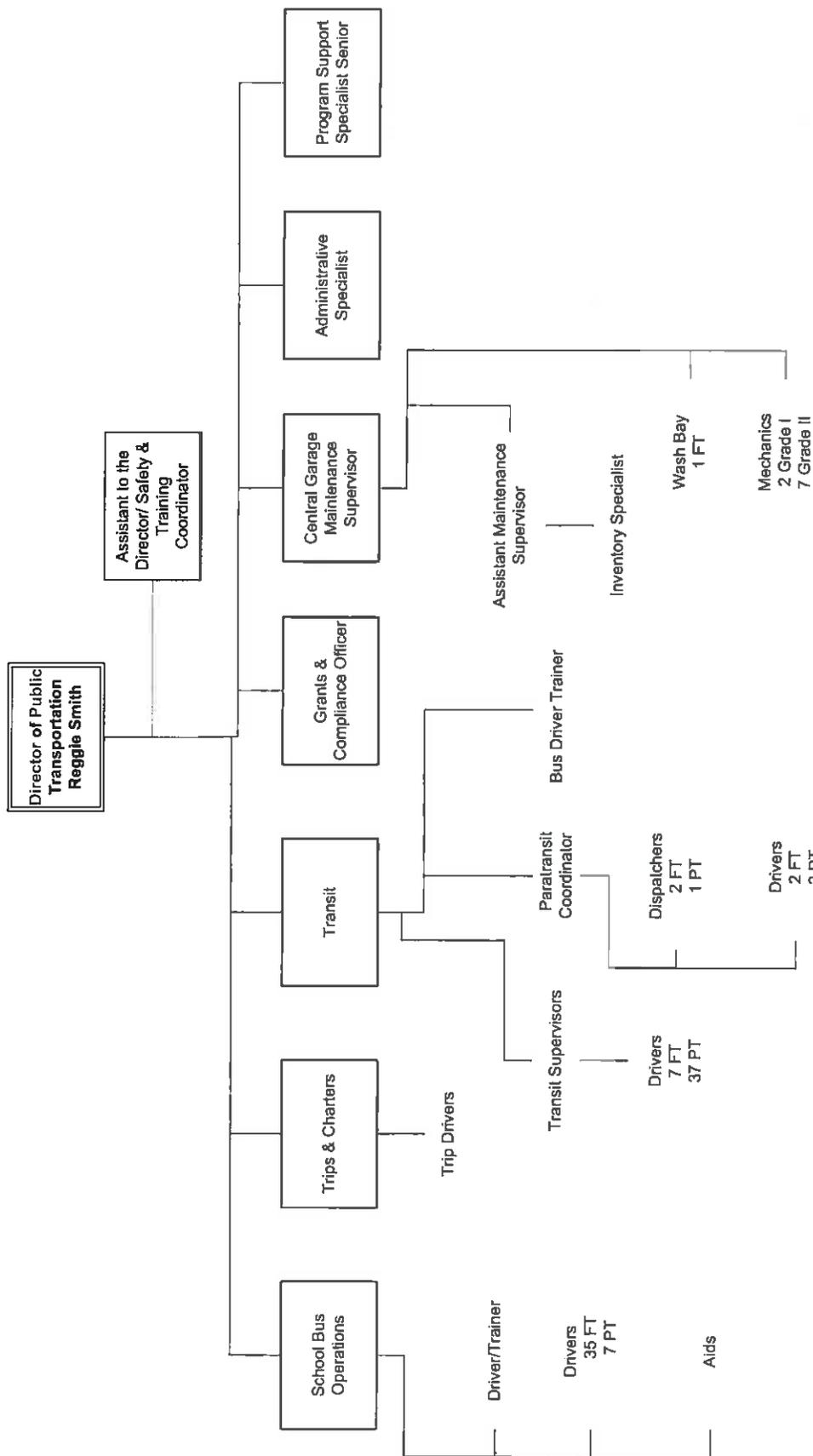


Figure 23: Harrisonburg Department of Public Transportation Organization Chart

absence. The performance review also recommended that HDPT consider hiring additional staff, where funding is available, to promote cross-training and facilitate improved operations of the transit system.¹²

TRANSIT SERVICES PROVIDED AND AREAS SERVED

HDPT operates five year-round, fixed-route bus services within the city limits of Harrisonburg, as well as a limited-service shuttle that provides a connection between the neighboring communities of Dayton and Bridgewater on Tuesdays and Thursdays, respectively. Additionally, HDPT offers 25 fixed-route bus routes for students at JMU during the traditional academic year. The transfer center for the year-round routes is primarily at the Hardesty-Higgins House, where Routes 1, 3, 4, 5, and the Bridgewater-Dayton Shuttle converge, but there is also a transfer point located at the Cloverleaf Shopping Center, where Routes 1, 2, 4, and 5 come together. As for the JMU bus service, the most popular transfer locations are the Godwin Hall Shelter, Memorial Hall, the Festival Conference and Student Center, and the Bookstore (shelter) stop, where many of the seasonal routes assemble.

Other transit services that HDPT provides include a Church Shuttle geared toward JMU students and complementary ADA paratransit service, which are also described in further detail below.

Directly Operated Fixed-Route Service

City-Oriented Routes

The five year-round fixed routes within the City of Harrisonburg operate six days per week. Service on Monday through Friday is generally offered between 7:00 a.m. and 6:45 p.m., while Saturday service is typically offered between 9:00 a.m. and 5:45 p.m. There is some variation in operating times among these five routes, but all scheduled starting and ending times are within a half-hour of these listed times. As for the Bridgewater-Dayton Shuttle, there are three circuits (morning, mid-day, and early evening) that are operated for this service on Tuesday (Dayton) and Thursday (Bridgewater).

¹² Ibid.

The year-round fixed routes that operate within the City are:

- Route 1:** East Market Street
- Route 2:** Reservoir Street
- Route 3:** South High Street
- Route 4:** South Main Street
- Route 5:** North High Street

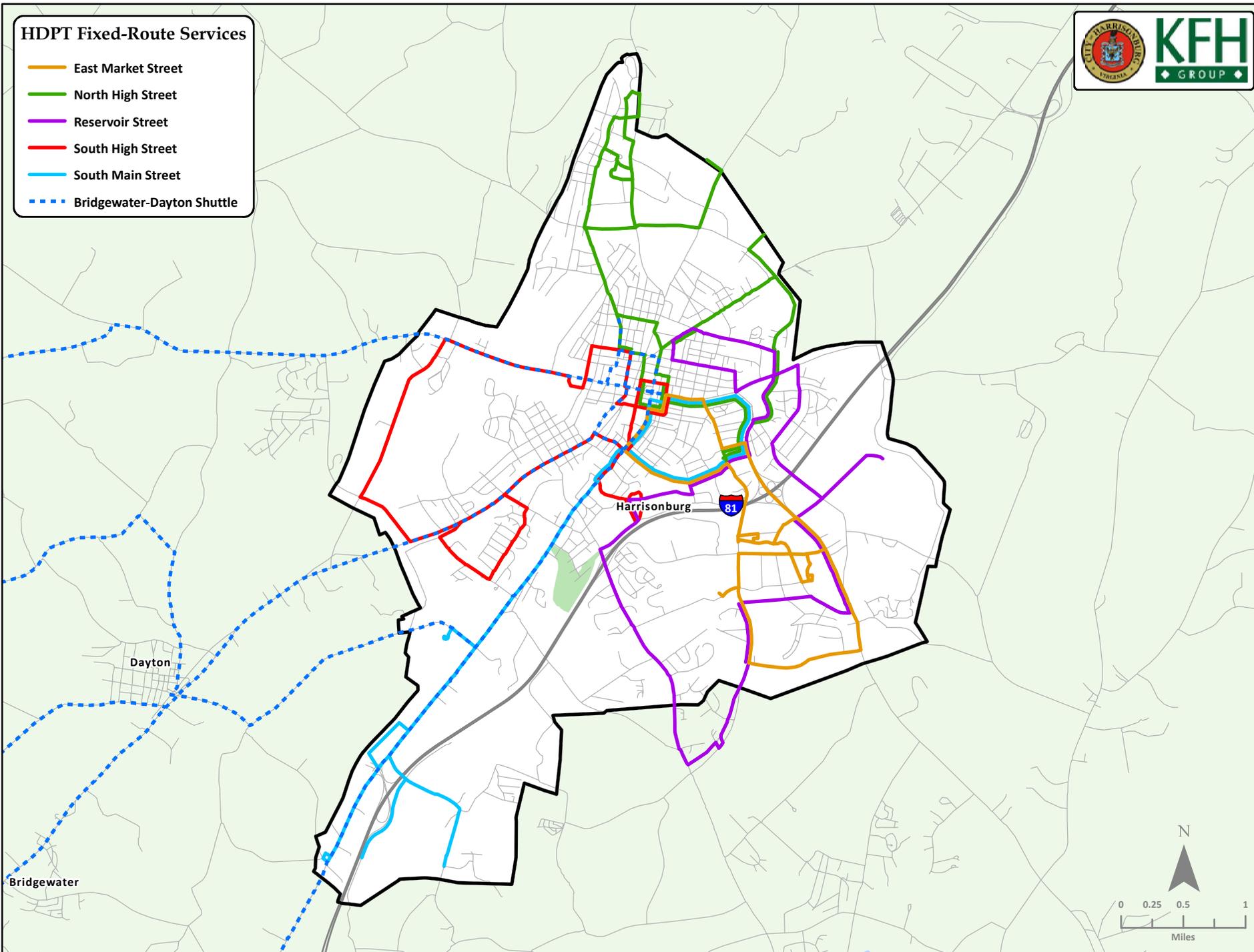
The specific routing and hours of operation for each of these routes is fully described in Section 3. Figure 1-2 represents a system map of the five year-round fixed-route bus services.

James Madison University Bus Services

The following routes primarily serve the JMU community. Figure 1-3 provides a system map of these routes, which are fully described in Section 3.

- Route 6:** Ashby Crossing - JMU - Festival Center
- Route 7:** Devon Lane - JMU - Festival Center
- Route 8:** Sunchase Apartments - university halls located near South Main Street
- Route 9:** Stone Gate Apartments - JMU - Memorial Hall.
- Route 10:** Pheasant Run- Mill housing - JMU - Festival Center.
- Route 12:** Ashby Crossing - JMU - Miller Hall
- Route 13:** Devon and Lois Lanes - JMU - Miller Hall
- Route 14:** Devon and Lois Lanes - Festival Center - JMU - Memorial Hall
- Route 15:** Chestnut Ridge Drive - Evelyn Byrd Avenue - Festival Center - JMU
- Route 16:** North 38 Apartments - Madison Manor Apartments - Clover Leaf Shopping Center - JMU - Festival Center
- Route 31:** Pheasant Run - North 38 Apartments-Walmart - Clover Leaf Shopping Center - JMU
- Route 32:** Chestnut Ridge Drive-Evelyn Byrd Avenue - Walmart - Festival Center - JMU (evenings)
- Route 33:** Devon and Lois Lanes - JMU (evenings)
- Route 35:** Bookstore - Rockingham Hall - Stone Gate Apartments - Festival Center (evenings)
- Route 36:** Bookstore - Stone Gate Apartments - Festival Center - Zane Showker Hall (evenings)
- Route 37:** JMU - Pheasant Run - Hunter's Ridge - Ashby Crossing - South View (Friday and Saturday evenings)

Figure 1-2: Fixed-Route Bus Service in the City of Harrisonburg



1-9

- Route 38:** JMU - Charleston Townes - Copper Beech - Pheasant Run (Friday and Saturday evenings)
- Route 39:** Zane Showker Hall - Bookstore - Festival Center - Copper Beech - Stone Gate - Fox/Squire Hill - Ashby Crossing (Friday and Saturday evenings)
- Convo Express:** Convo Parking Lot F - Festival Center - Physics/Chemistry - Integrated Science and Technology and Computer Science (ISAT/CS) - Varner House - Harrison Hall. (weekdays)
- Inner Campus Shuttle I (ICS 1):** Festival Center - ISAT/CS - Varner House - Memorial Hall - Physics/Chemistry (weekdays)
- Inner Campus Shuttle II (ICS 2):** Festival Center - ISAT/CS - Varner House - Memorial Hall (weekdays)
- Night Campus Shuttle:** Memorial Hall - Festival Center - Bookstore (weekday evenings)
- Weekday Shopper Route:** Godwin Hall - Festival Center - Walmart via the Festival Conference and Student Center.
- Weekend Shopper Route:** Godwin Hall - Festival Center - Walmart - Valley Mall. Also serves Sunchase, Stone Gate, Fox/Squire Hill, and Ashby Crossing on selected runs
- Sunday Shuttle 1:** Bookstore - Festival Center - Walmart - Valley Mall - Cloverleaf Shopping Center - Chestnut Ridge - Reservoir Street (Sundays)
- Sunday Shuttle 2:** Bookstore - Varner House - Hunter's Ridge - Ashby Crossing - South View - Zane Showker Hall (Sundays)

Other Transit Services

Church Shuttle

The Church Shuttle is a scheduled service that operates on Sundays during the academic year. Three trips are provided on Sunday mornings at 8:35 a.m., 9:35 a.m., and 10:25 a.m. leaving from the Festival Conference and Student Center and the Bookstore before serving houses of worship within Harrisonburg as requested by riders. Passengers inform the driver of the time they would like to be picked up, and they must return to campus by 1:00 p.m.

Paratransit Service

HDPT's paratransit service is provided for eligible persons with disabilities, as described in the Americans with Disabilities Act (ADA), within the City of Harrisonburg. Persons with disabilities who cannot use the fixed-route transit services must apply for a paratransit card with HDPT in order to use the paratransit service.

The paratransit service generally mirrors the operation hours of the fixed-route system, from 6:38 a.m. to 7:00 p.m. during the week and from 8:38 a.m. to 6:00 p.m. on Saturdays. During the JMU academic year, when the fixed-route buses are running, paratransit service hours also start at 6:38 a.m. during the week, and end at midnight Monday through Thursday and at 2:15 a.m. on Fridays. Saturday service operates between 8:38 a.m. and 2:15 a.m., while Sunday service runs from 11:00 a.m. to midnight.

Passengers using paratransit service need to call 24 hours in advance to schedule their trip. This service is curb-to-curb only, and HDPT has a policy in which drivers are not allowed to enter homes or destinations to assist passengers. HDPT also has a “no-show” policy in place, where the City has the right to suspend a passenger’s eligibility to use paratransit service, if the passenger repeatedly fails to notify HDPT ahead of time that they need to cancel a scheduled trip.

FARE STRUCTURE

Effective since July 2003, the fare structure for HDPT is shown in Table 1-1.

HDPT requires that passengers pay with exact change when they board, as drivers do not carry change. Passengers may request a transfer ticket when they board the bus; transfers are valid for one hour on any route, but cannot be used to re-board the route on which it was issued. Passengers may purchase discounted coupon books on any transit bus that is in service or at the transit office on Washington Street. The coupon books include 25 rides on the fixed-route system at a cost of \$20.00 for adults and \$10.00 for students, senior citizens, and persons with disabilities. Passengers eligible to use the paratransit service may have a Personal Care Assistant travel with them free of charge; other additional passengers pay the same \$2.00 fare.

Table 1-1: Fare Structure for HDPT Transit Service

| Passenger Type | Fare |
|---|--|
| Adults | \$1.00 |
| Persons with Disabilities | \$0.50 |
| Senior Citizens (age 62 and older) | \$0.50 |
| JMU Students and Faculty | Free with Valid ID |
| City Students (through grade 12) | Free with Valid ID |
| Non-City Students and EMU/BRCC Students | \$0.50 |
| Medicare/Medicaid Card Holders | \$0.50 |
| Transfers | Free with a Transfer Ticket |
| Passengers Eligible for Paratransit Service | \$2.00 per one-way trip within City limits |

VEHICLE FLEET

HDPT's current public transit vehicle fleet includes 27 transit buses and eight paratransit vehicles. Table 1-2 provides a summary of HDPT's transit fleet, which is entirely accessible with wheelchair lifts or ramps, as of January, 2011. The number of vehicles needed to operate maximum service in January, 2011 was 26 transit buses and 6 paratransit vehicles.¹³ This means that the system has only one spare vehicle for its fixed-route transit service at a spare ratio of 4%, where a spare ratio of 20% is generally recommended. In other words, HDPT should have a fleet of 31 transit buses including five spares. Currently, several transit buses are utilized to augment JMU service during the week: two transit buses provide "Extra" service to alleviate capacity issues and provide driver breaks throughout the day, and up to five transit buses provide "Express" service for specific trips on certain routes, mainly in the mornings.

With the paratransit fleet, HDPT has two spare vehicles and a spare ratio of 33%, which is appropriate given that six vehicles are required to operate maximum paratransit service. The department also uses 50 school buses to operate the school bus service and has 12 non-revenue vehicles.

FACILITIES

Located at 475 East Washington Street, northeast of downtown Harrisonburg, the current HDPT facility is the original facility having undergone expansion four times. The maintenance portion of the existing facility has nine repair bays, only six of which are large enough and equipped to service transit buses, a parts room, and an office space. A wash bay accommodates various sizes of vehicles, and the facility also includes a fuel island with diesel and gasoline pumps. The buses are assigned spaces for storage on the outdoor, paved lot, though circulation within the facility site is awkward and in need of improvement.¹⁴ HDPT is in the process of constructing a new facility, another expansion at the existing site. A *Maintenance/Administration Building Feasibility Study* was completed in October 2009, and HDPT is currently in the architectural and engineering phase of the project. The current facility is operating at

¹³ The Bridgewater/Dayton Shuttle, considered a transit service, is operated with a paratransit vehicle though the shuttle's hours, mileage, etc. are reported as transit service. Therefore 26 transit buses and one paratransit vehicle are used to operate HDPT's transit services, including extra buses and express services, and five other paratransit vehicles are used to operate HDPT's paratransit service. The paratransit vehicle used for the Bridgewater/Dayton Shuttle is also sometimes used as an extra vehicle for paratransit service.

¹⁴ *Performance Review – Harrisonburg Transit* (January 2009), prepared by Vanasse Hangen Brustlin, Inc. with Abrams-Cherwony Associates for the Department of Rail and Public Transportation.

Table 1-2: HDPT Transit Vehicle Inventory

| Local Fleet Number | Model Year | Make | Model | Seating Capacity | ADA Accessible | Use | Mileage January 2011 |
|--------------------|------------|--------|-----------|------------------|----------------|-------------|----------------------|
| 2001 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 69,463 |
| 2002 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 88,934 |
| 2003 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 75,088 |
| 2004 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 84,204 |
| 2005 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 82,645 |
| 2006 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 52,942 |
| 2007 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 29,245 |
| 2008 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 38,707 |
| 2009 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 39,498 |
| 2010 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 34,306 |
| 2011 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 28,498 |
| 2012 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 22,676 |
| 2013 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 21,296 |
| 2014 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 28,697 |
| 2041 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 179,779 |
| 2042 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 165,588 |
| 2043 | 2002 | Thomas | TL960 | 36 | Yes | Fixed-route | 167,399 |
| 2044 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 194,120 |
| 2046 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 223,322 |
| 2047 | 2007 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 35,283 |
| 2049 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 145,688 |
| 2059 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 225,104 |
| 2060 | 2002 | Thomas | TL960 | 36 | Yes | Fixed-route | 161,487 |
| 2061 | 2001 | Thomas | TL960 | 36 | Yes | Fixed-route | 171,151 |
| 2062 | 2002 | Thomas | TL960 | 36 | Yes | Fixed-route | 172,363 |
| 2063 | 2003 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 191,846 |
| 2064 | 2003 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 136,045 |
| 2070 | 2006 | Ford | E450 | 17 | Yes | Paratransit | 52,841 |
| 2071 | 2006 | Ford | E450 | 17 | Yes | Paratransit | 71,175 |
| 2072 | 2008 | Ford | E450 | 14 | Yes | Paratransit | 46,568 |
| 2073 | 2008 | Ford | E450 | 14 | Yes | Paratransit | 50,315 |
| 2074 | 2002 | Ford | E450 | 19 | Yes | Paratransit | 90,482 |
| 2075 | 2008 | Ford | E450 | 10 | Yes | Paratransit | 41,611 |
| 2076 | 2008 | Ford | E450 | 10 | Yes | Paratransit | 39,669 |
| 2077 | 2010 | Ford | E450 | 19 | Yes | Paratransit | 14,470 |

Source: HDPT Fixed-Route and Paratransit Equipment Inventories in January, 2011.

capacity, and HDPT plans to expand its facility to accommodate future growth at an adjacent three-acre site owned by the City. The expanded facility will include workshops, garages, storage areas, administrative offices, outdoor parking, and a vehicle fuel storage and pump island.¹⁵

Because the HDPT facility provides maintenance for transit vehicles as well as other City vehicles and equipment, transit buses currently do not always receive immediate attention when maintenance is needed. The recommended concept in the 2009 *Maintenance/Administration Building Feasibility Study* report sought to better serve transit's operational and maintenance needs as well as meeting the requirements for other City services and equipment that fall under the department's jurisdiction.

Bus Stops and Passenger Amenities

Most existing HDPT bus stops consist of a sign and pole, located near sidewalks as much as possible, though parts in the periphery of the City do not have continuous sidewalks. The City has received funding for sidewalk improvements, and is actively working on improving the pedestrian network in the city. Passenger shelters are available at some stops, and have mainly been provided by property owners as an amenity to residents. HDPT has purchased and installed some bus shelters at key transfer points, and plans to continue purchasing shelters as was recommended in HDPT's 2006 TDP. Aside from the planned facility expansion and adding passenger shelters, HDPT has also considered other capital improvements that will improve service quality and provide additional amenities for passengers. These projects include installing a voice announcement system on the buses, purchasing automated people counters, and implementing an automated vehicle location system.¹⁶ HDPT is also planning to implement real-time bus information and has begun the procurement process for this improvement.

SAFETY AND SECURITY

Safety and security issues and related training are spearheaded by the Assistant to the Director/Safety and Training Coordinator. HDPT currently has no formal emergency/incident plan in place, but has a response procedure for vehicle accidents. HDPT staff work with JMU staff in determining operations plans per individual emergencies or incidents. The department has a role in the City's emergency operations plan, and some HDPT staff members have received National Incident Management

¹⁵ *Final Report of the Harrisonburg Department of Public Transportation Maintenance/Administration Building Feasibility Study* (October 2009), prepared by Parsons Brinckerhoff for HDPT.

¹⁶ *Ibid.*

System training, which provides information on reporting and general procedures in case of major incidents. Safety and security training for the operators is provided at least upon initial hire, and refresher trainings are conducted occasionally depending on observations of driver habits or reviews of accidents. Other safety measures that HDPT employs include participation in a radio communications system between the City and Rockingham County, backup procedures for the agency's data systems, and video cameras with sound recording capabilities on the transit buses.¹⁷

The 2009 performance review recommended that HDPT develop more formal plans to provide guidance and written procedures for staff members to follow in case of collisions, emergencies, natural disasters, the need for off-site operations, or other disruptions to regular operations. Another recommendation was for the agency to conduct more regular trainings on safety and security issues to keep staff up to date on emergency preparedness trends in the transit industry.

Fare Collection

HDPT drivers do not handle cash fares, and passengers are requested to place their fares, in exact change, into fareboxes on the City-oriented routes or money bags on the JMU-oriented routes. Even for the discount coupon books sold on board the buses, passengers are asked to place their payment directly into the farebox before the driver gives them the coupon book. One of the drivers' responsibilities is to record ridership by fare payment type for all passengers.

With JMU students, faculty, and staff comprising the majority of the system's ridership, fares generally are not an issue because JMU riders board for free with valid identification. (The university provides payment to the transit system in-lieu of fares each year.) Where fares are collected on a few transit vehicles, namely the City services and JMU services that general public riders use, drivers remove the entire farebox or money bag at the end of the day and submit them, along with the written ridership counts, to the dispatcher in the HDPT office. The dispatcher counts and stores the cash that night, and another staff person reconciles the cash collected with the drivers' written ridership/revenue counts the next morning. Any differences in the counts are investigated and addressed. HDPT staff then prepares a cash summary slip and transports the farebox revenue to the City Treasurer, who again counts the fares and deposits them into the HDPT revenue account.¹⁸

¹⁷ Ibid.

¹⁸ Ibid.

PUBLIC OUTREACH

Since HDPT is part of the City government, the main forum for public input is City Council meetings, two of which are conducted each month and are open to the public. HDPT policies, budgets, and service changes are presented at City Council meetings, where the public is invited to provide their input. These regularly scheduled meetings and their agendas and minutes are posted on the City government website. HDPT also has a webpage within the City government website and provides current information on all its transit services, including schedules, fare information, policies, contact information, special notices, and other transportation resources such as intercity bus and ridesharing. The HDPT webpage also includes a customer service form, where the public can provide input or comments and request follow-up by HDPT staff.

Chapter 2

Goals, Objectives, and Standards

This chapter presents HDPT's mission and goals, articulates the issues that were considered during the development of the Plan, and presents a draft set of performance standards for the system.

HDPT MISSION AND GOALS

The mission of HDPT is as follows: "Harrisonburg Department of Public Transportation strives to ease traffic congestion and provide alternative transportation to the citizens and students of Harrisonburg. Services provided are to be an asset to the community by being safe, clean, reliable, and cost effective."¹

HDPT's goals are stated as priorities, which are:

- Safety
- Customer Service
- The Schedule

More specific goals were discussed during the TDP process, but HDPT would prefer to keep the system goals as simply stated priorities. These priorities are printed on HDPT public materials and are stated on its website.

TDP ISSUES, CONCERNS, AND OPPORTUNITIES

At the initial Steering Committee meeting, held in October, 2010, the following issues, concerns, and opportunities relating to public transportation in the City were discussed:

¹ 2009 Performance Review, page 9.

- The partnership between JMU and the Harrisonburg Department of Public Transportation is constructive and mutually supportive.
- Enrollment at JMU is expected to increase from 18,500 students to more than 25,000 students during the next several years.
- Congestion on City streets and on the JMU campus is increasing.
- Rockingham Memorial Hospital (RMH) would like two routes to serve the hospital. Currently RMH is served by one fixed-route. Related issues include:
 - The bus shelter, located at the edge of the parking lot, is within a reasonable walking distance to the hospital. A hospital van can also be dispatched to the bus shelter on demand by passengers if needed.
 - RMH does not currently provide any funding assistance for the route.
 - RMH is not located within the City limits.
 - Currently RMH does not generate a significant demand for fixed-route trips. Most passenger trips to the hospital are via paratransit.
- The current downtown transfer point is located behind the Hardesty-Higgins House, which is the region's visitor center and also houses a tea room. Related issues:
 - The transfer point is congested – there is only space for three buses to idle.
 - The bus transfer function is not particularly welcomed by the community in this location.
 - HDPT is looking to move the transfer point to north downtown (corner of Roses parking lot – N. Gay St. and N. Mason St.)
- Current City routes are timed to allow transfer opportunities between routes at the transfer location.
- There may be a need for additional hours of operation – earlier/later, weekends (especially when JMU routes are not available).
- The previous TDP called for a 6th City route and the study team for this TDP explored this opportunity. The current routes are long, resulting in very tight schedules.
- There are new developments in the City that may warrant transit service:
 - South Main Street – student oriented development
 - Stone Spring Road – routes not currently covering this, will need to adjust service? Add a gate for only transit use?

- Copper Beech
- West of Route 11 and east of Route 42
- There are two major road projects currently under construction – creating arterial roads.
- Rockingham County does not put funds into public transportation currently.
- The Department of Social Services (DSS) indicated that transportation is needed for mothers and children making the trip to daycare and then to work. Related issues:
 - Most are currently relying on taxis
- Currently the DSS buys coupon books. Related issues:
 - Tracking the books is an administrative headache
 - Could this transportation be handled contractually, rather through coupons?
- There is currently no intercity/long distance commuter bus transportation serving Harrisonburg.

Opportunities

- JMU is becoming more involved.
- Ridership is growing (both for JMU and City routes) – increasing about 16% a year.
- JMU will be closing parts of campus to SOV (single occupancy vehicles) in 2011. There will be gates installed allowing access only for transit and service vehicles. This issue might also be a concern for the City depending upon where student/faculty parking is shifted – will this cause some City streets to be overloaded?)
- HDPT is currently installing new bus shelters.
- HDPT is in the process of establishing real-time stop information. This information will be displayed on electronic signs at bus stops, on the internet, on cell phones, and through interactive voice response (IVR).
- Eastern Mennonite University (EMU) – is there a more robust transit market here?

SERVICE STANDARDS

Service standards are benchmarks by which service performance is evaluated. Service standards are typically developed in several categories of service, such as service coverage, passenger convenience, fiscal condition, and passenger comfort. The most effective service standards are straightforward and relatively easy to calculate and understand.

HDPT does not currently have defined service standards. There are several basic service standards that HDPT could use to help evaluate service on a regular basis to ensure that HDPT is carrying out its mission in the most effective manner possible.

Table 2-1 presents draft service standards suggested for HDPT. Some of the standards are policy-oriented and may need to be further discussed among stakeholders. Other measures are data-driven and were calculated as part of the detailed analyses of routes and services. For HDPT it would make sense to have different productivity categories to reflect the nature of its services, i.e., city routes, JMU routes, and paratransit.

Table 2-1: Service Standards

| Category | Standard |
|---|--|
| <p>Availability</p> <p><i>Service availability is a direct reflection of the level of financial resources available for the transit program. Service coverage, frequency, and span of service are considered under the category of "availability."</i></p> | <p>Service Coverage:</p> <ul style="list-style-type: none"> • Residential Areas: <ul style="list-style-type: none"> ○ Areas with population densities of 2,000 people + • Major Activity Centers: <ul style="list-style-type: none"> ○ Employers or employment concentrations of 200+ ○ Health centers ○ Middle and high schools ○ Colleges/ universities ○ Shopping centers of over 25 stores or 100,000 sf ○ Social service/government centers |
| <p><i>Frequency is currently hourly on the fixed routes and variable for the JMU routes.</i></p> | <p>Frequency:</p> <ul style="list-style-type: none"> • City Routes: <ul style="list-style-type: none"> ○ 60 min on weekdays ○ 60 min on Saturdays • JMU Routes: <ul style="list-style-type: none"> ○ Given the significant variation in the types of services provided, no one headway standard is appropriate. ○ HDPT will provide the frequency of service appropriate to meet the demand within its funding parameters. |
| | <p>Span- City Services:</p> <p>6:38 a.m. to 7:00 p.m. on weekdays 8:38 a.m. to 6:00 p.m. on Saturdays</p> <p>Span- JMU Services:</p> <p>The span of service for JMU routes will be negotiated annually, based on demand.</p> |

| <i>Patron Convenience</i> | |
|---|--|
| Loading | 25% standees for short periods acceptable |
| Bus Stop Spacing | 5 to 7 stops per mile in core Fringe: 4 to 5 per mile, as needed based on land uses |
| Dependability | No missed trips -- 95% on-time service (0 to 5 minutes late) -- No trips leaving early |
| Productivity (Pass./rev. hour) | Review and modify, if possible, services that exhibit less than 60% of average Review and modify, if warranted, routes between 60% and 80% of average City fixed-route average is currently 11.8 trips per revenue hour JMU fixed-route average is currently 50.7 trips per revenue hour ADA paratransit is currently 2.1 trips per revenue hour |
| Cost Effectiveness (Cost per trip) | Review and modify, if possible, services that exhibit less than 60% of average Review and modify, if warranted, routes between 60% and 80% of average Fixed route average is currently \$1.32 per trip. (will need to differentiate between city routes and JMU routes) ADA paratransit is currently \$ 26.16 per trip |
| <i>Passenger Comfort</i> | |
| Waiting Shelters | 25 or more boardings per day |
| Bus Stop Signs | Should have the system name, contact information, and route |
| Public Information | Timetable, maps, and website current and accurate |
| Revenue Equipment | Clean and good condition |

Chapter 3

Service and System Evaluation and Transit Needs Analysis

SERVICE AND SYSTEM EVALUATION

Trend Data

HDPT ridership has grown steadily and significantly over the last seven years, with over 1.8 million passenger trips recorded in FY 2010, up 87% from the FY 2003 total of 994,199 passenger trips. This growth trend is shown in Figure 3-1. As this graph shows, there was only one year that did not see transit ridership growth (FY 2008). The upward trend in ridership appears to be continuing in FY 2011, with HDPT transit ridership up 5.5% for the first five months of the fiscal year.

Table 3-1 provides a breakdown of the HDPT transit ridership by mode for the seven year period. As the table indicates, fixed-route ridership consistently makes up about 99% of the total ridership, with the JMU fixed routes comprising about 90% of the total fixed-route ridership.

Paratransit ridership has declined 16.4% since its peak in FY 2007. JMU paratransit ridership currently accounts for about 20% of the total, in contrast to the fixed-route patterns.

Peer Review

While it is most relevant for a transit agency to examine its own performance over time, it is valuable to know the operating statistics for transit programs that could be considered “peers,” either by virtue of location, service area characteristics, or size. It was somewhat difficult to find “peers” for HDPT, given the unique combination of a relatively small city with a medium-sized university. The cities with similar populations typically run much smaller transit programs, whereas the cities with universities tend to be a bit larger and run larger transit programs. The study team

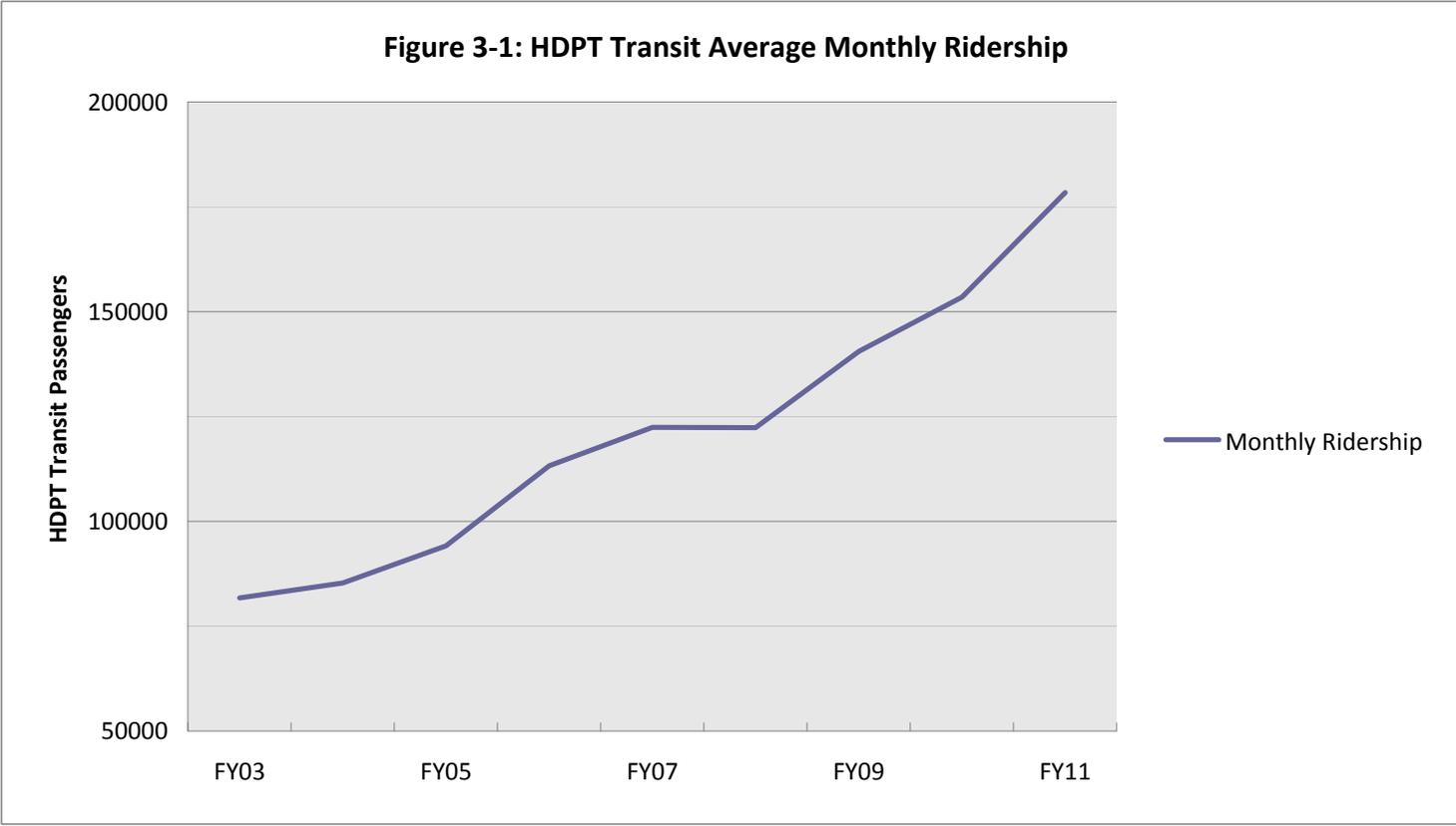


Table 3-1: HDPT/JMU Ridership Trends -- FY03-FY10

| | <u>FY03</u> | <u>FY04</u> | <u>FY05</u> | <u>FY06</u> | <u>FY07</u> | <u>FY08</u> | <u>FY09</u> | <u>FY10</u> |
|------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| FIXED ROUTE RIDERSHIP | 981,103 | 1,023,280 | 1,130,162 | 1,358,669 | 1,468,943 | 1,468,364 | 1,686,751 | 1,841,505 |
| JMU FIXED ROUTES | 869,695 | 918,188 | 1,026,129 | 1,236,631 | 1,314,375 | 1,301,627 | 1,507,100 | 1,659,960 |
| JMU % of Total | 89% | 90% | 91% | 91% | 89% | 89% | 89% | 90% |
| PARATRANSIT RIDERSHIP | 12,720 | 16,455 | 19,522 | 21,165 | 22,230 | 21,419 | 20,274 | 18,592 |
| JMU PARATRANSIT | 2,104 | 2,520 | 2,760 | 2,472 | 3,395 | 3,873 | 4,088 | 3,770 |
| JMU % of Total | 17% | 15% | 14% | 12% | 15% | 18% | 20% | 20% |
| TAXICAB RIDERSHIP | 376 | 522 | 903 | 1,017 | 1,103 | 1,273 | 2,533 | 2,403 |
| JMU TAXICAB | 107 | 143 | 290 | 336 | 437 | 367 | 681 | 936 |
| JMU % of Total | 28% | 27% | 32% | 33% | 40% | 29% | 27% | 39% |
| TOTALS | 994,199 | 1,040,257 | 1,150,587 | 1,380,851 | 1,492,276 | 1,491,056 | 1,709,558 | 1,862,500 |

used FY 2009 data collected primarily from the National Transit Database for this review. The results of this peer review are presented in Table 3-2.

These data show that HDPT:

- Operates three fewer vehicles than the mean, but provides only 4% fewer passenger trips than the mean.
- Operates significantly fewer revenue service hours and miles than the mean.
- Experiences the second highest productivity, in terms of passenger trips per revenue hour (30.55 trips per revenue hour, versus the mean of 25.71 and the high of 37.85).
- Experiences the second lowest overall cost per trip among the peer group (\$1.89), second to Blacksburg Transit (\$1.67).
- Operates at a lower cost per hour than the mean (\$57.62 versus \$60.93).
- Provides the fewest number of vehicle revenue miles, largely due to the compact nature of the service area.

Route Evaluation

This section of the report provides an overview of the system's daily ridership as well as detailed analyses for each fixed-route, using data compiled by HDPT. In FY 2010 the average daily ridership was 5,530 passenger trips. The weekday average was substantially higher (6,520) than the overall average. The average ridership on Saturdays was 3,124 passenger trips, while Sunday ridership averaged 776 passenger trips. In FY 2010 HDPT operated during a total of 333 days, including 256 weekdays; 48 Saturdays; and 29 Sundays.

City Routes

Ridership on the five city routes totaled 203,337 in FY 2010. Total annual revenue hours and miles for the city routes were 17,279 hours and 205,793 miles, respectively. While these routes represent only 11% of the system's total fixed-route ridership, the service level (annual vehicle revenue hours) is 35% of the total. Productivity on the city routes averaged 11.8 passenger trips per revenue hour, which was improved from the FY 2009 productivity average of 11.0 passenger trips per revenue hour.

Table 3-2: Selected Peer Comparison

| System | Service Area Population | No. of Vehicles | College? | Annual Passenger Trips | Total Operating Expenses | Vehicle Revenue Hours | Vehicle Revenue Miles |
|-----------------------------------|--------------------------------|------------------------|-----------------|-------------------------------|---------------------------------|------------------------------|------------------------------|
| AppalCART (Boone, NC) | 45,479 | 30 | Yes | 1,203,674 | \$ 2,445,135 | 48,610 | 654,066 |
| Asheville Transit (NC) | 72,789 | 27 | Yes | 1,650,414 | \$ 5,084,296 | 75,426 | 1,140,892 |
| Blacksburg Transit | 56,260 | 44 | Yes | 2,969,144 | \$ 4,948,432 | 78,450 | 757,771 |
| Charlottesville Transit | 81,448 | 38 | Yes | 2,012,468 | \$ 6,175,950 | 89,072 | 919,690 |
| Mt. Line Transit (Morgantown, WV) | 73,278 | 41 | Yes | 1,167,193 | \$ 3,509,820 | 69,141 | 1,107,777 |
| HDPT | 45,889 | 33 | Yes | 1,709,558 | \$ 3,224,749 | 55,962 | 552,657 |
| Mean | 62,524 | 36 | | 1,785,409 | 4,231,397 | 69,444 | 855,476 |

| System | Trips Per Hour | Trips Per Mile | Cost Per Trip | Cost Per Hour | Cost Per Mile |
|-----------------------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|
| AppalCART (Boone, NC) | 24.76 | 1.84 | \$ 2.03 | \$ 50.30 | \$ 3.74 |
| Asheville Transit (NC) | 21.88 | 1.45 | \$ 3.08 | \$ 67.41 | \$ 4.46 |
| Blacksburg Transit | 37.85 | 3.92 | \$ 1.67 | \$ 63.08 | \$ 6.53 |
| Charlottesville Transit | 22.59 | 2.19 | \$ 3.07 | \$ 69.34 | \$ 6.72 |
| Mt. Line Transit (Morgantown, WV) | 16.88 | 1.05 | \$ 3.01 | \$ 50.76 | \$ 3.17 |
| HDPT | 30.55 | 3.09 | \$ 1.89 | \$ 57.62 | \$ 5.83 |
| Mean | 25.71 | 2.09 | \$ 2.37 | \$ 60.93 | \$ 4.95 |

Sources: 2009 National Transit Database and NC Opstats Report.

Among the five city routes, Route 1 experiences the highest ridership (60,141 total passenger trips in FY 2010), as well as the highest productivity (18.2 passenger trips per revenue hour). Route 4 is the poorest performing of the city's regular fixed routes, averaging 5.7 passenger trips per hour. The route-level details for each city route are provided below. The operating statistics by route for FY09 and FY10 for all of the fixed-routes are provided in Table 3-3.

Route 1: East Market Street

The East Market Street route provides a north-south transit service from the northern boundary of the JMU campus along Main Street to the housing developments along Chestnut Ridge Drive via Valley Mall. The bus route originates at the Hardesty-Higgins House transfer point on East Bruce Street and heads north on Mason Street for three blocks and then east on East Market Street until the road intersects with Reservoir Street, where the route heads south toward another transfer point at the Cloverleaf Shopping Center. The route continues down East Market Street, crossing US Interstate 81 and turning southbound onto University Boulevard and then Evelyn Byrd Avenue where the route services the Walmart. The second half of the route leads back out to East Market Street and eastward to Chestnut Ridge Drive, where the route traverses south down Chestnut Ridge Drive and westward on Reservoir Street until the route serves Valley Mall. Upon exiting the Mall's parking lot, the bus travels back to Walmart and west onto Reservoir Street, until the route breaks south at Cantrell Avenue and travels back to South Main Street and the transfer point at the Hardesty-Higgins House.

Weekday service for the East Market Street route begins at 6:38 a.m. and terminates at 6:20 p.m., while Saturday service begins at 8:38 a.m. and finishes at 5:20 p.m. Each run is scheduled to complete its circuit in 42 minutes. Figure 3-2 provides a map of the East Market Street route along with the location of the various trip generators served by the fixed-route and an operations summary for FY 2010.

Route 2: Reservoir Street

The Reservoir Street route is a loop transit service that connects the communities west of US Interstate 81 and surrounding JMU to the Rockingham Memorial Hospital just beyond the City's eastern boundary. The bus route originates at the shelter outside Chandler Hall and travels southeastward along Port Republic Road toward Rockingham Memorial Hospital. The route continues northbound along Reservoir Street to Lucy Drive and Evelyn Byrd Avenue, where it travels east until the road terminates and the route continues north along East Market Street and the commercial development lining the corridor. For the second half of the route, the bus heads east on Linda Lane and north along Country Club Road until it crosses back over US Interstate 81 and heads northeast onto Blue Ridge Road. The route then performs a small loop

**Table 3-3: HDPT Fixed-Route Operating Statistics by Route
FY 2009 and FY 2010**

| Route | <u>Passenger Trips</u> | | <u>Revenue Hours</u> | | <u>Revenue Miles</u> | | <u>Trips/Rev. Hour</u> | | <u>Trips/Rev. Mile</u> | | <u>Miles/Hour</u> | |
|---------------------|------------------------|----------------|----------------------|---------------|----------------------|----------------|------------------------|-------------|------------------------|-------------|-------------------|--------------|
| | FY09 | FY10 | FY09 | FY10 | FY09 | FY10 | FY09 | FY10 | FY09 | FY10 | FY09 | FY10 |
| <i>City Routes:</i> | | | | | | | | | | | | |
| 1 | 60,141 | 63,449 | 3,475 | 3,479 | 35,763 | 38,186 | 17.3 | 18.2 | 1.68 | 1.66 | 10.29 | 10.98 |
| 2 | 35,658 | 35,718 | 3,456 | 3,425 | 45,489 | 44,707 | 10.3 | 10.4 | 0.78 | 0.80 | 13.16 | 13.05 |
| 3 | 29,701 | 34,566 | 3,466 | 3,431 | 43,303 | 43,001 | 8.6 | 10.1 | 0.69 | 0.80 | 12.49 | 12.53 |
| 4 | 19,991 | 20,073 | 3,453 | 3,504 | 41,146 | 40,009 | 5.8 | 5.7 | 0.49 | 0.50 | 11.92 | 11.42 |
| 5 | 44,610 | 49,531 | 3,479 | 3,440 | 45,961 | 39,890 | 12.8 | 14.4 | 0.97 | 1.24 | 13.21 | 11.60 |
| Subtotal | 190,101 | 203,337 | 17,329 | 17,279 | 211,662 | 205,793 | 11.0 | 11.8 | 0.90 | 0.99 | 12.21 | 11.91 |
| Dayton Shuttle | 1,396 | 1,427 | 336 | 318 | 6,662 | 6,316 | 4.2 | 4.5 | 0.21 | 0.23 | 19.83 | 19.86 |
| <i>JMU Routes:</i> | | | | | | | | | | | | |
| 6 | 73,231 | 62,711 | 1,727 | 1,751 | 12,374 | 11,599 | 42.4 | 35.8 | 5.92 | 5.41 | 7.17 | 6.62 |
| 7 | 85,933 | 92,549 | 2,201 | 2,258 | 18,609 | 18,320 | 39.0 | 41.0 | 4.62 | 5.05 | 8.45 | 8.11 |
| 8 | 134,808 | 129,264 | 1,727 | 1,748 | 16,119 | 15,891 | 78.1 | 73.9 | 8.36 | 8.13 | 9.33 | 9.09 |
| 9 | 84,633 | 96,816 | 1,964 | 2,008 | 21,007 | 20,652 | 43.1 | 48.2 | 4.03 | 4.69 | 10.70 | 10.28 |
| 10 | 101,531 | 95,909 | 1,695 | 1,733 | 14,689 | 13,675 | 59.9 | 55.3 | 6.91 | 7.01 | 8.67 | 7.89 |
| 12 | 74,615 | 48,268 | 1,648 | 1,624 | 10,022 | 8,977 | 45.3 | 29.7 | 7.45 | 5.38 | 6.08 | 5.53 |
| 13 | 74,756 | 74,917 | 1,633 | 1,615 | 10,780 | 10,443 | 45.8 | 46.4 | 6.93 | 7.17 | 6.60 | 6.47 |
| 14 | 84,260 | 80,993 | 1,625 | 1,658 | 13,810 | 13,508 | 51.9 | 48.8 | 6.10 | 6.00 | 8.50 | 8.15 |
| 15 | 59,953 | 81,705 | 1,751 | 1,786 | 18,681 | 18,047 | 34.2 | 45.7 | 3.21 | 4.53 | 10.67 | 10.10 |
| 16 | - | 46,114 | - | 1,777 | - | 17,941 | 0.0 | 26.0 | 0.00 | 2.57 | 0.00 | 10.10 |
| Shopper | 82,858 | 79,705 | 1,860 | 1,814 | 18,166 | 16,811 | 44.5 | 43.9 | 4.56 | 4.74 | 9.77 | 9.27 |
| Convo Exp | - | 46,878 | - | 1,099 | - | 10,649 | 0.0 | 42.7 | 0.00 | 4.40 | 0.00 | 9.69 |
| ICS I | 160,323 | 149,098 | 1,693 | 1,553 | 15,363 | 14,251 | 94.7 | 96.0 | 10.44 | 10.46 | 9.07 | 9.18 |

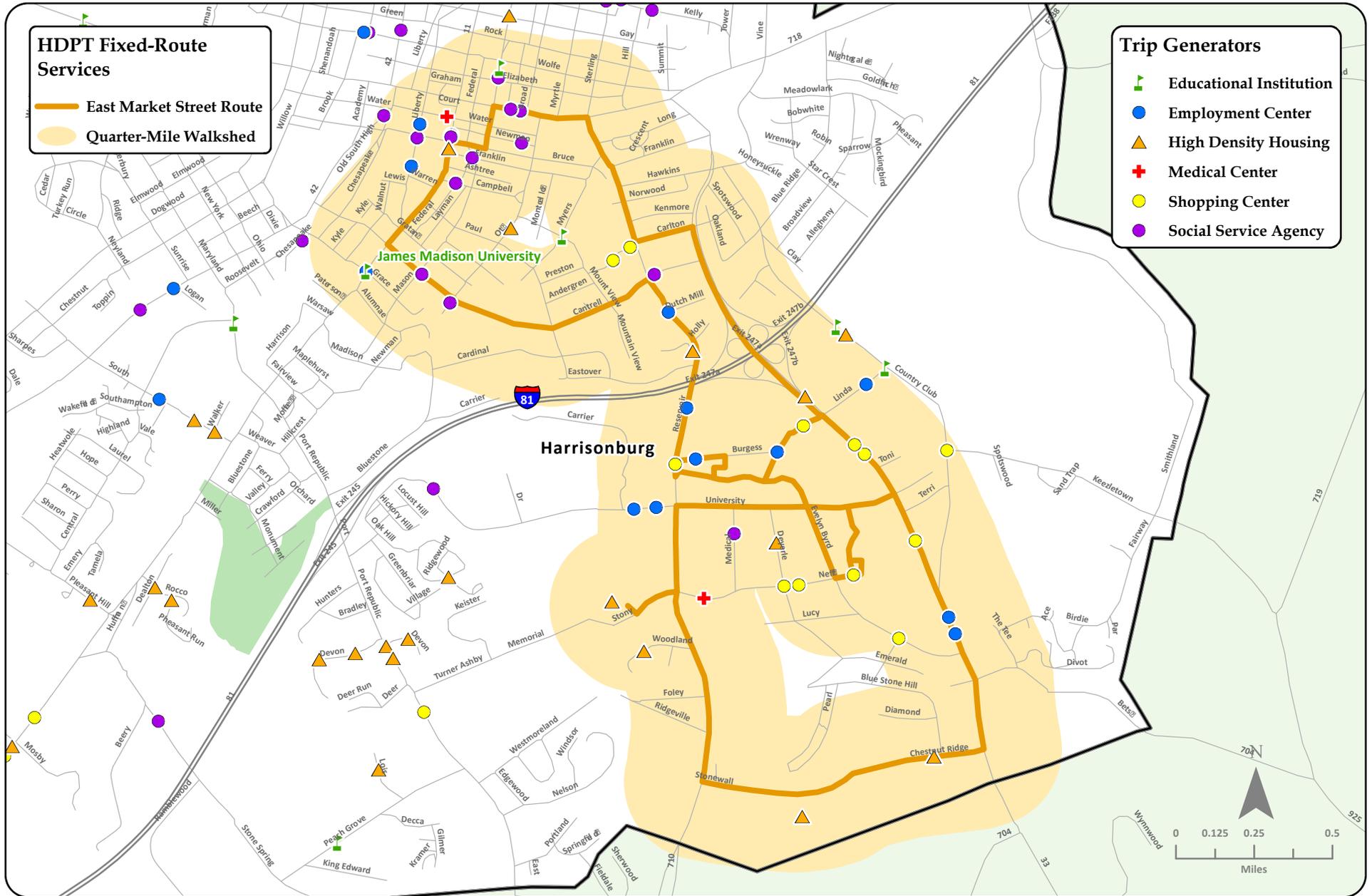
**Table 3-3: HDPT Fixed-Route Operating Statistics by Route
FY 2009 and FY 2010**

| Route | <u>Passenger Trips</u> | | <u>Revenue Hours</u> | | <u>Revenue Miles</u> | | <u>Trips/Rev. Hour</u> | | <u>Trips/Rev. Mile</u> | | <u>Miles/Hour</u> | |
|------------------|------------------------|------------------|----------------------|---------------|----------------------|----------------|------------------------|-----------------|------------------------|-----------------|-------------------|---------------|
| | FY09 | FY10 | FY09 | FY10 | FY09 | FY10 | FY09 | FY10 | FY09 | FY10 | FY09 | FY10 |
| ICS II | 139,072 | 145,254 | 1,696 | 1,744 | 13,354 | 13,983 | 82.0 | 83.3 | 10.41 | 10.39 | 7.87 | 8.02 |
| Sunday I | 13,494 | 14,312 | 334 | 317 | 4,010 | 4,524 | 40.4 | 45.1 | 3.37 | 3.16 | 12.01 | 14.27 |
| Sunday II | 4,212 | 3,564 | 310 | 291 | 3,591 | 4,077 | 13.6 | 12.2 | 1.17 | 0.87 | 11.58 | 14.01 |
| 31 | 9,041 | 10,377 | 621 | 586 | 8,391 | 8,188 | 14.6 | 17.7 | 1.08 | 1.27 | 13.51 | 13.97 |
| 32 | 19,539 | 17,508 | 655 | 634 | 9,251 | 10,534 | 29.8 | 27.6 | 2.11 | 1.66 | 14.12 | 16.62 |
| 33 | 41,265 | 41,196 | 778 | 746 | 9,987 | 10,387 | 53.0 | 55.2 | 4.13 | 3.97 | 12.84 | 13.92 |
| NCS | 14,089 | 18,579 | 629 | 394 | 7,870 | 4,127 | 22.4 | 47.2 | 1.79 | 4.50 | 12.51 | 10.47 |
| 35 | 66,989 | 44,299 | 265 | 204 | 3,021 | 2,272 | 252.8 | 217.2 | 22.17 | 19.50 | 11.40 | 11.14 |
| 36 | 50,270 | 48,549 | 265 | 204 | 2,796 | 2,343 | 189.7 | 238.0 | 17.98 | 20.72 | 10.55 | 11.49 |
| 37 | 35,326 | 36,703 | 265 | 204 | 3,304 | 2,314 | 133.3 | 179.9 | 10.69 | 15.86 | 12.47 | 11.34 |
| 38 | 24,781 | 21,541 | 265 | 205 | 3,700 | 3,193 | 93.5 | 105.1 | 6.70 | 6.75 | 13.96 | 15.58 |
| 39 | 40,091 | 33,655 | 265 | 204 | 3,751 | 2,944 | 151.3 | 165.0 | 10.69 | 11.43 | 14.15 | 14.43 |
| 40 | | 8,019 | | 154 | | 2,341 | | 52.1 | 0.00 | 3.43 | 0.00 | 15.20 |
| Special Services | 18,856 | 23,616 | 393 | 799 | 2,337 | 6,237 | 48.0 | 29.6 | 8.07 | 3.79 | 5.95 | 7.81 |
| Church Shuttle | 344 | 523 | 153 | 120 | 1,316 | 964 | 2.2 | 4.4 | 0.26 | 0.54 | 8.60 | 8.03 |
| Extra 1 (1) | | 24,744 | 218 | 1,307 | 1,369 | 8,918 | 0.0 | 18.9 | 0.00 | 2.77 | 6.28 | 6.82 |
| Extra 2 (1) | | 35,121 | 247 | 1,221 | 1,735 | 7,155 | 0.0 | 28.8 | 0.00 | 4.91 | 7.02 | 5.86 |
| Extra Night (1) | | 4,234 | 30 | 141 | 246 | 1,058 | 0.0 | 30.0 | 0.00 | 4.00 | 8.20 | 7.50 |
| Extra 3 (1) | | 289 | | 10 | | 64 | | 28.9 | 0.00 | 4.52 | 0.00 | 6.40 |
| Express (1) | | 19,731 | | 357 | | 3,000 | | 55.3 | 0.00 | 6.58 | 0.00 | 8.40 |
| Subtotal | 1,494,270 | 1,636,741 | 26,913 | 32,266 | 249,649 | 289,387 | 55.52 | 50.73 | 5.99 | 5.66 | 9.28 | 8.97 |
| TOTAL | 1,684,371 | 1,840,078 | 44,242 | 49,545 | 461,311 | 495,180 | 38.07176 | 37.13953 | 3.65127 | 3.715978 | 10.427 | 9.9946 |

3-8

(1) Prior to FY10, HDPT did not track these added support routes separately from the routes they were assigned to assist.

Figure 3-2: Map and Profile for HDPT Route 1 (East Market Street Route)



3-9

Operations Summary (FY2010):

Annual Ridership: 63,449

Service Days: 304
Revenue Hours: 3,479
Revenue Miles: 38,187

Trips per Day: 208.71
Trips per Hour: 18.24
Trips per Mile: 1.66



into the neighborhood along East Gay Street, heading north past the Roses and east along East Washington Street past the Valley Plaza Shopping Center to Vine Street. The route concludes by heading south on Vine Street, across East Market Street and the Cloverleaf Shopping Center, and continues down Cantrell Avenue and Duke Drive to Chandler Hall.

Weekday service for the Reservoir Street route begins at 7:05 a.m. and concludes at 6:48 p.m., with Saturday service starting at 9:05 a.m. and finishing at 5:48 p.m. The route is scheduled to complete each circuit in 45 minutes. Figure 3-3 is a map of the Reservoir Street bus route that also depicts the location of trip generators served by the route in addition to providing an operations summary for FY 2010.

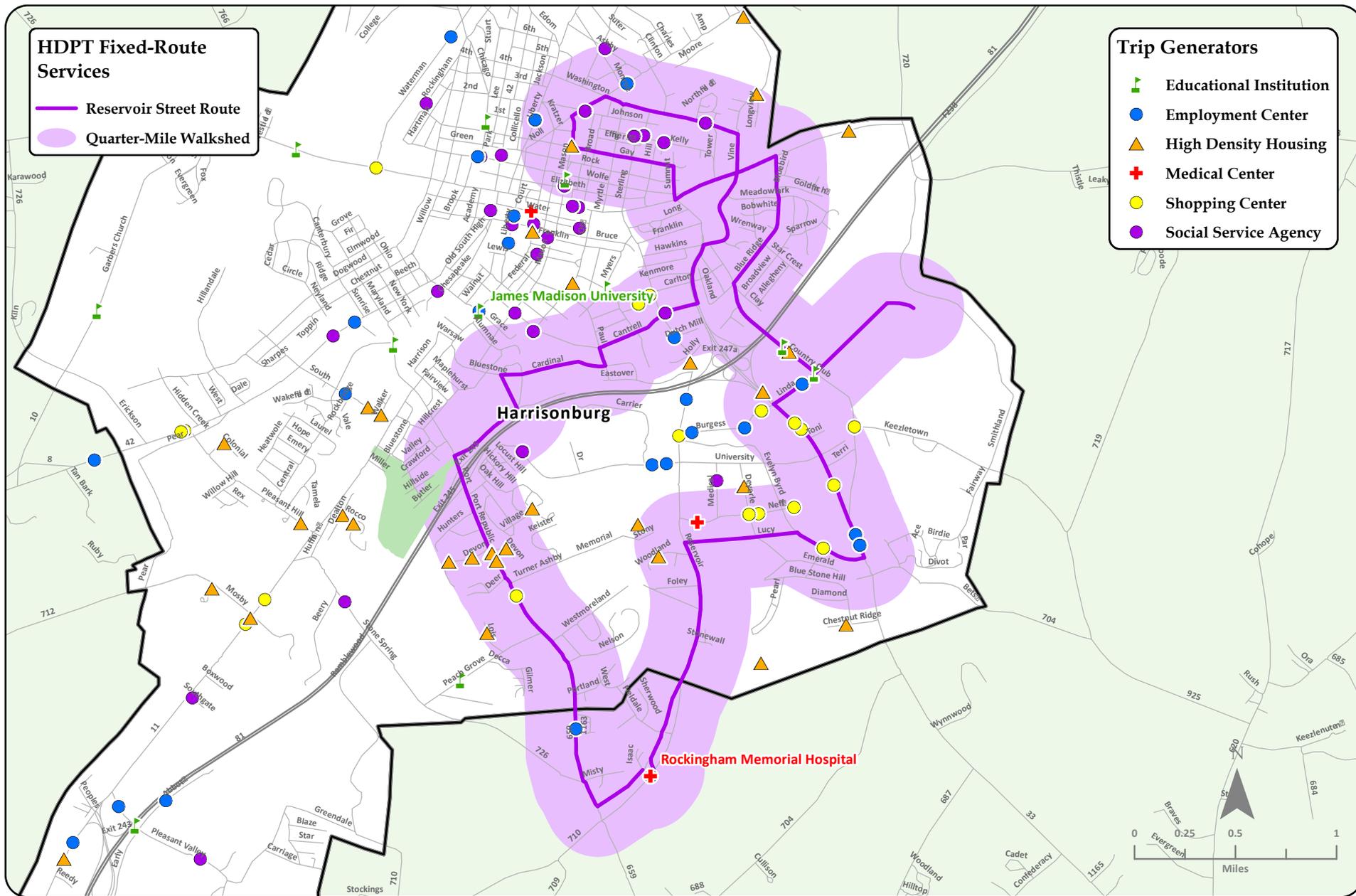
Route 3: South High Street

The South High Street bus route serves the western portion of the City of Harrisonburg. The route originates at Godwin Hall on the campus of JMU, departing westbound along Bluestone Drive and northbound along South Main Street until the route reaches Cantrell Avenue, where it turns westward and begins its service along South High Street. Traveling southbound along South High Street, the route then turns eastward at Pleasant Hill Road, where it serves the Auction House and Shenk Apartments, northbound on Central Avenue, and westbound on South Avenue until the road intersects with South High Street. The route continues its course past an already served stretch of South High Street until turning westbound on Erickson Avenue and northbound along Garber's Church Road, where the route serves the Harrisonburg High School parking lot.

The bus route continues north on Garber's Church Road until it reaches the intersection at West Market Street, where the route heads east and passes both Thomas Harrison Middle School and the Waterman Square Shopping Center until it makes a left-hand turn onto North Dogwood Drive, followed by a right-hand turn onto West Gay Street and another right-hand turn onto North High Street. Next, the route heads east on West Bruce Street, serving the transfer center at the Hardesty-Higgins House, and circles back to Liberty Street via a left-hand turn onto South Mason Street and a second left-hand turn onto East Elizabeth Street. The route concludes by heading southbound along South Liberty and South Main Streets until returning back to Godwin Hall via Bluestone Drive.

Weekday Service for the South High Street bus route starts at 6:52 a.m. and finishes at 6:37 p.m., while the abbreviated Saturday service begins two hours later, at 8:52 a.m., and concludes one hour earlier, at 5:37 p.m. The route is scheduled to complete each circuit in 45 minutes. Figure 3-4 displays a map of the trip generators

Figure 3-3: Map and Profile for HDPT Route 2 (Reservoir Street Route)



3-11

Operations Summary (FY2010):

Annual Ridership: 35,718

Service Days: 304

304

Trips per Day:

117.49

Revenue Hours: 3,425

3,425

Trips per Hour:

10.43

Revenue Miles: 44,707

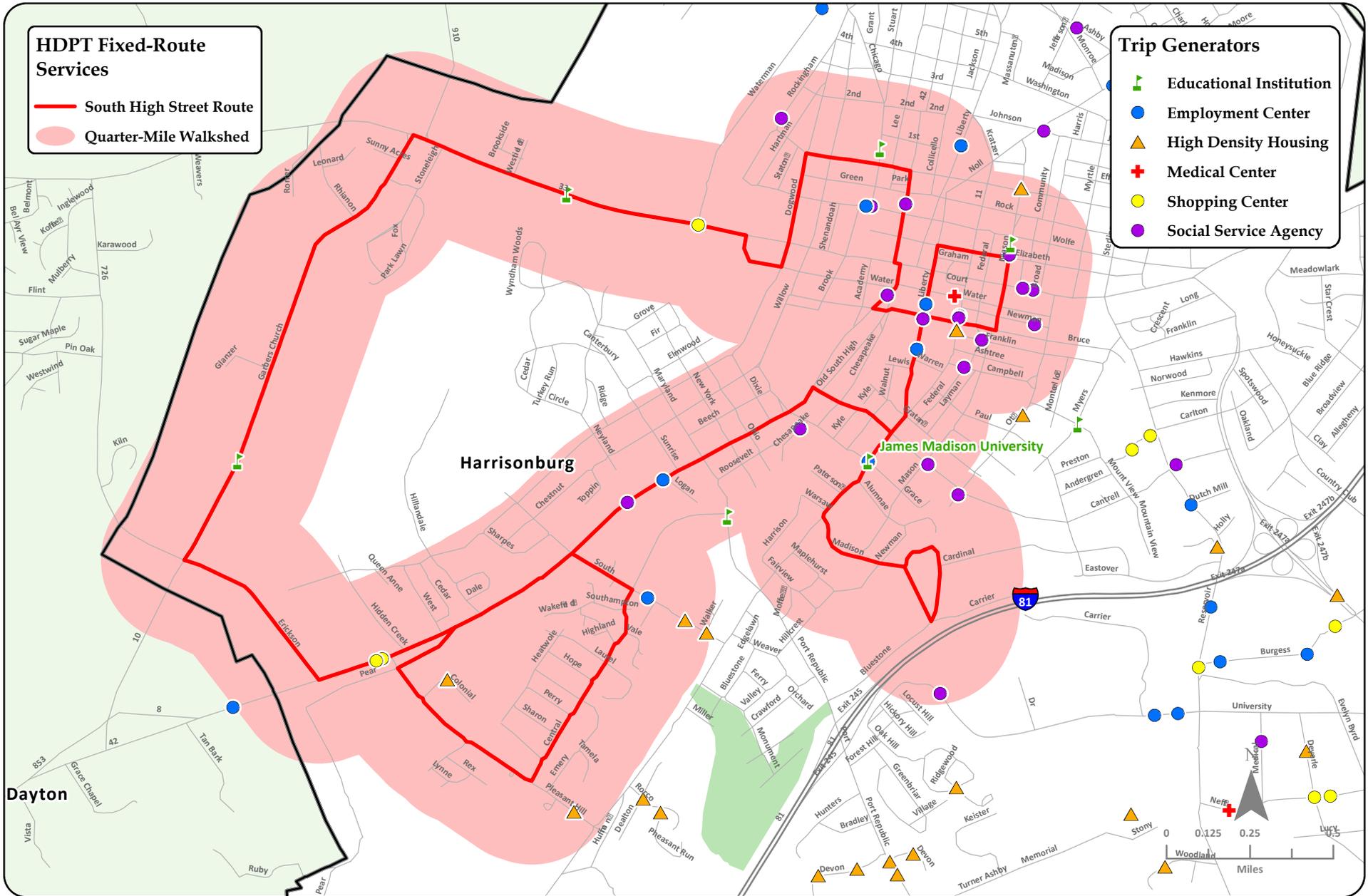
44,707

Trips per Mile:

0.80



Figure 3-4: Map and Profile for HDPT Route 3 (South High Street Route)



3-12

Operations Summary (FY2010):

Annual Ridership: 34,566

Service Days: 304

304

Trips per Day:

113.70

Revenue Hours: 3,431

3,431

Trips per Hour:

10.07

Revenue Miles: 43,002

43,002

Trips per Mile:

0.80



served by the South High Street route in addition to the actual alignment of the fixed-route service and an operations summary for FY 2010.

Route 4: South Main Street

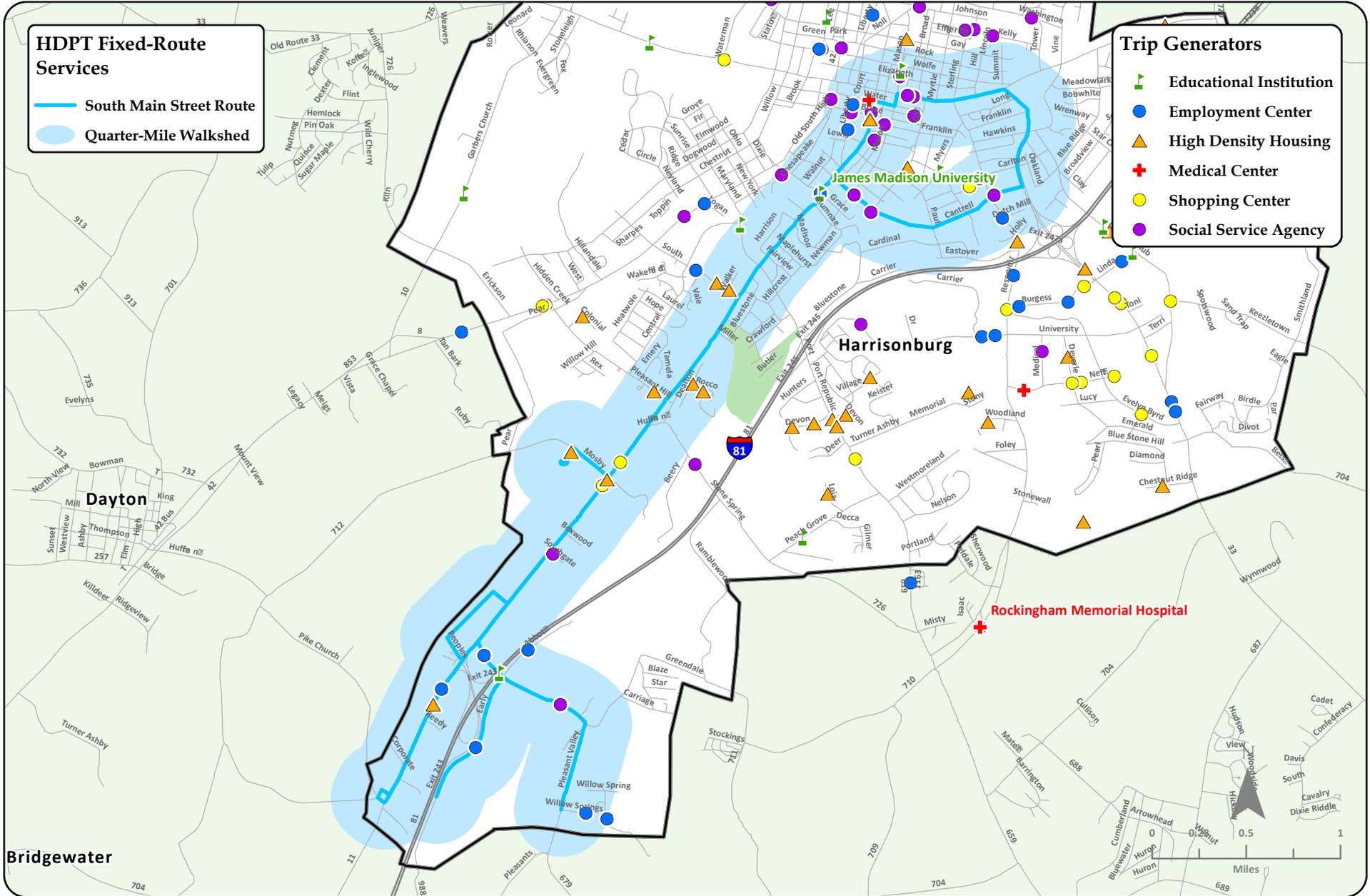
The South Main Street route serves the central and southern portions of the City of Harrisonburg along the north-south corridor of South Main Street. The bus route begins service at the Cloverleaf Shopping Center, departing the transfer area and heading westbound on Cantrell Avenue to the intersection at South Main Street, where the route turns left and travels southbound along South Main Street until it turns right onto West Mosby Road to serve the Dukes Plaza Shopping Center. The route then continues southbound on South Main Street until the route loops back by heading west on Covenant Drive, north on People's Drives, and east on Kaylor Park Drive. Before the route serves the city block containing the Department of Motor Vehicles and Hampton Inn, the route may deviate further south along South Main Street toward the post office or eastbound along Pleasant Valley Road to serve the businesses and schools in the vicinity, if the additional service is requested in advance. Upon circling back onto South Main Street, the route heads north along the corridor, serving the housing complexes along Pleasant Hill Road when the university is in-session, until it reaches the Hardesty-Higgins House transfer center at the intersection of South Main Street and East Bruce Street. The route concludes its circuit by exiting the transfer center via East Market Street, serving the Budget Inn and Family Dollar Store along the east-west corridor until the route returns back to the Cloverleaf Shopping Center.

Weekday operation of the South Main Street route begins at 6:44 a.m. and finishes at 6:42 p.m., while the operating hours on Saturdays are continuous between 8:44 a.m. and 5:42 p.m. The bus route is scheduled to complete each run in 58 minutes. Figure 3-5 is a depiction of the South Main Street route along with the trip generators that are located near the service and an operations summary for FY 2010.

Route 5: North High Street

The North High Street route provides service to the northwestern portion of the City of Harrisonburg along both the Chicago Avenue and North Main Street corridors. The fixed-route begins its service at the Heritage Haven Virginia Mennonite Retirement Community (VMRC), departing the residential community northbound along Virginia Avenue until heading west on Harmony Drive, and then southbound on Park Road through the EMU campus. Continuing along Park Road, the route crosses Mount Clinton Pike and heads southbound along Chicago Avenue, serving Red Front Supermarket and Waterman Elementary School, until turning eastbound on West Gay Street. The route then heads southbound on North Liberty Street and makes a left-hand turn down East Bruce Street to the transfer center at the Hardesty-Higgins House.

Figure 3-5: Map and Profile for HDPT Route 4 (South Main Street Route)



3-14

Operations Summary (FY2010):

Annual Ridership: 20,073

Service Days: 304

304

Revenue Hours: 3,504

3,504

Revenue Miles: 40,010

40,010

Trips per Day: 66.03

66.03

Trips per Hour: 5.73

5.73

Trips per Mile: 0.50

0.50



Leaving the transfer center, the route heads northbound on South Main Street, turns left onto East Wolfe Street, and immediately heads in the northbound direction along North Main Street until reaching the Harris Gardens on Vine Street, where the route breaks southbound toward the Cloverleaf Shopping Center. Upon exiting the shopping center, the route travels northbound along East Market Street, past the Family Dollar Store and Budget Inn, until reaching the previously served stretch of North Main Street. The bus continues and bears left at Kratzer Avenue, before merging onto North Liberty Street and turning westbound onto Third Street. The route concludes by heading northbound onto Chicago Avenue, passing the Red Front Supermarket and Del Acres (apartments). When the bus reaches the intersection at Mount Clinton Pike, it heads eastward and eventually turns left onto Virginia Avenue, where the route leads back to the Heritage Haven VMRC. Eastern Mennonite University is served on this route.

Weekday operation of the North High Street route starts at 7:09 a.m. and finishes at 6:57 p.m., while Saturday service is available between 9:09 a.m. and 5:57 p.m. The route is scheduled to complete a single circuit in 48 minutes, but this time may be lengthened if the service is requested to Friendship Industries. Figure 3-6 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

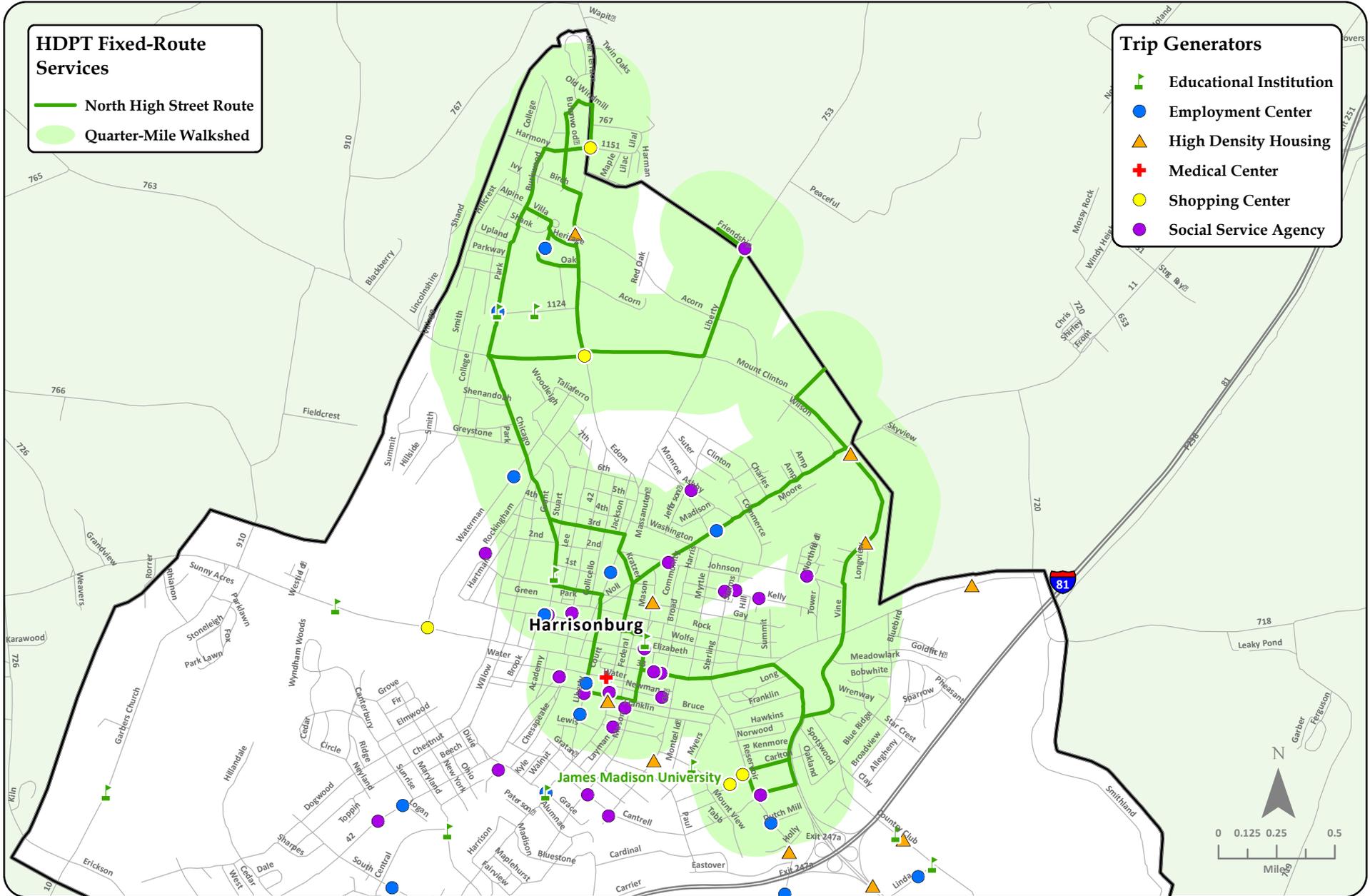
Bridgewater-Dayton Shuttle

The Bridgewater-Dayton Shuttle was created to provide safer travel options into the City of Harrisonburg for Old Order Mennonites in the region who typically rely on horse and buggy for travel. The shuttle provides service between the City of Harrisonburg and the Town of Dayton on Tuesdays and Thursdays; with the Town of Bridgewater also served on Thursdays. The Tuesday service to Dayton has two fixed-route runs, a morning circuit beginning at 8:30 a.m. and an afternoon circuit beginning at 11:30 a.m., with the potential for a demand service run that is scheduled to begin at 4:30 p.m. Similarly, the Thursday service to Bridgewater has two fixed-route runs, which also begin at 8:30 a.m. and 11:30 a.m., as well as a demand service option that is scheduled to depart from the Massanutten Regional Library at 4:30 p.m. Figure 3-7 displays the route alignment and location of trip generators in addition to an operations summary for FY 2010.

James Madison University Bus Services

The JMU-oriented routes experience very high productivity levels, averaging 50.7 passenger trips per revenue hour. In FY 2010, HDPT provided 32,266 revenue hours of service for JMU-oriented routes, which is about 65% of the total fixed-route

Figure 3-6: Map and Profile for HDPT Route 5 (North High Street Route)



3-16

Operations Summary (FY2010):

Annual Ridership: 49,531

Service Days: 304

304

Trips per Day: 162.93

162.93

Revenue Hours: 3,440

3,440

Trips per Hour: 14.40

14.40

Revenue Miles: 39,891

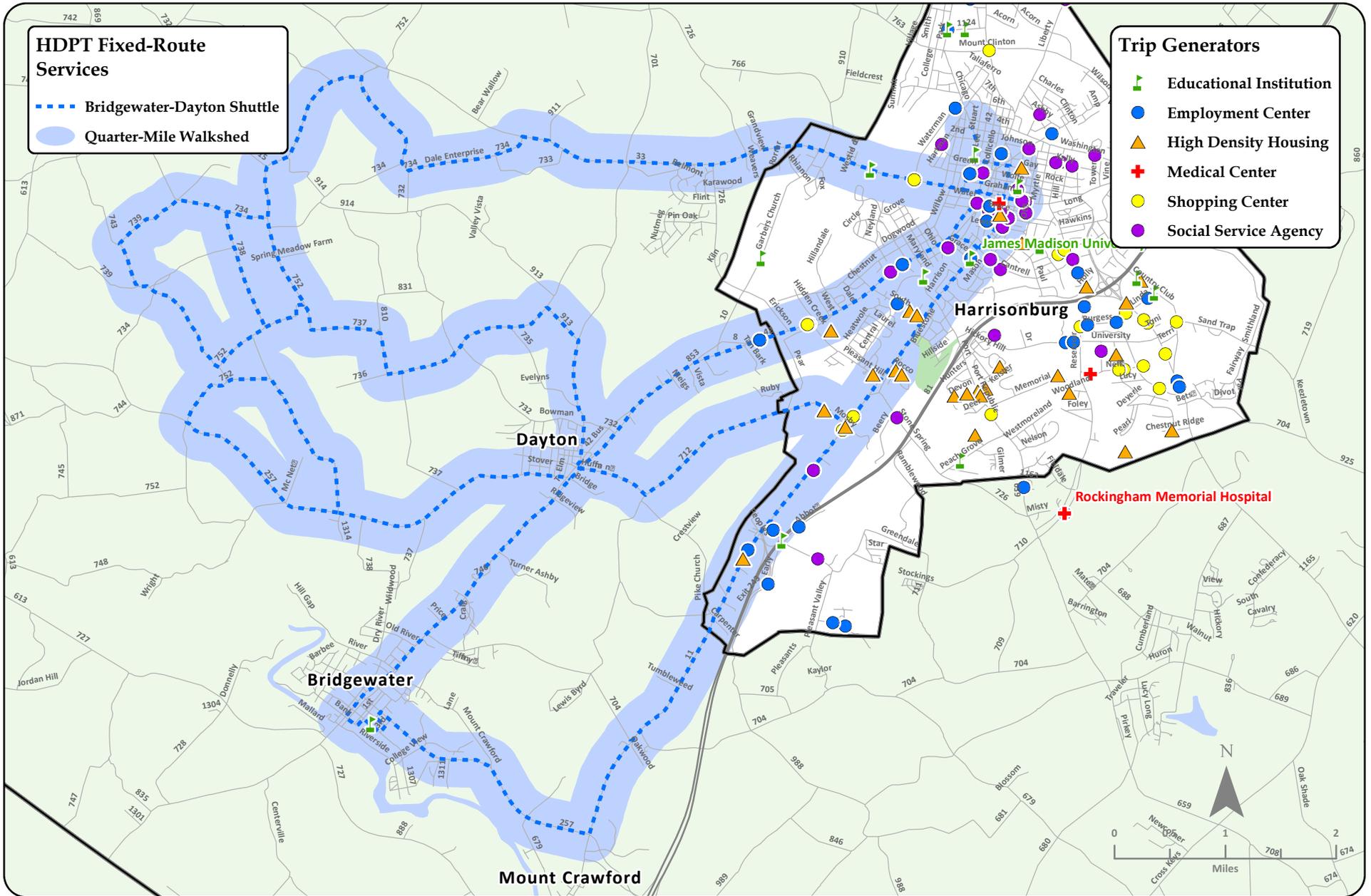
39,891

Trips per Mile: 1.24

1.24



Figure 3-7: Map and Profile for HDPT Bridgewater-Dayton Shuttle



3-17

Operations Summary (FY2010):

Annual Ridership: 1,427

Service Days: 102
 Revenue Hours: 318
 Revenue Miles: 6,317

Trips per Day: 13.99
 Trips per Hour: 4.49
 Trips per Mile: 0.02



service provided. As previously mentioned, the JMU services account for about 90% of the total annual passenger trips.

The Inner Campus Shuttle Routes (ICS I and ICS 2), which provide service from one end of campus to the other during daytime hours, are the busiest of the JMU routes, with the two routes together recording 294,352 passenger trips in FY 2010. The productivity on these routes is very high also, with ICS I recording 96 passenger trips per hour and the ICS 2 recording 82 passenger trips per hour in FY 2010.

JMU's night routes experience the highest productivity among all of the routes, averaging between 105 to 238 passenger trips per revenue hour. JMU's Sunday II route, experienced the lowest productivity among the JMU routes in FY 2010, at 12.2 passenger trips per revenue hour.

The specific characteristics and FY10 performance for each of the JMU-oriented routes are provided below.

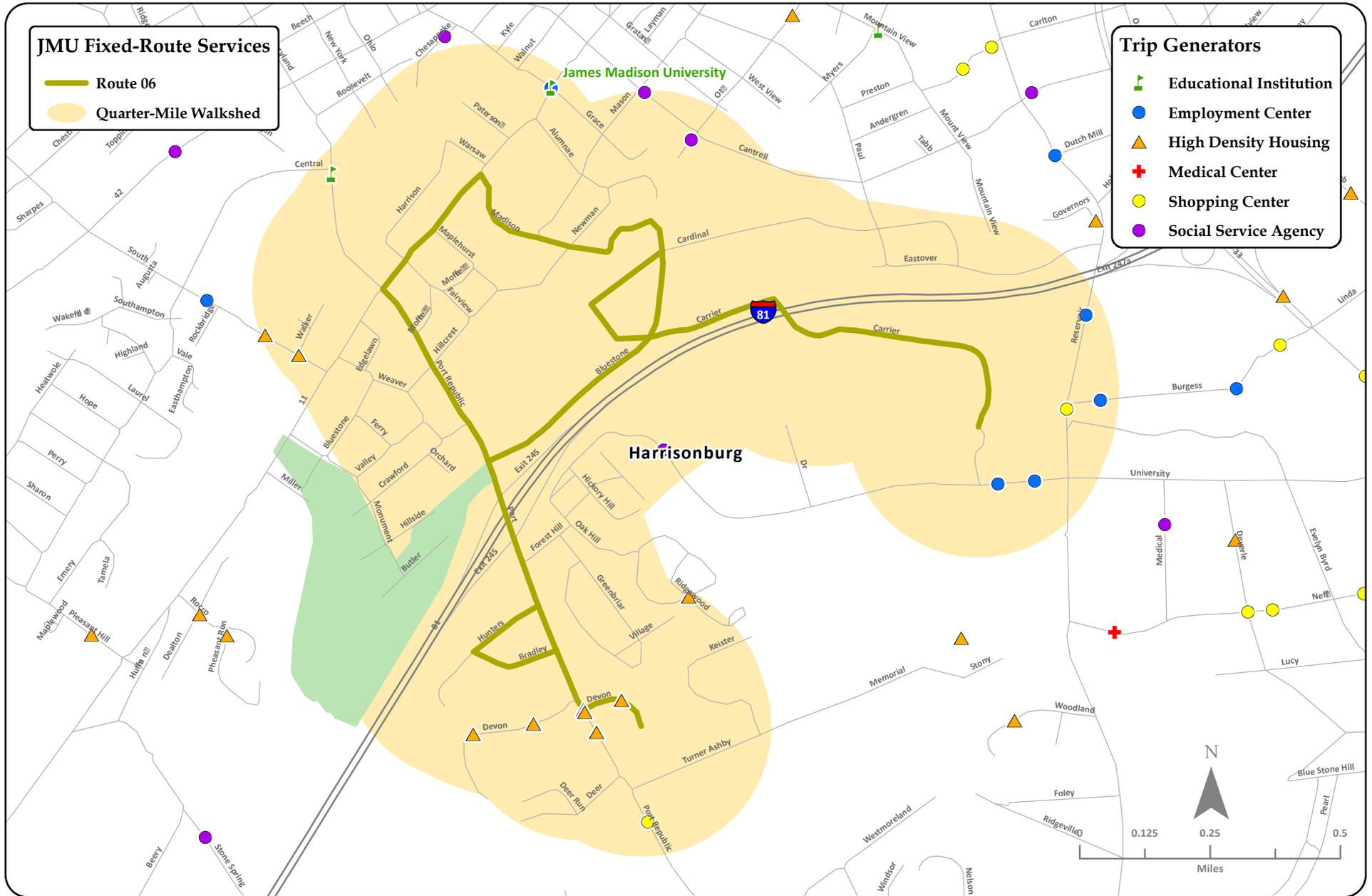
Route 6

Route 6 is a JMU shuttle offering service from Ashby Crossing to Festival Conference and Student Center via the JMU campus during the academic year. The fixed-route service initially departs from Hunter's Ridge (apartments), with subsequent runs beginning at Godwin Hall, and operates on weekdays from 7:28 a.m. until 6:46 p.m. During FY 2010, the route had 62,711 riders, while averaging 35.81 passenger trips per revenue hour and 5.41 passenger trips per revenue mile. Figure 3-8 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Route 7

Route 7 is a JMU shuttle providing service, during the school year, to the multi-unit housing located along Devon Lane in addition to the JMU campus and the Festival Conference and Student Center. The fixed-route circuit begins and terminates at Godwin Hall, with the exception of the initial run beginning at the Commons, and operates on weekdays from 7:28 a.m. to 6:47 p.m. During FY 2010, the route had 92,549 riders, while averaging 40.99 passenger trips per revenue hour and 5.05 passenger trips per revenue mile. Figure 3-9 displays the route alignment and location of trip generators in addition to an operations summary for FY 2010.

Figure 3-8: Map and Profile for JMU Route 6



3-19

Operations Summary (FY2010):

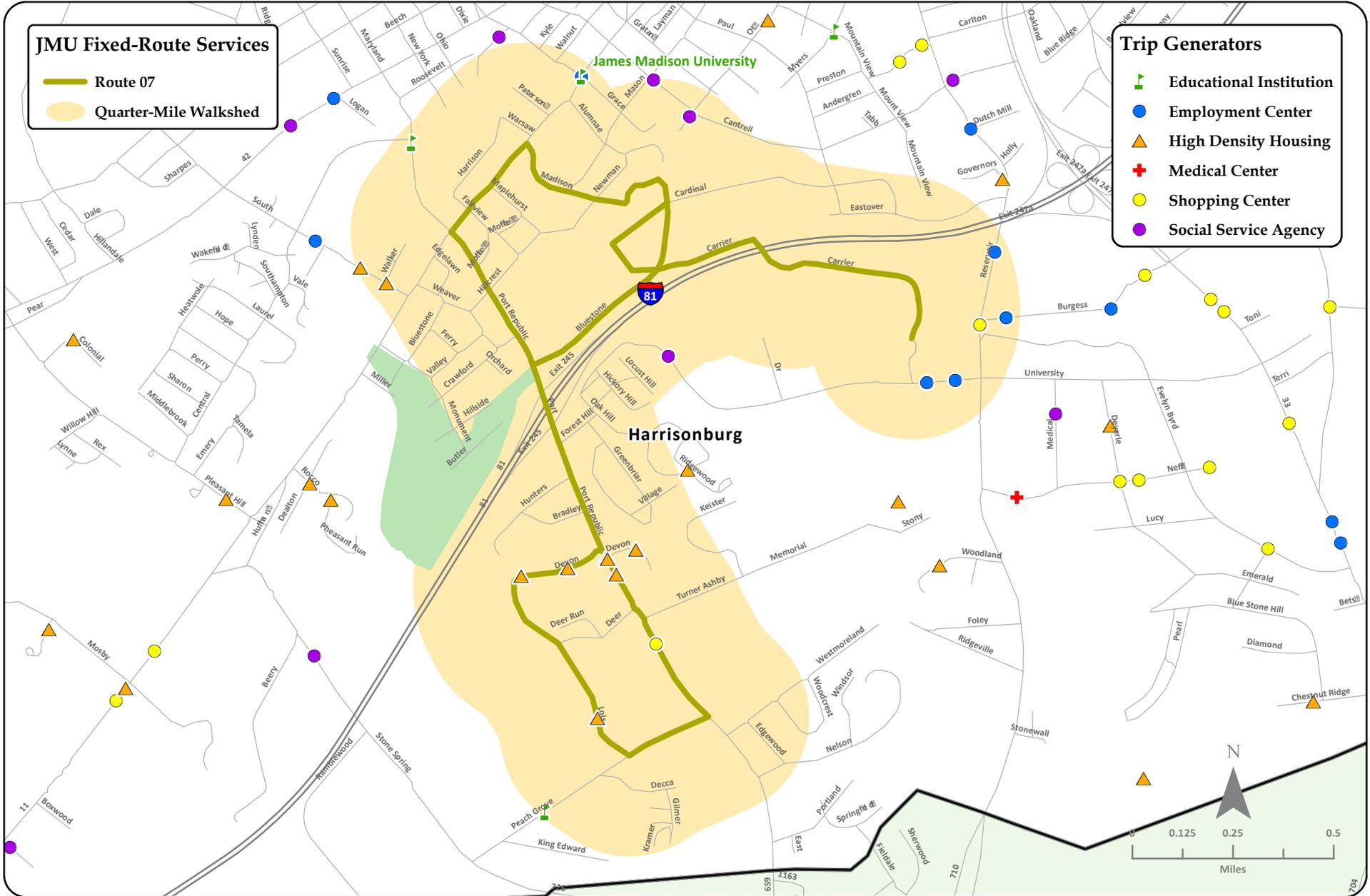
Annual Ridership: 62,711

Service Days: 151
 Revenue Hours: 1,751
 Revenue Miles: 11,600

Trips per Day: 415.30
 Trips per Hour: 35.81
 Trips per Mile: 5.41



Figure 3-9: Map and Profile for JMU Route 7



3-20

Operations Summary (FY2010):

Annual Ridership: 92,549

Service Days: 194
Revenue Hours: 2,258
Revenue Miles: 18,321

Trips per Day: 477.06
Trips per Hour: 40.99
Trips per Mile: 5.05



Route 8

Route 8 is a JMU shuttle providing service during the school year between the Sunchase Apartments located along Neff Avenue and the university halls located near South Main Street. For Mondays, Wednesdays, and Fridays, the fixed-route service begins at the Sunchase Apartments at 7:35 a.m. and finishes at the Varner House at 7:05 p.m., whereas bus service on the other weekdays begins at the same time and location, but concludes at 6:45 p.m. at the Varner House. In FY 2010, the route generated 129,264 riders, while averaging 73.91 passenger trips per revenue hour and 8.13 passenger trips per revenue mile. Figure 3-10 is a map of Route 8 along with the trip generators that are located near the service and an operations summary for FY 2010.

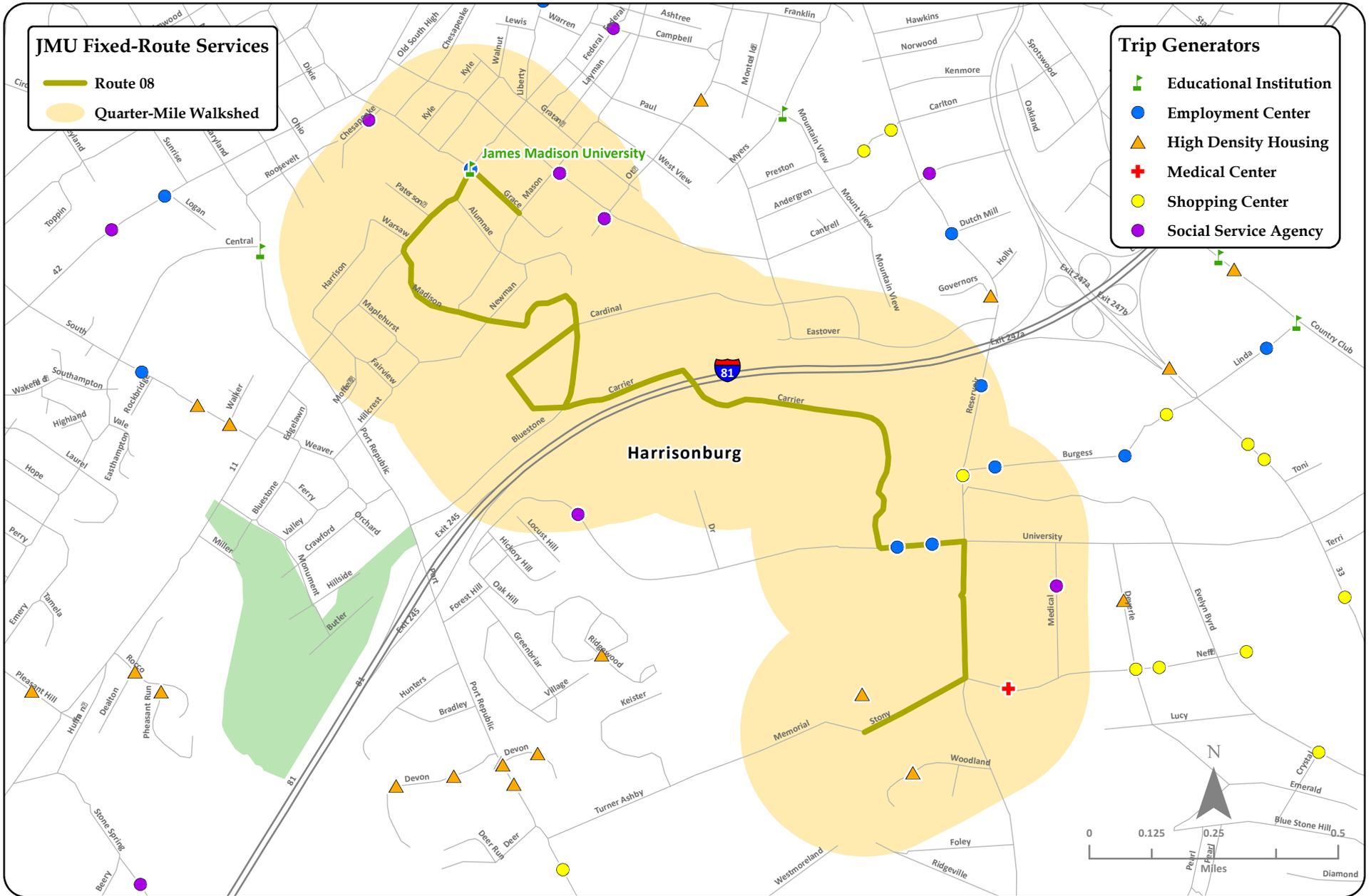
Route 9

Route 9 provides fixed-route service during the academic year from the Stone Gate Apartment on Neff Avenue to Memorial Hall via the JMU campus. The weekday service begins at 7:27 a.m. from the shelter outside the Stone Gate Apartments and terminates at the shelter across from Zane Showker Hall. On Mondays, Wednesdays, and Fridays, the service concludes at 7:00 p.m., whereas on Tuesdays and Thursdays, the service concludes at 6:57 p.m. During FY 2010, the route had 96,816 riders, while averaging 48.22 passenger trips per revenue hour and 4.69 passenger trips per revenue mile. Figure 3-11 displays the route alignment and location of trip generators in addition to an operations summary for the fiscal year.

Route 10

Route 10 is a JMU shuttle providing service, during the school year, to the Pheasant Run and Mill housing complexes, in addition to the JMU campus and the Festival Conference and Student Center. The fixed-route circuit begins and terminates at Godwin Hall, with the exception of the initial run beginning at the Mill Apartments, and operates on weekdays beginning at 7:35 a.m. The Monday, Wednesday, and Friday services terminate at 6:41 p.m. at the Festival Conference and Student Center, whereas the Tuesday and Thursday services conclude outside Hoffman Hall at 6:48 p.m. In FY 2010, the route had 95,909 riders, while averaging 55.31 passenger trips per revenue hour and 7.01 passenger trips per revenue mile. Figure 3-12 displays the route alignment and location of trip generators in addition to an operations summary for the fiscal year.

Figure 3-10: Map and Profile for JMU Route 8



3-22

Operations Summary (FY2010):

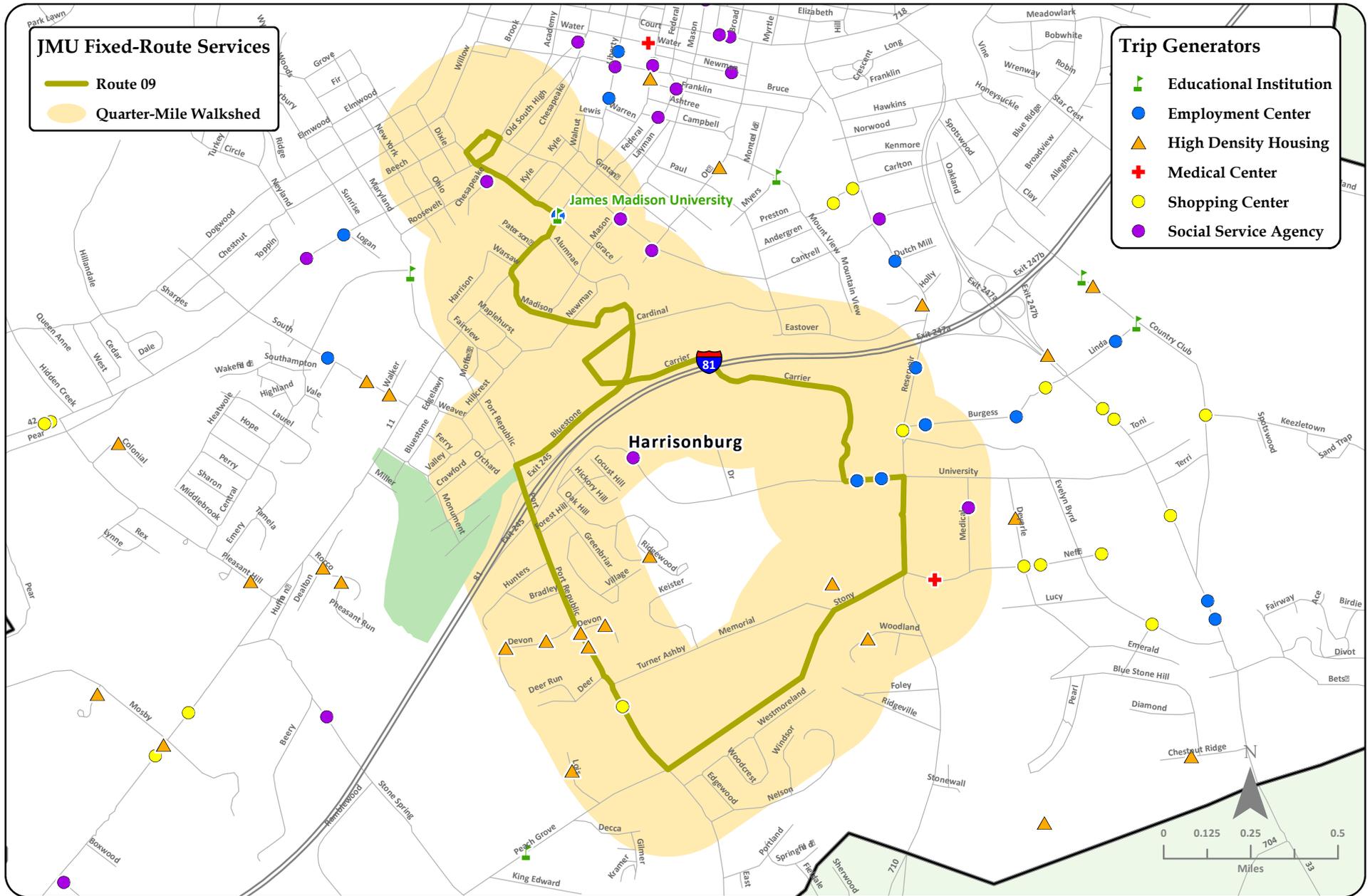
Annual Ridership: 129,264

Service Days: 150
Revenue Hours: 1,749
Revenue Miles: 15,891

Trips per Day: 861.76
Trips per Hour: 73.91
Trips per Mile: 8.13



Figure 3-11: Map and Profile for JMU Route 9



3-23

Operations Summary (FY2010):

Annual Ridership: 96,816

Service Days: 170

Trips per Day: 569.51

Revenue Hours: 2,008

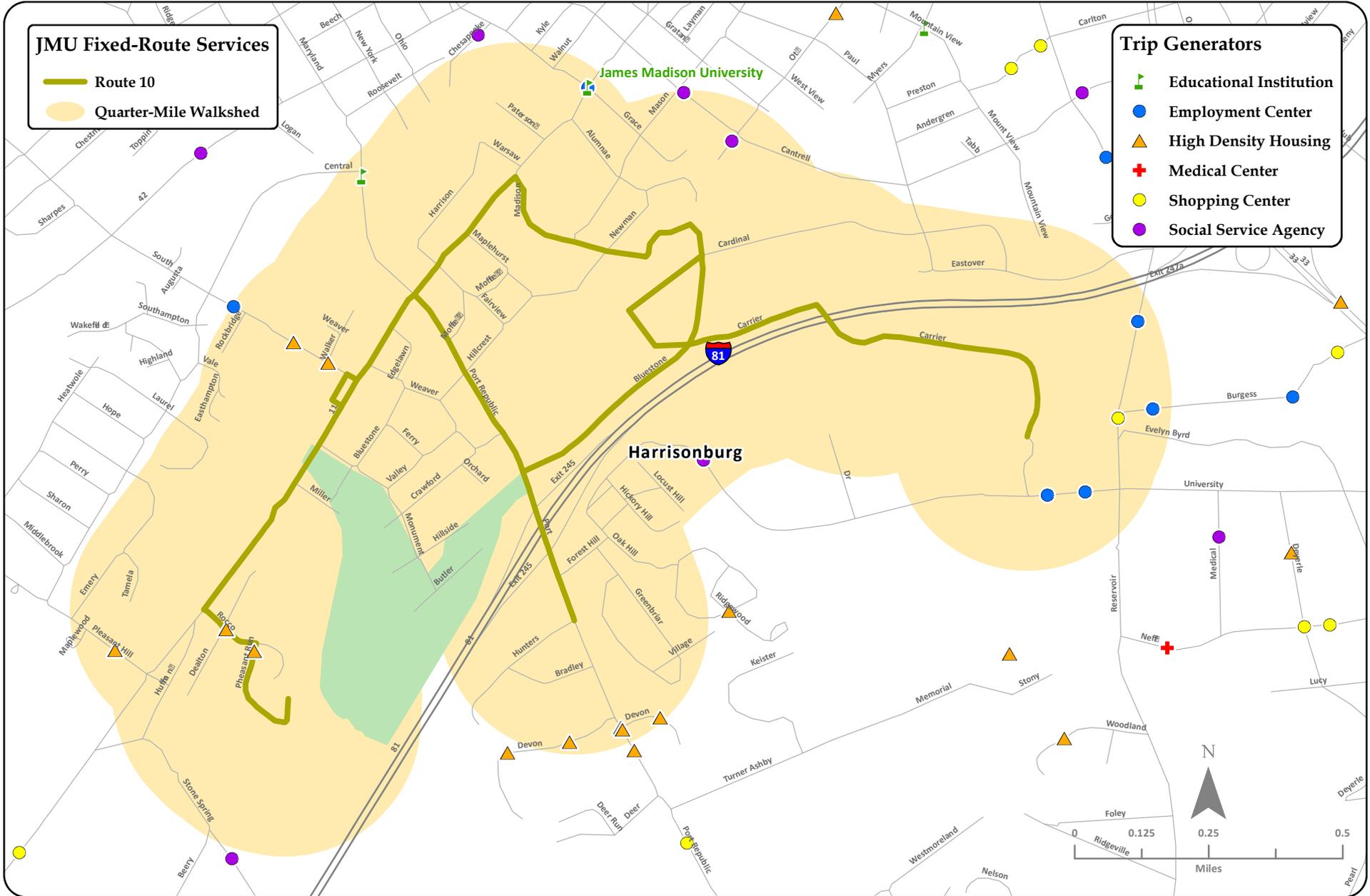
Trips per Hour: 48.22

Revenue Miles: 20,652

Trips per Mile: 4.69



Figure 3-12: Map and Profile for JMU Route 10



3-24

Operations Summary (FY2010):

Annual Ridership: 95,909

Service Days: 151
Revenue Hours: 1,734
Revenue Miles: 13,675

Trips per Day: 635.16
Trips per Hour: 55.31
Trips per Mile: 7.01



Route 12

Route 12 is a JMU fixed-route service connecting Ashby Crossing to Miller Hall via the JMU campus through the academic year. The service initially departs from Hunter's Ridge, with subsequent runs beginning at Godwin Hall, and operates on Mondays, Wednesdays, and Fridays from 7:28 a.m. until 5:40 p.m. and on Tuesdays and Thursdays from 7:28 a.m. until 6:25 p.m. During FY 2010, the route had 48,268 riders, while averaging 29.72 passenger trips per revenue hour and 5.38 passenger trips per revenue mile. Figure 3-13 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Route 13

Route 13 provides fixed-route service during the academic year from the multi-unit housing complexes located along Devon and Lois Lane to Miller Hall via the JMU campus. The weekday service begins at 7:28 a.m. from the shelter outside the Commons and terminates at Godwin Hall. On Mondays, Wednesdays, and Fridays, the service concludes at 5:40 p.m., whereas on Tuesdays and Thursdays, the service concludes at 6:25 p.m. During FY 2010, the route had 74,917 riders, while averaging 46.39 passenger trips per revenue hour and 7.17 passenger trips per revenue mile. Figure 3-14 displays the route alignment and location of trip generators in addition to an operations summary for the fiscal year.

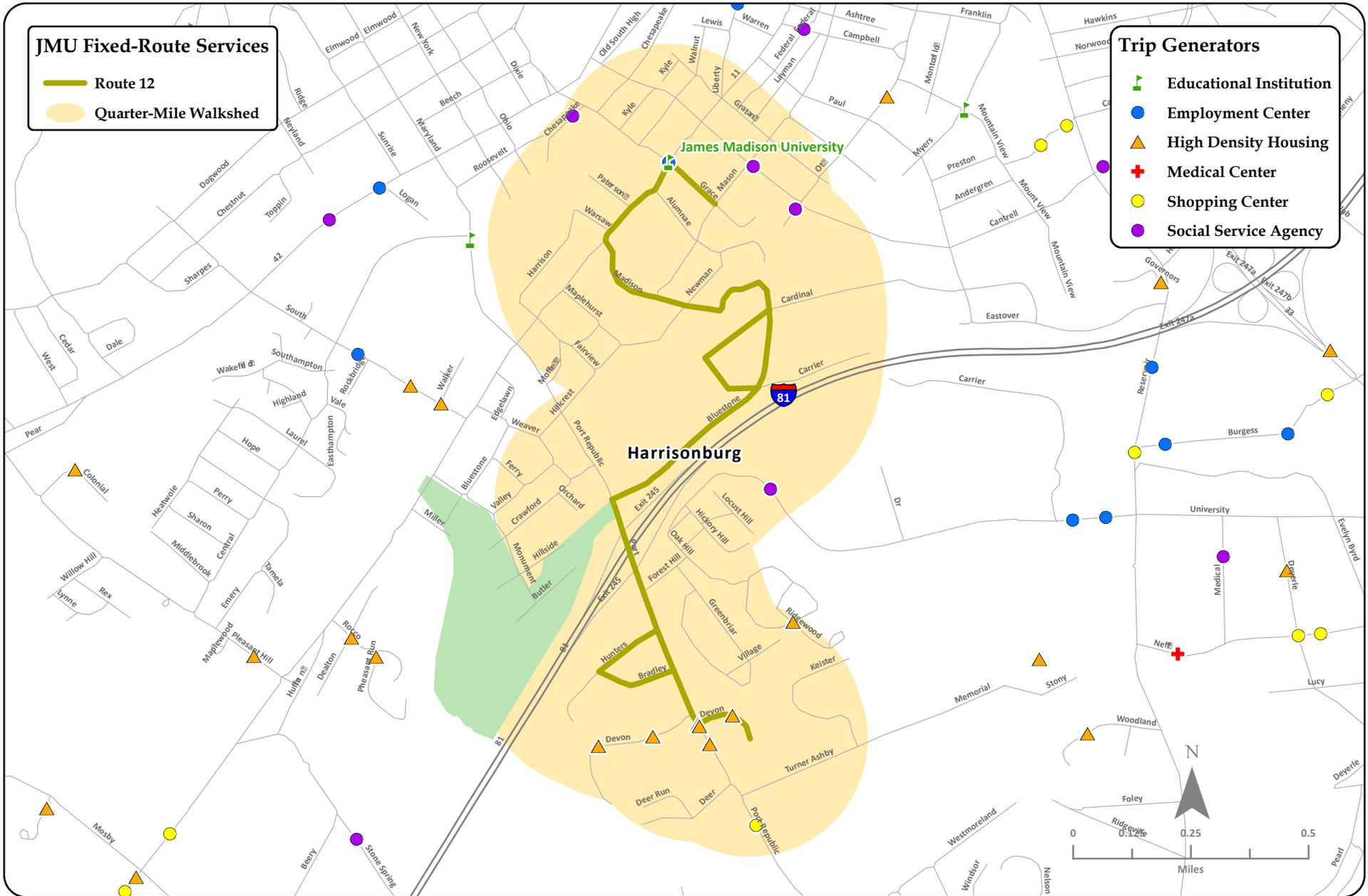
Route 14

Route 14 offers a fixed-route service during the academic year that connects the multi-unit housing complexes located along Devon and Lois Lane to Memorial Hall via the Festival Conference and Student Center and JMU campus. This weekday service begins at 7:22 a.m. outside the Commons and concludes at 5:00 p.m. on Tuesdays and Thursdays. However, the shuttle service provides extended service on Mondays, Wednesdays, and Fridays until 6:50 p.m., which also concludes outside Hoffman Hall. In FY 2010, the route had 80,993 riders, while averaging 48.82 passenger trips per revenue hour and 6.00 passenger trips per revenue mile. Figure 3-15 displays the route alignment and location of trip generators in addition to an operations summary for the fiscal year.

Route 15

Route 15 provides a fixed-route shuttle during the academic year that links Godwin Hall on the JMU campus to the multi-unit housing developments along Chestnut Ridge Drive and shopping destinations located along Evelyn Byrd Avenue via the Festival Conference and Student Center. This weekday service begins at 7:24 a.m. at

Figure 3-13: Map and Profile for JMU Route 12



3-26

Operations Summary (FY2010):

Annual Ridership: 48,268

Service Days: 150

Revenue Hours: 1,624

Revenue Miles: 8,977

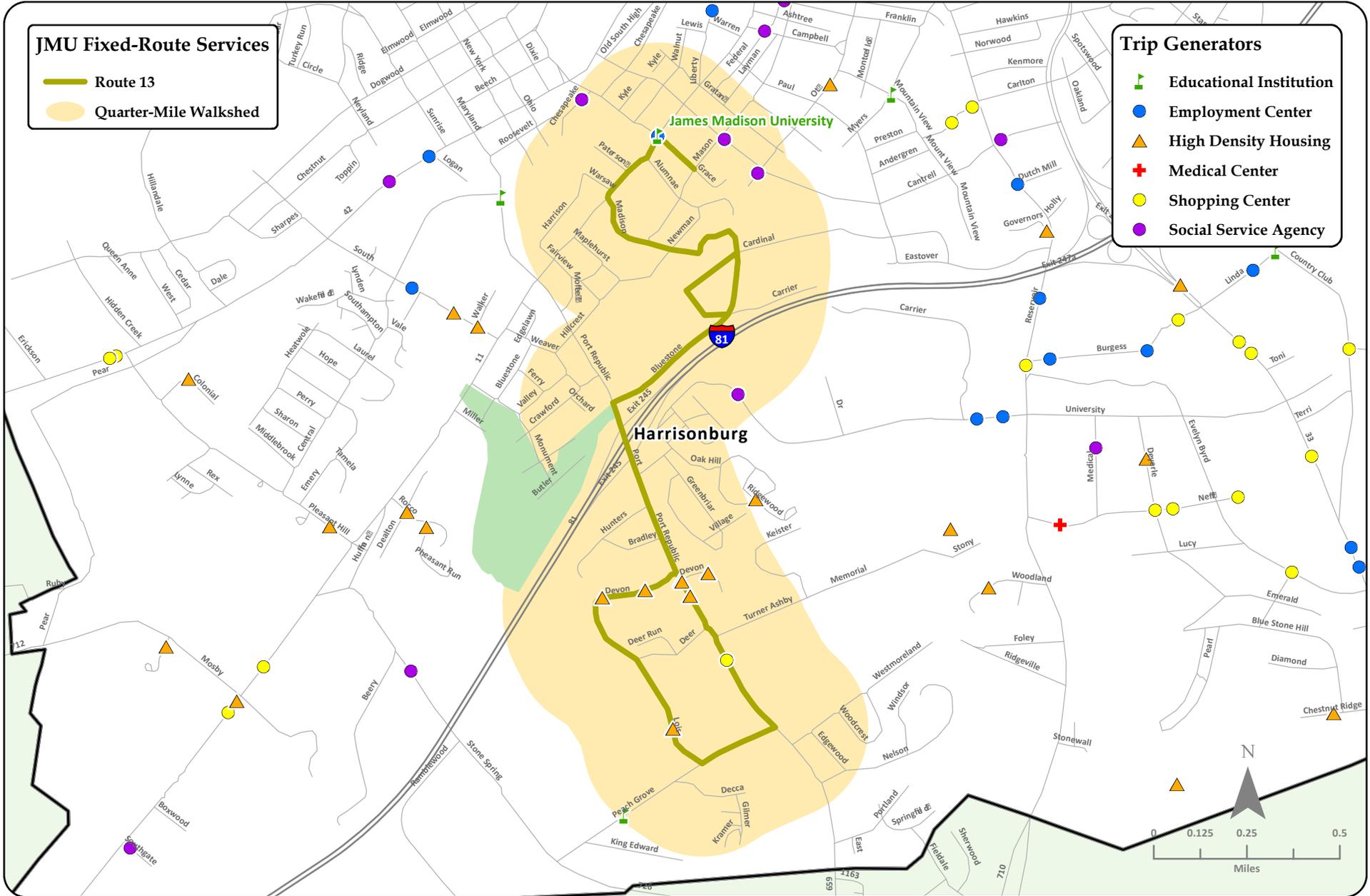
Trips per Day: 321.79

Trips per Hour: 29.72

Trips per Mile: 5.38



Figure 3-14: Map and Profile for JMU Route 13



3-27

Operations Summary (FY2010):

Annual Ridership: 74,917

Service Days: 151

151

Revenue Hours: 1,615

1,615

Revenue Miles: 10,443

10,443

Trips per Day: 496.14

496.14

Trips per Hour: 46.39

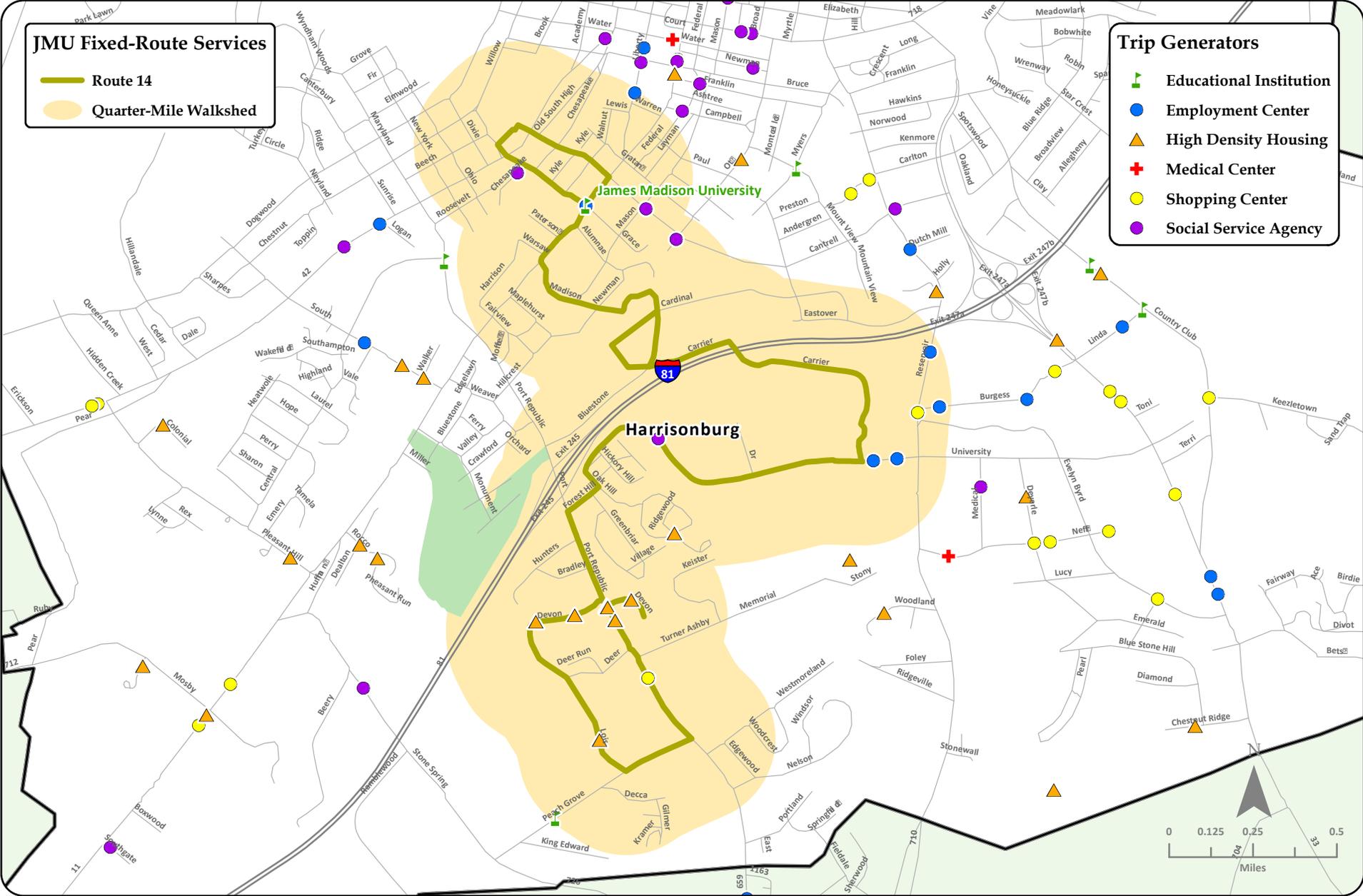
46.39

Trips per Mile: 7.17

7.17



Figure 3-15: Map and Profile for JMU Route 14



3-28

Operations Summary (FY2010):

Annual Ridership: 80,993

Service Days: 150
Revenue Hours: 1,659
Revenue Miles: 13,508

Trips per Day: 539.95
Trips per Hour: 48.82
Trips per Mile: 6.00



the Charleston Townes on Lucy Drive and concludes at 6:50 p.m. on Tuesdays and Thursdays at Godwin Hall. On Mondays, Wednesdays, and Fridays the service ends at Godwin Hall at 7:04 p.m. In FY 2010, the route had 81,705 riders, while averaging 45.72 passenger trips per revenue hour and 4.53 passenger trips per revenue mile. Figure 3-16 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Route 16

Route 16 is a JMU fixed-route service during the academic year that connects Godwin Hall and the Festival Conference and Student Center to the North 38 Apartments via the Clover Leaf Shopping Center and Madison Manor (apartments). The weekday service begins at the corner of Founders Way and Settlers Lane at 7:26 a.m. and ends at 6:55 p.m. on Mondays, Wednesdays, and Fridays. On Tuesdays and Thursdays, the service concludes at 6:51 p.m. outside Godwin Hall. In FY 2010, the route had 46,114 riders, while averaging 25.94 passenger trips per revenue hour and 2.57 passenger trips per revenue mile. Figure 3-17 displays the route alignment and location of trip generators in addition to an operations summary for the fiscal year.

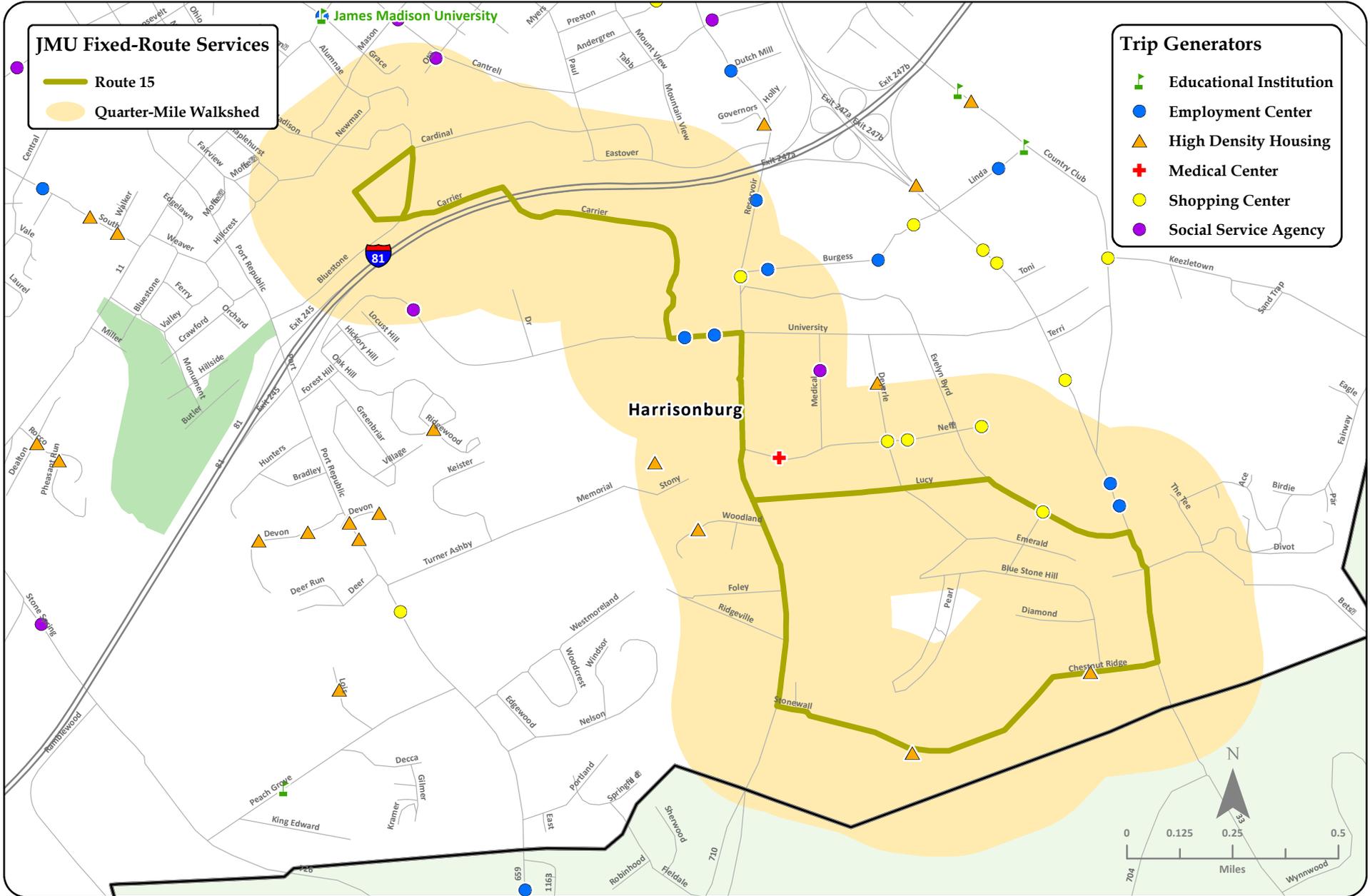
Route 31

Route 31 is a JMU fixed-route service during the academic year that connects Pheasant Run and the North 38 Apartments, with service to Walmart, via Godwin Hall and Clover Leaf Shopping Center. This evening service begins at the Bookstore at 7:00 p.m. on Monday through Friday and 6:00 p.m. on Saturday. It concludes at 10:46 p.m. outside the Bookstore on Monday through Thursday and 9:46 p.m. on Friday and Saturday. In FY 2010, the route had 10,377 riders, while averaging 17.71 passenger trips per revenue hour and 1.27 passenger trips per revenue mile. Figure 3-18 displays the route alignment and location of trip generators in addition to an operations summary for the fiscal year.

Route 32

Route 32 provides a fixed-route shuttle during the academic year that links the Bookstore on the JMU campus to the multi-unit housing developments along Chestnut Ridge Drive and shopping destinations located along Evelyn Byrd Avenue via Walmart and the Festival Conference and Student Center. The evening service begins at the Bookstore at 7:00 p.m. on Monday through Friday and at 6:00 p.m. on Saturday. The service concludes at 10:45 p.m. outside the Bookstore on Monday through Thursday and at 9:45 p.m. on Friday and Saturday. In FY 2010, the route had 17,508 riders, while averaging 27.62 passenger trips per revenue hour and 1.66 passenger trips per revenue

Figure 3-16: Map and Profile for JMU Route 15



3-30

Operations Summary (FY2010):

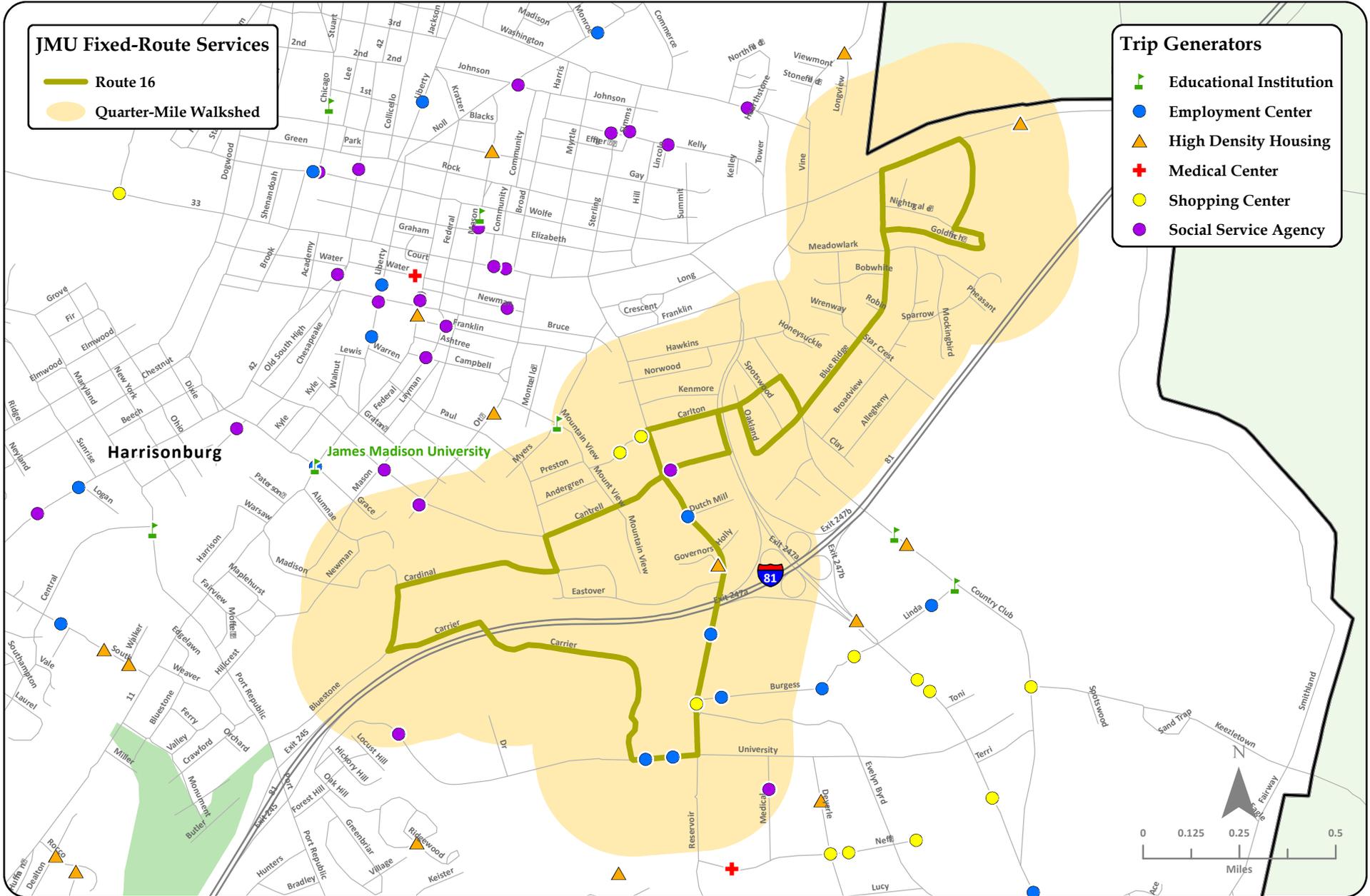
Annual Ridership: 81,705

Service Days: 151
Revenue Hours: 1,787
Revenue Miles: 18,047

Trips per Day: 541.09
Trips per Hour: 45.72
Trips per Mile: 4.53



Figure 3-17: Map and Profile for JMU Route 16



3-31

Operations Summary (FY2010):

Annual Ridership: 46,114

Service Days: 151

151

Revenue Hours: 1,778

1,778

Revenue Miles: 17,941

17,941

Trips per Day: 305.39

305.39

Trips per Hour: 25.94

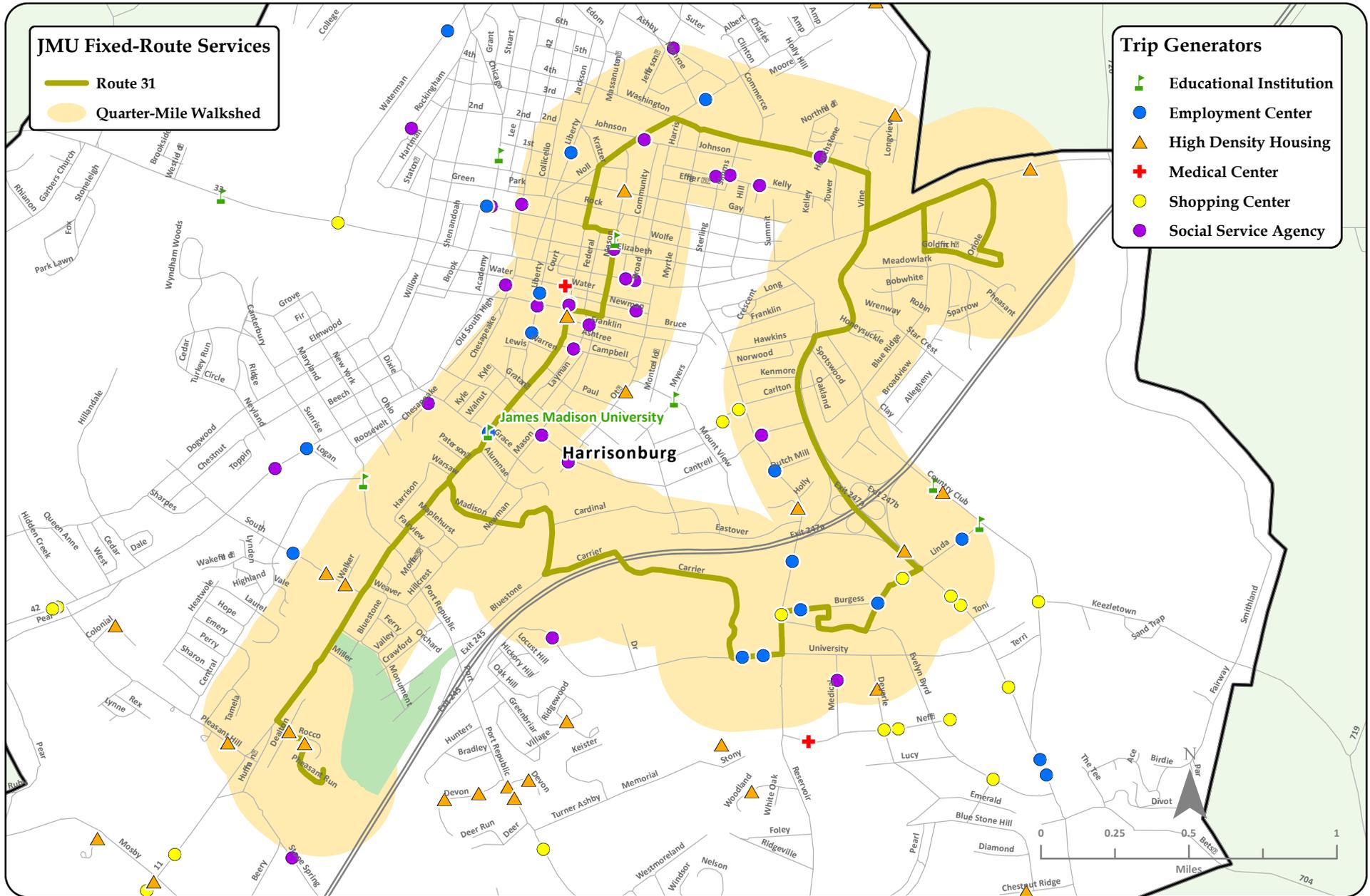
25.94

Trips per Mile: 2.57

2.57



Figure 3-18: Map and Profile for JMU Route 31



3-32

Operations Summary (FY2010):

Annual Ridership: 10,377

Service Days: 169
 Revenue Hours: 586
 Revenue Miles: 8,188

Trips per Day: 61.40
 Trips per Hour: 17.71
 Trips per Mile: 1.27



mile. Figure 3-19 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Route 33

Route 33 is a JMU fixed-route service during the academic year that connects the Bookstore on the JMU campus to the multi-unit housing complexes located along Devon and Lois Lanes. The evening service begins at the Bookstore at 7:00 p.m. on Monday through Friday and at 6:00 p.m. on Saturday. The service concludes at 11:51 p.m. outside the Bookstore on Monday through Thursday and at 9:51 p.m. on Friday and Saturday. In FY 2010, the route had 41,196 riders, while averaging 55.22 passenger trips per revenue hour and 3.97 passenger trips per revenue mile. Figure 3-20 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Route 35

Route 35 is a JMU fixed-route shuttle during the academic year that provides a circuitous route connecting the Bookstore, Rockingham Hall, Stone Gate Apartments, and the Festival Conference and Student Center. This evening service operates continuously from 10:00 p.m. to 2:15 a.m. on Friday and Saturday evenings. In FY 2010, the route had 44,299 riders, while averaging 217.15 passenger trips per revenue hour and 19.50 passenger trips per revenue mile. Figure 3-21 displays the route alignment and location of trip generators in addition to an operations summary for the fiscal year.

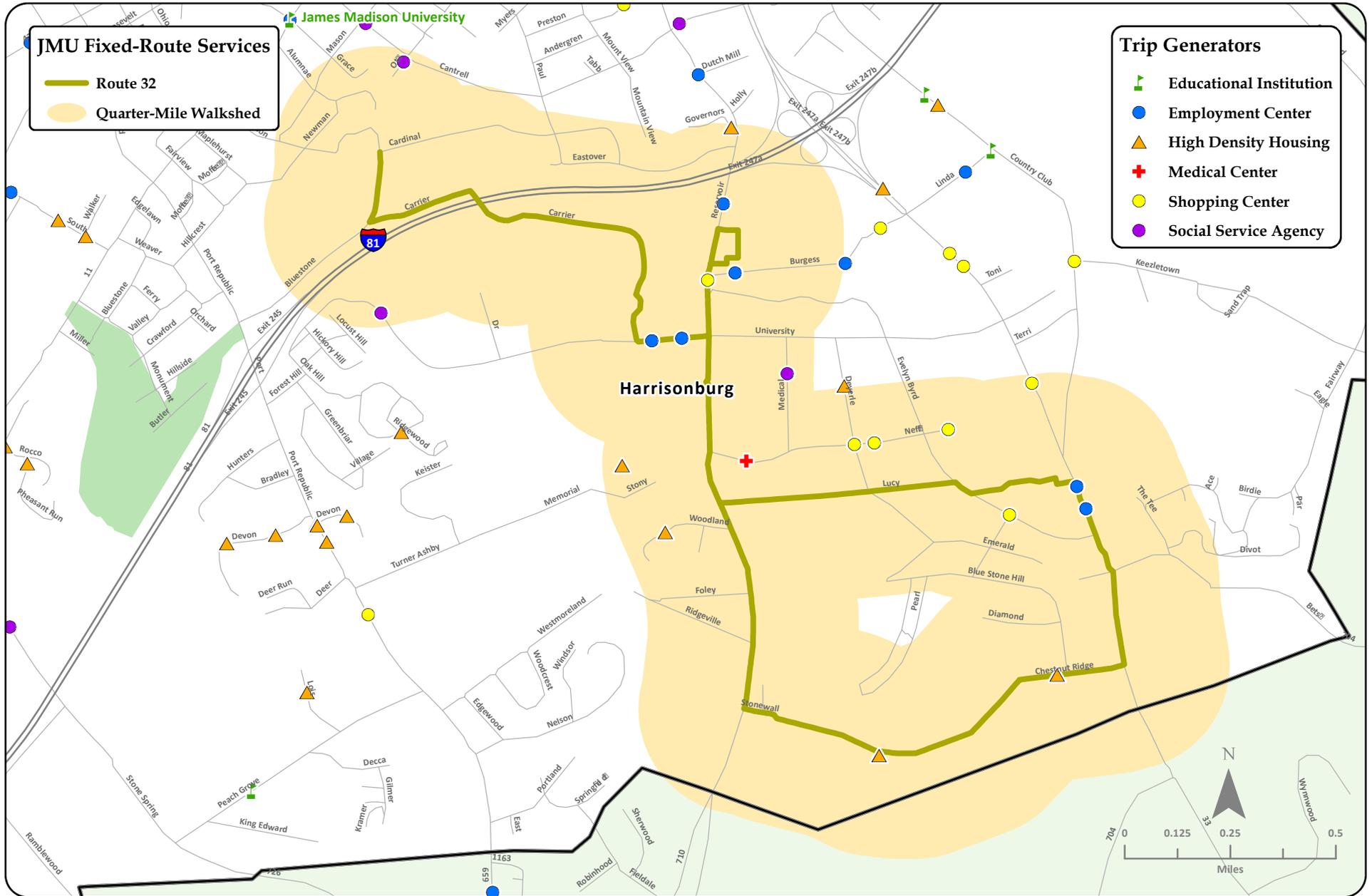
Route 36

Route 36 is a JMU fixed-route shuttle during the academic year that provides a circuitous route connecting the Bookstore, Stone Gate Apartments, the Festival Conference and Student Center, and Zane Showker Hall. The evening service operates continuously from 10:00 p.m. to 2:15 a.m. on Friday and Saturday evenings. In FY 2010, the route had 48,549 riders, while averaging 237.99 passenger trips per revenue hour and 20.72 passenger trips per revenue mile. Figure 3-22 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Route 37

Route 37 provides a fixed-route shuttle during the academic year that links the JMU campus to the multi-unit housing developments at Pheasant Run, Hunter's Ridge, Ashby Crossing, and South View. This evening service operates continuously from 10:00 p.m. to 2:15 a.m. on Friday and Saturday nights. During FY 2010, the route had

Figure 3-19: Map and Profile for JMU Route 32



3-34

Operations Summary (FY2010):

Annual Ridership: 17,508

Service Days: 169

169

Revenue Hours: 634

634

Revenue Miles: 10,534

10,534

Trips per Day: 103.60

103.60

Trips per Hour: 27.62

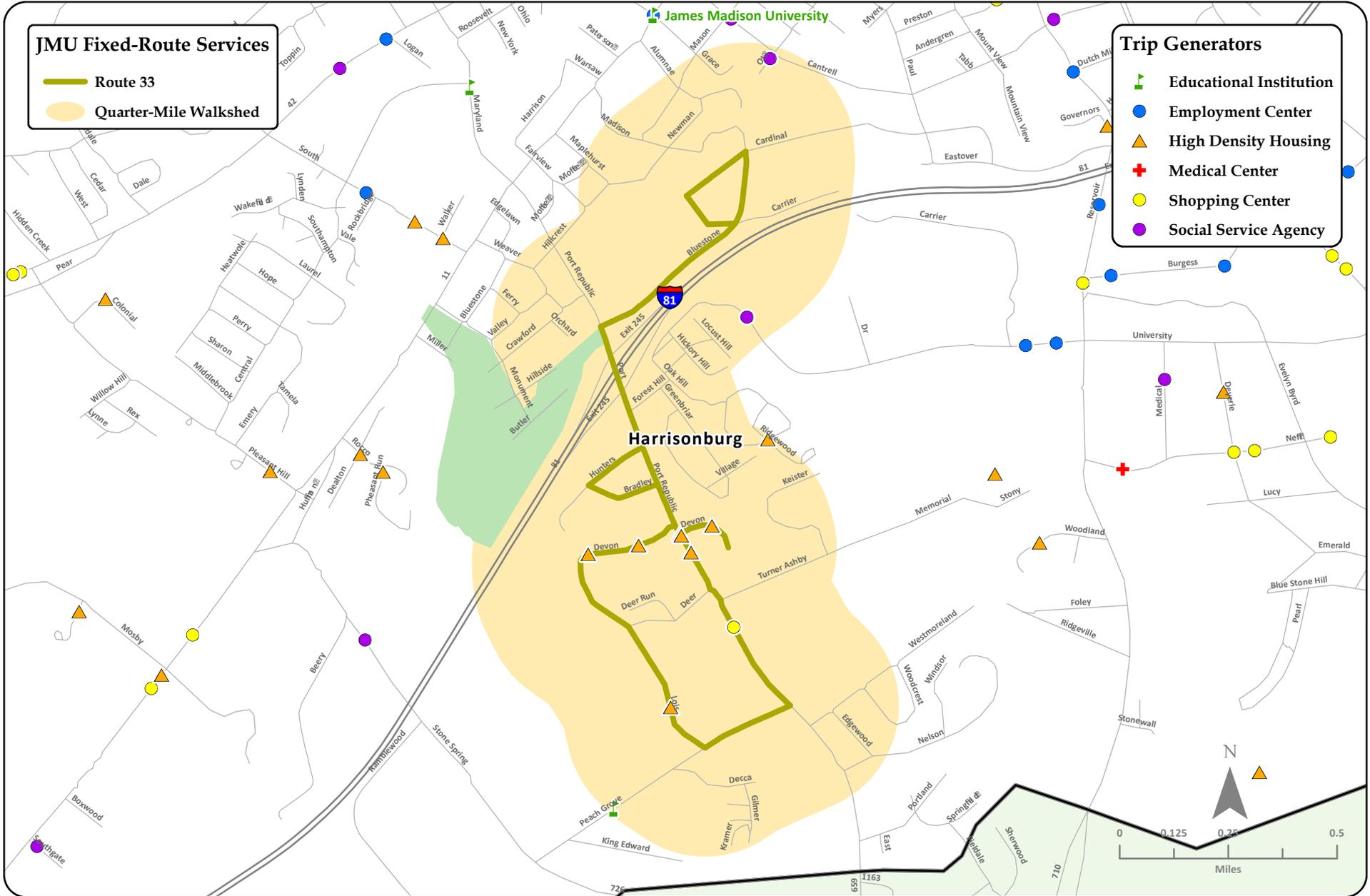
27.62

Trips per Mile: 1.66

1.66



Figure 3-20: Map and Profile for JMU Route 33



3-35

Operations Summary (FY2010):

Annual Ridership: 41,196

Service Days: 169

169

Revenue Hours: 746

746

Revenue Miles: 10,387

10,387

Trips per Day: 243.76

243.76

Trips per Hour: 55.22

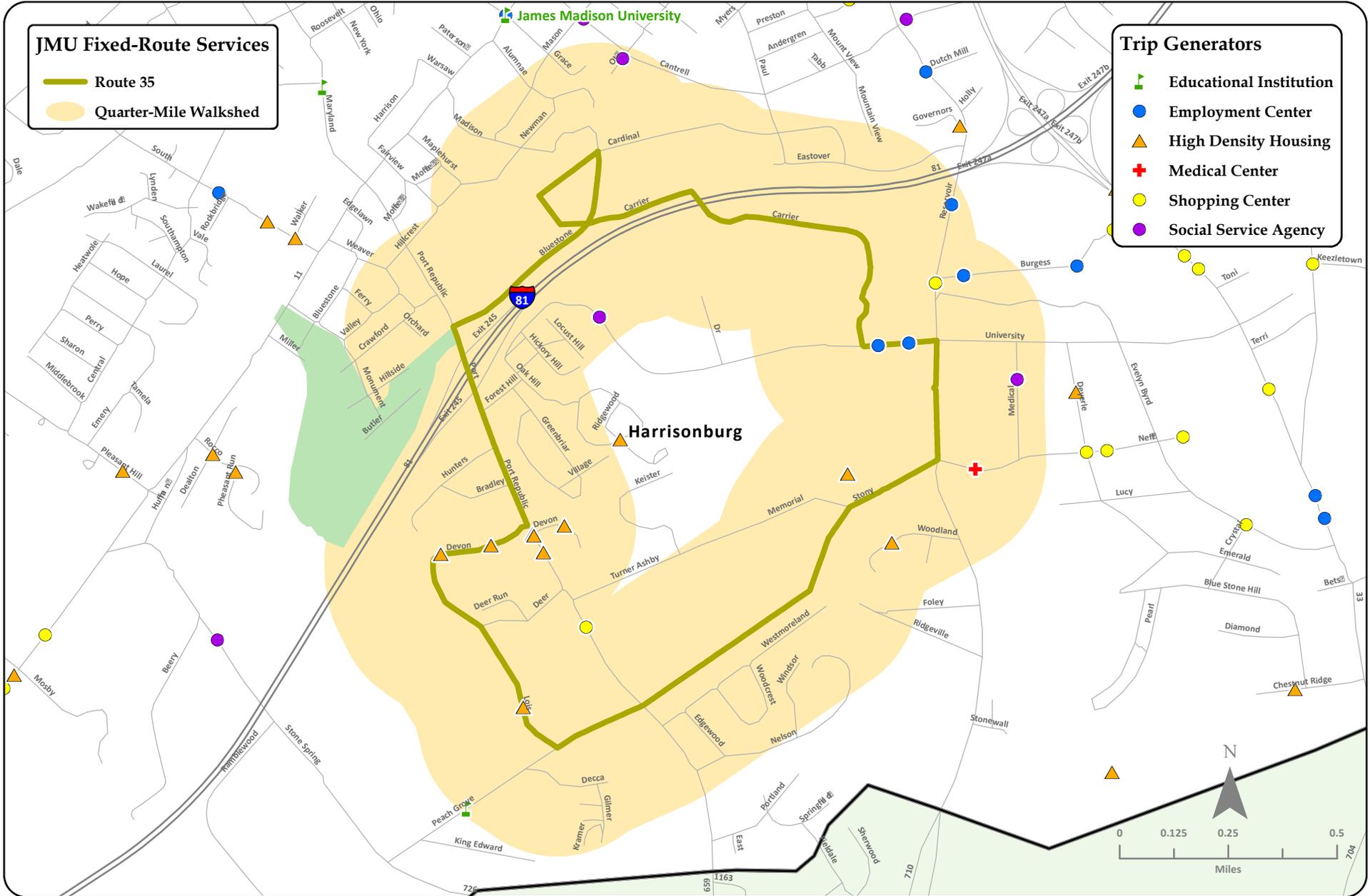
55.22

Trips per Mile: 3.97

3.97



Figure 3-21: Map and Profile for JMU Route 35



3-36

Operations Summary (FY2010):

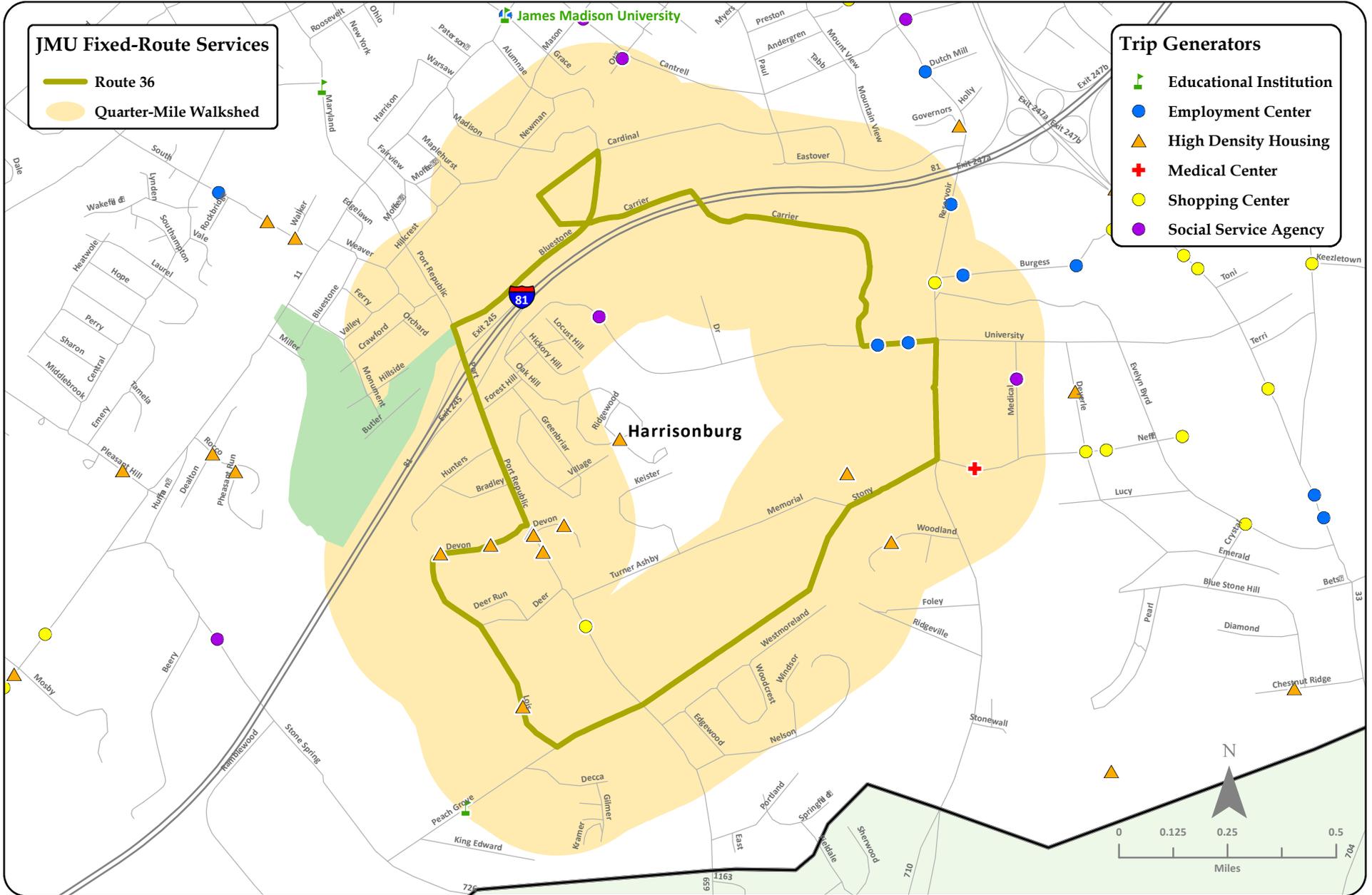
Annual Ridership: 44,299

Service Days: 50
Revenue Hours: 204
Revenue Miles: 2,272

Trips per Day: 885.98
Trips per Hour: 217.15
Trips per Mile: 19.50



Figure 3-22: Map and Profile for JMU Route 36



3-37

Operations Summary (FY2010):

Annual Ridership: 48,549

Service Days: 50

Revenue Hours: 204

Revenue Miles: 2,343

Trips per Day: 970.98

Trips per Hour: 237.99

Trips per Mile: 20.72



36,703 riders, while averaging 179.92 passenger trips per revenue hour and 15.86 passenger trips per revenue mile. Figure 3-23 displays the route alignment and location of trip generators in addition to an operations summary for the fiscal year.

Route 38

Route 38 is a JMU fixed-route shuttle during the academic year that provides a circuitous route connecting the Festival Conference and Student Center and several townhome communities, such as Charleston Townes, Copper Beech, and Pheasant Run. This evening service operates continuously from 10:00 p.m. to 2:15 a.m. on Friday and Saturday evenings. In FY 2010, the route had 21,541 riders, while averaging 105.08 passenger trips per revenue hour and 6.75 passenger trips per revenue mile. Figure 3-24 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

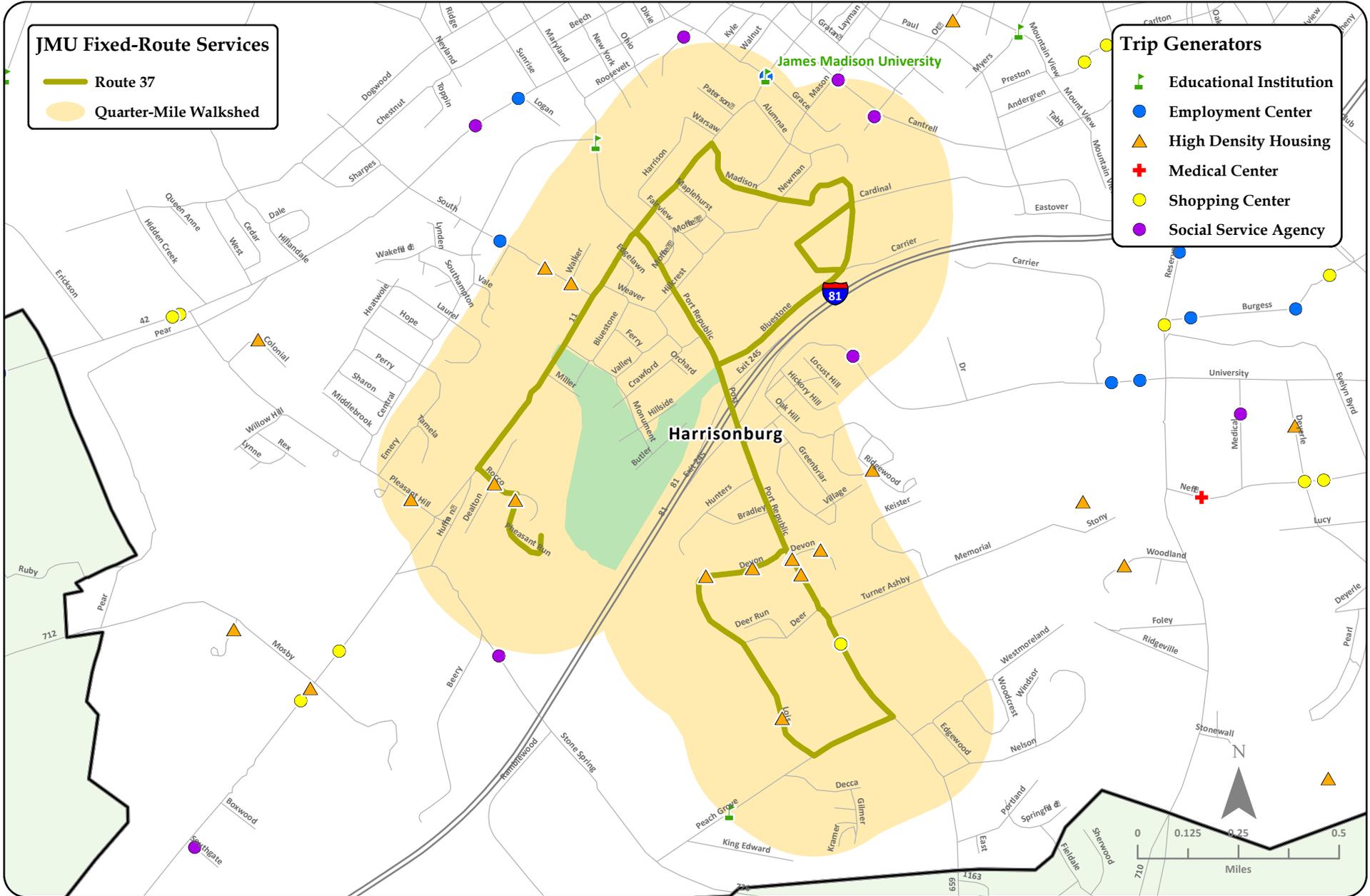
Route 39

Route 39 is a JMU fixed-route shuttle during the academic year that provides a circuitous route connecting Zane Showker Hall, the Bookstore, the Festival Conference and Student Center, and Copper Beech townhomes to the multi-unit housing developments at Stone Gate, Fox/Squire Hill, and Ashby Crossing. This evening service operates continuously from 10:00 p.m. to 2:15 a.m. on Friday and Saturday nights. In FY 2010, the route had 33,655 riders, while averaging 164.98 passenger trips per revenue hour and 11.43 passenger trips per revenue mile. Figure 3-25 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Convo Express Route

The Convo Express route provides a fixed-route shuttle during the academic year that links Convo Lot F, a commuter and resident student parking lot, on the JMU campus to Harrison Hall via Festival Conference and Student Center, the Physics and Chemistry Building, the Integrated Science and Technology and Computer Science (ISAT/CS) building, and Varner House. This weekday service begins at 7:36 a.m. at the Convo F Lot and concludes at 6:35 p.m. on Tuesdays and Thursdays at Convo F Lot. On Mondays, Wednesdays, and Fridays the service ends at Convo Lot F at 6:55 p.m. In FY 2010, the route had 46,878 riders, while averaging 42.66 passenger trips per revenue hour and 4.40 passenger trips per revenue mile. Figure 3-26 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Figure 3-23: Map and Profile for JMU Route 37



3-39

Operations Summary (FY2010):

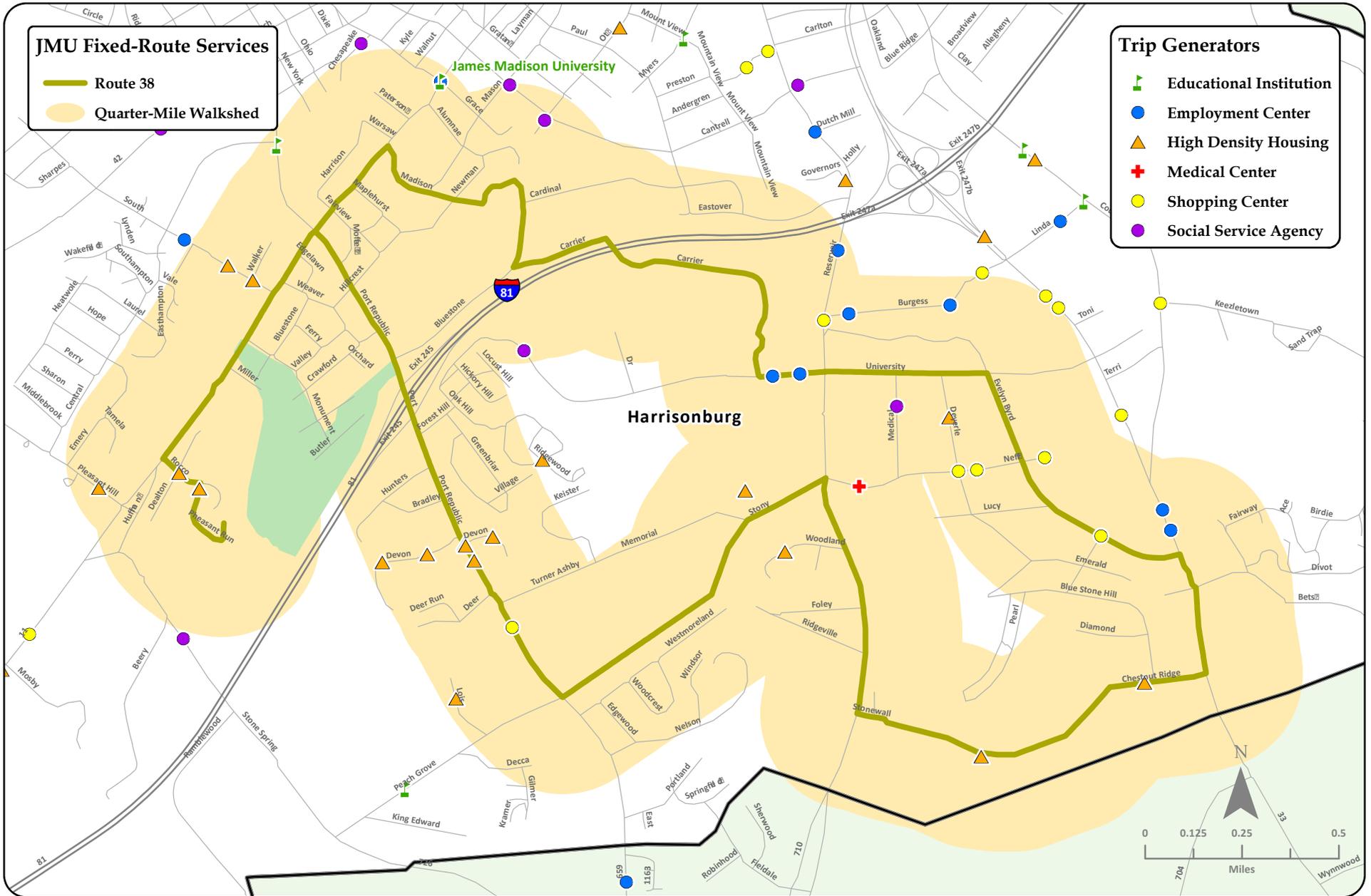
Annual Ridership: 36,703

Service Days: 50
 Revenue Hours: 204
 Revenue Miles: 2,314

Trips per Day: 734.06
 Trips per Hour: 179.92
 Trips per Mile: 15.86



Figure 3-24: Map and Profile for JMU Route 38



Operations Summary (FY2010):

Annual Ridership: 21,541

Service Days: 50

Revenue Hours: 205

Revenue Miles: 3,193

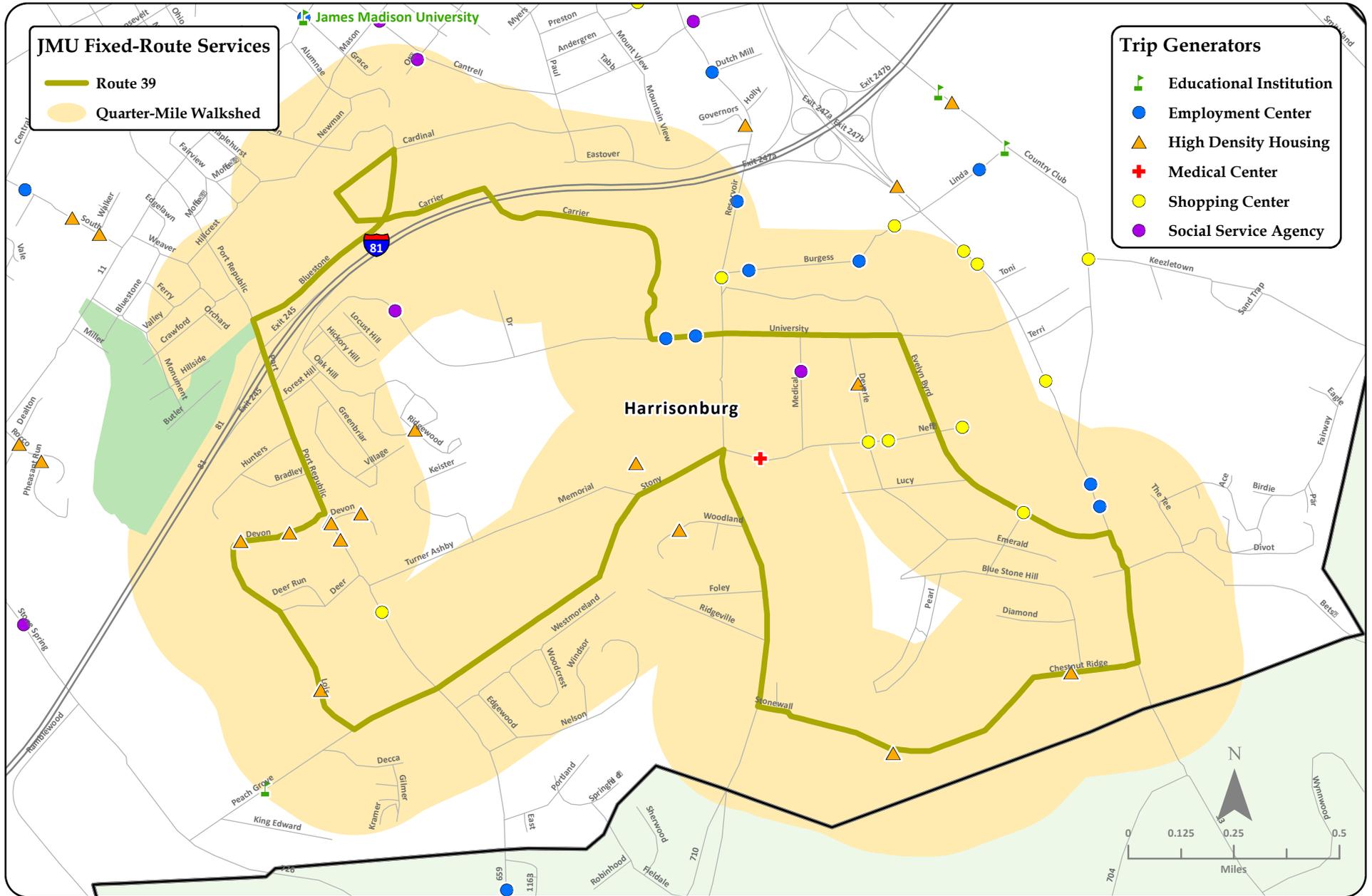
Trips per Day: 430.82

Trips per Hour: 105.08

Trips per Mile: 6.75



Figure 3-25: Map and Profile for JMU Route 39



3-41

Operations Summary (FY2010):

Annual Ridership: 33,655

Service Days: 50

Revenue Hours: 204

Revenue Miles: 2,944

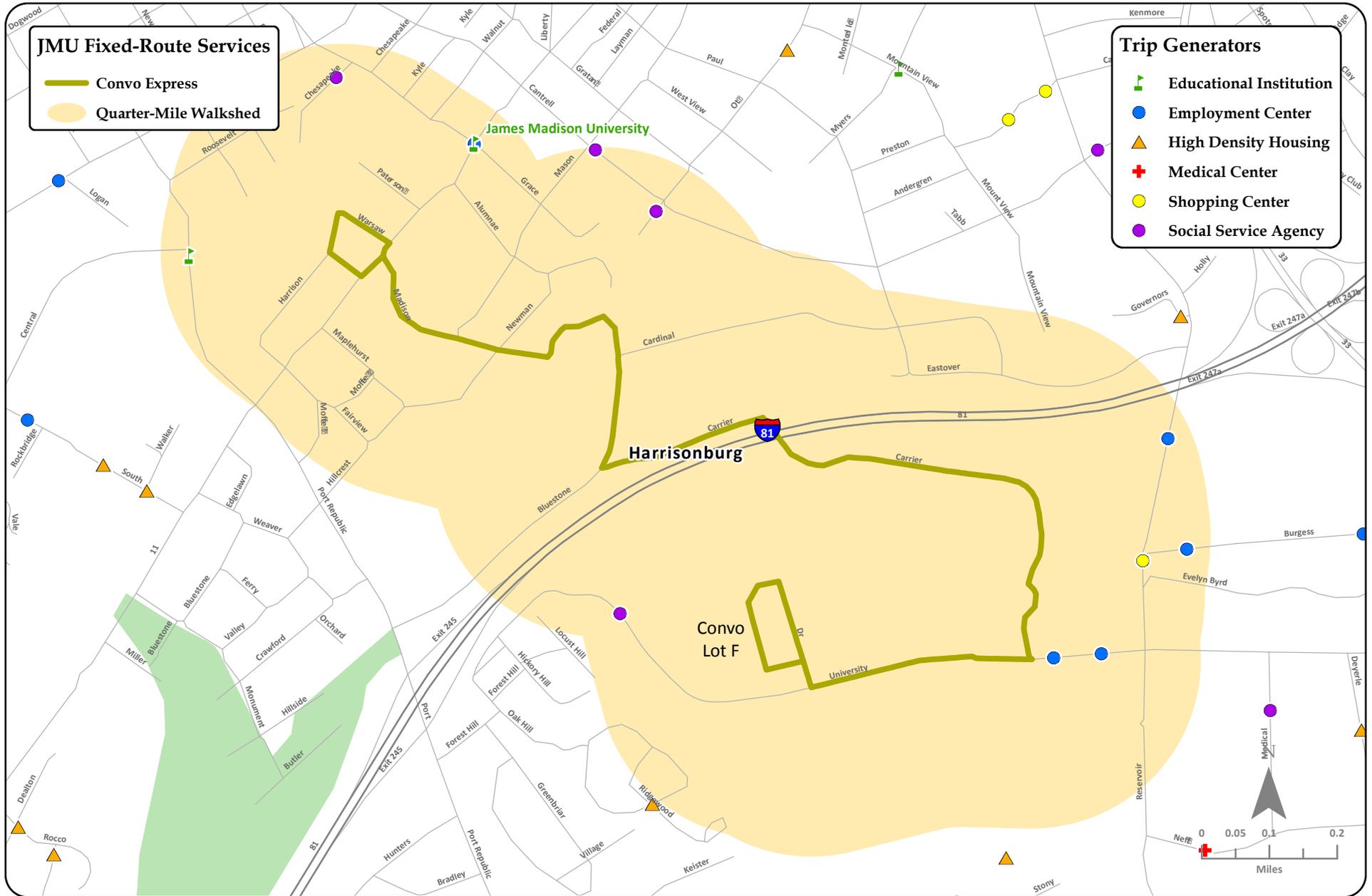
Trips per Day: 673.10

Trips per Hour: 164.98

Trips per Mile: 11.43



Figure 3-26: Map and Profile for JMU Convo Express Route



3-42

Operations Summary (FY2010):

Annual Ridership: 46,878

Service Days: 101
Revenue Hours: 1,099
Revenue Miles: 10,649

Trips per Day: 464.14
Trips per Hour: 42.66
Trips per Mile: 4.40



Inner Campus Shuttle I (ICS 1)

ICS 1 provides a fixed-route shuttle during the academic year that links Festival Conference and Student Center to the Physics and Chemistry building via the ISAT/CS building, Varner House, and Memorial Hall. This weekday service begins at 7:40 a.m. at Festival Conference and Student Center and concludes at 6:38 p.m. on Tuesdays and Thursdays at the Physics and Chemistry Building. On Mondays, Wednesdays, and Fridays the service ends at the Physics and Chemistry Building at 6:58 p.m. In FY 2010, the route had 149,098 riders, while averaging 96.01 passenger trips per revenue hour and 10.46 passenger trips per revenue mile. Figure 3-27 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Inner Campus Shuttle II (ICS 2)

ICS 2 provides a fixed-route shuttle during the academic year that links Festival Conference and Student Center to Memorial Hall via the ISAT/CS building and Varner House. On Tuesdays and Thursdays, this weekday service both begins at 7:49 a.m. and concludes at 6:55 p.m. at the Festival Conference and Student Center. On Mondays, Wednesdays, and Fridays the service starts at the same time and place, but ends at Memorial Hall at 6:58 p.m. In FY 2010, the route had 145,254 riders, while averaging 83.29 passenger trips per revenue hour and 10.39 passenger trips per revenue mile. Figure 3-28 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

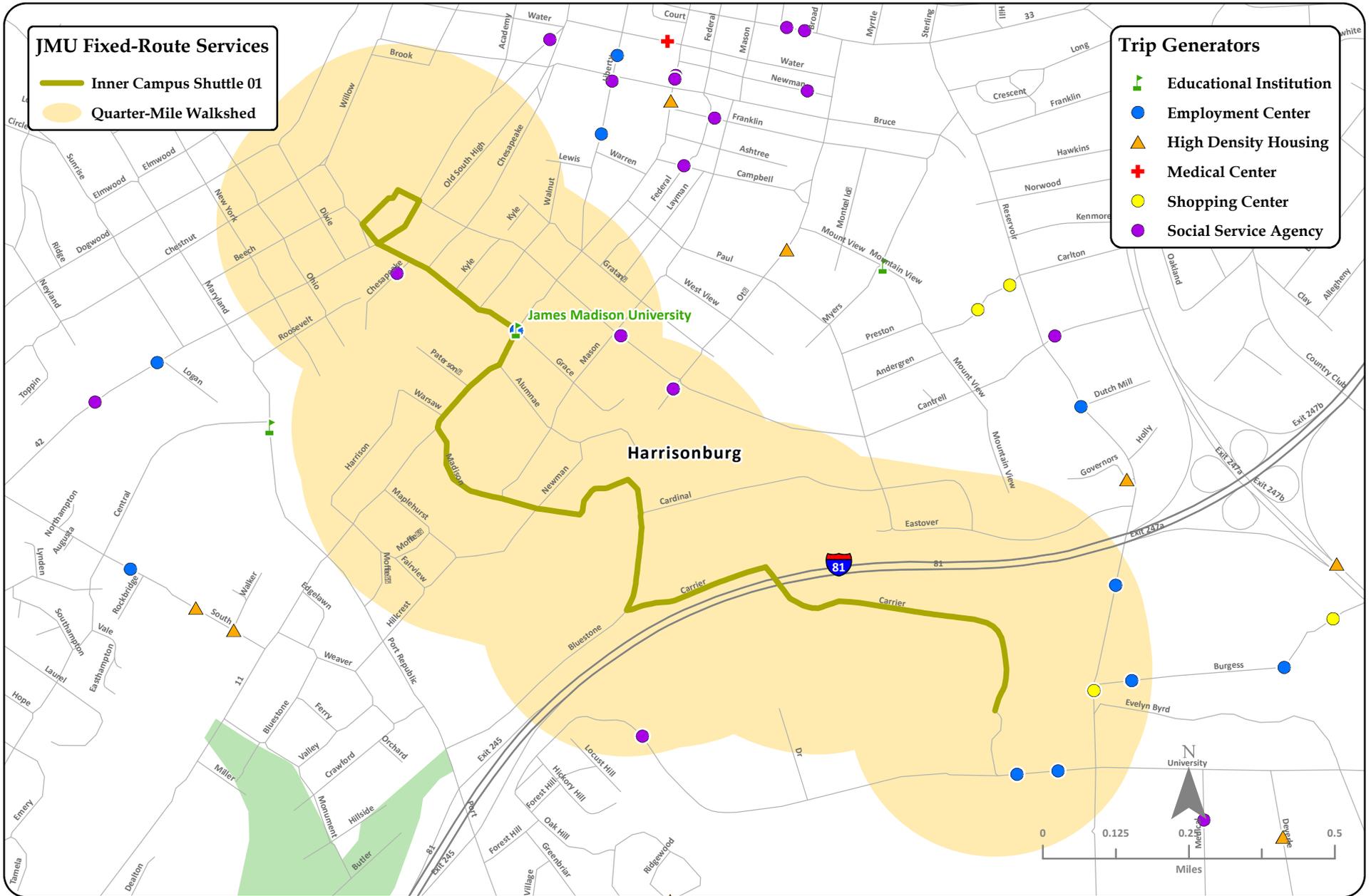
Night Campus Shuttle

The Night Campus Shuttle provides a fixed-route shuttle during the academic year that links Memorial Hall to the Bookstore via Festival Conference and Student Center and JMU campus. This weekday evening service begins at 7:05 p.m. at Festival Conference and Student Center and concludes at 9:54 p.m. at Festival Conference and Student Center. In FY 2010, the route had 18,579 riders, while averaging 47.15 passenger trips per revenue hour and 4.50 passenger trips per revenue mile. Figure 3-29 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Weekday and Weekend Shopper Routes

The Weekday Shopper provides a fixed-route shuttle during the academic year that links Godwin Hall to Walmart via the Festival Conference and Student Center. Tuesday and Thursday service extends past Walmart to the mall entrance and East Market Street every third run. Monday, Wednesday, and Friday service extends past

Figure 3-27: Map and Profile for JMU Inner Campus Shuttle 1



3-44

Operations Summary (FY2010):

Annual Ridership: 149,098

Service Days: 153

153

Trips per Day: 974.50

974.50

Revenue Hours: 1,553

1,553

Trips per Hour: 96.01

96.01

Revenue Miles: 14,251

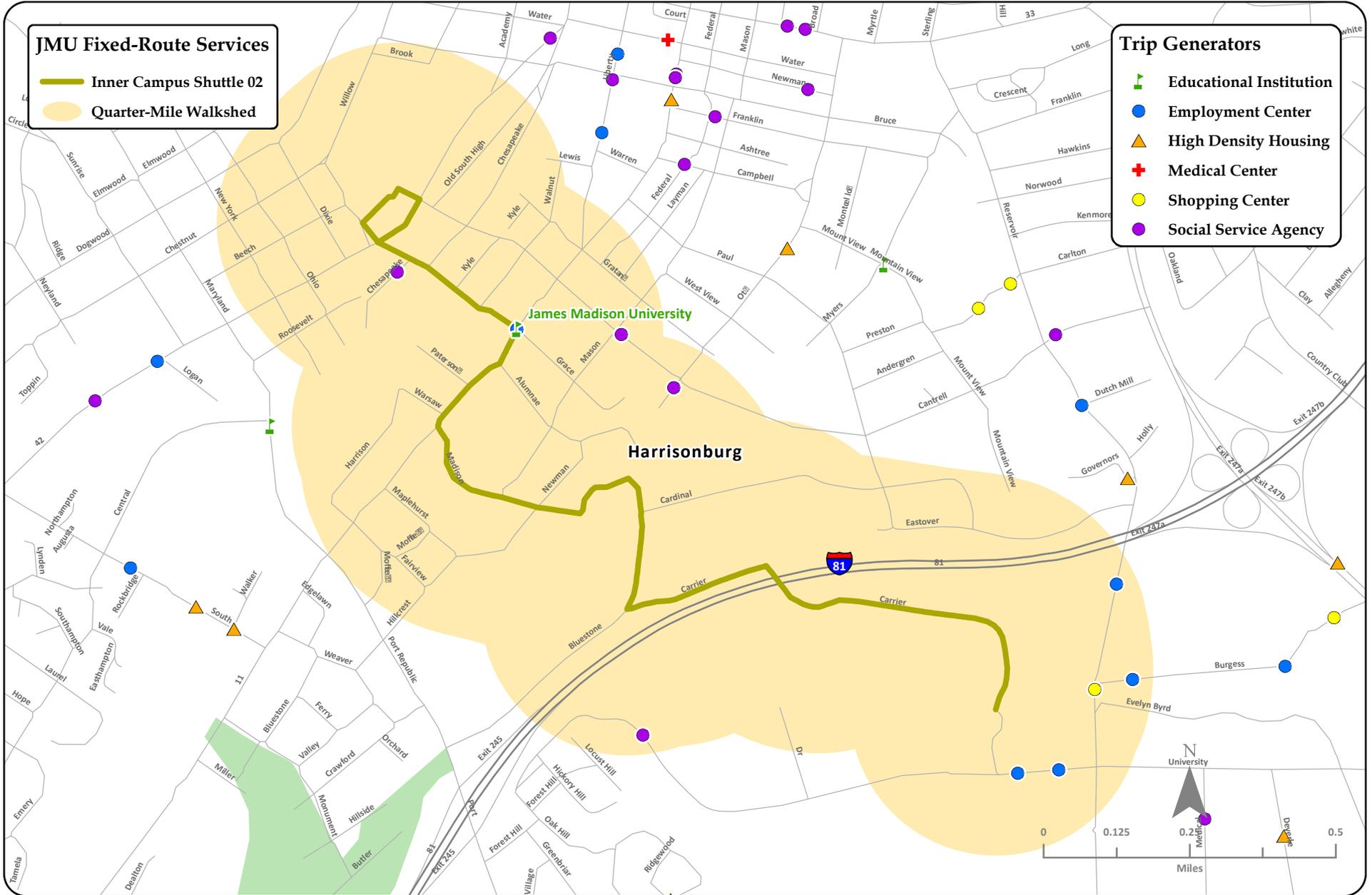
14,251

Trips per Mile: 10.46

10.46



Figure 3-28: Map and Profile for JMU Inner Campus Shuttle 2



3-45

Operations Summary (FY2010):

Annual Ridership: 145,254

Service Days: 151

151

Trips per Day: 961.95

961.95

Revenue Hours: 1,744

1,744

Trips per Hour: 83.29

83.29

Revenue Miles: 13,983

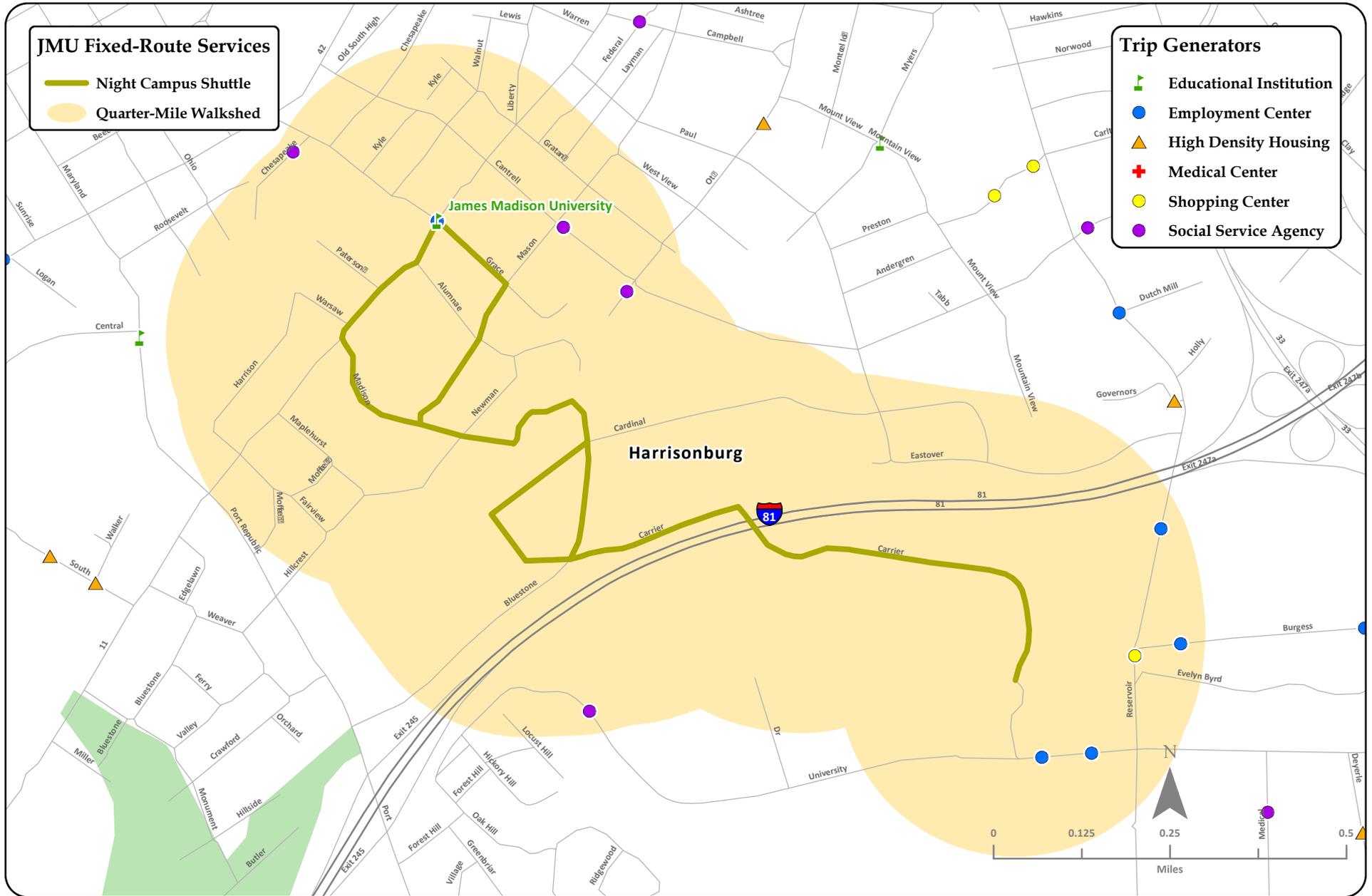
13,983

Trips per Mile: 10.39

10.39



Figure 3-29: Map and Profile for JMU Night Campus Shuttle



Operations Summary (FY2010):

Annual Ridership: 18,579

Service Days: 144
 Revenue Hours: 394
 Revenue Miles: 4,127

Trips per Day: 129.02
 Trips per Hour: 47.15
 Trips per Mile: 4.50



Walmart to the mall entrance at East Market Street every other run. Tuesday and Thursday service begins at 8:54 a.m. at Godwin Hall and concludes at 6:52 p.m. at Godwin Hall. Monday, Wednesday, and Friday service begins at 8:55 a.m. at Godwin Hall and concludes at 7:12 p.m. at Godwin Hall.

The Weekend Shopper provides a fixed-route shuttle during the academic year that links Godwin Hall to Valley Mall via the Festival Conference and Student Center and Walmart. Every third run service loops back to Festival Conference and Student Center via the multi-unit housing developments of Sunchase, Stone Gate, Fox/Squire Hill, and Ashby Crossing. This weekend service begins at 9:00 a.m. at Godwin Hall and concludes at 6:11 p.m. at Godwin Hall.

In FY 2010, the Shopper routes had 79,705 riders, while averaging 43.94 passenger trips per revenue hour and 4.74 passenger trips per revenue mile. Figure 3-30 is a map displaying the route alignments, an operations summary for FY 2010, and the location of trip generators in the routes' general vicinity.

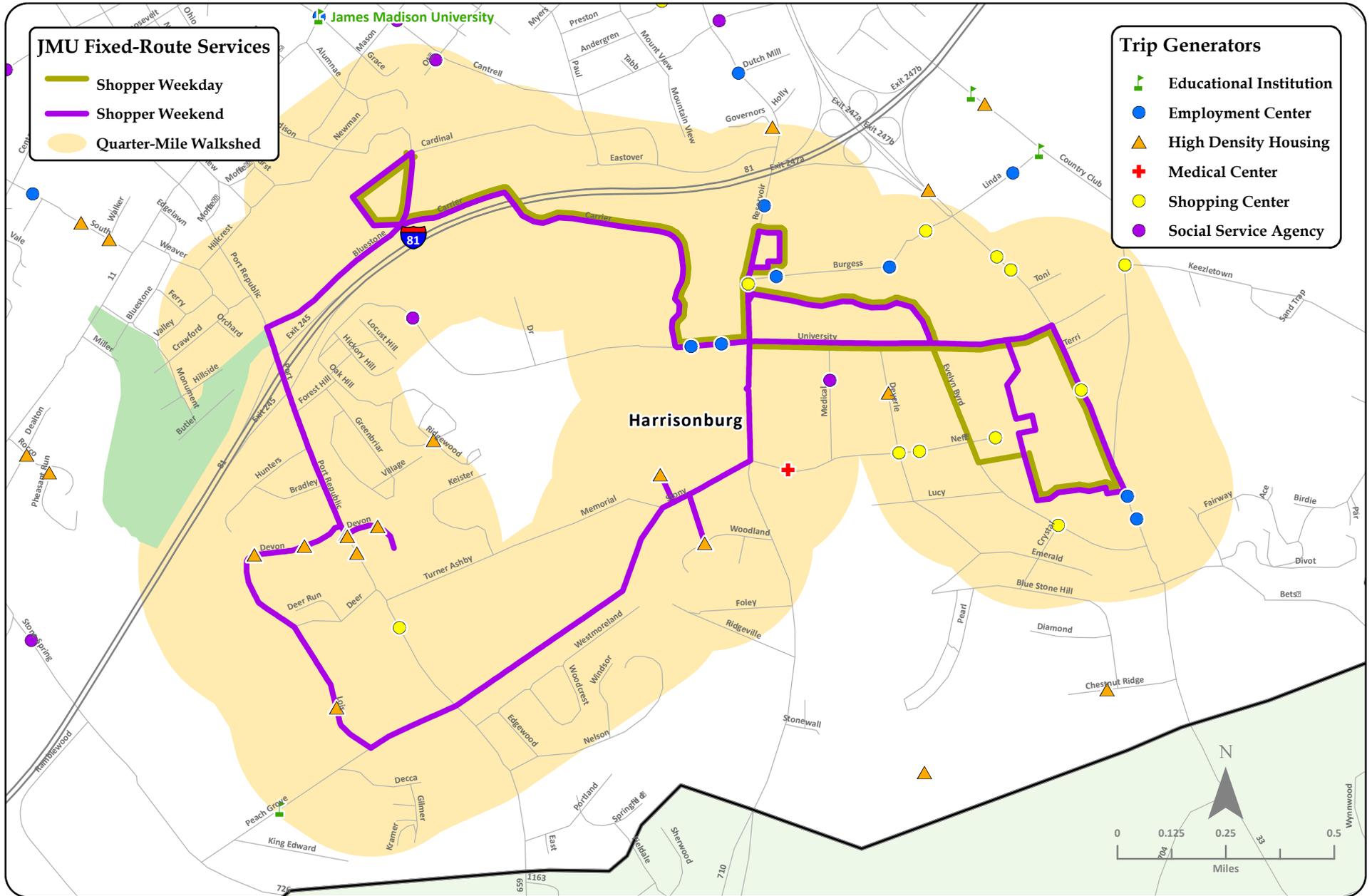
Sunday Shuttle 1

Sunday Shuttle 1 is a fixed-route shuttle during the academic year that provides a circuitous route connecting the Bookstore, Festival Conference and Student Center, Walmart, Valley Mall, Cloverleaf Shopping Center, and multi-unit housing developments along Chestnut Ridge and Reservoir Street. This Sunday service begins at 11:00 a.m. at the Bookstore and concludes at 10:50 p.m. at the Bookstore. In FY 2010, the route had 14,312 riders, while averaging 45.15 passenger trips per revenue hour and 3.16 passenger trips per revenue mile. Figure 3-31 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Sunday Shuttle 2

Sunday Shuttle 2 is a fixed-route shuttle during the academic year that links the Bookstore, Varner House, multi-unit housing developments of Hunter's Ridge, Ashby Crossing and South View, and Zane Showker Hall. This Sunday service begins at 1:00 p.m. at the Bookstore and concludes at 11:49 p.m. at the Bookstore. In FY 2010, the route had 3,564 riders, while averaging 12.25 passenger trips per revenue hour and 0.87 passenger trips per revenue mile. Figure 3-32 is a map displaying the route alignment, an operations summary for FY 2010, and the location of trip generators in the route's general vicinity.

Figure 3-30: Map and Profile for JMU Shopper Routes



3-48

Operations Summary (FY2010):

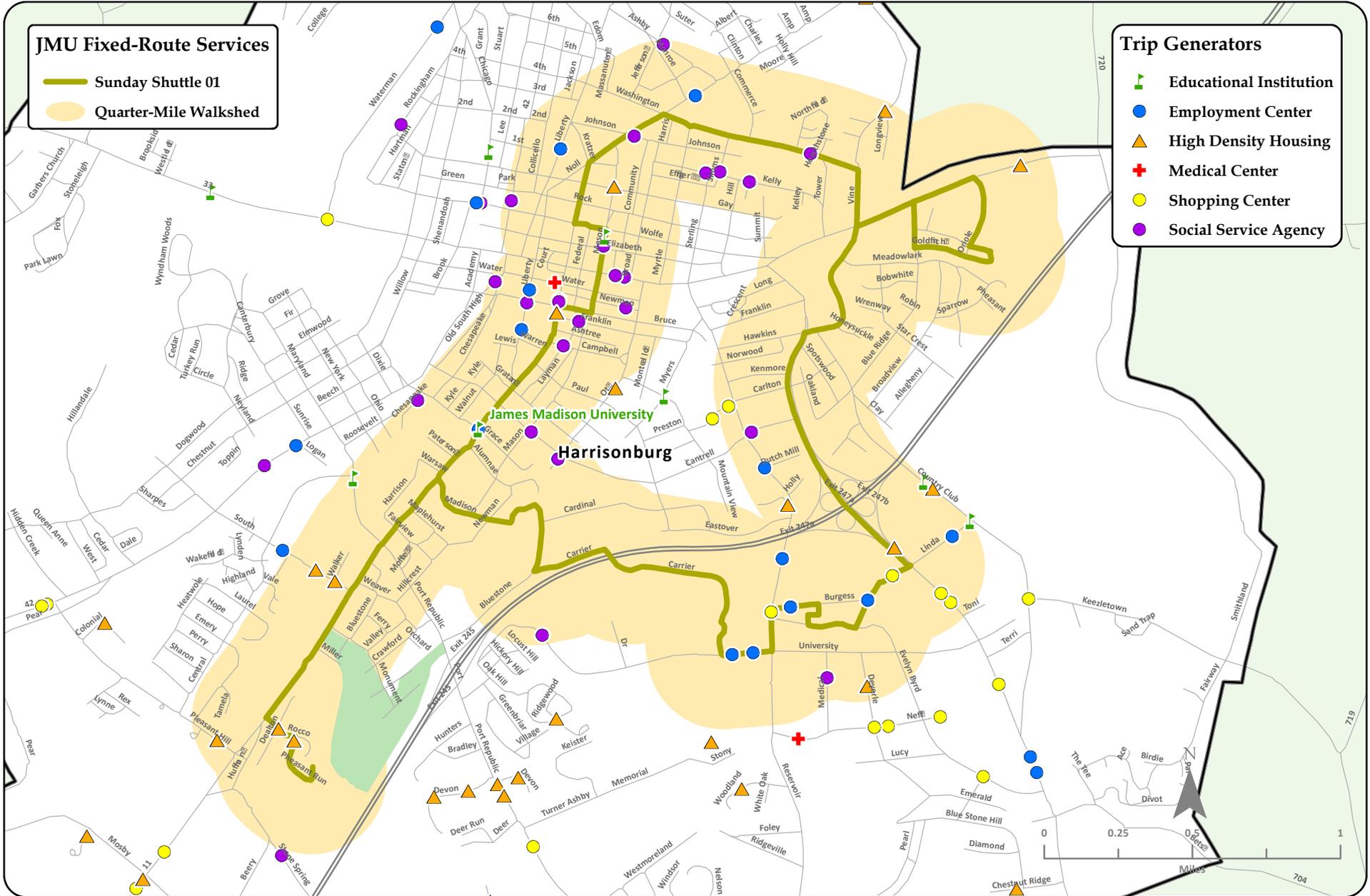
Annual Ridership: 79,705

Service Days: 183
Revenue Hours: 1,814
Revenue Miles: 16,812

Trips per Day: 435.55
Trips per Hour: 43.94
Trips per Mile: 4.74



Figure 3-31: Map and Profile for JMU Sunday Shuttle 1



3-49

Operations Summary (FY2010):

Annual Ridership: 14,312

Service Days: 29

29

Revenue Hours: 317

317

Revenue Miles: 4,524

4,524

Trips per Day: 493.52

493.52

Trips per Hour: 45.15

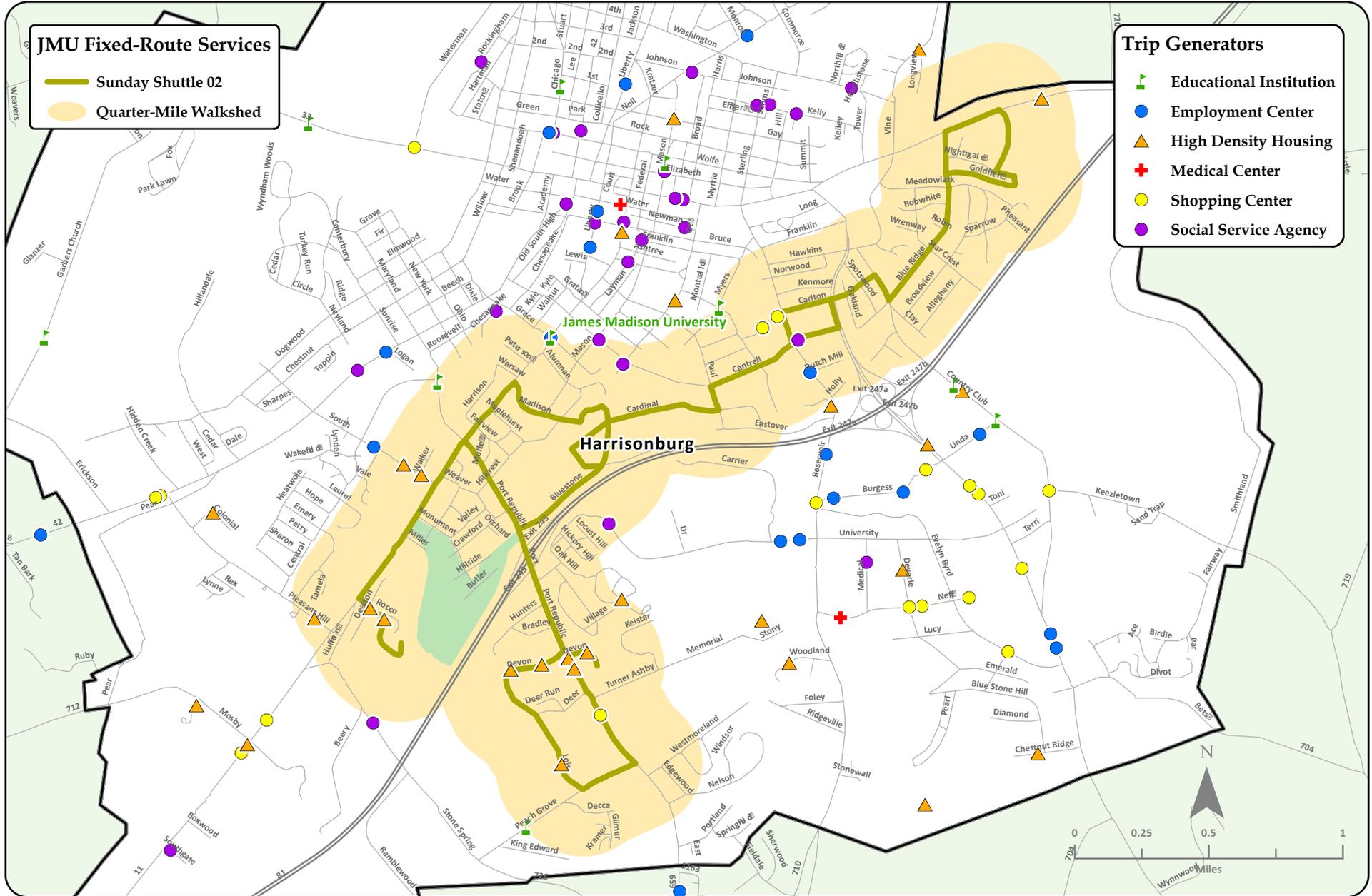
45.15

Trips per Mile: 3.16

3.16



Figure 3-32: Map and Profile for JMU Sunday Shuttle 2



Operations Summary (FY2010):

Annual Ridership: 3,564

Service Days: 29
Revenue Hours: 291
Revenue Miles: 4,077

Trips per Day: 122.90
Trips per Hour: 12.25
Trips per Mile: 0.87



Other Transit Services

Church Shuttle

The Church Shuttle is a scheduled service that operates on Sundays during the academic year. Three trips are provided on Sunday mornings at 8:35 a.m., 9:35 a.m., and 10:25 a.m. leaving from the Festival Conference and Student Center and the Bookstore before serving houses of worship within Harrisonburg as requested by riders. Passengers inform the driver of the time they would like to be picked up, and they must return to campus by 1:00 p.m.

Paratransit Service

HDPT's paratransit service is provided for eligible persons with disabilities, as described by the Americans with Disabilities Act (ADA), within the City of Harrisonburg. Persons with disabilities who cannot use the fixed-route transit services must apply for a paratransit card with HDPT in order to use the paratransit service. The paratransit service generally mirrors the operation hours of the fixed-route system, from 6:38 a.m. to 7:00 p.m. during the week and from 8:38 a.m. to 6:00 p.m. on Saturdays. During the JMU academic year when the fixed-route buses are running, paratransit service hours also start at 6:38 a.m. during the week, and end at midnight Monday through Thursday and at 2:15 a.m. on Fridays. Saturday service operates between 8:38 a.m. and 2:15 a.m., while Sunday service runs from 11:00 a.m. to midnight.

Passengers using paratransit service need to call 24 hours in advance to schedule their trip. This service is curb-to-curb only, and HDPT has a policy in which drivers are not allowed to enter homes or destinations to assist passengers. HDPT also has a "no-show" policy in place, where the City has the right to suspend a passenger's eligibility to use paratransit service if the passenger repeatedly fails to notify HDPT ahead of time that they need to cancel a scheduled trip.

HDPT uses a fleet of eight paratransit vehicles to provide service. In FY 2010, HDPT provided 18,592 passenger trips for ADA paratransit riders. Table 3-4 provides the ADA paratransit operating statistics for FY 2008-FY 2010. As these data show, the program was smaller in FY 2010 than it was in FY 2009 or FY 2008, both in terms of service supplied and passenger trips.

Expenses and Revenue

In FY 2010, HDPT's operating budget was \$3,261,899 and the actual operating expenditures were \$2,907,180. HDPT's budget was higher than its expenses largely due

**Table 3-4: ADA Paratransit
FY 2008-FY 2010 Operating Statistics**

| | Passenger Trips | Revenue Hours | Revenue Miles | Expenses | Fare Revenue | Trips/ Hour | Trips/ Mile | Cost/ Trip | Fare Recovery |
|-------------|----------------------------|--------------------------|--------------------------|-----------------|-------------------------|------------------------|------------------------|-----------------------|--------------------------|
| FY 2008 | 22,691 | 10,434 | 94,577 | \$ 546,013 | \$ 70,751 | 2.17 | 0.24 | 24.06 | 13% |
| FY 2009 | 22,807 | 10,307 | 89,339 | \$ 549,878 | \$ 70,358 | 2.21 | 0.26 | 24.11 | 13% |
| FY 2010 (1) | 18,592 | 8,949 | 75,380 | \$ 486,377 | \$ 105,774 | 2.08 | 0.25 | 26.16 | 22% |

Source: NTD and HDPT.

(1) Expenses are estimated. The FY10 fare revenue includes a portion of the JMU contract.

to lower than expected fuel, parts, and insurance/bonding expenses. For FY11, the budget is \$3,273,653.

The largest single revenue source for HDPT is the contractual revenue received from JMU (\$1.4 million for FY 2011). The net deficit is funded through the Federal S.5307 program, state funds, local funds, and MPO (Federal S.5303) funds. The FY 2011 budget is detailed in Table 3-5.

On-Board Rider Survey

An important task within the Harrisonburg TDP process was the acquisition of more information about current public transportation trip patterns, rider characteristics, rider satisfaction with the service, and suggestions for service improvements. In order to collect these data, an on-board rider survey was conducted. The surveys were administered between November 15th and 18th, 2010. Survey participants were bus riders who completed a two-page survey, distributed by JMU students and employees of the consulting firm, during their trips. The participants were instructed to only complete one survey. A copy of the questionnaire is provided as Appendix A. The results of the survey are described in detail below, with Table 3-6 offering an overview of these findings. These results are further disaggregated between the City routes and the JMU routes in Appendix B.

Trip Patterns of Surveyed Riders

The HDPT on-board rider survey was completed by 1,555 passengers. The most number of surveys received were from Route 9 (11.45%), followed by Route 15 (9.77%), the ICS II route (8.87%), Route 14 (8.04%), and Route 16 (7.85%). The least number of surveys were returned from riders of Route 10 (0.45%) and Route 8 (0.84%), which were the only two routes under a 1% share. With regard to arriving and departing from the bus stop, walking was the most popular selection of mode with 88.17% of surveyed riders arriving to their stop, and 90.03% completing their trip, via walking. According to the survey responses, the five most common origins for riders to board the bus were all located on JMU's campus, with the bus stop outside Godwin Hall (270) being the most popular, followed by the Festival Conference and Student Center (111), Warren Hall (104), Hoffman Hall (87), and Memorial Hall (81). As for common destinations of survey respondents, sites on JMU's campus were also among the most prevalent with the Department of Integrated Science and Technology (150) ranking first, followed by Memorial Hall (102), the Festival Conference and Student Center (77), South View Apartments (72), and Godwin Hall (54). As for trip purpose, unsurprisingly, the majority of survey respondents listed the reason of their surveyed trip as being school-related (82.70%), with work (6.62%) being the next most common trip purpose.

Table 3-5: HDPT FY11 Budget

| | FY11 Budget Amount |
|---|---------------------------|
| <u>Expenses</u> | |
| Salaries and Wages | \$1,710,230 |
| Fringe Benefits | \$419,928 |
| Education & Training | \$500 |
| Cleaning Supplies | \$20,000 |
| Educational & First Aid Supplies | \$2,000 |
| Motor Fuels & Lubricants | \$462,300 |
| Parts | \$240,000 |
| Office Supplies & Materials | \$10,500 |
| Building & Grounds Supplies & Materials | \$2,000 |
| Uniforms | \$5,000 |
| Travel | \$10,000 |
| Communication Services | \$4,000 |
| Utilities | \$20,000 |
| Contracted Repairs & Maintenance | \$4,500 |
| Advertising & Promotion Media | \$10,000 |
| Data Processing--Programming | \$8,000 |
| Drug Testing | \$8,000 |
| Service & Maintenance Contracts | \$45,000 |
| Insurance & Bonding | \$270,995 |
| Indirect Cost | \$3,700 |
| Purchase Transportation Services | \$15,000 |
| Professional Services | \$2,000 |
| | |
| Total Operating Expenses | \$3,273,653 |
| | |
| <u>Revenues</u> | |
| Contract Revenue | \$1,400,000 |
| Passenger Revenue | \$114,500 |
| Other Revenue | \$0 |
| Total Revenues | \$1,514,500 |
| | |
| Deficit | \$1,759,153 |
| | |
| <u>Funding Assistance</u> | |
| | |
| FEDERAL ASSISTANCE FY10 - S.5307 | \$1,000,000 |
| MPO Funds - S.5303 | \$34,000 |
| State Funding | \$550,000 |
| Local Funding | \$175,153 |
| | |
| Total Funding Assistance | \$1,759,153 |

**Table 3-6: Harrisonburg Department of Public Transportation
On-Board Rider Survey Summary**

Surveying conducted from Monday, November 15th, 2010 through Thursday, November 18th, 2010

Q1: What bus route are you currently riding?

| | | | |
|-----------|---------------|----------------|--------------|
| Route 1: | <u>2.51%</u> | Route 12: | <u>1.99%</u> |
| Route 2: | <u>3.28%</u> | Route 13: | <u>7.65%</u> |
| Route 3: | <u>3.60%</u> | Route 14: | <u>8.04%</u> |
| Route 4: | <u>1.35%</u> | Route 15: | <u>9.77%</u> |
| Route 5: | <u>3.09%</u> | Route 16: | <u>7.85%</u> |
| Route 6: | <u>3.99%</u> | Convo Express: | <u>7.59%</u> |
| Route 7: | <u>6.69%</u> | ICS I: | <u>7.78%</u> |
| Route 8: | <u>0.84%</u> | ICS II: | <u>8.87%</u> |
| Route 9: | <u>11.45%</u> | Shopper: | <u>3.15%</u> |
| Route 10: | <u>0.45%</u> | (No response): | <u>0.06%</u> |

Q2: How did you get from your starting place to the bus stop for this trip?

| | | | |
|-----------------------|---------------|-------------------------|--------------|
| Walked: | <u>88.17%</u> | Dropped off by someone: | <u>1.93%</u> |
| Bicycled: | <u>0.96%</u> | Other: | <u>2.96%</u> |
| Drove car and parked: | <u>4.05%</u> | (No response): | <u>1.93%</u> |

Q3: What was the location where you boarded this bus?

- #1: JMU: Godwin Hall
- #2: JMU: Festival Conference & Student Center
- #3: JMU: Warren Hall
- #4: JMU: Hoffman Hall
- #5: JMU: Memorial Hall

Q4: Did you or will you have to transfer buses in order to complete this trip?

| | | | |
|-----------------------------|---------------|----------------|---------------|
| Yes, one transfer: | <u>10.48%</u> | No: | <u>86.75%</u> |
| Yes, two or more transfers: | <u>1.54%</u> | (No response): | <u>1.22%</u> |

Q5: What bus route(s) will you transfer to or did you transfer from?

| | | | |
|-----------|--------------|----------------|---------------|
| Route 1: | <u>1.99%</u> | Route 12: | <u>0.26%</u> |
| Route 2: | <u>1.93%</u> | Route 13: | <u>0.39%</u> |
| Route 3: | <u>1.41%</u> | Route 14: | <u>0.26%</u> |
| Route 4: | <u>1.09%</u> | Route 15: | <u>0.39%</u> |
| Route 5: | <u>1.80%</u> | Route 16: | <u>0.19%</u> |
| Route 6: | <u>0.13%</u> | Convo Express: | <u>0.06%</u> |
| Route 7: | <u>0.13%</u> | ICS I: | <u>0.45%</u> |
| Route 8: | <u>0.32%</u> | ICS II: | <u>0.77%</u> |
| Route 9: | <u>0.58%</u> | Shopper: | <u>0.13%</u> |
| Route 10: | <u>0.45%</u> | (No response): | <u>88.30%</u> |

Q6: How will you get to your ending place from the last bus you ride for this trip?

| | | | |
|---------------|---------------|-----------------------|--------------|
| Walk: | <u>90.03%</u> | Picked up by Someone: | <u>1.22%</u> |
| Bicycle: | <u>0.77%</u> | Other: | <u>0.90%</u> |
| Drive my car: | <u>1.86%</u> | (No response): | <u>5.21%</u> |

Q7: What is your destination?

- #1: JMU: Department of Integrated Science and Technology
- #2: JMU: Memorial Hall
- #3: JMU: Festival Conference & Student Center
- #4: South View Apartments
- #5: JMU: Godwin Hall

**Table 3-6: Harrisonburg Department of Public Transportation
On-Board Rider Survey Summary**

Q8: What is the purpose of your bus trip today? (You may check more than one)

| | | | |
|--------------------|---------------|----------------------------|--------------|
| Work: | <u>6.62%</u> | Medical: | <u>1.29%</u> |
| Shopping: | <u>4.37%</u> | Government Service Agency: | <u>0.45%</u> |
| School: | <u>82.70%</u> | Other: | <u>5.47%</u> |
| Social/Recreation: | <u>4.31%</u> | (No response): | <u>0.32%</u> |

Q9: Could you have used a car/truck/motorcycle to make this trip?

| | | | |
|----------------|---------------|-----|---------------|
| Yes: | <u>46.05%</u> | No: | <u>52.22%</u> |
| (No response): | <u>1.74%</u> | | |

Q10: If HDPT were to make service improvements, what would be your top three choices?

- #1: Increased Frequency of Service
- #2: Later Hours of Service
- #3: Improved Adherence to Schedule
- #4: Expansion of Routes and Services
- #5: Addition of Weekend Service
- #6: Addition of Bus Stops
- #7: Staggered Schedules
- #7: Addition of Real-Time Route Information
- #9: Friendliness of Drivers
- #10: Earlier Hours of Service

Q11: If HDPT were to serve additional areas, what would be your top three choices?

- #1: Downtown Harrisonburg
- #2: North 38 Apartments
- #3: Copper Beach Town Homes
- #4: Charleston Townes
- #5: JMU: Memorial Hall
- #5: Valley Mall
- #5: Wal-Mart
- #8: JMU: University Recreation Equipment Center
- #9: Sunchase Apartments
- #10: Massanutten

Q12: Please rate your satisfaction with HDPT services in the following areas:

| | <u>VS</u> | <u>S</u> | <u>U</u> | <u>VU</u> |
|------------------------------|---------------|---------------|---------------|--------------|
| On-time performance: | <u>26.28%</u> | <u>64.27%</u> | <u>8.83%</u> | <u>0.62%</u> |
| Convenience of bus routes: | <u>24.54%</u> | <u>65.70%</u> | <u>9.21%</u> | <u>0.55%</u> |
| Convenience of bus stops: | <u>30.37%</u> | <u>61.98%</u> | <u>7.02%</u> | <u>0.62%</u> |
| Days of service: | <u>29.21%</u> | <u>56.15%</u> | <u>13.12%</u> | <u>1.52%</u> |
| Hours of service: | <u>20.26%</u> | <u>50.72%</u> | <u>26.26%</u> | <u>2.76%</u> |
| Frequency of service: | <u>23.41%</u> | <u>52.98%</u> | <u>21.61%</u> | <u>2.01%</u> |
| Cost of bus fare: | <u>79.75%</u> | <u>18.93%</u> | <u>0.84%</u> | <u>0.49%</u> |
| Cleanliness of the buses: | <u>63.63%</u> | <u>34.92%</u> | <u>1.10%</u> | <u>0.35%</u> |
| Driver courtesy: | <u>59.55%</u> | <u>37.01%</u> | <u>2.96%</u> | <u>0.48%</u> |
| Availability of information: | <u>53.12%</u> | <u>43.56%</u> | <u>2.77%</u> | <u>0.55%</u> |
| Safety and security: | <u>56.27%</u> | <u>41.93%</u> | <u>1.46%</u> | <u>0.35%</u> |
| Telephone customer service: | <u>36.39%</u> | <u>57.49%</u> | <u>4.86%</u> | <u>1.25%</u> |
| Usefulness of HDPT website: | <u>44.25%</u> | <u>50.37%</u> | <u>4.65%</u> | <u>0.74%</u> |

**Table 3-6: Harrisonburg Department of Public Transportation
On-Board Rider Survey Summary**

| | | | |
|--|---------------|------------------------|---------------|
| Q13: How would you classify yourself? | | | |
| African American: | <u>8.87%</u> | Native American: | <u>0.39%</u> |
| Asian American: | <u>5.98%</u> | Other: | <u>3.99%</u> |
| Caucasian: | <u>70.42%</u> | (No response): | <u>6.17%</u> |
| Hispanic/Latino: | <u>4.18%</u> | | |
| Q14: Are you (Gender): | | | |
| Male: | <u>33.76%</u> | (No response): | <u>6.37%</u> |
| Female: | <u>59.87%</u> | | |
| Q15: Do you have a driver's license? | | | |
| Yes: | <u>62.19%</u> | (No response): | <u>30.16%</u> |
| No: | <u>7.65%</u> | | |
| Q16: How many vehicles (cars, trucks, motorcycles) are available in the household where you live? | | | |
| 0: | <u>15.69%</u> | 3: | <u>20.90%</u> |
| 1: | <u>24.05%</u> | 4 or more: | <u>16.01%</u> |
| 2: | <u>15.95%</u> | (No response): | <u>7.40%</u> |
| Q17: Please indicate your age group: | | | |
| Under 12 years old: | <u>0.13%</u> | 56-64 years old: | <u>0.51%</u> |
| 12-17 years old: | <u>3.09%</u> | 65 years old or older: | <u>0.39%</u> |
| 18-25 years old: | <u>84.37%</u> | (No response): | <u>6.05%</u> |
| 26-55 years old: | <u>5.47%</u> | | |
| Q18: Which of the following best describes your current employment status? (You may check more than o | | | |
| Employed, full-time: | <u>3.41%</u> | Student, part-time: | <u>6.56%</u> |
| Employed, part-time: | <u>15.88%</u> | Homemaker: | <u>0.26%</u> |
| Retired: | <u>0.32%</u> | Unemployed: | <u>8.30%</u> |
| Student, full-time: | <u>72.99%</u> | Other: | <u>0.84%</u> |
| Q19 :What is your annual household income level? | | | |
| \$14,999 or less: | <u>35.82%</u> | \$60,000-\$74,999: | <u>6.24%</u> |
| \$15,000-\$29,999: | <u>4.44%</u> | \$75,000 or higher: | <u>20.19%</u> |
| \$30,000-\$44,999: | <u>4.95%</u> | (No response): | <u>23.41%</u> |
| \$\$45,000-\$59,999: | <u>4.95%</u> | | |

The vast majority of surveyed bus riders completed their trip without having to transfer to another bus (86.75%), with only 1.54% of respondents stating that they had to make two or more transfers to complete their surveyed trip. However, among the 12.02% of bus riders, who reported having to make at least one transfer to complete their intended trip, the five most common services were the HDPT routes that provide City service, including: Route 1 (1.99%), Route 2 (1.93%), Route 5 (1.80%), Route 3 (1.41%), and Route 4 (1.09%). Further analysis of the surveyed transfers (Table 3-7) reveals the most common pairing of transferred trips occurred between Route 1 and Route 5 with 25 recorded trips utilizing these separate services. The second most prevalent pairing was between Route 2 and Route 3, which accounted for 15 transferred trips; followed by the grouping of Route 3 and Route 5, which amassed 13 trips in which riders utilized both routes to complete their anticipated trip. The next most common pairings were the connection between Route 1 and Route 2 with 12 trips and the combination of Route 2 and Route 5 with 11 transfers.

**Table 3-7: Harrisonburg Department of Public Transportation
Most Common Transfers**

Results from Survey conducted from Monday,
November 15th, 2010 through Thursday, November 18th, 2010

Q4: Did you or will you have to transfer buses in order to complete this trip?

| | | | |
|-----------------------------|---------------|----------------|---------------|
| Yes, one transfer: | <u>10.48%</u> | No: | <u>86.75%</u> |
| Yes, two or more transfers: | <u>1.54%</u> | (No response): | <u>1.22%</u> |

| Rank | Primary Connection | Trips | Secondary Connection | Trips | Total Trips |
|------|--------------------|-------|----------------------|-------|-------------|
| 1 | Route 5 to Route 1 | 13 | Route 1 to Route 5 | 12 | 25 |
| 2 | Route 3 to Route 2 | 8 | Route 2 to Route 3 | 7 | 15 |
| 3 | Route 3 to Route 5 | 7 | Route 5 to Route 3 | 6 | 13 |
| 4 | Route 2 to Route 1 | 9 | Route 1 to Route 2 | 3 | 12 |
| 5 | Route 5 to Route 2 | 7 | Route 2 to Route 5 | 4 | 11 |

Rider Characteristics

Nearly three-fifths (59.87%) of the individuals who responded to the on-board rider survey were female, with an additional 6.37% of those surveyed offering no response to the question concerning gender. Additionally, most survey respondents (70.42%) classified themselves as being Caucasian, while 8.87% of riders were African American, and another 5.98% were Asian American. The most common age bracket of riders who were surveyed was the 18-25 years of age (84.37%) grouping, which coincides with the most popular trip purpose of school and the prevalence of full-time student (72.99%) as a description of current employment status. Only 19.29% of survey

participants described themselves as being either part-time or full-time employees. Moreover, 35.82% of riders listed their annual household income as being below \$15,000, while another 23.41% chose not to respond to this question.

A majority of respondents (62.19%) noted having a driver's license, with only 7.65% of riders who answered the question without possession of a license. Automobile availability varied among surveyed riders, with 15.69% of respondents stating there was no vehicle at their house, 24.05% having potential access to a single vehicle, and 52.95% of riders having two or more automobiles available to their household. This high percentage of multi-vehicle households may be attributable to the group housing arrangements of many university students. More telling may be the answers to the question regarding the availability of a personal vehicle to riders making their current bus trip, where 46.05% indicated a vehicle was in fact present and 52.22% stated that a vehicle was not available to them for their surveyed trip. This result suggests that many of the surveyed riders were choice riders.

Rider Satisfaction

The overall rating of satisfaction with HDPT services described by survey respondents was satisfactory or above, with minimal respondents expressing any deep dissatisfaction with the service. Concerning areas related to bus service, nearly two-thirds (64.27%) rated on-time performance of the buses as "satisfactory," whereas only 9.45% of riders described this temporal item as being unsatisfactory or worse. Similarly, respondents to this survey were satisfied with the days of service offered by HDPT, with only 14.64% denoting some level of dissatisfaction. The question asking riders to rate the cost of bus fare was well-received, with 79.75% of riders stating that they were "very satisfied" with this criterion, which seems intuitive as the student population is able to ride the bus for free.

Although the trend of overall satisfaction continued for the service criteria of bus frequency and service hours, the survey did reveal slight dissatisfaction within these measures. The hours of service portion received both the highest rate of "unsatisfied" (26.26%) and "very unsatisfied" (2.76%) among the 13 areas. However, just over half (50.72%) of participants did voice that they were "satisfied" with the current hours of service. Likewise, 52.98% of surveyed riders were "satisfied" with the frequency of the bus service, but 23.62% of respondents were unsatisfied or worse.

The level of satisfaction toward the convenience of bus stops, routes, and safety of the service was viewed more favorably. Over 90% of responding riders noted the convenience of bus stops (92.35%) and bus routes (90.24%) as being satisfactory or above. Furthermore, the safety and security of the HDPT bus services received a positive rating as only 1.81% of survey participants reported any displeasure with this important criterion.

In regard to the availability of information pertaining to HDPT services, the feedback was satisfactory, with information availability, telephone customer service, and efficacy of the website all receiving encouraging ratings. More than one-half of those surveyed (53.12%) stated they were “very satisfied” with the availability of information, while another 43.56% answered “satisfactory” to the inquiry. The less emphatic level of satisfaction was the most common response for the other measures of information dispersal, with 57.49% of riders concluding that the telephone customer service was “satisfactory” and 50.37% of riders finding the usefulness of the website to also be “satisfactory.” As for the tangibles of bus cleanliness and driver courtesy, the survey respondents stated that these areas were laudable, with 98.55% and 96.56%, respectively, rating these measures as satisfactory or better.

Service Improvements Proposed by Surveyed Riders

Two open-ended questions within the survey sought to determine areas in which riders believed HDPT may improve their service and expand their service area. The qualitative responses of these questions were collected and then grouped into similar themes. The top two themes to arise from the analysis of potential service advances were the suggestion to increase the frequency of service (627) and provide later hours of service (280), which were signaled as the top two areas of minor dissatisfaction in the aforementioned service satisfaction ratings. The third most identified improvement was a better adherence to the bus schedule (210), which was also recognized in the prior rating but with only 9.45% of surveyed riders declaring dissatisfaction with the on-time performance. The fourth most common suggested service improvement centered on an expansion of routes and services (142), which were rated as “unsatisfactory” or worse by 9.76% of surveyed riders who were asked to assess the convenience of bus routes. Rounding out the top five possible service improvements was the recommendation to add weekend service (118), which was mentioned in the previous section as an area of discontent by 14.64% of survey respondents. The next five suggested improvements included the following areas: the addition of more bus stops (75); the staggering of bus schedules (43); the introduction of “real-time” route information (43); an improved friendliness of bus drivers (38); and earlier service hours (32).

The second semi-structured question asked survey participants to offer locations that they would like to have HDPT additionally serve. The top location to arise from the survey response was the geographically vague destination of downtown Harrisonburg (107). The area immediately surrounding Court Square currently has abundant transit service, including Route 1, Route 3, Route 4, and Route 5. However, bus service to the downtown area is limited for JMU routes, with only Route 31 and Sunday Shuttle 1 providing service near Court Square. The North 38 Apartments (42) was ranked as the second most desired service location. This multi-unit housing complex is currently not served by the JMU routes, but has bus service provided by Route 5. The third most common response for additional service was the Copper Beach Town Homes (38),

which are currently served by Route 1, Route 15, Route 32, Route 38, and Route 39. Charleston Townes (28) was the next most common destination; however, like the previously listed locations, this area is also currently served by several HDPT buses, including Route 2 and 14 separate JMU bus routes. The fifth most popular selections were Memorial Hall on the JMU campus (18), Valley Mall (18), and Walmart (18), which all are currently served by various HDPT bus routes. Similarly, the University Recreation Equipment Center (16) and the Sunchase Apartments (16) were also common responses with present JMU bus service. Finally, Massanutten was also a recommended location for additional service. Being located approximately 15 miles from the JMU campus, Massanutten is currently not served by any HDPT routes.

Title VI

HDPT has the required Title VI nondiscrimination notice posted on its website, along with the complaint form, though it is not included in the route/schedule brochure. HDPT was found to be in compliance with Title VI during its 2009 FTA Triennial Review.

FTA Triennial Review

HDPT's most recent FTA Triennial Review was conducted in 2009, with the desk review on February 11, 2009, and the site visit on June 25-26, 2009. Deficiencies were found in five of the 22 areas reviewed, including: financial; satisfactory continuing control; maintenance; procurement; and school bus. The drug and alcohol program was not reviewed, as HDPT had a Drug and Alcohol Compliance audit in 2007. Exhibit 3-1 provides the summary of findings and corrective actions that were included in the Triennial Report. The FTA closed all of the findings, other than the school bus finding, in November, 2009. Generally, no federal financial assistance for transit projects or operations may be provided to FTA grant applicants unless the applicant agrees not to engage in school bus operations in competition with private school bus operators.

The City of Harrisonburg provides both public transportation and school bus transportation for its residents and school children. The buses and equipment are operated under the same department, with separate budgets for each of the two programs. Desiring to continue this practice, which has been in existence since 1976, the City requested a waiver from the FTA so that it could continue to provide school bus transportation. As per the requirements for the granting of a waiver the City published a public notice certifying that there are no private school bus operators in the

Exhibit 3-1

V. SUMMARY OF FINDINGS AND CORRECTIVE ACTIONS

| Review Area | Finding | Deficiency | Corrective Action | Response Days/Date | Date Closed |
|--|---------|---|--|-------------------------------|-------------|
| 1. Legal | ND | | | | |
| 2. Financial | D-07 | Cost allocation plan deficiencies. | HDPT must develop its cost allocation plan and identify the cognizant agency and have that agency approve its cost allocation plan. Submit evidence of the approval to FTA. | 60 Days September 25, 2009 | |
| 3. Technical | ND | | | | |
| 4. Satisfactory Continuing Control | D-01 | Violation of incidental use requirements | HDPT must obtain FTA approval for any incidental use and implement procedures for continuing control. | 30 Days August 24, 2009 | |
| 5. Maintenance | D-04 | Late vehicle preventative maintenance | HDPT needs to immediately address the occurrences of late Preventative Maintenance Inspections (PMIs) to ensure that FTA's capital investment is not being jeopardized. HDPT must provide FTA Region III with a report on its results for the next three months. | 90 Days October 26, 2009 | |
| 6. Procurement | D-13 | No FTA clauses | HDPT must revise its procurement procedures to require all FTA-required clauses in applicable procurements. HDPT must submit the revised procurement procedures to FTA Region III Office. | 30 Days August 24, 2009 | |
| 7. Disadvantaged Business Enterprise | ND | | | | |
| 8. Buy America | ND | | | | |
| 9. Suspension/Debarment | ND | | | | |
| 10. Lobbying | ND | | | | |
| 11. Planning/POP | ND | | | | |
| 12. Title VI | ND | | | | |
| 13. Public Comment for Fare Increases and Service Reductions | ND | | | | |
| 14. Half Fare | ND | | | | |
| 15. ADA | ND | | | | |
| 16. Charter Bus | ND | | | | |
| 17. School Bus | D-01 | Operates exclusive school bus service without FTA exception | HDPT must cease any school bus operation that violates FTA regulations. | 60 Days September 25, 2009 | |

| Review Area | Finding | Deficiency | Corrective Action | Response Days/Date | Date Closed |
|----------------------------------|----------------|-------------------|--------------------------|---------------------------|--------------------|
| 18. National Transit Database | ND | | | | |
| 19. Safety and Security | ND | | | | |
| 20. Drug-Free Workplace | ND | | | | |
| 21. Drug and Alcohol Program | NR | | | | |
| 22. Equal Employment Opportunity | ND | | | | |
| 23. ITS Architecture | ND | | | | |

Findings: ND = No Deficiencies; D = Deficient; AC = Advisory Comment; NA = Not Applicable; NR = Not Reviewed

urban area of Harrisonburg. No comments were received and the waiver was granted on September 8, 2010. This waiver allows the City to provide school bus transportation for a five-year period. The waiver will need to be renewed at that time (2015).

The FTA Triennial Review Report and the City's response are provided in Appendix C.

TRANSIT NEEDS ANALYSIS

The focus of this transit needs assessment is to analyze quantitative land use and population data, along with qualitative data provided by area stakeholders and the public, to develop a solid understanding of the travel needs of the diverse group of current and potential riders. This needs assessment incorporates information gathered from recent planning efforts, the U.S. Census, and interviews with local stakeholders.

Review of Recent Plans

This section of the needs analysis includes an overview of existing planning documents and studies, addressing the transportation needs of the residents, which have been recently completed for the City of Harrisonburg, JMU, and/or regional bodies. The plans and studies included those specific to public transportation, as well as those addressing more expansive land use and growth visions for the region. How these plans and studies articulate the issue of public transportation in the City of Harrisonburg are abstracted in this section.

Transit Development Plan, December, 2006

The previous TDP for Harrisonburg, sponsored by DRPT and conducted by HNTB, was completed in 2006. The city-oriented bus routes were the focus of the 2006 TDP. Recommendations from the plan included service improvements in three categories: customer service enhancements; service expansion near Harrisonburg; and service expansion outside of Harrisonburg. The following specific improvements were recommended:

Customer Service Enhancements

- Increase frequency on Route 1
- Shelter program
- Early morning service on routes serving new hospital
- All year late evening service
- Re-locate Godwin Hall transfer point to old Hospital site

Service Expansion In and Near Harrisonburg

- Split Route 2, serve the new hospital and new elementary and middle schools
- Extend to serve Massanetta Springs

Service Expansion Outside of Harrisonburg

- Dayton-Bridgewater-Mount Crawford
- Massanutten Resort- Elkton
- Broadway-Timberville

Of these recommendations, HDPT has installed additional shelters and has included the new hospital on Route 2.

Performance Review - Harrisonburg Transit

In 2009 DRPT sponsored a Performance Review for Harrisonburg Transit. It was conducted by VHB and Abrams-Cherwony Associates. Key recommendations from the Performance Review were as follows:

- HDPT should develop a management staff cross-training program.
- HDPT should develop a cost allocation method to account for services provided by other City Departments (this was also a Triennial Review finding).
- HDPT and JMU should develop a formula to determine the appropriate fee-in-lieu of fares annual payment.
- HDPT should review the DRPT's parts inventory requirement and work with City financial staff to assure that appropriate systems are in place to bill for parts when they are ultimately used.
- HDPT should develop more training programs that address safety and security issues.
- HDPT should develop a safety and security plan to address procedures in the event of a significant emergency.

- HDPT should continue working toward constructing a new transit maintenance facility.
- HDPT should determine if it is cost effective to use operators to fuel, turn in fareboxes, and park vehicle upon completion of a shift.
- HDPT should forge a stronger relationship with EMU.
- The city should work with HDPT to address concerns that new development be more transit supportive.
- HDPT should work with the City's department of public works to identify key corridors for the construction of new sidewalks.
- HDPT should work with the City to ensure that the website functions without outages.
- HDPT should strive to increase ridership through marketing efforts and service changes.

Harrisonburg Department of Public Transportation Maintenance/Administration Building Feasibility Study (October, 2009)

In recognition of the need to expand its administrative/operating facility, HDPT contracted with Parson Brinckerhoff in 2009 to prepare a feasibility study for a new or renovated/expanded base of operations.

The study process identified a three-acre City-owned site adjacent to the existing site as the probable location for a new facility that will be able to meet the City's current and future needs. This parcel has been used by the City as an open reservoir that will no longer be needed with the construction of a new water tank. Using the parcel of land adjacent to the existing facility will allow HDPT to continue operations throughout phased construction. The total cost estimate for the facility (all phases) is just under \$24 million.

The proposed new facility will incorporate workshops, garage areas, storage areas, administrative offices, and related facilities including heated storage for equipment and materials, heated maintenance areas for vehicles and equipment, outdoor vehicle parking, administration offices and worker facilities, fuel storage, and a fueling island.

The recommended building option proposes to re-use part of the existing building and tank farm. The existing brushless washer system will also be kept in place. The existing underground fuel tanks will be re-used; however, the associated fuel lanes will be moved to the north side of the existing building pending its partial demolition. Part of the remaining high bay space in the existing facility is to be used as a parts storeroom and tire shop/storage.

Vehicle Maintenance repair bays will be accessed via vehicle parking and will be oriented in a drive through configuration to maximize flexibility. Repair bays for transit will be located on the north side of maintenance, and the repair bays for small vehicles will be located on the south side. All support functions are designed to be located on the southeast portion of the Vehicle Maintenance facility, and will include a common work area, equipment storage, break room, restrooms, and offices.

Public transit bus parking will be located on the north and east sections of the site. Buses will enter the facility at the east entrance and proceed to parking, while paratransit vehicles will park immediately adjacent to Vehicle Maintenance. All non-revenue vehicles will be parked in the northeast lot adjacent to the employee parking area. The existing bottom of the abandoned reservoirs will be used for administration and operations parking. This allows for private and agency traffic to be isolated from one another with separate entrances and exits, which will greatly enhance the safety of on-site vehicle circulation site.

In order to maintain continued functionality throughout the process and to ensure funding availability, the project has been split into phases of construction as follows:

- Phase 1: Demolish the existing reservoir retaining walls and patch pavement as necessary
- Phase 2: Construct the New Administration/Operations Building and bus parking (grading, paving, and utilities)
- Phase 3: Construct the New Maintenance Building (except School Bus Repair Bays to allow access to the existing maintenance bays). Includes related grading and paving
- Phase 4: Construct the New School Bus Repair Bays and renovation/demolition of the existing building as well as construction of the new fuel lanes

2011 City of Harrisonburg Comprehensive Plan

The City of Harrisonburg is currently completing a re-write to its comprehensive plan, which will direct the city's vision for development in the immediate future. The recent work to update this guiding plan for 2011 is not currently complete, therefore this review will detail the draft Update to the Comprehensive Plan. Although the plan covers an array of themes and potential initiatives, this review is centered on matters concerning transportation (Chapter 11).

The plan is important because it is both comprehensive and it is long term. It helps to coordinate most city activities by examining them all together at one time - a comprehensive approach. In this way, transportation is coordinated with decisions on new development, which in turn can be accommodated by planned improvements to water and sewer service. Transportation systems will work for citizens by offering many ways for people to get from here to there, and not just by car. The city will explore new technologies to assure the best, least costly services that conserve resources.

The Harrisonburg transportation system is comprised of several varying elements including an interstate highway, principal arterial roadways, a local road system, mass transit, pedestrian trails and sidewalks, bike trails and lanes, and railroads. Each element of the system is complementary to the others and serves the community as a network; increasing usage on one element will likely cause a decreased usage on another.

It is also important to note that transportation and land use need to be linked. Changes in land use can change traffic patterns and affect the demands on transportation resources. And there is growing scientific evidence that the provision of transportation improvements can have impacts on the demand for new development as well as on the welfare of existing neighborhoods and commercial areas.

Bicycle and Pedestrian Facilities

In 2007, the Public Works Department began facilitating quarterly meetings between City staff and citizens who together make up the City's Bicycle & Pedestrian Committee. The City recognizes the need to encourage bicycle and pedestrian travel, as they reduce traffic congestion, contribute to cleaner air, conserve energy, promote physical fitness, and result in a more pleasant atmosphere. As traffic levels and associated congestion increase within the City, so does the need for a more encompassing system of bicycle facilities and pedestrian walkways.

Bicycle Facilities

The City adopted its first Bicycle Plan in 1994, and then adopted an update in 1999, in 2005, and the most recent plan in 2010 which is detailed later in this section. By generating an awareness of bicycling issues, the plan prompted the City to include bicycle facilities in the design and construction of several new streets. The goal of the Harrisonburg Bicycle Plan is to create and maintain a viable bicycle transportation network with safe and convenient facilities.

Mass Transit

HDPT is prominently identified within the Transportation Chapter of the Master Plan. Information is broken into the following sections:¹

- Expanded Transit Operating Hours
- Operational Upgrades at JMU
- Service Expansion to Rockingham Memorial Hospital (RHM)
- Downtown Harrisonburg
- Construction of New Transit Facility
- Bus Stop Evaluation, Monitoring, and Improvement Program
- Multi-Modal Nature of Transit Planning
- Expansion of Transit Service into Harrisonburg-Rockingham (UZA)
- Investigate Methods of Electronic Fare Collection
- Computer-Aided-Dispatching/ Automatic Vehicle Location

Expanded Transit Operating Hours

To better meet the needs of the citizens, transit service should be available to them when they most need it. The plan proposes exploring the ability to expand existing hours of service to provide more service hours later each day to better serve the transportation needs of City citizens.

Operational Upgrades at JMU

JMU is a major generator of trips that are served by public transportation. The historic growth of JMU has provided a great deal of impetus for the HDPT to grow and expand its services. This growth will place a greater demand for mass transit services. The proposed closure of the JMU campus to private vehicles, as outlined in their Master Plan, will most likely cause demand for transit services to increase as well.

¹City of Harrisonburg Comprehensive Plan, 2011 Plan Update, Chapter 11.

- On/Near campus transit center: HDPT has currently reached a virtual limit to the number of transit buses that can be housed in the Godwin Hall Parking Lot. The addition of more vehicles to serve the growing campus population will require the identification of suitable layover points for buses and may require the construction of a dedicated mass transit center on or adjacent to the JMU campus.
- Dedicated Transit Bus-Way: The current operation of HDPT buses in mixed traffic conditions without dedicated pull-off lanes, especially on roads adjacent to campus create operational inefficiencies in both the delivery of transit services—having to contend with private vehicles—as well as the flow of private vehicular traffic. To address these operational inefficiencies, the Plan seeks to identify appropriate corridors and deploy the required mechanisms for dedicated mass transit facilities where feasible.
- Bus pull-offs on JMU Campus: Mass transit operations on the JMU campus could be made considerably more effective with the installation of dedicated bus pull-offs on and around the JMU campus.
- Bus arrival time system: HDPT hopes to deploy an electronic system that will allow transit customers to receive real-time bus arrival estimates at bus stops for transit services. The information could be received by automated instant messages, accessed by web-browsers on computers or by cell phones equipped with mobile web-browsing software, or even display on LCD/LED displays deployed at individual bus stops.

Service Expansion to Rockingham Memorial Hospital

The opening of the new RMH campus from a location within the City limits to a site in the County provides a unique set of challenges to HDPT. The relocation will inevitably increase the time and distance associated with transporting people to and from medical services located at RMH.

Downtown Harrisonburg

The accessibility of the many commercial, cultural, and governmental services that exist in the City's downtown area is important to HDPT. As more urban renewal takes place downtown, the need for mass transit services will grow. Along with the growth in demand for transit services there will be a need for a dedicated downtown transfer center that can accommodate a larger number of vehicles than currently serve the downtown area. The existing transfer location at the Hardesty-Higgins House is not sufficient to accommodate the number of buses that currently serve the downtown area nor can it handle more buses from the increased demand that downtown development

would require. As is it not an exclusive transit facility, drivers and passengers must continually contend with traffic generated by delivery trucks, private vehicles, and many other users of Bruce Street.

In light of these facts, HDPT intends to identify suitable locations in or around the downtown area on which to construct a dedicated transfer location that can accommodate a sufficient number of buses. Additionally, this transfer location may contain bicycle and pedestrian accommodations, a taxi cab stand, and a location for the launching of intercity bus operations that may locate in the City. In effect, it would serve as a hub for multi-modal transportation operations with easy access to the downtown area.

Construction of New Transit Facility

The current facility which houses HDPT operations was originally constructed in 1982, and despite subsequent additions, is currently approaching the end of its useful life. The growth in mass transit services provided by HDPT has placed a great deal of stress on the existing facility. HDPT hopes to have a new building constructed within the next three to five years.

Bus Stop Evaluation, Monitoring, and Improvement Program

Bus stops are an integral part of any mass transit system and HDPT is placing an increased emphasis on the need to upgrade the amenities at its more popular bus stops.

- Bus Shelter/Bench Installation: HDPT plans to use data collected by its new Automated Passenger Counter systems in late 2009 and early 2010 to identify high traffic bus stops. Efforts will then be made to install concrete pads, benches, shelters, trash cans, bus information display boards, and lighting as appropriate. Additional efforts will be made to install benches and/or bicycle racks at appropriate bus stops that complement existing or planned bicycle and pedestrian facilities.
- Solar powered bus shelter lighting: HDPT will attempt to place bus stop improvements in areas that take advantage of existing street lights. When this is not possible, HDPT will investigate the installation of solar power at bus shelters to provide power to illuminate the bus shelter.

Multi-Modal Nature of Transit Planning

HDPT recognizes that successful mass transit operations develop in tandem with an environment that provides effective pedestrian and bicycle infrastructure. HDPT is committed to participating in planning for a vibrant multi-modal transportation environment with the appropriate federal, state, and local authorities.

Expansion of Transit Service into the Harrisonburg-Rockingham (UZA)

The provision of seamless transportation services for citizens in the Harrisonburg urbanized area requires that HDPT work with MPO members to find ways to seamlessly offer transportation services across and between existing political boundaries. Specific areas for future service expansion include the Massanetta Springs Area, an intercity bus service (i.e. to Charlottesville), and other transit service.

Investigate Methods of Electronic Fare Collection

Currently, HDPT collects all fare box revenues in a simple mechanical fare box, and is therefore incapable of integrating electronic fare media into its operations. Since the majority of HDPT passengers are JMU students, faculty, and/or staff, it would make a great deal of sense for HDPT to implement a system that would be capable of reading a JMU Access Card (JAC Card) and check to make certain that the card was valid.

Computer-Aided-Dispatching/Automatic Vehicle Location

HDPT is very interested in reducing the cost of complementary paratransit service without compromising its quality, HDPT wishes to pursue the installation of Mobile Data Terminals and Automatic Vehicle Location technology on its paratransit fleet to achieve the cost savings that this technology promises.

Harrisonburg Bicycle & Pedestrian Plan - 2010

The City of Harrisonburg is committed to adding bicycle and pedestrian facilities to new projects and to identifying opportunities to improve the bicycle and pedestrian network within the city. This past year Harrisonburg City Council adopted the updated Bicycle & Pedestrian Plan which is an update of the 2005 Bicycle and Pedestrian Plans. The City strives to design and operate “complete streets” to enable safe access for all users – pedestrians, bicyclists, motorists, and transit riders of all ages and abilities.

This Plan recommends considering bicyclists and pedestrians as a factor in planning, design, construction, and maintenance of all roadway projects and when

reconstructing or reconfiguring a roadway or right-of-way, to strive to maintain or improve existing bicycle and pedestrian non-motorized facilities.

Public Transit routes and facilities must also be integrated with the bicycle and pedestrian network. In 2001, HDPT began installing bicycle racks on the front of transit buses so that riders may take their bicycles with them to their next destination. All transit buses are now equipped with bicycle racks. HDPT and the Department of Public Works have coordinated the installation of bus shelters, benches and other amenities with new road and sidewalk improvement projects.

HDPT has been working to identify suitable locations in or around the downtown Harrisonburg area on which to construct a dedicated transfer location that can accommodate a sufficient number of buses to provide service to the area. This transfer location could contain bicycle and pedestrian accommodations, a taxi cab stand, and a location for the launching of intercity bus operations that may locate in Harrisonburg at a future date. In effect, it could serve as a hub for multi-modal transportation operations.

The plan also provides a detailed list of priority bicycle and pedestrian projects with estimated costs. Additionally, Bicycle Facility and Pedestrian Maps showing existing and proposed facilities are included.

James Madison University Master Plan

The James Madison University Master Plan was approved by the JMU Board of Visitors in 2009. The Master Plan is conceptual and does not serve as a capital construction plan. Rather, the plan is a tool to help guide the university. This plan is subject to change based on a number of factors, such as available funding and student enrollment.

Transportation and traffic, potential buildings sites aligned with space needs by program, and campus signage were topics addressed in the Plan. The Master Plan outcomes are important because they identify future development and designs that will play a large role in the shape and growth of transit on campus and in Harrisonburg. Specifically, the Master Plan identifies:

- Building locations to support education and general programs,
- Locations for auxiliary student support programs,
- New auxiliary athletic facilities,
- Strategies to modernize the Village Residence Halls & meet University's housing targets, and
- Parking opportunities to maintain current parking ratio.

The Master Plan also improves pedestrian orientation of the campus. It creates a contiguous campus with:

- **Improved transportation routes,**
- Campus connections and identity,
- Specialized program driven facilities,
- Preserves campus culture by establishing gathering spaces,
- Well defined green space for formal and informal use, and
- Enhanced way-finding and vehicular signage.

Central Shenandoah Coordinated Human Service Mobility Plan

In response to the coordinated planning requirements of the SAFETEA-LU legislation, the VDRPT sponsored the development of a Coordinated Human Service Mobility Plan. The coordinated plan was designed to guide funding decisions for three specific grant programs: Section 5316 (Job Access and Reverse Commute - JARC), Section 5317 (New Freedom), and Section 5310 (Elderly Individuals and Individuals with Disabilities.)

An important part of the coordinated planning process was to conduct an assessment of the transportation needs for individuals with disabilities, older adults, and people with low incomes. The following unmet transit needs were identified in the Coordinated Plan:²

- Transportation services beyond a specific agency's program criteria.
- Transportation for non-medical related social and recreational trips.
- Expanded transportation services during evening and weekend hours for a number of trip purposes.
- Greater door-to-door services for people who need additional assistance.
- Same-day transportation service for spontaneous travel needs.
- Transportation services from the more remote areas of the region to employment and shopping destinations, including options for people with disabilities (especially Rockingham County).

²Central Shenandoah Coordinated Human Service Mobility Plan, June 2008, prepared by Cambridge Systematics and KFH Group for the Virginia Department of Rail and Public Transportation.

Demographic Analysis

General Population

There has been an uninterrupted period of growth in population for the City of Harrisonburg dating back to the 1990 Census, with an increase in population of 31.8% from 30,707 in 1990 to 40,468 in 2000, and an estimated increase of 11.5% from the 2000 population to the Census estimate 45,137 in 2009 (Table 3-8). The recently released 2010 Census information showed a 2010 population of 48,914. The estimated population increase during this latter period was 11.4% for the State of Virginia and 10.9% for Rockingham County, percentages roughly equal to the population change that has occurred in Harrisonburg over the same span. The population change between 2000 and 2009 was significantly lower for the surrounding communities of Dayton (1.2%) and Bridgewater (4.2%), whereas the Town of Mount Crawford had an increase of 18.9%, which represented an increase of 48 residents.

Population Density

Population density is important to the assessment of transit potential, because it may be used as an indicator to the types of transit services that are most feasible for an area. The measurement is an effective indicator of the potential success of fixed-route transit services as well as an indicator of the types of transit services that are most appropriate to the service area. While there may always be exceptions, an area with a population density of over 2,000 persons per square should generally be able to support frequent daily fixed-route bus services. For our analysis, population density was calculated within the geographical unit of block groups, which are employed as boundaries by the United States Census Bureau (Figure 3-33). Of the 26 block groups within the City of Harrisonburg, there are 18 block groups that have the required level of population density to support a fixed-route service. Of these 18 block groups, there are eight block groups possessing a population density of greater than 5,000 persons per square mile (Figure 3-34), including:

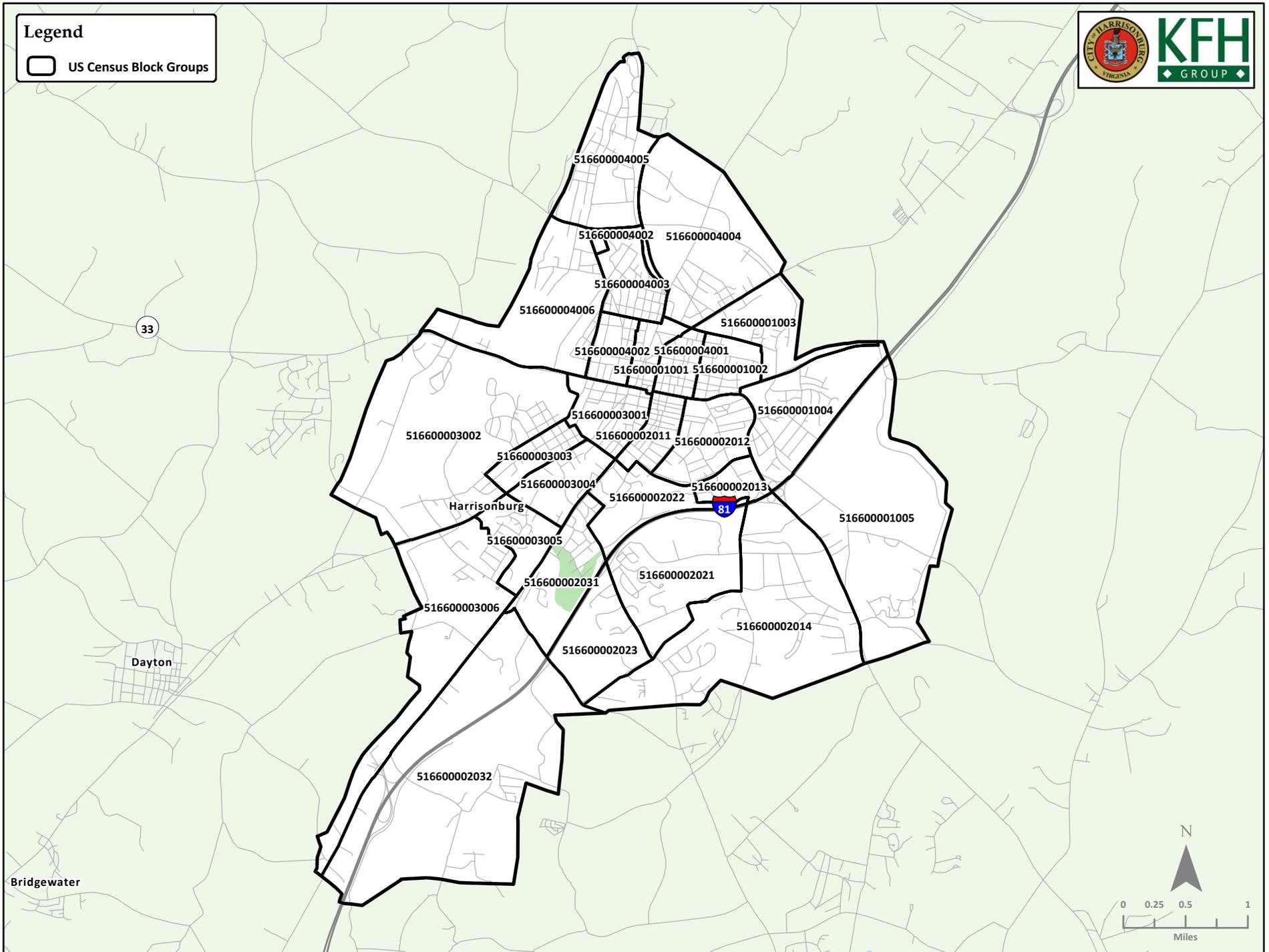
- The two block groups in northeast Harrisonburg that are bounded by North Main Street to the north, East Market Street and Old Furnace Road to the south, and Myrtle Street to the west.
- The two block groups in central Harrisonburg that are bounded by Market Street to the north, Grace Street to the south, Dogwood Drive to the west, and Ott Street to the east.

Table 3-8: Population Figures for Harrisonburg and Surrounding Geographies

| Place | 1990 Population | 2000 Population | 2009 Population | 1990-2000 Percent Change | 2000-2009 Percent Change |
|--------------------------|----------------------------|----------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Virginia | 6,187,358 | 7,078,515 | 7,882,590 | 14.40% | 11.36% |
| City of Harrisonburg | 30,707 | 40,468 | 45,137 | 31.79% | 11.54% |
| Rockingham County | 57,482 | 67,725 | 75,134 | 17.82% | 10.94% |
| - Town of Bridgewater | 3,918 | 5,203 | 5,420 | 32.80% | 4.17% |
| - Town of Dayton | 921 | 1,344 | 1,360 | 45.93% | 1.19% |
| - Town of Mount Crawford | 228 | 254 | 302 | 11.40% | 18.90% |

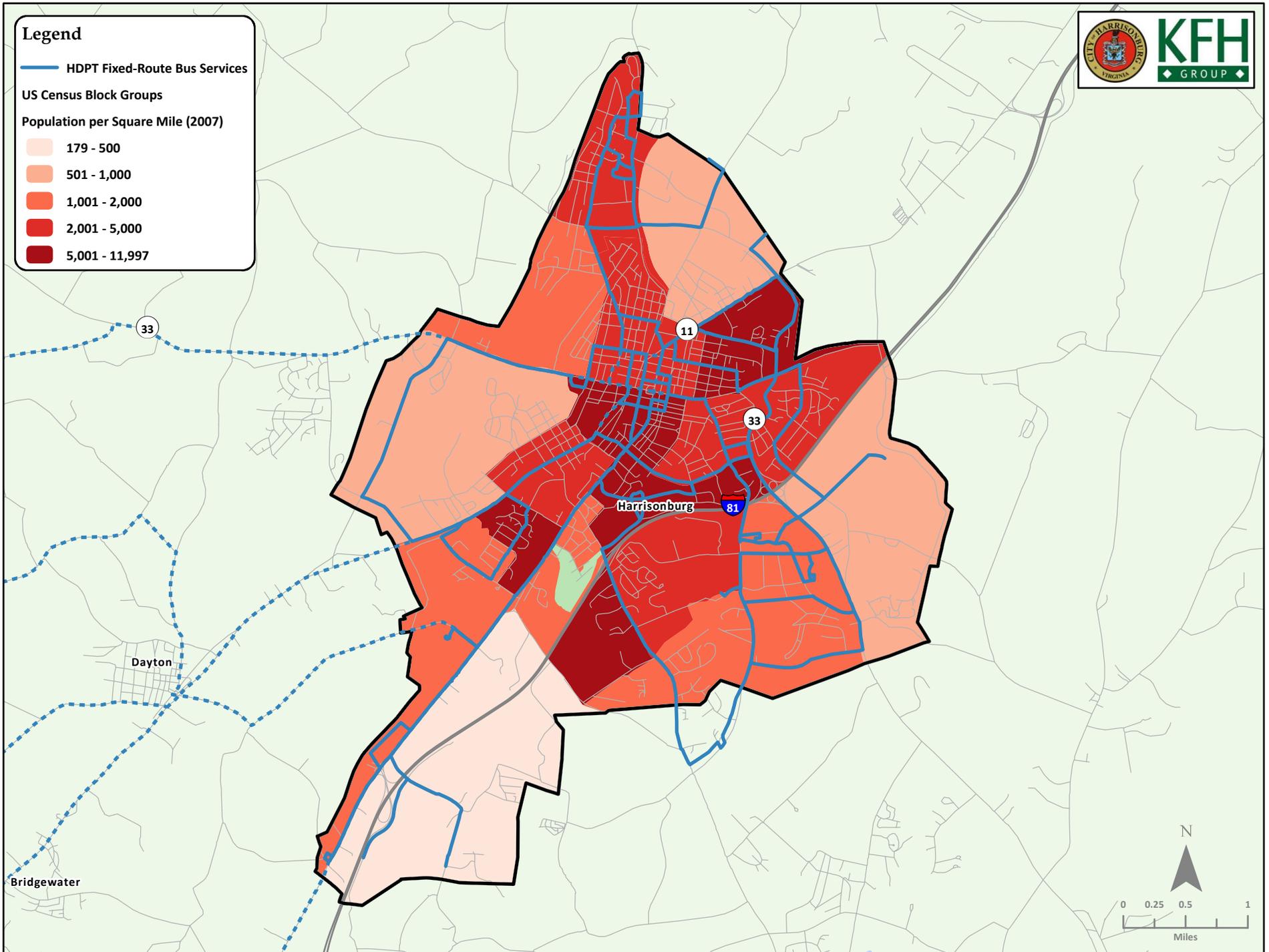
Source: United States Census Bureau. American FactFinder.

Figure 3-33: United States Census 2000 Block Groups for the City of Harrisonburg



3-77

Figure 3-34: Population Density of the City of Harrisonburg



- The two block groups in southeastern central Harrisonburg that are bounded by Cantrell Avenue to the north, Interstate 81 to the south, South Main Street and Hillcrest Drive to the west, and East Market Street to the east.
- The block group in southwestern Harrisonburg that is bounded by South Avenue to the north, Emery Street and Pleasant Hill Road to the south, South High Street to the west, and South Main Street to the east.
- The block group in southeastern Harrisonburg that is bounded by Port Republic Road to the northeast, Peach Grove Avenue to the southeast, Interstate 81 to the northwest, and Stone Spring Road to the southwest.

The current HDPT route network serves all of the highest density block groups in the City.

There are ten block groups within the City that exhibit population densities of between 2,000 and 5,000 people per square mile, including:

- The five block groups in northwestern Harrisonburg that are bounded by Virginia Avenue to the northeast, the city limit to the northwest, Market Street to the south, Chicago Avenue and Dogwood Drive to the west, and Myrtle Street and Liberty Street to the east.
- The two block groups in northeastern Harrisonburg that are bounded by East Market Street and Old Furnace Road to the north, Cantrell Avenue to the south, Ott Street to the west, and Interstate 81 to the southeast.
- The two block groups in southwestern central Harrisonburg that are bounded by Dogwood Drive to the northwest, West Grace Street to the northeast, South Main Street to the southeast, and South Avenue to the southwest.
- The block group in southeastern Harrisonburg that is bounded by Interstate 81 to the north, Turner Ashby Lane to the south, Port Republic Road to the west, and Reservoir Street to the east.

These ten block groups are also currently served by HDPT.

Also shown in Figure 3-34 are the four block groups that have a population density between 1,000 and 2,000 persons per square mile and the remaining four block groups that represent a geographical unit where the population density is less than 1,000 persons per square mile. Outside of service to major commercial or industrial

centers, block groups having population densities within the latter group usually warrant transportation services that are more demand-response oriented. These block groups are located at the outskirts of the City's limit.

Transit Dependent Populations

Transportation needs are defined in part by identifying the relative size and location of those segments of the population most likely to be dependent upon some form of public transportation service. Once the locality of populations with transportation needs is determined and analyzed, it is possible to evaluate the extent to which current transit services are meeting the needs of the community. To identify the areas of highest transportation need, an analysis utilizing several factors was conducted. Those factors included an analysis of transportation dependence based upon the aforementioned measurement of population density, in addition to the rankings of the 2000 Census block groups in regards to the number, percentage and density of five population categories. The five categories of populations who tend to more likely depend upon public transportation include:

- **Autoless Households:** Categorized as the number of households without possession of an automobile
- **Elderly:** Categorized as persons aged 60 and above
- **Mobility Limited:** Categorized as persons over the age of five who have a mobility or self-care limitation
- **Impoverished:** Categorized as persons whose income status is below the poverty level
- **Youth:** Categorized as persons between the ages of 12 and 17

The aggregate total, percentage, and density for each of the population categories was gathered and calculated from the 2000 United States Census Tape File 3A data at the block group level. Next, the block groups were ranked based upon the previously mentioned five categories. Since the data is not mutually exclusive, the block groups must be ranked and not simply summed. Having ranked the categories, the acquired rankings for the block groups were then equally separated into five distinct classifications (very low, low, moderate, high, and very high), which correspond to the level of transportation needs representing the geographical area. There were 26 block groups within the City of Harrisonburg, which were assessed to determine vicinities where the population possesses a need for transportation services.

After determining the relative level of need by block group for each category, a collective ranking of the five classifications was determined for the aggregate (numeric), percent, and density (see Appendix D for rankings). The analysis was performed at the block group unit for Harrisonburg and the results of the categorical accumulation are displayed in Table 3-9.

Numeric Ranking of Transit Dependent Characteristics

Data on the number of persons represented by each of the five designated categories concerning transportation dependent populations were collected and individually ranked by block group. The categorical rankings within the block groups were then summed and the block groups representing the City of Harrisonburg were equally divided into five unique classifications of need based upon the determined aggregate rankings. The classifications are displayed within Figure 3-35, which is a map displaying the numeric ranking for the 26 block groups within Harrisonburg. Those block groups with a very high numeric ranking for transit dependent characteristics are located in the following areas:

- The block group in north Harrisonburg that is bounded by the city limits to the north and west, Mount Clinton Pike to the south, and Virginia Avenue to the east.
- The three block groups in northeastern Harrisonburg that are bounded by North Main Street to the northwest, the city limits to the northeast, Interstate 81 to the southeast, and East Market Street and Myrtle Street to the southwest.
- The block group in southern Harrisonburg that is bounded by Interstate 81 and Neff Avenue to the north, the city limit to the south, Stone Spring Road to the west, East Market Street to the east.
- The block group in southwestern Harrisonburg that is bounded Emery Street to the north, the city limit to the west, and South Main Street to the east.

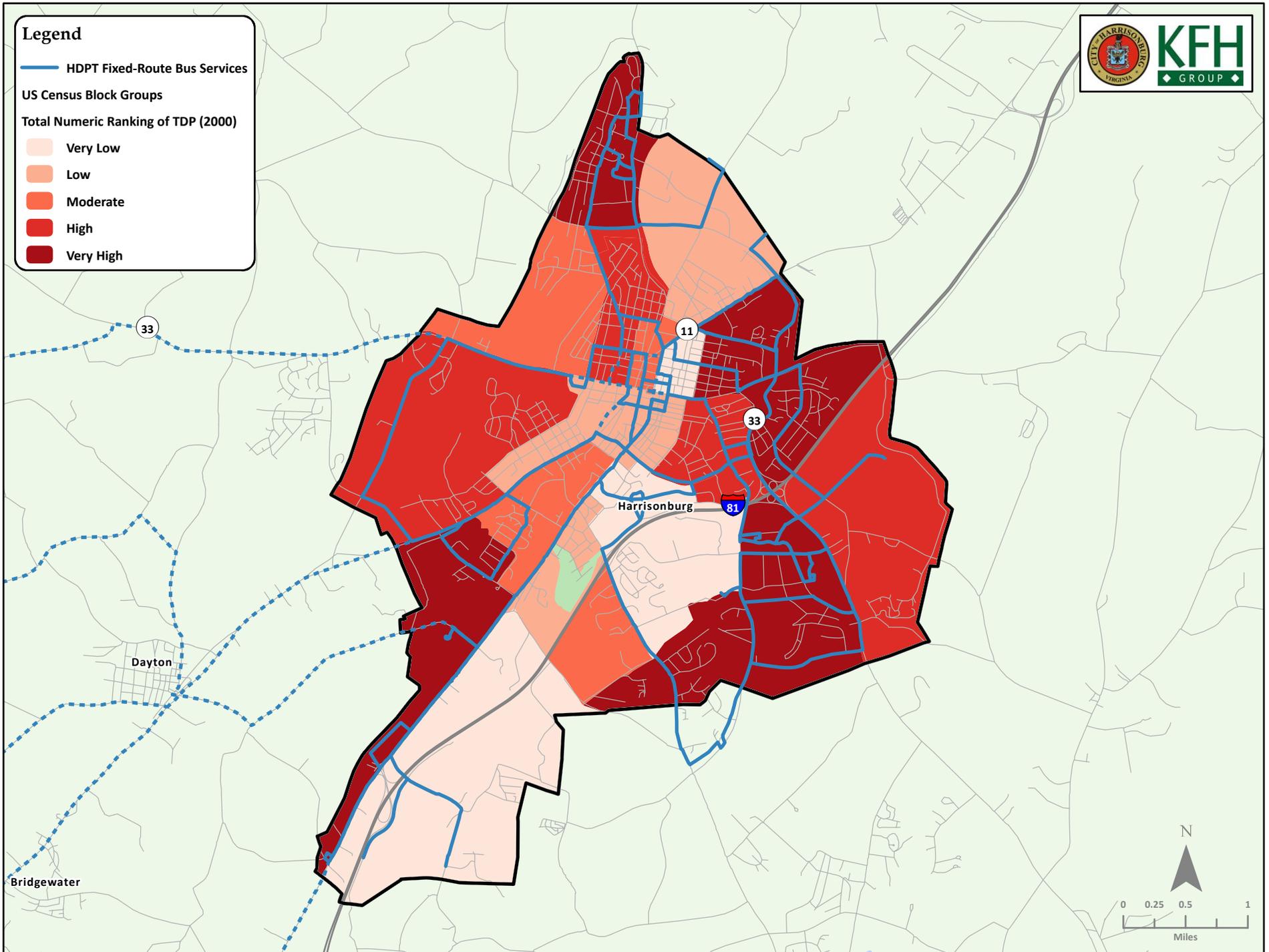
In addition to those block groups which received a categorical rating of very high; there was a quintile of block groups which received a rating of high. These areas with a high numeric ranking of transit dependent persons include the following geographies:

Table 3-9: Demographic Summary by Block Group for the City of Harrisonburg

| Block Group Identification | Area (Square Miles) | Total Population | Population Density | Total Households | Autoless Households | Elderly Population | Mobility Limited | Below Poverty | Youth Population |
|-----------------------------------|----------------------------|-------------------------|---------------------------|-------------------------|----------------------------|---------------------------|-------------------------|----------------------|-------------------------|
| 516600001001 | 0.16 | 613 | 3,831.25 | 243 | 34 | 81 | 34 | 120 | 41 |
| 516600001002 | 0.22 | 1,225 | 5,568.18 | 431 | 113 | 137 | 130 | 358 | 114 |
| 516600001003 | 0.40 | 1,606 | 4,015.00 | 745 | 92 | 154 | 93 | 224 | 106 |
| 516600001004 | 0.65 | 2,340 | 3,600.00 | 966 | 49 | 306 | 107 | 220 | 139 |
| 516600001005 | 1.74 | 1,291 | 741.95 | 354 | 26 | 140 | 302 | 360 | 122 |
| 516600002011 | 0.19 | 6,323 | 33,278.95 | 395 | 10 | 102 | 17 | 301 | 64 |
| 516600002012 | 0.38 | 1,381 | 3,634.21 | 446 | 83 | 177 | 72 | 224 | 115 |
| 516600002013 | 0.15 | 1,086 | 7,240.00 | 361 | 52 | 165 | 73 | 386 | 51 |
| 516600002014 | 1.77 | 2,361 | 1,333.90 | 1003 | 39 | 358 | 123 | 259 | 159 |
| 516600002021 | 0.83 | 1,594 | 1,920.48 | 436 | 7 | 68 | 18 | 1,315 | 9 |
| 516600002022 | 0.37 | 409 | 1,105.41 | 43 | 0 | 24 | 43 | 23 | 7 |
| 516600002023 | 0.47 | 3,549 | 7,551.06 | 1125 | 81 | 42 | 86 | 2,782 | 38 |
| 516600002031 | 0.46 | 777 | 1,689.13 | 346 | 16 | 119 | 32 | 132 | 60 |
| 516600002032 | 2.51 | 424 | 168.92 | 166 | 0 | 57 | 20 | 0 | 30 |
| 516600003001 | 0.30 | 1,470 | 4,900.00 | 538 | 28 | 105 | 53 | 644 | 27 |
| 516600003002 | 1.93 | 1,589 | 823.32 | 608 | 42 | 254 | 81 | 87 | 168 |
| 516600003003 | 0.18 | 686 | 3,811.11 | 293 | 14 | 147 | 56 | 107 | 54 |
| 516600003004 | 0.29 | 1,201 | 4,141.38 | 419 | 31 | 173 | 31 | 469 | 33 |
| 516600003005 | 0.26 | 1,328 | 5,107.69 | 493 | 16 | 112 | 40 | 394 | 72 |
| 516600003006 | 1.09 | 1,474 | 1,352.29 | 582 | 30 | 210 | 129 | 307 | 138 |
| 516600004001 | 0.15 | 702 | 4,680.00 | 350 | 125 | 152 | 93 | 225 | 25 |
| 516600004002 | 0.25 | 1,007 | 4,028.00 | 434 | 67 | 182 | 74 | 204 | 67 |
| 516600004003 | 0.27 | 1,069 | 3,959.26 | 422 | 51 | 219 | 80 | 194 | 92 |
| 516600004004 | 1.10 | 708 | 643.64 | 266 | 25 | 99 | 39 | 73 | 74 |
| 516600004005 | 0.66 | 2,707 | 4,101.52 | 940 | 162 | 879 | 67 | 409 | 83 |
| 516600004006 | 0.87 | 1,548 | 1,779.31 | 728 | 65 | 215 | 44 | 202 | 97 |
| TOTALS | 17.65 | 40,468 | 2,292.80 | 13,133 | 1,258 | 4,677 | 1,937 | 10,019 | 1,985 |

Source: United States Census Bureau. 2007. American FactFinder.

Figure 3-35: Total Numeric Ranking of Transit Dependent Persons of the City of Harrisonburg



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- The two block groups in north central Harrisonburg that are bounded by Mount Clinton Pike to the north, West market Street to the south, Chicago Avenue and Dogwood Drive to the west, and Liberty Street and Virginia Avenue to the east.
- The two block groups in east central Harrisonburg that are bounded by East Market Street to the north, Eastover Drive and Cantrell Avenue to the south, Ott Street to the west, and East Market Street to the east.
- The block group in eastern Harrisonburg that is bounded by the city limit to the northeast and southeast, Interstate 81 to the northwest, and East Market Street to the southwest.
- The block group in western Harrisonburg that is bounded by West market Street to the north, South high Street to the south, the city limit to the west, and Dogwood Drive to the east.

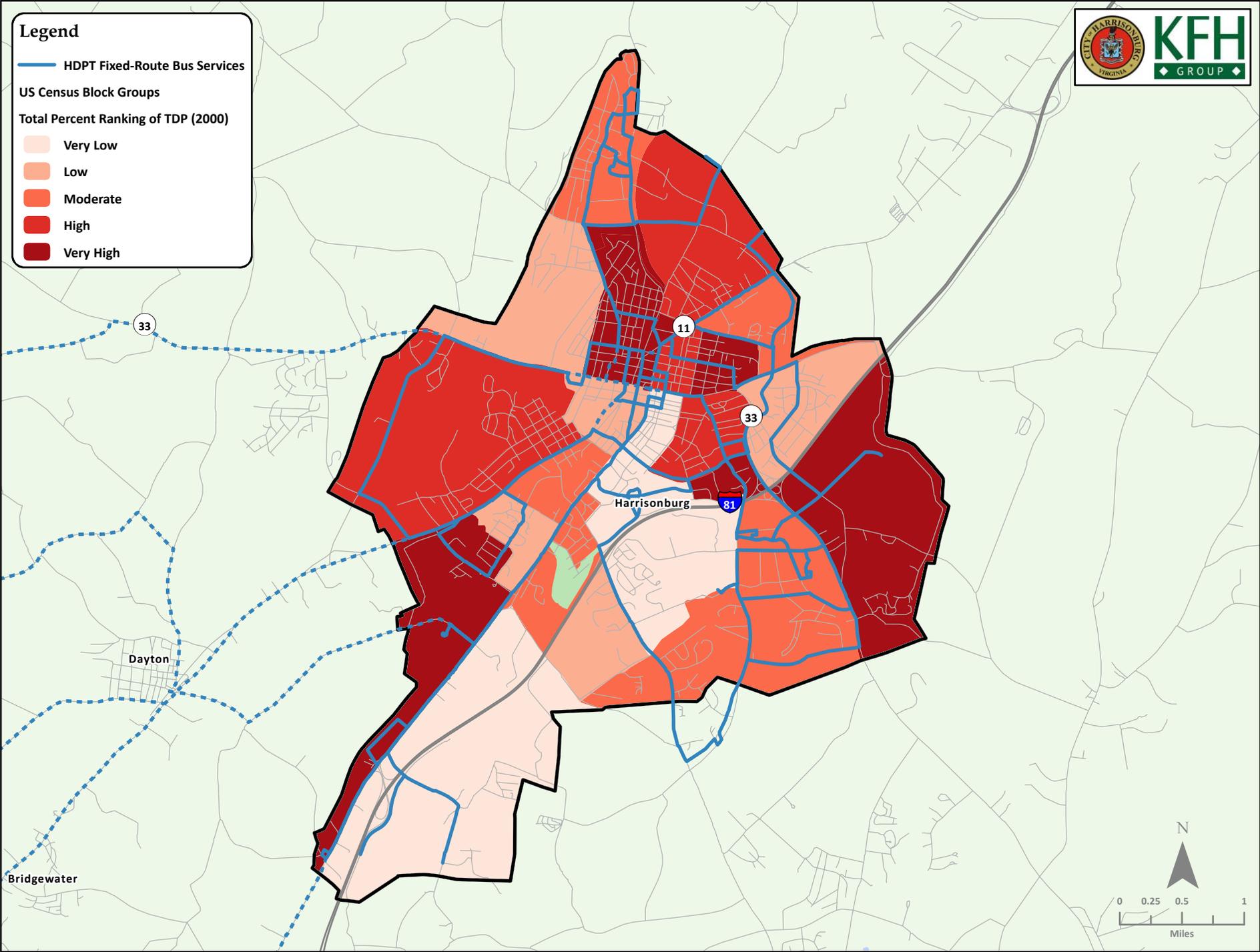
The numeric ranking is a useful analysis, but may be deceiving as the size of a block group is not considered; only the absolute number of people displaying the selected characteristics is measured. For example, a block group that is very large in size may have a high number of autoless households, but those households may be spread across a large area. For this reason, a ranking of block groups with regard to the percentage and density of transit dependent characteristics has also been conducted.

Percent Ranking of Transit Dependent Characteristics

As with the previous process of numeric ranking, the percent ranking was determined by separately ranking the five assigned categories by block group and obtaining a summation comprising all five rankings into one collective ranking for each block group. The resulting records were then grouped into the five classifications, similar to the method used for numeric ranking in which the block groups were equally divided amongst the five groups based upon the cumulative total. The different divisions represent a ranking of transit dependent characteristics for each block group as a percentage of the block group's overall population, as shown in Figure 3-36. Those block groups with a very high percent ranking for transit dependent characteristics are located in the following areas:

- The three block groups in central Harrisonburg that are bounded Mount Clinton Pike to the north, West Market Street to the south, Chicago Avenue and Dogwood Drive to the west, and North Main Street to the east.

Figure 3-36: Total Percent Ranking of Transit Dependent Persons of the City of Harrisonburg



- The block group in northeastern Harrisonburg that is bounded by East Washington Street to the north, East Market Street to the south, Myrtle Street to the west, and Tower Street to the east.
- The block group in east central Harrisonburg that is bounded by Cantrell Avenue to the north, Eastover Drive to the south, Paul Street to the west, and East Market Street to the east.
- The block group in eastern Harrisonburg that is bounded by the city limit to the northeast and southeast, Interstate 81 to the northwest, and East Market Street to the southwest.
- The block group in southwestern Harrisonburg that is bounded Emery Street to the north, the city limit to the west, and South Main Street to the east.

These areas are currently served by HDPT fixed-route service.

Beyond these block groups classified by a percent ranking of very high, there are a number of block groups that were categorized by a percent ranking of high, which warrant further analysis. Areas with a high percent ranking of transit dependent characteristics include the following geographies:

- The block group in northern Harrisonburg that is bounded by the city limit to the north, West Washington Street to the south, Virginia Avenue to the west, and North Main Street to the east.
- The block group in north central Harrisonburg that is bounded by East Washington Street to the north, East Market Street to the south, North Main Street to the west, and Myrtle Street to the east.
- The block group in east central Harrisonburg that is bounded by East Market Street to the north and east, Cantrell Avenue to the south, and Ott Street to the west.
- The two block groups in western Harrisonburg that are bounded West Market Street to the north, South High Street to the south, the city limit to the west, and Dogwood Drive and Grace Street to the east.

These areas are also currently served by the HDPT fixed-routes.

Areas with a very high percentage of the population displaying elevated transit dependent characteristics may be able to support fixed-route transit services at lower densities than the above-mentioned standard, or may be candidates for lower intensity transit services such as demand response.

Density Ranking of Transit Dependent Characteristics

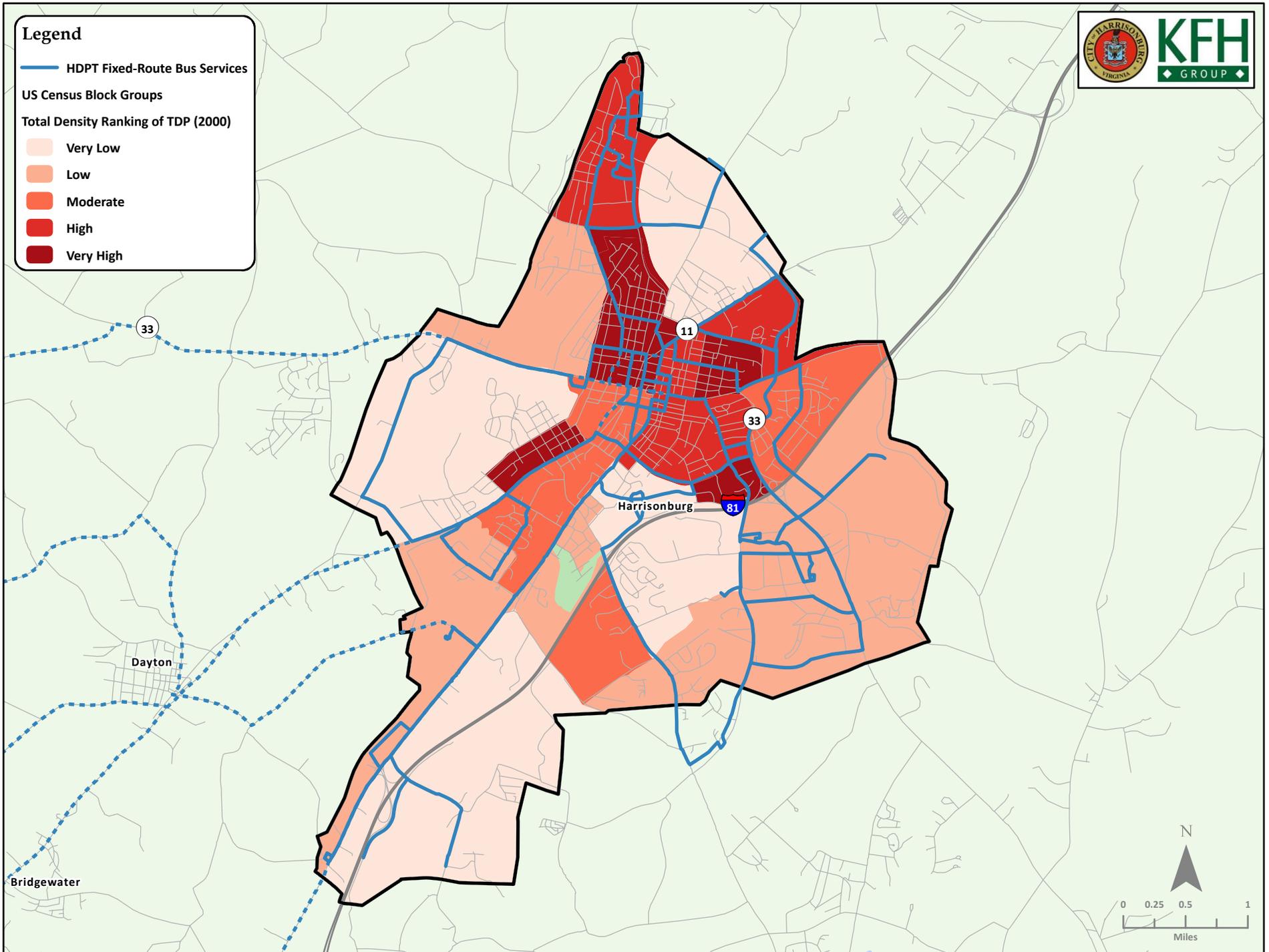
The density ranking of transit dependent characteristics for each block group was determined in an equivalent manner to the calculations utilized to discover the numeric and percent rankings, as was the classifying of the block groups representing the City of Harrisonburg into five distinct levels of need (very high, high, moderate, low, and very low). The density ranking of transit dependent characteristics for the City of Harrisonburg is represented in Figure 3-37, and is unique to the other two rankings in that it is a measurement accounting for geographic area, which is accomplished through the division of persons with transit needs by the spatial area in square miles of the related block group. Those block groups with a very high density ranking of transit dependent characteristics are found in the following areas:

- The three block groups in central Harrisonburg that are bounded Mount Clinton Pike to the north, West Market Street to the south, Chicago Avenue and Dogwood Drive to the west, and North Main Street to the east.
- The block group in northeastern Harrisonburg that is bounded by East Washington Street to the north, East Market Street to the south, Myrtle Street to the west, and Tower Street to the east.
- The block group in east central Harrisonburg that is bounded by Cantrell Avenue to the north, Eastover Drive to the south, Paul Street to the west, and East Market Street to the east.
- The block group in west central Harrisonburg that is bounded by Dogwood Drive to the northwest, Grace Street and Dixie Avenue to the northeast, South High Street to the southeast, and South Avenue to the southwest.

All of the areas exhibiting high needs based on the density of people displaying transportation needs are currently served by HDPT fixed-routes.

The next quintile represents those block groups with a high density ranking of transit dependent characteristics and are located in the following portions of Harrisonburg:

Figure 3-37: Total Density Ranking of Transit Dependent Persons of the City of Harrisonburg



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- The block group in northern Harrisonburg that is bounded by the city limit to the north and west, Mount Clinton Pike to the south, and Virginia Avenue to the east.
- The block group in northeastern Harrisonburg that is bounded by North Main Street to the northwest, the city limit to the northeast, Old Furnace Road to the southeast, and Tower Street and East Washington Street to the southwest.
- The block group in east central Harrisonburg that is bounded by East Washington Street to the north, East Market Street to the south, North Main Street to the west, and Myrtle Street to the east.
- The two block groups in central Harrisonburg that are bounded by East Main Street to the north, Cantrell Avenue to the south, South Main Street to the west, and East Market Street to the east.

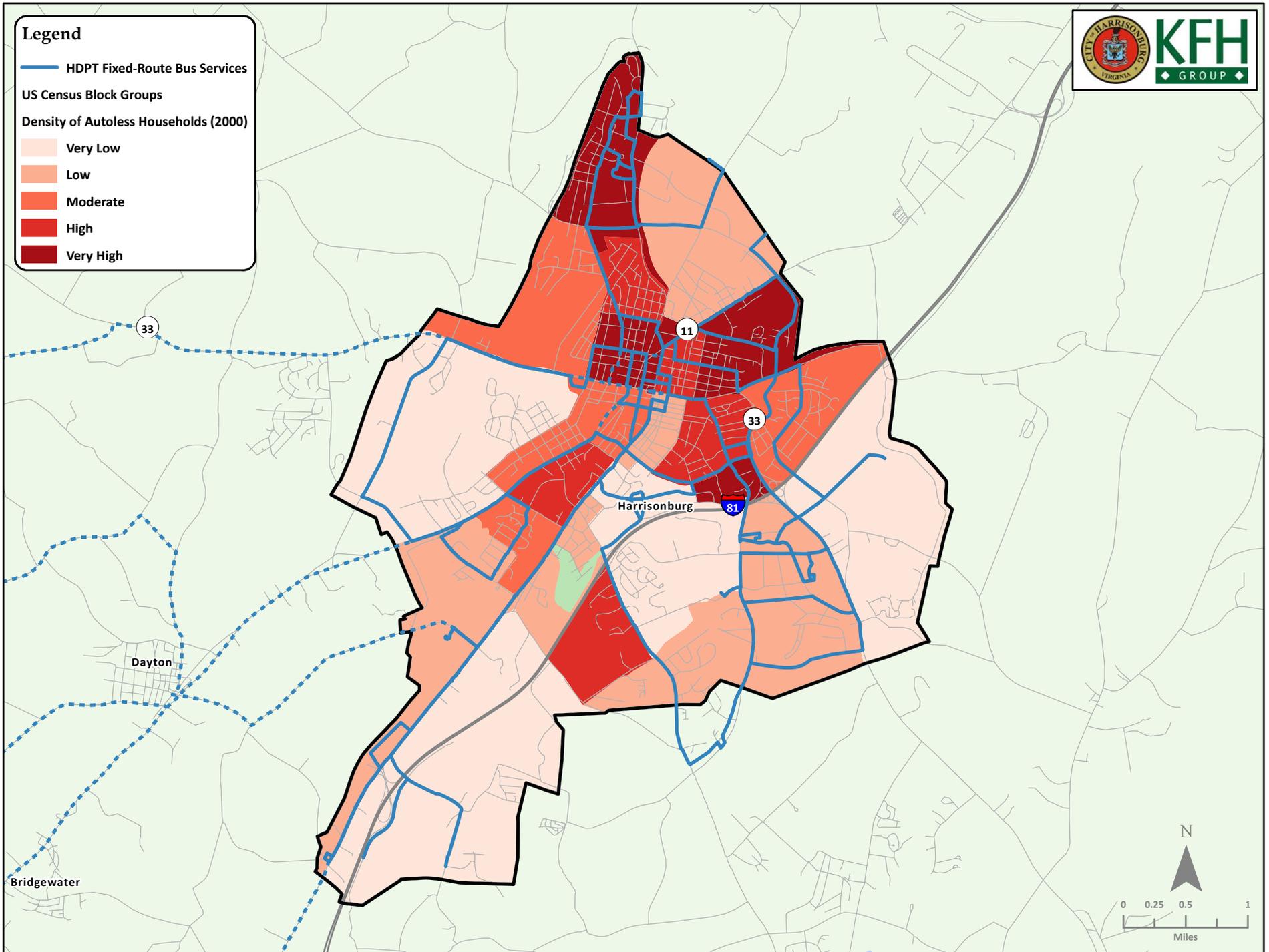
These areas are also served by HDPT fixed-route services.

Autoless Households

Households without at least one personal vehicle to their possession are more likely to rely on public transportation than those with access to an automobile. Figure 3-38 is a map displaying the density of autoless households by block group for the City of Harrisonburg. The importance of looking at the density and not simply the aggregate number by block group is that any need would appear skewed based upon where more households are located in an aggregate overview. Those block groups with a very high density of autoless households are located in the following areas:

- The two block groups in northwestern Harrisonburg that are bounded by the city limits to the north and west, Mount Clinton Pike to the south, and Virginia Avenue to the east. Additionally this area encompasses a sliver of land just east of Virginia Avenue between Mount Clinton Pike and Liberty Street.
- The two block groups in central Harrisonburg that are bounded by Third Street to the north, West Market Street to the south, Dogwood Drive to the west, and North Main Street to the east.

Figure 3-38: Autoless Household Density of the City of Harrisonburg



- The two block groups in northeastern Harrisonburg that are bounded by the city limit to the northeast, North Main Street to the northwest, East Market Street and Old Furnace Road to the southeast, and Myrtle Street to the southwest.
- The block group in east central Harrisonburg that is bounded by Cantrell Avenue to the north, Eastover Drive to the south, Paul Street to the west, and East Market Street to the east.

As with the previously identified high-need areas, the block groups displaying high densities of autoless households are also currently served.

High Density Housing

To best serve the population of Harrisonburg with an efficient route alignment, it is important to determine where the largest concentrations of individuals reside within the city, so that HDPT may provide direct service to these important transit nodes. Identification into the location of these housing establishments will serve as a necessary complement to the larger scale analyses associated with the aforementioned transit dependent rankings and population density maps. Within Harrisonburg, 33 high density housing establishments were located by the study team, which are detailed in Table 3-10. The vast majority of these multi-unit establishments are located in the southern portion of the city, with concentrations of these developments existing along Port Republic Road and South Main Street, which often provide residence for JMU students. A visual depiction into the geographic location of the high density housing units may be seen in Figure 3-39. As this map indicates, almost all of the high density housing locations in the City are currently served.

Land Use Profile, Analysis, and Evaluation

In addition to determining where trip origins and populations who are likely to require transit assistance reside in the service area are located, it is also important to determine the destinations where these populations need to travel, as well as the geographical patterns in which the residents tend to commute.

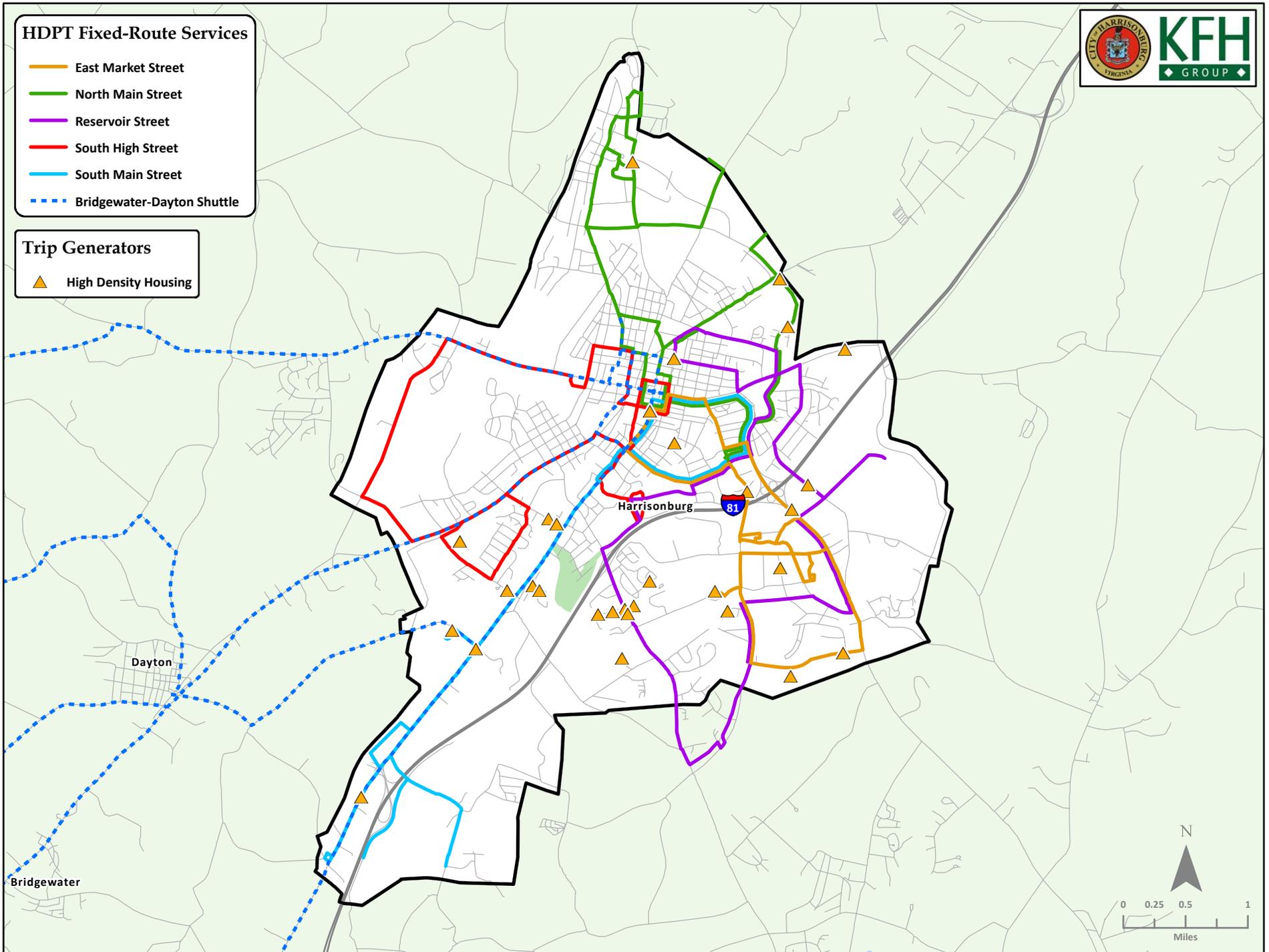
Assessment of Major Trip Generators/Destinations

The next significant aspect to the transit needs analysis is identifying the locations of popular destinations throughout the City of Harrisonburg. It is important to identify such major facilities, as they are large trip generators for the residents of Harrisonburg, including those individuals who are reliant upon public transit services. For the purpose of this aspect in the overall analysis of transit needs, a trip destination

Table 3-10: High Density Housing in the City of Harrisonburg

| Development Name | Address | City | State | ZIP |
|-----------------------------|--------------------------|--------------|--------------|------------|
| 865 East | 865 Port Republic Road | Harrisonburg | VA | 22801 |
| Affordable Corporate Suites | 20 Pleasant hill Road | Harrisonburg | VA | 22801 |
| Ashby Crossing | 1191 Devon Lane | Harrisonburg | VA | 22801 |
| Candlewood Suites | 1560 Country Club Road | Harrisonburg | VA | 22802 |
| Christophel Properties | 920 Oak Hill Drive | Harrisonburg | VA | 22801 |
| Comfort Inn Suites | 1440 E Market Street | Harrisonburg | VA | 22801 |
| Copper Beach | 410 Copperbeach Circle | Harrisonburg | VA | 22801 |
| Deer Run | 899 Port Republic Road | Harrisonburg | VA | 22801 |
| Foxhill Townhomes | 1627 Devon Lane | Harrisonburg | VA | 22801 |
| Grand Duke | 37 South Avenue | Harrisonburg | VA | 22801 |
| Greens at Chestnut Ridge | 128 Chestnut Ridge Drive | Harrisonburg | VA | 22801 |
| Harris Gardens | 215 Vine Street | Harrisonburg | VA | 22802 |
| Heritage Haven | 1501 Virginia Avenue | Harrisonburg | VA | 22801 |
| JR Polly Lineweaver | 265 N Main Street | Harrisonburg | VA | 22801 |
| Lineweaver Annex | 265 N Main Street | Harrisonburg | VA | 22801 |
| Longview Oaks | 480 Vine Street | Harrisonburg | VA | 22802 |
| Meriwether Hills Apartments | 151 Colonial Drive | Harrisonburg | VA | 22801 |
| Moore Properties, LLC | 414 Ott Street | Harrisonburg | VA | 22801 |
| Mosby Heights | 2510 Mosby Court | Harrisonburg | VA | 22801 |
| North 38 Apartments | 1190 Meridian Circle | Harrisonburg | VA | 22802 |
| Oak Hill Apartments | 208 Governors Lane | Harrisonburg | VA | 22801 |
| Park Apartments | 204 Rocco Avenue | Harrisonburg | VA | 22801 |
| Pat's Manor Homes | 3506 S Main Street | Harrisonburg | VA | 22801 |
| Pheasant Run | 321 Pheasant Run Circle | Harrisonburg | VA | 22801 |
| Residence Inn | 1945 Deyerle Avenue | Harrisonburg | VA | 22801 |
| South View | 1070 Lois Lane | Harrisonburg | VA | 22801 |
| Squire Hill | 1443 Devon Lane | Harrisonburg | VA | 22801 |
| Stone Gate | 1820 Putter Court | Harrisonburg | VA | 22801 |
| Sunchase Apartments | 1941 Sunchase Drive | Harrisonburg | VA | 22801 |
| The Colonnade | 351 N Mason Street | Harrisonburg | VA | 22802 |
| The Commons | 869 Port Republic Road | Harrisonburg | VA | 22801 |
| The Mill | 11 South Avenue | Harrisonburg | VA | 22801 |
| Valley Suites | 2420 S Main Street | Harrisonburg | VA | 22801 |

Figure 3-39: High Density Housing of the City of Harrisonburg



has been identified as the site of an educational institution, human service agency, major employer, medical center, or shopping center.

Educational Institutions

Given that a sizeable share of transit use is found within the youth population, it is important to detail the location of educational facilities. Furthermore, Harrisonburg and its immediate surroundings are home to a handful of universities, such as JMU and EMU, in addition to several community colleges and satellite campuses. For the purpose of this analysis, an educational institution represents an institution of higher learning, high school, or any public elementary and middle school. In total, there are 16 such institutions in the Harrisonburg, which are detailed in Table 3-11. The geographic location of these institutions is displayed in Figure 3-40, with the most significant institution, JMU, being located in the center of the city. All of the institutions are directly served by fixed-route transit with the exception of two elementary schools (WH Keister and Stone Spring).

Human Service Agencies

Human service agencies provide assistance and resources to residents seeking support in a spectrum of issues including, but not limited to, aging, childhood development, consultation, mental health, and physical rehabilitation. The range of services offered by these agencies make them a critical component to any supported community and, thus, are locations where public transit will undoubtedly serve as a vital and alleviating transportation option for individuals in need of such services. The study team identified 36 human service agencies that are denoted in Table 3-12 and spatially displayed in Figure 3-41. A large concentration of these services may be found in the downtown area and neighboring JMU campus, with the bulk of these agencies currently being served by HDPT fixed-route service.

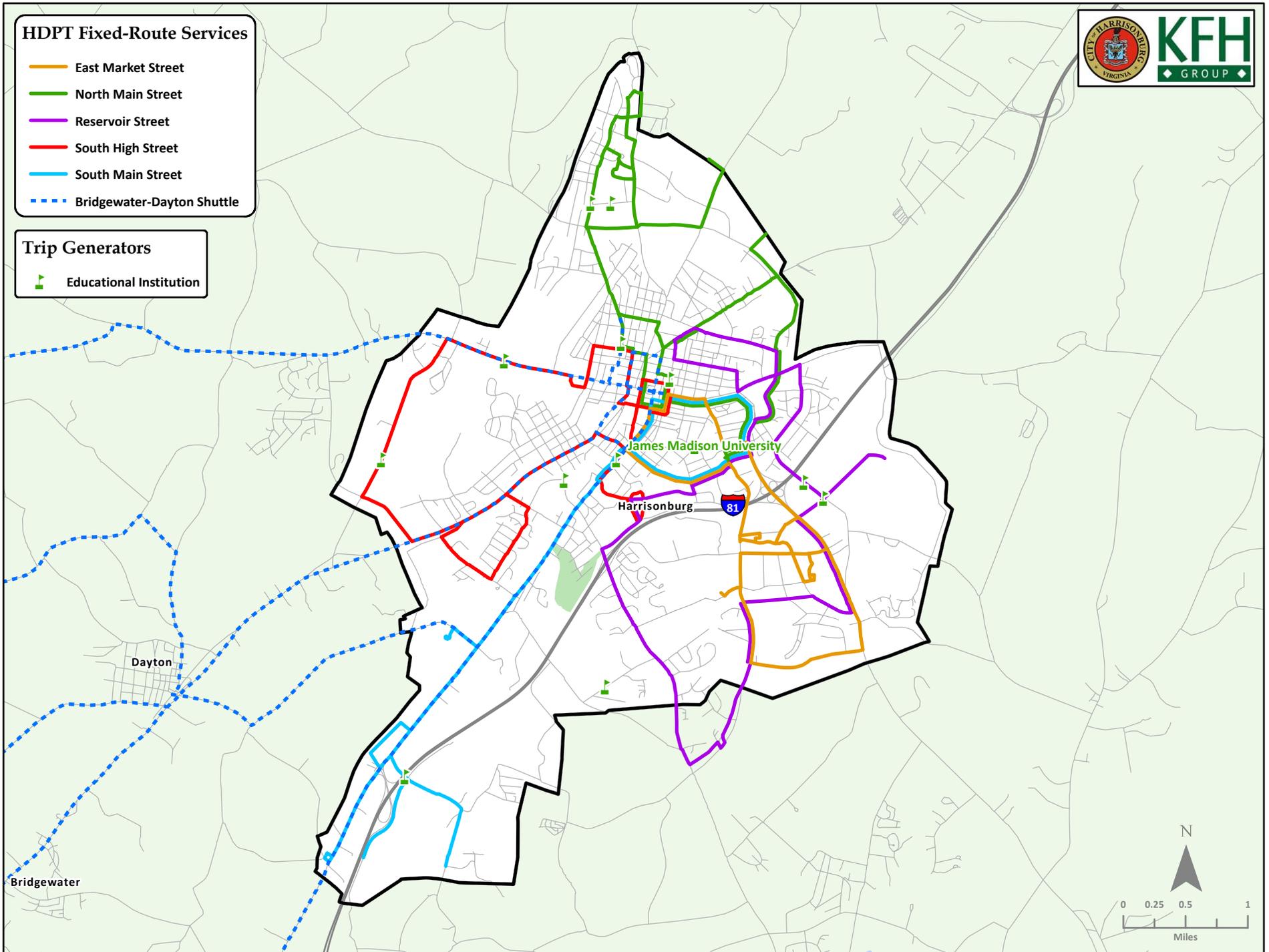
Major Employers

For the purposes of this analysis, a major employer was identified as any facility in the City of Harrisonburg employing over 100 persons. This list of 29 major employment sites was compiled by the Quarterly Census of Employment Wages for the fourth quarter of FY 2010, with the physical addresses and range of employees denoted in Table 3-13. There are four employment destinations in Harrisonburg with over 250 employees, which include: JMU; Rockingham Memorial Hospital; Fairfield and Sons, Inc.; and Tenneco Automotive, Inc. Although, the major employers are spatially dispersed throughout the city, as seen in Figure 3-42, all of the major employers are currently served by fixed-route transit.

Table 3-11: Educational Institutions in the City of Harrisonburg

| School Name | Address | City | State | ZIP |
|--------------------------------|--------------------------|--------------|-------|-------|
| Blue Ridge Community College | 160 N Mason Street | Harrisonburg | VA | 22802 |
| Eastern Mennonite University | 1200 Park Road | Harrisonburg | VA | 22802 |
| Eastern Menonite High School | 801 Parkwood Drive | Harrisonburg | VA | 22802 |
| Harrisonburg High School | 1001 Garbers Church Road | Harrisonburg | VA | 22801 |
| James Madison University | 800 S Main Street | Harrisonburg | VA | 22807 |
| Mary Baldwin College | 160 N Mason Street | Harrisonburg | VA | 22802 |
| Massanutten Technical Center | 325 Pleasant Valley Road | Harrisonburg | VA | 22801 |
| National College | 1515 Country Club Road | Harrisonburg | VA | 22802 |
| Skyline Middle School | 470 Linda Lane | Harrisonburg | VA | 22802 |
| Smithland Elementary School | 474 Linda Lane | Harrisonburg | VA | 22802 |
| Spotswood Elementary School | 400 Mountain View Drive | Harrisonburg | VA | 22801 |
| Stone Spring Elementary School | 1575 Peach Grove Avenue | Harrisonburg | VA | 22801 |
| Thomas Harrison Middle School | 1311 W Market Street | Harrisonburg | VA | 22801 |
| Waterman Elementary School | 451 Chicago Avenue | Harrisonburg | VA | 22801 |
| WH Keister Elementary School | 100 Maryland Avenue | Harrisonburg | VA | 22801 |

Figure 3-40: Educational Institutions of the City of Harrisonburg

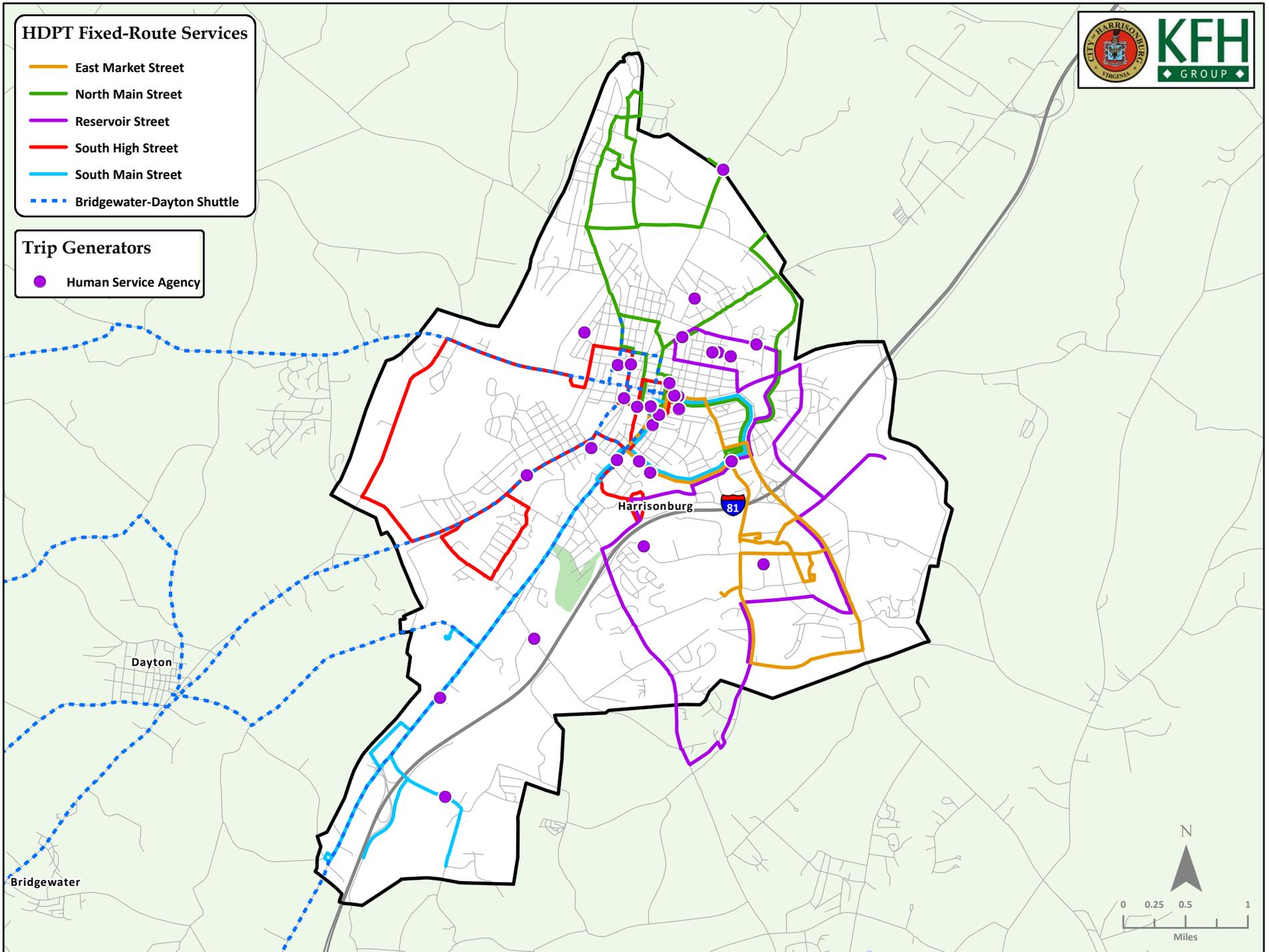


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Table 3-12: Human Service Agencies in the City of Harrisonburg

| Agency Name | Street Address | City | State | ZIP |
|---|--------------------------|--------------|-------|-------|
| 4-H Youth Development | 965 Pleasant Valley Road | Harrisonburg | VA | 22801 |
| ARC of Harrisonburg and Rockingham County | 620 Sims Avenue | Harrisonburg | VA | 22802 |
| Center for Marriage and Family Counseling | 96 Campbell Street | Harrisonburg | VA | 22801 |
| ChildCare Connection | 411 Stone Spring Road | Harrisonburg | VA | 22801 |
| Counseling and Psychological Services | 601 University Boulevard | Harrisonburg | VA | 22807 |
| Department of Social Services | 110 N Mason Street | Harrisonburg | VA | 22803 |
| DePaul Community Resources | 21 Southgate Court | Harrisonburg | VA | 22801 |
| Fairfield Center | 165 S Main Street | Harrisonburg | VA | 22801 |
| Family Life Resource Center | 273 Newman Avenue | Harrisonburg | VA | 22801 |
| First Step: A Response to Domestic Violence | 129 Franklin Street | Harrisonburg | VA | 22801 |
| Friendship Industries | 801 Friendship Drive | Harrisonburg | VA | 22802 |
| Hand in Hand Resource Mothers | 235 Cantrell Ave | Harrisonburg | VA | 22801 |
| Harrisonburg and Rockingham Thermal Shelter | 286 Kelley Street | Harrisonburg | VA | 22802 |
| Harrisonburg Pregnancy Center | 833 Cantrell Avenue | Harrisonburg | VA | 22801 |
| Harrisonburg Reevaluation and Housing Authority | 286 Kelley Street | Harrisonburg | VA | 22802 |
| Healthy Families of the Blue Ridge | 235 Cantrell Ave | Harrisonburg | VA | 22801 |
| Hope Community Builders | 450 Rockingham Drive | Harrisonburg | VA | 22802 |
| Massanutten Regional Library | 174 S Main Street | Harrisonburg | VA | 22801 |
| McNulty Center for Children and Families | 463 E Washington Street | Harrisonburg | VA | 22802 |
| Mercy House | 247 N High Street | Harrisonburg | VA | 22803 |
| New Bridges Immigrant Resource Center | 70 S High Street | Harrisonburg | VA | 22801 |
| Our Community Place | 17 E Johnson Street | Harrisonburg | VA | 22802 |
| Rebuilding Together | 205 S Liberty Street | Harrisonburg | VA | 22801 |
| RMH Center for Behavioral Health | 235 Cantrell Ave | Harrisonburg | VA | 22801 |
| RMH Life Recovery Program | 752 Ott Street | Harrisonburg | VA | 22801 |
| Roberta Webb Child Care Center | 400 Kelley Street | Harrisonburg | VA | 22802 |
| Second Home Child Care Center | 281 E Market Street | Harrisonburg | VA | 22801 |
| Skyline Literacy | 975 S High Street | Harrisonburg | VA | 22801 |
| Smart Beginnings | 800 S Main Street | Harrisonburg | VA | 22807 |
| Specialized Youth Services Child and Family Guidance | 100 Chicago Avenue | Harrisonburg | VA | 22801 |
| The Collins Center | 165 S Main Street | Harrisonburg | VA | 22801 |
| The Salvation Army | 185 Ashby Avenue | Harrisonburg | VA | 22802 |
| Transitions | 250 E Market St | Harrisonburg | VA | 22801 |
| United Way of Harrisonburg and Rockingham County, Inc | 420 Chesapeake Avenue | Harrisonburg | VA | 22803 |
| Valley Behavioral Medicine | 1931 Medical Avenue | Harrisonburg | VA | 22801 |
| Valley Programming for Aging Services, Inc | 800 E Main Street | Harrisonburg | VA | 22807 |

Figure3-41: Human Service Agencies of the City of Harrisonburg



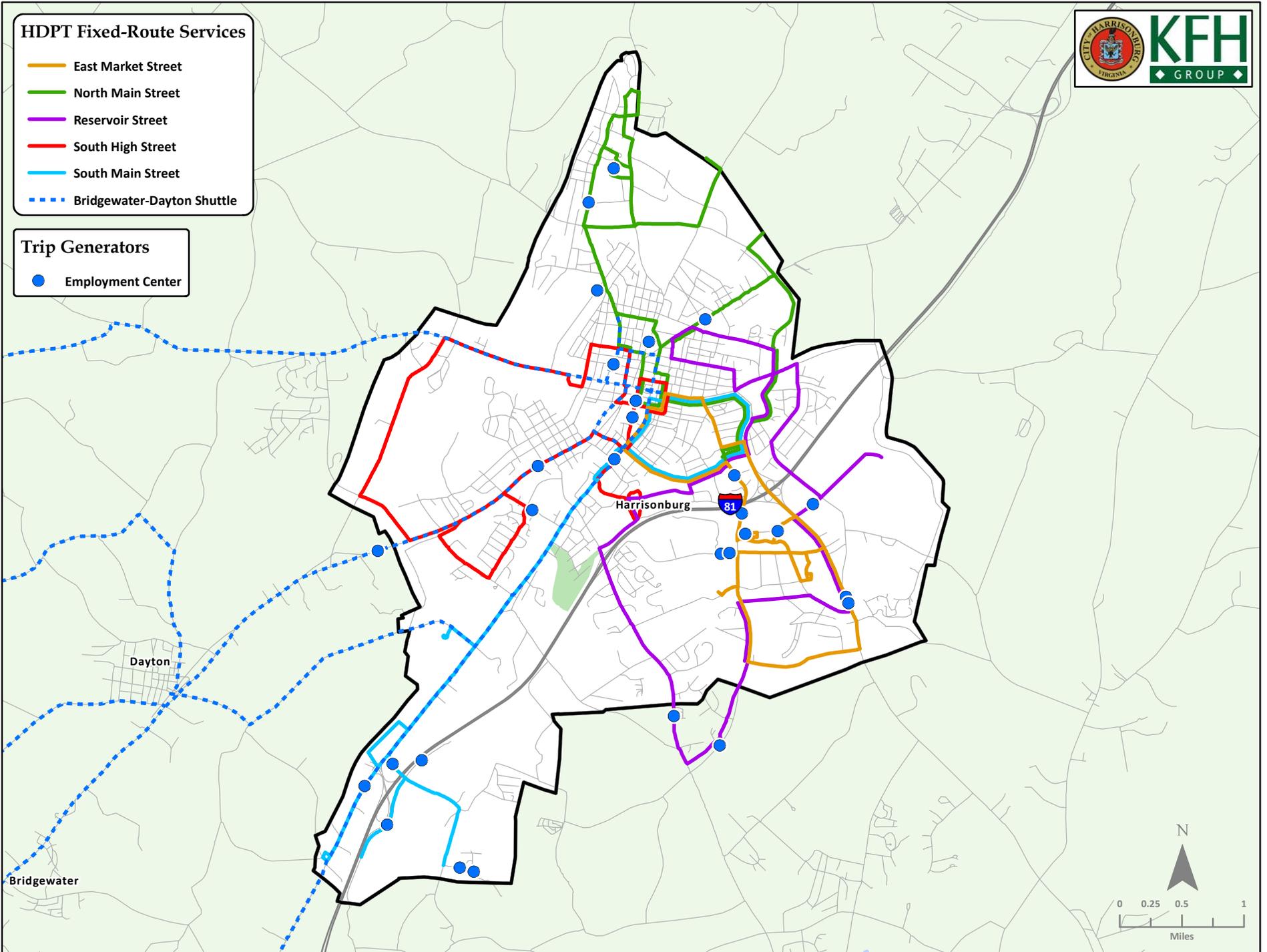
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Table 3-13: Major Employers in the City of Harrisonburg

| Employer Name | Address | City | State | ZIP | Employees |
|---|---------------------------|--------------|-------|-------|-----------|
| Avante at Harrisonburg | 94 South Avenue | Harrisonburg | VA | 22801 | 100 - 249 |
| ComSonics, Inc | 1350 Port Republic Road | Harrisonburg | VA | 22801 | 100 - 249 |
| Costco | 1830 Reservoir Street | Harrisonburg | VA | 22801 | 100 - 249 |
| Cracker Barrel Old Country Store | 121 Pleasant Valley Road | Harrisonburg | VA | 22801 | 100 - 249 |
| Daily News Record | 231 S Liberty Street | Harrisonburg | VA | 22801 | 100 - 249 |
| Eastern Menonite University | 1200 Park Road | Harrisonburg | VA | 22802 | 100 - 249 |
| Fairfield & Sons, LTD | 181 S Liberty Street | Harrisonburg | VA | 22801 | Over 250 |
| Harrisonburg Health & Rehabilitation Center | 1225 Reservoir Street | Harrisonburg | VA | 22801 | 100 - 249 |
| Home Depot | 121 Burgess Road | Harrisonburg | VA | 22801 | 100 - 249 |
| James Madison University | 800 S Main Street | Harrisonburg | VA | 22807 | Over 250 |
| Lowe's Home Centers, Inc | 201 Linda Lane | Harrisonburg | VA | 22802 | 100 - 249 |
| Manheim Remarketing, Inc | 3560 Early Road | Harrisonburg | VA | 22801 | 100 - 249 |
| Martin's Food Market | 2035 E Market Street | Harrisonburg | VA | 22801 | 100 - 249 |
| Montebello Packaging, Inc | 812 N Main Street | Harrisonburg | VA | 22802 | 100 - 249 |
| N Telos Wireliess Dip, Inc | 600 University Boulevard | Harrisonburg | VA | 22801 | 100 - 249 |
| Owens Brockway Plastic Products | 291 W Wolfe Street | Harrisonburg | VA | 22802 | 100 - 249 |
| Packaging Corporation of America | 930 Pleasant Valley Road | Harrisonburg | VA | 22801 | 100 - 249 |
| Perdue Farms, Inc | 904 S High Street | Harrisonburg | VA | 22801 | 100 - 249 |
| Rockingham Memorial Hospital | 2010 Health Campus Drive | Harrisonburg | VA | 22801 | Over 250 |
| RR Donnelly & Sons Company | 1025 Willow Sprins Road | Harrisonburg | VA | 22801 | 100 - 249 |
| Special Fleet Service | 875 Waterman Drive | Harrisonburg | VA | 22802 | 100 - 249 |
| Target Corporation | 1995 E Market Street | Harrisonburg | VA | 22801 | 100 - 249 |
| Tenneco Automotive, Inc | 3160 Abbott Lane | Harrisonburg | VA | 22801 | Over 250 |
| Texas Roadhouse | 1860 Evelyn Byrd Avenue | Harrisonburg | VA | 22801 | 100 - 249 |
| Truck Enterprises, Inc | 3440 S Main Street | Harrisonburg | VA | 22801 | 100 - 249 |
| Tyson Foods, Inc | 501 N Liberty Street | Harrisonburg | VA | 22802 | 100 - 249 |
| Virginia Menonite Retirement | 1285 Shank Drive | Harrisonburg | VA | 22802 | 100 - 249 |
| WalMart | 171 Burgess Road | Harrisonburg | VA | 22801 | 100 - 249 |
| WalMart | 2160 John Wayland Highway | Harrisonburg | VA | 22801 | 100 - 249 |

Source: Quarterly Census of Employment and Wages, 4th Quarter of 2010.

Figure 3-42: Major Employment Centers of the City of Harrisonburg



Medical Centers

Medical centers, which for the purposes of this study consist of hospitals and major clinics, represent a significant destination for riders of public transportation. Within the City of Harrisonburg, there are three medical centers that meet this description, including the Rockingham Memorial Hospital, which are listed in Table 3-14. These three medical centers and the existing HDPT fixed-route service are displayed in Figure 3-43, where it may be noted that each of the medical centers is currently served by a fixed-route.

Table 3-14: Medical Centers in the City of Harrisonburg

| Center Name | Address | City | State | ZIP |
|--------------------------------------|--------------------------|--------------|-------|-------|
| Harrisonburg Community Health Center | 563 Neff Avenue | Harrisonburg | VA | 22801 |
| Harrisonburg-Rockingham Free Clinic | 25 W Water Street | Harrisonburg | VA | 22801 |
| Rockingham Memorial Hospital | 2010 Health Campus Drive | Harrisonburg | VA | 22801 |

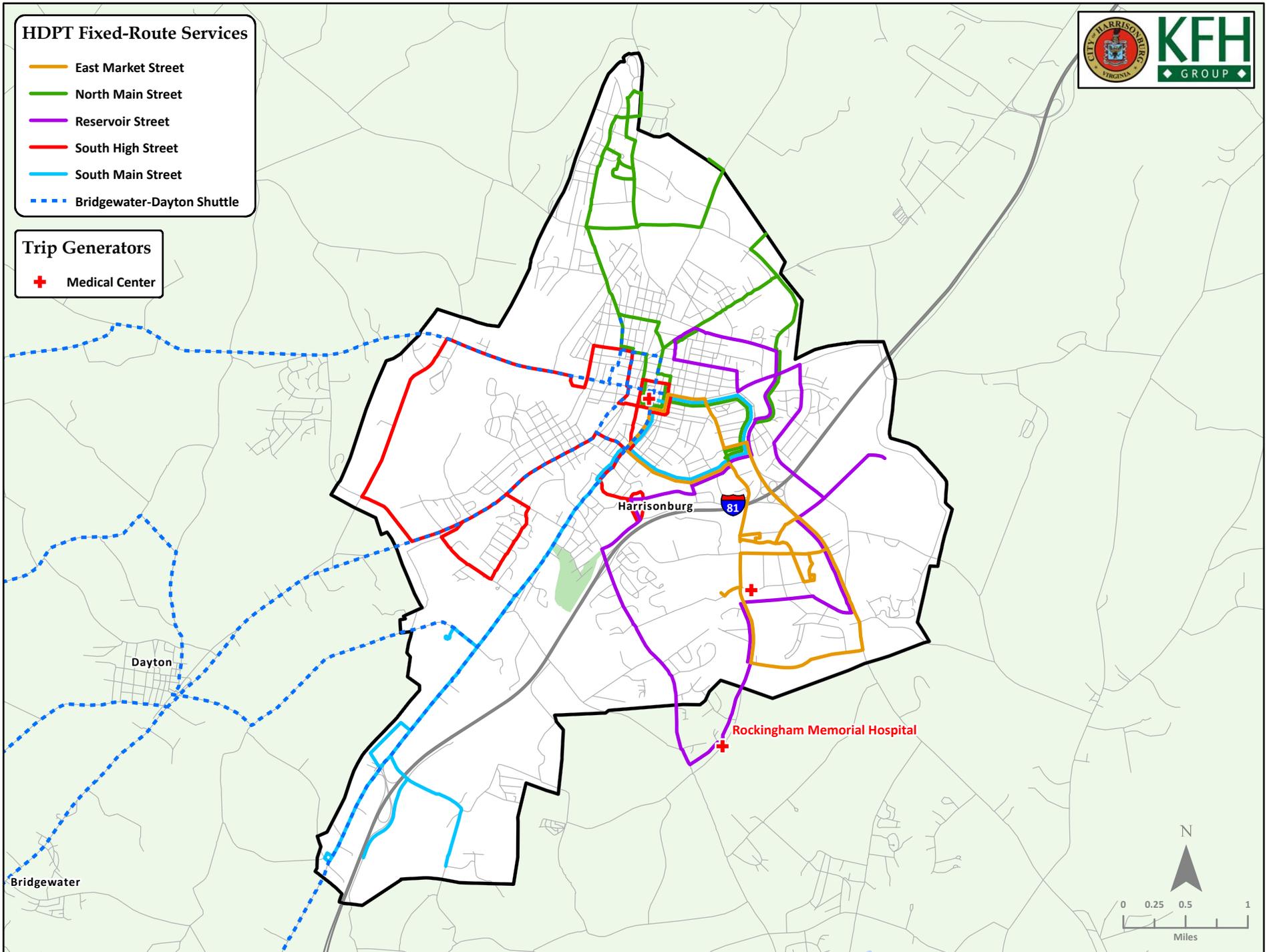
Shopping Centers

Shopping centers are destinations in which residents may purchase essential items, such as groceries, or general merchandise. These centers are an attractive trip generator for many residents, as many of them also serve as a place of employment. Within Harrisonburg, the study team located 25 shopping centers, which range from three separate Food Lion locations to the Clover Leaf Shopping Center and Valley Mall. A description of these 25 shopping centers may be viewed in Table 3-15, while a map of the geographic placement of these popular destinations may be found in Figure 3-44. Each of these shopping centers is currently served by an HDPT route, with a concentration of these generators being located along the East Market Street corridor to the east of Interstate 81 and in the vicinity of the aforementioned Clover Leaf Shopping Center.

Travel Patterns

To better understand the larger scale travel patterns it is also important to examine where residents and employees of Harrisonburg are commuting to and from. As such, the following subsection investigates available journey-to-work data, as well as a cursory comparison into the average travel time and public transportation mode share between Harrisonburg residents and fellow Virginians.

Figure 3-43: Medical Centers of the City of Harrisonburg

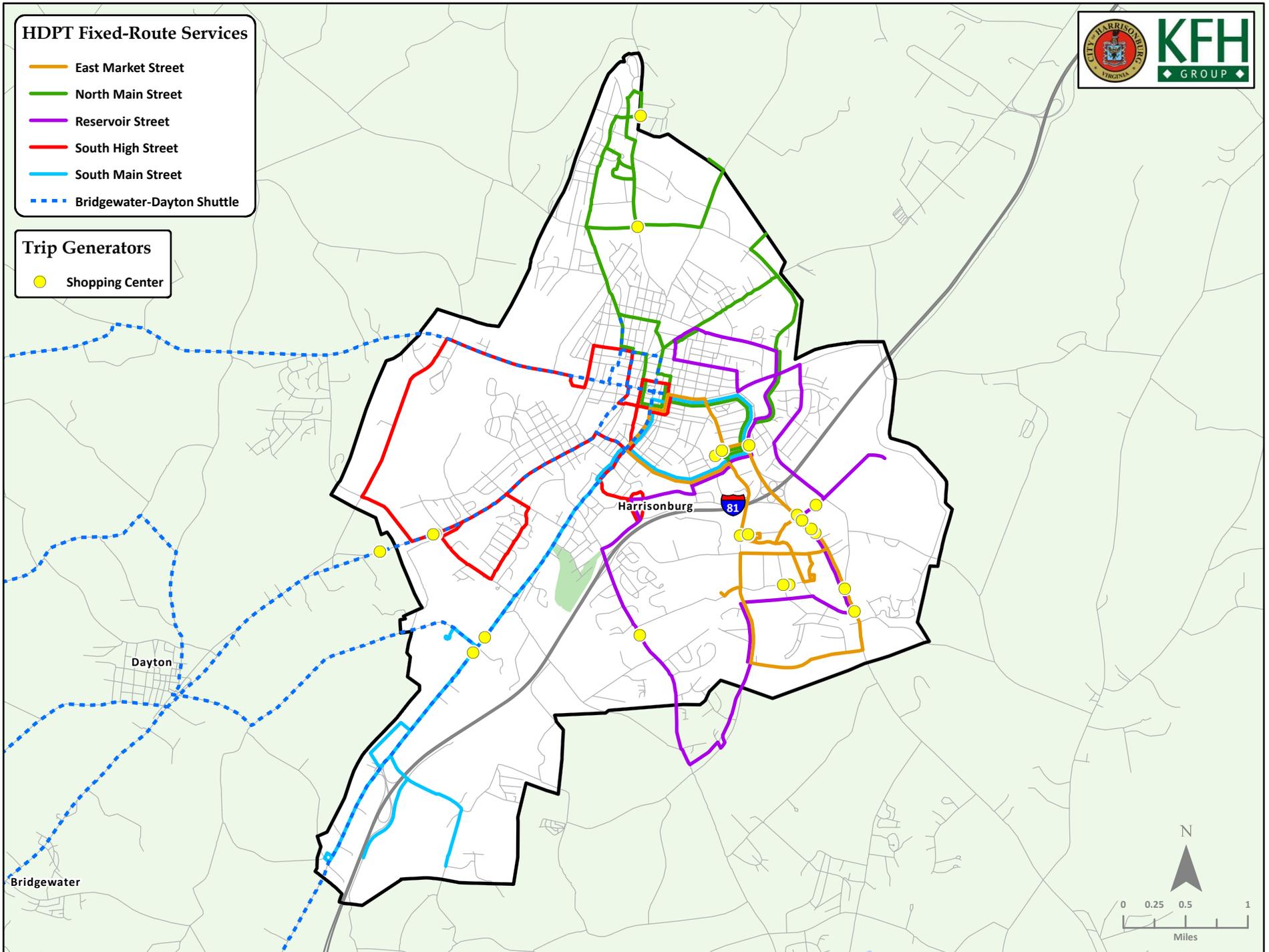


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Table 3-15: Shopping Centers in the City of Harrisonburg

| Center Name | Address | City | State | ZIP |
|---------------------------------------|--------------------------------------|--------------|-------|-------|
| Clover Leaf Shopping Center | 48 S Carlton Street | Harrisonburg | VA | 22801 |
| CostCo | 1830 Reservoir Street | Harrisonburg | VA | 22801 |
| Dukes Plaza Shopping Center | 2289 S Main Street | Harrisonburg | VA | 22801 |
| Evergreen Plaza | 313 Neff Avenue | Harrisonburg | VA | 22801 |
| Food Lion | 1021 Port Republic Road | Harrisonburg | VA | 22801 |
| Food Lion | 85 S Carlton Street | Harrisonburg | VA | 22801 |
| Food Lion | 1751 S High Street | Harrisonburg | VA | 22801 |
| Harmony Square | Virginia Avenue & Harmony Drive | Harrisonburg | VA | 22802 |
| Harrisonburg Crossing Shopping Center | 259 Burgess Road | Harrisonburg | VA | 22801 |
| Kmart | 1835 E Market Street | Harrisonburg | VA | 22801 |
| Kroger | 1790 E Market Street | Harrisonburg | VA | 22801 |
| Lowe's | 201 Linda Lane | Harrisonburg | VA | 22802 |
| Market Place Shoppes | E Market Street & Country Club Road | Harrisonburg | VA | 22801 |
| Martins | 2035 E Market Street | Harrisonburg | VA | 22801 |
| Park View Plaza | Route 42 & Mount Clinton Pike | Harrisonburg | VA | 22802 |
| Rockingham Square Shopping Center | 1765 S High Street | Harrisonburg | VA | 22801 |
| Sharp Shopper | 2475 S Main Street | Harrisonburg | VA | 22801 |
| Skyline Village Plaza | E Market Street & Evelyn Byrd Avenue | Harrisonburg | VA | 22801 |
| Spotswood Valley Square | 1790 E Market Street | Harrisonburg | VA | 22801 |
| Target | 1995 E Market Street | Harrisonburg | VA | 22801 |
| Valley Center | Neff Avenue & Deyerle Avenue | Harrisonburg | VA | 22801 |
| Valley Mall | 1925 E Market Street | Harrisonburg | VA | 22801 |
| WalMart | 171 Burgess Road | Harrisonburg | VA | 22801 |
| WalMart | 2160 John Wayland Highway | Harrisonburg | VA | 22801 |
| Waterman Square Shopping Center | 924 W Market Street | Harrisonburg | VA | 22802 |

Figure 3-44: Shopping Centers of the City of Harrisonburg



3-104

Journey-to-Work Data

The examination of commute patterns for residents and employees of Harrisonburg, through journey-to-work data from the 2000 United States Census Bureau, enables a greater comprehension of existing and potential transportation corridors in the region. Table 3-16 provides a summary of the commute patterns for the residents of Harrisonburg, as well as insight into where employees within the City of Harrisonburg are commuting from for their employment. Looking at where Harrisonburg residents are employed, unsurprisingly, the vast majority of Harrisonburg residents work within the city (70.09% of the workforce). However, there are four additional jurisdictions that employ over 1,000 Harrisonburg residents, which include the surroundings areas of Rockingham County (20.57%), Augusta County (2.20%), Shenandoah County (0.90%), and the City of Staunton (0.84%).

As a complement to investigating where the residents of Harrisonburg commute to for work, it is also important to recognize where the employees within Harrisonburg commute from for work. Table 3-16 also provides a summary of the commute patterns for employees within the City of Harrisonburg, and intuitively, the numerical figure of 12,806 representing Harrisonburg employees residing within the city is identical to the previous figure representing Harrisonburg residents working in the city. According to the data, a large number of residents in Rockingham County travel to Harrisonburg for work (13,514). The next most popular origin is Harrisonburg, which is represented by the aforementioned statistic. The third largest place of origin for Harrisonburg employees is Augusta County (2,081), which is trailed by the neighboring counties of Page (887) and Shenandoah (637). There is no significant segment of the commuting population who reside a great distance from Harrisonburg.

Commute Time and Public Transportation Mode Share

To further understand the typical travel patterns of residents in Harrisonburg, the study team examined the average travel time to work of Harrisonburg residents in comparison to other cities and counties in Virginia. Table 3-17 summarizes this measurement of average commute time to work and details that residents of Harrisonburg have among the state's lowest commute time, with an average travel time under 16 minutes. This finding, in combination with the results of the previous journey-to-work analysis, illuminates the potential for HDPT to efficiently serve its commuter population via public transportation, as the average resident experiences a relatively short commute in comparison to other places in the state. However, the right hand column in Table 3-17 shows that Harrisonburg ranks 49th in the state when examining the percentage of residents who travel to work by public transportation (0.80%). This relatively low percentage, extrapolated from the American Community Survey Five-Year Estimate for 2005-2009, outlines the difficulty that Harrisonburg has had in attracting residents to utilize its fixed-route system in netting a larger transportation mode share.

Table 3-16: Journey-to-Work Data for the City of Harrisonburg

| Rank | Harrisonburg as Place of Employment (Destination) | Count | Percent | Harrisonburg as Place of Residence (Origin) | Count | Percent |
|------|---|--------|---------|---|--------|---------|
| 1 | Rockingham County, Virginia | 13,514 | 42.36% | Harrisonburg, Virginia | 12,806 | 70.09% |
| 2 | Harrisonburg, Virginia | 12,806 | 40.14% | Rockingham County, Virginia | 3,758 | 20.57% |
| 3 | Augusta County, Virginia | 2,081 | 6.52% | Augusta County, Virginia | 402 | 2.20% |
| 4 | Page County, Virginia | 887 | 2.78% | Shenandoah County, Virginia | 164 | 0.90% |
| 5 | Shenandoah County, Virginia | 637 | 2.00% | Staunton, Virginia | 153 | 0.84% |
| 6 | Staunton, Virginia | 373 | 1.17% | Waynesboro, Virginia | 96 | 0.53% |
| 7 | Pendleton County, West Virginia | 307 | 0.96% | Richmond, Virginia | 72 | 0.39% |
| 8 | Waynesboro, Virginia | 152 | 0.48% | Fairfax County, Virginia | 70 | 0.38% |
| 9 | Hardy County, West Virginia | 136 | 0.43% | Washington, District of Columbia | 64 | 0.35% |
| 10 | Albemarle County, Virginia | 78 | 0.24% | Albemarle County, Virginia | 64 | 0.35% |
| 11 | Greene County, Virginia | 68 | 0.21% | Frederick County, Virginia | 42 | 0.23% |
| 12 | Fairfax County, Virginia | 54 | 0.17% | Virginia Beach, Virginia | 36 | 0.20% |
| 13 | Warren County, Virginia | 47 | 0.15% | Chesapeake, Virginia | 34 | 0.19% |
| 14 | Wilcox County, Alabama | 34 | 0.11% | Greenville County, South Carolina | 27 | 0.15% |
| 15 | Bedford County, Virginia | 28 | 0.09% | Charlottesville, Virginia | 27 | 0.15% |
| 16 | Fluvanna County, Virginia | 28 | 0.09% | Pendleton County, West Virginia | 27 | 0.15% |
| 17 | Roanoke County, Virginia | 26 | 0.08% | Essex County, Virginia | 23 | 0.13% |
| 18 | Chesterfield County, Virginia | 25 | 0.08% | Page County, Virginia | 22 | 0.12% |
| 19 | Frederick County, Virginia | 25 | 0.08% | Culpeper County, Virginia | 21 | 0.11% |
| 20 | Prince William County, Virginia | 25 | 0.08% | Winchester, Virginia | 20 | 0.11% |
| 21 | Bath County, Virginia | 24 | 0.08% | Prince William County, Virginia | 19 | 0.10% |
| 22 | Highland County, Virginia | 23 | 0.07% | Henrico County, Virginia | 18 | 0.10% |
| 23 | James City County, Virginia | 23 | 0.07% | Washington County, Maryland | 17 | 0.09% |
| 24 | Rockbridge County, Virginia | 23 | 0.07% | Lancaster County, Pennsylvania | 16 | 0.09% |
| 25 | Stafford County, Virginia | 22 | 0.07% | Nottoway County, Virginia | 16 | 0.09% |

Source: United States Census Bureau. 2000.

Table 3-17: Comparison of Commute Time and Public Transportation Use for the City of Harrisonburg

| Rank | Virginia City/County | Average Travel Time to Work (Minutes) | Rank | Virginia City/County | Percentage of Travel to Work by Public Transportation |
|----------|-----------------------------|---------------------------------------|-----------|-----------------------------|---|
| 1 | City of Lexington | 13.1 | 1 | Arlington County | 26.60% |
| 2 | City of Emporia | 15.0 | 2 | City of Alexandria | 21.70% |
| 3 | City of Buena Vista | 15.1 | 3 | City of Falls Church City | 15.80% |
| 4 | City of Harrisonburg | 15.5 | 4 | City of Fairfax | 9.00% |
| 5 | City of Charlottesville | 15.9 | 5 | Fairfax County | 8.90% |
| 6 | City of Norton | 15.9 | 6 | City of Winchester | 7.60% |
| 7 | City of Lynchburg | 16.4 | 7 | City of Richmond | 7.40% |
| 8 | City of Martinsville | 16.9 | 8 | City of Charlottesville | 7.20% |
| 9 | City of Radford | 17.5 | 9 | City of Manassas Park | 7.00% |
| 10 | City of Covington | 17.6 | 10 | Prince William County | 5.30% |
| | | | 49 | City of Harrisonburg | 0.80% |

Source: American Community Survey, 2005-2009.

Stakeholder Input Concerning Transit Needs

As part of the service and system evaluation, a series of interviews were conducted to gain information from key stakeholders on public transportation needs in the region. The list of stakeholders contacted included:

- City of Harrisonburg - Department of Planning and Community Development
- City of Harrisonburg - Department of Economic Development
- James Madison University
- Rockingham County Department of Social Services
- Eastern Mennonite University
- Central Shenandoah Planning District Commission
- Harrisonburg Tourism and Visitor Services
- Harrisonburg Downtown Renaissance
- Rockingham Memorial Hospital

A variety of organizations and agencies provide services in the Harrisonburg area to support the general population with their transportation needs, as well as people with disabilities, older adults, and people with lower incomes. The majority of these stakeholders have a working relationship with HDPT, though the level of coordination and interaction vary. These organizations provided the following valuable insight and input concerning transportation needs in the Harrisonburg area.

City of Harrisonburg - Department of Planning and Community Development

The Department of Planning and Community Development has a number of duties, including development review and the development of a comprehensive plan and zoning ordinance for the City.

The KFH Group conducted a phone interview with the Director of Planning for the City of Harrisonburg to discuss transportation needs, gain input on new development that may impact transit services, and obtain information on other plans for the Harrisonburg area that should be considered during the TDP process.

The Planning Director provided input on a variety of transportation needs and issues that impact transit services in Harrisonburg. A component of the discussion focused on the City of Harrisonburg's current Comprehensive Plan that is in the process of being updated. Virginia requires that every locality prepare and adopt a Comprehensive Plan for the physical development within its jurisdiction, which is detailed in the *Review of Recent Plans* section of the TDP. While the updated plan is still in draft format, it contains several key aspects relative to the TDP process.

Beyond the update of the Comprehensive Plan, the Planning Director noted several issues related to transit services that are important. These issues include addressing unmet transit needs in the urbanized areas in the adjacent County, exploring transportation service towards Dayton, service to the mixed-use developments in the south end of the City limits, and lastly connecting JMU student housing within the City to ensure this is not diluted by adding student housing in Rockingham County.

City of Harrisonburg - Department of Economic Development

Harrisonburg's Department of Economic Development plans and implements programs to encourage business development and capital investment within the city. The Department of Economic Development serves as an active partner for businesses in the city, providing incentives and resources for start-ups, small businesses, and large corporations alike. The Director of the Department indicated that public transportation is an asset for attracting and retaining businesses, particularly for the larger employers who inquire about the public transportation options for both their employees and potential clients.

Another major topic that was discussed was the current transfer location. The downtown is growing, and it was suggested that the current location is becoming too congested. A potential new location that was suggested for the downtown transfer point is at the corner of Mason Street and Gay Street.

James Madison University

JMU is a comprehensive university that is part of the statewide system of public higher education in the Commonwealth of Virginia. The university offers programs on the bachelor's, master's and doctoral levels with its primary emphasis on the undergraduate student. JMU is located in the City of Harrisonburg.

JMU's Master Plan was approved by the JMU Board of Visitors Jan. 9, 2009. The Master Plan is conceptual and does not serve as a capital construction plan, rather, the plan is a tool to help guide the university. This plan is also detailed within the *Review of Recent Plans* section of the TDP

KFH Group contacted the JMU's Traffic Demand Manager to discuss specific transit issues. The following transit needs were articulated:

Major Transportation Needs

- Next Fall JMU will be closing West Campus to single occupancy vehicles, though enough spaces will be retained for ADA vehicles. The expectation is

that cut through traffic will stop, though more peripheral traffic will be generated. To address this policy, students will be encouraged to utilize the Convo Express bus to get onto campus. JMU also anticipates implementing a third Intercampus Shuttle (ICS) next year, as well as a Saturday ICS. Additionally, HDPT will be receiving seven buses next fall to handle the anticipated additional riders.

- There is a need to provide service from Bridgewater down to Staunton, though there is not yet a strong push for this service. A regional transit authority would probably be required to offer this service.
- In terms of specific services that need to be implemented, the number one priority is to support and enhance the current transit services. After this, shuttle service for events would be beneficial, specifically football shuttles (at least for Homecoming) and a shuttle for graduation/commencement.

Rockingham County Department of Social Services

The DSS provides both financial and social work services that are administered according to State and Federal regulations. The mission of the agency is to promote self-reliance and protection for Virginians through community-based services. This agency covers the jurisdictions of Harrisonburg City and Rockingham County.

Financial Services include:

- Temporary Assistance for Needy Families (TANF)
- Food Stamps
- Medicaid
- Auxiliary Grants for the Aged, Disabled, and Blind
- General Relief
- Energy/Fuel Assistance
- State-Local Hospitalization

All of these programs have differing eligibility guidelines and require application and verification of information. They are designed to assist low-income families or individuals through cash grants or in-kind payments for financial needs.

The KFH Group conducted a phone interview with the Director of Social Services to discuss transportation needs. He conveyed that HDPT service is primarily used to support agency TANF clients for job services. Sometimes public transit is used to transport clients for their training if the HDPT schedules can be worked to fit training

times. The Department of Social Services purchases tickets for their clients when feasible.

In terms of specific services that would help address unmet transit needs, it was noted that:

- The hours of operation/span of service is not long enough,
- Earlier hours of operation are needed,
- The location of the routes often do not serve the client's needs,
- Frequency of service is an issue, especially when clients are trying to link trips, and
- Out of City/County medical trips are needed- specifically to Charlottesville.

Financially supporting additional service is rather complicated for the DSS, as funding flows with each client to best meet their individual needs, rather than in a lump sum that is identified as "transportation."

Central Shenandoah Planning District Commission (CSPDC)

CSPDC is a political subdivision of the Commonwealth. The CSPDC is comprised of five counties, five cities, and eleven towns in the heart of the Shenandoah Valley in the western part of Virginia. The Region encompasses a land area of 3,439 square miles has a population of over 278,000 and is bounded on the west by the Allegheny Mountains and on the east by the crest of the Blue Ridge Mountains. A Board of representatives from each governmental subdivision oversees the activities of the Commission. Appointment of Board Members is based on population with a majority of the members comprised of local government elected officials. The Central Shenandoah PDC assists localities in meeting transportation challenges by providing tailored planning services from the concept stage to implementation.

KFH Group spoke with the Transportation Manager for the CSPDC to collect a regional perspective. Two areas of focus were identified. The first centered on the *Harrisonburg Department of Public Transportation Maintenance/Administration Building Feasibility Study*. This study is detailed within the TDP, though the CSPDC wanted to advocate implementing the findings within the report. The second was a service related unmet need. The CSPDC feels that bus rapid transit is a great concept that is very progressive, which the system has typically been. Though it may not be feasible at this time, it is important to convey future strategies.

Eastern Mennonite University

EMU, affiliated with one of the historic peace churches, the Mennonite Church USA, is a private liberal arts university located on a 97-acre campus on the periphery of Harrisonburg, about three miles from state-owned James Madison University.

EMU highlights public transportation on the school's website, offering the following information:

"Bus transportation is available in Harrisonburg, although it is not as frequent and convenient as you might have experienced at home. There is a small fee for service to the Valley Mall and downtown Harrisonburg but it does not run at night, so if you go out during the day, be sure you are aware of the time and bus schedule for your return. The ISA will provide you with a bus schedule upon request. The ISA will also provide you with a map of Harrisonburg and vicinity should you desire. There is also taxicab service in Harrisonburg you can find the phone number in the yellow pages of the phone book."

KFH Group discussed public transportation issues and opportunities with the University's Vice President of Student Life. The majority of his remarks further detailed the description within the University's website. He feels that there is an unmet demand for student, and possibly faculty transportation. The current service design and schedule requires most students to be dependent on a vehicle. This is because the span of service is limited, the hourly frequency is too low, and the geographic coverage is not sufficient.

More direct and frequent service for both students and faculty would attract more ridership. Primarily, direct service to:

- 1) Downtown (most needed during the day)
- 2) The Valley Mall (afternoon and evening hours)
- 3) JMU (for EMU students)
- 4) Connection to Dulles International Airport – eventually this connection could lead to service to Washington via the Metro

Additionally, to attract greater faculty/staff ridership service should be explored to:

- 1) Belmont Estates (where faculty/staff reside) which is too far to bike and does not have bus service.
- 2) The second Walmart from EMU to South 42 (John Wayland Hwy.) along Garbers Church Rd. which would also go past Harrisonburg H.S.

Harrisonburg Tourism and Visitor Services

Harrisonburg Tourism and Visitor Services works in partnership with local businesses, media, travel writers, group tour operators, meeting and event planners, film scouts, and regional and state tourism partners to increase tourism in the Harrisonburg region, providing the most up to date information to visitors upon arrival, and working to improve the quality of life for the local community. Harrisonburg Tourism operates the Hardesty-Higgins Visitor Center, including the Valley Turnpike Museum, Rocktown Gift Shoppe, and The Civil War Orientation Center, located on S. Main Street.

The Tourism Operations and Visitor Services Manager indicated that visitors (primarily out of town visitors) typically do not use public transportation since it appears the service design is not structured to support this clientele.

The Manager believes that the main connectors are in place for bus service to succeed in attracting tourists to ride, but that the transfer point location is a problem. The current location at the Hardesty Higgins House produces congestion as a result of the buses and passengers queuing. Specifically, HDPT buses back-up local traffic and block the public parking for the Visitor Center. They also preclude tour buses (motor coach issue) from accessing the visitor center at times. She feels that this will become an even greater problem with the recent re-location of the Children's Museum to 150 S. Main St. (which is in very close proximity to the Hardest Higgins House).

The Manager expressed concern about the City's inability to work with major conferences/events for visitors without a visible and frequent downtown circulator. Additionally, she is apprehensive about promoting Rockingham County attractions since bus service is not available to these locations. Based on this, there are a few services that the Tourism Operations and Visitor Services Manager would like to see implemented. They are:

- Downtown Free Trolley - a shuttle similar to what is provided in Staunton. As noted on Staunton's website "The distinctive green vehicle runs a continuous route downtown six-days a week and is shared by local residents and visitors alike."³

³ www.staunton.va.us/community/transportation

- Trips to Massanutten and other County attractions.
- Service to the Fairgrounds in Rockingham County (south of the City).
- An EMU shuttle to downtown.

Harrisonburg Downtown Renaissance (DHR)

DHR offers many programs and resources for existing businesses and residents and those looking to move to the downtown district. Additionally, Harrisonburg Downtown Renaissance is working in partnership with the city government and the community to develop a comprehensive vision and master plan to revitalize downtown Harrisonburg into a prosperous and vibrant city center.

The telephone discussion with HDR's Executive Director revealed his concern with the existing transfer point at the Hardesty Higgins House. The shelter at the current location is not sufficient so people go inside the library or the Tourism House, especially during inclement weather. Also, parking at this location and surrounding area has become more of a challenge. The Executive Director recommended making the Farmer's Market the transfer point. He reported that interest for this location has been voiced by constituents, and would make it a little easier for customers since this location offers more bus route options.

Unmet transit needs that were identified during the interview were:

- JMU late night downtown social run – this was attempted and suspended in the past due to poor ridership. The Executive Director feels that the service was not properly promoted and a dedicated bus to downtown is an unmet need.
- Dedicated bus between downtown and JMU.
- Dedicated bus between downtown and EMU.
- Downtown trolley service – used to have trolley service but was suspended

Harrisonburg Downtown Renaissance's goal is to have people work and live downtown. The Director indicated that implementing the transit services listed above would aid in this effort. HDR would also like to incorporate a walking tour/ bus tour that is free, similar to Staunton. They feel this type of service would attract tourists. HDR would work with HPTD to staff and promote this service.

Rockingham Memorial Hospital

Rockingham Memorial Hospital, located just outside Harrisonburg, is an independent community hospital that has been providing healthcare services since 1912. Serving a seven-county area with a population of close to 200,000, the 238-bed hospital admits more than 15,500 inpatients annually and delivers close to 1,750 babies per year. RMH averages more than 18,000 surgical procedures annually, and the RMH Hahn Cancer Center provides more than 16,000 cancer treatments per year. The RMH Emergency Department treats more than 70,000 patients per year. Community wellness and outreach are the primary cornerstones of the overall mission of RMH.

KFH Group discussed transit opportunities and needs with the hospital's Director of Facilities Planning and Development. He reported that their clients use HDPT service. Some employees use public transit as well, though not as many as when the hospital was located within the City. Feedback to the hospital concerning public transportation indicates that the patients appreciate that the service is available, though they would like it to be more convenient.

The Director explained that the hospital used to have a lot of routes when it was situated in downtown Harrisonburg. Now that it has moved farther out, there are not as many opportunities for riders. The impetus behind the move was to situate the hospital in the Rockingham County where the County would like to grow.

The issue of the current hospital stop not situated at the front door of the hospital was broached. It was conveyed that the buses are too large to get to the front door of the hospital. The distance factor "appears" (according to the Director) to be a perception issue, as a wide sidewalk extends from the bus stop to the hospital front door which is less than 100 yards away.

Rockingham Memorial Hospital envisions its facility as more than just a traditional hospital. It is a destination that includes (or will include in the future) doctor offices, pharmacy, health campus, etc. The Director would like to see the hospital be transformed into a transfer point/hub, similar in status as JMU and the downtown transfer point

In the past the hospital provided more financial support – the hospital would anticipate usage and pre-pay for the service (ex. pre-pay for 100 riders a day). The Director stated that the hospital would be open to contribute financially if more service was offered and it was more convenient for its clients and staff.

Chapter 4

Service and Organizational Alternatives

INTRODUCTION

The first three chapters prepared for HDPT's Transit Development Plan (TDP) documented transit needs in the City of Harrisonburg and analyzed the services currently available. The development of these data collection and analysis reports showed that there are some currently unmet transit needs in the City, as well as a number of future opportunities, particularly with the growth of James Madison University (JMU) and the school's decision to close part of its campus to single-occupant vehicles. The purpose of this fourth chapter prepared for the TDP was to provide a series of service and organizational alternatives that could potentially be implemented to help further meet transit needs in the City and perhaps in the region. These alternatives were developed as a starting point for discussion with the Steering Committee for the TDP. The Operations Plan (Chapter 5) includes the preferred alternatives that the Committee chose to move forward with for the six-year plan.

For each alternative there is a description of the concept, a discussion of the advantages and disadvantages, and a cost estimate. Service alternatives are presented first, followed by the organizational alternatives. Projects that have already been planned or are currently underway independent of the TDP are also included, as they have been integrated into the six-year plan.

SERVICE ALTERNATIVES

The service alternatives have been organized into four general categories:

- Potential improvements focused on the year round, City-oriented routes;

- Potential improvements focused on the seasonal routes associated with the large population of college students;
- Potential improvements focused on the region; and
- Infrastructure improvements.

Potential Improvements for the Year-Round Fixed-Route Network

The transit needs analysis discovered that the current city-oriented fixed routes are, for the most part, serving the areas of the City where they are needed. Geographic coverage of the City is good, with all of the densely populated areas served. The focus of the alternatives below is to improve upon these routes, when and where feasible.

City Alternative #1: Potential Routing Changes

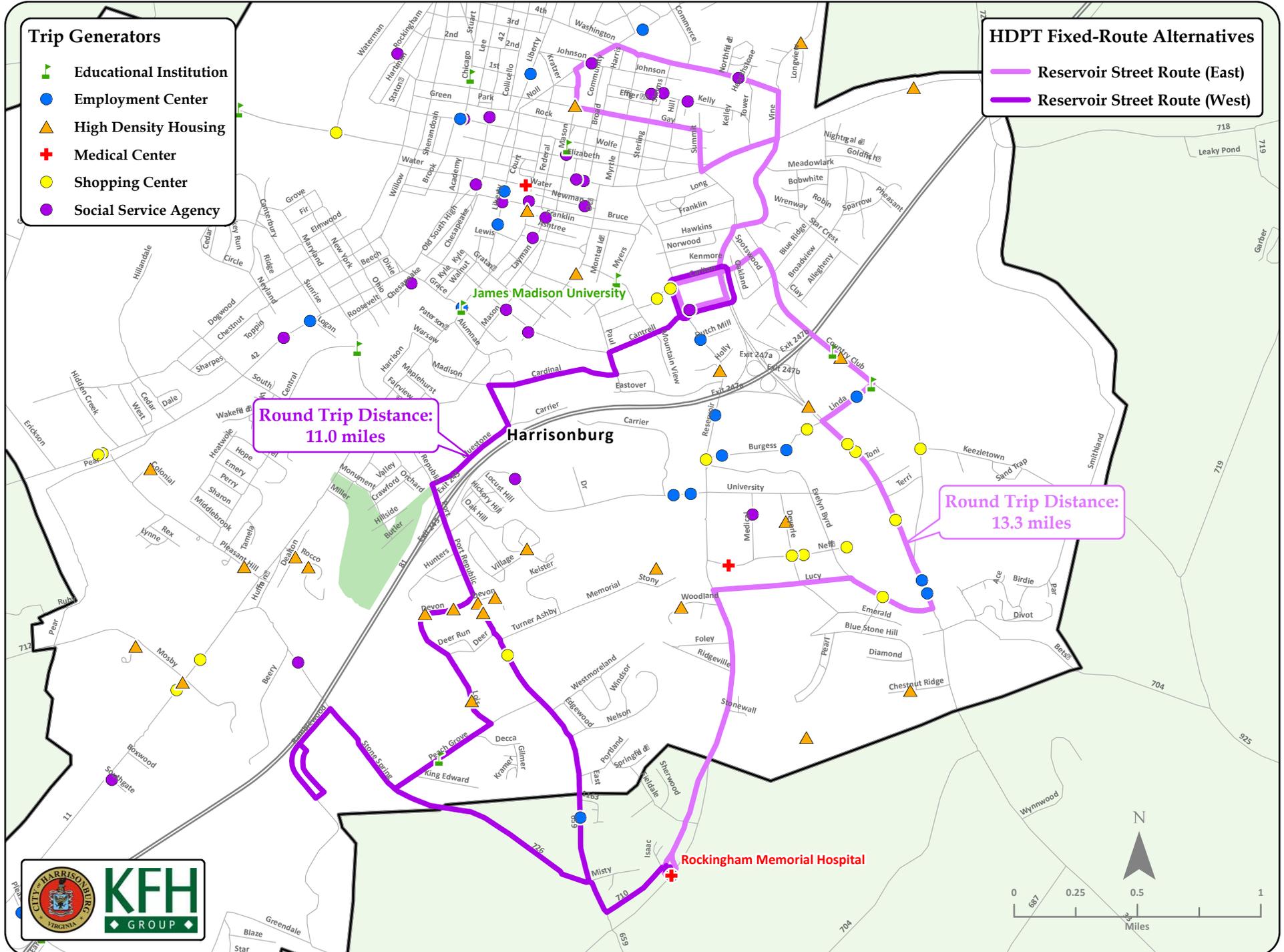
Route 2. When transit services are needed for new developments in the Stone Spring Road area, these areas could be served by splitting Route 2 into two more linear routes, the Route 2 East, traveling from the downtown area over I-81 via Country Club Road, then the existing route to the Rockingham Memorial Hospital (RMH). The route would return to the downtown via the same route, offering bi-directional serving on the eastern portion of the current route alignment.

Route 2 West would travel from the downtown area via Cantrell, Cardinal, Bluestone, and Port Republic to RMH. On the return trip, the route would serve new developments along Stone Spring Road, as well as the existing developments along Peach Grove Avenue, Lois Lane, and Devon Lane, returning to downtown via Port Republic, Bluestone, Cardinal, and Cantrell. These potential routings are shown in Figure 4-1.

Currently there is not a high level of transit need along Stone Spring Road, but development is planned for this area. There is currently a significant level of seasonal service along Lois Lane/Devon Lane (Routes 6, 7, 12, 13, 14, and the evening routes), but no service when JMU is not in session.

An alternative to splitting Route 2 to serve the Stone Spring Road area would be to extend one of the seasonal routes that serve Lois Lane/Devon Lane. This decision will need to be based on the nature of the developments and the associated transit demand along Stone Spring Road.

Figure 4-1: Map for HDPT Alternative #1 (Split Route 2)



Advantages

- Splitting Route 2 would provide a second route to RMH.
- Splitting Route 2 would provide linear, rather than loop service.
- This concept provides for transit service to a newly developing area.
- Route 2 West provides year-round service to several developments that currently only have seasonal service.

Disadvantages

- Route 2 West routing, as proposed, is rather awkward as there is not currently an optimal place for a bus to turn around directly off of Stone Spring Road. This may change once the area is developed.
- Route 2 West duplicates some of the seasonal routes.

Cost

- If Route 2 West were to operate the same number of service hours as the current Route 2 (3,425 annual revenue hours), the annual fully-allocated operating cost would be about \$197,000 annually. An additional vehicle would also be needed (about \$425,000).

Route 3. The information gathered from riders via the on-board survey indicated that there is a desire for HDPT to serve the Walmart that is located on Route 42 (south). HDPT could do this with Route 3 by having it continue on Route 42, travel the perimeter of the Walmart lot to an agreed upon new stop, and then exit onto Erickson, picking the existing route back up at the Rockingham Medical Building stop.

This addition will likely take 5-7 minutes and may not currently be possible; however when HDPT moves the transfer location to a larger area, Route 3 could layover at the new transfer location, rather than at Chandler Hall, and serve JMU on its periphery, rather than penetrating the campus completely to Chandler Hall.

Advantages

- Adds a major shopping destination to the route, providing much more convenient access for transit riders.
- Meets a need that was identified by riders via the survey.

Disadvantages

- Adds time to the route.

Cost

- The cost to add this stop would include the small incremental operating costs of the additional mileage, as well as the capital cost of adding a bus stop and potentially a shelter.

City Alternative #2: Offer Later Hours of Service

The results of the passenger surveys indicated that the service improvement that was the most frequently requested by riders of the City routes was for later hours of service. This result is consistent with the riders' rating of the hours of service, which were over 40% unsatisfactory. This alternative focuses on extending the hours of service on Routes 1-5 from the current ending time of between 6:20 p.m. and 6:57 p.m. (Monday through Friday) and 5:20 p.m. to 5:57 p.m. (Saturday) to an ending time of two hours later than that.

Advantages

- Provides mobility for City transit riders for two additional hours of the day.
- Meets the number one request from the passenger survey (City routes).

Disadvantages

- Adds service that will likely be less productive than the current schedule.
- May be disruptive for scheduling drivers.

Cost

- Adding two revenue hours to each route for 310 operating days per year will add 3,100 annual revenue hours. The fully-allocated operating cost for this additional service would be about \$179,000 annually.

City Alternative #3: Improve Service Frequencies

The second most frequently requested improvement with regard to the City routes was for more frequent service. The City routes currently operate on an hourly basis. Providing 30-minute frequency on all of the routes would require one additional vehicle per route. There are two schools of thought with regard to service frequency. Some transit agencies choose a frequency based on policy/passenger convenience (i.e., 30 minutes or hourly), regardless of actual transit demand. Other transit agencies increase frequency based on capacity issues (i.e., improve the frequency of service when there are standees or people left behind). Currently the City routes are not at capacity,

so adding service would be for passenger convenience. Given the ridership and productivity on the routes, it may make sense to improve frequencies on an incremental basis. This approach would improve frequency on the system's busiest route (Route 1), but not yet on the other routes.

Advantages

- Provides more convenient service for riders.
- Reduces travel time.
- May attract choice riders with more convenient service.

Disadvantages

- While ridership will increase with increased frequency of service, it will not increase in direct proportion, meaning that productivity (in terms of passenger trips per revenue hour) will decrease.
- If frequency is improved on only one of the routes, the timed transfer system will only be effective for one of the vehicle trips and not the second.

Cost

- Providing for 30-minute frequency will essentially double the cost for each route where it is implemented and require an additional vehicle for each route where it is implemented. For Route 1, the annual revenue service hours would increase by 3,479 hours, resulting in a fully-allocated cost of about \$200,000. The capital cost would be about \$425,000 per vehicle.

City Alternative #4: Sunday Service

Adding Sunday service for the City routes was the third most frequently requested improvement listed by survey participants. One option may be to offer a reduced route network on Sundays, similar in concept to what is currently offered for the seasonal routes (Sunday Shuttle #1 and #2).

Advantages

- Provides mobility for transit riders on Sundays.
- Meets a need articulated by current riders.

Disadvantages

- Sunday service would not likely be as productive as weekday or Saturday service.

Cost

- If three vehicles were operated (two fixed-route and one Americans with Disabilities Act paratransit) for an eight-hour span of service, the total annual revenue hours would be about 1,250 and the fully allocated cost would be about \$72,000. No additional vehicles would be needed.

City Alternative #5: Job Access Demand-Response

One of the unmet transit needs mentioned by the Department of Social Services (DSS) Director was for a specialized service that could transport parents and their children between home, daycare, and work. This type of trip is difficult to make on traditional fixed-route transit in small cities, as the parent would typically have to bring the child into the daycare and then wait for the next bus. With hourly headways, this is not a feasible option for most people.

Some communities have used Job Access and Reverse Commute (JARC) grants to help subsidize demand-response transportation to accommodate these trips. The demand response service could be provided by HDPT paratransit or could be provided by a taxi. HDPT would apply for the Federal Section 5316 grant through Virginia Department of Rail and Public Transportation (VDRPT) and the local match (50%) would be provided by the DSS using their Temporary Assistance to Needy Families funds. The amount of funding requested will be dependent upon how many families need this type of assistance, which likely changes frequently.

Advantages

- Provides assistance to community members needing help finding and keeping employment.
- Meets a need identified by stakeholders.

Disadvantages

- The JARC grant is competitive and this project may not be chosen.
- May be difficult to manage demand, given that the client base changes frequently.

Cost

- If ten parent-child pairs were served each day, Monday-Friday, this would equate to four passenger trips per day per pair, or 40 passenger trips per day (10,200 passenger trips per year). HDPT's fully-allocated cost per trip for paratransit is currently \$26.16 per trip. Using these figures, the total annual cost for this type of program would be about \$266,000 annually and would likely require HDPT to increase its paratransit fleet by two vehicles. A less expensive way to implement this alternative would be to have HDPT's taxi contractor provide these trips at the negotiated rate of \$9.00 per trip. The total annual cost for this program using taxis would be about \$92,000 annually. It may also be possible to negotiate a lower trip rate, given that the trips are shared and it is steady, predictable work for the taxi operator.

City Alternative #6: Downtown Circulator

Although the City has tried downtown trolley circulator routes in the past with limited success, tourism and downtown stakeholders mentioned the need for a downtown circulator. "Downtown Harrisonburg" was also the number one destination listed by JMU survey participants and the number two destination listed by City survey participants.

The actual circulator route would need to be configured to serve the major attractions and trip generators downtown and would need to be devised in consultation with Harrisonburg Tourism and Visitor Services and Harrisonburg Downtown Renaissance. The route will also need to be compact enough to provide a short ride time, will need to connect to employee and visitor parking areas, and be visible and attractive to riders.

Virginia Regional Transit operates trolley services in Staunton, with three different routes offered. From the route lengths and headways, it would appear that these routes provide local transit service as well as tourist transportation services.

Funds to operate a circulator service could come from Harrisonburg Tourism and Visitor Services, Harrisonburg Downtown Renaissance, or from the City.

Advantages

- Provides increased mobility in the downtown, both for residents and visitors.
- Could allow visitors to park once and then use the circulator to access attractions in Harrisonburg.

-
- Would provide a mechanism for groups to tour Harrisonburg, if an interpretative element were to be included.
 - Meets a need articulated by stakeholders.

Disadvantages

- There may not be strong enough demand for a successful service, as there is parking available near most major trip generators and attractions downtown.

Cost

- Year-round service, operating Monday-Saturday for a 12-hour span of service, would equate to 3,720 annual revenue service hours, which will cost about \$215,000 annually (fully-allocated cost). One vehicle would also be required.

Potential Improvements Focused on the Seasonal Routes

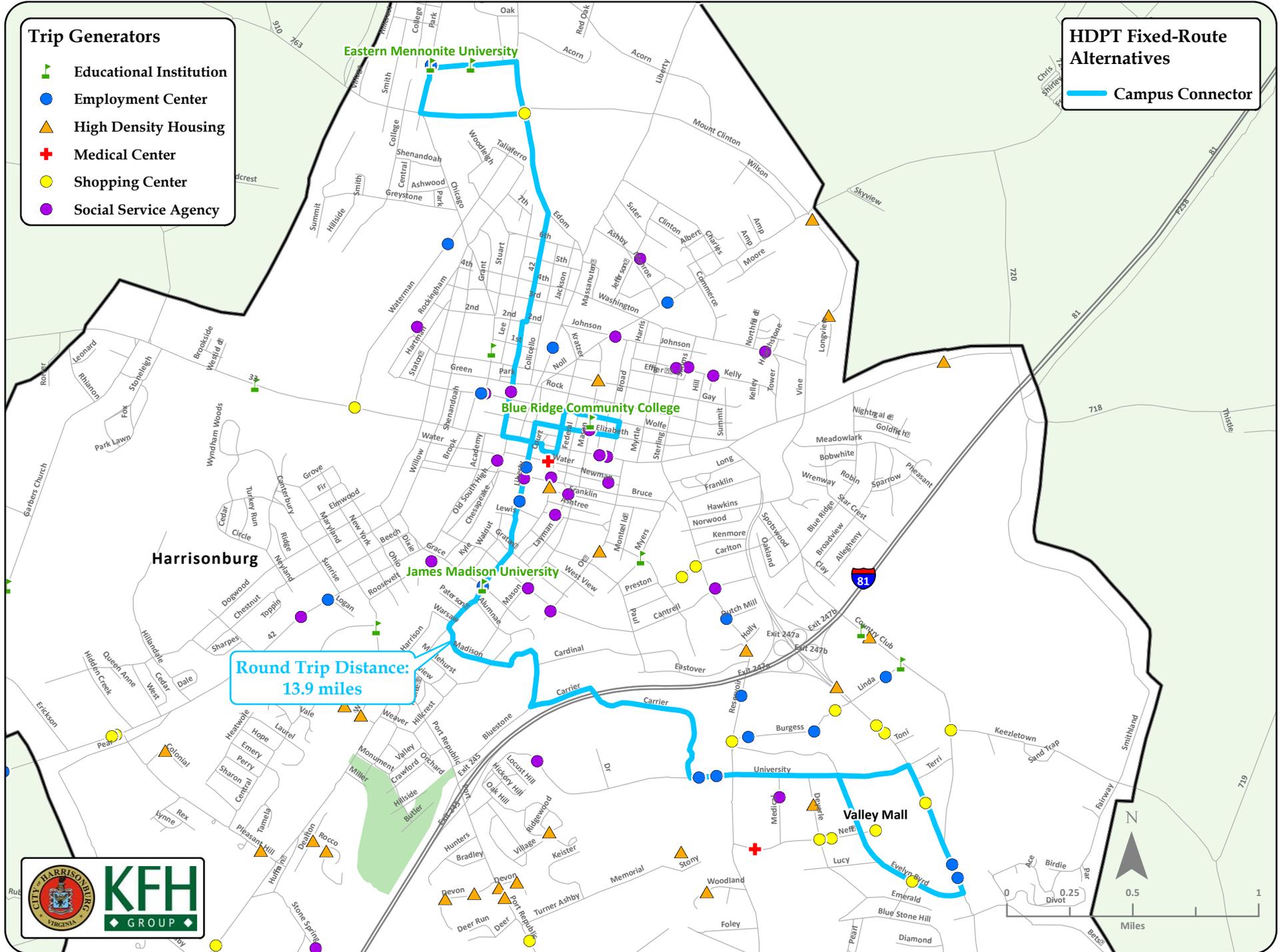
This section offers potential improvements focused on the seasonal routes offered by HDPT to accommodate the large population of college students in Harrisonburg. The transit needs and service analyses showed that there is a great deal of transit service offered, as well as strong transit demand focused on the JMU Community. This demand is expected to grow as the student population grows and JMU implements its Campus Master Plan that calls for reducing the number of single occupant vehicles on campus.

Seasonal Alternative #1: Campus Connector

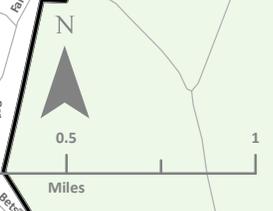
Survey participants who rode the seasonal routes listed downtown Harrisonburg as the number one area for additional service areas. This answer was rather confusing, as HDPT currently provides service throughout the downtown. In looking at the routes and schedules, this request has been interpreted to mean more direct service to downtown. Stakeholders from Eastern Mennonite University (EMU) also expressed a desire for additional transit service to connect to the downtown and to shopping areas.

This alternative proposes to meet both of these requests through a new seasonal route: the Campus Connector. This route would be a direct route from Eastern Mennonite University through downtown, and also serving Blue Ridge Community College through the JMU Campus to the major shopping areas adjacent to the Valley Mall. The route would then do the same in reverse, offering a linear, direct path of travel. The route could be timed so that it does not duplicate the Route 5 schedule for EMU. Figure 4-2 provides a map of this route. The route length as currently proposed

Figure 4-2: Map for HDPT Seasonal Alternative #1 (Campus Connector)



4-10



is a little awkward -- it is 13.9 miles, which is a little too long for one bus to do in one hour. Two buses on the route could likely provide 45-minute headways. To help fund this route, it is suggested that EMU, Blue Ridge Community College, and JMU contribute a share of the expenses.

Advantages

- Provides direct service between college campuses, the downtown, and the major shopping attractions.
- Meets a need articulated via the surveys and the stakeholders.

Disadvantages

- Is somewhat duplicative of existing routes, though more direct.

Cost

- If two vehicles are used for the service, operating a 12-hour span of service for 151 days per year, the fully-allocated operating costs would be about \$208,000 annually, with two new vehicles needed (\$425,000 each).

Seasonal Alternative #2: Additional Service to Accommodate West Campus Road Closures

This alternative was not derived from the TDP process, but is already a component of JMU's Campus Master Plan. It is included in this Chapter as it will be implemented in the first year of HDPT's six-year plan (FY2012). The full discussion concerning advantages, disadvantages, and costs are not included, as this alternative has already been decided upon.

As part of JMU's efforts to accommodate growth while reducing single occupant vehicle congestion on campus, sections of Bluestone and Duke Drives will be gated, providing vehicular access only for emergency vehicles, buses, service vehicles, specific vendors, and individuals requiring handicap parking. The gates will be installed on Bluestone Drive, just beyond the South Main Street entrance to campus, near Wampler and Converse Halls. Additional gates will be installed in the bookstore/Godwin Hall area; one between the bookstore and the existing bus stop; and one on Bluestone Drive in the area between the Godwin Parking Lot and the Village. A gate will also be installed between Garber Hall and the tennis courts on Duke Drive. These gates will be installed prior to the fall 2011 semester.

These road closures will affect students, faculty, and staff, and will increase the demand for campus bus circulation services. HDPT and JMU have already planned to add seven buses to the HDPT fleet to accommodate this demand. JMU and HDPT have also planned another bus staging area, as the stop at Godwin Hall is at capacity. The second bus staging area will be located on the parking lot that is currently being used as a construction staging area for the Bridgeforth Stadium expansion.

Seasonal Alternative #3: Continue to Accommodate Seasonal Growth

As previously discussed, JMU is planning to grow by about 7,000 students. This growth is requiring additional construction and re-development on the campus, as well as road, pedestrian, and transit capacity improvements. The plan improves the pedestrian orientation of the campus, with improved transportation routes an important feature of the plan. As a mobility partner with JMU, HDPT will need to incrementally add service throughout the life of this six-year plan to accommodate this growth and the shift to fewer single occupant vehicles and a more pedestrian-focused environment.

The focus of this alternative is to recognize that capacity will be needed, but not to specifically assign it to a route, without knowing at this time where it may be needed. This proposal calls for one additional vehicle per year, after the initial seven-vehicle increase that is planned for FY 2012.

Advantages

- Adds capacity as needed to support JMU's growth.
- Continues the focus on pedestrian and transit infrastructure rather than single-occupant vehicle infrastructure.

Disadvantages

- The only disadvantage is cost.

Cost

- Using HDPT's fully-allocated costs, the operating expenses associated with adding about 2,000 hours of service per year are about \$115,000 annually. HDPT's heavy-duty transit vehicles are about \$425,000 each.

Regional Routes

Several data sources cited the need for additional regional transit routes in the Harrisonburg area. These needs included local regional routes as well as intercity bus service to connect to the national network.

Regional Alternative #1: Local Regional Route- Route 42 Corridor

HDPT currently provides service to Bridgewater and Dayton on a limited basis, operating service one day a week to Bridgewater (Thursdays) and two days a week for Dayton (Tuesdays and Thursdays). The number one geographic request on the City-based surveys was for service to Bridgewater, with Dayton listed the fourth most frequently and Broadway listed the fifth most frequently. A regional north-south route serving the Route 42 Corridor from Timberville through Broadway, through Harrisonburg, including the new Walmart on Route 42, and then on to Dayton and Bridgewater would address the top five geographic service requests that survey participants indicated. This regional route would be most effective as a deviated fixed-route, with extra time built into the schedule to travel slightly off of Route 42 to pick people up. Given that this type of service is outside the scope of responsibility for HDPT, some sort of agreement would need to be in place to fund the route. Funding partners could include the County, local human service agencies whose clients could use the route, and/or a JARC or New Freedom grant, assuming that the target populations and trip needs could fit one of those funding categories.

It should also be noted that the segment of this route from Bridgewater to Harrisonburg is duplicative of the existing Blue Ridge Community College Shuttle (North Shuttle). It may be possible to develop an agreement with this existing shuttle to expand service and market it to the public.

Advantages

- This route would meet several of the geographic needs expressed by riders of the City routes who completed surveys.
- This route would provide mobility for residents of several small towns in the Route 42 Corridor, connecting them to services in the City of Harrisonburg.
- Service in this corridor could meet the needs of human service agency clientele in the corridor.
- If implemented in coordination with the existing Blue Ridge Community College (BRCC) shuttle, would be a cost effective solution to increased mobility, building on existing proven transit demand in the corridor.

Disadvantages

- Most of this route is outside the City, so this project may be one that should be pursued by the County or a non-profit entity.
- Demand for this service is somewhat unknown, though additional research into the human service clientele base would provide some insight into likely demand.

Cost

- If HDPT were to operate the route using one vehicle, for an eight-hour span of service, Monday through Friday, the fully allocated operating cost would be about \$120,000 per year. A body-on-chassis vehicle would also be needed (about \$73,000). Costs would likely be similar if the BRCC Shuttle were to expand to open its doors to the public, though this would also add an additional funding partner.

Regional Alternative #2: Service in the Route 33 East Corridor

Another regional need that was mentioned in the 2006 TDP, the Comprehensive Plan, and by a few stakeholders, was the need to provide service for the Route 33 Corridor (east) into Harrisonburg. This service could be as extensive as to Elkton and Massanutten Resort, or as compact as extending service to Massanetta Springs. As with the other regional alternatives, this type of service is beyond the mission of HDPT and would need regional partners to be implemented.

The other issue for this corridor is demand -- there are likely to be different trip needs among these three communities, some of which would require different operating hours. Potential riders from Elkton and Massanetta Springs would likely need to get to Harrisonburg for medical appointments, shopping, and work. Riders from Massanutten would more likely wish to go for tourism opportunities, though there could be some reverse commute opportunities for people who work at Massanutten (though it has been reported that they do have an employee shuttle).

Advantages

- Meets a need articulated by stakeholders, the previous TDP, and on the on-board survey (Massanutten).
- This route would provide mobility for residents who live in the Route 33 corridor, connecting them to services in the City of Harrisonburg.

- Service in this corridor could meet the needs of human service agency clientele in the corridor.

Disadvantages

- Most of this route is outside the City, so this project may be one that should be pursued by the County or a non-profit entity.
- Demand for this service is somewhat unknown, though additional research into the human service clientele base would provide some insight into likely demand.

Cost

- If HDPT were to operate the route using one vehicle for an eight-hour span of service, Monday through Friday, the fully allocated operating cost would be about \$120,000 per year. A body-on-chassis vehicle would also be needed (about \$73,000).

Regional Alternative #3: Intercity Bus Service

Currently there is limited intercity bus service in the region, provided by several private operators. There is a company (Home Ride) that provides service from JMU to the major population centers in Virginia (Northern Virginia, Charlottesville, Richmond, and Hampton), generally providing services on Fridays from Harrisonburg and back to Harrisonburg on Sundays. Megabus has also recently started serving the region, stopping in Christiansburg, but not in Harrisonburg. In addition, there is a “Green Shuttle” that provides service to Dulles Airport. This service runs once a day. There is also a bus that travels from Harrisonburg to Chinatown in New York City.

There are a couple of options that could be pursued to increase intercity bus connectivity in the Shenandoah Valley. The first alternative would be to contact Megabus to express interest in having service. Since Megabus provides service from Christiansburg to DC, they likely pass Harrisonburg on the way. It may be the most effective if JMU were to do this, as they have a large population of college students, which historically has provided a good clientele for Megabus. The Planning District Commission, as a regional body, may also be a good advocate for improved intercity bus service in the Shenandoah Valley.

The second way to approach this would be for VDPRT to solicit service for the I-81 Corridor through the Section 5311 (f) program, which provides funding assistance for intercity bus services in rural areas that “make a meaningful connection” to the

national intercity bus network. This would likely entail service to Charlottesville, VA, as the closest location of a Greyhound route.

While the provision of intercity bus service in the Shenandoah Valley is outside the mission of HDPT, if regularly scheduled service were to be provided to Harrisonburg, it would be helpful for travelers if HDPT served the intercity bus stop, and probably even more helpful if the intercity bus carrier would choose to stop at HDPT's transfer center (when moved to a larger facility).

Infrastructure Improvements

HDPT has grown significantly over the years and there are several infrastructure improvements that could be implemented to improve operations and customer service over the next several years. The ideas for these improvements did not stem from this TDP process, but were articulated in the City's 2010 Comprehensive Plan. They are discussed here so that they can be included in HDPT's six-year plan and provide consistent planning documents for the City.

Infrastructure Improvement #1: New Transfer Location

HDPT's City-oriented routes currently use an on-street transfer area behind the Hardesty-Higgins Visitor Center in downtown Harrisonburg. The general location is good, however there is only room for three buses to pull in and there are five routes. The street network surrounding the site also requires many tight turns and the stop itself is on a one-way street (Bruce Street). HDPT has identified a site that would provide more space and is geographically closer to a larger concentration of transit riders. This location, at the intersection of N. Main and N. Mason, is within a large, under-utilized parking lot adjacent to Rose's Department Store. Figures 4-3 and 4-4 provide photos of this lot. As indicated by the pictures, there is adequate space for an off-street transfer opportunity. HDPT has also budgeted \$50,000 to fund improvements to make this site function as a transfer location.

Advantages

- Moving the transfer site to a larger, off-street location will allow all of the City routes to meet for transfer opportunities and will allow for some modest system growth.
- Moving from the Visitor Center will free up space for tour buses to drop-off and pick-up passengers on Bruce Street.
- Moving the site from the Visitor Center will reduce the number of tight turning movements for the drivers.

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**Figure 4-3: Potential Transfer Location Site:
N. Main and N. Mason Streets**



**Figure 4-4: View 2 - Potential Transfer Location Site:
N. Main and N. Mason Streets**

Disadvantages

- The only significant disadvantage to moving to this site is the need to negotiate with the property owner.
- Two of the stakeholders interviewed for the TDP identified another location for HDPT to consider, the site of the Farmers' Market. This site is more constrained than the Rose's site, as shown in Figure 4-5, though it is on City-owned property.



Figure 4-5: Farmer's Market Site

- The Farmer's Market location is closer to the center of downtown, but adding the bus transfer location to this site would take away parking and would likely be difficult to manage on the days when the Farmer's Market is open.

Cost

- The cost to improve the parking lot so that it can function as a transfer center is highly dependent upon the level of passenger amenities desired by the City. HDPT has a \$50,000 grant to use for this purpose. If a more elaborate center is desired, the cost would rise significantly. Figure 4-6 portrays a passenger transfer center that was recently constructed in Hickory, North Carolina for \$475,000.



Figure 4-6: Greenway Public Transportation Transfer Facility, Hickory, NC

Infrastructure Improvement #2: Real-Time Transit Information

HDPT has been working on a procurement process to purchase a real-time transit information package for the fixed-route network. Through a competitive selection process, Nextbus has been chosen and is under contract. The Nextbus package will allow transit riders to access real-time schedule information from their computers, cell phones, and via electronic signs at major bus stops. It will also allow the dispatcher to see where all of the vehicles are, which is critical for a system like HDPT that has so many vehicles on campus at one time, subject to a variety of traffic conditions. This technology has become increasingly popular in the transit industry, particularly for programs that serve large college populations.

Cost

- Nextbus technology for the fixed routes will cost \$212,915 initially, and \$47,925 per year.

Infrastructure Improvement #3: Computer-Aided Dispatching

The implementation of a computer-assisted paratransit scheduling and dispatching program could help to improve the productivity of the paratransit program and would also help with paratransit record-keeping. These types of programs use Automatic Vehicle Locator (AVL) technology so that the dispatchers can see where the

vehicles are (similar to the Nextbus) and schedule paratransit trips accordingly. Another component of these programs are Mobile Data Computers (MDC), which are small on-board computers that the drivers use as their manifests, rather than paper and pencil. These devices provide a great deal of time savings, as manifest data is entered electronically, at the time of the trip, rather than having to be manually entered into a program after the end of the service day. These programs also have the capability to generate manifests based on the trips entered for the day, though transit agencies have had mixed results with the automatically-generated manifests.

Cost

- Paratransit scheduling software varies in cost and complexity. There are the initial capital costs for purchasing the MDCs and AVL units, the software, and the computers needed to run it. In addition, there is typically a monthly service charge for the use of the software. Nextbus has provided a cost estimate of \$10,025 for the hardware to implement this technology on the paratransit vehicles.

Scheduling software varies from about \$15,000 to \$65,000 or so.

Infrastructure Improvement #4: Electronic Fare Collection

Currently HDPT collects farebox revenues in simple mechanical fareboxes and does not have the capability to integrate electronic fare media into its operations. The majority of HDPT's ridership base is associated with JMU, and these passengers show their JMU Access Cards to the drivers as they board. There is not currently any mechanism to check to see if the cards are valid. Electronic fareboxes could provide this check and could also allow for other types of fare media, but this technology is currently expensive.

Cost

- According to NC State's Institute for Transportation Research, electronic fareboxes cost about \$13,200 each, with an annual operations and maintenance cost of about \$1,250.

Infrastructure Improvement #5: New Facility

The City of Harrisonburg is in the process of designing and building a new facility that will house HDPT as well as the school bus operation and the central garage. In 2009, the City contracted for a Maintenance/Administrative Building Feasibility Study. The study included criteria for designing the facility, defined the spaces and

requirements, and presented a facility layout. The site is adjacent to the current site on City-owned property previously used for a reservoir. Cost estimates were also included.

The 2009 cost estimate was just under \$24 million for the facility, with the costs broken into four phases:

- Phase 1: Demolition
- Phase 2: New Administration/Operations Building and Bus Parking
- Phase 3: New Maintenance Building (except school bus repair bays)
- Phase 4: New School Bus Repair Bays/demolition of existing building and construction of new fuel lanes

Of the total project cost, the transit share is expected to be just under \$11.4 million.

Table 4-1 provides a summary of the service alternatives.

ORGANIZATIONAL ALTERNATIVES

HDPT is the established transit provider in the City of Harrisonburg. As such, there are not major organizational alternatives to consider for the six-year plan. Two areas that are addressed are: staffing and organizational structure needed for regional services. These are discussed below.

Organizational Alternative #1: Add a Technology Position

Given that HDPT will be implementing Nextbus technology, along with the potential for computer-assisted paratransit scheduling in the future, it may be necessary to add a technology position to the staff roster. This position could also help with existing computer trouble-shooting, along with helping maintain and improve the HDPT website and pursue social media opportunities for HDPT.

Table 4-1: HDPT Summary of Service Alternatives

| Service Alternative | Purpose | Annual Operating Cost | Capital Needed | Capital Cost |
|--|--|---|---------------------------------------|--------------------------|
| Improvements Focused on the Year Round, City-Oriented Routes | | | | |
| 1A.1 Splitting Route 2 into Two Linear Routes - East and West | Provides a second route to RHM, offers linear rather than loop service, service to newly developing area, and Route 2 West provides year-round service to areas that currently only have seasonal service. | \$ 197,000 | 1 additional vehicle | \$ 425,000 |
| 1A.2 Extend Route 3 to serve Walmart on Route 42 (south) | Adds a major shopping destination to the route system. | Incremental | Adding bus stop and potential shelter | \$ - |
| 1B. Extend Service Hours by Two Hours | Provides mobility for City transit riders for two additional hours of the day Monday - Saturday. | \$ 179,000 | None | \$ - |
| 1C. Improve Service Frequencies on an Incremental Basis (Initially Route 1) | Provides more convenient service for riders, reduces travel time, and may attract choice riders with more convenient service. | \$ 200,000 | 1 additional vehicle | \$ 425,000 |
| 1D. Adding Sunday Service for the City Routes (Reduced Network) | Provides mobility for transit riders on Sundays. | \$ 72,000 | None | \$ - |
| 1E. JARC Demand-Response Service to Transport Parents and their Children between Home-Daycare-Work | Provides assistance to community members needing help finding and keeping employment. | Contingent Upon Demand & Provider: (Per Trip Cost) HDPT: \$26.16 Taxi Contractor: \$9.00 | Contingent Upon Provider | Contingent Upon Provider |

Table 4-1: HDPT Summary of Service Alternatives

| Service Alternative | Purpose | Annual Operating Cost | Capital Needed | Capital Cost |
|---|--|-----------------------|---------------------------|--------------|
| 1F. Downtown Circulator | Provides more direct and convenient service throughout downtown for local residents, students, and tourist. | \$ 215,000 | 1 Trolley | \$ 425,000 |
| Improvements Focused on the Seasonal Routes, JMU Routes | | | | |
| 2A. Campus Connector | Provides direct service between college campuses, the downtown, and the major shopping attractions. | \$ 208,000 | 2 new vehicles | \$ 850,000 |
| 2B. Additional Service to Accommodate West Campus Road Closures | Component of JMU's Master Plan - To accommodate growth while reducing Single Occupant Vehicle congestion on campus. | \$ - | 7 buses | \$ 3,100,000 |
| 2C. Continue to Accommodate Seasonal Growth | Adds capacity as needed to support JMU's growth, and to continue to focus on pedestrian and transit focused environment. | \$ 115,000 | As needed | \$ 425,000 |
| Improvements Focused on the Region | | | | |
| 3A. Local Regional Route - Route 42 Corridor | Provides mobility for residents for several small towns in the Route 42 Corridor, connecting them to services in the City of Harrisonburg. | \$ 120,000 | 1 body-on-chassis vehicle | \$ 73,000 |

Table 4-1: HDPT Summary of Service Alternatives

| Service Alternative | Purpose | Annual Operating Cost | Capital Needed | Capital Cost |
|---|--|------------------------------|-------------------------------------|---------------------|
| 3B. Service in the Route 33 East Corridor | Provides mobility for residents for several small towns in the Route 33 Corridor, connecting them to services in the City of Harrisonburg. | \$ 120,000 | 1 body-on-chassis vehicle | \$ 73,000 |
| 3C. Intercity Bus Service | Provide a greater number of intercity bus service options in the region. | | | |
| Infrastructure Improvements | | | | |
| 4A. New Transfer Location | A larger, off-street location will allow all of the City routes to meet for transfer opportunities and will allow for some modest system growth. | | | \$ 50,000 |
| 4B. Real-Time Transit Information | Will allow transit riders to access real-time schedule information from their computers, cell phones, and via electronic signs at major bus stops. | \$ 47,925 | Hardware/ Software/ Equipment | \$ 212,915 |
| 4C. Computer-Aided Dispatching | Improve the productivity of the paratransit program and help with paratransit record-keeping. | \$ 5,798 | MDT/ software | \$ 25,025 |
| 4D. Electronic Fare Collection | Provide technology to read JMU Access Cards as well as integrate electronic fare media. | \$ 43,750 | Electronic fare boxes | \$ 462,000 |
| 4E. New Facility | To accommodate system growth. | | Facility | \$11,400,000 |
| TOTAL, ALL POTENTIAL ALTERNATIVES | | \$ 1,523,473 | | \$ 14,583,025 |

Advantages

- Allows for HDPT to have an “in-house” expert for the new technologies, without having to tie up an existing staff person’s time.
- Will help provide a smooth transition for new technologies at HDPT.
- Allows for HDPT to have in-house expertise for web development and social media.

Disadvantages

- The only disadvantage is cost.

Cost

- An estimate for this position is \$50,000 per year, plus the City’s fringe rate of 21%, for an estimated total cost of \$60,500.

Organizational #2: Structure for Regional Routes

If regional routes are to be implemented in the Harrisonburg area, there will need to be a mechanism in place to finance and operate these services. There are two primary ways that this could occur, and these are discussed below.

The simplest organizational option for expanding service beyond the City is to maintain the operation of transit services by the City of Harrisonburg through the current HDPT structure and grow the system via contractual agreements. This alternative would be the simplest by maintaining the existing administrative and operational staff and current vehicle fleet, with expansion as needed based on the service improvements chosen.

The existing structure could serve as the foundation for a regional transit system, with system expansions taking place through contractual agreements with Rockingham County and potentially other jurisdictions/entities. The City would remain the operator, with additional funds provided by neighboring jurisdictions to serve areas outside of the City. This strategy would provide customers with seamless regional services, and offer access to the many destinations and needed services in the area. This model would likely work well for a relatively modest level of regional service that ties into HDPT’s current services.

Advantages

- Easy to implement, requiring only contractual agreements to expand the base of service to meet the transit needs of the residents of neighboring jurisdictions.
- Allows for seamless connectivity from regional services to the City's route network.

Disadvantages

- Does not create "ownership" for the other jurisdictions. Control over the system would remain with the City, which may not be viewed favorably by participating partners.
- The City would have the major responsibility for transit in areas that are not located within the City.

Regional Entity

If a significant level of regional service is implemented, a more regional institutional structure may be desirable. While this progression is unlikely to occur in the next six years, the possible institutional structures are described for informational purposes.

In Virginia, local governments have a number of different ways to come together to create joint enterprises to perform public functions, including the provision of public transportation. Two specific examples include transportation districts and regional transportation authorities.

Transportation District. A Transportation District would be a new legally recognized agency comprised of the City and the County, and have all of the powers necessary to operate a regional transit system. These responsibilities include the power to prepare transportation plans, construct and acquire the transportation facilities included in the transportation plan, operate or contract for the operation of transportation services, enter into contracts and agreements, and administer public transit funds. A Transportation District would be governed by a Commission, with the composition determined by the participating jurisdictions. This governing Commission would determine an equitable funding allocation among the participating jurisdictions.

An example of a regional Transportation District in Virginia is the Potomac and Rappahannock Transportation Commission (PRTC). PRTC is comprised of five jurisdictions: Prince William and Stafford Counties and the Cities of Manassas, Manassas Park, and Fredericksburg. PRTC was established in 1986 to help create and

oversee the Virginia Railway Express commuter rail service and also to assume responsibility for bus service implementation. Currently, PRTC offers a comprehensive network of commuter and local bus services in Prince William County and the Cities of Manassas and Manassas Park, as well as a free ridematching service.

Regional Transit Authority (RTA). A RTA would provide for the widest range of options and would have the fewest limitations. It would be a true regional entity and be a legal entity that would have all of the powers necessary to operate and expand transit service and facilities and provide for the development of new dedicated transportation funding source. The responsibilities of an RTA can be limited to transit, or they could be expanded to other transportation services and facilities.

There is precedent in Virginia for establishment of a RTA. The Northern Virginia and Hampton Roads areas have established authorities, and recently in Williamsburg, James City County, the City of Williamsburg, the College of William and Mary, and the Colonial Williamsburg Foundation partnered to form a RTA. A chief consideration in this decision was the involvement of private institutions. Regional transit authorities are also under consideration in the Charlottesville and Fredericksburg areas.

However, the creation of an RTA would require a strong regional consensus, a local champion to facilitate the process, and subsequent enabling legislation. Many aspects related to formation of an RTA would need to be considered and determined, including the role and structure of a governing board.

Advantages

- Either form of a regional entity would provide the institutional infrastructure needed to provide seamless regional transit services, including both rural and urban services.
- Would create an entity completely focused on public transportation, with regional ownership.
- A district would not require enabling legislation.
- An authority could potentially raise revenue.

Disadvantages

- A new entity is probably not needed currently, given the modest level of regional service proposed.
- Creates a new entity that will have a variety of administrative and financial needs that are currently provided by the City (i.e., accounting, legal, cash flow management, human resources, risk management, insurance, etc.).
- Jurisdictions may feel loss of local autonomy.

- There would be a considerable amount of time and effort involved in creating a Transportation District or an RTA, with an authority requiring enabling legislation.
- The City has invested considerably in building HDPT and it is an integral part of its fleet management infrastructure. Pulling public transit out of this mix would probably not be feasible for the City.
- The majority of the transit needs in the region are still within the City.

ALTERNATIVES DECISION-MAKING

These alternatives were presented to the Steering Committee in early May, 2011. At the May meeting each alternative was discussed and the Steering Committee chose the alternatives that were the most appropriate for inclusion in the six-year plan. The chosen alternatives are highlighted in Chapter 5, Operations Plan.

Chapter 5

Operations Plan

INTRODUCTION

This chapter presents the six-year Operations Plan for HDPT, which will guide the implementation of improvements to transit operations over the planning period. The HDPT Transit Development Plan to date has included four technical memoranda that provided an overview and analysis of public transit services in Harrisonburg; discussed goals, objectives, and standards; analyzed the need for transit services; and developed potential organizational and service alternatives for improving public transportation in the City and the region. The process has been guided by a Steering Committee comprised of local transit stakeholders, including representatives from James Madison University, the Central Shenandoah Planning District Commission, the Department of Social Services, the City Council, the Virginia Department of Rail and Public Transportation, and a number of key City staff members.

The elements of the Operations Plan are organized in four sections: 1) Recommendations for the year-round, City-oriented routes; 2) Recommendations for the seasonal routes associated with the large population of college students; 3) Recommendations focused on the region; and 4) Infrastructure improvements. Chapters 6 and 7 provide the companion capital and financial plans to support this operations plan. Some of the recommendations stemmed from this TDP process, while other recommendations were already planned for implementation during the six-year planning horizon. The plan is expansionary, with annual revenue service hours expected to increase from 66,272 annually (FY12 projected) to 85,361 annually (FY17 projected). This projected growth (29% over the six-year period) is slightly less than the growth experienced by HDPT in the previous six-year period (2006-2012), which was about 33%.

RECOMMENDATIONS FOR THE YEAR-ROUND, CITY-ORIENTED ROUTES

The transit needs analysis discovered that the current city-oriented fixed routes are, for the most part, serving the areas of the City where they are needed. Geographic coverage of the City is good, with all of the densely populated areas served. The focus of the alternatives below is to improve upon these routes, when and where feasible.

Split the Route 2

When transit services are needed for new developments in the Stone Spring Road area, these areas could be served by splitting Route 2 into two more linear routes, the Route 2 East, traveling from the downtown area, over I-81 via Country Club Road, then the existing route to the Rockingham Memorial Hospital (RMH). The route would return to the downtown via the same route, offering bi-directional serving on the eastern portion of the current route alignment.

Route 2 West would travel from the downtown area via Cantrell, Cardinal, Bluestone, and Port Republic to RMH. On the return trip, the route would serve new developments along Stone Spring Road, as well as the existing developments along Peach Grove Avenue, Lois Lane, and Devon Lane, returning to downtown via Port Republic, Bluestone, Cardinal, and Cantrell. These potential routings are shown in Figure 5-1.

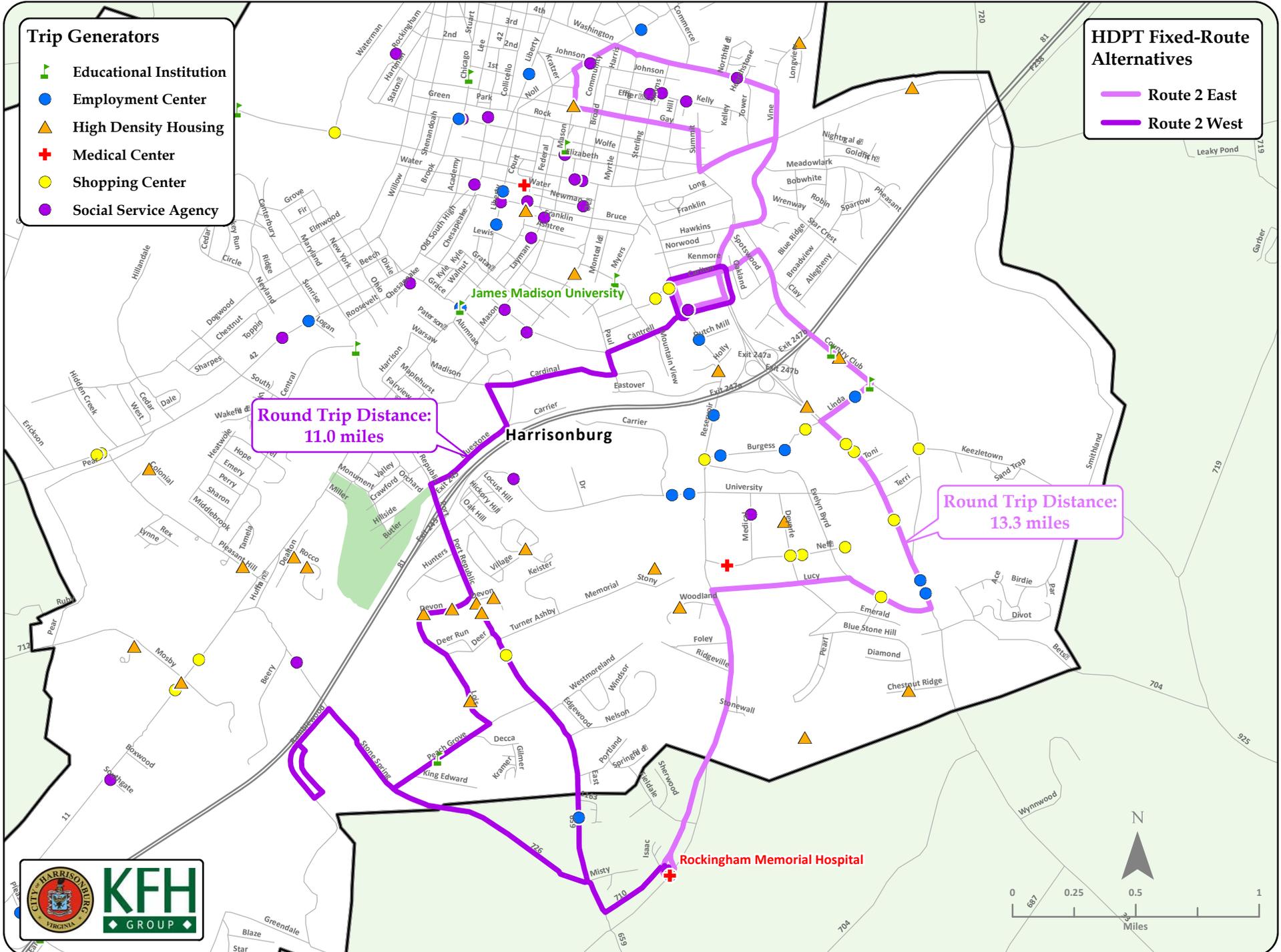
Currently there is not a high level of transit need along Stone Spring Road, but development is planned for this area. HDPT does provide a significant level of seasonal service along Lois Lane/Devon Lane (Routes 6, 7, 12, 13, 14, and the evening routes), but there is no service to this area when JMU is not in session.

Splitting this route would provide a second route to RMH, would offer linear, rather than loop service, and would provide year-round service to several developments that currently only have seasonal service. An appropriate turn around location for Route 2 West will need to be developed when the route is implemented, as the current road network does not offer a convenient location for a bus turnaround.

Cost

Assuming that Route 2 West will operate the same number of service hours as the current Route 2 (3,425 annual revenue hours), the annual fully-allocated operating cost will be about \$170,000 annually (current dollars). An additional vehicle will also be needed (about \$425,000).

Figure 5-1: Map for HDPT Alternative #1 (Split Route 2)



Implementation

While we do not know when the developments on Stone Spring Road will be completed, for planning purposes we have added this route in FY 2014. This can be adjusted if needed, based on demand.

Offer Limited Later Hours of Service

The results of the passenger surveys indicated that later hours of service was the most frequently requested improvement by riders of the City routes. HDPT staff indicated that they have experimented in the past with year-round evening service, similar to the current service provided by seasonal Routes 31 and 32, and that ridership was quite low.

Given that there is a need for some level of evening service and historic demand has been low, it is recommended that HDPT apply for a Job Access and Reverse Commute (JARC) grant to offer taxi vouchers for low-income people who need to get a ride home from work. This program would offer some basic evening mobility for people who need it without incurring the expense of running the entire system during a time period when the productivity is likely to be low.

HDPT could work collaboratively with the Department of Social Services (DSS) to develop an eligibility process so that people could take advantage of this service for their evening work trips. The Federal Transit Administration (FTA) definition of low income is as follows:

“The term ‘eligible low-income individual’ means an individual whose family income is at or below 150 percent of the poverty line (as that term is defined in section 673(2) of the Community Services Block Grant Act (42 U.S.C. § 9902(2)), including any revision required by that section) for a family of the size involved.”

The following guidance from the FTA Circular indicates the taxi vouchers are eligible activities under the program:

From: Section 5316: Job Access Reverse Commute (JARC) Program (49 U.S. Code §5316), Federal Transit Administration

“The creation of a new voucher program and the enhancement of an existing voucher program are eligible activities under the JARC program. Vouchers using JARC dollars must be targeted to support trips made by individuals with limited income too employment or employment-related activities, such as education and training programs. JARC funds can be used to access rides through

volunteer driver programs, taxis, or trips provided by a human service agency. Voucher programs are considered an operating cost and as a result FTA requires a 50 percent match of its funds. Local, state and federal funds that are other than U.S. Department of Transportation funds (e.g., TANF, Workforce Investment Act, Social Services Block Grant, etc.) are eligible for the match. “

FTA guidance also indicates that up to 10% of the program expenses can be used for administrative purposes (i.e., setting up the eligibility process).

The FTA requires that projects funded under the JARC program be consistent with needs identified in locally developed coordinated human service-public transit plans. The City of Harrisonburg was included in the *Central Shenandoah Coordinated Human Service Mobility Plan*, which was completed in 2008. One of the unmet needs articulated in this plan was for access to evening employment opportunities. While taxi vouchers were not specifically mentioned, one of the strategies listed was to provide flexible and more specialized transportation options.

Cost

The cost for this program is completely dependent upon what size program is manageable for HDPT, DSS, and the local taxicab contractor. For planning purposes, we will assume that this program will help support 30 people to access evening job opportunities. We will further assume that these 30 people will take 1.5 trips per work day (some will need only one-way service, while others may need two-way service), and five work days per worker. Given this level of service, this program will provide 225 trips per week, or 11,700 annual passenger trips. HDPT’s current negotiated rate with its taxi contractor is \$9.00 per trip, but this rate is due to be re-negotiated this year. Assuming the contractor raises its rate a little over 5% to \$9.50 per trip, this level of service will cost \$111,150 for the vouchers, with a total allowable cost of \$122,265 (including the 10% administrative expense). The federal portion of these expenses will be \$61,132, leaving \$61,133 to be funded locally (which could come from the City, from the users, or from DSS funding sources).

Implementation

HDPT and the DSS can work on a JARC application during FY 2012 (application is typically out in November-December time frame) for an FY 2013 grant.

Frequency of Service

Improved frequency of service is desired by transit riders in Harrisonburg. Improving the frequency of service was outlined in Chapter 4 and discussed at the

Steering Committee meeting. For the near-term it was decided that the productivity of the City routes does not yet warrant improved frequency of service, given the significant expense of essentially doubling service. It was discussed that more frequent service could be offered on the most productive City route (Route 1); however, if people were transferring to/from Route 1, they would have to wait for the full route cycle to complete their trips.

HDPT should re-evaluate the possibility of providing more frequent service when the economy improves and the productivity on the City routes warrants a higher level of service.

Job Access Taxi Voucher for Families

One of the unmet transit needs mentioned by the DSS Director was for a specialized service that could transport parents and their children between home, daycare, and work. This type of trip is difficult to make on traditional fixed route transit in small cities, as the parent would typically have to bring the child into the daycare and then wait for the next bus. With hourly headways, this is not a feasible option for most people.

Some communities have used Job Access grants to help subsidize demand response transportation to accommodate these trips, either through paratransit programs or through taxi voucher programs. Due to the high cost of providing paratransit service, and the precedence that has already been set in Harrisonburg for taxi contracting, it is recommended that HDPT and the DSS partner to apply for a JARC grant to purchase taxi vouchers to accommodate these trips.

HDPT would apply for the Federal Section 5316 grant through DRPT, which typically conducts the annual application process near the end of each calendar year. The local match (50%) required for the grant would be provided by the DSS using their Temporary Assistance to Needy Families (TANF) funds.

The DSS indicated that at any one time there are typically about 50 families who could potentially benefit from this type of a program. For planning purposes, we will assume that the taxi program will be able to help about half of these families. Assuming that there are 25 parent-child pairs and that each pair will generate four trips per workday, this program could generate up to 25,500 annual passenger trips.

Cost

HDPT's current taxi contract has a negotiated rate of \$9.00 per trip. As discussed in relation to the evening taxi voucher project, it is likely that this rate will increase.

Assuming the rate increases to \$9.50 per trip, the total annual cost for the voucher portion of this program would be \$242,250. Adding the allowable 10% for administrative purposes would bring the total project cost to \$266,475. Of this, the federal JARC grant would pay \$133,237, with \$133,238 covered by the TANF program.

Implementation

HDPT and the DSS can work on a JARC application during FY 2012 (application is typically out in November-December time frame) for an FY 2013 grant.

Downtown Circulator

One of the alternatives outlined in Section 4 was that of a downtown circulator/trolley, aimed at allowing visitors to park once and then travel to downtown shops and attractions via a circulator. While there are other examples of circulators in the Shenandoah Valley, closer inspection of the routes show that most are actually typical public transit routes that are operated using rubber-tired trolleys. The consensus of the committee was that there is not likely to be enough demand for such a route, given that there is parking generally available throughout the downtown and most people who arrive in Harrisonburg do so via automobile.

If a circulator is something that the tourism community wishes to pursue, it may make sense to try it out first for special events, perhaps using a private contractor.

RECOMMENDATIONS CONCERNING THE SEASONAL ROUTES

As documented in Chapters 1, 2, and 3, HDPT provides a high level of transit service and experiences high productivity on the seasonal routes that are oriented to the needs of the college population associated with James Madison University (JMU). This demand is expected to grow as the student population grows and JMU implements its Campus Master Plan that calls for reducing the number of single occupant vehicles on campus. This section of the Operations Plan outlines the improvements planned for the seasonal routes over the six-year planning period.

Improve the Spare Ratio

HDPT currently has only one spare fixed-route vehicle during peak operations, which is a spare ratio of only 4%. Given this low spare ratio, HDPT has applied for two expansion buses for FY 2012. These were approved and are included in the vehicle

replacement and expansion plan (Chapter 6). The cost for these two vehicles is \$850,000.

Modified Route 31

Route 31 currently provides evening service that connects a number of housing and shopping areas to JMU. HDPT changes this route frequently, as demand changes. In order to test the market for additional service to EMU, HDPT is planning on adding EMU to this route for the fall of 2011. This change will be cost neutral, as HDPT will shift service from other areas already covered by HDPT's other seasonal evening routes.

Campus Connector

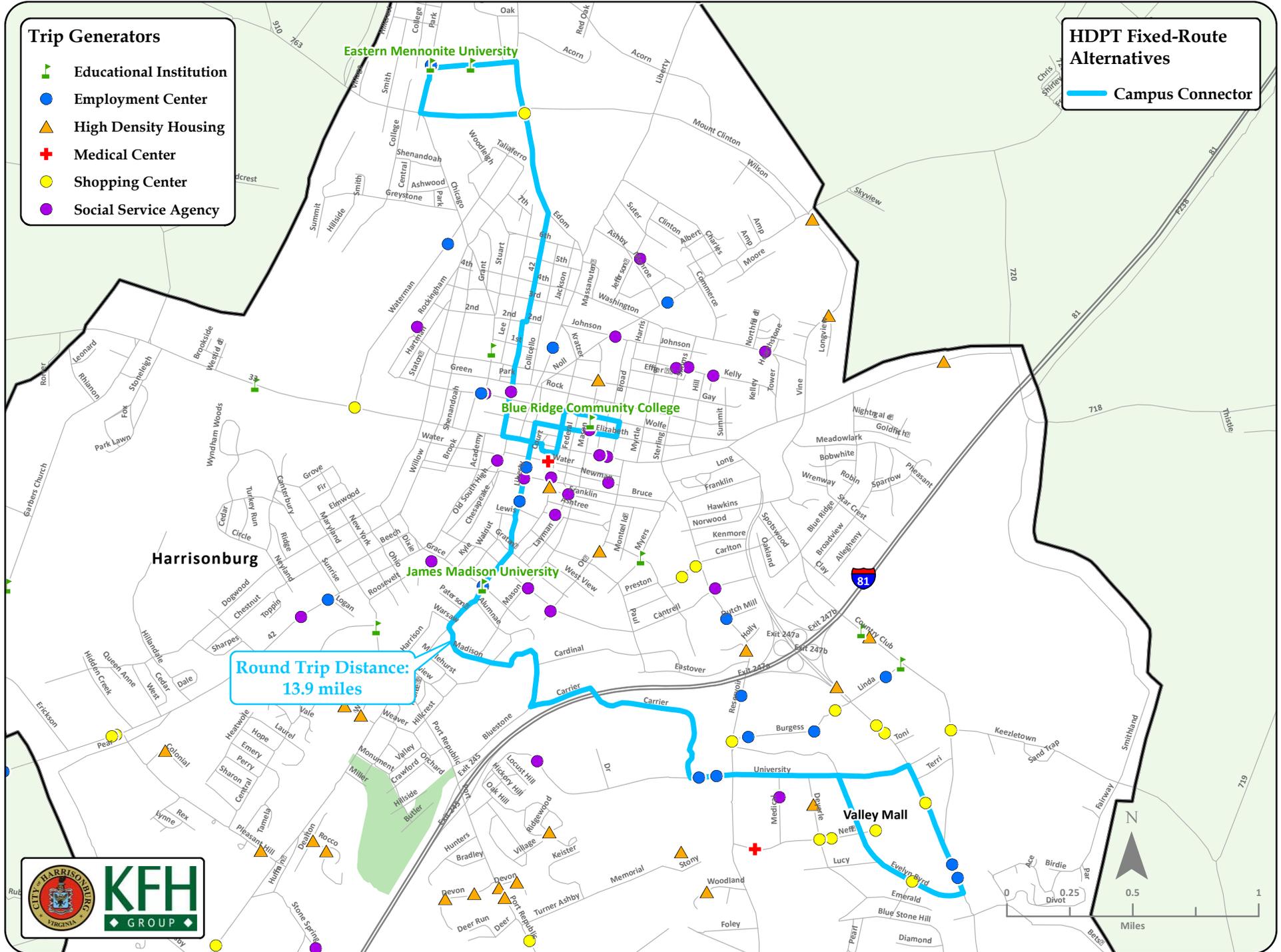
Survey participants who rode the seasonal routes listed "downtown Harrisonburg" as the number one area for additional service areas. This answer was rather confusing, as HDPT currently provides service throughout the downtown. In looking at the routes and schedules, this request has been interpreted to mean more direct service to downtown. Stakeholders from Eastern Mennonite University (EMU) also expressed desire for additional transit service to connect to the downtown and to shopping areas.

The proposed Campus Connector is designed to meet both of these requests. This route will be a direct route from EMU, through downtown and potentially also serving Blue Ridge Community College, through the JMU Campus to the major shopping areas adjacent to the Valley Mall. The route would then do the same in reverse, offering a linear, direct path of travel. The route could be timed so that it does not duplicate the Route 5 schedule for EMU. Figure 5-2 provides a map of this route. The route length as currently proposed is a little awkward -- it is 13.9 miles, which is a little too long for one bus to do in one hour. Two buses on the route could likely provide 45-minute headways; alternatively the route could skip the downtown loop to Blue Ridge Community College. These details will be worked out when the route is implemented. To help fund the local contribution for this route, it is suggested that EMU, Blue Ridge Community College (if served), and JMU contribute a share of the expenses.

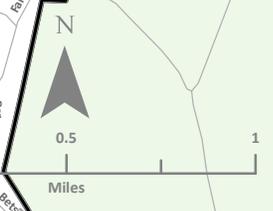
Cost

If two vehicles are used for the service, operating a 12-hour span of service for 151 days per year, the fully-allocated operating costs would be about \$180,000 annually, with two new vehicles needed (\$425,000 each). If the route can be streamlined to run with one vehicle, the cost would be substantially less, at \$90,000 annually.

Figure 5-2: Map for HDPT Seasonal Alternative #1 (Campus Connector)



5-9



Implementation

The Campus Connector is slated for implementation in FY 2013, leaving a year of lead time to gather support from EMU and Blue Ridge Community College, further refine the route, and incorporate the necessary vehicles into HDPT's capital budget.

Additional Service to Accommodate West Campus Road Closures

As part of JMU's efforts to accommodate growth while reducing single occupant vehicle congestion on campus, sections of Bluestone and Duke Drives will be gated, providing vehicular access only for emergency vehicles, buses, service vehicles, specific vendors, and individuals with disabilities requiring closer designated parking. The gates will be installed on Bluestone Drive, just beyond the South Main Street entrance to campus, near Wampler and Converse Halls. Additional gates will be installed in the bookstore/Godwin Hall area; one between the bookstore and the existing bus stop; and one on Bluestone Drive in the area between the Godwin Parking Lot and The Village. A gate will also be installed between Garber Hall and the tennis courts, on Duke Drive. These gates will be installed prior to the fall 2011 semester.

These road closures will affect students, faculty, and staff, and will increase the demand for campus bus circulation services. HDPT and JMU have already planned to add seven buses to the HDPT fleet to accommodate this demand. JMU and HDPT have also planned another bus staging area, as the stop at Godwin Hall is at capacity. The second bus staging area will be located on the parking lot that is currently being used as a construction staging area for the Bridgeforth Stadium expansion.

Cost

HDPT is planning to add about 3,000 service hours for the 2011-12 academic year to accommodate the demand associated with JMU. The fully-allocated operating costs for this service will be about \$149,000. The seven additional buses are expected to cost \$3,134,560 and were funded through American Recovery and Reinvestment Act (4 vehicles) and Section 5307 (3 vehicles).

Implementation

The additional service needed to accommodate JMU's road closures will be implemented in the fall of 2011 (FY 2012).

Additional Service to Accommodate Demand on Football Game Days

HDPT is planning to supplement its existing JMU campus transportation services on football game days for the fall of 2011 to help with the additional traffic congestion and circulation issues that are likely to occur as a result of the stadium expansion. The additional hours of service have already been incorporated into the FY2012 budget in conjunction with the additional hours required to support the west campus road closures.

Continue to Accommodate Seasonal Growth

As previously discussed, JMU is planning to grow by about 7,000 students. This growth is requiring additional construction and re-development on the campus, as well as road, pedestrian, and transit capacity improvements. JMU's Master Plan improves the pedestrian orientation of the campus, with improved transportation routes an important feature of the plan. As a mobility partner with JMU, HDPT will need to incrementally add service throughout the life of this six-year TDP to accommodate this growth and the shift to fewer single occupant vehicles and a more pedestrian-focused environment.

The focus of this improvement is to recognize that capacity will be needed, but not to specifically assign it to a route, without knowing at this time where it may be needed. This proposal calls for one additional vehicle per year, after the initial seven-vehicle increase that is planned for FY 2012.

Cost

Using HDPT's fully-allocated costs, the operating expenses associated with adding about 2,000 hours of service per year are about \$99,000 annually. HDPT's heavy-duty transit vehicles are about \$425,000 each.

Implementation

As noted above, HDPT will continue to add service in each of the six years of the plan, as appropriate to accommodate JMU's growth.

REGIONAL SERVICE RECOMMENDATIONS

While the implementation of regional routes is only partially under the control of HDPT, regional recommendations have been included in this TDP, as several data sources cited the need for additional regional transit routes in the Harrisonburg area.

Local Regional Route - Route 42 Corridor

HDPT currently provides service to Bridgewater and Dayton on a limited basis, operating service one day a week to Bridgewater (Thursdays) and two days a week for Dayton (Tuesdays and Thursdays). The number one geographic request on the City-based surveys was for service to Bridgewater, with Dayton listed the fourth most frequently and Broadway listed the fifth most frequently. A regional north-south route serving the Route 42 Corridor, from Timberville, through Broadway, through Harrisonburg, including the new Walmart on Route 42 and then on to Dayton and Bridgewater would address the top five geographic service requests that survey participants indicated. This regional route would be most effective as a deviated fixed-route, with extra time built into the schedule to travel slightly off of Route 42 to pick people up. Given that this type of service is outside the scope of responsibility for HDPT, some sort of agreement would need to be in place to fund the route. Funding partners could include the County, local human service agencies whose clients could use the route, and/or a JARC or New Freedom grant, assuming that the target populations and trip needs could fit one of those funding categories.

It should also be noted that the segment of this route from Bridgewater to Harrisonburg is duplicative of the existing Blue Ridge Community College Shuttle (North Shuttle). It may be possible to develop an agreement with this existing shuttle to expand service and market the service to the public. This idea should be pursued as an implementation strategy.

Cost

If HDPT were to operate the route using one vehicle, for an eight-hour span of service, Monday through Friday, the fully allocated operating cost would be about \$103,000 per year. A body-on-chassis vehicle would also be needed (about \$73,000). Costs would likely be similar if the BRCC Shuttle were to expand to open its doors to the public, though this would also add an additional funding partner. The financial Plan proposes that this route be funded with Federal Section 5311 funds matched by Rockingham County.

Implementation

Outreach to regional partners should begin in FY 2012, with the implementation year to be determined by the level of interest expressed by these partners and funding availability. For planning purposes this project is included in FY 2014.

Intercity Bus

Currently there is limited intercity bus service in the region, provided by several private operators. There is a company (Home Ride) that provides service from JMU to the major population centers in Virginia (Northern Virginia, Charlottesville, Richmond, and Hampton), generally providing services on Fridays from Harrisonburg and back to Harrisonburg on Sundays. Megabus has also recently started serving the region, stopping in Christiansburg, but not in Harrisonburg. In addition, there is a “Green Shuttle” that provides service to Dulles Airport. This service runs once a day. There is also a bus that travels from Harrisonburg to Chinatown in New York City.

There are a couple of options that could be pursued to increase intercity bus connectivity in the Shenandoah Valley. The first alternative would be to contact Megabus to express interest in having service. Since Megabus provides service from Christiansburg to DC, they likely pass Harrisonburg on the way. It may be the most effective if JMU were to do this, as they have a large population of college students, which historically has provided a good clientele for Megabus. The Planning District Commission, as a regional body, may also be a good advocate for improved intercity bus service in the Shenandoah Valley.

The second way to approach this would be for VDPRT to solicit service for the I-81 Corridor through the Section 5311(f) program, which provides funding assistance for intercity bus services in rural areas that “make a meaningful connection” to the national intercity bus network. This would likely entail service to Charlottesville, VA, as the closest location of a Greyhound route.

While the provision of intercity bus service in the Shenandoah Valley is outside the mission of HDPT, if regularly scheduled service were to be provided to Harrisonburg, it would be helpful for travelers if HDPT served the intercity bus stop, and probably even more helpful if the intercity bus carrier would choose to stop at HDPT’s transfer center (when moved to a larger facility).

INFRASTRUCTURE IMPROVEMENTS

HDPT has grown significantly over the years and there are several infrastructure improvements that are recommended for implementation to improve operations and customer service over the next several years. The ideas for these improvements did not stem from this TDP process, but were articulated in the City’s 2010 Comprehensive Plan.

New Downtown Transfer Location

HDPT's City-oriented routes currently use an on-street transfer area behind the Hardesty-Higgins Visitor Center in downtown Harrisonburg. The general location is good, however there is only room for three buses to pull in and there are five routes. The street network surrounding the site also requires many tight turns and the stop itself is on a one-way street (Bruce Street). HDPT has identified a site that would provide more space and is geographically closer to a larger concentration of transit riders. This location, at the intersection of N. Gay and N. Mason, is within a large, under-utilized parking lot adjacent to Rose's Department Store. Figure 5-3 provides a photo of the lot and Figure 5-4 provides a diagram of the proposed layout of the bus transfer center. As indicated by the pictures, there is adequate space for an off-street transfer opportunity to accommodate six buses at one time. HDPT has budgeted \$50,000 to fund improvements to make this site function as a transfer location (shelters, signage, lighting, striping, and pavement patching).



**Figure 5-3: Proposed Transfer Location Site:
N. Gay and N. Mason Streets**

Moving the transfer site to a larger, off-street location will allow all of the City routes to meet for transfer opportunities and will allow for some modest system growth. Moving from the Visitor Center will also free up space for tour buses to drop-off and pick-up passengers on Bruce Street and reduce the number of tight turning movements for the drivers.

Cost

The cost to improve the parking lot so that it can function as a transfer center is highly dependent upon the level of passenger amenities desired by the City. HDPT has a \$50,000 grant to use for this purpose. If a more elaborate center is desired, the cost would rise significantly.

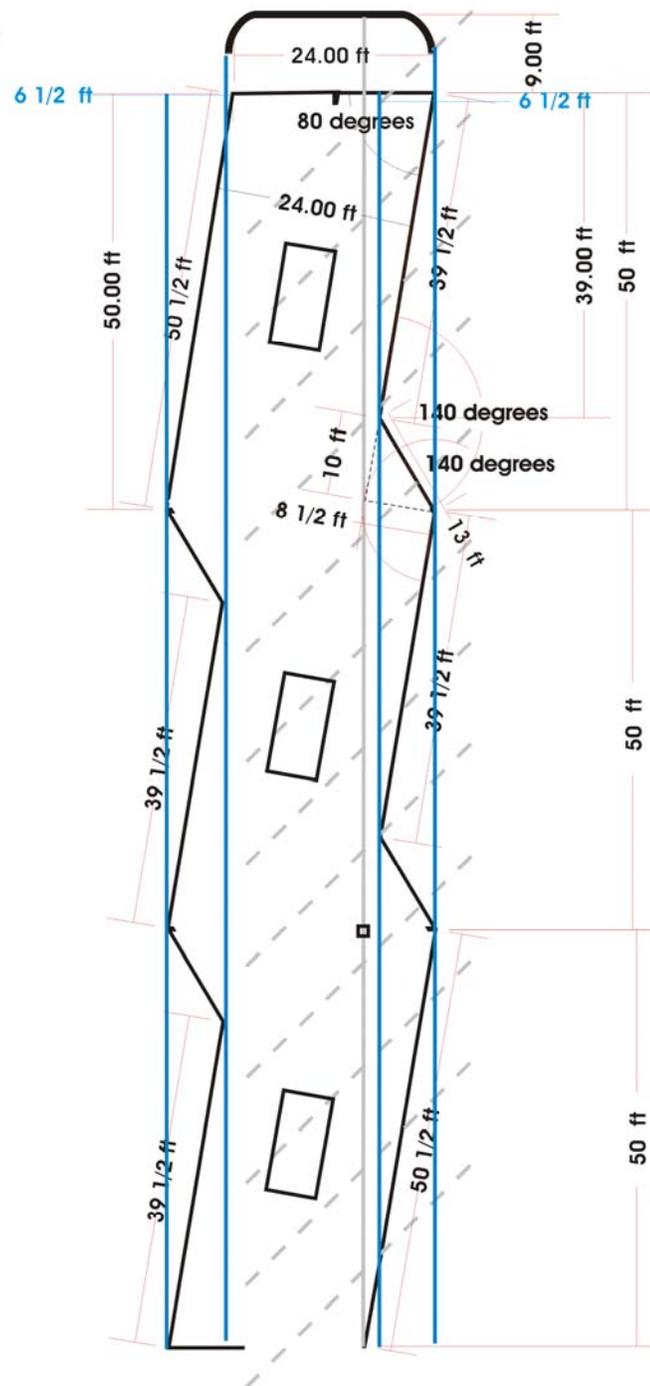


Figure 5-4: Proposed Layout for New Transfer Center

Implementation

HDPT is working to implement the move to a larger transfer facility early in FY 2012.

Real-Time Transit Information

HDPT has been working on a procurement process to purchase a real-time transit information package for the fixed-route network. Through a competitive selection process, Nextbus has been chosen and is under contract. The Nextbus package will allow transit riders to access real-time schedule information from their computers, cell phones, and via electronic signs at major bus stops. It will also allow the dispatcher to see where all of the vehicles are, which is critical for a system like HDPT that has so many vehicles on campus at one time, subject to a variety of traffic conditions. This technology has become increasingly popular in the transit industry, particularly for programs that serve large college populations.

Cost

Nextbus technology for the fixed routes will cost \$212,915 initially, and \$47,925 per year. There has already been a purchase order issued for the initial system costs.

Implementation

Nextbus is being implemented currently (end of FY 2011).

Computer-Aided Dispatching

The implementation of a computer-assisted paratransit scheduling and dispatching program could help to improve the productivity of the paratransit program and would also help with paratransit record-keeping. These types of programs use Automatic Vehicle Location (AVL) technology so that the dispatchers can see where the vehicles are (similar to the Nextbus) and schedule paratransit trips accordingly. Another component of these programs is Mobile Data Computers (MDC), which are small on-board computers that the drivers use as their manifests, rather than paper and pencil. These devices provide a great deal of time savings, as manifest data is entered electronically, at the time of the trip, rather than having to be manually entered into a program after the end of the service day. These programs also have the capability to generate manifests based on the trips entered for the day, though transit agencies have had mixed results with the automatically-generated manifests.

Cost

Paratransit scheduling software varies in cost and complexity. There are the initial capital costs for purchasing the MDCs and AVL units, the software, and the computers needed to run it. In addition, there is typically a monthly service charge for the use of the software. Nextbus has provided a cost estimate of \$10,025 for the hardware to implement this technology on the paratransit vehicles. Scheduling software varies from about \$15,000 to \$65,000 or so, depending upon the complexity of the program.

Implementation

The funding to implement the AVL portion of the paratransit technology improvements have been included in the FY 2012 VDRPT State Transportation Improvement Program. The software phase of the project will be implemented in FY 2013.

New Facility

The City of Harrisonburg is in the process of designing and building a new facility that will house HDPT as well as the school bus operation and the central garage. In 2009, the City contracted for a Maintenance/Administrative Building Feasibility Study. The study included criteria for designing the facility, defining the spaces and requirements, and presenting a facility layout. The site is adjacent to the current site, on City-owned property previously used for a reservoir. Cost estimates were also included.

The 2009 cost estimate of just under \$24 million for the facility is likely more than the City is willing to spend on the facility. The actual facility design will likely be on a smaller scale than the feasibility study suggested, with a total cost of between \$10 and \$15 million.

Implementation

Design and construction of the facility will be a major project for FY 2012, FY 2013, and FY 2014. Funds for design and engineering were awarded to HDPT in FY10 and FY11.

JMU Transit Facility

For several years HDPT has been using an area adjacent to Godwin Hall as the primary bus staging area at JMU. This area has a large sidewalk and several bus

shelters. The area was not originally designed as a bus staging area and the buses actually pull up partially on the sidewalk to allow others to pass. As transit services have increased for JMU, this area has become increasingly congested and less efficient as a bus staging area. JMU and HDPT have recognized this issue and are planning an additional bus staging area for the fall of 2011.

The parking lot that is currently being used as a construction staging area for the Bridgeforth Stadium expansion will be converted to a bus depot or staging area. This staging area will open in conjunction with the planned campus road closures and buses will access this area at the Bluestone/Duke Drive intersection.

Cost

This facility will be constructed and funded primarily by JMU, though HDPT will apply for capital funds to fund a canopy at the old train station, which is adjacent to the site. The cost for such a canopy is quite variable, depending upon the desired material and the size. A preliminary estimate for planning purposes is \$ 45,000.

Implementation

Part of the new bus staging area will be completed in FY 2012, in preparation for the 2011/2012 academic year. The second part (including the canopy) will be completed in FY 2013.

Passenger Shelter Program

HDPT has been working on improving passenger amenities over the past several years, including additional passenger shelters. HDPT has been generally following the plan that was outlined in its 2006 TDP, which recommended ten bus shelters to be implemented over a five-year period, beginning in 2008. Specific locations were highlighted in the plan and HDPT has been able to place shelters at the following passenger stops between April 2008 and May 2011:

1. East Market St. @ Cloverleaf Shopping Center
2. High School Parking Lot
3. West Market Street @ TH middle School
4. Friendship Industries
5. East Washington @ Hearthstone Lane
6. East Washington @ Simms Ave
7. Public Transportation Office
8. East Market @ Market Square East
9. Lucy Dr @ Charlestown Townes

10. Grace Street @ Rockingham Coop
11. East Market @ Goodwill
12. Memorial Hall (3 shelters)
13. Route 11 North - Community Services Board

HDPT is continuing to expand its shelter program, with ten additional shelters ordered for FY 2012. Three of these shelters will be used for the new transfer center at Roses (N. Main/N. Market, downtown), leaving seven for other passenger stops. Some of these shelters may be needed for the new bus staging area on the JMU campus. It is recommended that HDPT continue to expand its passenger shelter program as needed, adding two shelters per year for the six-year planning horizon of the TDP.

Cost

Passenger wait shelters, installed with a pad, generally cost between \$8,000 and \$10,000 each.

ORGANIZATIONAL RECOMMENDATIONS

HDPT is the established transit provider for the City of Harrisonburg. As such, there are not major organizational alternatives to consider for the six-year plan. The organizational recommendations below focus on two areas: staffing and regional issues.

Staffing

HDPT is managed by a relatively small staff, given the annual number of passenger trips provided. In Chapter 4 of this TDP, it was suggested that it would be helpful for HDPT to hire a staff person that would devote his/her time to technology, including becoming the in-house expert for the Nextbus system that is soon to be implemented, as well as the computer-assisted scheduling, computer trouble shooting, and improving the HDPT website and social media initiatives. At the Steering Committee meeting, it was discussed that the City is currently conducting an IT Plan and that HDPT's IT needs would be included in that plan. For this TDP, we will include the position and acknowledge that the City's IT Plan may choose a different solution (i.e., they currently have a computer networking contractor) for HDPT's increasing technology staffing needs.

There are two additional staff members that HDPT would like to add over the next couple of years, if the budget and the physical space to house additional staff are available. These are a Safety and Training Coordinator and a Marketing Specialist. The

Assistant Director currently also serves as the Safety and Training Coordinator. The workload for this position has grown significantly, given the increased federal focus on safety and security and the system growth.

A marketing specialist would also be helpful to HDPT, as the transit program does not have someone currently whose complete focus is marketing, advertising, and partnership building. These tasks are currently spread over several staff people.

Cost

The IT position would likely have a salary in the range of about \$50,000 annually, plus benefits (21%), for a total annual cost of about \$60,500. The Safety and Training Coordinator would likely have a salary in the range of about \$35,000 (\$42,350 annually), as would the Marketing Specialist.

Implementation

If the City decides to hire an IT specialist for HDPT, it would make sense to bring this person on-board in FY 2012, as the new technologies are being implemented. The training and marketing positions will likely need to wait until 2014, after the completion of the new facility.

Regional Issues

If regional routes are to be implemented in the Harrisonburg area, there will need to be a mechanism in place to finance and operate these services. Chapter 4 of this TDP highlighted the two primary ways that this could occur, which are 1) Contractual Agreements; or 2) The creation of a regional entity.

The Study Committee agreed that the simplest organizational option for expanding service beyond the City is to maintain the operation of transit services by the City of Harrisonburg through the current HDPT structure and grow the system via contractual agreements. This alternative would be the simplest by maintaining the existing administrative and operational staff and current vehicle fleet, with expansion as needed based on the service improvements chosen.

The existing structure could serve as the foundation for a regional transit system, with system expansions taking place through contractual agreements with Rockingham County and potentially other jurisdictions/entities. The City would remain the operator, with additional funds provided by neighboring jurisdictions to serve areas outside of the City. This strategy would provide customers with seamless regional services, and offer access to the many destinations and needed services in the area.

SUMMARY

This chapter has highlighted the major initiatives planned for HDPT over the six-year TDP planning period. These projects were developed in collaboration with HDPT staff and a Steering Committee comprised of stakeholders. This Operations Plan should be considered an active plan, with changes made over the course of the six years as needed based on demand that is currently unknown or significant changes with regard to other factors such as federal or state funding initiatives.

Chapter 6

Capital Improvement Plan

INTRODUCTION

This chapter of the TDP describes the major capital projects (vehicles, facilities, and equipment) needed to support the provision of public transportation in the City of Harrisonburg for the six-year period covered by this TDP.

VEHICLE REPLACEMENT AND EXPANSION PROGRAM

As described in Chapter 1, HDPT owns 35 vehicles; 27 of which are heavy duty transit buses (a mix of Thomas and Gillig buses); and eight of which are paratransit vehicles. The revenue service vehicles range in model years from 2001 to 2010.

HDPT has been increasing its transit fleet significantly over the past several years to keep up with demand; however, the fixed-route spare ratio is still very low (4%, or one spare vehicle during peak periods). HDPT has ordered seven additional buses using a mix of ARRA funds and FY2011 5307 funds. In addition, HDPT has applied for two vehicles to be funded through the FY 2012 capital grant. These additional vehicles will help improve the spare ratio, as well as giving HDPT the ability to meet the growing JMU demand.

The capital plan for the vehicles was developed by applying DRPT vehicle replacement standards to the current vehicle fleet inventory for HDPT. Applying these standards to the existing fleet provided a baseline estimate of capital needs for the next six years. The standards indicate that different types of vehicles have different expected lifespans. The builders of these vehicles are required to designate the projected life-cycle when the vehicles are submitted for testing by the FTA, and the vehicles are designed to meet these standards. Vehicles are not typically designed to greatly exceed the expected life; consequently maintenance costs for over-age vehicles can significantly

increase operating costs. In addition, the reliability of vehicles generally declines as they age, particularly after their design life is exceeded. This decrease in vehicle reliability also affects operating costs and impacts the quality of service for passengers.

Aside from the capital needs for existing services, the additional vehicles needed for each of the service expansion elements were also determined based on the number of additional service hours required, whether the existing fleet had vehicles that were not in use during those periods, or if the service required a different type of vehicle.

The vehicle inventory, with the estimated replacement years is provided as Table 6-1. The full vehicle replacement and expansion plan, including the vehicles needed to implement the projects in this TDP is provided as Table 6-2. As shown in the table, the HDPT fleet is projected to grow from the current 35 vehicles (soon to be 42 vehicles) to 52 vehicles by 2017. The companion financial plan to support the vehicle replacement and expansion plan is provided in Section 7 of the TDP.

OTHER CAPITAL EQUIPMENT

HDPT is in the middle of implementing a number of technological upgrades, many of which were funded with FY 2010 grant funding. Additional technology upgrades are included in the FY 2012 STIP. These technology improvements include real-time transit information, computer-aided dispatching, and a vehicle locator system. The companion financial plan to support these upgrades is provided in Section 7 of the TDP.

FACILITIES

HDPT will be working on several facility projects over the six-year planning period, including the following:

- Passenger waiting shelters,
- New downtown transfer facility,
- Additional JMU bus staging area, and
- New maintenance, operations, and administrative facility.

These facility projects have been included in the financial plan.

Table 6-1: HDPT Transit Vehicle Inventory and Replacement Schedule

| Local Fleet Number | Model Year | Make | Model | Seating Capacity | ADA Accessible | Use | Mileage January 2011 | Estimated Replacement Year |
|--------------------|------------|--------|-----------|------------------|----------------|-------------|----------------------|----------------------------|
| 2001 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 69,463 | 2020 |
| 2002 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 88,934 | 2020 |
| 2003 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 75,088 | 2020 |
| 2004 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 84,204 | 2020 |
| 2005 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 82,645 | 2020 |
| 2006 | 2008 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 52,942 | 2020 |
| 2007 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 29,245 | 2021 |
| 2008 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 38,707 | 2021 |
| 2009 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 39,498 | 2021 |
| 2010 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 34,306 | 2021 |
| 2011 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 28,498 | 2021 |
| 2012 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 22,676 | 2021 |
| 2013 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 21,296 | 2021 |
| 2014 | 2009 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 28,697 | 2021 |
| 2041 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 179,779 | 2016 |
| 2042 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 165,588 | 2016 |
| 2043 (1) | 2002 | Thomas | TL960 | 36 | Yes | Fixed-route | 167,399 | 2010 |
| 2044 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 194,120 | 2016 |
| 2046 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 223,322 | 2016 |
| 2047 | 2007 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 35,283 | 2019 |
| 2049 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 145,688 | 2016 |
| 2059 | 2004 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 225,104 | 2016 |
| 2060 (1) | 2002 | Thomas | TL960 | 36 | Yes | Fixed-route | 161,487 | 2010 |
| 2061 (1) | 2001 | Thomas | TL960 | 36 | Yes | Fixed-route | 171,151 | 2010 |
| 2062 (1) | 2002 | Thomas | TL960 | 36 | Yes | Fixed-route | 172,363 | 2010 |
| 2063 | 2003 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 191,846 | 2015 |
| 2064 | 2003 | Gillig | G27B102N4 | 32 | Yes | Fixed-route | 136,045 | 2015 |
| 2070 | 2006 | Ford | E450 | 17 | Yes | Paratransit | 52,841 | 2013 |
| 2071 | 2006 | Ford | E450 | 17 | Yes | Paratransit | 71,175 | 2013 |
| 2072 | 2008 | Ford | E450 | 14 | Yes | Paratransit | 46,568 | 2015 |
| 2073 | 2008 | Ford | E450 | 14 | Yes | Paratransit | 50,315 | 2015 |
| 2074 | 2002 | Ford | E450 | 19 | Yes | Paratransit | 90,482 | 2013 |
| 2075 | 2008 | Ford | E450 | 10 | Yes | Paratransit | 41,611 | 2015 |
| 2076 | 2008 | Ford | E450 | 10 | Yes | Paratransit | 39,669 | 2015 |
| 2077 | 2010 | Ford | E450 | 19 | Yes | Paratransit | 14,470 | 2017 |

Source: HDPT Fixed Route and Paratransit Equipment Inventories in January, 2011.

Replacement years are based in the following:

12-year life span for heavy-duty Gilligs

7-year life-span for paratransit vehicles

(1) HDPT received approval to replace the 2001 and 2002 Thomases early. Four of the new buses currently on order will replace these four vehicles.

Table 6-2: HDPT Transit Vehicle Replacement and Expansion Program

| Vehicle Type | Useful Life | Number in Current Fleet | | | | | | | | | | | Number in FY 2017 Fleet | | |
|--------------------------|-------------------------|-------------------------|---------|------|---------|------|---------|------|---------|------|---------|------|-------------------------|---------|----|
| | | | FY 2012 | | FY 2013 | | FY 2014 | | FY 2015 | | FY 2016 | | | FY 2017 | |
| | | | Repl. | Exp. | Repl. | Exp. | |
| Light Transit Vehicles | 7 yrs./130k | 8 | 0 | 0 | 3 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 1 | 0 | 9 |
| Heavy Duty Transit Buses | 10-12 yrs., 350-500k | 27 + 7 (1) | 0 | 2 | 0 | 3 | 0 | 1 | 2 | 1 | 6 | 1 | 0 | 1 | 43 |
| Number Vehicles Procured | | | 0 | 2 | 3 | 3 | 0 | 2 | 6 | 1 | 6 | 1 | 1 | 1 | |
| Fleet Size | | 42 | | | | | | | | | | | | | 52 |

(1) HDPT currently has 7 heavy duty buses on order. Four were funded through ARRA and three were funded with FY11 S.5307 funds.

Chapter 7

Financial Plan

INTRODUCTION

This chapter provides a financial plan for funding existing and proposed transit services in the City of Harrisonburg for the six-year planning period. It should be noted that there are currently a number of unknown factors that will likely affect transit finance in the City over the course of this planning period, including the reauthorization of SAFETEA-LU, the ability of HDPT and the DSS to secure competitive grants, and the future economic condition of the City and the Commonwealth of Virginia. The annual funding contract with JMU is likely to continue to grow as the University grows and further implements its Master Plan, and this has been reflected in the plan. The budgets were constructed with the information that is currently available, including the VDRPT STIP, the VDRPT FY 2009-2013 Transportation Improvement Program, and the City of Harrisonburg's FY 2012 approved budget.

OPERATING EXPENSES AND FUNDING SOURCES

Table 7-1 provides the financial plan for transit operations for HDPT, including operating, maintenance, and administrative expenses. The six-year plan includes the current base service and then adds the projects discussed in the Operations Plan (Chapter 5). Both constrained and unconstrained projects are included.

As the table indicates, the annual operating expenses for HDPT are projected to grow from about \$3.3 million to \$5.5 million over the six-year planning period, including inflation and expanded services.

JARC funding is suggested as the funding source for HDPT's evening transit service as well as the parent-child transportation program, both of which are planned for FY 2013. JARC operating funds are a 50-50 split between federal and local funds.

Table 7-1: HDPT TDP Financial Plan for Operations (continued)

| Anticipated Funding Sources | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <i>Federal</i> | | | | | | |
| FTA S. 5307 | \$ 953,025 | \$ 981,616 | \$ 1,101,321 | \$ 1,134,360 | \$ 1,168,391 | \$ 1,203,443 |
| FTA S. 5311 (proposed) * | \$ - | \$ - | \$ 53,759 | \$ 55,371 | \$ 57,032 | \$ 58,743 |
| JARC-Evening Service * | | \$ 61,133 | \$ 62,966 | \$ 64,855 | \$ 66,801 | \$ 68,805 |
| JARC-Parent/Child * | | \$ 133,238 | \$ 137,235 | \$ 141,352 | \$ 145,592 | \$ 149,960 |
| Sutotal, Federal | \$ 953,025 | \$ 1,175,986 | \$ 1,355,280 | \$ 1,395,939 | \$ 1,437,817 | \$ 1,480,951 |
| <i>State</i> | | | | | | |
| Formula Assistance | \$ 472,729 | \$ 486,911 | \$ 501,518 | \$ 516,564 | \$ 532,061 | \$ 548,022 |
| <i>Local Contributions</i> | | | | | | |
| City of Harrisonburg | \$ 426,830 | \$ 470,201 | \$ 574,564 | \$ 591,801 | \$ 609,555 | \$ 627,841 |
| Department of Social Services | \$ 500 | \$ 164,319 | \$ 169,248 | \$ 174,326 | \$ 179,556 | \$ 184,942 |
| James Madison University | \$ 1,450,000 | \$ 1,688,558 | \$ 1,847,694 | \$ 2,018,020 | \$ 2,200,161 | \$ 2,394,768 |
| Advertising | \$ 50,000 | \$ 60,000 | \$ 65,000 | \$ 70,000 | \$ 75,000 | \$ 80,000 |
| Special Transit Services | \$ 30,000 | \$ 30,900 | \$ 31,827 | \$ 32,782 | \$ 33,765 | \$ 34,778 |
| Farebox Revenues, Including Coupons | \$ 100,500 | \$ 103,515 | \$ 106,620 | \$ 109,819 | \$ 113,114 | \$ 116,507 |
| Rockingham County (proposed) * | | | \$ 53,759 | \$ 55,371 | \$ 57,032 | \$ 58,743 |
| Eastern Mennonite University (proposed) * | | \$ 50,000 | \$ 51,500 | \$ 53,045 | \$ 54,636 | \$ 56,275 |
| Total Local | \$ 2,057,830 | \$ 2,567,493 | \$ 2,900,212 | \$ 3,105,164 | \$ 3,322,819 | \$ 3,553,856 |
| Total Projected/Proposed Operating Funds/Revenues | \$ 3,483,584 | \$ 4,230,389 | \$ 4,757,010 | \$ 5,017,666 | \$ 5,292,696 | \$ 5,582,830 |
| <i>Surplus/Deficit</i> | \$ 130,754 | \$ 100,458 | \$ 25,042 | \$ 35,167 | \$ 48,894 | \$ 66,530 |

Notes: (1) A 3% annual rate of inflation has been assumed

(2) Funding sources that are not currently in place are marked with an asterisk.

Modest funding from the Federal Section 5311 rural program and Rockingham County are also proposed for the Route 42 regional route.

Pending the reauthorization of SAFETEA-LU, we do not know what the level of federal transit funds will be, though it should be noted that they have generally risen with each transportation funding reauthorization. These funds are shown to increase with inflation, along with the expenses. A 3% annual rate of inflation has been applied to operating expenses and revenues.

VEHICLE PURCHASE EXPENSES AND FUNDING SOURCES

Table 7-2 offers the financial plan for vehicle replacement and expansion over the six-year period. The funding split is generally assumed to be 80% federal, 10% state, and 10% local. The plan includes a total of 16 replacement vehicles and 10 expansion vehicles (in addition to the seven expansion vehicles that are on order).

FACILITY IMPROVEMENT EXPENSES AND FUNDING SOURCES

The financial plan for facilities, equipment, and other capital is provided in Table 7-3. The major expenses listed in this plan are those associated with HDPT's planned administrative, operations, and maintenance facility. These expenses are also assumed to be funded with federal (80%), state (10%), and local (10%) funds. For FY 2012, the draft DRPT STIP was used. Estimates are provided for Years 2013-2017.

Table 7-2: HDPT TDP Financial Plan for Vehicle Replacement and Expansion

| Number of Vehicles | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Replacement | 0 | 3 | 0 | 6 | 6 | 1 |
| Expansion | 2 | 3 | 2 | 1 | 1 | 1 |
| Total Vehicles | 2 | 6 | 2 | 7 | 7 | 2 |

Vehicle Costs

| | | | | | | |
|--------------------------------------|-------------------|---------------------|-------------------|---------------------|---------------------|-------------------|
| Replacement | \$ - | \$ 219,000 | \$ - | \$ 1,142,000 | \$ 2,550,000 | \$ 73,000 |
| Expansion | \$ 850,000 | \$ 1,275,000 | \$ 498,000 | \$ 425,000 | \$ 425,000 | \$ 425,000 |
| Total Projected Vehicle Costs | \$ 850,000 | \$ 1,494,000 | \$ 498,000 | \$ 1,567,000 | \$ 2,975,000 | \$ 498,000 |

Anticipated Funding Sources

| | | | | | | |
|------------------------------|-------------------|---------------------|-------------------|---------------------|---------------------|-------------------|
| Federal | \$ 680,000 | \$ 1,195,200 | \$ 398,400 | \$ 1,253,600 | \$ 2,380,000 | \$ 398,400 |
| State | \$ 91,800 | \$ 149,400 | \$ 49,800 | \$ 156,700 | \$ 297,500 | \$ 49,800 |
| Local | \$ 78,200 | \$ 149,400 | \$ 49,800 | \$ 156,700 | \$ 297,500 | \$ 49,800 |
| Total Vehicle Funding | \$ 850,000 | \$ 1,494,000 | \$ 498,000 | \$ 1,567,000 | \$ 2,975,000 | \$ 498,000 |

Note: Vehicle expenses are in FY2012 dollars

Table 7-3: HDPT TDP Financial Plan for Facilities, Equipment, and Other Capital

| Projects | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 |
|--|-------------------|---------------------|---------------------|------------------|------------------|------------------|
| ADA Vehicle Equipment | \$ 177,100 | \$ - | \$ - | \$ - | \$ - | \$ - |
| Vehicle Locator System | \$ 14,825 | \$ - | \$ - | \$ - | \$ - | \$ - |
| Paratransit Scheduling Software | | \$ 65,000 | | | | |
| Miscellaneous Technology Equipment | \$ 6,000 | \$ 10,000 | \$ 10,000 | \$ 10,000 | \$ 10,000 | \$ 10,000 |
| Canopy for Train Station Passenger Loading Area | | \$ 45,000 | | | | |
| Facility Construction (transit portion) | | \$ 5,000,000 | \$ 5,000,000 | \$ - | \$ - | \$ - |
| Shop Equipment and Tools- New Facility (transit portion) (1) | \$ - | \$ - | \$ 904,995 | | | |
| Shop Equipment, Tools, Miscellaneous Equipment | \$ - | \$ 15,000 | \$ 15,000 | \$ 15,000 | \$ 15,000 | \$ 15,000 |
| Passenger Shelters | \$ 50,000 | \$ 20,000 | \$ 20,000 | \$ 20,000 | \$ 20,000 | \$ 20,000 |
| Bus Stop Signs | \$ 20,800 | \$ 2,000 | \$ 2,000 | \$ 2,000 | \$ 2,000 | \$ 2,000 |
| Total Projected Non-Vehicle Capital Expenses | \$ 268,725 | \$ 5,157,000 | \$ 5,951,995 | \$ 47,000 | \$ 47,000 | \$ 47,000 |
| Anticipated Funding Sources | | | | | | |
| Federal | \$ 214,980 | \$ 4,125,600 | \$ 4,761,596 | \$ 37,600 | \$ 37,600 | \$ 37,600 |
| State | \$ 29,022 | \$ 515,700 | \$ 595,199 | \$ 4,700 | \$ 4,700 | \$ 4,700 |
| Local | \$ 24,723 | \$ 515,700 | \$ 595,199 | \$ 4,700 | \$ 4,700 | \$ 4,700 |
| Total Projected Non-Vehicle Capital Revenue | \$ 268,725 | \$ 5,157,000 | \$ 5,951,995 | \$ 47,000 | \$ 47,000 | \$ 47,000 |

(1) The transit portion of the equipment listed in the 2009 Facility Feasibility Study.

Chapter 8

TDP Monitoring and Evaluation

INTRODUCTION

The HDPT TDP, developed over a nine-month period and guided by a local Steering Committee, has included the following tasks:

- Detailed documentation and analysis of current public transportation services;
- A peer review showing the service and financial characteristics of transit programs similar in scope to HDPT;
- A transit needs analysis, including demographic analysis, land use analysis, a review of relevant planning documents, stakeholder interviews, and rider surveys;
- The development of service and organizational alternatives;
- The development of recommendations for transit improvements for inclusion in the TDP, with improvements tentatively identified by year; and
- A financial plan highlighting the funding requirements and potential funding sources for the recommended transit improvements in the region.

The plan is expansionary in nature, generally following the growth pattern that HDPT has experienced in the last six years. HDPT's partnership with JMU is a key feature of the plan, as are potential partnerships with DSS, EMU, Blue Ridge Community College, and Rockingham County.

Service expansions have been included in the plan and they are attached to particular years, but these projects may slip to future years if the proposed funding arrangements do not come to fruition. This TDP may need to be updated during the six-year planning period to reflect funding availability.

COORDINATION WITH OTHER PLANS AND PROGRAMS

The study team for this TDP consulted a number of relevant plans and programs during the development of the six-year plan. The following documents were reviewed, with their associated recommendations incorporated where appropriate:

- HDPT Transit Development Plan, December 2006
- HDPT Performance Review, 2009
- HDPT Maintenance/ Administration Building Feasibility Study, 2009
- 2011 City of Harrisonburg Comprehensive Plan (draft)
- Harrisonburg Bicycle and Pedestrian Plan (2010)
- James Madison University Master Plan (2009)
- Central Shenandoah Coordinated Human Service Mobility Plan

SERVICE PERFORMANCE MONITORING

A number of proposed service standards were developed for HDPT (Chapter 2) for this TDP. The purpose of including these standards was to develop some objective measurements of performance that HDPT could use to monitor transit services in the future and make objective, performance-based service planning decisions. It should be noted that HDPT needs to have different standards for the seasonal routes than for the year-round city routes, as the performance of each are quite different. It is recommended that HDPT monitor performance monthly, with adjustments scheduled as needed to coincide with the JMU academic calendar.

ANNUAL TDP MONITORING

For this TDP it is particularly important that HDPT monitor the progress each fiscal year. There are projects included for implementation that are dependent upon grants and these grants must be written in coordination with the DSS and other potential funding partners. Projects may also need to shift from one year to the next if funding is not available. Alternatively, if the reauthorization of the federal transportation funding program is more generous than SAFETEA-LU, projects could

potentially be implemented ahead of schedule or additional projects could be added to the TDP.

HDPT should also monitor the operating statistics for current and new services to ensure that the performance is consistent with the service standards included in this TDP.

APPENDIX A

On-Board Rider Survey

**Harrisonburg Department of Public Transportation (HDPT) - Transit Development Plan
ON-BOARD RIDER SURVEY**

HDPT is conducting a Transit Development Plan. Important tasks for the study are to fully understand the travel patterns of our riders and solicit customer input. Please complete this survey for your current bus trip. When you are finished with this survey, please give it to the surveyor on your bus. **Thank you!**

1. What route are you **currently** riding? _____

2. How did you get from your starting place to the bus stop for this trip?
 (1) Walked (3) Drove car and parked (5) Other: _____
 (2) Bicycled (4) Dropped off by someone

3. What was the location where you boarded the bus? If you transferred, the place where you first boarded a bus for this trip. Please indicate the street address, intersection, building, or landmark. *For example, Mountain View and Cantrell.* Please do not use vague terms, such as “home” or “work.”

4. Did you or will you have to transfer buses in order to complete this trip?
 (1) Yes, one transfer (2) Yes, two or more transfers (3) No (If No, Skip to question #6)

5. What bus route(s) **will you transfer to or did you transfer from?** _____

6. How will you get to your ending place from the last bus you ride for this trip?
 (1) Walk (3) Drive my car (5) Other: _____
 (2) Bicycle (4) Picked up by someone

7. What is your destination? Please indicate the street address, intersection, building, or landmark. *For example, The Mill Apartments.* Please do not use vague terms such as “home” or “work.”

8. What is the purpose of your bus trip today? You may check more than one.
 (1) Work (4) Social/ Recreation (7) Other: _____
 (2) Shopping (5) Medical
 (3) School (6) Government Service Agency

9. Could you have used a car/truck/motorcycle to make this trip? (1) Yes (2) No

10. If HDPT were to make service improvements, what would be your top three choices?

(1) _____ (2) _____ (3) _____

11. If HDPT were to serve additional neighborhoods or geographic areas, what would be your top three choices?

(1) _____ (2) _____ (3) _____

OVER, PLEASE ☞

12. Please rate your satisfaction with HDPT services in the following areas:

| | Very Satisfied | Satisfied | Unsatisfied | Very Unsatisfied |
|-----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | (1) | (2) | (3) | (4) |
| On-time performance | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Convenience of bus routes | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Convenience of bus stop locations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Days of service | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Hours of service | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Frequency of service | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cost of bus fare | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cleanliness of the buses | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Driver courtesy | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Availability of information | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Safety and security | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Telephone customer service | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Usefulness of HDPT website | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

13. How would you classify yourself?

- (1) African American (3) Caucasian (5) Native American
 (2) Asian American (4) Hispanic/Latino (6) Other

14. Are you: (1) Male (2) Female 15. Do you have a driver's license? (1) Yes (2) No

16. How many vehicles (cars, trucks, motorcycles) are available in the household where you live?

- 0 1 2 3 4 or more

17. Please indicate your age group.

- (1) Under 12 years old (3) 18-25 years old (5) 56-64 years old
 (2) 12-17 years old (4) 26-55 years old (6) 65 years old or older

18. Which of the following best describes your current employment status? You may check more than one.

- (1) Employed, full-time (4) Student, full-time (7) Unemployed
 (2) Employed, part-time (5) Student, part-time (8) Other
 (3) Retired (6) Homemaker

19. What is your annual household income level? Please check only one.

- (1) \$14,999 or less (3) \$30,000-\$44,999 (5) \$60,000- \$74,999
 (2) \$15,000- \$29,999 (4) \$45,000-\$59,999 (6) \$75,000 or higher

20. Please provide any comments you may have concerning public transportation in the City of Harrisonburg.

APPENDIX B

Passenger Survey Results

Appendix B: ON-BOARD RIDER SURVEY SUMMARY (HDPT CITY ROUTES ONLY)

Surveying conducted from Monday, November 15th, 2010 through Thursday, November 18th, 2010

Q1: What bus route are you currently riding?

| | | | |
|----------|---------------|----------|---------------|
| Route 1: | <u>18.14%</u> | Route 4: | <u>9.77%</u> |
| Route 2: | <u>23.72%</u> | Route 5: | <u>22.33%</u> |
| Route 3: | <u>26.05%</u> | | |

Q2: How did you get from your starting place to the bus stop for this trip?

| | | | |
|-----------------------|---------------|-------------------------|--------------|
| Walked: | <u>79.53%</u> | Dropped off by someone: | <u>5.12%</u> |
| Bicycled: | <u>1.40%</u> | Other: | <u>7.44%</u> |
| Drove car and parked: | <u>0.93%</u> | (No response): | <u>5.58%</u> |

Q3: What was the location where you boarded this bus?

| | |
|-----|---------------------------------|
| #1: | <u>JMU: Chandler Hall</u> |
| #2: | <u>Harrisonburg High School</u> |
| #3: | <u>Wal-Mart</u> |
| #4: | <u>Hardesty-Higgins House</u> |
| #5: | <u>Food Lion</u> |

Q4: Did you or will you have to transfer buses in order to complete this trip?

| | | | |
|-----------------------------|---------------|----------------|---------------|
| Yes, one transfer: | <u>48.37%</u> | No: | <u>39.53%</u> |
| Yes, two or more transfers: | <u>9.77%</u> | (No response): | <u>2.33%</u> |

Q5: What bus route(s) will you transfer to or did you transfer from?

| | | | |
|-----------|---------------|----------------|---------------|
| Route 1: | <u>13.02%</u> | Route 12: | <u>0.93%</u> |
| Route 2: | <u>13.95%</u> | Route 13: | <u>0.00%</u> |
| Route 3: | <u>9.77%</u> | Route 14: | <u>0.47%</u> |
| Route 4: | <u>7.91%</u> | Route 15: | <u>0.00%</u> |
| Route 5: | <u>13.49%</u> | Route 16: | <u>0.00%</u> |
| Route 6: | <u>0.00%</u> | Convo Express: | <u>0.00%</u> |
| Route 7: | <u>0.00%</u> | ICS I: | <u>1.40%</u> |
| Route 8: | <u>0.47%</u> | ICS II: | <u>1.40%</u> |
| Route 9: | <u>0.47%</u> | Shopper: | <u>0.00%</u> |
| Route 10: | <u>0.47%</u> | (No response): | <u>46.05%</u> |

Q6: How will you get to your ending place from the last bus you ride for this trip?

| | | | |
|---------------|---------------|-----------------------|--------------|
| Walk: | <u>84.19%</u> | Picked up by Someone: | <u>3.26%</u> |
| Bicycle: | <u>1.86%</u> | Other: | <u>2.33%</u> |
| Drive my car: | <u>0.47%</u> | (No response): | <u>7.91%</u> |

Q7: What is your destination?

| | |
|-----|-------------------------------------|
| #1: | <u>Wal-Mart</u> |
| #2: | <u>Harrisonburg High School</u> |
| #3: | <u>Rockingham Memorial Hospital</u> |
| #4: | <u>Harris Gardens Apartments</u> |
| #5: | <u>Massanutten Technical Center</u> |

Q8: What is the purpose of your bus trip today? (You may check more than one)

| | | | |
|--------------------|---------------|----------------------------|---------------|
| Work: | <u>30.23%</u> | Medical: | <u>7.91%</u> |
| Shopping: | <u>12.56%</u> | Government Service Agency: | <u>2.33%</u> |
| School: | <u>29.77%</u> | Other: | <u>16.74%</u> |
| Social/Recreation: | <u>10.23%</u> | (No response): | <u>0.93%</u> |

Q9: Could you have used a car/truck/motorcycle to make this trip?

| | | | |
|----------------|---------------|-----|---------------|
| Yes: | <u>26.98%</u> | No: | <u>68.84%</u> |
| (No response): | <u>4.19%</u> | | |

Appendix B: ON-BOARD RIDER SURVEY SUMMARY (HDPT CITY ROUTES ONLY)

Q10: If HDPT were to make service improvements, what would be your top three choices?

- #1: Later Hours of Service
- #2: Increased Frequency of Service
- #3: Addition of Sunday Service
- #4: Improved Adherence to Schedule
- #5: Expansion of Routes and Services

Q11: If HDPT were to serve additional areas, what would be your top three choices?

- #1: Bridgewater, Virginia
- #2: Downtown Harrisonburg
- #3: Wal-Mart
- #4: Dayton, Virginia
- #5: Broadway, Virginia

Q12: Please rate your satisfaction with HDPT services in the following areas:

| | VS | S | U | VU |
|------------------------------|---------------|---------------|---------------|--------------|
| On-time performance: | <u>37.63%</u> | <u>51.08%</u> | <u>10.75%</u> | <u>0.54%</u> |
| Convenience of bus routes: | <u>39.25%</u> | <u>46.24%</u> | <u>12.90%</u> | <u>1.61%</u> |
| Convenience of bus stops: | <u>34.24%</u> | <u>48.91%</u> | <u>14.67%</u> | <u>2.17%</u> |
| Days of service: | <u>34.07%</u> | <u>34.62%</u> | <u>24.18%</u> | <u>7.14%</u> |
| Hours of service: | <u>30.43%</u> | <u>29.35%</u> | <u>31.52%</u> | <u>8.70%</u> |
| Frequency of service: | <u>34.62%</u> | <u>41.76%</u> | <u>19.78%</u> | <u>3.85%</u> |
| Cost of bus fare: | <u>59.46%</u> | <u>33.51%</u> | <u>4.86%</u> | <u>2.16%</u> |
| Cleanliness of the buses: | <u>54.64%</u> | <u>40.44%</u> | <u>3.83%</u> | <u>1.09%</u> |
| Driver courtesy: | <u>57.53%</u> | <u>33.33%</u> | <u>8.06%</u> | <u>1.08%</u> |
| Availability of information: | <u>60.11%</u> | <u>34.97%</u> | <u>3.83%</u> | <u>1.09%</u> |
| Safety and security: | <u>61.20%</u> | <u>34.43%</u> | <u>3.83%</u> | <u>0.55%</u> |
| Telephone customer service: | <u>52.87%</u> | <u>40.23%</u> | <u>6.32%</u> | <u>0.57%</u> |
| Usefulness of HDPT website: | <u>50.00%</u> | <u>40.74%</u> | <u>8.02%</u> | <u>1.23%</u> |

Q13: How would you classify yourself?

| | | | |
|-------------------|---------------|------------------|---------------|
| African American: | <u>22.79%</u> | Native American: | <u>0.93%</u> |
| Asian American: | <u>2.33%</u> | Other: | <u>4.65%</u> |
| Caucasian: | <u>39.53%</u> | (No response): | <u>10.70%</u> |
| Hispanic/Latino: | <u>19.07%</u> | | |

Q14: Are you (Gender):

| | | | |
|---------|---------------|----------------|---------------|
| Male: | <u>45.12%</u> | (No response): | <u>11.63%</u> |
| Female: | <u>43.26%</u> | | |

Q15: Do you have a driver's license?

| | | | |
|------|---------------|----------------|---------------|
| Yes: | <u>24.19%</u> | (No response): | <u>37.21%</u> |
| No: | <u>38.60%</u> | | |

Q16: How many vehicles (cars, trucks, motorcycles) are available in the household where you live?

| | | | |
|----|---------------|----------------|---------------|
| 0: | <u>40.93%</u> | 3: | <u>6.51%</u> |
| 1: | <u>20.93%</u> | 4 or more: | <u>2.33%</u> |
| 2: | <u>14.88%</u> | (No response): | <u>14.42%</u> |

Q17: Please indicate your age group:

| | | | |
|---------------------|---------------|------------------------|--------------|
| Under 12 years old: | <u>0.93%</u> | 56-64 years old: | <u>3.72%</u> |
| 12-17 years old: | <u>20.47%</u> | 65 years old or older: | <u>2.79%</u> |
| 18-25 years old: | <u>27.91%</u> | (No response): | <u>9.30%</u> |
| 26-55 years old: | <u>34.88%</u> | | |

Appendix B: ON-BOARD RIDER SURVEY SUMMARY (HDPT CITY ROUTES ONLY)

Q18: Which of the following best describes your current employment status? (You may check more than one)

| | | | |
|----------------------|---------------|---------------------|---------------|
| Employed, full-time: | <u>20.93%</u> | Student, part-time: | <u>7.44%</u> |
| Employed, part-time: | <u>15.35%</u> | Homemaker: | <u>1.86%</u> |
| Retired: | <u>2.33%</u> | Unemployed: | <u>18.14%</u> |
| Student, full-time: | <u>28.84%</u> | Other: | <u>3.72%</u> |

Q19 :What is your annual household income level?

| | | | |
|----------------------|---------------|---------------------|---------------|
| \$14,999 or less: | <u>35.81%</u> | \$60,000-\$74,999: | <u>2.33%</u> |
| \$15,000-\$29,999: | <u>14.42%</u> | \$75,000 or higher: | <u>3.26%</u> |
| \$30,000-\$44,999: | <u>9.30%</u> | (No response): | <u>29.77%</u> |
| \$\$45,000-\$59,999: | <u>5.12%</u> | | |

APPENDIX C

FTA Triennial Review Report and the City's Response

FINAL REPORT

FY2009 TRIENNIAL REVIEW

of the

**City of Harrisonburg Department of Public Transportation
(HDPT)
Harrisonburg, VA**

**Desk Review: February 11, 2009
Site Visit: June 25-26, 2009**

July 2009

**Prepared for the
Federal Transit Administration
Region III
Philadelphia, PA**

by

Interactive Elements Incorporated

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I. TRIENNIAL REVIEW BACKGROUND

The United States Code, chapter 53 of title 49, requires the Federal Transit Administration (FTA) of the United States Department of Transportation (USDOT) to perform reviews and evaluations of Urbanized Area Formula Grant activities at least every three years. This requirement is contained in 49 U.S.C. 5307(i).

- (2) At least once every 3 years, the Secretary shall review and evaluate completely the performance of a recipient in carrying out the recipient's program, specifically referring to compliance with statutory and administrative requirements and the extent to which actual program activities are consistent with the activities proposed under subsection (d) of this section and the planning process required under sections 5303-5306 of this title.
- (3) The Secretary may take appropriate action consistent with the review, audit and evaluation under this subsection, including making an appropriate adjustment in the amount of a grant or withdrawing the grant.

The Triennial Review includes a review of the grantee's compliance in 23 different areas. The basic requirements for each of these areas are summarized below.

This report presents the findings from the Triennial Review of City of Harrisonburg Department of Transportation (HDPT) of Harrisonburg VA. This review was performed in accordance with FTA procedures (published in FTA Order 9010.1B, April 5, 1993) and included preliminary reviews of documents on file at the Region III Office in Philadelphia and on-site discussions and review of the procedures, practices, and records of HDPT as deemed necessary. The review concentrated primarily on procedures and practices employed during the past three years; however, coverage was extended to earlier periods as needed to assess the policies in place and the management of grants. During the visit, administrative and statutory requirements were discussed, documents were reviewed, and facilities were toured. Specific documents examined during the Triennial Review are available in FTA's and HDPT's files.

II. REVIEW PROCESS

The desk review was conducted in the Region III Office on February 11, 2009. Following the desk review, an agenda package was sent to HDPT advising it of the site visit and indicating additional information that would be needed and issues that would be discussed.

The site visit to HDPT occurred on June 25-26, 2009. The individuals participating in the review are listed in Section VII of this report.

At the entrance conference, the purpose of the Triennial Review and the review process were discussed. During the site visit, urbanized area formula grant program administrative and

statutory requirements were discussed and documents were reviewed. HDPT's transit facilities were toured to provide an overview of activities related to FTA-funded projects. A sample of FTA-funded vehicles was inspected during the site visit.

On completion of the review, an exit conference was held with HDPT staff to discuss findings, corrective actions and schedules. This information is summarized in the table in Section V of this report. A draft copy of this report was provided to HDPT at the exit conference.

III. DESCRIPTION OF THE GRANTEE

The City of Harrisonburg's Department of Public Transportation (HDPT) provides transit service in the City and to James Madison University. HDPT is a department within the municipality of the City of Harrisonburg. HDPT operates all fixed route and paratransit service in-house with one contractor for supplementary paratransit service. The population of HDPT's service area is approximately 45,255.

HDPT operates a network of 29 fixed routes. Service is provided as follows:

| | JMU in Session | JMU Out of Session |
|-----------|---|-----------------------|
| Weekdays | 6:38 a.m. – 11:52 p.m. Monday-Thursday 6:38 a.m. – 3:00 a.m. Fridays | 6:38 a.m. – 7:00 p.m. |
| Saturdays | 8:38 a.m. – 3:00 a.m. | 8:38 a.m. – 6:00 p.m. |
| Sundays | 11:00 a.m. – 11:52 p.m. | No service |

HDPT's complementary paratransit service operates during the same days and hours of service as the fixed routes.

The basic adult fare for bus service is \$1.00. A reduced fare of \$0.50 is offered during all hours to seniors, persons with disabilities and Medicare cardholders. The fare for ADA paratransit service is \$2.00

HDPT operates a fleet of 24 buses for fixed-route service. Its bus fleet consists of standard 30-, 35-, and 40-foot transit coaches, minibuses, and rubber-tired trolleys. The current peak requirement is for 21 vehicles. HDPT also has a fleet of nine vans for ADA paratransit service. HDPT contracts with ABC Cab for supplementary paratransit services.

HDPT operates from a single maintenance and administration facility. This site is also used as the hub for service.

HDPT's National Transit Database Report for FY2007 provided the following financial and operating statistics for its fixed-route and paratransit service:

| | Fixed-Route Service | Paratransit Service |
|---------------------|----------------------------|----------------------------|
| Unlinked Passengers | 1,468,943 | 23,375 |
| Revenue Hours | 43,588 | 8,460 |
| Operating Expenses | 2,123,947 | 468,800 |

IV. RESULTS OF THE REVIEW

The Triennial Review focused on HDPT's compliance in 22 different areas. This section provides a discussion of the basic requirements and findings in each area. No deficiencies were found with the FTA requirements in 17 of the 22 areas. Deficiencies were found in the following 5 areas: Financial, Satisfactory Continuing Control, Maintenance, Procurement, and School Bus. Drug and Alcohol Program was not reviewed because the agency had a Drug and Alcohol Program Compliance audit on February 5 - 7, 2007.

1. Legal

Basic Requirement: The grantee must be eligible and authorized under state and local law to request, receive, and dispense FTA funds and to execute and administer FTA funded projects. The authority to take all necessary action and responsibility on behalf of the grantee must be properly delegated and executed.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for legal.

2. Financial

Basic Requirement: The grantee must demonstrate the ability to match and manage FTA grant funds, cover cost increases, cover operating deficits through long-term stable and reliable sources of revenue, maintain and operate federally funded facilities and equipment, and conduct an annual independent organization-wide audit in accordance with the provisions of OMB Circular A-133.

Findings: During this Triennial Review of HDPT, deficiencies were found with the FTA requirements for financial.

HDPT has indirect cost being charged to its grants without a cognizant agency approved cost allocation plan.

Corrective Actions and Schedules: Within 60 days of the issuance of the final report or by September 25, 2009, HDPT must develop a cost allocation plan, have it approved by its cognizant agency, and provide evidence of the approval to the FTA Region III Office.

3. Technical

Basic Requirement: The grantee must be able to implement the Urbanized Area Formula Grant Program of Projects in accordance with the grant application, Master Agreement, and all applicable laws and regulations, using sound management practices.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for technical.

4. Satisfactory Continuing Control

Basic Requirement: The grantee must maintain control over real property, facilities, and equipment and ensure that they are used in transit service.

Findings: During this Triennial Review of HDPT, deficiencies were found with the FTA requirements for satisfactory continuing control.

HDPT makes incidental use of real property without prior consent of FTA Region III. Non-federally funded school buses are being maintained on HDPT's federally funded maintenance facility.

Corrective Actions and Schedules: Within 30 days of the issuance of the final report or by August 24, 2009, HDPT must obtain FTA approval for any incidental use and implement procedures for continuing control.

5. Maintenance

Basic Requirement: The grantee must keep federally funded equipment and facilities in good operating order.

Findings: During this Triennial Review of HDPT, deficiencies were found with the FTA requirements for maintenance.

HDPT has developed a maintenance plan that requires preventive maintenance to be performed on its FTA-funded vehicles at 3,000 and 6,000 mile intervals. In a review of HDPT's preventative maintenance records, it was noted that that preventive maintenance was not performed timely in accordance with the plan. An inspection of HDPT subfleet resulted in a 71 percent on time rate.

Corrective Actions and Schedules: Within 90 days of the issuance of the final report or by October 26, 2009, HDPT needs to immediately address the occurrences of late Preventative

Maintenance Inspections (PMIs) to ensure that FTA's capital investment is not being jeopardized. HDPT must provide FTA Region III with a report on its results for the next three months.

6. Procurement

Basic Requirement: FTA grantees will use their own procurement procedures that reflect applicable state and local laws and regulations, provided that the process ensures competitive procurement and that the procedures conform to applicable federal law including 49 CFR Part 18, specifically Section 18.36 and FTA Circular 4220.1E, "Third Party Contracting Requirements." Grantees will maintain a contract administration system that ensures that contractors perform in accordance with terms, conditions, and specifications of their contracts or purchase orders.

Findings: During this Triennial Review of HDPT, deficiencies were found with the FTA requirements for procurement.

A review of the HDPT's Sole Source – Avail Technologies procurement files revealed that FTA clauses were not included in this HDPT's federally assisted procurement.

Corrective Actions and Schedule: Within 30 days of the issuance of the final report or by August 24, 2009, HDPT must revise its procurement procedures to require all FTA-required clauses in applicable procurements. HDPT must submit the revised procurement procedures to FTA Region III Office.

7. Disadvantaged Business Enterprise (DBE)

Basic Requirement: The grantee must comply with the policy of DOT that DBEs, as defined in 49 CFR Part 26, are ensured nondiscrimination in the award and administration of DOT-assisted contracts. Grantees also must create a level playing field on which DBEs can compete fairly for DOT-assisted contracts; ensure that only firms that fully meet eligibility standards are permitted to participate as DBEs; help remove barriers to the participation of DBEs; and assist the development of firms that can compete successfully in the marketplace outside the DBE program.

Findings: During this Triennial Review of HDPT, no deficiencies were found with USDOT requirements for DBE.

8. Buy America

Basic Requirement: Per FTA's "Buy America" requirements, federal funds may not be obligated unless steel, iron, and manufactured products used in FTA funded projects are produced in the United States, unless FTA has granted a waiver, or the product is subject to a

general waiver. Rolling stock must have sixty percent domestic content and final assembly must take place in the United States.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for Buy America.

9. Suspension/Debarment

Basic Requirement: To protect the public interest and prevent fraud, waste, and abuse in federal transactions, persons or entities, which by defined events or behavior, potentially threaten the integrity of federally administered programs, are excluded from participating in FTA assisted programs. Federal agencies use the government-wide nonprocurement debarment and suspension system to exclude from Federal programs persons who are not presently responsible. Grantees are required to ensure to the best of their knowledge and belief that none of the grantee's "principals" (as defined in the governing regulation 2 CFR Part 180), subrecipients, and third-party contractors and subcontractors is debarred, suspended, ineligible, or voluntarily excluded from participation in federally assisted transactions or procurements. Grantees are strongly encouraged to review the Excluded Parties Listing System (<http://www.epls.gov/>) before entering into any third party contracts.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for suspension/debarment.

10. Lobbying

Basic Requirement: Recipients of federal grants and contracts exceeding \$100,000 must certify compliance with Restrictions on Lobbying before they can receive funds. In addition, grantees are required to impose the lobbying restriction provisions on their contractors.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for lobbying.

11. Planning/Program of Projects

Basic Requirement: The grantee must participate in the transportation planning process in accordance with FTA requirements, SAFETEA-LU, and the Metropolitan and Statewide Planning Regulations.

Each recipient of a grant shall have complied with the public participation requirements of Section 5307(c)(1) through (7). Each recipient is required to develop, publish, afford an opportunity for a public hearing on, and submit for approval a Program of Projects (POP).

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for planning/POP.

12. Title VI

Basic Requirement: The grantee must ensure that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participating in, or denied the benefits of, or be subject to discrimination under any program, or activity receiving federal financial assistance. The grantee must ensure that federally supported transit services and related benefits are distributed in an equitable manner.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for Title VI.

13. Public Comment Process for Fare Increases and Service Reductions

Basic Requirement: The grantee is expected to have a written copy of a locally developed process to solicit and consider public comment before raising a fare or carrying out a major reduction of transportation services.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for public comment process for fare increases and service reductions.

14. Half Fare

Basic Requirement: Grantees must ensure that elderly persons and persons with disabilities, or an individual presenting a Medicare card will be charged, during non-peak hours for transportation using or involving a facility or equipment of a project financed under Section 5307, not more than 50 percent of the peak hour fare.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for half fare.

15. ADA

Basic Requirement: Titles II and III of the Americans with Disabilities Act of 1990 provide that no entity shall discriminate against an individual with a disability in connection with the provision of transportation service. The law sets forth specific requirements for vehicle and facility accessibility and the provision of service, including complementary paratransit service.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for ADA.

16. Charter Bus

Basic Requirement: FTA grantees are prohibited from using federally funded equipment and facilities to provide charter service if a registered private charter operator expresses interest in providing the service.

The grantees are allowed to operate community based charter services exempted under the regulations; some irregular or limited duration services; and those that are covered by the exceptions.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for charter bus.

17. School Bus

Basic Requirement: FTA grantees are prohibited from providing exclusive school bus service unless it qualifies under specified exceptions. In no case can federally funded equipment or facilities be used.

Findings: During this Triennial Review of HDPT, deficiencies were found with the FTA requirements for school bus.

HDPT operates non-federally funded school buses and maintains non-federally funded school buses on its federally funded facility.

Corrective Actions and Schedules: Within 60 days of the issuance of the final report or by September 25, 2009, HDPT must cease any school bus operation that violates FTA's regulations.

18. National Transit Database (NTD)

Basic Requirement: Grantees that receive 5307 and 5311 grant funds must collect, record, and report financial and non-financial data in accordance with the Uniform System of Accounts (USOA) and updated with the National Transit Database (NTD) Reporting Manual as required by 49 USC 5335(a).

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for National Transit Database.

19. Safety and Security

Basic Requirement: Any recipient of Urbanized Area Formula Grant Program funds must annually certify that it is spending at least one percent of such funds for transit security projects or that such expenditures for security systems are not necessary.

Under the safety authority provisions of the Federal transit laws, the Secretary has the authority to investigate the operations of the grantee for any conditions that appear to create a serious hazard of death or injury, especially to patrons of the transit service. States are required to oversee the safety of rail fixed guideway systems through a designated oversight agency, per 49 CFR Part 659, Rail Fixed Guideway Systems, State Safety Oversight.

Under security, a list of 17 Security and Emergency Management Action Items has been developed by FTA and the Department of Homeland Security's Transportation Security Administration (TSA). This list of 17 items, an update to the original FTA Top 20 security action items list, was developed in consultation with the public transportation industry through the Mass Transit Sector Coordinating Council, for which the American Public Transportation Association (APTA) serves as Executive Chair. Security and Emergency Management Action Items for Transit Agencies aim to elevate security readiness throughout the public transportation industry by establishing baseline measures that transit agencies should employ.

The goal of FTA's Safety and Security Program is to achieve the highest practical level of safety and security in all modes of transit. To this end, FTA continuously promotes the awareness of safety and security throughout the transit community by establishing programs to collect and disseminate information on safety/security concepts and practices. In addition, FTA develops guidelines that transit systems can apply in the design of their procedures and by which to compare local actions. As such, many of the questions in this review area are designed to determine what efforts grantees have made to develop and implement safety, security, and emergency management plans. While there may not be specific requirements associated with all of the questions, grantees are encouraged to implement the plans, procedures, and programs referenced in these questions. For this reason, findings in this area will most often result in advisory comments rather than deficiencies.

Findings: A summary of HDPT's expenditures of Section 5307 funds for security projects is provided in Section VI of this report.

During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for safety and security.

20. Drug-Free Workplace

Basic Requirement: FTA grantees are required to maintain a drug-free workplace for all employees and to have an ongoing drug-free awareness program.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for drug-free workplace.

21. Drug and Alcohol Program

Basic Requirement: Grantees receiving FTA funds under Capital Grant (Section 5309), Urbanized Area Formula Grant (Section 5307), or Non-Urbanized Area Formula Grant (Section 5311) Programs must have a drug and alcohol testing program in place for all safety-sensitive employees.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for the drug and alcohol program.

22. Equal Employment Opportunity (EEO)

Basic Requirement: The grantee must ensure that no person in the United States shall on the grounds of race, color, religion, national origin, sex, age, or physical or mental disability be excluded from participating in, or denied the benefits of, or be subject to discrimination in employment under any project, program, or activity receiving federal financial assistance from the federal transit laws.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for EEO.

23. ITS Architecture

Basic Requirement: Intelligent Transportation Systems (ITS) projects funded by the Highway Trust Fund and the Mass Transit Account must conform to the National ITS Architecture, as well as to United States Department of Transportation (USDOT) adopted ITS Standards.

Findings: During this Triennial Review of HDPT, no deficiencies were found with the FTA requirements for ITS architecture.

VI. TRANSIT SECURITY EXPENDITURES

Does the grantee expend one percent or more of its Section 5307 Urbanized Area Formula Grant funds for transit security? FY2006: Yes X No _____

FY2007: Yes X No _____

FY2008: Yes X No _____

If no, why does the grantee consider such expenditure unnecessary (check all that apply):

_____ No deficiency found from a threat and vulnerability assessment

_____ TSA/FTA Security and Emergency Management Action Items met or exceeded

_____ Other (please describe): _____

| Security Funding | FTA Section 5307 Funds (in Dollars) | | |
|---|-------------------------------------|-----------|-----------|
| | FY 2006 | FY 2007 | FY 2008 |
| Total amount of 5307 Funds expended | \$729,700 | \$642,665 | \$731,140 |
| Amount of 5307 Funds expended on security | \$32,648 | \$648 | \$648 |
| Percent of 5307 Funds expended on security | 4 % | .1% | .08% |
| Infrastructure/Capital Improvement Security Projects: | | | |
| Lighting, Fencing & Perimeter Control | | | |
| CCTV and Surveillance Technology | \$32,000 | | |
| Communications Systems | | | |
| Security Planning ^(a) | | | |
| Drills & Tabletop Exercises ^(a) | | | |
| Employee Security Training ^(a) | | | |
| Other Security-Related Infrastructure & Capital Improvements (please list): _____ | | | |
| Operating/Personnel Expenditures (can only be used by agencies in areas with populations UNDER 200,000): | | | |
| Contracted Security Force | | | |
| In-house Security Force | | | |
| Other Security-Related Operating Expenditures (please list): <u>SECURITY LIGHTING</u> | \$648 | \$648 | \$648 |

^(a) SAFETEA-LU amended the definition of a capital project to include:

- projects to refine and develop security and emergency response plans;
- the conduct of emergency response drills with public transportation agencies and local first response agencies; and
- security training for public transportation employees.

VII. ATTENDEES

| Name | Title/Organization | Phone Number | e-mail address |
|------------------------|---|--------------|-----------------------------------|
| <i>Grantee</i> | | | |
| Ken Pollock | Rural Transit Specialist VA. | 804-786-7858 | Kenneth.pollock@drpt.virginia.gov |
| Reggie Smith | General Manager | 540-432-0496 | reggies@hdpt.com |
| Cheryl Spain | Grants and Compliance | 540-432-0492 | cheryls@hdpt.com |
| Aaron Smith Walter | Asst. Director of Safety & Training Coordinator | 540-432-0492 | Aarons@hdpt.com |
| Vicki Sullivan | Office Manager | 540-432-0492 | vickis@hdpt.com |
| Charles Byers | Shop Supervisor | 540-432-0491 | charlesb@hdpt.com |
| Vickie Cowley | Transit Supervisor | 540-432-0492 | vickiec@hdpt.com |
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| | | | |
| <i>FTA</i> | | | |
| Karen Roscher | Transportation Program Specialist | 215-656-7002 | Karen.roscher@fta.dot.gov |
| <i>Reviewer</i> | | | |
| Walter Carter | Reviewer | 773-375-8285 | wcc@ieitransit.com |



U.S. Department
of Transportation
**Federal Transit
Administration**

REGION III
Delaware, District of
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Pennsylvania, Virginia,
West Virginia

1760 Market Street
Suite 500
Philadelphia, PA 19103-4124
215-656-7100
215-656-7260 (fax)

NOV 23 2009

Mr. Reggie Smith
General Manager
City of Harrisonburg
Department of Public Transportation
475 E. Washington Street
Harrisonburg, VA. 22802

Re: 2009 Triennial Review Findings

Dear Mr. Smith:

This is in response to Cheryl Spain's e-mail dated October 28, 2009 and subsequent e-mails addressing several findings as a result of the City of Harrisonburg Department of Public Transportation's (HDPT) triennial review.

Based on the preventive maintenance information submitted, the Federal Transit Administration (FTA) has concluded that the D-4, Maintenance finding is now closed.

As for the D-7, Financial finding, the corrective action HDPT has taken, of issuing an RFP to develop a cost allocation plan (CAP), closes this finding. However, if the FTA is determined to be the cognizant agency please forward the CAP to FTA once it is completed for our approval. If we are not the cognizant agency a copy of the CAP approval letter from the cognizant agency must be forwarded to us.

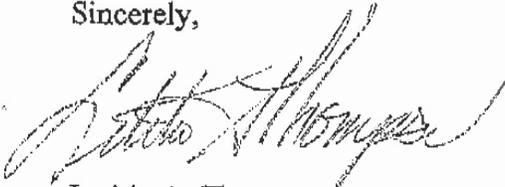
The D-13, Procurement finding was extended to October 31, 2009. The extension you are requesting has been granted but the procurement procedures must be forwarded to this office no later than December 30, 2009.

The cost sharing information and detailed spreadsheet that was provided to satisfy the D-01, Satisfactory Continuing Control finding closes this finding.

The final finding is D-01, School Bus. Please note that school buses cannot be maintained or stored on federally funded property or facilities. We understand that part of the City's facility is not federally funded. The school buses can be stored and maintained in and on that part of the facility. Please provide information that proves that this is being done within the FTA regulations.

If you would like to discuss any of the above items please do not hesitate to contact Karen Roscher of my staff. She can be reached at 215-656-7002.

Sincerely,



Letitia A. Thompson
Regional Administrator

cc: Cheryl Spain, HDPT

Received

NOV 30 2009

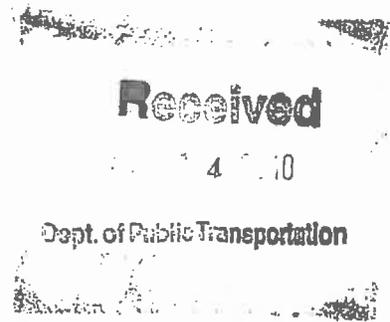
Dept. of Public Transportation

U.S. Department
of Transportation
**Federal Transit
Administration**

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1760 Market Street
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215-656-7100
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SEP 08 2010



Mr. Reggie Smith
Director of Public Transportation
City of Harrisonburg, Public Transportation Department
475 East Washington Street
Harrisonburg, VA 22802

Re: Application to Engage in School Bus Operations

Dear Mr. Smith:

By letter of August 13, 2010, the City of Harrisonburg (City) sent a sworn application to the Federal Transit Administration (FTA) requesting a waiver under 49 CFR Part 605 which would allow the City to engage in school bus operations.

In support of its application, the City stated that it operates a school system in its urban area and also operates a separate and exclusive school bus program for that school system. School bus operations have been included in the operation of the City's Department of Transportation since it was created in 1976, with no audit or other oversight findings that those operations were funded with Federal Funds. The City maintains separate budgets for its transit and school bus operations.

On July 31 and August 7, 2010, in accordance and in compliance with 49 CFR § 605.16, the City published a Public Notice certifying that there are no private school bus operators in the urban area of Harrisonburg, Virginia. No comments were received in response to either published notice.

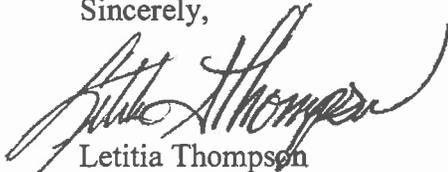
Generally, no Federal financial assistance for transit projects or operations may be provided to FTA grant applicants unless the applicant agrees not to engage in school bus operations in competition with private school bus operators. 49 USC § 5323(f). A grantee may apply for an exemption to this restriction if it satisfactorily demonstrates that private school bus operators in the urban area are unable to provide adequate transportation. 49 CFR § 605.11(b). If there are no private school bus operators operating in the applicant's urban area, the applicant may so certify in its application, by publishing the aforementioned Public Notice. 49 CFR § 605.17.

Mr. Reggie Smith
Page 2

After reviewing the City's sworn application and Public Notice, the FTA is satisfied that the City has demonstrated that there are no private school bus operators operating in the City's urban area, and that an exemption from the statutory constraint on school bus operations is warranted. The City is permitted to engage in school bus operations with the continued understanding that those operations may not be funded with FTA grant funds, or other Federal transit funding or financing. This exemption is valid for a five (5) year period, and may be renewed only upon approval of a new application.

Should you have any additional question, please feel free to contact Karen Roscher, Transportation Program Specialist, at 215-656-7002.

Sincerely,



Letitia Thompson
Regional Administrator

APPENDIX D

Block Group Rankings

Table D-1: Numeric Rankings of Block Groups for the City of Harrisonburg

| Block Group Number | Elderly Number | Elderly Rank | Youth Number | Youth Rank | Disabled Number | Disabled Rank | Poverty Number | Poverty Rank | Autoless Number | Autoless Rank | Total Rank |
|--------------------|----------------|--------------|--------------|------------|-----------------|---------------|----------------|--------------|-----------------|---------------|------------|
| 516600001001 | 81 | 22 | 41 | 19 | 34 | 21 | 120 | 21 | 34 | 14 | 97 |
| 516600001002 | 137 | 16 | 114 | 7 | 130 | 2 | 358 | 9 | 113 | 3 | 37 |
| 516600001003 | 154 | 12 | 106 | 8 | 93 | 6 | 224 | 14 | 92 | 4 | 44 |
| 516600001004 | 306 | 3 | 139 | 3 | 107 | 5 | 220 | 16 | 49 | 11 | 38 |
| 516600001005 | 140 | 15 | 122 | 5 | 302 | 1 | 360 | 8 | 26 | 18 | 47 |
| 516600002011 | 102 | 20 | 64 | 15 | 17 | 26 | 301 | 11 | 10 | 23 | 95 |
| 516600002012 | 177 | 9 | 115 | 6 | 72 | 13 | 224 | 15 | 83 | 5 | 48 |
| 516600002013 | 165 | 11 | 51 | 18 | 73 | 12 | 386 | 7 | 52 | 9 | 57 |
| 516600002014 | 358 | 2 | 159 | 2 | 123 | 4 | 259 | 12 | 39 | 13 | 33 |
| 516600002021 | 68 | 23 | 9 | 25 | 18 | 25 | 1,315 | 2 | 7 | 24 | 99 |
| 516600002022 | 24 | 26 | 7 | 26 | 43 | 18 | 23 | 25 | 0 | 25 | 120 |
| 516600002023 | 42 | 25 | 38 | 20 | 86 | 8 | 2,782 | 1 | 81 | 6 | 60 |
| 516600002031 | 119 | 17 | 60 | 16 | 32 | 22 | 132 | 20 | 16 | 21 | 96 |
| 516600002032 | 57 | 24 | 30 | 22 | 20 | 24 | 0 | 26 | 0 | 26 | 122 |
| 516600003001 | 105 | 19 | 27 | 23 | 53 | 16 | 644 | 3 | 28 | 17 | 78 |
| 516600003002 | 254 | 4 | 168 | 1 | 81 | 9 | 87 | 23 | 42 | 12 | 49 |
| 516600003003 | 147 | 14 | 54 | 17 | 56 | 15 | 107 | 22 | 14 | 22 | 90 |
| 516600003004 | 173 | 10 | 33 | 21 | 31 | 23 | 469 | 4 | 31 | 15 | 73 |
| 516600003005 | 112 | 18 | 72 | 13 | 40 | 19 | 394 | 6 | 16 | 20 | 76 |
| 516600003006 | 210 | 7 | 138 | 4 | 129 | 3 | 307 | 10 | 30 | 16 | 40 |
| 516600004001 | 152 | 13 | 25 | 24 | 93 | 7 | 225 | 13 | 125 | 2 | 59 |
| 516600004002 | 182 | 8 | 67 | 14 | 74 | 11 | 204 | 17 | 67 | 7 | 57 |
| 516600004003 | 219 | 5 | 92 | 10 | 80 | 10 | 194 | 19 | 51 | 10 | 54 |
| 516600004004 | 99 | 21 | 74 | 12 | 39 | 20 | 73 | 24 | 25 | 19 | 96 |
| 516600004005 | 879 | 1 | 83 | 11 | 67 | 14 | 409 | 5 | 162 | 1 | 32 |
| 516600004006 | 215 | 6 | 97 | 9 | 44 | 17 | 202 | 18 | 65 | 8 | 58 |

Source: United States Census Bureau. 2000 Census. Summary Files 1 & 3.

Table D-2: Percent Rankings of Block Groups for the City of Harrisonburg

| Block Group Number | Elderly Percent | Elderly Rank | Youth Percent | Youth Rank | Disabled Percent | Disabled Rank | Poverty Percent | Poverty Rank | Autoless Percent | Autoless Rank | Percent Rank |
|--------------------|-----------------|--------------|---------------|------------|------------------|---------------|-----------------|--------------|------------------|---------------|--------------|
| 516600001001 | 13.21 | 15 | 6.69 | 12 | 5.55 | 11 | 19.58 | 12 | 13.03 | 7 | 57 |
| 516600001002 | 11.18 | 18 | 9.31 | 5 | 10.61 | 3 | 29.22 | 8 | 25.17 | 2 | 36 |
| 516600001003 | 9.59 | 20 | 6.60 | 14 | 5.79 | 10 | 13.95 | 18 | 12.14 | 8 | 70 |
| 516600001004 | 13.08 | 16 | 5.94 | 16 | 4.57 | 17 | 9.40 | 22 | 4.92 | 17 | 88 |
| 516600001005 | 10.84 | 19 | 9.45 | 3 | 23.39 | 1 | 27.89 | 9 | 7.07 | 14 | 46 |
| 516600002011 | 1.61 | 25 | 1.01 | 25 | 0.27 | 26 | 4.76 | 25 | 2.37 | 23 | 124 |
| 516600002012 | 12.82 | 17 | 8.33 | 7 | 5.21 | 13 | 16.22 | 15 | 17.93 | 3 | 55 |
| 516600002013 | 15.19 | 8 | 4.70 | 18 | 6.72 | 9 | 35.54 | 5 | 14.33 | 6 | 46 |
| 516600002014 | 15.16 | 9 | 6.73 | 11 | 5.21 | 14 | 10.97 | 20 | 3.61 | 21 | 75 |
| 516600002021 | 4.27 | 24 | 0.56 | 26 | 1.13 | 25 | 82.50 | 1 | 1.58 | 24 | 100 |
| 516600002022 | 5.87 | 23 | 1.71 | 23 | 10.51 | 4 | 5.62 | 23 | 0.00 | 25 | 98 |
| 516600002023 | 1.18 | 26 | 1.07 | 24 | 2.42 | 24 | 78.39 | 2 | 7.07 | 13 | 89 |
| 516600002031 | 15.32 | 7 | 7.72 | 9 | 4.12 | 18 | 16.99 | 14 | 3.77 | 20 | 68 |
| 516600002032 | 13.44 | 14 | 7.08 | 10 | 4.72 | 16 | 0.00 | 26 | 0.00 | 26 | 92 |
| 516600003001 | 7.14 | 22 | 1.84 | 22 | 3.61 | 19 | 43.81 | 3 | 4.90 | 18 | 84 |
| 516600003002 | 15.98 | 6 | 10.57 | 1 | 5.10 | 15 | 5.48 | 24 | 6.75 | 15 | 61 |
| 516600003003 | 21.43 | 3 | 7.87 | 8 | 8.16 | 6 | 15.60 | 16 | 4.61 | 19 | 52 |
| 516600003004 | 14.40 | 10 | 2.75 | 21 | 2.58 | 22 | 39.05 | 4 | 7.19 | 12 | 69 |
| 516600003005 | 8.43 | 21 | 5.42 | 17 | 3.01 | 20 | 29.67 | 7 | 3.17 | 22 | 87 |
| 516600003006 | 14.25 | 11 | 9.36 | 4 | 8.75 | 5 | 20.83 | 10 | 5.01 | 16 | 46 |
| 516600004001 | 21.65 | 2 | 3.56 | 19 | 13.25 | 2 | 32.05 | 6 | 33.42 | 1 | 30 |
| 516600004002 | 18.07 | 5 | 6.65 | 13 | 7.35 | 8 | 20.26 | 11 | 14.96 | 5 | 42 |
| 516600004003 | 20.49 | 4 | 8.61 | 6 | 7.48 | 7 | 18.15 | 13 | 11.64 | 9 | 39 |
| 516600004004 | 13.98 | 12 | 10.45 | 2 | 5.51 | 12 | 10.31 | 21 | 9.03 | 10 | 57 |
| 516600004005 | 32.47 | 1 | 3.07 | 20 | 2.48 | 23 | 15.11 | 17 | 16.51 | 4 | 65 |
| 516600004006 | 13.89 | 13 | 6.27 | 15 | 2.84 | 21 | 13.05 | 19 | 8.72 | 11 | 79 |

Source: United States Census Bureau. 2000 Census. Summary Files 1 & 3.

Table D-3: Density Rankings of Block Groups for the City of Harrisonburg

| Block Group Number | Elderly Density | Elderly Rank | Youth Density | Youth Rank | Disabled Density | Disabled Rank | Poverty Density | Poverty Rank | Autoless Density | Autoless Rank | Density Rank |
|--------------------|-----------------|--------------|---------------|------------|------------------|---------------|-----------------|--------------|------------------|---------------|--------------|
| 516600001001 | 515.34 | 10 | 260.85 | 9 | 216.32 | 8 | 763.47 | 12 | 216.32 | 8 | 47 |
| 516600001002 | 638.01 | 7 | 530.90 | 1 | 605.41 | 1 | 1,667.21 | 4 | 526.24 | 2 | 15 |
| 516600001003 | 417.06 | 14 | 287.07 | 7 | 251.86 | 7 | 606.63 | 14 | 249.15 | 5 | 47 |
| 516600001004 | 456.36 | 12 | 207.30 | 11 | 159.58 | 13 | 328.10 | 17 | 73.08 | 15 | 68 |
| 516600001005 | 81.86 | 23 | 71.34 | 21 | 176.59 | 11 | 210.51 | 21 | 15.20 | 23 | 99 |
| 516600002011 | 555.30 | 9 | 348.43 | 3 | 92.55 | 19 | 1,638.69 | 5 | 54.44 | 17 | 53 |
| 516600002012 | 471.21 | 11 | 306.16 | 5 | 191.68 | 9 | 596.34 | 16 | 220.96 | 7 | 48 |
| 516600002013 | 1,074.71 | 2 | 332.18 | 4 | 475.48 | 3 | 2,514.16 | 2 | 338.70 | 3 | 14 |
| 516600002014 | 211.78 | 18 | 94.06 | 18 | 72.76 | 20 | 153.22 | 22 | 23.07 | 21 | 99 |
| 516600002021 | 82.03 | 22 | 10.86 | 26 | 21.71 | 25 | 1,586.39 | 7 | 8.44 | 24 | 104 |
| 516600002022 | 66.48 | 25 | 19.39 | 24 | 119.10 | 15 | 63.71 | 24 | 0.00 | 25 | 113 |
| 516600002023 | 78.64 | 24 | 71.15 | 22 | 161.02 | 12 | 5,208.90 | 1 | 151.66 | 10 | 69 |
| 516600002031 | 257.61 | 16 | 129.89 | 13 | 69.27 | 21 | 285.76 | 18 | 34.64 | 18 | 86 |
| 516600002032 | 22.83 | 26 | 12.02 | 25 | 8.01 | 26 | 0.00 | 26 | 0.00 | 26 | 129 |
| 516600003001 | 351.05 | 15 | 90.27 | 19 | 177.20 | 10 | 2,153.12 | 3 | 93.61 | 12 | 59 |
| 516600003002 | 131.64 | 20 | 87.07 | 20 | 41.98 | 23 | 45.09 | 25 | 21.77 | 22 | 110 |
| 516600003003 | 824.52 | 5 | 302.88 | 6 | 314.10 | 5 | 600.16 | 15 | 78.53 | 13 | 44 |
| 516600003004 | 586.14 | 8 | 111.81 | 17 | 105.03 | 17 | 1,589.00 | 6 | 105.03 | 11 | 59 |
| 516600003005 | 420.86 | 13 | 270.55 | 8 | 150.31 | 14 | 1,480.54 | 8 | 60.12 | 16 | 59 |
| 516600003006 | 189.87 | 19 | 124.77 | 14 | 116.63 | 16 | 277.57 | 19 | 27.12 | 19 | 87 |
| 516600004001 | 965.96 | 3 | 158.88 | 12 | 591.02 | 2 | 1,429.88 | 9 | 794.38 | 1 | 27 |
| 516600004002 | 704.65 | 6 | 259.40 | 10 | 286.51 | 6 | 789.83 | 10 | 259.40 | 4 | 36 |
| 516600004003 | 869.25 | 4 | 365.17 | 2 | 317.54 | 4 | 770.02 | 11 | 202.43 | 9 | 30 |
| 516600004004 | 91.98 | 21 | 68.75 | 23 | 36.23 | 24 | 67.82 | 23 | 23.23 | 20 | 111 |
| 516600004005 | 1,307.09 | 1 | 123.42 | 15 | 99.63 | 18 | 608.19 | 13 | 240.90 | 6 | 53 |
| 516600004006 | 249.13 | 17 | 112.40 | 16 | 50.98 | 22 | 234.06 | 20 | 75.32 | 14 | 89 |

Source: United States Census Bureau. 2000 Census. Summary Files 1 & 3.

